

EZDRM Configuration AWS MediaLive and MediaPackage



Table of Contents

Prerequisites	3
EZDRM AWS Speke Server Deployment	3
Step 1: Create a New User	
Step 2: Create AWS CLI Access	6
Step 3: Create an S3 Bucket	6
Step 4: Edit the Key Server files	
Step 5: Create Speke Server	
Step 6: Create Role – MediaPackage	
Creating an AWS MediaLive & MediaPackage Job	
Create a Channel in MediaLive	
Create Channels in MediaPackage	
DASH-ISO Output example	
HLS Output example	
Create Endpoints in MediaPackage	34
DASH-ISO Endpoint example	
Apple HLS Endpoint example	
Microsoft Smooth Streaming	
Starting a MediaLive Channel	
Appendix 1 – Error Log Set-up	

Version 1



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: <u>https://docs.aws.amazon.com/cli/latest/userguide/installing.html</u>

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

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.

aws	Services 🗸	Resource Groups	•	*	
	AWS services				
	IAM			c	λ
	IAM				40
	Manage User Access and	d Encryption Keys			-

2. Go to the Users menu. Click the **Add user** button.

aws se	rvices 🗸 Resource Groups 🗸 🛧		
Search IAM	Add user Delete user		
Dashboard	Q Find users by username or access key		
Groups	User name 👻	Groups	Access k
Users			
Roles			There are no IAM users. Le
Policies			
Identity providers			
Account settings			

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.

You can add multiple users	at once with the same	e access type and permissions. Learn more	
	User name*	cli-access	
		O Add another user	
Select AWS access ty	pe		
Select how these users will			
celection arese users har	access AWS. Access	keys and autogenerated passwords are provided in the last step. Learn more	
	Access AWS. Access	Keys and autogenerated passwords are provided in the last step. Learn more Programmatic access Enables an access key ID and secret access key for the AWS API, CLI, SDK, and other development tools.	
Cerea non more docto mi	Access AWS. Access	 Programmatic access Enables an access key ID and secret access key for the AWS API, CLI, SDK, and other development tools. AWS Management Console access Enables a password that allows users to sign-in to the AWS Management Console. 	
	Access AWS. Access	 keys and autogenerated passwords are provided in the last step. Learn more Programmatic access Enables an access key ID and secret access key for the AWS API, CLI, SDK, and other development tools. AWS Management Console access Enables a password that allows users to sign-in to the AWS Management Console. 	

- 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.

				1 2 3 4
et permissions for cli-access				
Add user to group	Copy permissions from existing user	Attach existin directly	g policies	
ach one or more existing policies directly to the	users or create a new policy. L	eam more		
Create policy C Refresh				
Create policy 2 Refresh Filter: Policy type V Q Search				Showing 315 results
Create policy 2 Refresh Filter: Policy type ~ Q Search Policy name ~	Туре	Attachments 👻	Description	Showing 315 results
Create policy 2 Refresh Filter: Policy type ~ Q Search Policy name ~ Policy name ~	Type Job function	Attachments 🗸	Description Provides full access to AWS services and resources.	Showing 315 results

- 6. Click the **Next: Review** button.
- 7. Review the new User settings on the Review page and click the **Create user** button.

RM

		EZ DRIVI Digital Rights Management. Simplified.
Review		
Review your choices.	After you create the user, you	u can view and download the autogenerated password and access key.
User details		
	User name	cli-access
	AWS access type	Programmatic access - with an access key
Permissions surr	nmary	
The following policies	will be attached to the user si	shown above.
Туре	Name	
	AdministratorAccess	

 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 <u>ONLY TIME</u> 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**. Add user

0	Success You successfully created the users shown below. You can view and dow Console. This is the last time these credentials will be available to down	wnload user security credentials. You can also email users instru nload. However, you can create new credentials at any time.	ctions for signing in to the AWS Management
L	Users with AWS Management Console access can sign-in at: https://86	88859578094.signin.aws.amazon.com/console	
L Dov	wnload .csv		
å Dov	wnload .csv	Access key ID	Secret access key

F		C ² - ∓ ME INSE	ERT PAGE LAYOUT	creder FORMULAS	tials (1).csv - Exc DATA REVI	el EW VIEW	?	E
Pat	ste 💉	Calibri B I <u>U</u> •	- 11 - A A - E - 2 - A - Font r	王 王 王 臣 王 王 王 臣 任 王 ◇・ Alignment	General	Conditional Formatting	Format * Cells	$\sum_{x} - \frac{x}{2} - \frac{x}{2}$ $(x) - \frac{x}{2} - \frac{x}{2}$ Editing
D	۵		Jx			D		
1	User name	Password	Access key ID	Secret ac	Secret access key		Console login link	
2	cli-access		AKIAJXXXXXXXJZ4M	DY2KA POXXXXX	/qLGAIhXXXX	PoyS53pOGrC7VulHyaXXX	https://88885	9578094.signin

Cancel Previous Create us

Close



Step 2: Create AWS CLI Access

To create the AWS CLI access, open Command Prompt.

- 1. Type the command **<u>aws configure</u>** and hit enter.
- 2. You will be prompted to enter your **<u>AWS Access Key ID</u>** 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 <u>Default region name</u> (Example: us-east-1) and hit enter. You can find the region that is closest to you here: <u>https://docs.aws.amazon.com/general/latest/gr/rande.html</u>
- 5. You will be prompted to enter the Default output format and hit enter. You will enter the format **json**.

Sample Command Prompt:



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.

aws	Services - Resource Groups - 🖈
	AWS services
	\$3
	S3 Scalable Storage in the Cloud
	Athena Query Data in S3 using SQL
\sim	



2. Click the **Create Bucket** button.

aws	Services 🗸 Resource Groups 🗸 🐂	\geq
Identify	optimal storage classes with S3 Analytics - Storage Class	An
	Amazon S3	<
Q Se	earch for buckets	_5
+ Crea	te bucket Empty bucket	>
Bucke		$\langle \rangle$

- 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 *sep*unique across all existing *sep*bucket names in Amazon S3.

• Region: enter the region closest to you.

	Create bucket							
1 Name and region	2 Set properties	3 Set permissions	(4) Review					
Name and regior	1.3							
Bucket name 🕚								
ezdrm-aws-1234	56-001							
Region								
US East (N. Virgin	nia)		~					
Copy settings fro	m an existing bucket							
Select bucket (op	tional)		2 Buckets 🗸 🗸					
-				_				
Create			Cancel	lext				

4. Click the **Next** button through the next three screens keeping all the default settings, then click the **Create Bucket** button.



		Create	bucket		\times						
	Name and region	2 Set properties						Create b	ucket		×
	Vers	sioning	Server access	ogging	Ø N	lame and region	🕑 Set pr		3 Set permissions	(4) Review	
	Keep multiple ver the sar	rsions of an object in me bucket.	Set up access log records t details about access re	hat provide quests.	Man	age users					
	Learn	more	Learn more								
	Disabled		Disabled		oko	rnienko(Owner)		✓ Read ✓ Write	🗹 Read 🗹 Write		
	Т	ags	Object-level lo	gging	Acce	ess for other AW	'S account	+ Add acco	unt		
	Use tags to trac	ck your cost against			Create	bucket			permissions		
-			Name and region	🕢 Set p	roperties	Set per		(4) Review	d)	÷	
			Name and reg	ion							- 1
			Bucket name e	zdrm-aws-12345	i6-001 Re	gion US East (N	. Virginia)			Previous	Next
			Properties								
			Versioning Server access I	Di Daging Di	isabled isabled						
			Tagging	0	Tags						
			Object-level log	ging Di	isabled						
			Delautencrypt		UNC						
			Permissions								
			Users	1							
							Previous	Create bu	cket		

Step 4: Edit the Key Server files

To edit the Key server files:

- 1. Download the EZDRM AWS zip file through a browser using this link: <u>http://www.ezdrm.com/downloads/ezdrm-aws-live.zip</u>
- 2. Extract the **ezdrm-aws-live.zip** file and open the **ezdrm-aws-live** folder.

ezdrm-aws-live.zip

3. Right-click to edit the **key_server_common.py** file.



C:\Users\	\Downloads\ezdrm-aws-live		
Name	Size	Туре	
↓		File folder	
cloud_formation.json	7,035	JSON File	
<pre>cloud_formation.py</pre>	2,192	Python File	
create_cloud_formation.py	391	Python File	
key_server.py	613	Python File	
key_server_common.py	6,774	Python File	

4. Edit Line 78 with your EZDRM username and password and save the file. The parameters are as follows:

Parameter	Description
u	EZDRM username
р	EZDRM password

73	xt = PLAYREADY CONTENT KEY
74	
75	<pre>xt = base64.b64encode(get_digest(KEY_STRING, content_id, kid)).decode('utf-8')</pre>
76	system_ids.get(HLS_SAMPLE_AES_SYSTEM_ID, False) == kid:
77	<pre>-t('explicitIV', base64.b64encode(get_digest(KEY_STRING, content_id, kid)).decode('utf-8'))</pre>
78	[lopen('http://cpix.ezdrm.com/awslive.aspx?m=' + mst + '&k=' + kid + '&u=USERNAME&p=PASSWORD&c=' + content_id + '&e
79	ad ()
80	ace("cpix", "urn:dashif:org:cpix")
81	<pre>ace("pskc", "urn:ietf:params:xml:ns:keyprov:pskc")</pre>

5. After editing the **key_server_common.py** file, combine it with **key_server.py** in a zip file called **key_server.zip**.

			Archive name and parameters General Advanced Options Files	? X Badup Time Comment
			Archive name key_server.zip	Browse
Cloud_formation.json	4/13/2018 8:02 AM JSON File	7 KB	Profiles	Update mode Add and replace files ~
cloud_formation.py cloud_formation.py create_cloud_formation.py key_server.py key_server.py	Open Edit with IDLE ☑ Edit with Notepad++ ☑ Scan with Windows Defender ☑ Share	>	Archive format Archive format Compression method Normal	Archiving options Delete files after archiving Create SFX archive Create solid archive Add recovery record Test archived files
	Give access to	>	32 KB ~ Split to volumes, size	Lod: archive
	Add to "ezdrm-aws-live.rar" Compress and email Compress to "ezdrm-aws-live.rar" and email		× 8 ×	Set password OK Cancel Help



Step 5: Create Speke Server

To create the Speke Server, open Command Prompt.

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

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

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-live\ezdrm-aws-live> 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-live\ezdrm-aws-live> pip install --upgrade --user boto3

Once complete, you view see the server **EzDRMLiveRestApi** under the **Amazon API Gateway**:



 Click on the EzDRMLiveRestApi link and 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 in a future step.



RMLiveRestApi	Invoke this A	API at: https://09puxkvybd.execute-api.us-east-1.amazona	ws.com/EzDRMLiveStage/
Resources	Stage EzDRMLiveStage 0 From 4/6/18	To 4/20/18	
Authorizers	API Calls 2	Latency 2	Integration Latency
Bateway Responses	400	400	400
fodels	300	300	300
lesource Policy	200	200	200
a cumentation	100	100	100

Step 6: Create Role – MediaPackage

To create a the MediaPackage Role in AWS complete the following steps:

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

aws	Services 🗸 Resource G	roups 🗸 🏌
-		
	AWS services	
	IAM	٩
	IAM	•
	Manage User Access and Encryption Keys	3 N

2. Go to the Roles menu. Click the **Add role** button.

search IAM	IAM roles are a secure way to grant permissions to entities that you trust. Examples of entities include the following:
Dashboard	IAM user in another account
Groups	Application code running on an EC2 instance that needs to perform actions on AWS resources
Users	An AWS service that needs to act on resources in your account to provide its features
Roles	Users from a corporate directory who use identity federation with SAML
Policies	IAM roles issue keys that are valid for short durations, making them a more secure way to grant access.
dentity providers	Additional resources:
Account settings	IAM Roles FAQ
Credential report	IAM Roles Documentation
	Tutorial: Setting Up Cross Account Access
Encryption keys	Common Scenarios for Roles

3. Under AWS service select the **MediaConvert** role (there isn't currently a role for MediaPackage) and click the **Next: Permissions** button.



AWS service	Anothe	r AWS account	b identity grito or any OpenID	SAML 2.0 federation
lows AWS services to perfe	orm actions on your behalf.	Learn more	vider	
Choose the servic	e that will use this	s role		
EC2 Nows EC2 instances to cal	I AWS services on your bet	haif.		
Lambda Allows Lambda functions to	o call AWS services on your	behalf.		
API Gateway	Config	Eastic Container Service	Lex	SWF
AppSync	DMS	Elastic Transcoder	Machine Learning	SageMaker
Application Auto Scaling	Data Pipeline	ElasticLoadBalancing	MediaConvert	Service Catalog
kuto Scaling	DeepLens	Glue	OpsWorks	Step Functions
Batch	Directory Service	Greengrass	RDS	Storage Gateway
CloudFormation	DynamoDB	GuardDuty	Redshift	
CloudHSM	EC2	Inspector	Rekognition	
CloudWatch Events	EMR	IoT	53	
CodeBuild	ElastiCache	Kinesis	SMS	
CodeDeniov	Elastic Beanstalk	Lambda	SNS	

4. Enter the **Role name** and click the **Create role** button.

Role n	me* MediaPackage	
	Use aphanumenciano ++,/4 characters, Maximum e4 characters,	
Role descri	bion Allows MediaConvert service to call S3 APIs and API Gateway on your behalf.	
	Maximum 1000 characters. Use alphanumeric and "++, @" characters.	
Trusted en	ities AWS service: mediaconvert.amazonaws.com	
Po	icies iii AmazonS3FullAccess C*	

5. Now that the MediaPackage role is created, click on the link to open the role details.

arch IAM	Create role Delete role		
ashboard	Q Search		
roups sers	Role name 👻	Description	Trusted entities
oles	EZDRM	Allows MediaConvert service to call S3 APIs and API Gateway on your behalf.	AWS service: mediaconver
plicies	MediaLiveAccessRole	AWS Elemental MediaLive created the role.	AWS service: medialive
entity providers	MediaPackage	Allows MediaConvert service to call S3 APIs and API Gateway on your behalf.	AWS service: mediapackag
count settings			

6. Because a role doesn't exist for MediaPackage, you will need to add an inline policy and change the settings of these role. This gives permission to execute the copy protection.

First, note your **AWS Account ID** as part of the **Role ARN** value (you can also find this value under the My Account menu under Account Settings). Click the link to **Add inline policy**.

Search IAM	Summary	Delete rol
Dashboard Groups Users Roles Policies	Role ARN arn:aws:lam::888/ 78094 role/MediaPackage Allow Role description Allows MediaConvert service to call S3 APIs and API Gateway on your behalf. Edit Instance Profile ARNs Allows MediaConvert service to call S3 APIs and API Gateway on your behalf. Edit Path / / Creation time 2018-04-20 12:55 EDT	
dentity providers Account settings Credential report	Maximum CL/API session duration 1 hour Edit Permissions Trust relationships Access Advisor	
dentity providers Account settings Credential report	Maximum CL/API session duration 1 hour Edit Permissions Trust relationships Access Advisor Attach policy Attached policies: 2	
dentity providers Account settings Credential report	Maximum CL/API session duration 1 hour Edit Permissions Trust relationships Access Advisor Revoke sessions Attach policy Attached policies: 2 Policy name • Policy type • Maximum Attached policies: 2 Policy type •	×



7. Next select the **JSON** tab and replace with the following code:

	Start a capture with	the sele
reate policy	1	2
policy defines the AWS permissions that you can assign to a user, group, or role. You can create and edit a policy in the visual editor and using JSON. Learn more	i	
This policy validation failed and might have errors converting to JSON : The policy must have at least one statement For more information about the IAM policy IAM Policies	grammar, see AWS	×
Visual editor JSON	Import manage	d polic
1- { 2 "Version": "2012-10-17",		
3 "Statement": [] 4]		

{
"Version": "2012-10-17",
"Statement": [
{
"Effect": "Allow",
"Action": [
"execute-api:Invoke"
],
"Resource": [
"arn:aws:execute-api:us-east-1: <mark>888XXXX78094:<mark>09puxkvybd</mark>/*/GET/client/*/*",</mark>
"arn:aws:execute-api:us-east-1: <mark>888XXXX78094</mark> : <mark>09puxkvybd</mark> /*/POST/copyProtection"
]
}
]
}

The yellow highlighted value is your **AWS Account ID**, the purple highlighted value is from the **EzDRMLiveRestApi Invoke this API** URL created in Step 5 (this value would change if you redeploy the Speke server).



8. Once you've entered the correct code in the JSON tab, click the **Review policy** button.

olicy defines	the AWS	permissions that you can assign to a user, group, or role. You can create and edit a policy in the visual editor and using JSON. Learn more	
This policy IAM Policie	validation s	ailed and might have errors converting to JSON : The policy must have at least one statement For more information about the IAM policy gramm	ar, see AWS
fisual editor	JSO	N Irr	port managed po
2 3. 4. 5 6. 7 8 9. 10 11 12 13	"Versia" "Stater {	<pre>on": "2012-10-17", ment": ["Effect": "Allow", "Action": ["execute-api:Invoke"], "Resource": ["arn:aws:execute-api:us-east-1:888859578094:09puxkvybd/*/GET/client/*/*", "arn:aws:execute-api:us-east-1:888859578094:09puxkvybd/*/POST/copyProtection"]</pre>	

- Cancel Review policy
- 9. On the Review policy page, fill in the policy **Name** and click **Create policy**.

EZDRM

					EZ	DRM Digital Rights Management. Simplified.
Create polic	ý				1 2	
Review policy Before you create this po	blicy, provide the required int MediaPackagetoEZD Maximum 128 characters.	ormation and review this policy.				
Summ	ary Q Filter					
	Service 👻	Access level	Resource	Request condition		
	Allow (1 of 136 serv	lices) Show remaining 135	Multiple	None		
* Required				Cancel Previous Cr	ate policy	

10. Now you will detach the two default policies from the role by clicking the "x" next to **AmazonS3FullAccess** and **AmazonAPIGatewayInvokeFullAccess**.

ermi Ati	issions Trust relationships Access Advise tach policy Attached policies: 3	Pr Revoke sessions		
	Policy name 👻		Policy type 👻	
۲	AmazonS3FullAccess		AWS managed policy	
•	AmazonAPIGatewayInvokeFullAccess		AWS managed policy	1
۲	MediaPackagetoEZDRM		Inline policy	
				• Add inline policy

Click **Detach** on the Detach policy confirmation screen for both.

Are you sure you want to detach policy A	mazonS3FullAccess from role
MediaConvertRole ?	

11. Then click on the **Trust relationships** tab and click the **Edit trust relationship** button.

arrinary				Delete rol
	Role ARN	arn:aws:lam:	:888859578094:role/Medi	aPackage 🖉
	Role description	Allows Media	Convert service to call S	APIs and API Gateway on your behalf. Edit
	Instance Profile ARNs	Ø		
	Path	1		
	Creation time	2018-04-18	12:58 EDT	
Maximum C	LI/API session duration	1 hour Edit		
Permissions	Frust relationships A	ccess Advisor	Revoke sessions	
You can view the tr	rusted entities that can ass	ume the role and	the access conditions fo	r the role. Show policy document
Edit trust relation	onship			
Trusted entities				Conditions
The following trust	ed entities can assume this	s role.		The following conditions define how and when trusted entities can assume the role.
				There are no conditions associated with this role
				There are no conditions associated with this tole.

12. Edit line 8 from "mediaconvert.amazonaws.com" to

"mediapackage.amazonaws.com" and click the Update trust policy button.

Edit Trust Relationship



The Trust relationships tab should be updated as follows:

EZDRM



13. Once the MediaPackage role is created, make note of the **Role ARN** value for use in a later step. You can copy this value using the doc copy shortcut.

arrithary			Delete ro
Role ARN	arn:aws:iam::888 78094:role/MediaPackage		
Role description	Allows MediaConvert service to call S3 APIs and API Gate	eway on your behalf. Edit	
Instance Profile ARNs	伦		
Path	/		
Creation time	2018-04-18 12:58 EDT		
Maximum CLI/API session duration	1 hour Edit		
Permissions Trust relationships Acc	ess Advisor Revoke sessions		
Attach policy Attached policies: 1			
		Policy type 👻	
Policy name 👻			
Policy name → MediaPackagetoEZDRM		Inline policy	×

EZDRM



Creating an AWS MediaLive & MediaPackage Job

Create a Channel in MediaLive

1. Through AWS Services go to MediaLive and under Get Started, click Create Channel.



Channel and Input Details

- 2. The channel is the input for your live broadcast. Enter the **Channel Name** (this is a required value).
- 3. Under IAM Role, the first time you create a channel, you can select **Create Role from Template** and click **Create IAM role**. The **MediaLiveAccessRole** will be created. You can select to **Remember role** and it will be available as the existing role for future channels.



reate channel		Create channel	
Channel	Channel and input details	Channel	Channel and input details
Channel and input details	General info	Channel and input details	General info
General settings Input settings	Owned name - required sample-live-channel	General settings	Channel name - reguired sample-live-channel
Output groups (1) An An output group can contain out or may output. For any evening writing, and dar remove audit, videu, and capcion tracks. Context	Write Break reak write wr	Cutput groups III And An organ page tak contain between any adjusts, for each between adjusts, for each between adjusts, takes, and contain takes.	How they Bit was they assessing up on the short, if, you most an 4M with it instead of up on a most and the short and up on the short. Image: Imag

4. Under **Channel input**, click the **Create input** button.

arn:aws:lam::888	859578094:role	/MediaLiveAccessRo	ole	•	
Remember r	ole				
AWS Elemental Me channel.	diaLive will save	this IAM role for yo	u. You can choos	e to use it the next time ye	ou create
Channel inp	ut			Create	input
You don't have a	iny available i	nputs to attach.	C		
Input specificati	ons				
The values in these AWS Elemental Me	fields are used diaLive allocate	to calculate the char s sufficient processin	rges you will incu ig resources whe	r on the input side and en n you run this channel.	sures tha
		Input resolution	n	Maximum input bitr	ate
Input codec					

This will pull the source and type of stream pushing up to MediaLive, for this example we are using the HLS input type.
 Create input

G	Channel progress saved You will be redirected back to your channel settings after creating your input.	
Ing	put details	
Inp	ut name – required	
	pole-test stream	
9	ppe-test-sutemi	
Inp	ut type - required RTP Purb your source to fixed endpoints with the real-time transport protocol.	
	ut type – required RTP Push your source to fixed endpoints with the real-time transport protocol. RTMP (push) Push your source to fixed endpoints with the real-time messaging protocol.	
	ut type – required RTP Push your source to fixed endpoints with the real-time transport protocol. RTMP (push) Push your source to fixed endpoints with the real-time messaging protocol. RTMP (pull) Pull your source from external endpoints with the real-time messaging protocol.	



6. Channel **Input source A** and **Input source B** will be the same for redundancy. For this example, we are using a publically available HLS stream provided by Apple for testing. You will enter your encoders publishing point URL for both Input sources and click **Create** button.

Pull your source from extern	Lenidpoints with the HTTP p	rotocol.		
Input source A For pull type inputs, you must sp	cify the source URL and acce	ss credentials of the locatio	in that you want to pull from	
URL				
http://devimages.apple.co	n.edgekey.net/streaming	y/examples/bipbop_16	e9/bipb	
Credentials (optional)				
Input source B For pull type inputs, you must sp	cify the source URL and acce	ss credentials of the locatio	an that you want to pull from	
URL				
http://devimages.apple.co	n.edgekey.net/streaming	/examples/bipbop_16x	e9/bipb	
 Credentials (optional) 				
			Cancel	Consta

7. Once the Input is created, it can be selected from the Input dropdown menu.

Channel input	•			Create input
nput Choose a detached in	put to add t	o this channel.		
apple-test-stream 299196 arn:aws:mediallyetu	n is-east-1:88	8859578094:input:29919	URL_PUL	C C
Input sources The source location	s of the con	tent to pull.		
1. http://devima 16x9_variant.	ages.apple m3u8	.com.edgekey.net/stre	aming/exar	nples/bipbop_16x9/bipbop_
 http://devima 16x9_variant. 	ages.apple m3u8	.com.edgekey.net/stre	aming/exar	nples/bipbop_16x9/bipbop_
nput specification he values in these fi WS Elemental Media	S elds are use aLive allocat	d to calculate the charges es sufficient processing re	you will incur sources when	on the input side and ensures that you run this channel.
C TALANCE AND A POPULATION OF THE		Input resolution		Maximum input bitrate
nput codec				

Create Channels in MediaPackage

8. The next step is to create a new channel in **MediaPackage** to ingest the stream that is coming from MediaLive.

Note: It is helpful to have multiple tabs open during this process, for ease of copying settings between MediaLive and MediaPackage.



м	ediaLive	AWS Management Console
WS Services	∽ Resource Groups ∽ 🕈	
AWS se	ervices	
MediaPac	kage I	٩
MediaPa Deliver vic	ckage eo to many devices using just-in-time format conversion	k
⊳∄ Med	aLive () IAM	API Gateway

9. Click **Next Step** under **Create a new channel**.



10. Enter the Channel details including the **ID** channel identifier and select the **Input type "Apple HLS"** (this is the only supported type). Click **Create**.

nannal dataile	
chamlet details	
D	
The ID is the channel identifier that you use for API and console inter-	ctions.
fromMediaLiveT	
Supported characters are numbers, letters, underscores (_), and dashe	s (-). Must be unique per AWS account per region.
a la constante de la constante	
Description	
Input type	
Apple HLS	

11. This will create the MediaPackage channel. For redundancy, a second channel will need to be created. Select **Channels**.

Successfully created channell Continue by adding endpoints to this channel.	8
AWS Elemental MediaPackage > Channels > fromMediaLive1	Rotate credentials Edit Delete
Overview	
ID fromMediaLive1 Description ARN armaws:mediapackage:us-east-1:888859578094:channels/7c59ca874c794615947d7ba48afe167c	Input URL https://755ca1af5fag9bea.mediapackage.us-east-1.amazonaws.com/in/v1/7c59ca874c794615 97d7ba48afe167c/channel Usemame 200e29792334400b878bcb051b094ed0 Password ************************************

12. Click create on the **Channels** page and click the **Create** button to create the second redundant channel.

Char	nnels		Oele	te	F	Crea	•
				<	1	>	0
	ID	Description	URL				
	fromMediaLive1		https://755ca1af5faa9bea.mediapackage.us-east-1.amazonaws.com/in/v1/7c59ca874c794615947d7ba48afe167c/chann	el			

13. Enter the **Channel details** and click **Create**.

VS Elemental MediaPackage > Create chann	bl.			
reate channel				
Channel details				
ID The ID is the observed identifier that services for 100 a	d console interactions.			
The forts the charmet identifier that you use for APT a				
fromMediaLive2				
fromMediaLive2 Supported characters are numbers, letters, undersco	is (_), and dashes (-). Must be unique	per AWS account per n	egion.	
from MediaLive2 Supported characters are numbers, letters, underscor Description	rs (_), and dashes (-). Must be unique	per AWS account per n	egion.	
fromMediaLive2 Supported characters are numbers, letters, underscor Description	es (_), and dashes (-). Must be unique	per AWS account per n	egion.	
fromMediaLiVe2 fromMediaLiVe2 Description Input type The input type is the type of video that the channel is	es [.], and dashes [-]. Must be unique	per AWS account per n	egion.	

14. Now we have the URL and Channel details we will need for the Output Groups in MediaLive.

AWS Elem	iental MediaPackage 🗦 🤇	Channels		
Chan	nels		Delete	Create
			<	1 > 💿
	ID	Description	URL	
	fromMediaLive2		https://5b6ebaa552949bbd.mediapackage.us-east-1.amazonaws.com/in/v1/13cb920eb64846f1891f69a3167b3557/channel	
	fromMediaLive1		https://755ca1af5faa9bea.mediapackage.us-east-1.amazonaws.com/in/v1/7c59ca874c794615947d7ba48afe167c/channel	

MediaLive Output Groups

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15. Back in **MediaLive**, click the **Add** button under **Output groups** and select **HLS**. Click the **Confirm** button.1

nannel	Add output group
annel and input details	Choose output group type The type of group determines how outputs are transported or packaged.
eneral settings put settings	 HLS Send live audio, video, and captions to smartphones, tablets, computers, and other AWS Media Services with HTTP Live Streaming (HLS).
Add	Archive Archive your live audio, video, and captions to Amazon S3.
output group can contain e or many outputs. For each tput, you can configure the	Microsoft Smooth Send live audio, video and captions to an origin server or CDN with Microsoft Smooth Streaming.
coding settings, and add or nove audio, video, and otion tracks.	O UDP Broadcast live audio, video, and captions with RTP or UDP.
Cancel Create channel	RTMP Push live audio, video and captions to an RTMP destination.

Note: MediaPackage only accepts HLS streams.

16. Copy and Paste the **Input URL**, **Username** and **Password** from the first **MediaPackage** channel you created to input in the next step.

romMediaLive1	Rotate credentials Edit Delet
Overview	
ID fromMediaLive1 Description ARN am:aws:mediapackage:us-east-1:888859578094:channels/7c59ca874c794615947d7ba48afe167c	Input URL https://755ca1af5faa9bea.mediapackage.us-east-1.amazonaws.com/in/v1/7c59ca874c79461 947d7ba48afe167c/channel Usemame 200e29792334400b878bcb051b094ed0 Password Show

17. In **MediaLive**, in the first **HLS Group destination A**, enter the copied values for **URL** and **Username**. The first time you set up a password in the Output groups, you will select **Create AWS Elemental MediaLive parameter**. This will allow the password to be saved by AWS for future use. We recommend entering the password **Name** with something that will help you select the correct one when you have multiple channels created in the future. Enter the **Password** value and click to **Create the AWS Elemental MediaLive Parameter**.



Channel	1. HLS group
Channel and input details	HLS group destination A Type a destination for your first HLS group.
General settings	URL
Input settings	https://755ca1af5faa9bea.mediapackage.us-east-1.amazonaws.c
Output groups (1)	▼ Credentials (optional)
Add	Username
1 HIS group	200e29792334400b878bcb051b094ed0
Output 1 (_1)	Password Retrieves the password that is stored in the specified parameter in Amazon EC2 Systems Manager Parameter Store.
	 Use an existing AWS Elemental MediaLive parameter.
Cancel Create channe	Create AWS Elemental MediaLive parameter.
	Vise an existing parameter. Name A name for the parameter. The name will be prefixed with /medialive/.
	pw-36d4
	Password value The password to store in this parameter.
	36d4ff
	Croste AWS Elemental Medial ive parameter

URL	
https://755ca1af5faa9bea.mediap	package.us-east-1.amazonaws.c
 Credentials (optional) 	
Username	
200e29792334400b878bcb051b0	094ed0
Password	
Retrieves the password that is stored in the Parameter Store.	he specified parameter in Amazon EC2 Systems Mana
O Use an existing AWS Elemental	MediaLive parameter.
Create AWS Elemental MediaLiv	ve parameter.
 Use an existing parameter. 	
Use an existing AWS Elemental Med	diaLive parameter.
/medialive/pw-36d4	
SecureString	T

18. Copy and Paste the **Input URL**, **Username** and **Password** from the second **MediaPackage** channel you created to input in the next step.

	EZ DRA Digital Rights Manage
AWS Elemental MediaPackage > Channels > fromMediaLive2	
fromMediaLive2	Rotate credentials Edit Delete
Overview	
ID fromMediaLive2 Description ARN armaws:mediapackage:us-east-1:888859578094:channels/13cb920eb64846f1891f69a3167b3557	Input URL https://5b6ebaa552949bbd.mediapackage.us-east-1.amazonaws.com/in/v1/13cb920eb64846 f1891f69a3167b3557/channel Username 03892b2d40d94f99ac5bc1b65f20cc42 Password ************************************

19. Back in **MediaLive**, in **HLS Group destination B** for redundancy, repeat the process in Step 17 to enter parameters for **URL** and **Username**, Password **Name** and **Password** from **MediaPackage**.





	HLS group destination B Type a destination for your second (redundant) HLS group.
	URL
	https://5b6ebaa552949bbd.mediapackage.us-east-1.amazonaws
N	▼ Credentials (optional)
	Username
	03892b2d40d94fb9ac5bc1b65f20cc42
	Password Retrieves the password that is stored in the specified parameter in Amazon EC2 Systems Manager Parameter Store.
	Use an existing AWS Elemental MediaLive parameter.
	Create AWS Elemental MediaLive parameter.
	 Use an existing parameter.
	Use an existing AWS Elemental MediaLive parameter. Choose parameters that were created specifically for AWS Elemental MediaLive.
	/medialive/pw-a636

20.Next in **MediaLive** under **HLS Settings** enter a **Name**, and for **CDN Settings** select **HIs webdav**. Keep the other settings as default.

ame	
push-toMediaPackage	
DN Settings Info	
Hls webdav	•
Connection Retry Interval Info	
1	0
Num Retries Info	
10	0
Filecache Duration Info	
300	0
Restart Delay Info	
15	0
HTTP Transfer Mode Info	
NON_CHUNKED	•
put Loss Action Info	
EMIT_OUTPUT	•
ption Language Mappings (0)	
Add caption language mappings	

DASH-ISO Output example

21. This is the Output set up for DASH-ISO. See the next section for HLS Output settings. Under **HLS outputs** click the **Add output** button to create Output 2.



You can name Output 1 to represent the video output, and Output 2 to represent the audio output.

HLS output	ts (2)		Add output
Add one or more enable you to ch	outputs to this group. Each output has u oose the video, audio, and captions tracks	nique stream settings that s that you need.	,
Output	Name modifier	Actions	
Output 1	_v	Settings	×

22. The rest of the settings under **Channel and Input Details** keep as default.

Input Settings

23. Click on the **Input settings** link and click the **Add audio selectors** button.

Channel	Input settings	
Channel and input details	General input settings	
General settings	Network Input Settings Info	
Input settings		
	Input Filter Info	
Output groups (1)	AUTO	
Add	Filter Strength Info	
Add	1	0
1. push-toMediaPackage (HLS)	Deblock Filter Info	
Output 1 (_v)	DISABLED	
Output 21 al	Denoise Filter Info	
Output 2 (_a)	DISABLED	
	Source End Behavior Info	
Cancel Create channel	CONTINUE	•
	Video Selector Info	
	Audio Selectors (0)	
	Add audio selectors	
	Caption Selectors (0)	
	Add caption selectors	

24. Enter the **Audio Selector Name** and copy it to paste in the next section.

Add audio selectors	
Audio Selectors 1 Audio Selector Name Info	Remove
SampleAudio	
Selector Settings Info	



25. Under **Output Groups**, select **Output 2 (_a)** and click on the **Video** tab. Click the **Remove video** button.

output groups (1)	HLS Setting	as Info	
Add	Standard	his	
1. push-toMediaPackage (HLS)	Audio Ri	endition Sets Info	
	PROGR	RAM_AUDIO	
Output 1 (_v)	M3U8 S	ettings Info	
Output 2 (_a)	M3U8	Settings	•
Create Channet	► P	ID Settings	Add caption
	Video	Video	Remove video
	Video Audio 1	Video Video Description Name Info	Remove video
	Video Audio 1	Video Video Description Name Info video_lo4ex6	Remove video
	Video Audio 1	Video Video Description Name Info Video_lo4ex6 Vidth Info	Remove video
	Video Audio 1	Video Description Name Info Video_Lo4ex6 Width Info	Remove video
	Video Audio 1	Video Description Name Info Video_Lo4ex6 Width Info Height Info	Remove video
	Video Audio 1	Video Description Name Info Video_lo4ex6 Width Info Height Info	Remove video
	Video Audio 1	Video Video Description Name Info Video_lodex6 Width Info Height Info Codec Settings Info	C

26. In the Audio 1 section, enter the Audio Description Name (we recommend AAC Audio), then paste the Audio Selector Name that you entered in Step 24. Select Aac under Codec Settings.

Cancel Create channel	▶ T	ansport/Container Configuration D Settings	
	Stream s	Add video	Add audio Add caption
	Audio 1	Audio 1	Remove audio 1
		Audio Description Name Info	
		Audio Selector Name Info	
		SampleAudio	
		Codec Settings Info	
		Aac	*
		 Codec Configuration Remix Settings Info 	
			•
		Audio Normalization Settings Info	
			•

27.Next, select **Output 1 (_v)** and **Remove audio 1**.

Output 1 (_v)	PROGRAM_AUDIO	
Output 27 al	M3U8 Settings Info	
Output 2 (a)	M3U8 Settings	•
Cancel Create chann		Add video Add audio Add caption
	Video Audio 1 Audio Description Nam	Remove audio 1

28. You can rename the **Video Description Name** if you prefer and leave the default settings. Then click **Create channel**.

Output 1 (_v)	PROG	RAM_AUDIO			
Output 2 (a)	M3U8 5	Settings Info			
Output 2 Cal	M3U8	Settings		*	
Cancel Create channel]	Transport/Contain PID Settings	er Configuration		
	Stream	settings	Add video	Add audio	Add caption
	Video	Video Descrip	ion Name Info		Remove video
		h264 video			
		Width Info			
					0
		Height Info			
					0
		Codec Setting	s Info		
				0	

29. The MediaLive channel should now be created.

AWS Elementa	I MediaLive > Channe	ls			
Channel	S (2)			Start Stop Actions ¥	Create channel
Na	me	State	ID	ARN	Input
O sar	nple-live-channel	Idle	2838182	am:aws:medialive:us-east-1:888859578094:channel:2838182	299196

HLS Output example

30. This is the Output setup for **HLS**. Under **HLS outputs** rename **Output 1** to represent the video output.

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HLS outputs	(1)		Add output
Add one or more o video, audio, and c	utputs to this group. Each output has unique strean aptions tracks that you need.	n settings that enable you to choose the	
Output	Name modifier	Actions	

31. The rest of the settings under **Channel and Input Details** keep as default.

Input Settings

32. Click on the **Input settings** link and click the **Add audio selectors** button.

Channel	Input settings	
Channel and input details	General input settings	
General settings	Network Input Settings Info	
Input settings	Input Filter Info	•
Output groups (1) Add	AUTO	•
	Filter Strength Info	
1. pushtoMediaPackage1 (HLS)	1	0
Output 1 (_v)	Deblock Filter Info	
	DISABLED	•
Cancel Create chann	Denoise Filter Info	
Cleate chann	DISABLED	▼.
	Source End Behavior Info	
	CONTINUE	•
	Video Selector Info	
		•
	Audio Selectors (0)	
	Add audio selectors	
	Caption Selectors (0)	
	Add caption selectors	

33. Enter the **Audio Selector Name** and copy it to paste in the next section.



Add audio selectors	
Audio Selectors 1 Audio Selector Name Info	Remove
SampleAudio	2
Selector Settings Info	
*	

34. Under **Output Groups**, In the **Audio 1** section, enter the **Audio Description Name** (we recommend AAC Audio), then paste the **Audio Selector Name** that you entered in Step 33. Select **Aac** under Codec Settings.

deo	Audio 1	Remove audio 1
VIGEO	Audio Description Name Info	L
idio 1	AAC Audio	
	Audio Selector Name Info	
	SampleAudio	
	Codec Settings Info	
	Aac	•
	Codec Configuration	
	Remix Settings Info	
		•
	Audio Normalization Settings Info	
		•

35. Next, select **Output 1 (_v)**. You can rename the **Video Description Name** if you prefer and leave the default settings. Then click **Create channel**.

EZ	DRM
	Digital Rights Management. Simplified.

Output 1 (_v)	Audio Ren	dition Sets Info	
	PROGRA	M_AUDIO	
	M3U8 Sett	tings Info	
Cancel Create channel	M3U8 Se	ettings 🔹	
	▶ Tra ▶ PID	nsport/Container Configuration 9 Settings	
	Stream set	ttings Add video Add audio	Add caption
	Video	Video	emove video
		Video Description Name Info	
	Audio 1	Video Description Name Info	
	Audio 1	Video Description Name Info	
	Audio 1	Video Description Name Info h264 video Width Info	
	Audio 1	Video Description Name Info h264 video Width Info © Height Info	
	Audio 1	Video Description Name Info h264 video Width Info Height Info	
	Audio 1	Video Description Name Info h264 video Width Info Height Info Codec Settings Info	

36. The MediaLive channel should now be created.

AWS Ele	mental MediaLive > Chann	nels			
Cha	nnels (2)			Start Stop Actions 🔻	Create channel
					$\langle 1 \rangle$ \otimes
	Name	State	ID	ARN	Input
0	sample-live-channel	Idle	2838182	am:aws:medialive:us-east-1:888859578094:channel:2838182	299196



Create Endpoints in MediaPackage

Endpoints are the outputs for the live stream for viewing. You can have multiple endpoints for each channel.

DASH-ISO Endpoint example

1. In **MediaPackage**, from the <u>first MediaLive channel you created</u>, click the **Add endpoints** button.

WS Elemental MediaPackage > Channels > fromM	ediaLlve1		
romMediaLive1		Rotate	e credentials Edit Delete
Overview			
ID fromMediaLive1 Description ARR amaws:mediapackage:us-east-1:888859578094;char	neix/7c59ca874c794615947d7ba48afe167c	Input URL https://755ca1af5fa9beax.mediapackage.us-east-1.ama 947d7ba48afe167c/channel Ukername 200e29792334400b878bcb051b094ed0 Password Show	zonaws.com/in/v1/7c59ca874c794615
Endpoints			Delete Add endpoints
Description	Package type	Preview	URL
	No endpoints exist yet. Click the Ad	d endpoints button to make one!	

2. Edit the Endpoint **ID** and **Manifest Name** to a unique identifier.

Add Add	dash-001	Remo
sh-001 Ne	D The ID is the endpoint identifier that you use for API and console interactions.	
	dash-001	
Cancel Sa	Supported characters are numbers, letters, underscores (), and dashes (-). Must be unique per AWS account per region.	
	Description - optional	
	Manifest Name. The munifest name is a short string that is appended to the endpoint URL to create a unique path to this endpoint. dash	
	Startover window (sec) info A startover window is a portion of a live stream that is made available for on-demand viewing. 300 The maximum startover window is 72 hours (259,200 seconds).	
	Time delay (sec) info A time delay specifies when live content is available for playback.	
	5 0	
	The maximum time delay window is 24 hours (86,400 seconds).	

3. Under Packager Settings, select the Type DASH-ISO, and update Segment duration (sec) to 20 seconds.

DASH-ISO	
Segment duration (sec) Manifest window duration (sec)	
20 0 0 0	

4. Scroll down and select the toggle for **Encrypt Content**.

Package encryption	
 No encryption This endpoint is not copy-protected. 	
Encrypt content Info The endpoint is copy-protected.	
Resource ID The resource ID is the identifier that you send to the key server to identify this endpoint	nt.
your-unique-resourceID	
Supported characters are numbers, letters, underscores (_), and dashes (-).	
System IDs Info	
A system to is a unique identifiers for the bran system to use. Type one per une.	12
edef8ba9-79d6-4ace-a3c8-27dcd51d21ed 9a04f079-9840-4286-ab92-e65be0885f95	
edef8ba9-79d6-4ace-a3c8-27dcd51d21ed 9a04f079-9840-4286-ab92-e65be0885f95 Must contain either one or two entries, as defined by the packager type. URL The URL for the proxy that you created so AWS Elemental MediaPackage can talk to yo	//
edef8ba9-79d6-4ace-a3c8-27dcd51d21ed 9a04f079-9840-4286-ab92-e65be0885f95 Must contain either one or two entries, as defined by the packager type. URL The URL for the proxy that you created so AWS Elemental MediaPackage can talk to yo https://09puxkvybd.execute-apl.us-east-1.amazonaws.com/EzDRMLives	bur key server. Stage/ <mark>copyProtection</mark>
edef8ba9-79d6-4ace-a3c8-27dcd51d21ed 9a04f079-9840-4286-ab92-e65be0885f95 Must contain either one or two entries, as defined by the packager type. URL The URL for the proxy that you created so AWS Elemental MediaPackage can talk to yo https://09puxkvybd.execute-api.us-east-1.amazonaws.com/EzDRMLives Role ARN The Amazon Resource Name (ARN) for the IAM role that you created that allows comm	bur key server. Stage/<mark>copyProtection</mark> hunication between SPEKE and AWS Elemental MediaPackage.
edef8ba9-79d6-4ace-a3c8-27dcd51d21ed 9a04f079-9840-4286-ab92-e65be0885f95 Must contain either one or two entries, as defined by the packager type. URL The URL for the proxy that you created so AWS Elemental MediaPackage can talk to yo https://09puxkvybd.execute-api.us-east-1.amazonaws.com/EzDRMLives Role ARN The Amazon Resource Name (ARN) for the IAM role that you created that allows comm am:aws:iam::888XXXX78094:role/MediaPackage	our key server. Stage/ <mark>copyProtection</mark> nunication between SPEKE and AWS Elemental MediaPackage.

The parameters are as follows:

• **<u>ResourceID</u>**: 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.

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<u>System ID</u>: 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 5 above, except to the end of the URL add "/copyProtection". (This is case sensitive, be sure capitalize the P in Protection.)

Sample URL: <u>https://09puxkvybd.execute-api.us-east-</u> <u>1.amazonaws.com/EzDRMLiveStage/copyProtection</u>

 Role ARN: This value is from the MediaPackage Role ARN created in Step 6.

Summary	•		Delete rol
Role ARN	arn:aws:lam::888 78094:role/MediaPackage		
Role description	Allows MediaConvert service to call S3 APIs and API	lateway on your behalf. Edit	
Instance Profile ARNs	2		
Path	1		
Creation time	2018-04-18 12:58 EDT		
Maximum CLI/API session duration	1 hour Edit		
Permissions Trust relationships A	ccess Advisor Revoke sessions		
Attach policy Attached policies: 1			
Policy name 👻		Policy type 👻	
MediaPackagetoEZDRM		Inline policy	×
			0

 Under Additional configuration (Package Encryption), select the Key rotation interval (sec) and enter a value of 0. (This solves a current issue with Key rotation not saving as off.)

he URL for	the proxy that you created so AWS Elemental MediaPackage can talk to your key server.	
https://0	9puxkvybd.execute-api.us-east-1.amazonaws.com/EzDRMLiveStage/copyProtection	
Role ARN	Resource Name (ARN) for the IAM role that you created that allows communication between SPEKE and A	WS Elemental MediaPackage.
arn:aws:i	am::888XXXX78094 :role/MediaPackage	
lust be in t	is format: am:awsiam::{accountiD}:role/(name)	
▼ Additi	onal configuration ation interval (sec)	
Key rot Enables	key rotation. Specify the rotation interval (in seconds).	

6. Once these settings are completed, click the Save button to create the endpoint.

Endpoints	dash-001	
4-4-001	ID	
dash-001	The ID is the endpoint id	lentifier that you use for API and cor
	dash-001	
Cancel	Save Supported characters an	e numbers, letters, underscores (_), ;
	Description - optiona	t

7. Now for redundancy, from <u>your second MediaLive channel</u>, create a DASH-ISO endpoint with the same settings as the one we just created, but change the **ID** name to indicate the redundant endpoint.

For this example, we called our first channel **MediaLive1** and created the DASH-ISO endpoint **dash-001**. Under **MediaLive2** we will create a duplicate DASH-ISO endpoint but name it **dash-002**.

Duplicate ALL the same settings for the second DASH-ISO endpoint under the second channel and click **Save**.

Note: It is helpful to have multiple tabs open during this process, for ease of copying settings from one channel to the other.

	EZDRM
	Oigital Rights Management. Simplified.
AWS Elemental MediaPackage > Char Add/edit endpoints	nnels fromMediaLive2 Add/edit endpoints
Endpoints	dash-002
dash-002	New ID The ID is the endpoint identifier that you use for API and console interactions.
	dash-002
Cancel	Save Supported characters are numbers, letters, underscores (), and dashes (-). Must be unique per AWS account per region.
	Description - optional
~~~~~	

8. Once **MediaLive** is running and publishing to **MediaPackage**, you will be able to access the URL created to play the encrypted Media.

End	points					Delete	Add/ed	lit end	poin	ts
							<	1	>	۲
	ID	Description	Package type	Preview	URL					
	dash-0001		DASH-ISO	Play	https://547f72e6652371c3.mediapackage.us-east- 1.amazonaws.com/out/v1/f38731c8203d4a2b9a073152d836bac4/dash.mpd	QR code				



## Apple HLS Endpoint example

1. In **MediaPackage**, from the <u>first MediaLive channel you created</u>, click the **Add endpoints** button.

AWS Ele	mental Media	Package > Chann	els > fromMed	iaLive1					
from	nMedia	Live1					Rotate credentials	Edit	Delete
Ove	rview								
ID from Desci ARN arn:a	MediaLive1 ription ws:mediapack	age:us-east-1:88885	59578094:channel	s/7c59ca874c7	94615947d7ba48afe167c	Input URL https://755ca1af5faa9bea.mediapackaj 947d7ba48afe167c/channel Usemame 200e29792334400b878bcb051b094ed Pacesand Show	ge.us-east-1.amazonaws.com/ir 0	ı/v1/7c59ca8	74c794615
End	points						Delete	Add/edit en < 1	dpoints
	ID	Description	Package type	Preview	URL				
	dash-		DASHLISO	Play	https://547f72e6652371	l c3.mediapackage.us-east-			

1. Click the **Add** button. Edit the Endpoint **ID** and **Manifest Name** to a unique identifier.

dpoints Add	hls-0001	Remo
h-0001	ID The ID is the endpoint identifier that you use for API and console interactions.	
	his-0001	
-0001 Nev	Supported characters are numbers, letters, underscores (_), and dashes (-). Must be unique per AWS account per region.	
Cancel Sav	Description - optional	
	Manifest Name The models area is clear store that is uppended to the endpoint URI to react a uping with to this approximation	
	The manufact name is a processing shak a appendix to one endpoint one to coale a single pair to one endpoint. HLS	
	Startover window (sec) Info	
	300.	
	The maximum startover window is 72 hours (259,200 seconds).	
	Time delay (ser) into	
	Thite delay (sec) into	

2. Under **Packager Settings**, select the **Type HLS** and leave the other settings as default.

Type Info				
Apple HLS				
E		Playlist window durat	tion (sec)	
Segment duration (sec)				
6	0	60	٢	

3. Scroll down and select the toggle for **Encrypt Content**.

Package encryption	
<ul> <li>No encryption</li> <li>This endpoint is not copy-protected.</li> </ul>	
• Encrypt content Info The endpoint is copy-protected.	
Resource ID The resource ID is the identifier that you send to the key s	server to identify this endpoint.
yourresourceID-hls-test-001	
System IDs Info A system ID is a unique identifiers for the DRM system to 94ce86fb-07ff-4f43-adb8-93d2fa968ca2	use. Type one per line.
Must contain either one or two entries, as defined by the URL The URL for the proxy that you created so AWS Elemental	/// // // // // // // // // // // // //
https://09puxkvybd.execute-api.us-east-1.ama	zonaws.com/EzDRMLiveStage/ <mark>copyProtection</mark>
Role ARN The Amazon Resource Name (ARN) for the IAM role that y	you created that allows communication between SPEKE and AWS Elemental MediaPackage
arn:aws:iam::888XXXX78094:role/MediaPackag	e
Must be in this format: am:aws:iam::{accountID}:role/(nar	me)

The parameters are as follows:

• **<u>ResourceID</u>**: 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 to the end of the URL add "/copyProtection". (This is case sensitive, be sure capitalize the P in Protection.)

Sample URL: <u>https://09puxkvybd.execute-api.us-east-</u> <u>1.amazonaws.com/EzDRMLiveStage/copyProtection</u>

• **<u>Role ARN</u>**: This value is from the **MediaPackage Role** created in Step 6.

Summary	*		Delete role
Role AR	am:aws:lam::888 78094:role/MediaPackage		
Role descriptio	Allows MediaConvert service to call S3 APIs and API G	ateway on your behalf.   Edit	
Instance Profile ARN	ේ රට		
Pat	n /		
Creation tim	2018-04-18 12:58 EDT		
Maximum CLI/API session duratio	n 1 hour Edit		
Permissions Trust relationships	Access Advisor Revoke sessions		
Attach policy Attached policies: 1			
Policy name 👻		Policy type 👻	
MediaPackagetoEZDRM		Inline policy	×
			O Add inline policy

4. Under Additional configuration, select the Encryption method: SAMPLE-AES.

	method	
SAMPLE-	AES	•
Constant ir IV used with Must be a 12	itialization vector the key to encrypt content. 28-bit, 32 characters, hex-encoded string.	
Key rot     Enables	tation interval (sec) key rotation. Specify the rotation interval (in seconds).	

9. Once these settings are completed, click the **Save** button to create the endpoint.

Add/edit end	points
Endpoints	Add
dash-0001	
hls-0001	

10.Now for redundancy, <u>from your second MediaLive</u> channel, create an Apple HLS endpoint with the same settings as the one we just created, but change the **ID** name to indicate the redundant endpoint.

Cancel

Save

For this example, we called our first channel **MediaLive1** and created the Apple HLS endpoint **hls-0001**. Under **MediaLive2** we will create a duplicate Apple HLS endpoint but name it **hls-0002**.

Duplicate ALL the same settings for the second Apple HLS endpoint under the second channel and click **Save**.

**Note:** It is helpful to have multiple tabs open during this process, for ease of copying settings from one channel to the other.

Endpoints	Add	hls-0002
dash-0002		ID The ID is the endpoint identifier that you use for API and console interactions.
		hls-0002
nls-0002	New	Supported characters are numbers, letters, underscores (_), and dashes (-). Must be unique per AWS account per
Cancel	Save	Description - optional
		Manifest Name The manifest name is a short string that is appended to the endpoint URL to create a unique path to this endo

11. Once **MediaLive** is running and publishing to **MediaPackage**, you will be able to access the URL created to play the encrypted Media.



Endp	points				Delete Add/edit endpoints
					< 1 > 💿
	ID	Description	Package type	Preview	URL
	dash-0001		DASH-ISO	Play	https://547f72e6652371c3.mediapackage.us-east- 1.amazonaws.com/out/v1/f38731c8203d4a2b9a073152d836bac4/dash.mpd QR code
	smooth- 0001		Microsoft Smooth	Play	https://547f72e6652371c3.mediapackage.us-east- 1.amazonaws.com/out/v1/f50d90d0ea6f4b589f8194838800a5f5/Smooth.ism/Manifest QR code
	hls-0001		Apple HLS	Play	https://547f72e6652371c3.mediapackage.us-east- 1.amazonaws.com/out/v1/86c2bd8e457742189fb804f9dae43a19/HLS.m3u8_QR code



## **Microsoft Smooth Streaming**

1. In **MediaPackage**, from the <u>first MediaLive channel you created</u>, click the **Add endpoints** button.

on	nMedial	Live1					Rotate credentials	Edit	Delete
Ove	rview								
ID from Desc ARN amca	MediaLive1 ription ws:mediapacka	age:us-east-1:88885	9578094:channel	s/7c59ca874c75	94615947d7ba48afe167c	Input URL https://T55caTaf5faa9bea.mediapackage.us- 947d7ba48afe167c/channel Usemame 200e29792334400b878bcb051b094ed0 Password Show	east-1.amazonaws.com/ii	n/v1/7c59ca8	74c794615
							Delete	Add fadls an	
End	points						Detere	< 1	dpoints
End	ID	Description	Package type	Preview	URL			< 1	dpoints > ©
End	ID dash- 0001	Description	Package type DASH-ISO	Preview Play	URL https://547f72e6652371 1.amazonaws.com/out/v	C3.mediapackage.us-east- 1/F387351c820304a2b9a073152d836bac4/dash.n	npd QR code	< 1	dpoints

2. Click the **Add** button. Edit the Endpoint **ID** and **Manifest Name** to a unique identifier.

ndpoints	Add	smooth-0001	Remov
sh-0001		ID The ID is the endpoint identifier that you use for API and console interactions.	
		smooth-0001	
ls-0001		Supported characters are numbers, letters, underscores (), and dashes (-). Must be unique per AWS account per region.	
mooth-0001	New	Description - optional	
Cancel	Save	Manifest Name The manifest mane is a short string that is assended to the endopier UBL to create a unious oath to this endopier.	
		Smooth	
		Startover window (sec) Info	
		A star torer window is a portion of a live stream that is made available for on-demains viewing.	
		The maximum startover window is 72 hours (259,200 seconds).	
		Time delay (sec) Info	
		A time deline specifies when live context is available for playback	

3. Under Packager Settings, select the Type Smooth and Segment duration (sec) to 20 seconds.

Packager settings				
Type Info				
Microsoft Smooth				*
Segment duration (sec)		Manifest window durat	on (sec)	
	1.00		0	

4. Scroll down and select the toggle for **Encrypt Content**.

<ul> <li>No encryption</li> <li>This endpoint is not copy-protected.</li> </ul>	
<ul> <li>Encrypt content Info The endpoint is copy-protected.</li> </ul>	
Resource ID The resource ID is the identifier that you se	nd to the key server to identify this endpoint.
yourresourceid-smooth-test-001	
System IDs Info A system ID is a unique identifiers for the D	IRM system to use. Type one per line.
9a04f079-9840-4286-ab92-e65be	0885f95
	1
Must contain either one or two entries, as o	defined by the packager type.
Must contain either one or two entries, as o U <b>RL</b> The URL for the proxy that you created so a	defined by the packager type. AWS Elemental MediaPackage can talk to your key server.
Must contain either one or two entries, as o URL The URL for the proxy that you created so https://09puxkvybd.execute-api.us	defined by the packager type. AWS Elemental MediaPackage can talk to your key server. east-1.amazonaws.com/EzDRMLiveStage/ <mark>copyProtection</mark>
Must contain either one or two entries, as o URL The URL for the proxy that you created so a https://09puxkvybd.execute-api.us Role ARN The Amazon Resource Name (ARN) for the	defined by the packager type. AWS Elemental MediaPackage can talk to your key server. s-east-1.amazonaws.com/EzDRMLiveStage/copyProtection
Must contain either one or two entries, as i URL The URL for the proxy that you created so i https://09puxkvybd.execute-api.us Role ARN The Amazon Resource Name (ARN) for the arn:aws:iam::888XXXX78094:role/f	defined by the packager type. AWS Elemental MediaPackage can talk to your key server. s-east-1.amazonaws.com/EzDRMLiveStage/copyProtection IAM role that you created that allows communication between SPEKE and AWS Elemental MediaPackage. MediaPackage

The parameters are as follows:

• **<u>ResourceID</u>**: 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.

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 System ID: Unique identifiers for the DRM system to use. Insert the System ID for Smooth Streaming, one ID per line: 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: <u>https://09puxkvybd.execute-api.us-east-</u> <u>1.amazonaws.com/EzDRMLiveStage/copyProtection</u>

• **<u>Role ARN</u>**: This value is from the **MediaPackage Role** created in Step 6.

Summary	A		Delete role
Role ARN	arn:aws:iam::888 78094:role/MediaPackage		
Role description	Allows MediaConvert service to call S3 APIs and API Gateway	y on your behalf.   Edit	
Instance Profile ARNs	2		
Path	/		
Creation time	2018-04-18 12:58 EDT		
Maximum CLI/API session duration	1 hour Edit		
Permissions Trust relationships Ac	ess Advisor Revoke sessions		
Attach policy Attached policies: 1			
Policy name 👻		Policy type 👻	
MediaPackagetoEZDRM		Inline policy	×
			O Add inline policy

5. Once these settings are completed, click the **Save** button to create the endpoint.

Add/edit endpoints

Endpoints	Add
dash-0001	
smooth-0001	
hls-0001	



6. Now for redundancy, <u>from your second MediaLive</u> channel, create an Smooth Streaming endpoint with the same settings as the one we just created, but change the **ID** name to indicate the redundant endpoint.

For this example, we called our first channel **MediaLive1** and created the Smooth Streaming endpoint **smooth-0001**. Under **MediaLive2** we will create a duplicate Smooth Streaming endpoint but name it **smooth-0002**.

Duplicate ALL the same settings for the second Smooth Streaming endpoint under the second channel and click **Save**.

**Note:** It is helpful to have multiple tabs open during this process, for ease of copying settings from one channel to the other.

ndpoints	add smooth-0002
ls-0002	ID The ID is the endpoint identifier that you use for API and console interactions.
	smooth-0002
ash-0002	Supported characters are numbers, letters, underscores (_), and dashes (-). Must be unique per AWS account per region
mooth-0002	New Description - optional
Cancel	Save Manifest Name

7. Once **MediaLive** is running and publishing to **MediaPackage**, you will be able to access the URL created to play the DRM encrypted Media.

End	points				Delete		Add/e	dit er	ndpoin	ıts
							<	1	>	۲
	ID	Description	Package type	Preview	URL					
	dash-0001		DASH-ISO	Play	https://547f72e6652371c3.mediapackage.us-east- 1.amazonaws.com/out/v1/f38731c8203d4a2b9a073152d836bac4/dash.mpd QR code					
	smooth- 0001		Microsoft Smooth	Play	https://547f72e6652371c3.mediapackage.us-east- 1.amazonaws.com/out/v1/f50d90d0ea6f4b589f8194838800a5f5/Smooth.lsm/Manifest	QR cod	e			



# Starting a MediaLive Channel

Open **MediaLive** and select the channel. Click the **Start** button to start the channel.

AWS Elemental MediaLive	×	AWS Ele	mental MediaLive > Chann	els			x	
Inputs Input security groups Channels		Cha	nnels (2)			Start	op Actions 🔻	Create channel
			Name	State	ID	ARN		Input
		0	sample-live-channel	Idle	2838182	am:aws:medialive:us-east-1:88885957809	4:channel:2838182	299196

Once the channel is started, data for the stream will be shown in the Health section.



If Input video frame rate is ever not running, you know that there is a problem with the stream.

Same on the **MediaPackage** side, there will be data showing under Operational metrics.



Operational metrics for all channel	5	Past 1 hour (1min period	Past 1 hour (1min period) 🔻 🗹 Open in CloudWatch		
ngress bytes	Ingress response time average	Egress bytes	Egress response time average		
20000 WWWWY 20000 WWWWY 10000	200% 200% 100% 30% 	No data for selected time window	No data for selected time window		

# Appendix 1 – Error Log Set-up

1. To set up an error log, go to **Simple Notification Service** in AWS.

Simple Notification Service	م
Simple Email Service	
Email Sending and Receiving Service	
Simple Notification Service	
SNS Pub/Sub, Mobile Push and SMS	
Simple Queue Service	
SQS Managed Message Queues	

2. Click **Create topic** from the SNS dashboard.

Applications Subscriptions	Building a mobile app? Try AWS Mobile Hub.
Text messaging (SMS)	Common actions
	Create topic Create a communication channel to send messages and subscribe to notifications
	Create platform application Create a platform application for mobile devices
	O Create subscription Subscribe an endpoint to a topic to receive messages published to that topic
	Publish message Publish a message to a topic or as a direct publish to a platform endpoint
	Publish text message (SMS) Publish a text message to a phone number

3. Enter the **Topic name** and **Display name** and click **Create topic**.

ilding a mobile app	? Try AWS Mobile Hub.		5
name will be used	to create a permanent unique identifier called an	Amazon Resource Name (ARN).	
The law of	ErrorfromMediaPackage		0
Topic name			

4. The Topic details will open, then click **Create subscription**.

plications	Publish to topic	Other topic actions -			
bscriptions	Topic ARN	arn:aws:sns:us-east-1:888	094:ErrorfromMediaPac	kage	
Text messaging (SMS)	Topic owner	888859578094			
	Region	us-east-1			
	Display name	Error			
	Subscriptions				
	Create subscription	Request confirmations	Confirm subscription	Other subscription action	ons -
	Filter				
	Subscription ID			Protocol	Endpoint

5. Change the **Protocol** to **Email** and enter the **email address** in the **Endpoint** field. Click **Create subscription**.

Topic ARN	arn:aws:sns:us-east-1:888 78094:ErrorfromMediaPackage
Protocol	Email
Endpoint	yourname@youremail.com

6. There will now be a **Pending Confirmation** line item, and an email will be sent to confirm the subscription.

**PRM** 

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#### Topic details: ErrorfromMediaPackage

Topic ARN Topic owner Region Display name	arn:aws:sns:us-east-1:888m 888859578094 us-east-1 Error	fill 18094:Errorfrom Media Pac	kage			
Subscriptions						
Create subscription	Request confirmations	Confirm subscription	Other subscription actic	ins •		C
Create subscription	Request confirmations	Confirm subscription	Other subscription action	Endpoint	Subscriber	Ø

#### 7. Next, open **CloudWatch** under AWS Services.

aws	Services ^	Resource Groups 👻 🔭	
History		ClaudWatch	
Simple Notificat	tion Service	CloudWatch	
Console Home		Monitor Resources and Applications	
MediaLive		EC:2	CodeStar
MediaPackage		Lightsail C	CodeCommi
IAM		Elastic Container Service	CodeBuild

#### 8. Under the **Rules** menu, click **Create rule**.

loudWatch		Rules	S			<
asnboards Iarms	•	Rules rout	te events f	rom	your AWS	S resources for processing by selected targets. You can create, e
ALARM INSUFFICIENT	0	Create	rule	Ac	tions *	1
OK Billing		Status	All	•	Name	
vonte			Status	,	Name	
Rules		0	•	,	VediaPad	ckageEvent
ogs				6	errorfrom	MP
letrics						
avorites						

9. Select the **Service Name: MediaConvert** (there isn't currently an option for MediaPackage) and click the **Edit l**ink.



10. Update "aws.mediaconvert" to "aws.mediapackage" and click Save.

{ "source": [		
"aws.media <mark>package</mark> "		
1		
}		
	and I a	
		-

11. Under Targets, click Add target.

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Step 1: Create rule	EZ Data Rights
Step 1: Create rule	
Create rules to invoke Targets based on Events happening in your AWS environment.	
Event Source	Targets
Build or customize an Event Pattern or set a Schedule to invoke Targets.	Select Target to invoke when an event matches your Event Pattern or when schedule is triggered.
Build custom event pattern *	O Add target*
{ "source": [ "aws.mediapackage" ] }	

12. Select **SNS Topic** from the dropdown and select the **Topic** you created in Step3, for this example "ErrorfromMediaPackage". Then click the **Configure**details button.

Create rules to invoke Targets based on Events happening in your AWS environment.		
Event Source Build or customize an Event Pattern or set a Schedule to invoke Targets.  Event Pattern 0 Schedule 0	Targets Select Target to invoke when an event matches your Event Pattern triggered.	t or when schedule is
Build custom event pattern *	SNS topic	• 0
{ "source": [ "aws.mediapackage"	Topic* ErrorfromMediaPackage  Configure input	•
	O Add target	
Show sample event(s)		

13. Enter a **Name** for the rule and click **Create rule**.

Step 2: Configure	e rule details			•		
Rule definition						
Name*	ErrorfromMP					
Description						
State	Enabled					
CloudWatch Events will add ne	cessary permissions for target(s) so	o they can be invoked when this rule is tr	riggered.			
* Required				Cancel	Back	Create rule

You will now get an error message in the event that there is a connection issue.