EZDRM Configuration
AWS MediaConvert
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Version 4.0
Prerequisites

Installation of AWS Command Line Interface (CLI) pip install is required prior to configuration. Python 3.6 or higher is required.

For more information on requirements set up, visit this link in a browser: https://docs.aws.amazon.com/cli/latest/userguide/installing.html

To download Python 3.6: https://www.python.org/downloads/

EZDRM AWS Speke Server Deployment

Step 1: Create a New User

To create a new User in AWS complete the following steps:

1. Launch the AWS IAM console by searching for IAM.

2. Go to the Users menu. Click the Add user button.
3. Enter a **User name**, we suggest “cli-access”. Then under the “Select Access Type” section, click the checkbox to enable **Programmatic access**. This enables an access key ID and secret access key for the AWS CLI.

4. Click the **Next: Permissions** button.

5. Select the **Attach existing policies directly** menu and click the checkbox to select **AdministratorAccess**. This provides full access to AWS services and resources.

6. Click the **Next: Review** button.

7. Review the new User settings on the Review page and click the **Create user** button.
8. The last step is the Success screen. Here you will have access to the **Console Login Link**, the **Access key ID** and the **Secret access key**. Download the **.csv** file with the key information and save this file where it can be accessed for future reference.

**Important Note:** This is the ONLY TIME you will have access to the **Secret access key**. It is important to download the **.csv** with this information or copy and paste the keys into a saved document. Once you leave this screen you will no longer have access to the **Secret access key**.
Step 2: Create AWS CLI Access

To create the AWS CLI access, open Command Prompt.
1. Type the command `aws configure` and hit enter.

2. You will be prompted to enter your **AWS Access Key ID** and hit enter.

3. You will be prompted to enter your **Secret Access Key** and hit enter.

4. You will be prompted to enter your **Default region name** (Example: `us-east-1`) and hit enter. You can find the region that is closest to you here: [https://docs.aws.amazon.com/general/latest/gr/rande.html](https://docs.aws.amazon.com/general/latest/gr/rande.html)

5. You will be prompted to enter the Default output format and hit enter. You will enter the format `json`.

Sample Command Prompt:

```
C:\Users\User>aws configure
AWS Access Key ID [***************Y2KA]: your-access-key-id-here
AWS Secret Access Key [***************a0g3]: your-secret-access-key-id-here
Default region name [us-east-1]: your-region-here
Default output format [json]: json
```

Optional: you could enter the command “aws sts get-session-token” to confirm that your installation of Python and AWS CLI is working properly.

Step 3: Create an S3 Bucket

1. From the AWS Console, search for **S3 Scalable Storage in the Cloud** and open.
2. Click the **Create Bucket** button.

3. Enter the following parameters and click **Next**: 

   - **Bucket name**: Bucket name can be any format you prefer. We recommend that you use a naming convention that is unique and reusable. 
     
     *Note: The bucket name must be unique across all existing bucket names in Amazon S3.*

   - **Region**: enter the region closest to you.
4. Click the **Next** button through the next three screens keeping all the default settings, then click the **Create Bucket** button.

---

**Step 4: Edit the Key Server files**

To edit the Key server files:


2. Extract the **ezdrm-aws.zip** file and open the **ezdrm-aws** folder.
3. Right-click to edit the `key_server_common.py` file.

4. Edit Line 70 with your EZDRM username and password and save the file. The parameters are as follows:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>u</td>
<td>EZDRM username</td>
</tr>
<tr>
<td>p</td>
<td>EZDRM password</td>
</tr>
</tbody>
</table>

5. After editing the `key_server_common.py` file, combine it with `key_server.py` in a zip file called `key_server.zip`. 
Step 5: Create Speke Server

To create the Speke Server, open Command Prompt.

1. Navigate to the extract directory for ezdrm-aws.zip in command prompt.

   For example:
   ```
c:\Users\User\Downloads\ezdrm-aws\ezdrm-aws
   ```

2. Run the following python command `python create_cloud_formation.py <<insert S3 bucket name from Step 3 here>>`.

   For example:
   ```
c:\Users\User\Downloads\ezdrm-aws\ezdrm-aws> python create_cloud_formation.py ezdrm-aws-123456-001
   ```

   **NOTE:** The boto3 library needs to be installed for this to work. To install, run the command: `pip install --upgrade --user boto3`.

   ```
c:\Users\User\Downloads\ezdrm-aws\ezdrm-aws> pip install --upgrade --user boto3
   ```

Step 6: Add Role for Media Convert

This gives the user the ability to access the Media Convert component of AWS. To create a new Role in AWS complete the following steps:

1. Launch the AWS IAM console by searching for IAM.

2. Select Roles menu and click the Create role button.
3. Under AWS services, select the MediaConvert service and click the Next: Permissions button.

4. Keep the default attached permission policies AmazonAPIGatewayInvokeFullAccess (provides full access to invoke APIs in Amazon API Gateway) and AmazonS3FullAccess (provides full access to all buckets via the AWS Management Console). Click the Next: Review button.
5. On the review screen, enter the Role Name: **EZDRM**. Then click the **Create role** button.

6. The new role will now be displayed in the roles list.
Creating an AWS MediaConvert Job

Widevine and PlayReady

1. Launch the AWS S3 console by searching for S3.

2. Create a new bucket or use an existing bucket. For instructions on creating a new S3 bucket, see this section.

3. Select the bucket and click the +Create folder button.
4. Create two folders, one named **input** and one named **output**.

5. Select the **input** folder and click the **Upload** button. Then select the **Add Files**.
6. Select the **BigBuckBunny_320x180.mp4** file from the ezdrm-aws folder.
7. Click through to keep the default settings and click **Upload**. The file will now show in the input folder.

8. When the upload is complete, go to the **API Gateway**.

9. Click on the **EzDRMRestAPI** link (this was created with the earlier python script) and then select the **Dashboard** menu. You will copy the API URL at the
top of the **Dashboard** page labeled “Invoke this API”. Paste this URL in a notepad for editing.

10. **Go to MediaConvert** and under **Create a job**, click **Get Started**.
11. For **Input 1** click browse to select the input file, for this example select the **S3 Bucket** named `ezdrm-aws-123456-001` and the **BigBuckBunny_320x180.mp4** file in the **input** folder previously created. Click the **Choose** button.

![Choose a location screenshot]

12. Next click the **Add** for **Output groups**. For this example, select **DASH ISO** and click the **Select** button.
13. The DASH ISO group settings will open. The **Custom Group Name** is optional. Under **Destination** click to **Browse** to the **S3 Bucket** named `ezdrm-aws-123456-001` and the **output** folder previously created.

14. Under **Segment Control** select **Segmented Files** and change the **Fragment Length (sec)** to **6** seconds.
15. Scroll down and select the toggle for **DRM Encryption**.

The parameters are as follows:

- **ResourceId**: this will be the ID that references your DRM Keys. This is a required field.

  *Note: The first time you send a ResourceID to run a job, the ID will be tied to the DRM keys for that job. Jobs can use the same ResourceID to reference the same keys or for new DRM Keys send a new ResourceID. It is best not to use a ResourceID from a failed job.*

- **System ID**: Unique identifiers for the DRM system to use. Insert the System ID’s for Widevine and PlayReady, one ID per line:
  (Widevine) `edef8ba9-79d6-4ace-a3c8-27dcd51d21ed`
  (PlayReady) `9a04f079-9840-4286-ab92-e65be0885f95`

  *Note: The System ID values need to be lowercase.*

- **URL**: The URL is the **API URL** copied from **Step 9** above, except at to the end of the URL add “/copyProtection”. (This is case sensitive, be sure capitalize the P in Protection.)

  Sample URL:
16. Scroll down to the next section called Outputs. Click the Add output button so that there are two outputs.

17. Name Output 1 "_video" and Output 2 "_audio".

18. Go back up to the top of the screen to change the Output settings for newly created Output 1 and Output 2. Select Output 1 and then click on Audio 1. Click the Remove audio button so that only video settings are available for Output 1.
19. Select **Output 2** and then click on **Video 1**. Click the **Remove video** button so that only audio settings are available for Output 2.

20. For **Output 2** under **Audio 1**, be sure to set the appropriate **Bitrate (kbit/s)**. For this example, it is set to 96.0.

21. Next select **Settings** under **Job settings**.
22. Select the **EZDRM** role under **IAM role**.

23. Once all of the settings are complete, scroll to the bottom of the page and click the **Create** button to create the job.
24. The job will show Submitted and then if you click the **Refresh** button, you will see the job listed as Complete.
Apple FairPlay Streaming

1. Launch the AWS S3 console by searching for S3.

![AWS S3 console screenshot]

2. Create a new bucket or use an existing bucket. For instructions on creating a new S3 bucket, see this section.

3. Select the bucket and click the **Create folder** button.
4. Create two folders, one named **input** and one named **output**.

5. Select the **input** folder and click the **Upload** button. Then select the **Add Files**.
6. Select the **BigBuckBunny_320x180.mp4** file from the ezdrm-aws folder.
7. Click through to keep the default settings and click **Upload**. The file will now show in the input folder.

8. When the upload is complete, go to the **API Gateway**.

9. Click on the **EzDRMRestAPI** link (this was created with the earlier python script) and then select the **Dashboard** menu. You will copy the API URL at the
top of the **Dashboard** page labeled “Invoke this API”. Paste this URL in a
notepad for editing.

10. Go to **MediaConvert** and under **Create a job**, click **Get Started**.
11. For **Input 1** click browse to select the input file, for this example select the **S3 Bucket** named **ezdrm-aws-123456-001** and the **BigBuckBunny_320x180.mp4** file in the **input** folder previously created. Click the **Choose** button.

12. Next click the **Add** for **Output groups**. For this example, select **Apple HLS** and click the **Select** button.
13. The Apple HLS group settings will open. The **Custom Group Name** is optional. Under **Destination** click to **Browse** to the **S3 Bucket** created for this sample named `ezdrm-aws-123456-001` and the **output** folder previously created. Click the **Choose** button.

14. Scroll down and select the toggle for **DRM Encryption**.
The parameters are as follows:

- **Encryption method**: select `SAMPLE_AES`.
- **Key provider type**: select `SPEKE`.
- **Initialization vector in manifest**: select `Include`.
- **ResourceID**: this will be the ID that references your DRM Keys. This is a required field.

*Note:* The first time you send a ResourceID to run a job, the ID will be tied to the DRM keys for that job. Jobs can use the same ResourceID to reference the same keys or for new DRM Keys send a new ResourceID. It is best not to use a ResourceID from a failed job.

- **System ID**: Unique identifiers for the DRM system to use. Insert the System ID for Apple FairPlay, one ID per line: 94ce86fb-07ff-4f43-adb8-93d2fa968ca2

*Note:* The System ID values need to be lowercase.
- **URL:** The URL is the **API URL** copied from **Step 9** above, except at the end of the URL add “/copyProtection”. (This is case sensitive, be sure to capitalize the **P** in Protection.)

  Sample URL:  
  https://kxx00ywyrc.execute-api.us-east-1.amazonaws.com/EzDRMStage/copyProtection

15. Next, scroll down to the next section called **Outputs**. Enter a name for **Output 1**; for this example, we named it based on the quality rate of 96 as “_quality_rate_96”.

![Outputs](image)

16. Go back up to the top left side of the screen to change the settings for **Output 1**. Under the **Audio 1** output, be sure to set the appropriate **Bitrate (kbit/s)**. For this example, it is set to 96.0.

![Audio Settings](image)

17. Next select **Settings** under **Job settings**.
18. Select the **EZDRM** role under **IAM role**.

19. Once all of the settings are complete, scroll to the bottom of the page and click the **Create** button to create the job.

20. The job will show Submitted and then if you click the **Refresh** button, you will see the job listed as Complete.
### Job summary

#### Overview

<table>
<thead>
<tr>
<th>Status</th>
<th>Queue</th>
<th>Job ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLETE</td>
<td>Default</td>
<td>1520623052796-mlwGv</td>
</tr>
<tr>
<td>Role</td>
<td>Submit time</td>
<td>2018-03-09 14:17:32</td>
</tr>
<tr>
<td>EZDRM</td>
<td>Start time</td>
<td>2018-03-09 14:17:33</td>
</tr>
<tr>
<td>Finish time</td>
<td>Duration in queue</td>
<td>00:00:01</td>
</tr>
<tr>
<td>2018-03-09 14:19:30</td>
<td>Duration in transcoding</td>
<td>00:01:57</td>
</tr>
</tbody>
</table>