Project: Video Sharing Platform

The below steps are done on an ec2 instance

Step -1: Create Infrastructure

Update the ec2 instance and install terraform on it. Create a directory and move inside that directory

```
ubuntu@ip-172-31-29-58:~$ wget https://releases.hashicorp.com/terraform/0.13.0/terraform_0.13.0_linux_amd64.zip
--2022-04-26 10:15:27--  https://releases.hashicorp.com/terraform/0.13.0/terraform_0.13.0_linux_amd64.zip
Resolving releases.hashicorp.com (releases.hashicorp.com)... 146.75.33.183, 2a04:4e42:78::439
Connecting to releases.hashicorp.com (releases.hashicorp.com)|146.75.33.183|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 34851622 (33M) [application/zip]
Saving to: 'terraform_0.13.0_linux_amd64.zip'

terraform_0.13.0_linux_amd64.zip          100%[===================================================================================>]  33.24M   182MB/s    in 0.2s

2022-04-26 10:15:27 (182 MB/s) - 'terraform_0.13.0_linux_amd64.zip' saved [34851622/34851622]

ubuntu@ip-172-31-29-58:~$ unzip terraform_0.13.0_linux_amd64.zip
Archive:  terraform_0.13.0_linux_amd64.zip
  inflating: terraform
ubuntu@ip-172-31-29-58:~$ sudo mv terraform /usr/local/bin/
ubuntu@ip-172-31-29-58:~$ mkdir terraform_demo
ubuntu@ip-172-31-29-58:~$ cd terraform_demo/
ubuntu@ip-172-31-29-58:~/terraform_demo$
```

create a terraform file to create vpc, ec2 instance, rds, efs on AWS cloud and also to mount the efs to ec2 instance.

create an iam role giving administrator access and attach this role to ec2 instance. Now run terraform init, terraform plan, terraform apply commands to run the terraform code.

```
aws_db_instance.Main: Still creating... [3m30s elapsed]
aws_db_instance.Main: Still creating... [3m40s elapsed]
aws_db_instance.Main: Still creating... [3m50s elapsed]
aws_db_instance.Main: Still creating... [4m0s elapsed]
aws_db_instance.Main: Still creating... [4m10s elapsed]
aws_db_instance.Main: Still creating... [4m20s elapsed]
aws_db_instance.Main: Creation complete after 4m23s [id=terraform-20220426102532527300000001]

Apply complete! Resources: 19 added, 0 changed, 0 destroyed.
ubuntu@ip-172-31-29-58:~/terraform_demo$
```

Step -2: Install wordpress

Switch to root, install ansible on the ec2 instance, and create a directory and move inside that directory.

```
root@ip-172-31-29-58:~# mkdir play-ansible
root@ip-172-31-29-58:~# cd play-ansible/
root@ip-172-31-29-58:~/play-ansible# mv /home/ubuntu/terraform_demo/myKey.pem key.pem
root@ip-172-31-29-58:~/play-ansible#
```

Create inventory.txt file and configure ec2 instance details in the file, where we need to install wordpress.

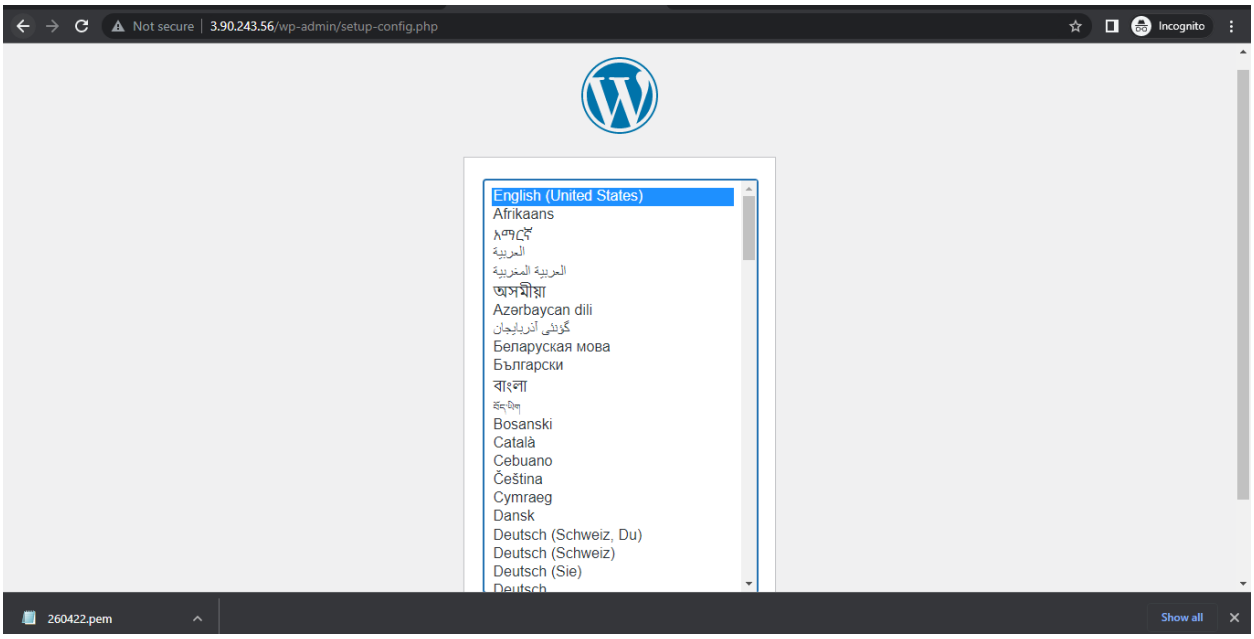
```
ubuntu ansible_host=3.90.243.56 ansible_ssh_private_key_file=/root/play-ansible/key.pem ansible_user=ubuntu
~
~
~
~
~
```

Create an ansible-playbook and run it to install wordpress.

```
root@ip-172-31-29-58:~/play-ansible# vim wp.yaml
root@ip-172-31-29-58:~/play-ansible# ansible ubuntu -m ping -i inventory.txt
The authenticity of host '3.90.243.56 (3.90.243.56)' can't be established.
ECDSA key fingerprint is SHA256:hZ6vEQMdKKPEy/humZZoiqBRwascHqK4OsOnkbgyeAo.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
ubuntu | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
root@ip-172-31-29-58:~/play-ansible# ansible-playbook wp.yaml -i inventory.txt
[WARNING]: While constructing a mapping from /root/play-ansible/wp.yaml, line 50, column 9, found a duplicate dict key (command). Using last defined value only.
[WARNING]: While constructing a mapping from /root/play-ansible/wp.yaml, line 62, column 9, found a duplicate dict key (command). Using last defined value only.
[WARNING]: While constructing a mapping from /root/play-ansible/wp.yaml, line 58, column 11, found a duplicate dict key (line). Using last defined value only.

PLAY [Installing wordpress using ansible] ***********************************************************************************************************

TASK [Gathering Facts] ******************************************************************************************************************************
ok: [ubuntu]

TASK [Update packagemanager] ************************************************************************************************************************
```

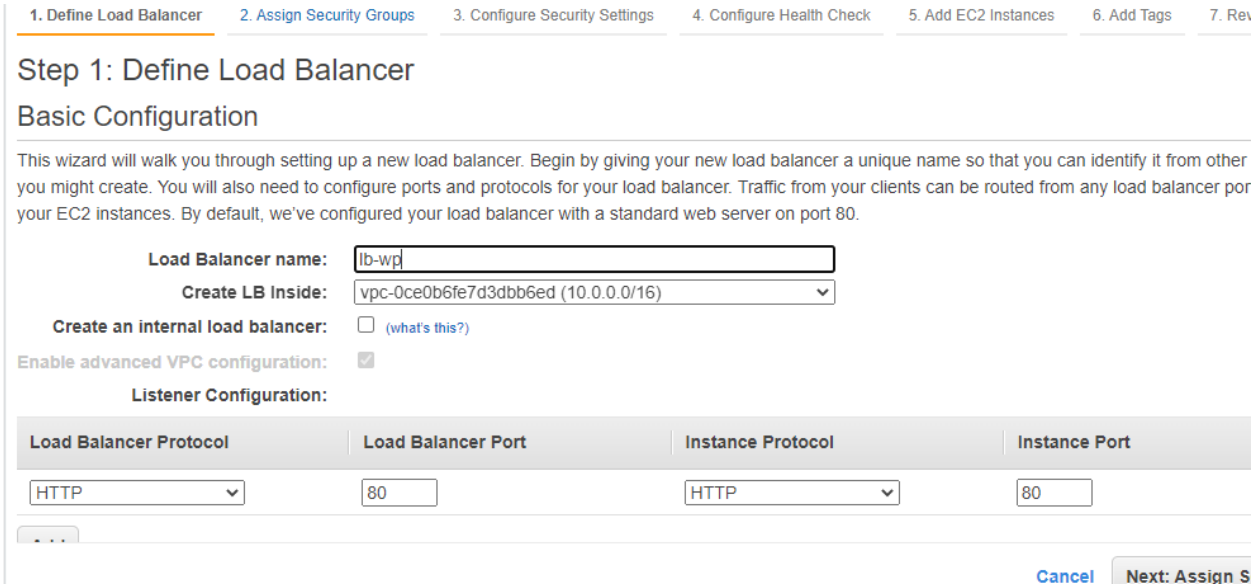
```
TASK [move contents of wordpress to the /var/www/html directory] ************************************************************************************
changed: [ubuntu]

TASK [rewriting] ************************************************************************************************************************************
changed: [ubuntu]

TASK [changing ownership on html directory] *********************************************************************************************************
[WARNING]: Consider using the file module with owner rather than running 'chown'.  If you need to use command because file is insufficient you can add 'warn: false'
this command task or set 'command_warnings=False' in ansible.cfg to get rid of this message.
changed: [ubuntu]

TASK [setting correct permissions for wordpress files] **********************************************************************************************
changed: [ubuntu]

TASK [Inserting a line after a pattern in Ansible example] ******************************************************************************************
changed: [ubuntu]

TASK [Enabling wordpress configuration file and disabling default conf file] ************************************************************************
changed: [ubuntu]

TASK [Restart Apache] *******************************************************************************************************************************
changed: [ubuntu]

PLAY RECAP ******************************************************************************************************************************************
ubuntu                     : ok=24   changed=22   unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

root@ip-172-31-29-58:~/play-ansible#
```

Now, browse the public ip of the instance to check if wordpress is installed.

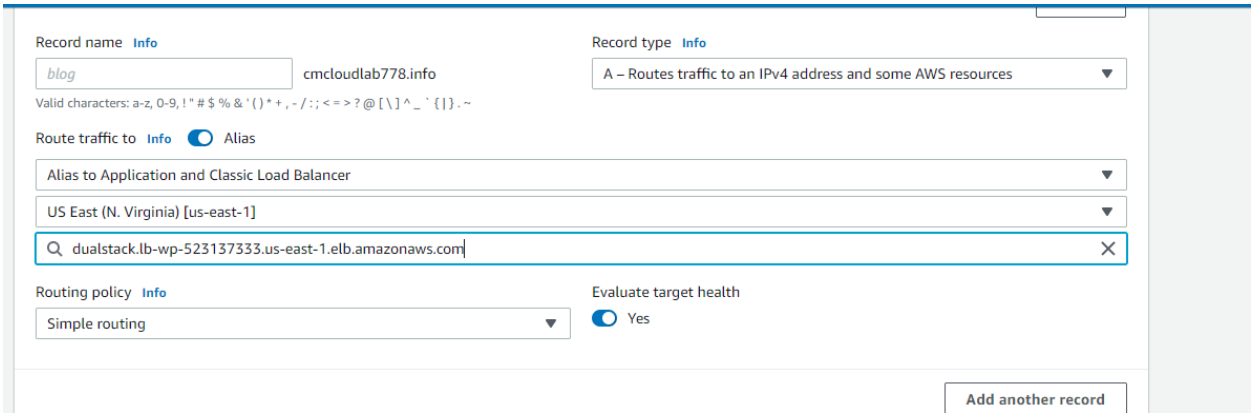


Step – 3: Creating Domain Name

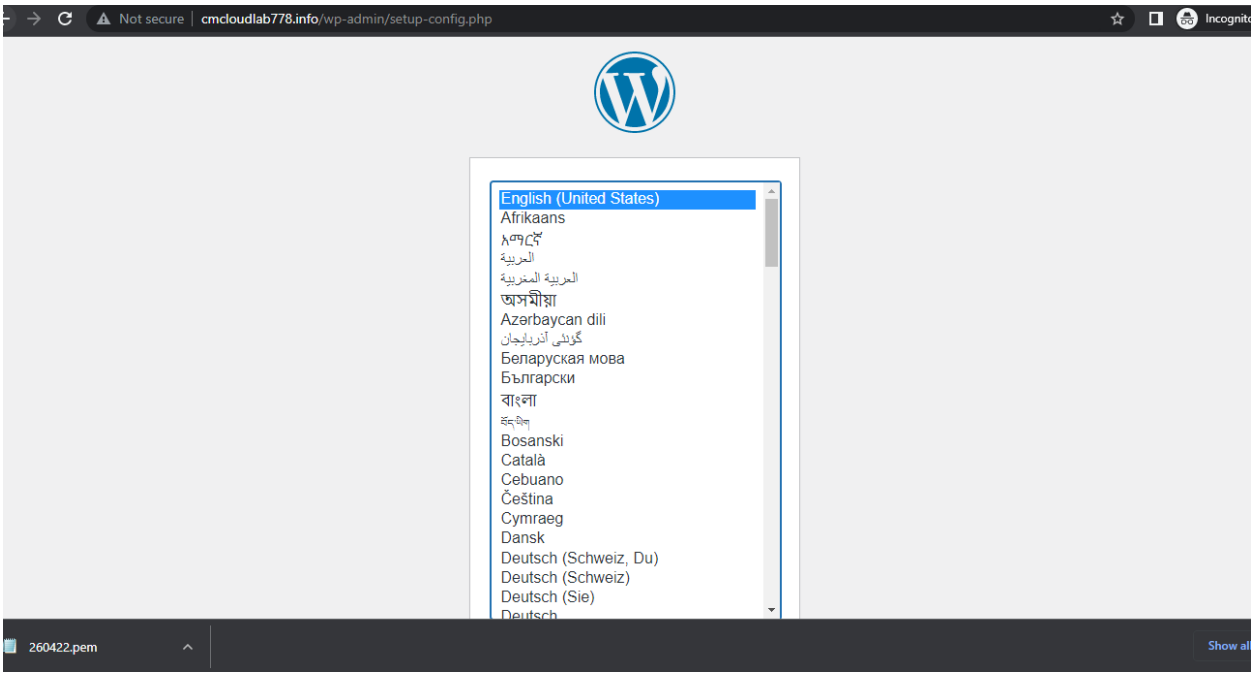
Create a classic load balancer in the custom-vpc that we have created with webserver firewall security group. Also, select two public subnets in the custom-vpc.



Now, Create a new record in Route53 and attach load balancer to it.



After browsing domain main wordpress application shows up.



Step – 4: Configuring wordpress

Login to the new ec2 instance via ssh key and connect to rds through endpoint.

Created a new database and user.

```
root@ip-10-0-0-57:~# mysql -h terraform-20220426102532527300000001.ctilz0dalbwm.us-east-1.rds.amazonaws.com -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 18
Server version: 5.7.37 Source distribution

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| innodb             |
| mydb               |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
6 rows in set (0.01 sec)

mysql> create database wordpress;
Query OK, 1 row affected (0.00 sec)

mysql> use wordpress;
Database changed
mysql> CREATE USER 'Prakash'@'localhost' IDENTIFIED BY 'rootroot';
Query OK, 0 rows affected (0.00 sec)

mysql>
```
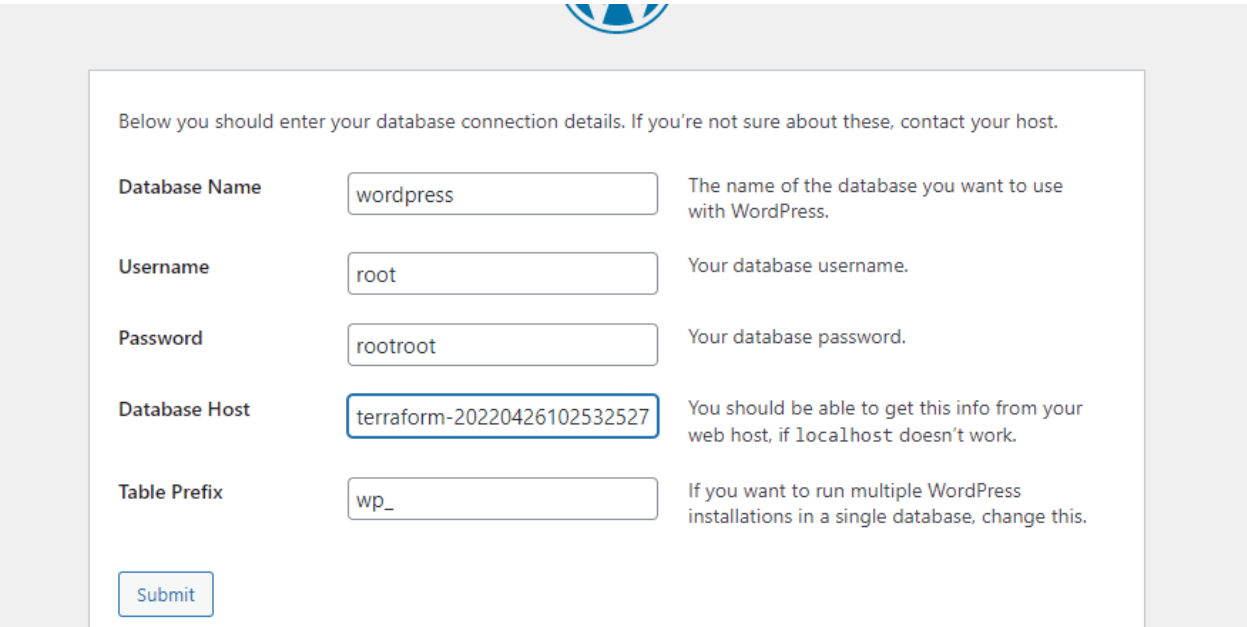
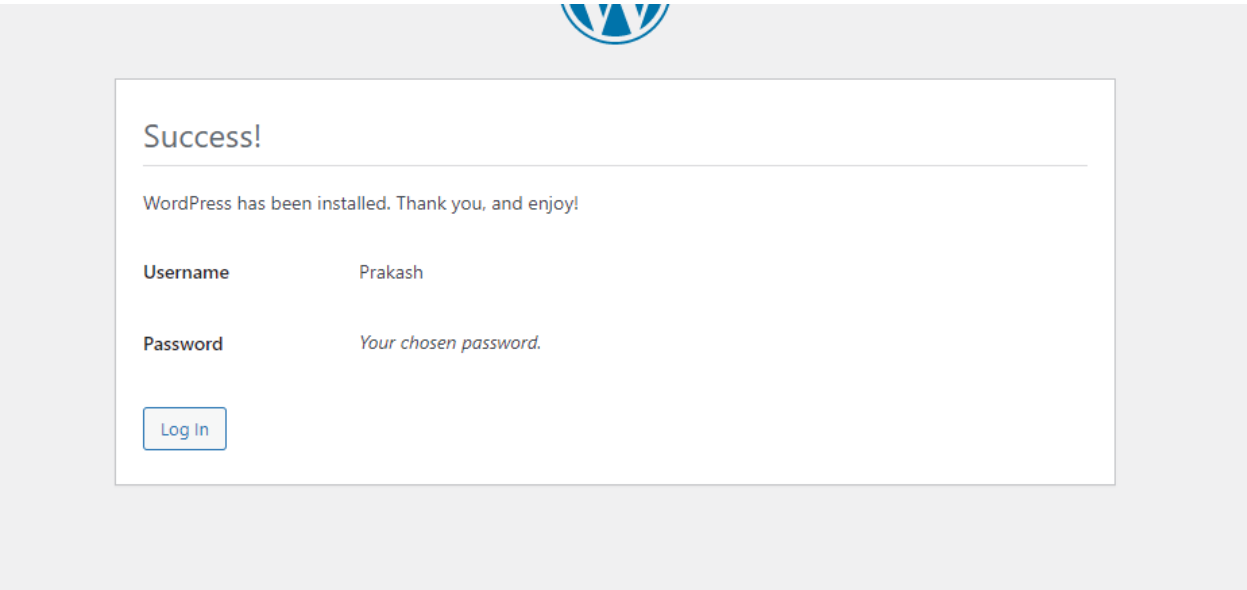
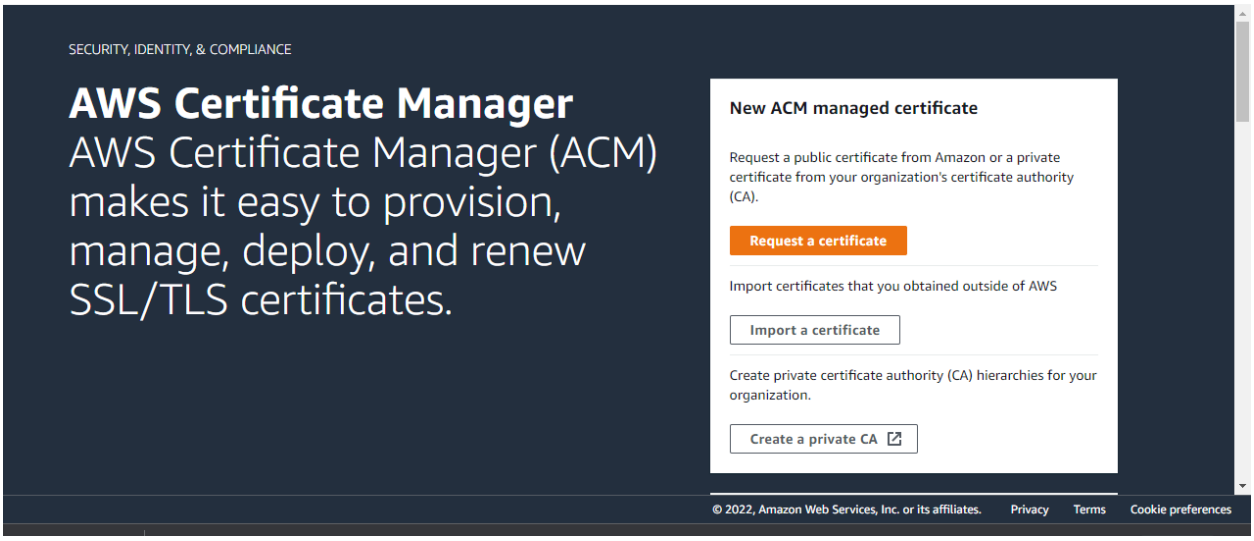

Configure the wordpress site and login to it.



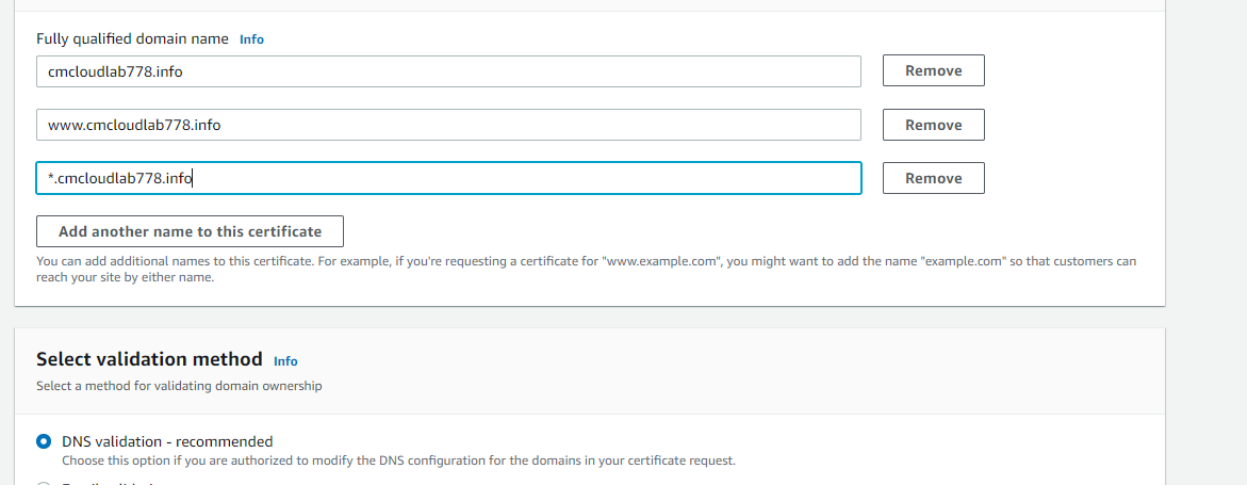


Step -5: Creating a certificate

Now, go to Certification manager and request a certificate

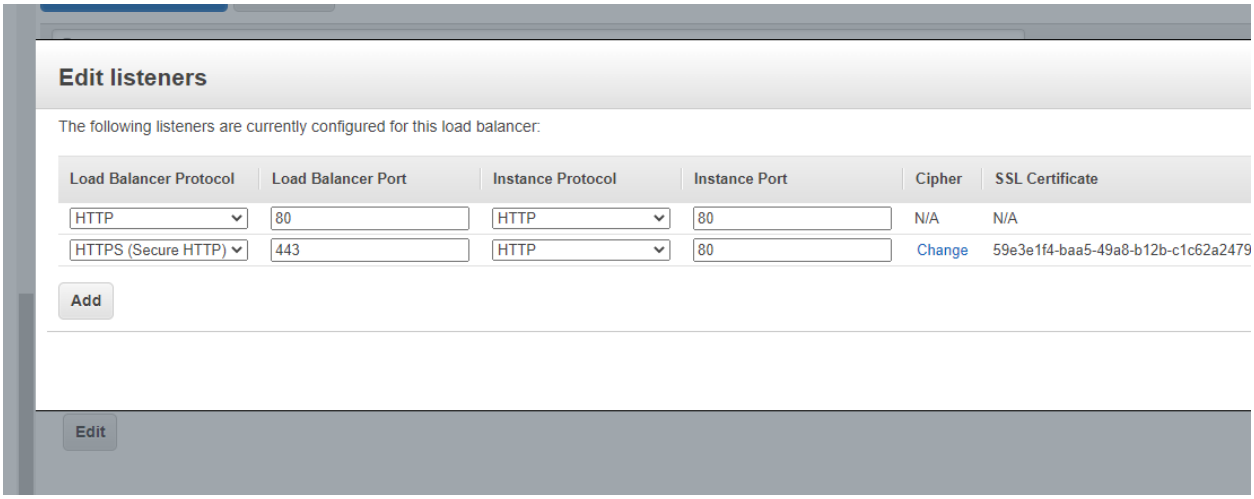


Give the domain names as domainname.com , www.domainname.com , *.domainname.com.



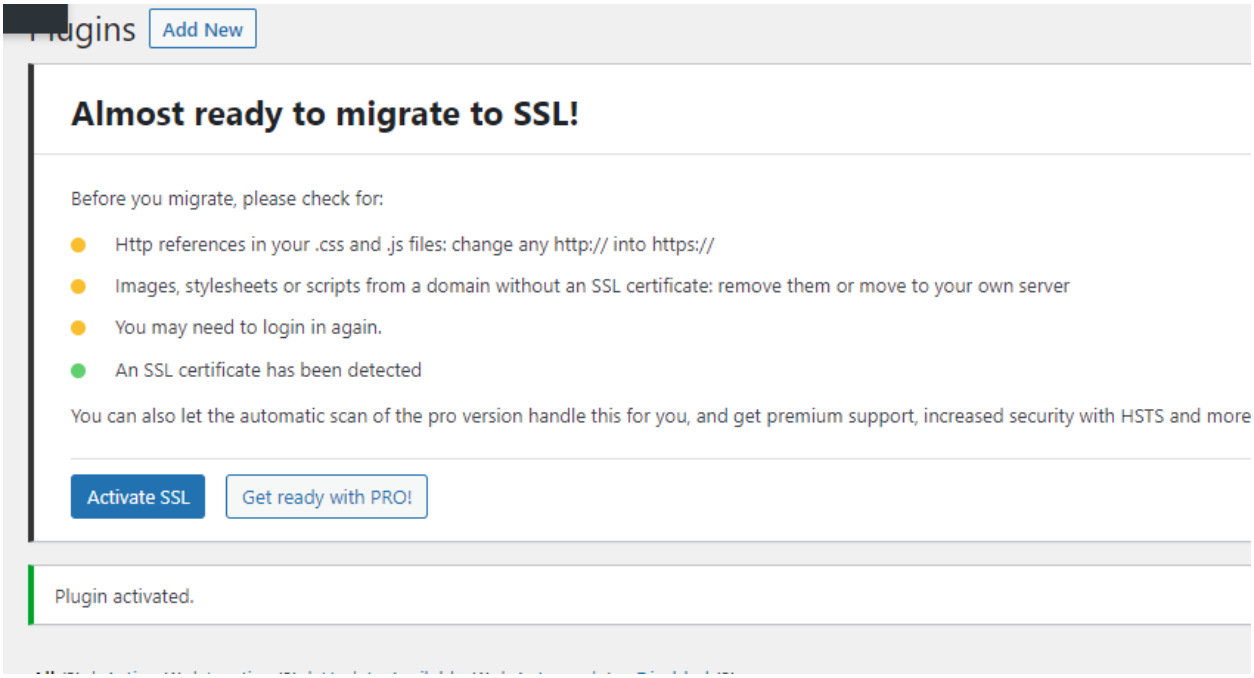
Add the namespace records to Route53.

Then, edit listeners in the Load Balancer. Add HTTPS protocol and select the certificate that we have created.

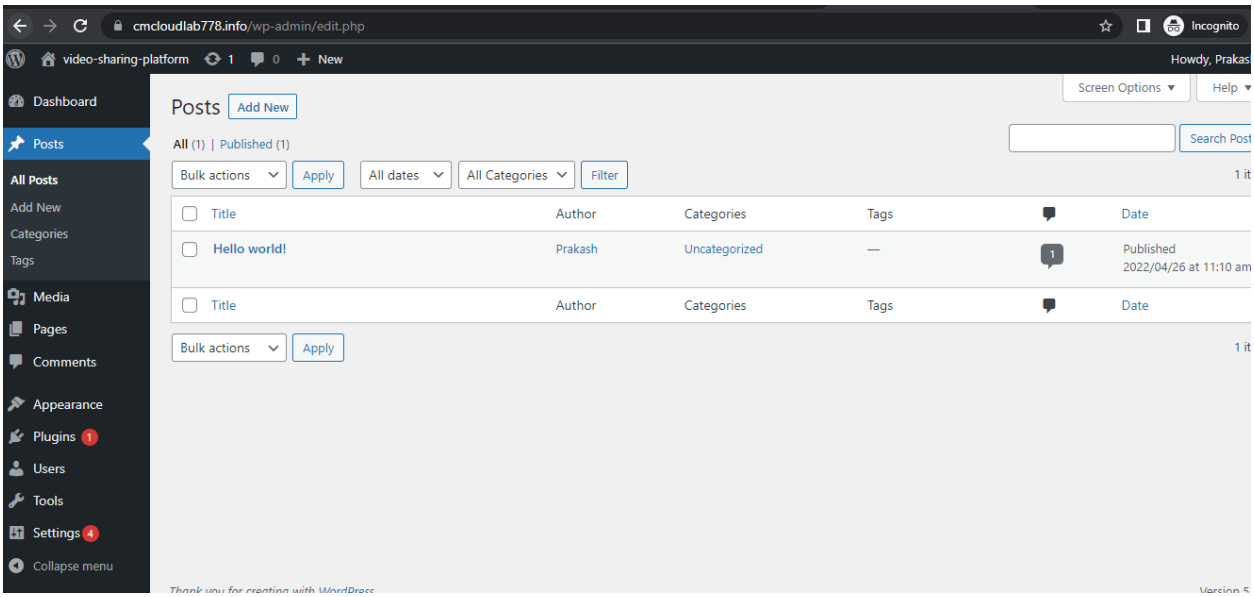


Now, go back to wordpress application home page. Select plugins from the left side bar and select add new in that. Search for ‘really simple ssl’ plugin and install that plugin.

After it has installed successfully, click on activate. The certificate will be auto detected, click on activate and you will be redirected to login page.



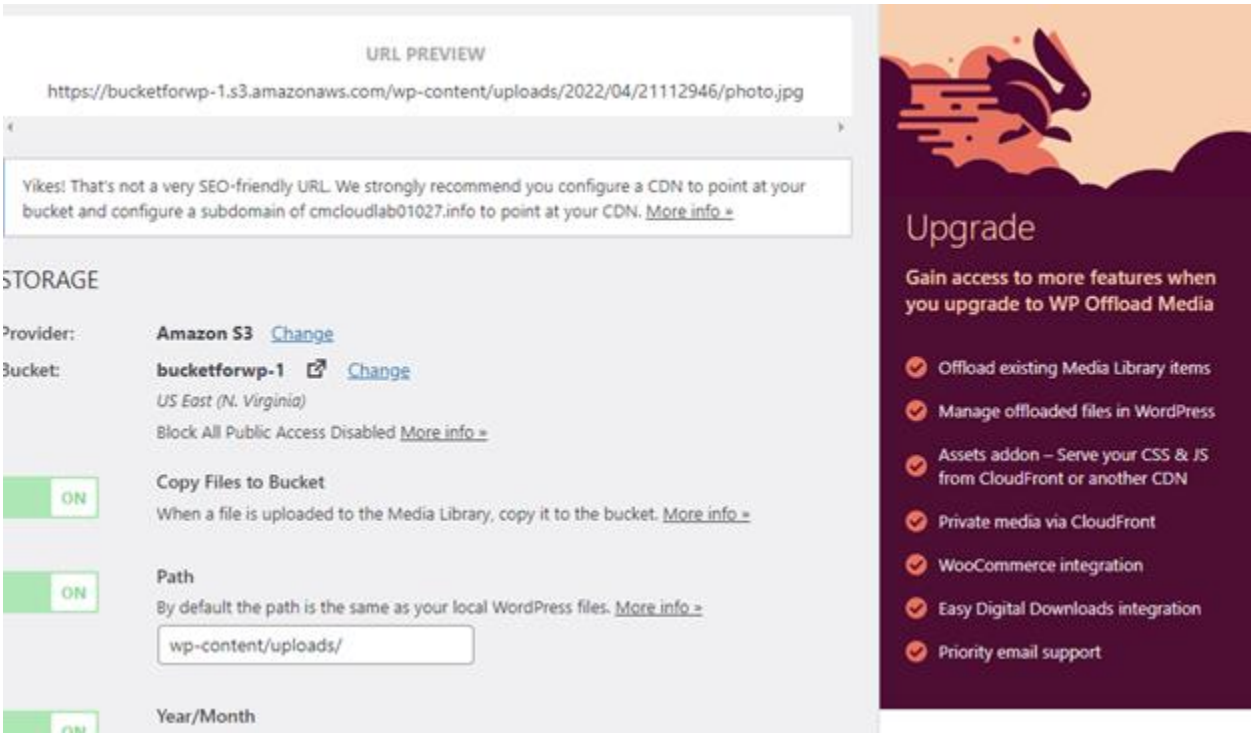
Log in to wordpress with user credentials. Then we can see that the page is secure.



Step – 6: Storing media files in s3 bucket

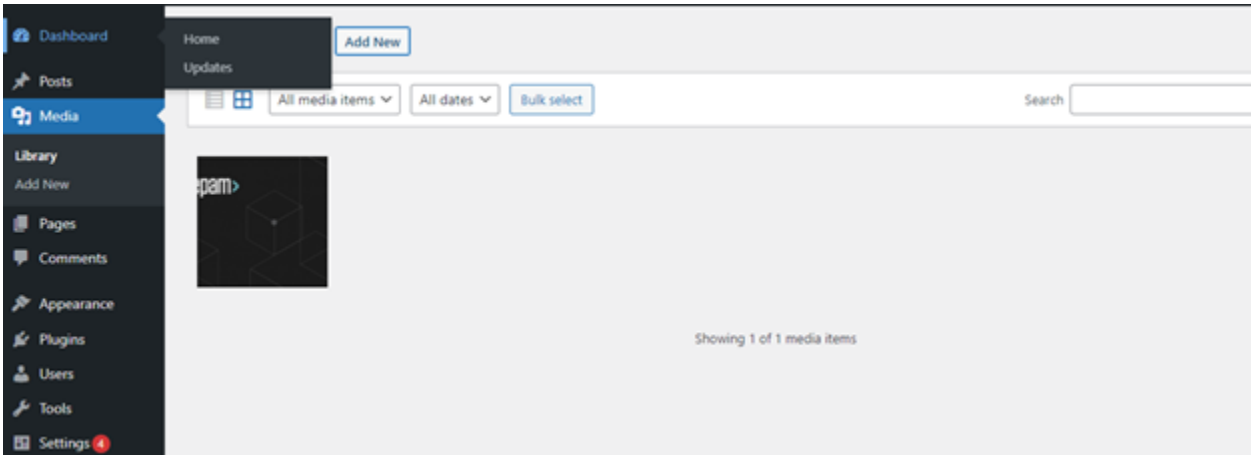
Create an S3 bucket to store the uploaded files. The s3 bucket should have ACL's enabled and block public access disabled. Create an IAM role giving 's3fullaccess' and attach it to the ec2 instance.

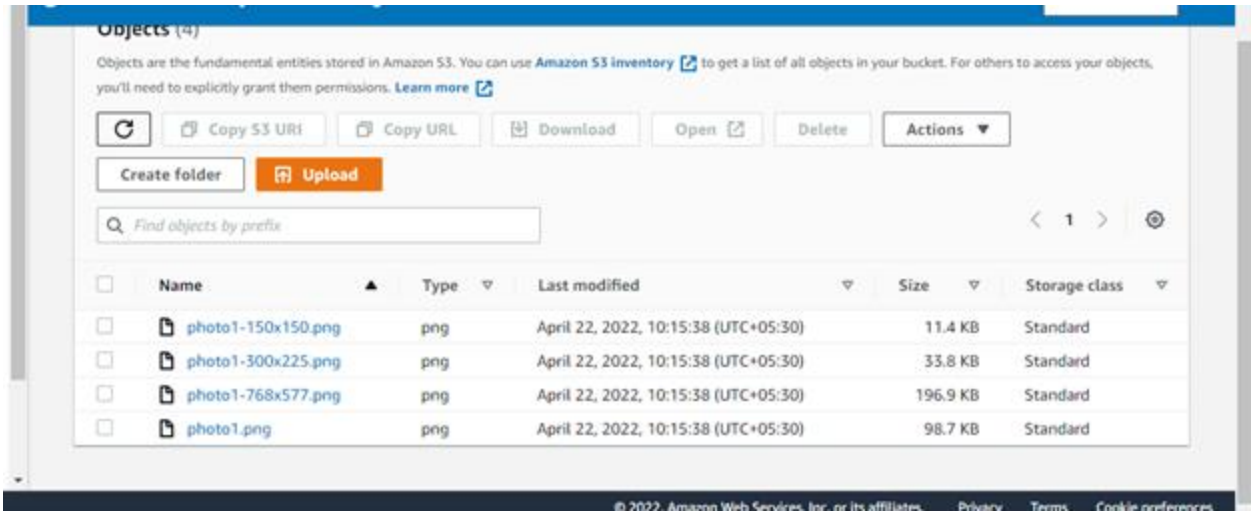
After that, Install plugin '**WP Offload Media Lite'** in wordpress application. Click on activate and go to settings of the plugin. In that give the name of the s3 bucket that is created.



Configure the above settings as required.

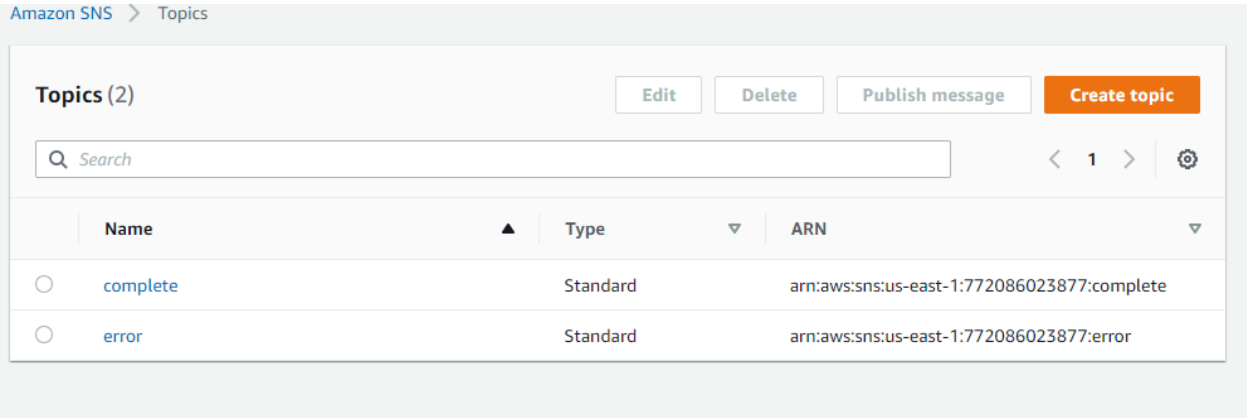
upload a photo in media section of wordpress site, then it will be stored in s3.





Step – 7:

Go to SNS and create complete and error topics. Next, subscribe these sns topics so that it can send mails to gmail.



Next, create a new pipeline in the Elastic transcoder.

Create New Pipeline

A pipeline is a queue for your transcoding jobs. You can have more than one pipeline per AWS account. You can use multiple standard-priority jobs and one for high-priority jobs.

Pipeline Name convert

Input Bucket bucketforwp-2

IAM Role Elastic_Transcoder_Default_Role

Elastic Transcoder previously created a default IAM role for this AWS account. View the policy.

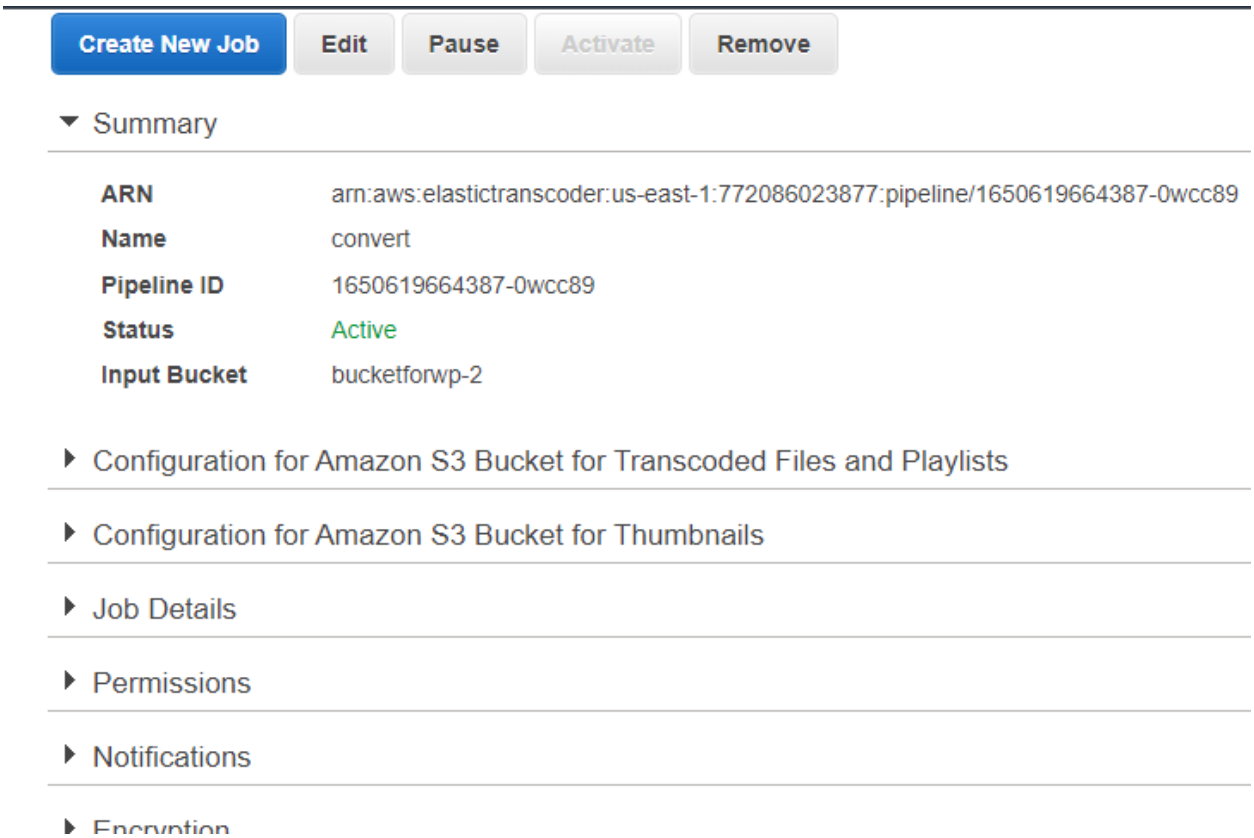
Configuration for Amazon S3 Bucket for Transcoded Files and Playlists

Bucket bucketforwp-2

Storage Class Standard

Give a name for pipeline, add input and output buckets to it. In the notifications option, select the two topics that are created for completion and error events.

Note the pipeline id of the created pipeline.



Step – 8:

Create an Iam role for lambda function with following permissions:

AmazonS3FullAccess

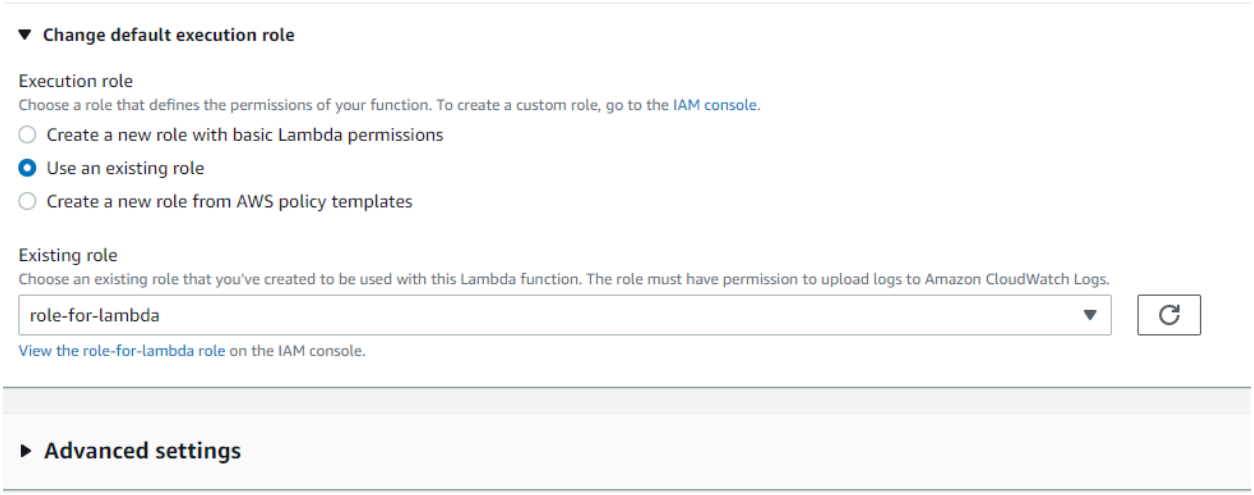
AmazonSNSFullAccess

CloudWatchFullAccess

AmazonElasticTranscoder_FullAccess

Step – 9:

Create a lambda function. Select runtime as Nodejs12.x. Select the role that is created for lambda and create the function.



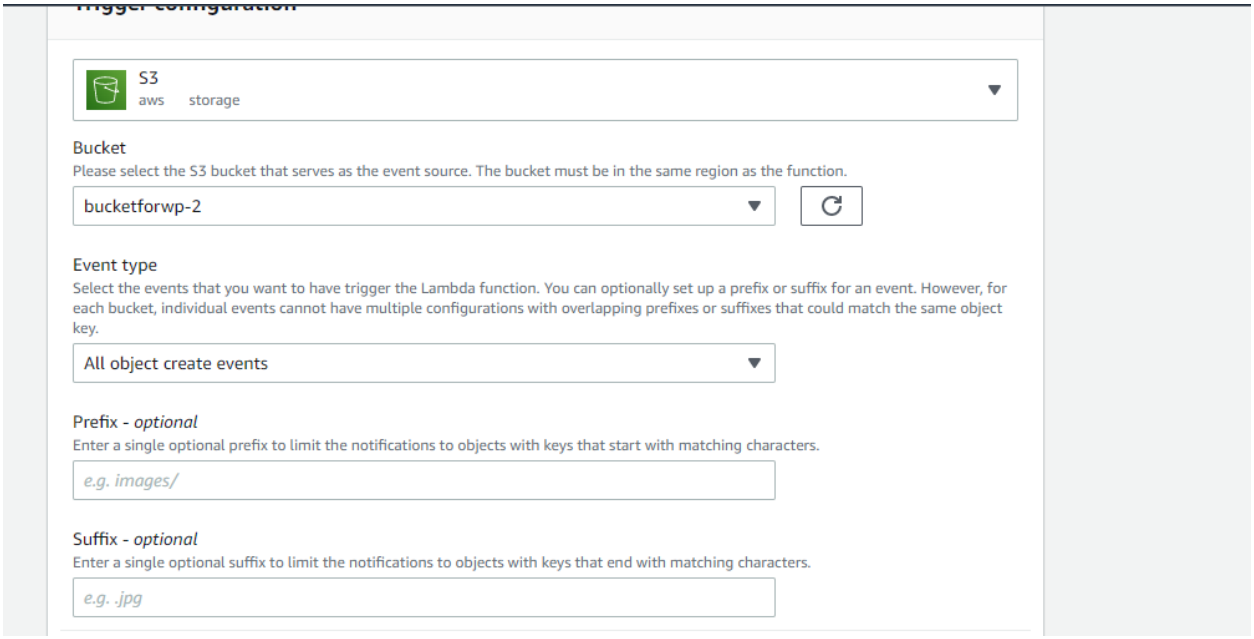
In the environmental variables, add the pipeline_id.

Add the following code in the code section of the lambda function. Change 'region', 'preset-id' as required.

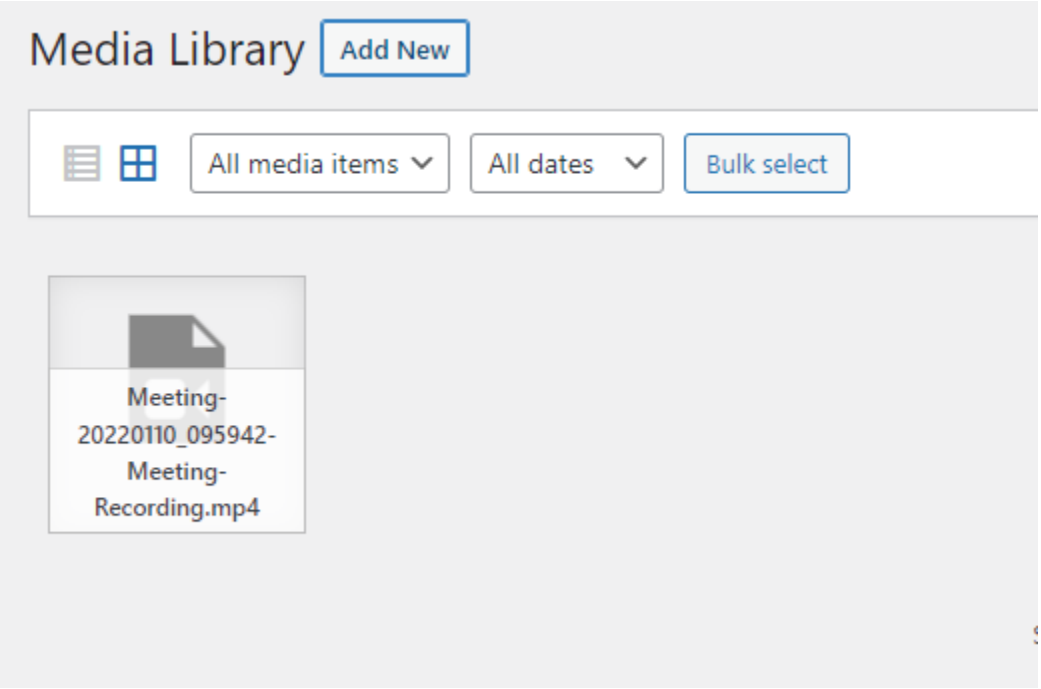
```
'use
strict';
var AWS = require('aws-sdk'),
   transcoder = new AWS.ElasticTranscoder({
      apiVersion: '2012-09-25',
      region: 'us-east-1'
   });
exports.handler = (event, context, callback) => {
   let fileName = event.Records[0].s3.object.key;
   var srcKey =
decodeURIComponent(event.Records[0].s3.object.key.replace(/\+
/g, " "));
   var newKey = fileName.split('.')[0];
   console.log('New video has been uploaded:', fileName);
transcoder.createJob({
    PipelineId: process.env.PIPELINE_ID,
    Input: {
     Key: srcKey,
     FrameRate: 'auto',
```

```
      Resolution: 'auto',
      AspectRatio: 'auto',
      Interlaced: 'auto',
      Container: 'auto'
     },
     Output: {
      Key: getOutputName(fileName),
      ThumbnailPattern: '',
      PresetId: '1351620000001-000040,
      Rotate: 'auto'
     }
    }, function(err, data){
       if(err){
           console.log('Something went wrong:',err)
       }else{
           console.log('Converting is done');
       }
     callback(err, data);
    });
};
function getOutputName(srcKey){
 let baseName = srcKey.replace('videos/','');
 let withOutExtension = removeExtension(baseName);
 return 'video-conv-360/' + withOutExtension + '.mp3';
}
function removeExtension(srcKey){
    let lastDotPosition = srcKey.lastIndexOf(".");
    if (lastDotPosition === -1) return srcKey;
    else return srcKey.substr(0, lastDotPosition);
}
```

Next, add the s3 trigger in the function.



Now, Upload a video from the wordpress site. It stores the video in s3 bucket. Then lambda will trigger the function and changes the resolution of the video and stores it in different folder



Objects | Properties

Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

Copy S3 URI | Copy URL | Download | Open | Delete | Actions

Create folder | Upload

Find objects by prefix

1

Name	Type	Last modified	Size	Storage class
Meeting-20220110_095942-Meeting-Recording.mp4	mp4	April 22, 2022, 16:48:19 (UTC+05:30)	169.7 MB	Standard