

# Python + AWS Lambda + Twilio

Using Python, Twilio and AWS Lambda to create a texting app.

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# Guidelines

- Create a proof of concept trivia texting app in 30 mins or less
- No servers
- Don't know a lot about Python - hopefully will want to learn more :)

# Inspiration: Call Me In 5

- Quit asking friends to interrupt dates and meetings.
- Feel important
- Get interrupted by just telling `Call Me In 5` to call you in 5 mins (or whatever)

**Try it out!**

**Text "Hey" to 317-854-0143**

## Technologies used:

- AWS Lambda
- AWS API Gateway
- Python 2.7
- Twilio

# Getting Started

- Does not take a lot of code
- More Lambda and API Gateway configuration than code for a very simple app


# Minimal code required


```
def lambda_handler(event, context):  
    return "Thanks for texting"
```


# Create Lambda Function in AWS

[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.  


**Author from scratch** [Info](#)

Name

Runtime

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.

The custom role creation experience will open in a new tab. Ensure that popups are enabled to create a custom role.

[Cancel](#) [Create function](#)



# Create your custom role

▼ Hide Details

---

## Role Summary ?

---

**Role Description**

Lambda execution role permissions

**IAM Role**

Create a new IAM Role



**Role Name**

lambda\_basic\_execution

► View Policy Document

# Add an API Gateway

twilio\_test\_2

ThrottleQualifiersActionsSelect a test event..TestSave


API Gateway

AWS IoT


Alexa Skills Kit

Alexa Smart Home

CloudFront

 API Gateway  
Configuration required

Add triggers from the list on the left

 Amazon CloudWatch Logs

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.

twilio\_test\_2\_api

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

development

**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.

CancelAdd

# Add Code

```
def lambda_handler(event, context):

    message = unicode(str(event['Body']), 'utf-8')
    phone_number = event['From']

    if message.lower() == u"start":
        return "In California, it is illegal to eat oranges whi
    elif message == "2" or message.lower() == "bathing":
        return "Lucky guess"
    elif message == "1" or message.lower() == "gardening":
        return "Wrong, you lose"
    elif message == "3" or message.lower() == "driving":
        return "Nope"
    elif message == "4" or message.lower() == "working on a com
        return "It is literally impossible for you to be more w
```

# Add Code

1. In your local environment create a new project folder
2. Add a file called `lambda_function.py`
3. Download the Python Twilio Library
4. Zip `lambda_function.py` and the `twilio` folder
5. Upload .zip file to lambda

# Add Code

**twilio\_test**

ThrottleQualifiers▼Actions▼SimpleTestEvent▼TestSave

**Function code** [Info](#)

Code entry type: Edit code inline▼Runtime: Python 2.7▼Handler: [Info](#) lambda\_function.lambda\_handler

Environment

- twilio\_test
  - twilio
    - lambda\_function.py
    - lambda\_function\_2.py

lambda\_function × +

```
1 def lambda_handler(event, context):
2
3     message = unicode(str(event['Body']), 'utf-8')
4     phone_number = event['From']
5
6     if message.lower() == u"start":
7         return "In California, it is illegal to eat oranges while doing what?\n1) Gardening\n2) Bathing\n3) Driving\n4) Working on a computer";
8     elif message == "2" or message.lower() == "bathing":
9         return "Lucky guess"
10    elif message == "1" or message.lower() == "gardening":
11        return "Wrong, you lose"
12    elif message == "3" or message.lower() == "driving":
13        return "Nope"
14    elif message == "4" or message.lower() == "working on a computer":
15        return "It is literally impossible for you to be more wrong"
```

13:22 Python Spaces: 4 ⚙

Execution Result × +

▼ Execution results

Status: **Succeeded** Max Memory Used: 19 MB Time: 0.22 ms

# Configure your test event

Throttle

Qualifiers ▼


Actions ▼

SimpleTestEvent ▼


Saved Test EventsSimpleTestEventConfigure test events

Test

Save

 twilio\_test  
✓ Saved

(2)

 Amazon CloudWatch Logs

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

# Configure your test event

## 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

Saved Test Event

SimpleTestEvent

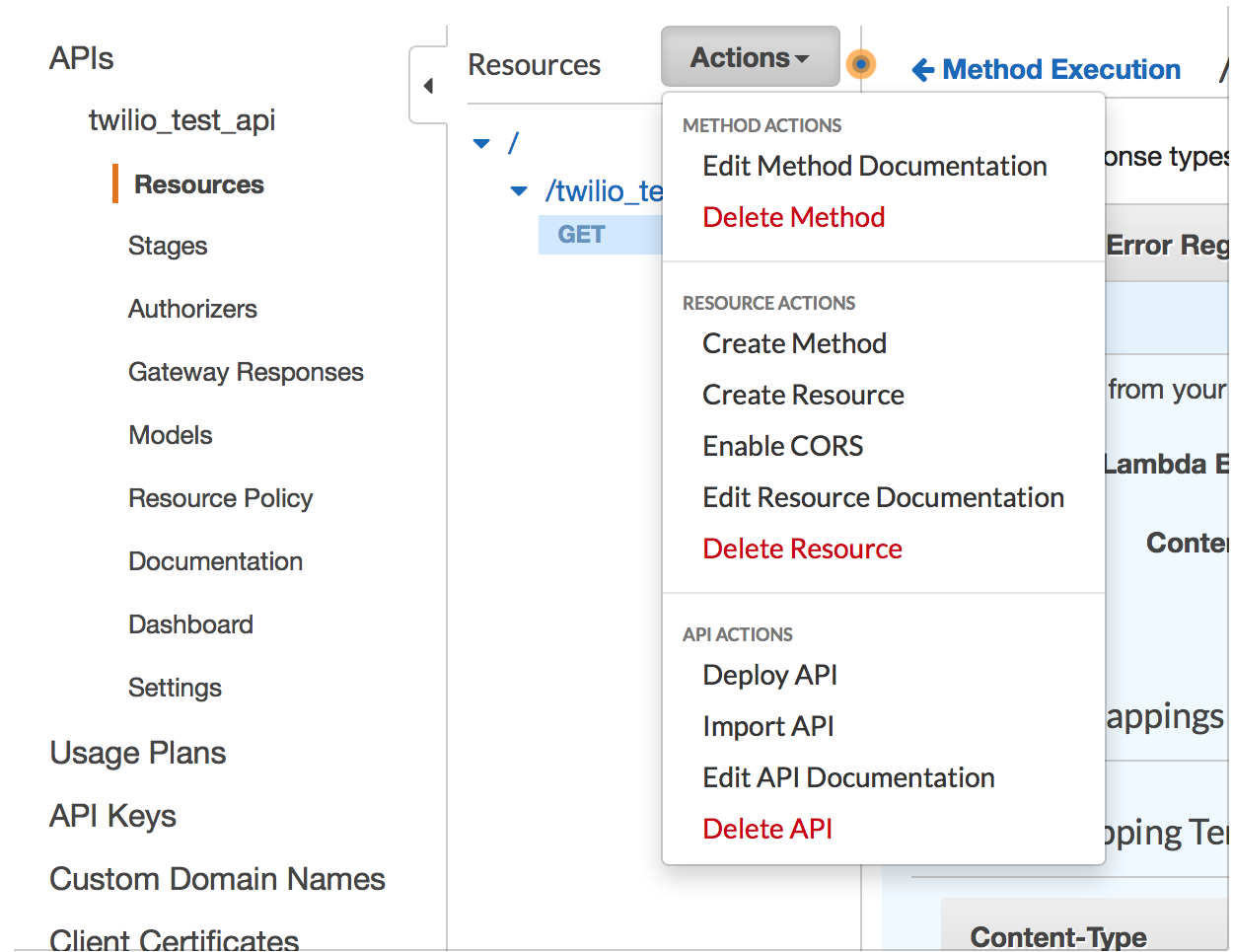
```
1 {  
2   "Body": "start",  
3   "From": "+13179993921"  
4 }
```

Delete Cancel Save

**Configure your API**



# Create a new "GET" method



# Create a new "GET" method

Enter your lamda

Choose the integration point for your new method.

Integration type ☒ Lambda Function ⓘ

☐ HTTP ⓘ

☐ Mock ⓘ

☐ AWS Service ⓘ

☐ VPC Link ⓘ

Use Lambda Proxy integration ☐ ⓘ

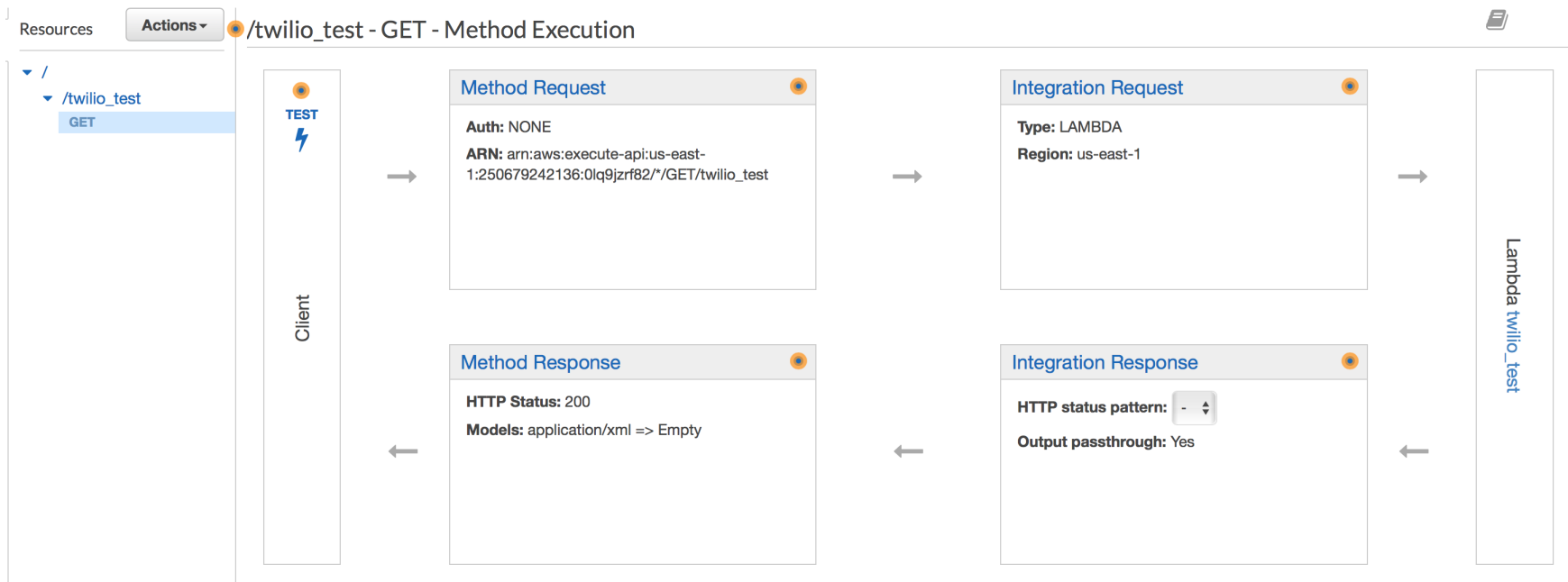
Lambda Region

Lambda Function  ⓘ

Use Default Timeout ☒ ⓘ

Save

# Get Method Details



# Integration Request


## Insert template to transform GET params to JSON

### ▼ Body Mapping Templates

**Request body passthrough**  When no template matches the request Content-Type header  


☐ When there are no templates defined (recommended) 

☐ Never 

Content-Type	
application/json	

 [Add mapping template](#)

application/json

Generate template:  



```
1 {  
2   "Body" : "$input.params('Body')",  
3   "From" : "$input.params('From')"  
4 }
```

Cancel



Save

# Method Response

Change to `application/xml`


 [Method Execution](#) /twilio\_test - GET - Method Response 

Provide information about this method's response types, their headers and content types.

HTTP Status	
▼ 200	 



### Response Headers for 200


Name
No headers

 [Add Header](#)

### Response Body for 200

Content type	Models
application/xml	Empty

 [Add Response Model](#)

# Integration Response

Change to `application/xml` , enter in Twilio XML Format as template

▼ Body Mapping Templates

Content-Type

application/xml

+

+

 Add mapping template

application/xml

Generate template:

1

#set(\$inputRoot = \$input.path('\$'))

2

<?xml version="1.0" encoding="UTF-8"?>

3

<Response>

4

<Message>

5

<Body>

6

\$inputRoot

7

</Body>

8

</Message>

9

</Response>

Cancel

Save

# Almost forgot - Deploy your API !!

Save yourself wasted debugging time

## API ACTIONS

Deploy API

Import API

Edit API Documentation

Delete API

# Setup Twilio

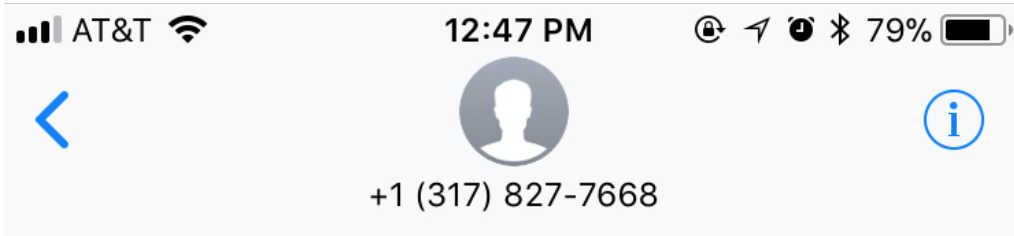
1. Create New Phone Number
2. Go to Manage Numbers > Active Numbers
3. Select your Phone Number
4. Edit Messaging WebHook - Insert your API Url

## Messaging

CONFIGURE WITH	Webhooks, TwiML Bins, Functions, Studio, or Proxy ▼		
A MESSAGE COMES IN	Webhook ▼	<input type="text" value="https://0lq9jzrf82.execute-api.us-east-1.amazonaws.com/development/twilio_"/>	HTTP GET ▼
PRIMARY HANDLER FAILS	Webhook ▼	<input type="text"/>	HTTP POST ▼



# End Results



Text Message  
Today 12:47 PM

Start

In California, it is illegal to eat oranges while doing what?

- 1) Gardening
- 2) Bathing
- 3) Driving
- 4) Working on a computer



Text Message



**You are ready to test!**

**Text "Start" to 317-827-7668**

# Connect

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