Python and AWS Lambda

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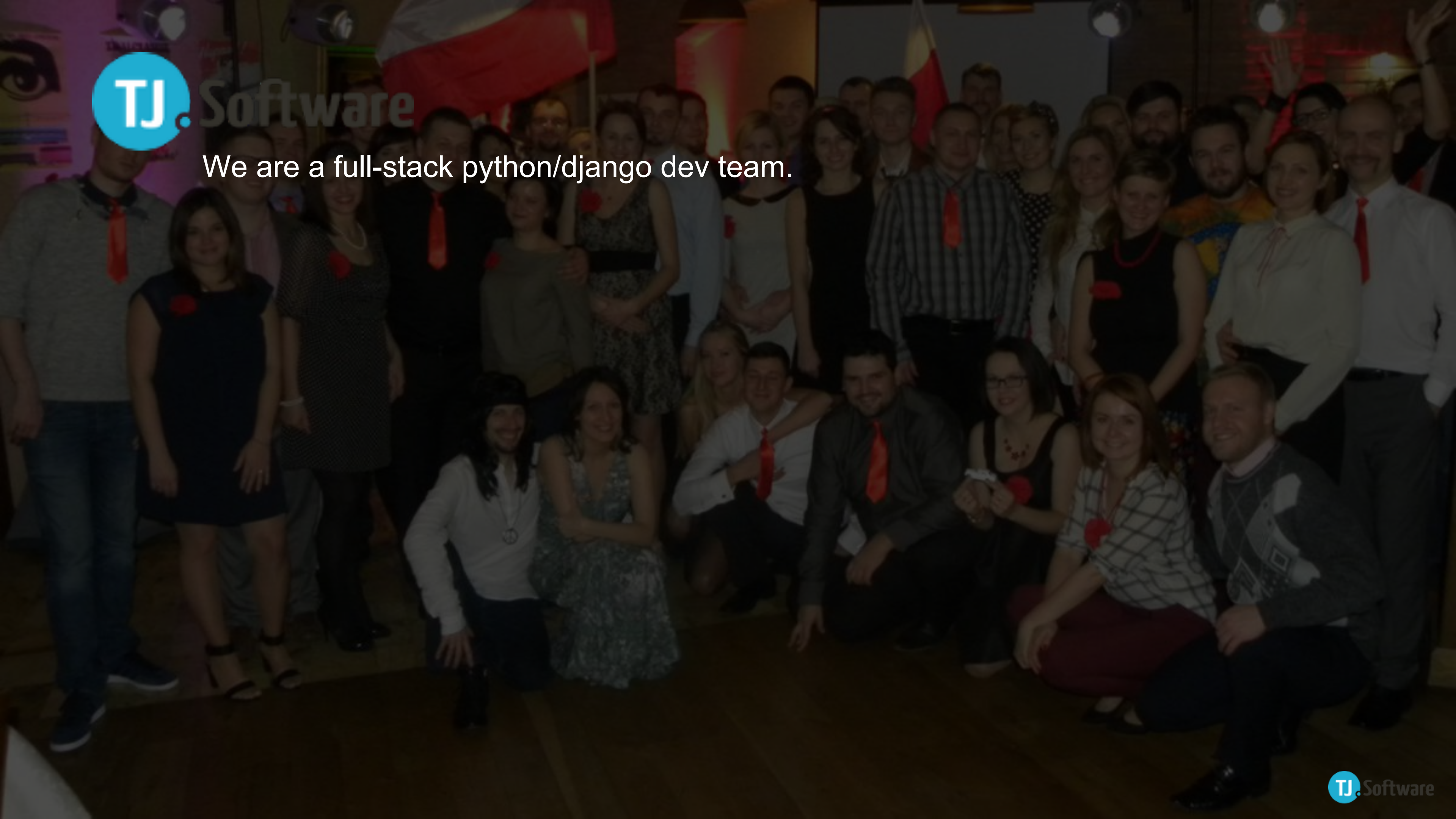
Tomasz Roszko

He got his start as a web developer in 2007 working for “Netstation” and writing internet applications for one of the largest publishing companies in Poland. During this time he worked extensively with Django, Pylons, and the RED DOT CMS. In 2009 he started his own company creating a team of passionate Python/Django developers. He is currently the leader of this development team based in Bialystok Poland. He is also CTO of Opentopic and Learnicious. Previously he has worked with a number of industry leaders such as RevSquare, NowWeComply, BlueIce, FlowLabs and MediaPolis.



We are a full-stack python/django dev team.

AWS Lambda

- Run code within milliseconds of an event.
- Scale up without your input from few to thousands of requests
- Run thousands of your functions in parallel with same high performance
- Billing is metered in increments of 100 milliseconds
- Maximum 1GB of memory for lambda function

- Your code can not run more than 60 seconds .
- By default you can use only Node.js
- Default parallel functions run is 100 (You can write to amazon to remove or make it bigger)

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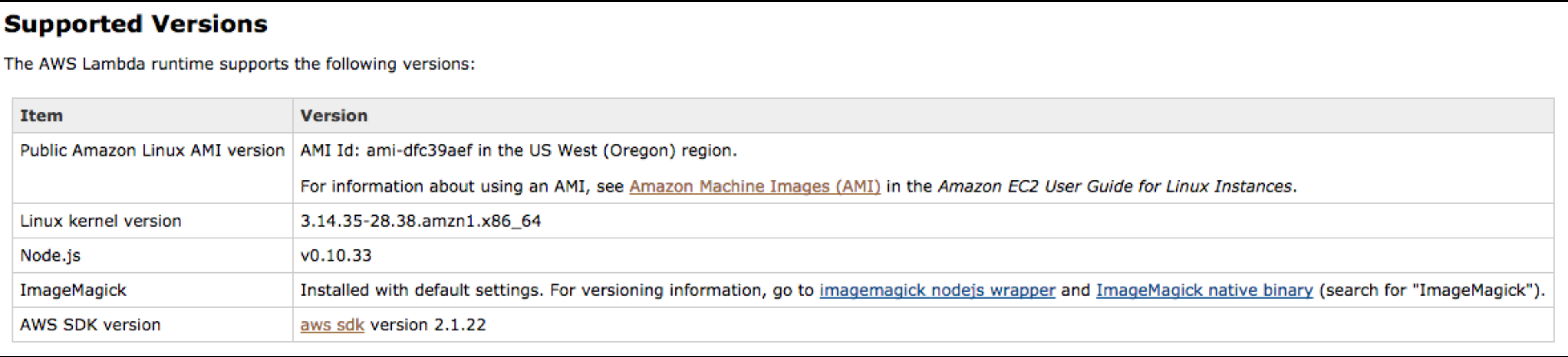
AWS Lambda



Supported Versions

The AWS Lambda runtime supports the following versions:

Item	Version
Public Amazon Linux AMI version	AMI Id: ami-dfc39aef in the US West (Oregon) region. For information about using an AMI, see Amazon Machine Images (AMI) in the *Amazon EC2 User Guide for Linux Instances*.
Linux kernel version	3.14.35-28.38.amzn1.x86_64
Node.js	v0.10.33
ImageMagick	Installed with default settings. For versioning information, go to imagemagick nodejs wrapper and ImageMagick native binary (search for "ImageMagick").
AWS SDK version	aws sdk version 2.1.22

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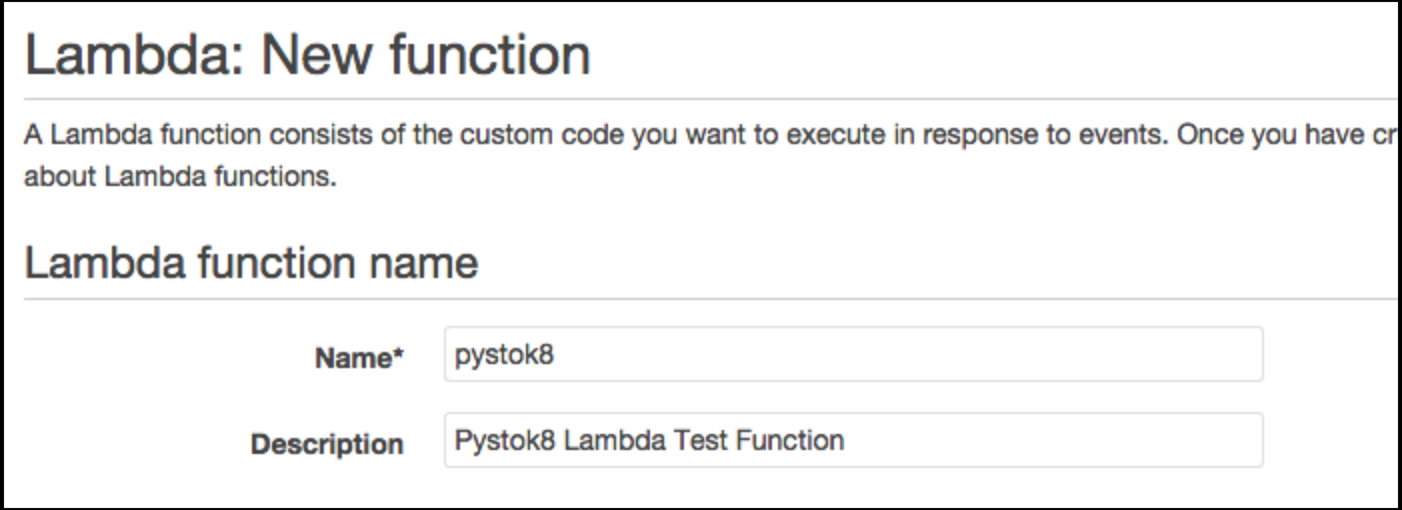
AWS Lambda

How lambda function can be invoke:

- manually
- s3 event
- kinesis stream
- sns notification
- cognito sync trigger
- DynamoDB (2 regions available and not for everyone atm)

AWS Lambda



Lambda: New function

A Lambda function consists of the custom code you want to execute in response to events. Once you have cr
about Lambda functions.

Lambda function name

Name*	pystok8
Description	Pystok8 Lambda Test Function

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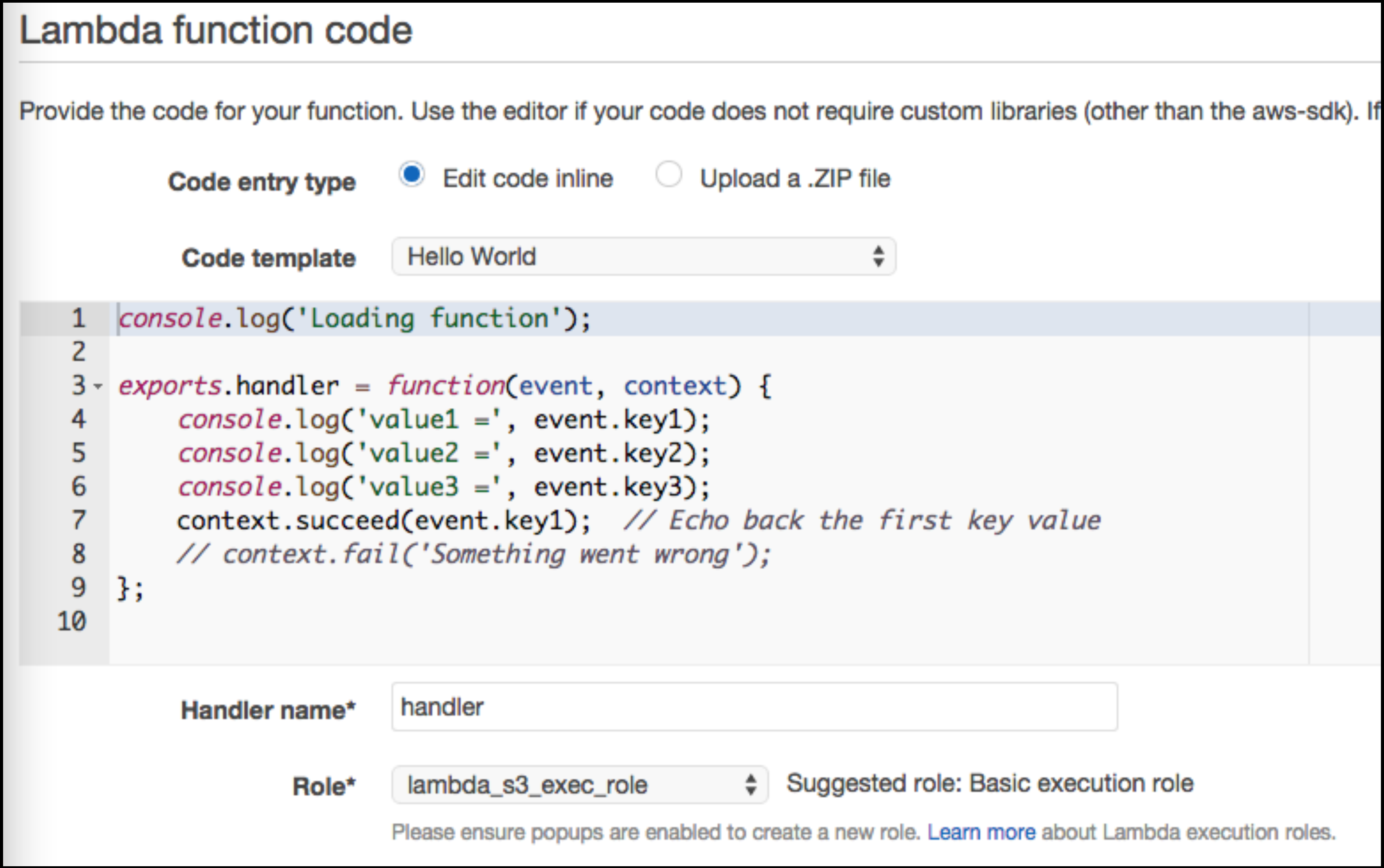


Lambda function code

Provide the code for your function. Use the editor if your code does not require custom libraries (other than the aws-sdk). If

Code entry type [✓ Edit code inline] Upload a .ZIP file

Code template: Hello World

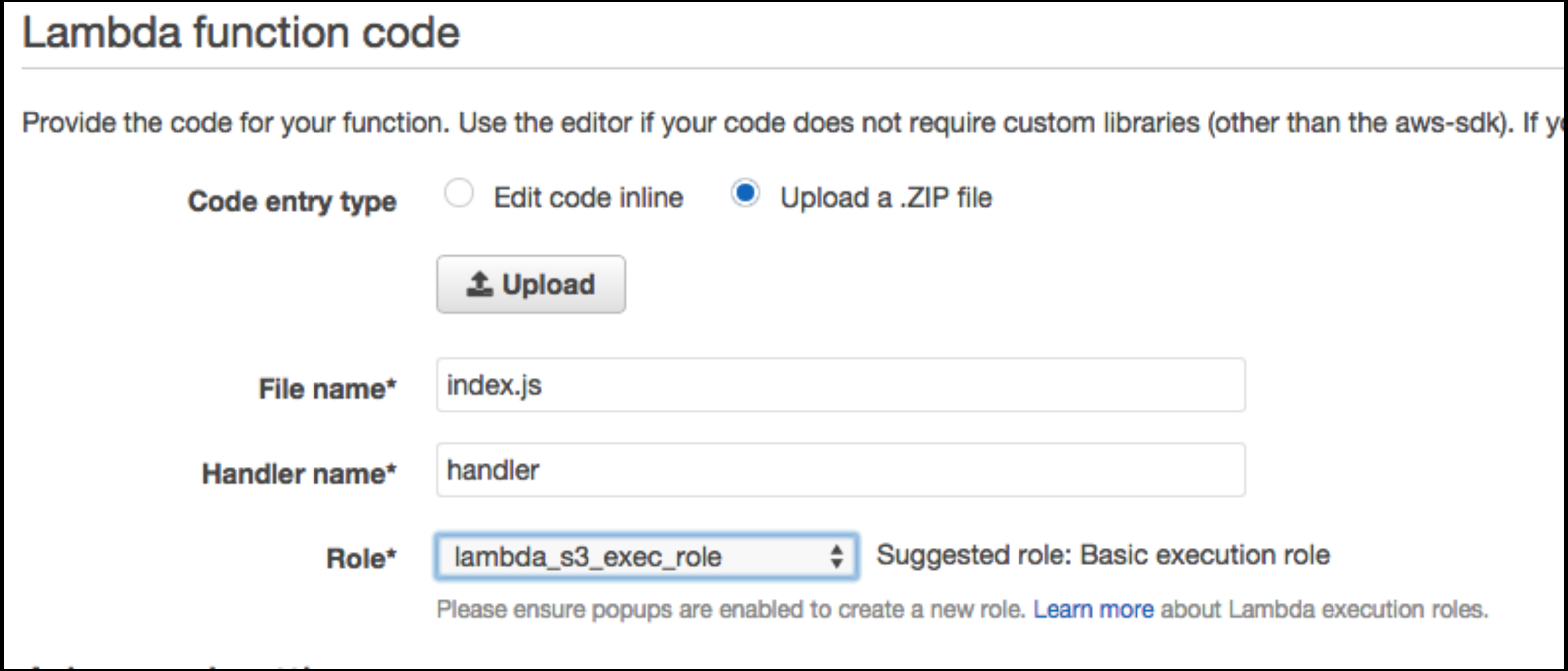
```
console.log('Loading function');

exports.handler = function(event, context) {
    console.log('value1 =', event.key1);
    console.log('value2 =', event.key2);
    console.log('value3 =', event.key3);
    context.succeed(event.key1);  // Echo back the first key value
    // context.fail('Something went wrong');
};

```

Handler name*: handler

Role*: lambda_s3_exec_role — Suggested role: Basic execution role

Please ensure popups are enabled to create a new role. Learn more about Lambda execution roles.

AWS Lambda



Lambda function code

Provide the code for your function. Use the editor if your code does not require custom libraries (other than the aws-sdk). If y

Code entry type: Edit code inline [✓ Upload a .ZIP file]

Upload

File name*: index.js

Handler name*: handler

Role*: lambda_s3_exec_role

Suggested role: Basic execution role

Please ensure popups are enabled to create a new role. Learn more about Lambda execution roles.

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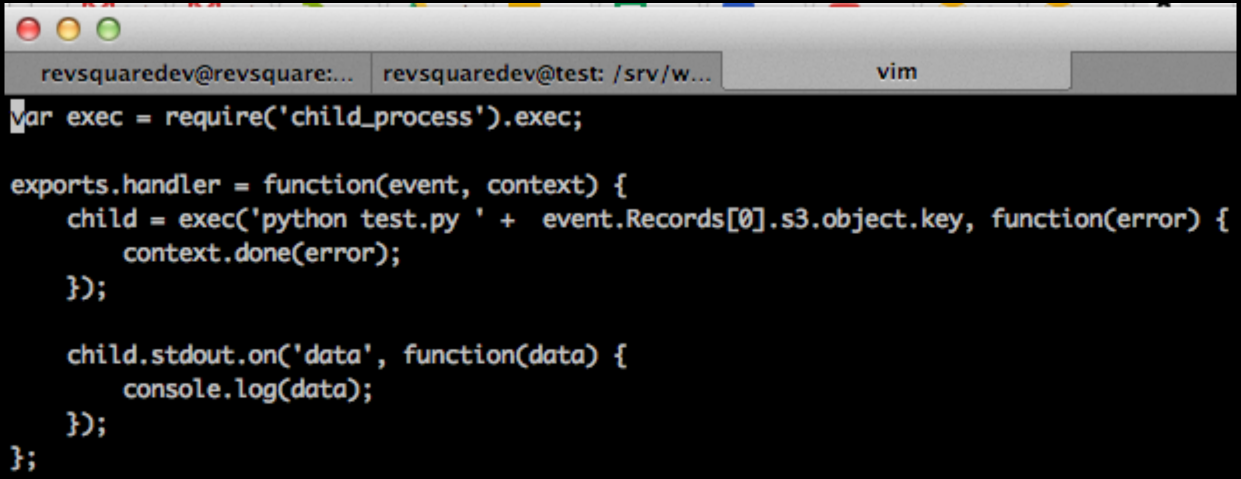
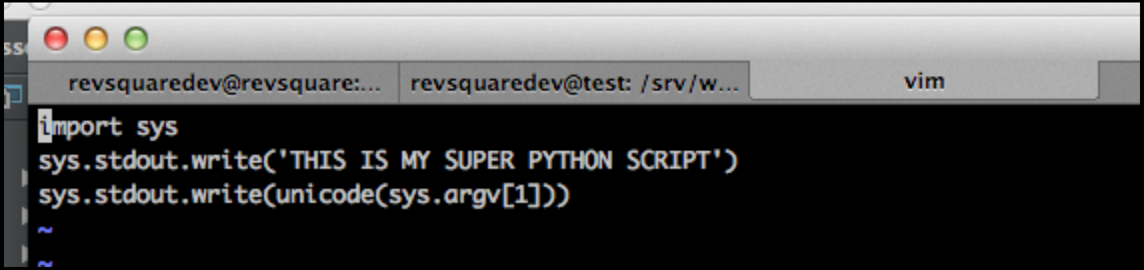


```
var exec = require('child_process').exec;

exports.handler = function(event, context) {
    child = exec('python test.py ' +  event.Records[0].s3.object.key, function(error) {
        context.done(error);
    });

    child.stdout.on('data', function(data) {
        console.log(data);
    });
};
```



```
import sys
sys.stdout.write('THIS IS MY SUPER PYTHON SCRIPT')
sys.stdout.write(unicode(sys.argv[1]))
~
~
```

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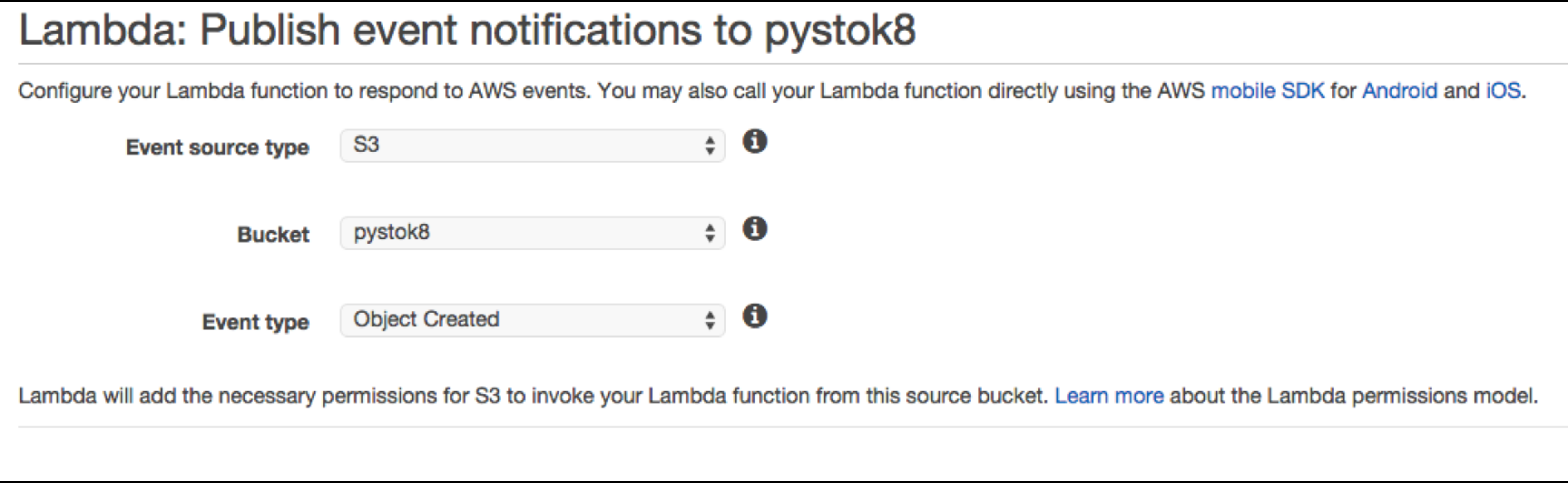
AWS Lambda

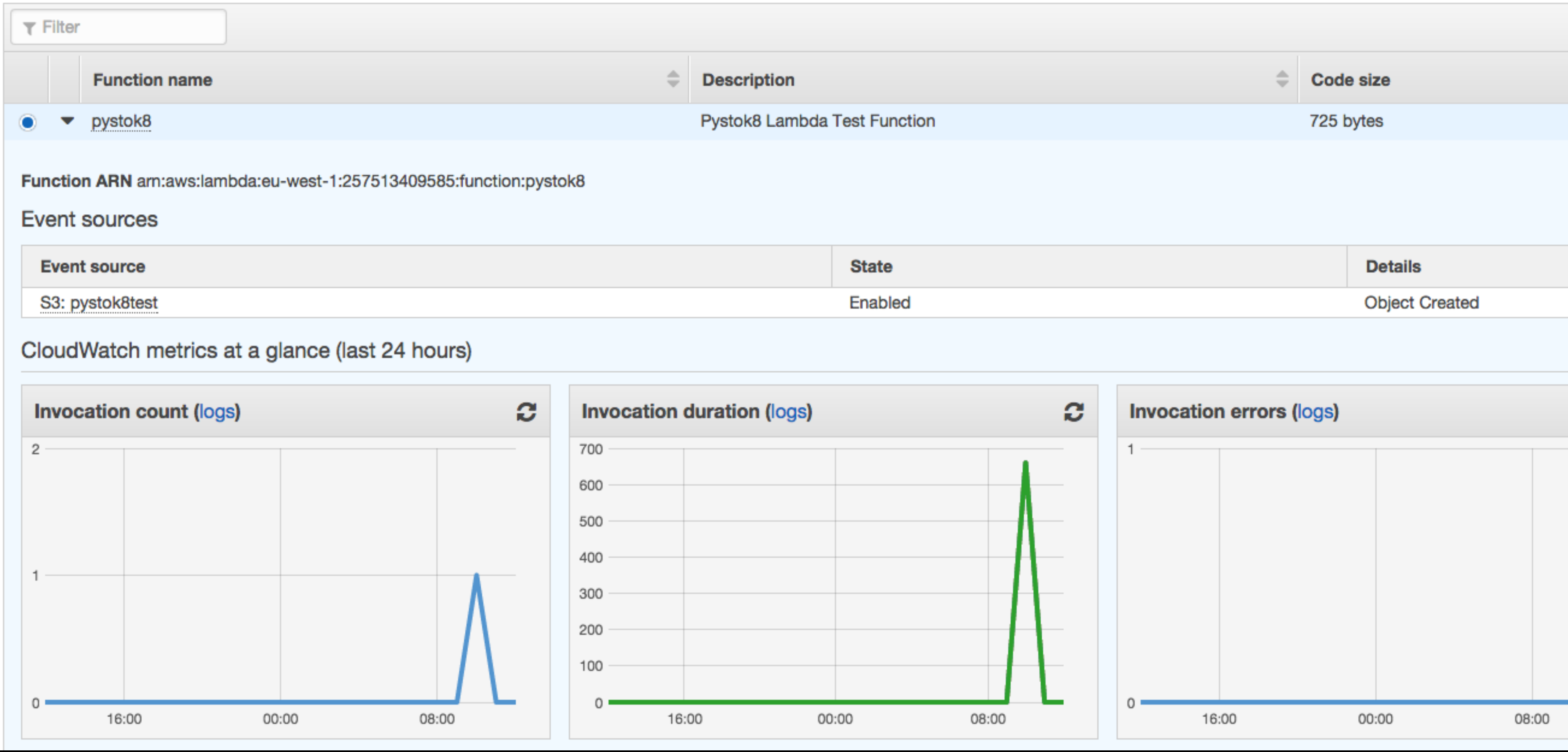


Lambda: Publish event notifications to pystok8

Configure your Lambda function to respond to AWS events. You may also call your Lambda function directly using the AWS mobile SDK for Android and iOS.

Event source type	S3
Bucket	pystok8
Event type	Object Created

Lambda will add the necessary permissions for S3 to invoke your Lambda function from this source bucket. Learn more about the Lambda permissions model.



Filter

		Function name	Description	Code size
●	▼	pystok8	Pystok8 Lambda Test Function	725 bytes

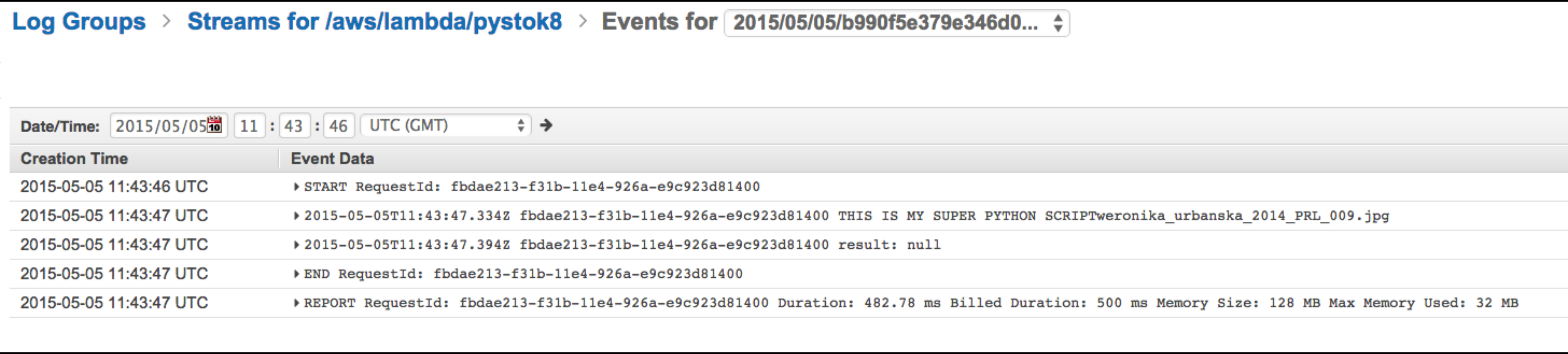
Function ARN arn:aws:lambda:eu-west-1:257513409585:function:pystok8

Event sources

Event source	State	Details
S3: pystok8test	Enabled	Object Created

CloudWatch metrics at a glance (last 24 hours)

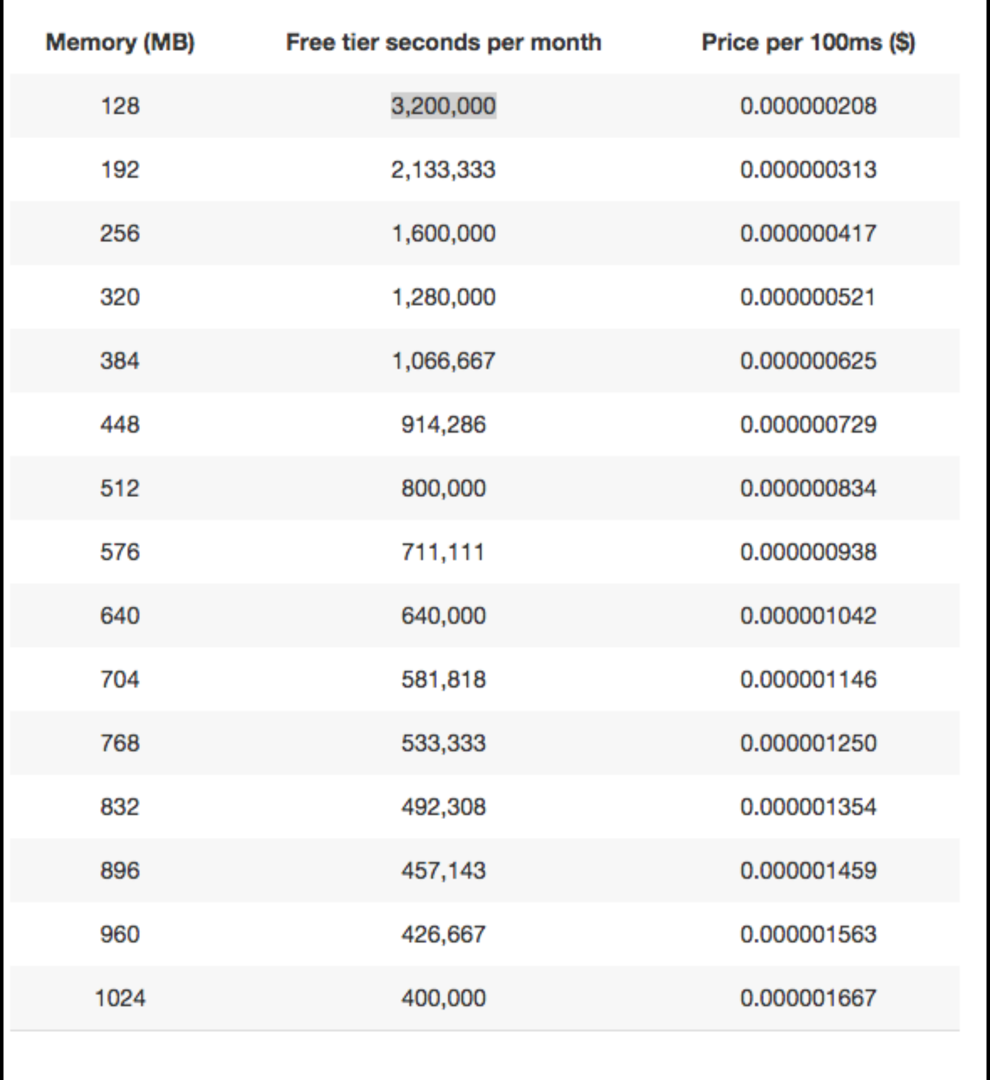
AWS Lambda



Log Groups > Streams for /aws/lambda/pystok8 > Events for 2015/05/05/b990f5e379e346d0...

Date/Time: 2015/05/05 11 : 43 : 46 UTC (GMT)

Creation Time	Event Data
2015-05-05 11:43:46 UTC	`START RequestId: fbdae213-f31b-11e4-926a-e9c923d81400`
2015-05-05 11:43:47 UTC	`2015-05-05T11:43:47.334Z fbdae213-f31b-11e4-926a-e9c923d81400 THIS IS MY SUPER PYTHON SCRIPTweronika_urbanska_2014_PRL_009.jpg`
2015-05-05 11:43:47 UTC	`2015-05-05T11:43:47.394Z fbdae213-f31b-11e4-926a-e9c923d81400 result: null`
2015-05-05 11:43:47 UTC	`END RequestId: fbdae213-f31b-11e4-926a-e9c923d81400`
2015-05-05 11:43:47 UTC	`REPORT RequestId: fbdae213-f31b-11e4-926a-e9c923d81400 Duration: 482.78 ms Billed Duration: 500 ms Memory Size: 128 MB Max Memory Used: 32 MB`



Memory (MB)	Free tier seconds per month	Price per 100ms ($)
128	3,200,000	0.000000208
192	2,133,333	0.000000313
256	1,600,000	0.000000417
320	1,280,000	0.000000521
384	1,066,667	0.000000625
448	914,286	0.000000729
512	800,000	0.000000834
576	711,111	0.000000938
640	640,000	0.000001042
704	581,818	0.000001146
768	533,333	0.000001250
832	492,308	0.000001354
896	457,143	0.000001459
960	426,667	0.000001563
1024	400,000	0.000001667

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- Lambda
- Machine Learning
- Redshift
- DynamoDB

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