QUICK START GUIDE

VIA SOM-9X50-STK

Amazon KVS

1.00-09032023

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Revision History

Version	Date	Remarks
1.00	09/03/2023	Initial release

Table of Contents

1. Introduction

This document provides instructions on how to set up Amazon Kinesis Video Streams (Amazon KVS) to connect with VIA SOM-9X50-STK devices.

Note:
The VIA SOM-9X50-STK includes the VIA SOM-9X50 module and the VIA VAB-950 reference carrier board.

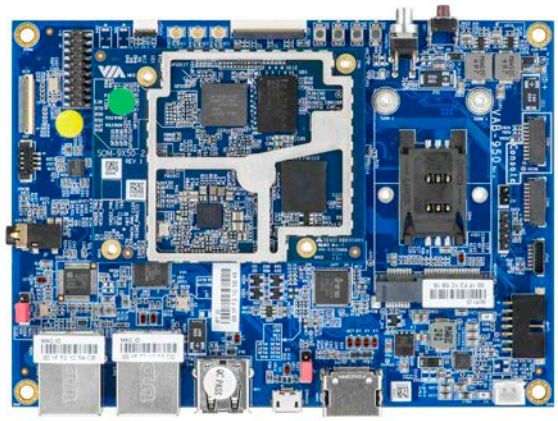
1.1 Directing Data from a VIA SOM-9X50-STK Device to an AWS Portal

To direct data from VIA SOM-9X50-STK devices to your AWS cloud implementation, an Amazon KVS service must be set up and configured to receive data from the devices. An AWS access key is required for Amazon KVS to connect a device to the AWS backend.

Follow the steps listed in section 2.2 to acquire an AWS access key for Amazon KVS. The access key (*.csv) for the desired user ID will be created as described in Step 8.

1.2 VIA SOM-9X50-STK Device

The datasheet and user manual of the VIA SOM-9X50-STK device can be found on the VIA SOM-9X50-STK product page.



2. Connecting to Amazon KVS

2.1 Introduction

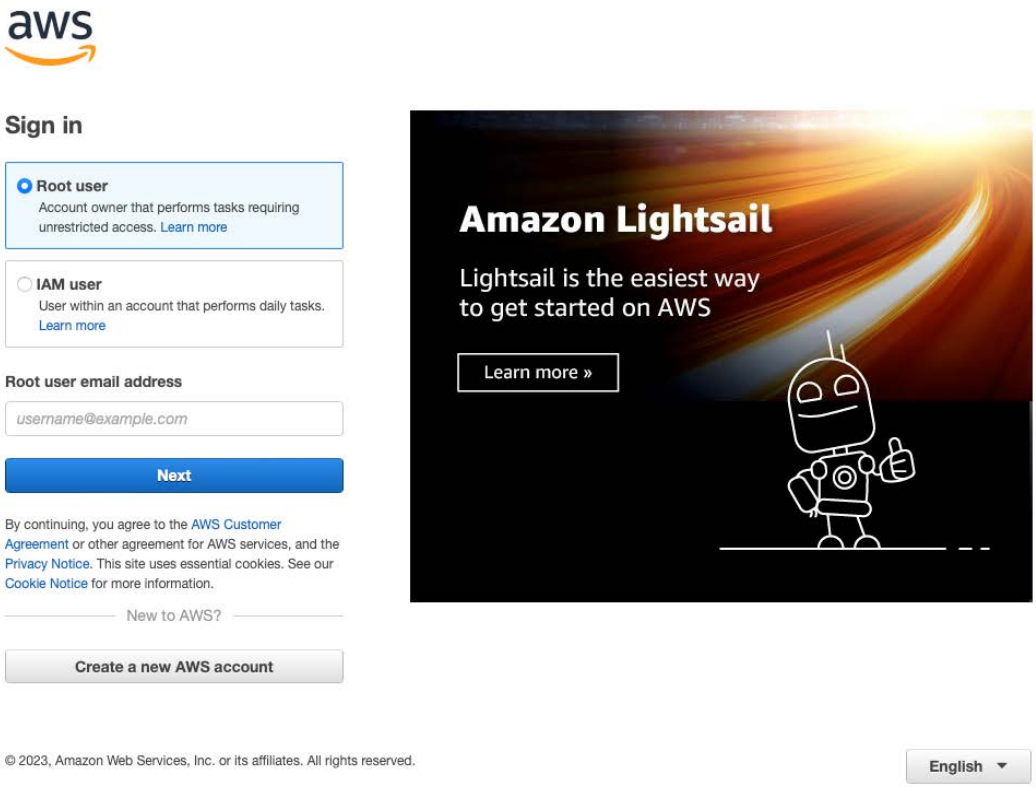
This section provides instructions on how to establish a connection between a VIA SOM-9X50-STK device and Amazon KVS service, including how to acquire an AWS access key for Amazon KVS, set up the VIA SOM-9X50-STK device, and connect the device to the Amazon KVS using the VIA SOM-9X50-STK Yocto or Android EVK.

2.2 Acquiring an AWS Access Key for Amazon KVS

Step 1

Refer to instructions in the following sections on webpage https://docs.aws.amazon.com/kinesisvideostreams/latest/dg/gs-account.html to set up an AWS Account:

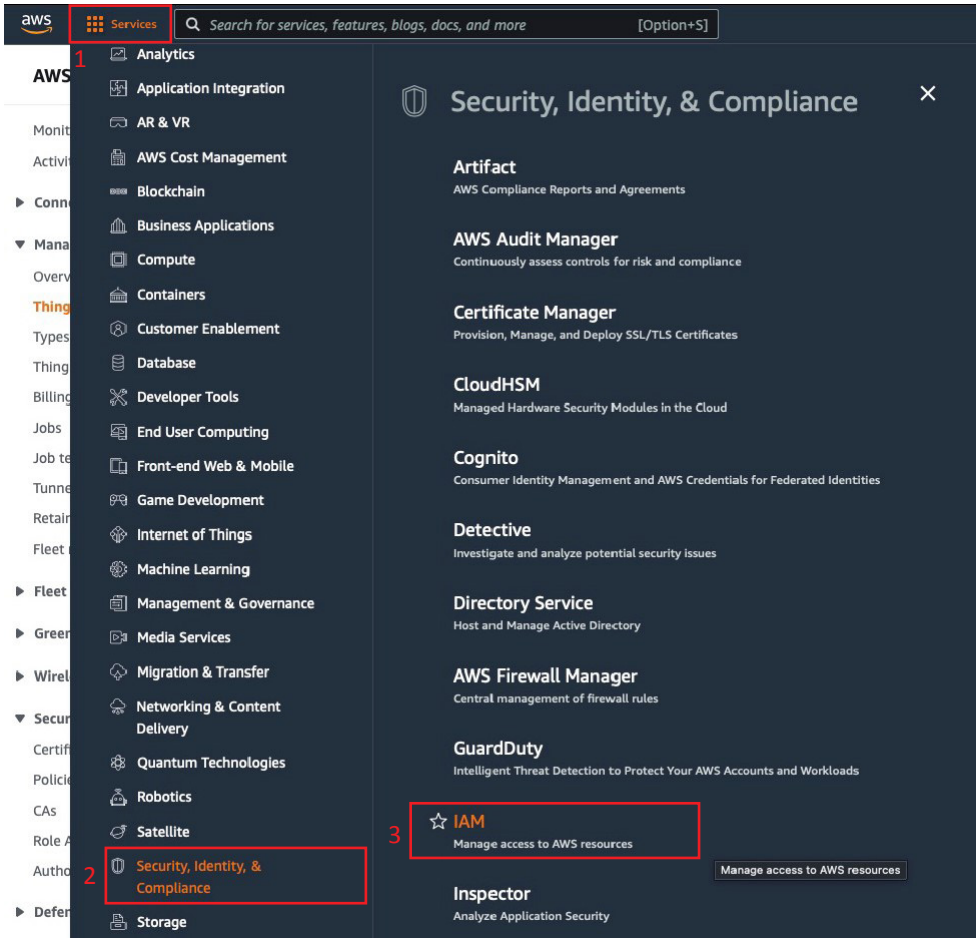
- Sign up for an AWS account
- Create an Administrator IAM User
- Create an AWS Access Key



Pay special attention to the Notes on the webpage.

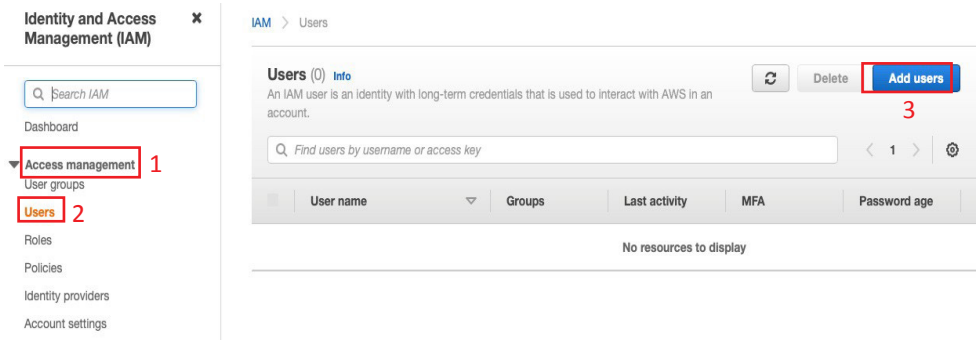
Step 2

Click on 'Services' in the top menu panel and click on 'IAM' under the 'Security, Identity, & Compliance' category.



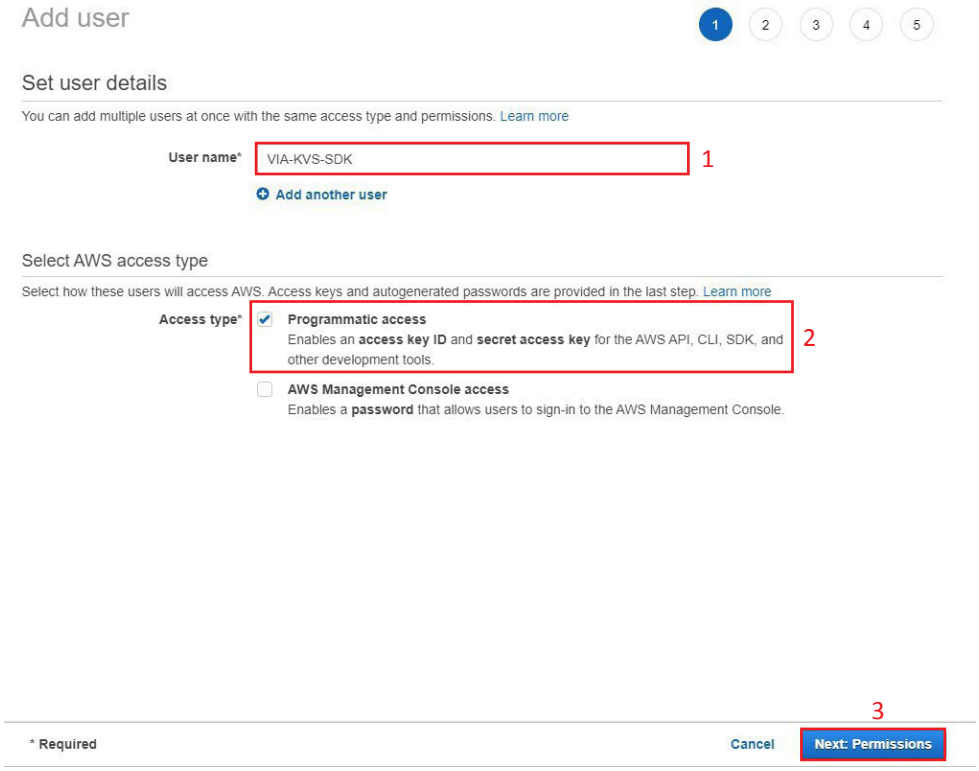
Step 3

Click on 'Access management/Users' and then click on the 'Add users' button in the right panel.



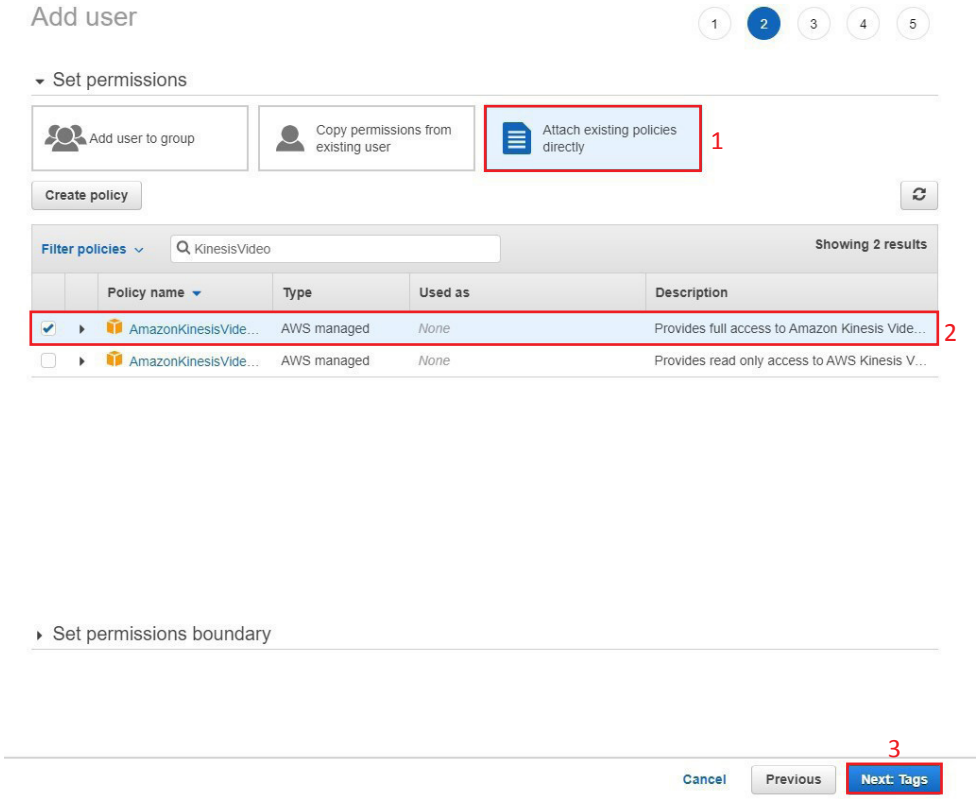
Step 4

To add a user, enter a preferred name in the 'User name' field, select 'Programmatic access' in the 'Select AWS access type' section and click on the 'Next: Permissions' button to proceed to set permissions.



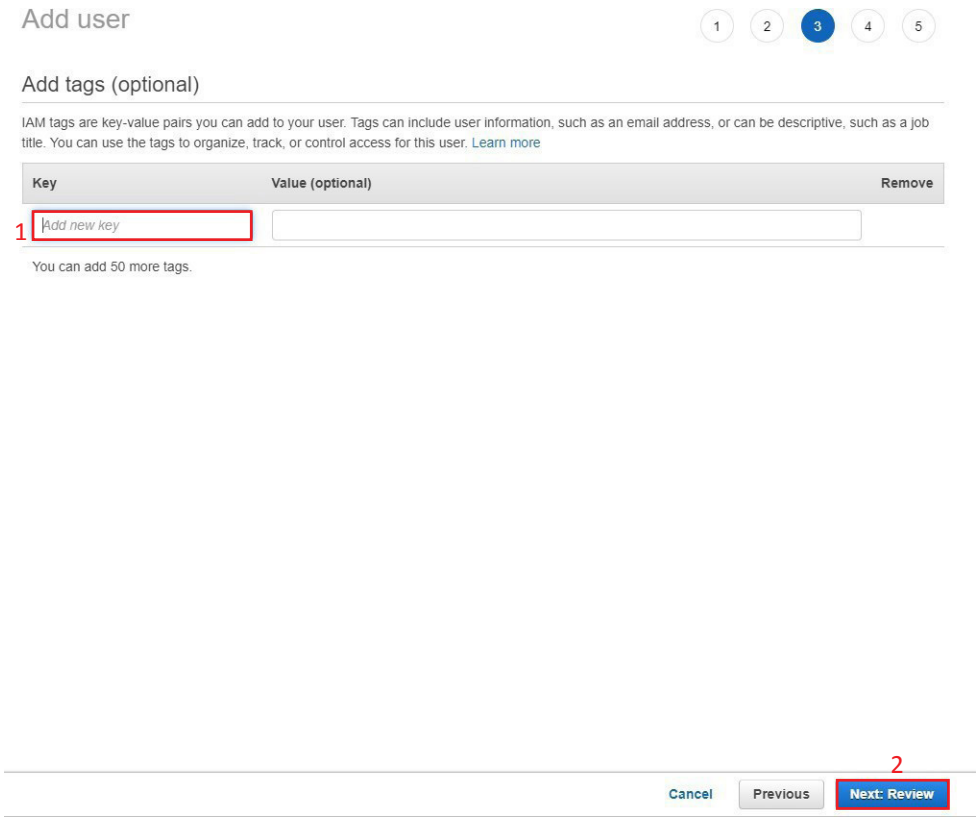
Step 5

To set permissions, click on 'Attach existing policies directly', click on the policy name 'AmazonKinesisVideoStreamsFullAccess' and click on the 'Next: Tags' button to proceed to add tags.



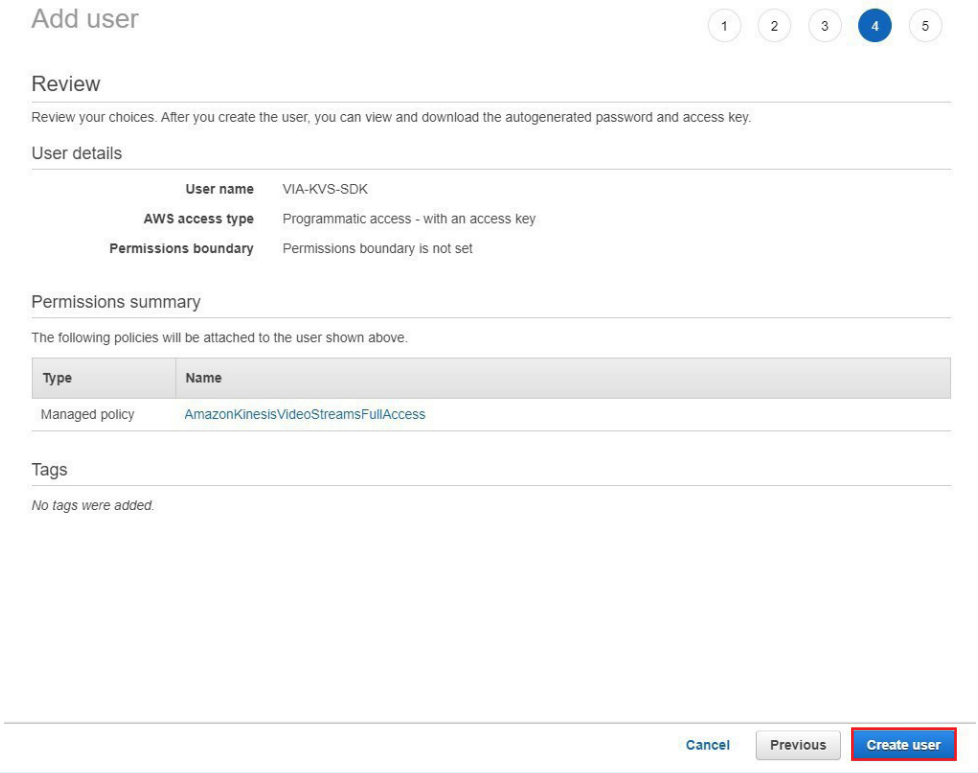
Step 6

To add tags, enter relevant user information (e.g., email address, job title) or name only in the 'Key' field and click on the 'Next: Review' button to review your choices.



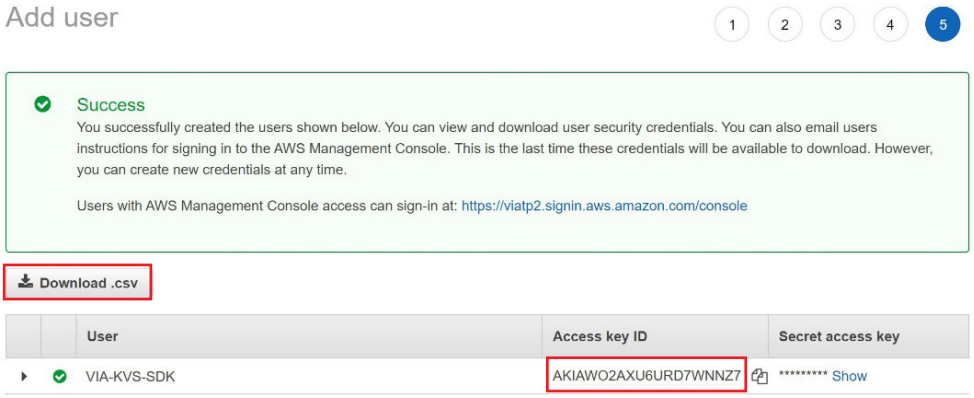
Step 7

This page displays all the settings to be reviewed, including the User name, AWS access type and permissions boundary. To finish creating the user ID, click on the 'Create user' button.



Step 8

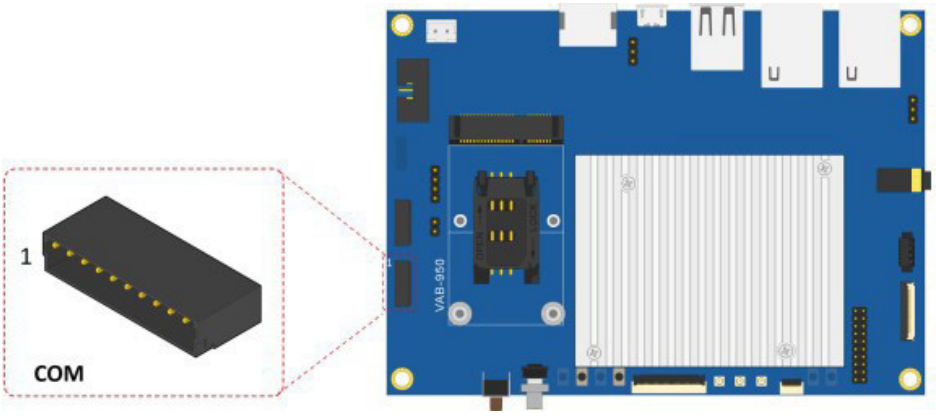
Once the user ID has been created, a 'Success' message will be displayed. Click on the URL in the message for more information on AWS management console access. The User name, Access key ID and the Secret access key are shown below the message. Download the Secret access key (*.csv) file and click 'Close' to finish.



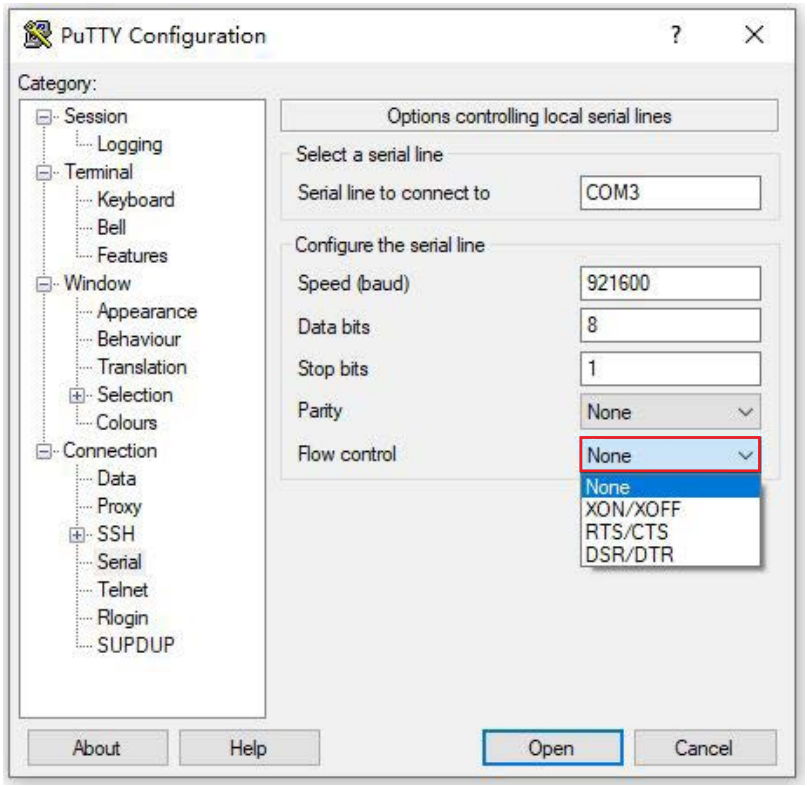
Comprehensive documentation is provided by Amazon Web Services. Follow the AWS development guide to add Kinesis Video Streams with different settings on Amazon Web Services. For more information, please visit: https://docs.aws.amazon.com/kinesisvideostreams/latest/dg/what-is-kinesis-video.html.

2.3 Set up the VIA SOM-9X50-STK Device

The first step is to connect a host machine and the VIA SOM-9X50-STK through the onboard COM connector labeled as "COM".



Use a serial port communication program such as PuTTY or Tera Term to connect the debug console. Set the console Baud Rate to "921600".



2.4 Connecting to Amazon KVS with the Yocto EVK

The VIA SOM-9X50-STK Yocto EVK includes a "kvs_demo.sh" application to help establish a connection between the VIA SOM-9X50-STK device and the Amazon KVS service.

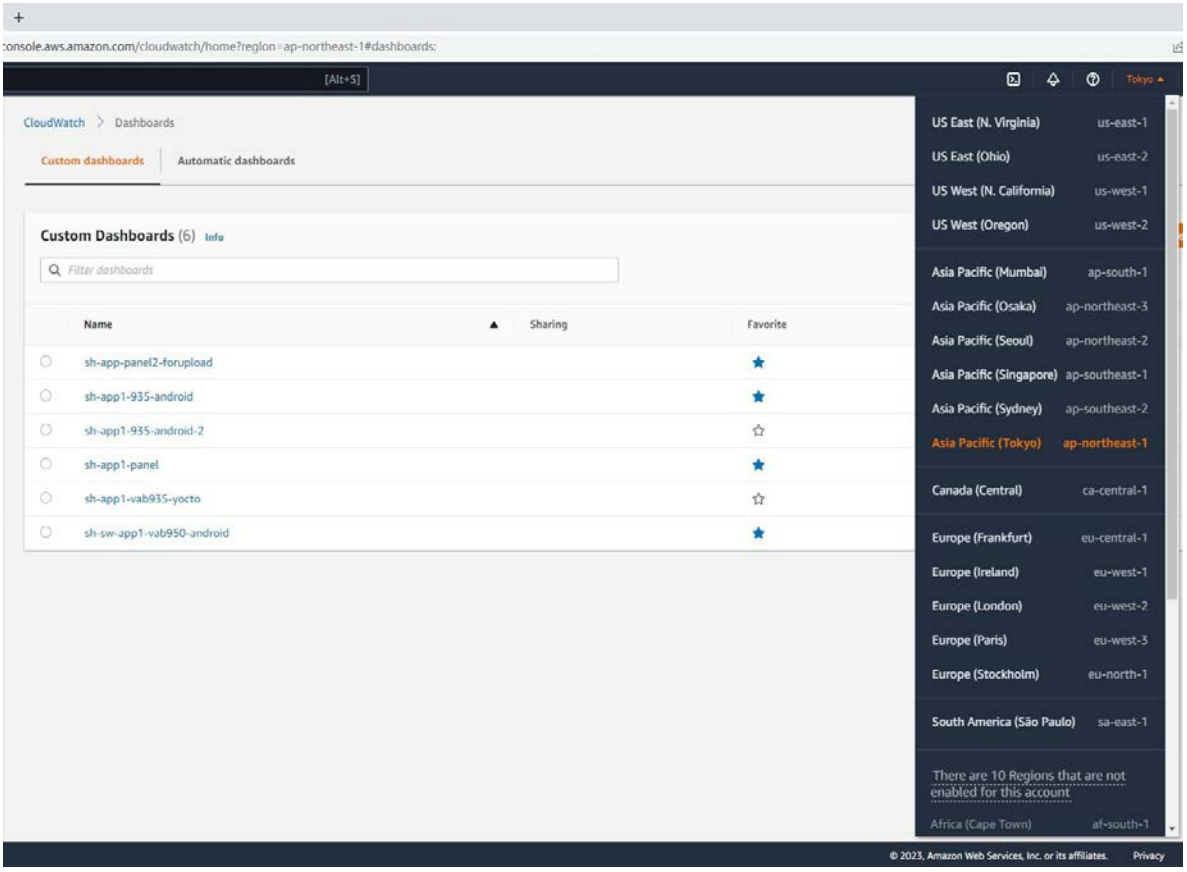
This section guides developers on how to enable and run the "kvs_demo.sh" application.

Step 1

Copy the Secret access key (*.csv) file downloaded in Step 8 of section 2.2 to the "/data" location.

Step 2

Check the AWS Web console for the Region.

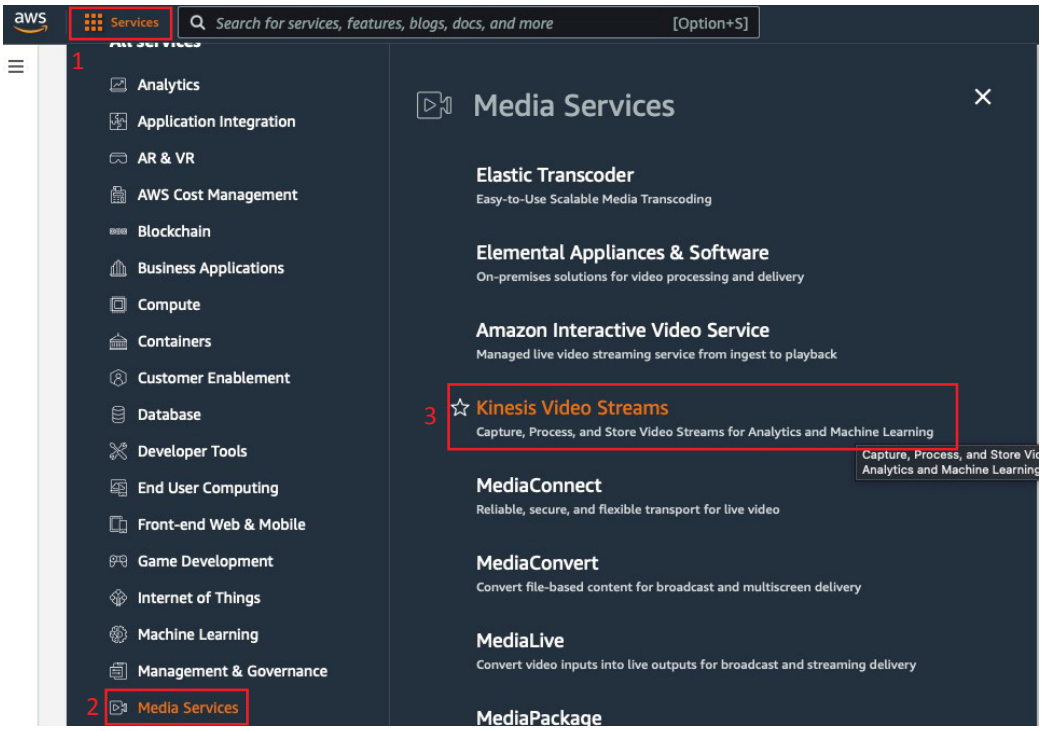


Step 3

Run the "kvs_demo.sh" script as shown below:

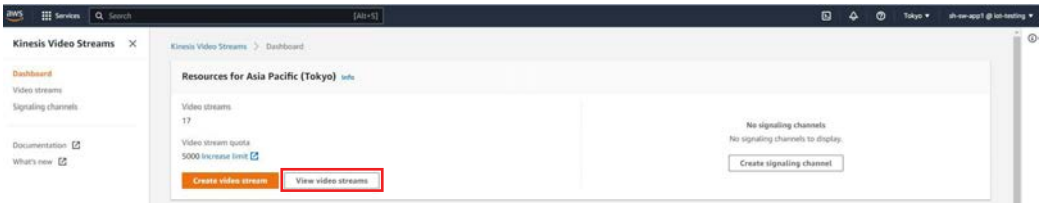
```
root@aiv8385-linux:~# kvs_demo.sh /data/ sh-sw-app1_accessKeys.csv "ap-northeast-1"
```

If there are no errors, there will be one KVS stream available. To view the stream, click on ‘Services’ in the top menu panel and click on ‘Kinesis Video Streams’ under the ‘Media Services’ category.

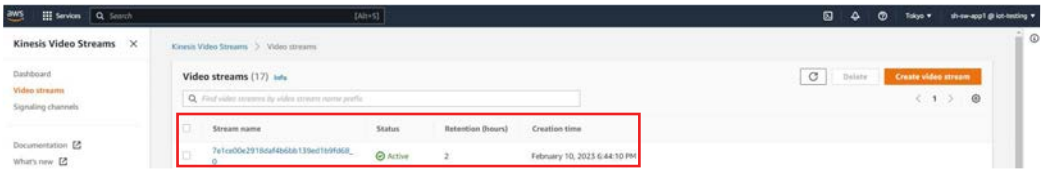


Step 4

Next, click on 'View video streams' in the right panel.



The names, status, retention (in hours) and creation time of the KVS stream will be displayed.



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2.5 Connecting to Amazon KVS with the Android EVK

The VIA SOM-9X50-STK Android EVK includes an "AmazonKinesisVideoDemoApp" application to help establish a connection between the VIA SOM-9X50-STK device and the Amazon KVS service.

This section guides developers on how to enable and run the "AmazonKinesisVideoDemoApp" application.

Step 1

Download the "AmazonKinesisVideoDemoApp" sample code from webpage https://github.com/awslabs/aws-sdk-android-samples/tree/main/AmazonKinesisVideoDemoApp.

Step 2

Follow the instructions on the following webpages:

- https://github.com/awslabs/aws-sdk-android-samples/blob/main/AmazonKinesisVideoDemoApp/README.md to run the sample code.
- https://docs.aws.amazon.com/kinesisvideostreams/latest/dg/producersdk-android-downloadcode.html to download and configure the Android Producer Library Code.

Step 3

Change the "KINESIS_VIDEO_REGION" field value to your AWS Web console's Region in the sample code file "KinesisVideoDemoApp.java" at location "/src/main/java/com/amazonaws/kinesisvideo/demoapp".

```
14  public class KinesisVideoDemoApp extends Application {
15      public static final String TAG = KinesisVideoDemoApp.class.getSimpleName();
16      public static Regions KINESIS_VIDEO_REGION = Regions.US_WEST_2;
```

Step 4

The default framerate is 20 and the default bitrate is 384 kbps. Change the "FRAMERATE_20" and BITRATE_384_KBPS" field values to your video streams' frame rate and bitrate in the sample code file "StreamConfigurationFragment.java" at location "/src/main/java/com/amazonaws/kinesisvideo/demoapp/fragment".

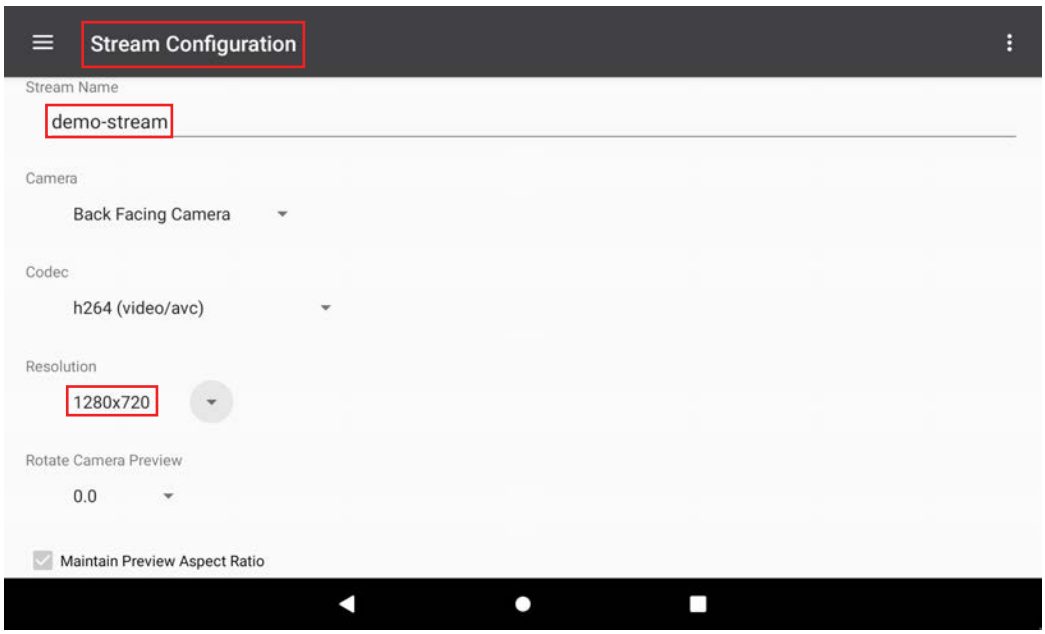
```
38  public class StreamConfigurationFragment extends Fragment {
39      private static final String TAG = StreamConfigurationFragment.class.getSimpleName();
40      private static final Size RESOLUTION_320x240 = new Size(320, 240);
41      private static final int FRAMERATE_20 = 20;
42      private static final int BITRATE_384_KBPS = 384 * 1024;
43      private static final int RETENTION_PERIOD_48_HOURS = 2 * 24;
```

Step 5

Sign in to the "AmazonKinesisVideoDemoApp" application. The "Stream Configuration" screen will be displayed.

Step 6

Fill in the Stream Name, select the Resolution as "1280x720", scroll to the bottom and click the "Stream" button.



2.6 Debugging

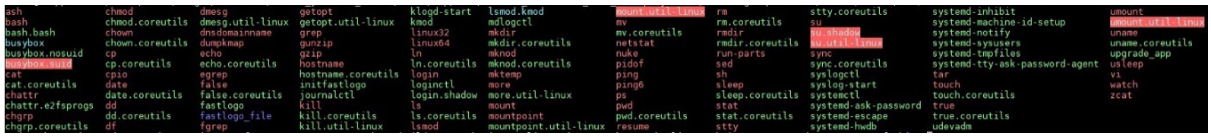
Open a console (e.g. Putty) and configure as described in section 2.3. The boot up messages will be presented with a command line interface as well as debug output. Use busybox commands "in /bin" to set up and debug the VIA SOM-9X50-STK device.

For Android

```
$ ls /bin
```

For Yocto

```
$ ls /bin
```



2.7 Troubleshooting

Check the table below for troubleshooting common Amazon KVS issues that may arise during development:

Issue	Solution
Device does not connect to the Internet	Confirm that the SIM card is inserted properly. Confirm that the SIM card is activated by the service provider. Verify the APN settings.
Device does not connect to AWS	Confirm that the date and time is synchronized. Verify that the appropriate access keys and region are configured on the VIA SOM-9X50-STK device. Verify the user policies or role set on AWS IAM.
Frame rate is too low	Try adding light if the lighting is too dim.

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