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Amazon Connect Integration

WEEK 8 – QA RECORDINGS

1095 Morris Ave, SUITE 101, Union NJ 07083
646-762-0305 | INFO@QUINTRIXSOLUTIONS.COM

Amazon Connect – Customer Audio

Capture customer audio: live media streaming

In Amazon Connect, you can capture customer audio during an interaction with your contact center by sending the audio to **a Kinesis video stream**. Depending on your settings, audio can be captured for the entire interaction—until the interaction with the agent is complete—or only one direction:

What the customer hears, including what the agent says and system prompts.

What the customer says, including when they are on hold.

The customer audio streams also include interactions with an Amazon Lex bot, if you're using one in your contact flow.

You can perform analysis on the audio streams to determine customer sentiment, use the audio for training purposes, or to later review the audio to identify and flag abusive callers.

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Plan for live media streaming

You can send all audio to and from the customer to Kinesis Video Streams. Media streaming leverages Kinesis Video Streams multi-track support so that what the customer says is on a separate track from what the customer hears.

Audio sent to Kinesis uses a sampling rate of **8 Khz**.

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Do you need to increase your service quotas?

When you enable media streaming in Amazon Connect, one Kinesis video stream is used per active call. By default we allocate 50 streams per instance to your account. We automatically create additional streams as needed to keep pace with active calls, unless your account reaches the Kinesis Video Streams service quota.

Contact AWS Support to request an increase to **Number of Streams**.

To request an increase to your service quota, in the AWS Support Center, choose Create Case and then choose **Service Quota Increase**.

Tip - We make sure that **PutMedia** requests always stay within the 5 TPS quota. You don't need to request an increase.

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How long do you need to store audio?

Customer audio is stored in Kinesis for the time defined by your retention settings in an Amazon Connect instance. For instructions for setting this value, see Enable live media streaming in your instance.

Tip - If you want to use the audio streaming feature, you need to retain the streams that are created by Amazon Connect. Don't delete them, unless you're going to stop using the streaming feature.

Do you need to change the audio streams?

We recommend that you refrain from modifying the streams. Doing so can cause unexpected behavior.

Who requires IAM permissions to retrieve data?

If your business is using IAM policies and permissions, the IAM admin will need to grant permissions to people who are going to retrieve data from Kinesis Video Streams. They'll need to grant them full access permissions for Kinesis Video Streams and AWS Key Management Service.

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Enable live media streaming in your instance

Live media streaming (customer audio streams) is not enabled by default. You can enable customer audio streams from the settings page for your instance.

To enable live media streaming

1. On the instances page, choose the instance alias. The instance alias is also your instance name, which appears in your Amazon Connect URL.
2. In the navigation pane, choose Data storage.
3. Under Live media streaming, choose Edit. Choose Enable live media streaming.
4. Enter a prefix for the Kinesis Video Streams created for your customer audio. This prefix makes it easier for you to identify the stream with the data.
5. Choose the KMS key to use to encrypt the data sent to Kinesis. The KMS key must be in the same Region as the instance.
6. Specify a number and unit for the Data retention period. If you select No data retention, data is not retained and can be used only for immediate consumption.
7. Choose Save under Live media streaming, and then choose Save at the bottom of the page.

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To enable live media streaming (cont)

After you enable live media streaming, add Start media streaming and Stop media streaming blocks to your contact flow. Configure those blocks to specify what audio you want to capture. For instructions and an example, see Example contact flow for testing live media streaming.

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How to access Kinesis Video Streams data

You must have developer skills to work with Kinesis Video Streams data. Use the steps and code samples in this section to interact with the customer audio data sent to Kinesis Video Streams.

Get started with a sample

There's an example project on GitHub to help you to get started using Amazon Connect live audio streaming and real-time transcription using Amazon Transcribe. https://github.com/amazon-connect/amazon-connect-realtime-transcription

This project provides a code example and a fully functional Lambda function. They help you get started capturing and transcribing Amazon Connect phone calls using Kinesis Video Streams and Amazon Transcribe.

You can use the Lambda function in this project to create other solutions, such as:

Capturing audio in the IVR.

Providing real-time transcription to agents.

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Build your own implementation

You may want to implement a solution other than the one provided by the previously-described sample. If so, this section describes how to make the proper API calls against the Kinesis Video Streams so you can build your own solution from scratch.

1. Go to this GitHub page, and read about the Amazon Connect Real-time Transcription Lambda project.
2. Choose the deployment folder, and download the cloudformation.template.
3. Use the following example Java classes, which are built on top of the Kinesis video parser library using the AWS SDK for Java.
4. LMSDemo— is a class with a main method that invokes LMSExample.

- LMSExample— is similar to the examples provided in the Kinesis Video Streams Parser library. It gets media from the specified Kinesis Video Streams with the specified fragment number. This code sample includes frame processing to separate the tracks.
- LMSFrameProcessor— is invoked by LMSExample to save data from Kinesis Video Streams to the specified output stream. Use a file output stream to save the output to a file. This code sample also includes frame processing to separate the tracks.

1. Use Audacity, or other audio tool, to import the .raw audio file, which is in a 16-bit signed PCM Mono format.

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Code samples to access Kinesis Video Streams data

LMSDemo.java, LMSExample.java, LMSFrameProcessor.java are located in the link below

https://docs.aws.amazon.com/connect/latest/adminguide/access-media-stream-data.html

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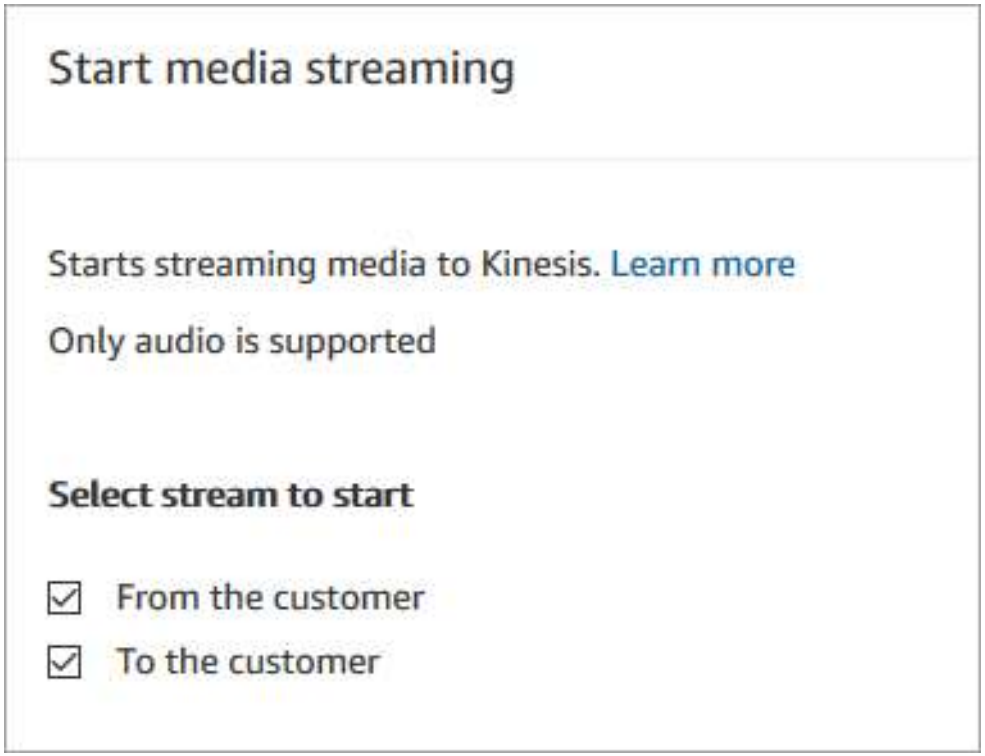
Example contact flow for testing live media streaming

Here's how you can set up a contact flow to test live media streaming:

1. Add a Start media streaming block at the point where you want to enable customer audio streaming.
2. Connect the Success branch to the rest of your flow.
3. Add a Stop media streaming block to where you want to stop streaming.
4. Configure both blocks to specify what you want to stream: From the customer and/or To the customer.



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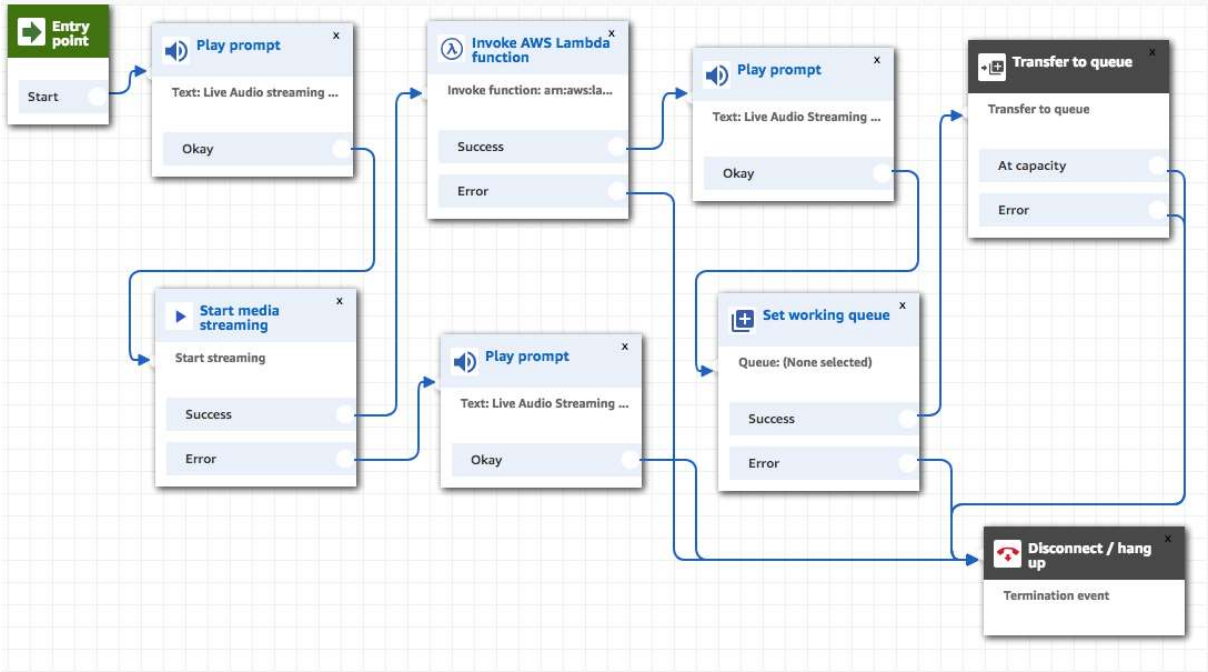
Customer audio is captured until a Stop media streaming block is invoked, even if the contact is passed to another contact flow.

Use the contact attributes for media streaming in your contact flow so that the contact record includes the attributes. You can then view the contact record to determine the media streaming data associated with a specific contact. You can also pass the attributes to an AWS Lambda function.

The following example contact flow shows how you might use media streaming with attributes for testing purposes.



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After the audio is successfully streamed to Kinesis Video Streams, the contact attributes are populated from the Invoke AWS Lambda function block. You can use the attributes to identify the location in the stream where the customer audio starts.

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Contact attributes for live media streaming

The attributes are displayed when you select Media streams for the Type in a contact flow block that supports attributes, such as the Start media streaming block. They include the following:

- Customer audio stream ARN

The ARN of the Kinesis video stream that includes the customer data to reference.

JSONPath format: $.MediaStreams.Customer.Audio.StreamARN

- Customer audio start timestamp

The time at which the customer audio stream started.

JSONPath format: $.MediaStreams.Customer.Audio.StartTimestamp

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Contact attributes for live media streaming

The attributes are displayed when you select Media streams for the Type in a contact flow block that supports attributes, such as the Start media streaming block. They include the following:

- Customer audio stop timestamp

The time at which the customer audio stream stopped.

JSONPath format: $.MediaStreams.Customer.Audio.StopTimestamp

- Customer audio start fragment number

The number that identifies the Kinesis Video Streams fragment in which the customer audio stream started.

JSONPath format: $.MediaStreams.Customer.Audio.StartFragmentNumber

Some layout options

1.4 Million
unfilled computing jobs by 2020(1)

75 Percent
of companies face disruption(2)

$116 Billion
lost productivity per year(3)

Current Options Are Not Solving the Problem

STAFFING AGENCY	CAMPUS HIRING	VISA TALENT	INTERNAL TRAINING	BOOTCAMPS
Do not help with shortage	Not enterprise ready	High compliance & legal costs; delays	Not core competency; bureaucratic	Demand-supply mismatch; fragmented

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Sources: (1) Bureau of Labor Statistics. (2) Gartner. (3) CIO Magazine.