AWS LAMBDA

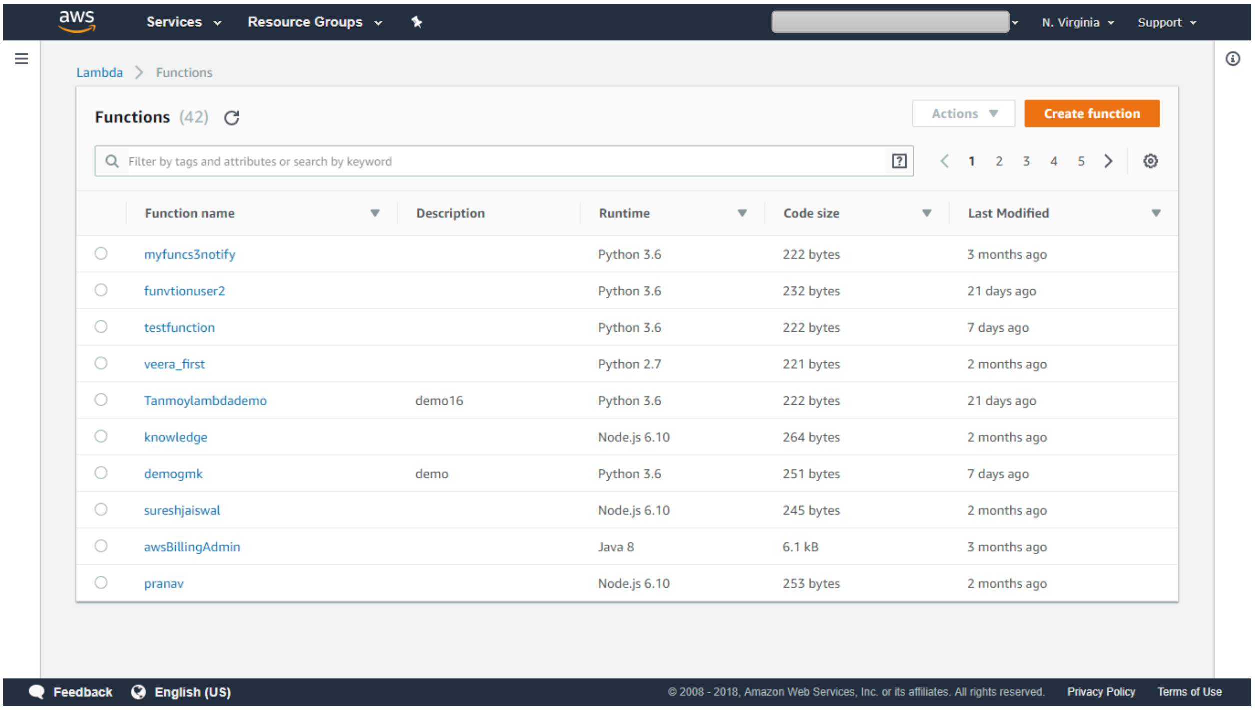
ACCENTURE CDC2

AWS LAMBDA

In this document we will discuss with serverless computing model from Amazon called Lambda. AWS lambda allows you to write your application or a small snippet of code to run on a scheduled time or as a background service on behalf of your application.

Let's take a scenario to understand the working principle of AWS Lambda. Create a function to get the objects of the S3 (Simple Storage Service) once the function is triggered it should list the Objects of the S3.

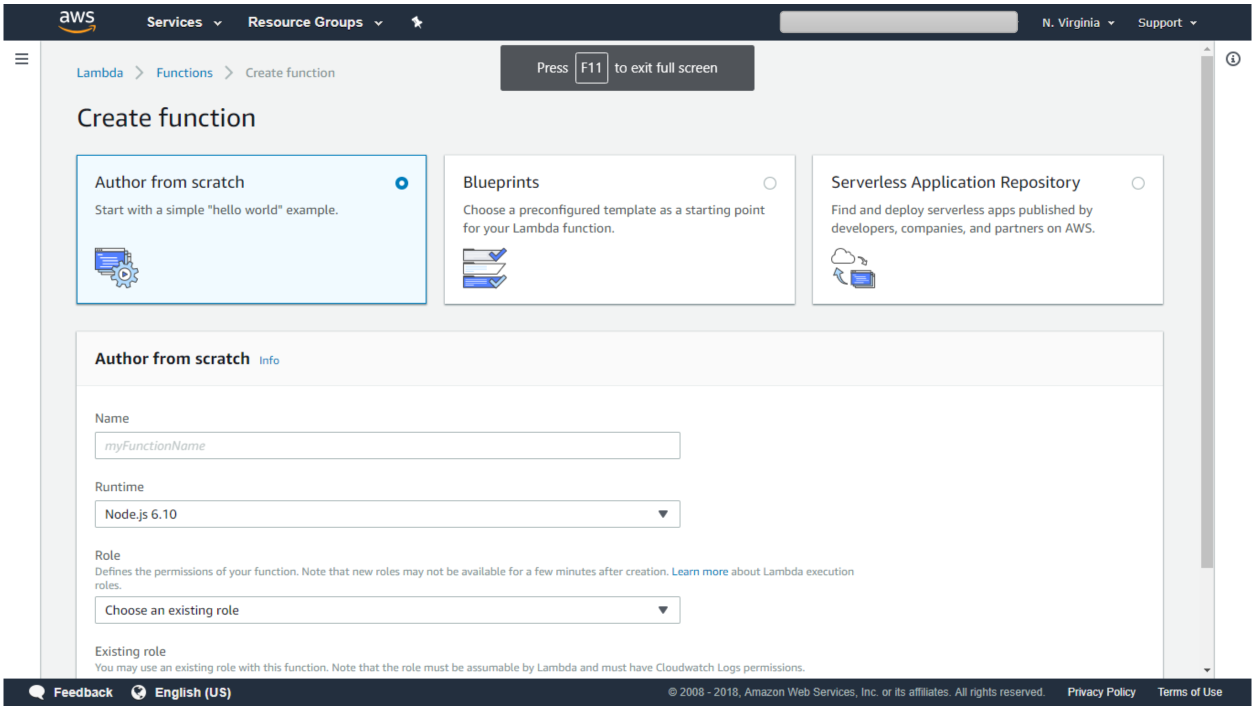
Step1: Lets Proceed with sample blueprint available in the AWS to list the objects of the bucket in S3 using the Python Programming.



Functions (42)

	Function name	Description	Runtime	Code size	Last Modified
○	myfuncs3notify		Python 3.6	222 bytes	3 months ago
○	funvtionuser2		Python 3.6	232 bytes	21 days ago
○	testfunction		Python 3.6	222 bytes	7 days ago
○	veera_first		Python 2.7	221 bytes	2 months ago
○	Tanmoylambdademo	demo16	Python 3.6	222 bytes	21 days ago
○	knowledge		Node.js 6.10	264 bytes	2 months ago
○	demogmk	demo	Python 3.6	251 bytes	7 days ago
○	sureshjaiswal		Node.js 6.10	245 bytes	2 months ago
○	awsBillingAdmin		Java 8	6.1 kB	3 months ago
○	pranav		Node.js 6.10	253 bytes	2 months ago

Create a function for the implementation of the scenario.


aws
Services
Resource Groups
N. Virginia
Support
Press F11 to exit full screen
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: myFunctionName

Runtime: Node.js 6.10

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.

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.

Feedback
English (US)
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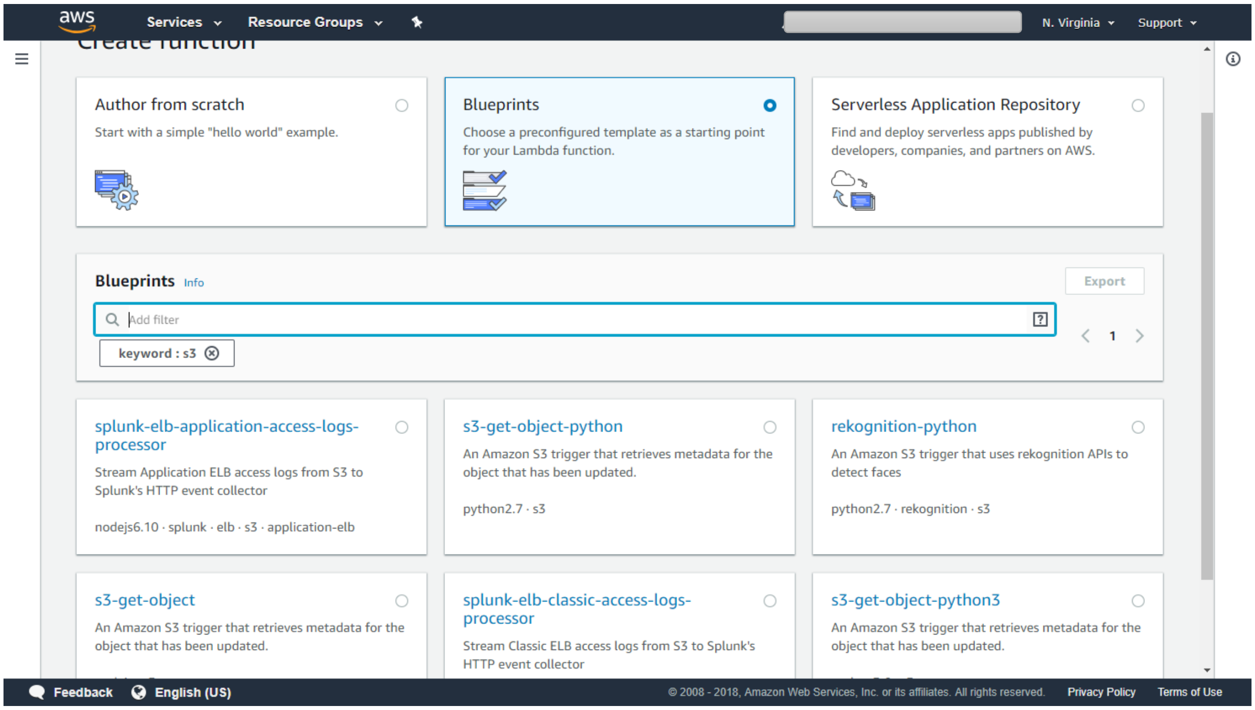
In this scenario proceed with the Blueprint i.e., the preconfigured template available in the options.



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
Add filter
keyword : s3
1

splunk-elb-application-access-logs-processor ○
Stream Application ELB access logs from S3 to Splunk's HTTP event collector
nodejs6.10 · splunk · elb · s3 · application-elb

s3-get-object-python ○
An Amazon S3 trigger that retrieves metadata for the object that has been updated.
python2.7 · s3

rekognition-python ○
An Amazon S3 trigger that uses rekognition APIs to detect faces
python2.7 · rekognition · s3

s3-get-object ○
An Amazon S3 trigger that retrieves metadata for the object that has been updated.

splunk-elb-classic-access-logs-processor ○
Stream Classic ELB access logs from S3 to Splunk's HTTP event collector

s3-get-object-python3 ○
An Amazon S3 trigger that retrieves metadata for the object that has been updated.

Feedback
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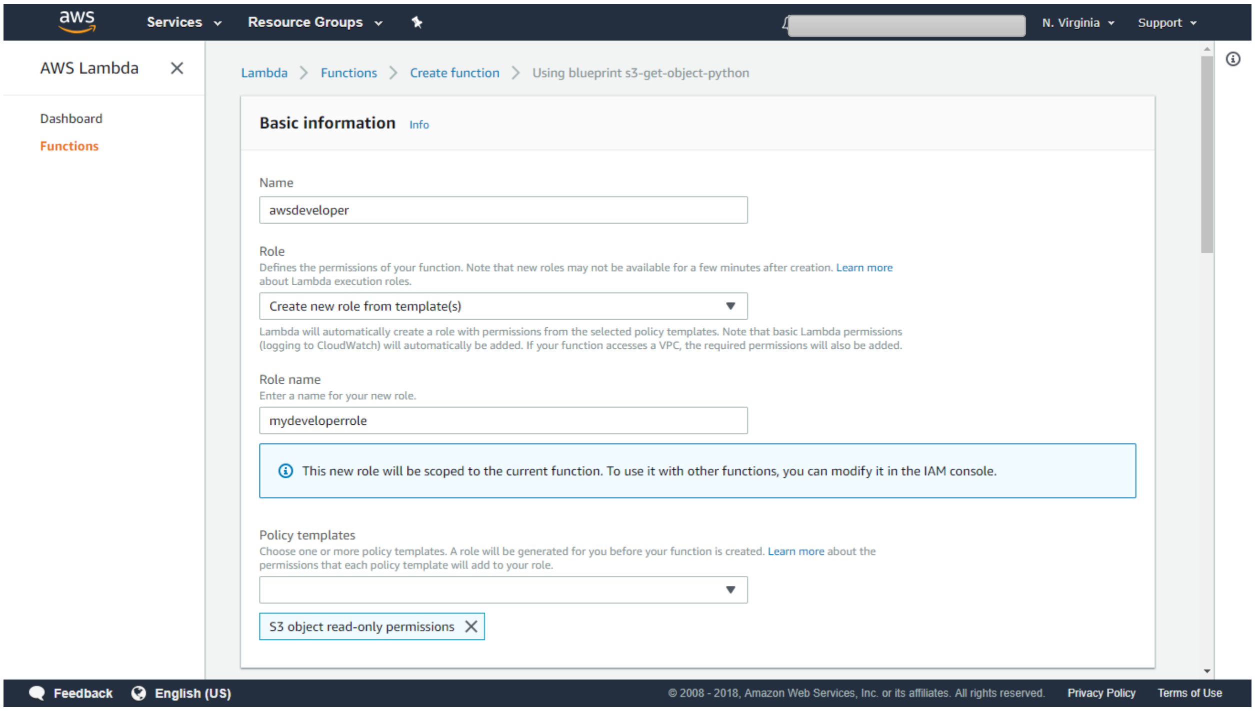
Select S3-get-object-python preconfigured template, once this function is triggered we will get the metadata information of the objects in the bucket.

Provide the basic information for the Lambda function and assign the required role to the function to access the required services in AWS.

Then select the bucket in which it needs to find the objects metadata information. Since the platform we have chosen is python we can to inline editing of the code. We can also do inline code editing in case of NodeJS as well. If we choose any other platform like Java we need to package the code with the procedure given by AWS.

Also, in python if any external library is used other than the python system library and boto3 Module then also we need to create it as a package as per the procedure.



[redacted]

Lambda > Functions > Create function > Using blueprint s3-get-object-python

Basic information Info

Name

awsdeveloper

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.

Create new role from template(s) ▼

Lambda will automatically create a role with permissions from the selected policy templates. Note that basic Lambda permissions (logging to CloudWatch) will automatically be added. If your function accesses a VPC, the required permissions will also be added.

Role name

Enter a name for your new role.

mydeveloperrole

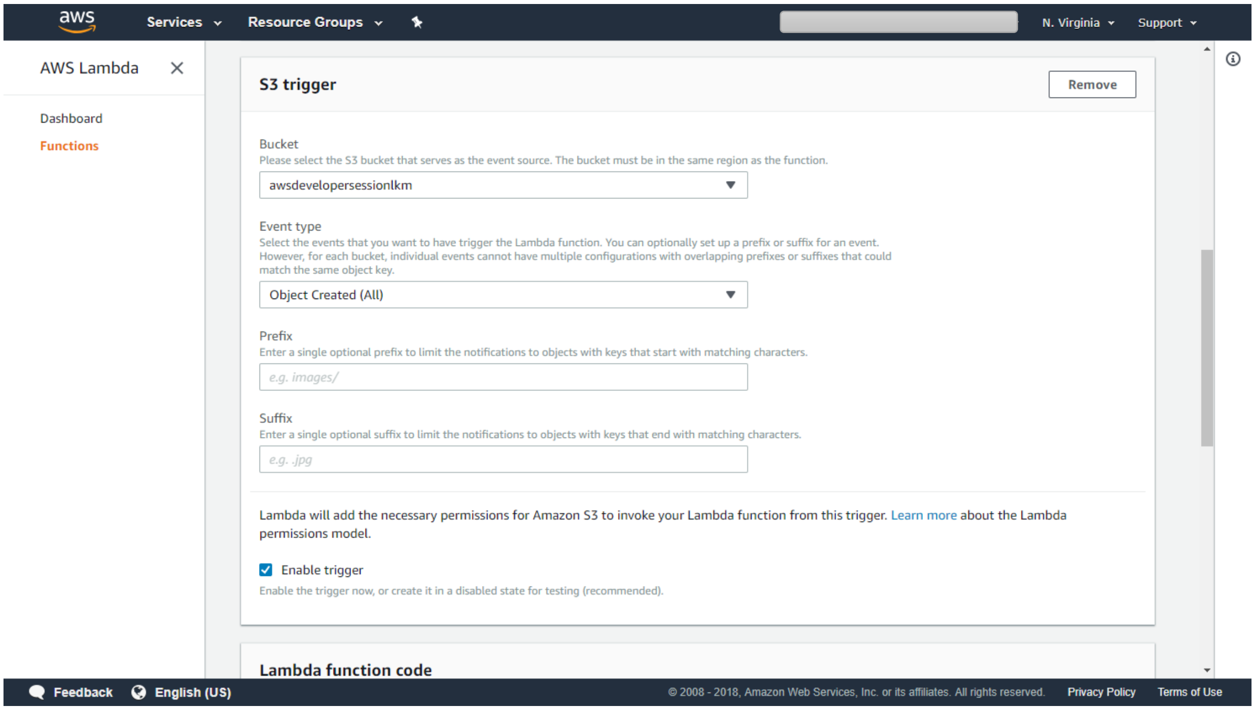
ⓘ This new role will be scoped to the current function. To use it with other functions, you can modify it in the IAM console.

Policy templates

Choose one or more policy templates. A role will be generated for you before your function is created. Learn more about the permissions that each policy template will add to your role.

▼

S3 object read-only permissions ✕



[redacted]

S3 trigger

Bucket

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

awsdevelopersessionlkm ▼

Event type

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

Object Created (All) ▼

Prefix

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

e.g. images/

Suffix

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

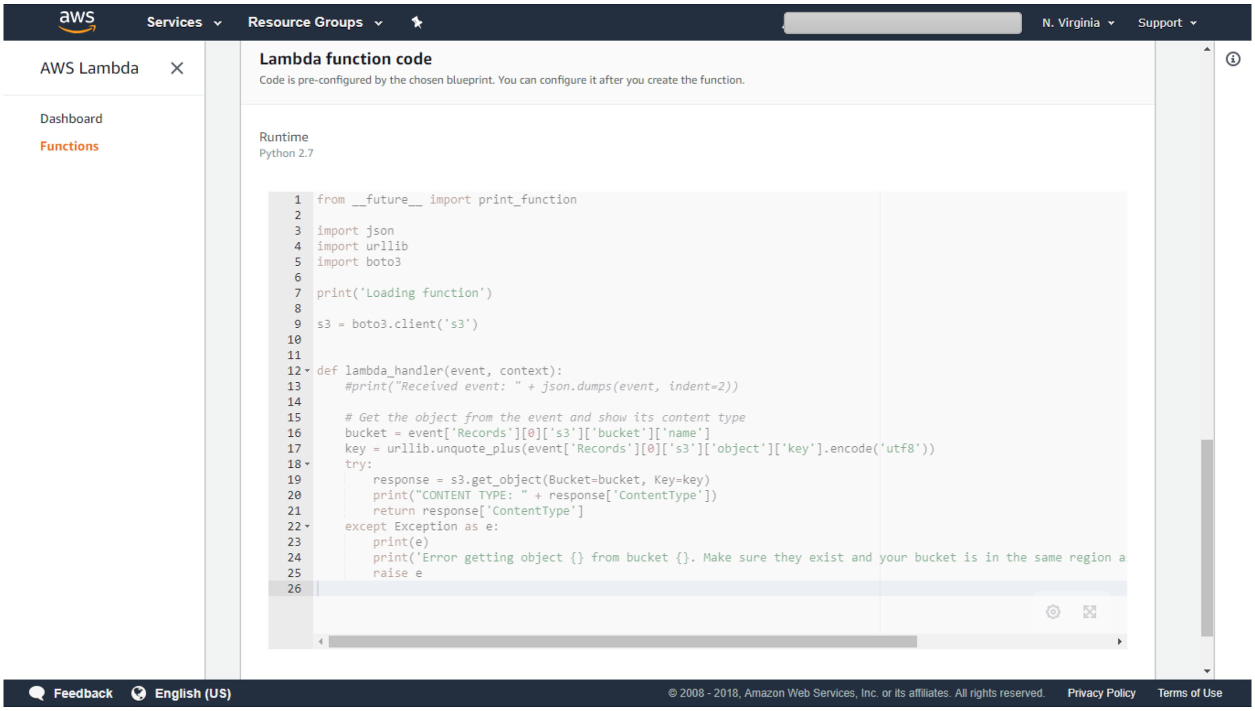
e.g. .jpg

Lambda will add the necessary permissions for Amazon S3 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).

Lambda function code



Lambda function code

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

Runtime
Python 2.7

```
from __future__ import print_function

import json
import urllib
import boto3

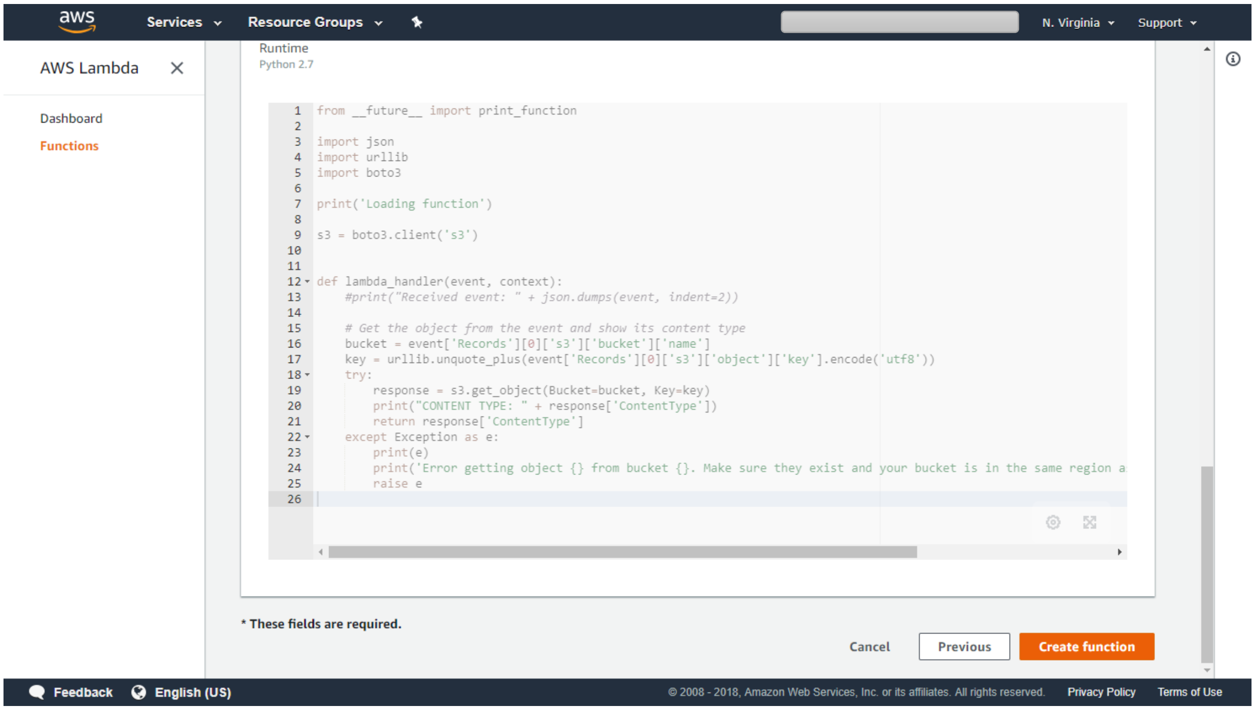
print('Loading function')

s3 = boto3.client('s3')


def lambda_handler(event, context):
    #print("Received event: " + json.dumps(event, indent=2))

    # Get the object from the event and show its content type
    bucket = event['Records'][0]['s3']['bucket']['name']
    key = urllib.unquote_plus(event['Records'][0]['s3']['object']['key'].encode('utf8'))
    try:
        response = s3.get_object(Bucket=bucket, Key=key)
        print("CONTENT TYPE: " + response['ContentType'])
        return response['ContentType']
    except Exception as e:
        print(e)
        print('Error getting object {} from bucket {}. Make sure they exist and your bucket is in the same region a
        raise e

```



Runtime
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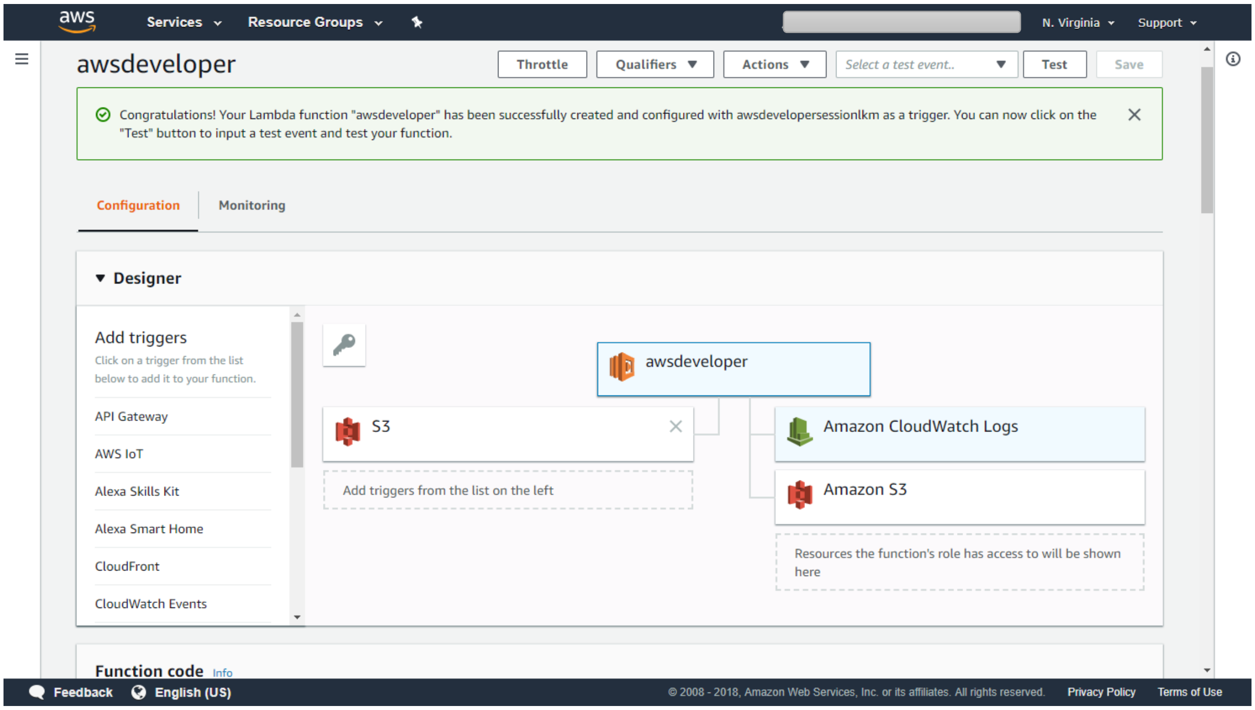
    bucket = event['Records'][0]['s3']['bucket']['name']
    key = urllib.unquote_plus(event['Records'][0]['s3']['object']['key'].encode('utf8'))
    try:
        response = s3.get_object(Bucket=bucket, Key=key)
        print("CONTENT TYPE: " + response['ContentType'])
        return response['ContentType']
    except Exception as e:
        print(e)
        print('Error getting object {} from bucket {}. Make sure they exist and your bucket is in the same region a
        raise e

```

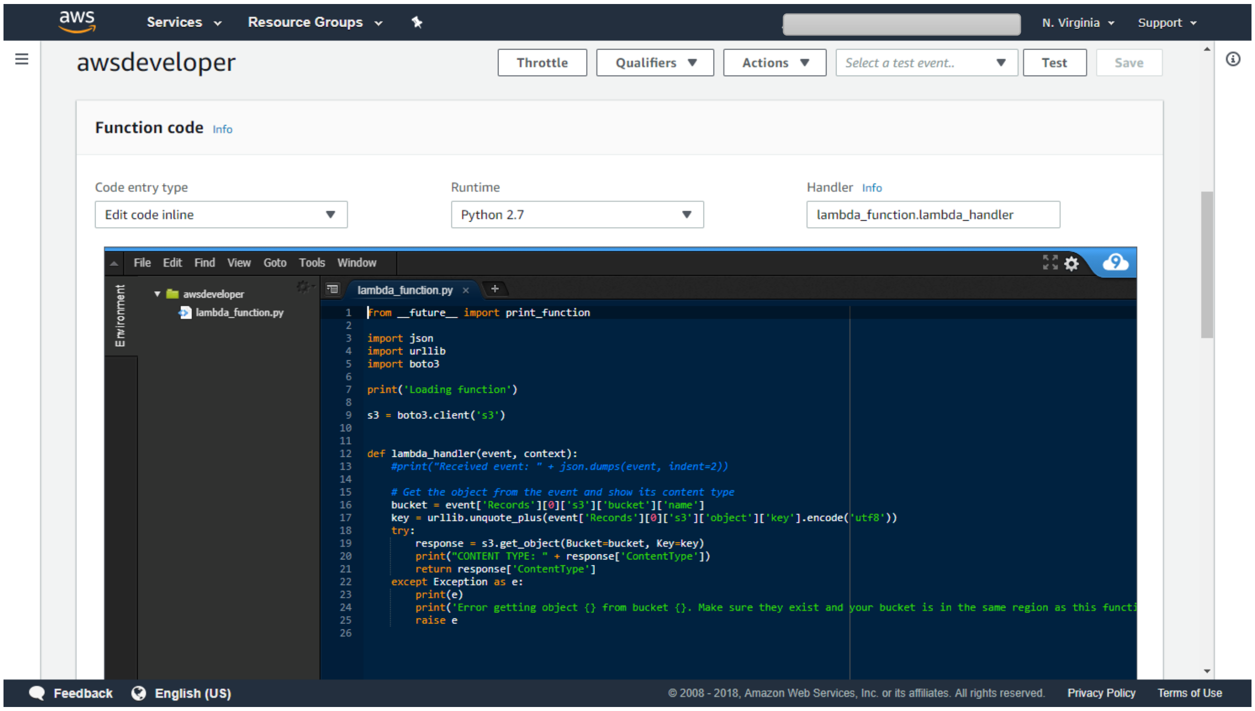
* These fields are required.

Now the function is successfully created with required triggers and resource permissions



awsdeveloper

Congratulations! Your Lambda function "awsdeveloper" has been successfully created and configured with awsdevelopersessionlkm as a trigger. You can now click on the "Test" button to input a test event and test your function.



awsdeveloper

Function code

Code entry type: Edit code inline

Runtime: Python 2.7

Handler: lambda_function.lambda_handler

lambda_function.py

```
from __future__ import print_function

import json
import urllib
import boto3

print('Loading function')

s3 = boto3.client('s3')


def lambda_handler(event, context):
    #print("Received event: " + json.dumps(event, indent=2))

    # Get the object from the event and show its content type
    bucket = event['Records'][0]['s3']['bucket']['name']
    key = urllib.unquote_plus(event['Records'][0]['s3']['object']['key'].encode('utf8'))
    try:
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        print("CONTENT TYPE: " + response['ContentType'])
        return response['ContentType']
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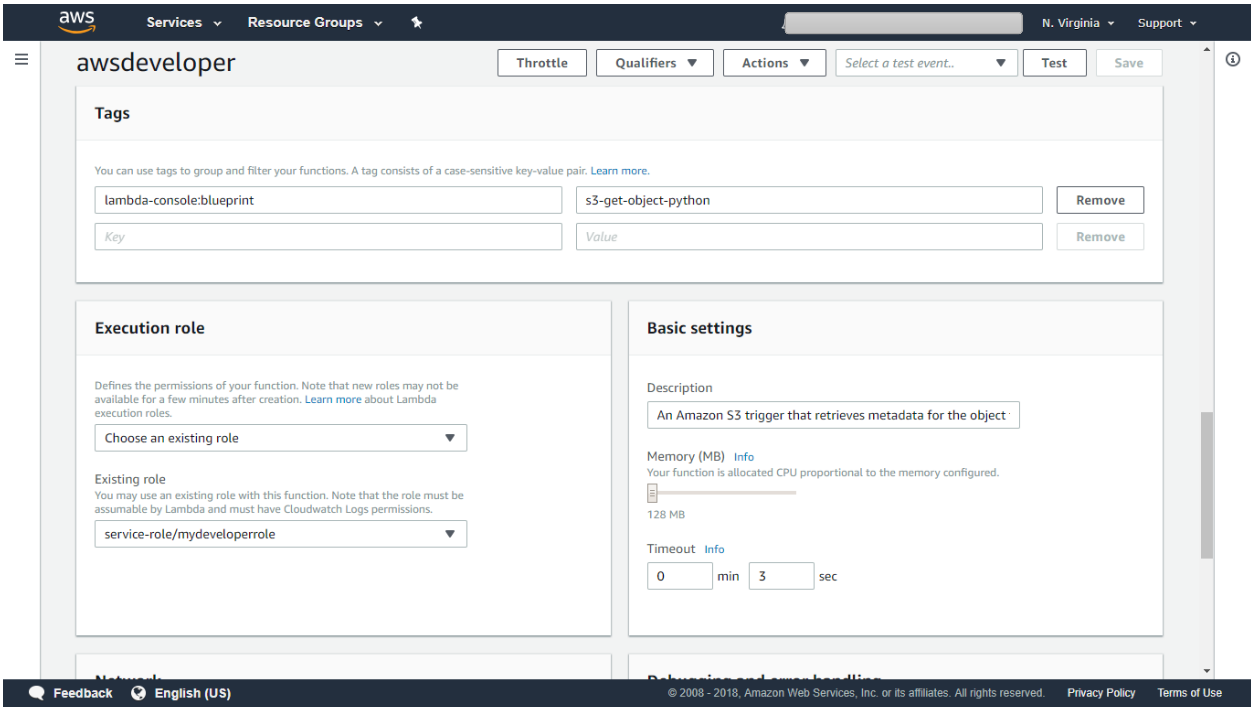
        print(e)
        print('Error getting object {} from bucket {}. Make sure they exist and your bucket is in the same region as this functi
        raise e

```

AWS LAMBDA



awsdeveloper

Tags

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

Key	Value
lambda-console:blueprint	s3-get-object-python
Key	Value

Execution 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.

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/mydeveloperrole

Basic settings

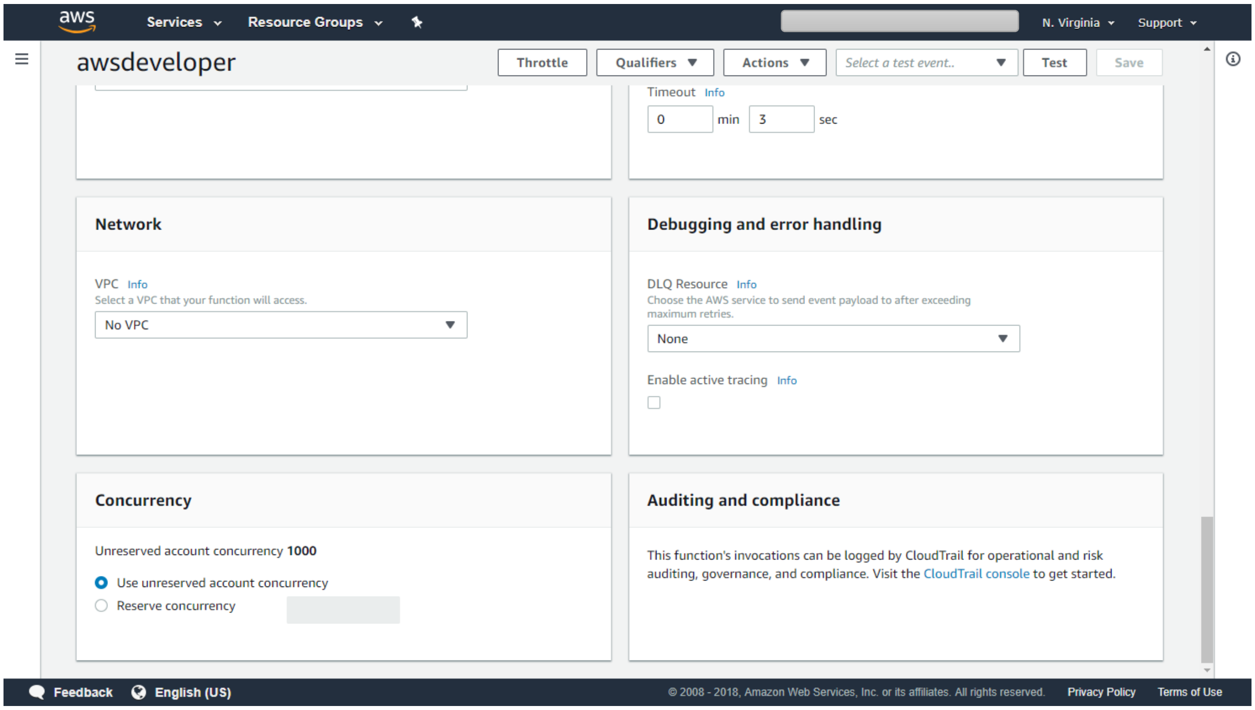
Description: An Amazon S3 trigger that retrieves metadata for the object

Memory (MB) Info

Your function is allocated CPU proportional to the memory configured.

128 MB

Timeout Info: 0 min 3 sec



awsdeveloper

Timeout Info: 0 min 3 sec

Network

VPC Info

Select a VPC that your function will access.

No VPC

Debugging and error handling

DLQ Resource Info

Choose the AWS service to send event payload to after exceeding maximum retries.

None

Enable active tracing Info

□

Concurrency

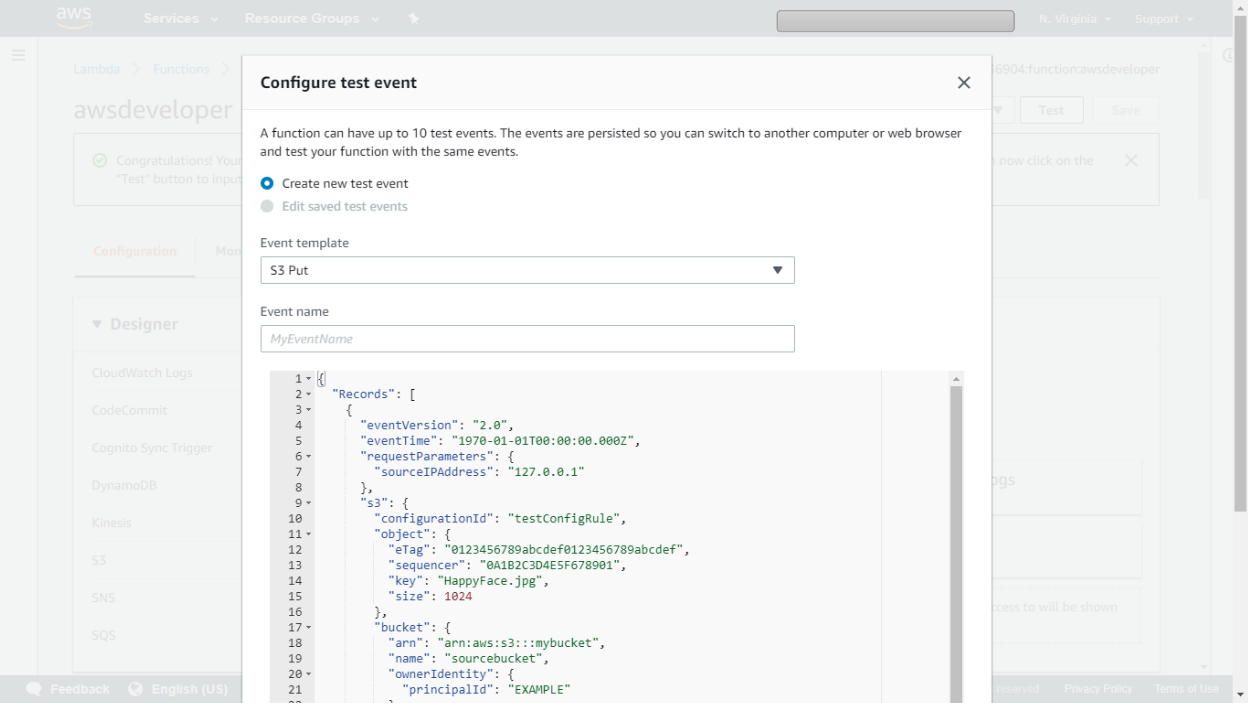
Unreserved account concurrency **1000**

● Use unreserved account concurrency

○ Reserve concurrency

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.



Configure test event

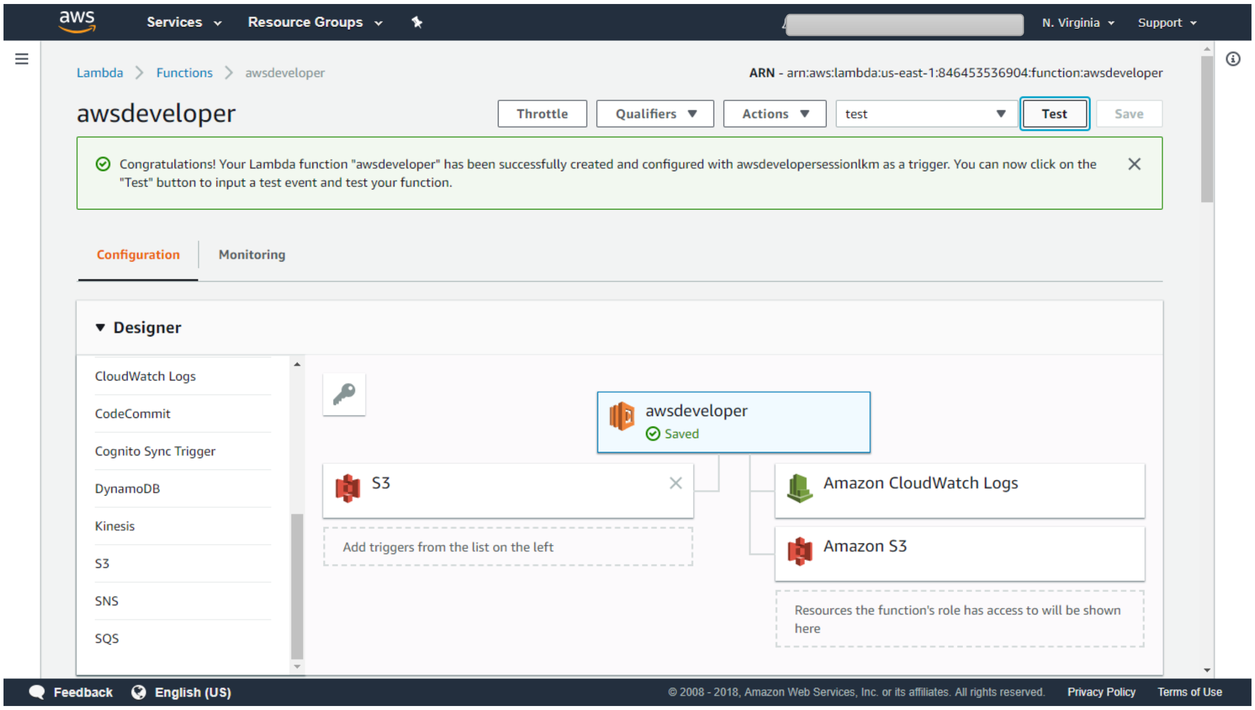
A function can have up to 10 test events. The events are persisted so you can switch to another computer or web browser and test your function with the same events.

● Create new test event
○ Edit saved test events

Event template: S3 Put

Event name: MyEventName

```
{
  "Records": [
    {
      "eventVersion": "2.0",
      "eventTime": "1970-01-01T00:00:00.000Z",
      "requestParameters": {
        "sourceIPAddress": "127.0.0.1"
      },
      "s3": {
        "configurationId": "testConfigRule",
        "object": {
          "eTag": "0123456789abcdef0123456789abcdef",
          "sequencer": "0A1B2C3D4E5F678901",
          "key": "HappyFace.jpg",
          "size": 1024
        },
        "bucket": {
          "arn": "arn:aws:s3:::mybucket",
          "name": "sourcebucket",
          "ownerIdentity": {
            "principalId": "EXAMPLE"
```



ARN - arn:aws:lambda:us-east-1:846453536904:function:awsdeveloper

awsdeveloper

Congratulations! Your Lambda function "awsdeveloper" has been successfully created and configured with awsdevelopersessionlkm as a trigger. You can now click on the "Test" button to input a test event and test your function.

Let's proceed with the Testing of a function by manual trigger. We will be able to get the bucket objects Metadata information.

Hope you all uncovering the document accessible and useful.

If you have any demanding question which is mentioned in the document, please feel free to contact us.

Happy Learning

LKM