



QUICK START GUIDE

VIA SOM-9X50-STK

Amazon KVS



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Revision History

Version	Date	Remarks
1.00	09/03/2023	Initial release



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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.

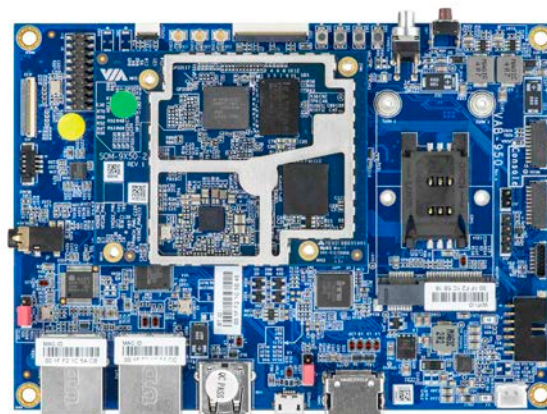
1.1 Directing Data from a VIA SOM-9X50-STK Device to an AWS Portal

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



Sign in

☒ **Root user**
Account owner that performs tasks requiring unrestricted access. [Learn more](#)

☐ **IAM user**
User within an account that performs daily tasks. [Learn more](#)

Root user email address

Next

By continuing, you agree to the [AWS Customer Agreement](#) or other agreement for AWS services, and the [Privacy Notice](#). This site uses essential cookies. See our [Cookie Notice](#) for more information.

☐ New to AWS?

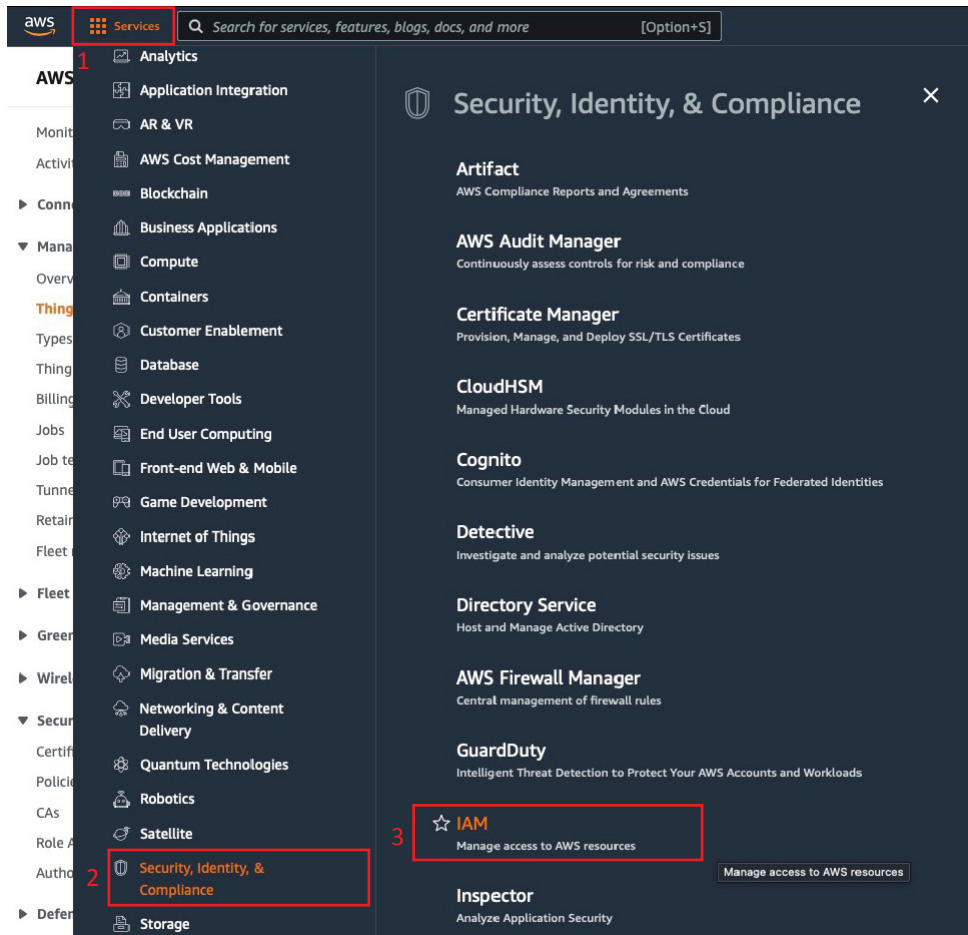
Create a new AWS account



Pay special attention to the Notes on the webpage.

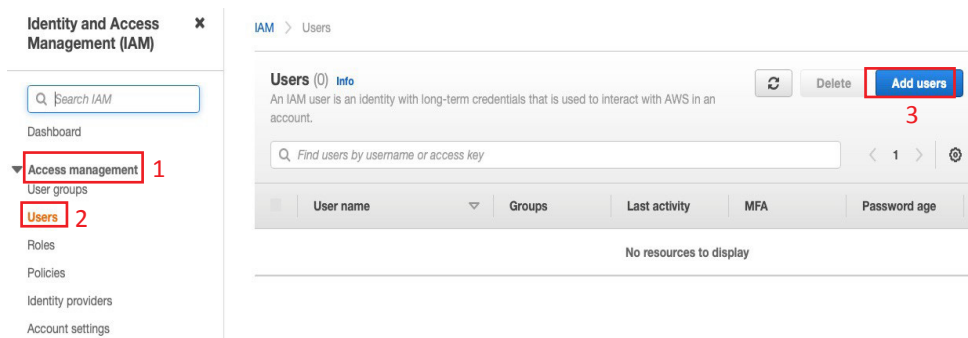
Step 2

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.

Add user

1
2
3
4
5

Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name*
VIA-KVS-SDK
1

Add another user

Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

Access type*
☒ Programmatic access

Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.
2

☐ AWS Management Console access

Enables a **password** that allows users to sign-in to the AWS Management Console.

* Required
Cancel
Next: Permissions
3

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.

Add user

1
2
3
4
5

Set permissions

Add user to group

Copy permissions from existing user

Attach existing policies directly
1

Create policy

Filter policies
KinesisVideo
Showing 2 results

	Policy name	Type	Used as	Description
<input checked="" type="checkbox"/>	AmazonKinesisVide...	AWS managed	None	Provides full access to Amazon Kinesis Vide... 2
<input type="checkbox"/>	AmazonKinesisVide...	AWS managed	None	Provides read only access to AWS Kinesis V...

Set permissions boundary

Cancel
Previous
Next: Tags
3

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.

Add user

12345

Add tags (optional)

IAM tags are key-value pairs you can add to your user. Tags can include user information, such as an email address, or can be descriptive, such as a job title. You can use the tags to organize, track, or control access for this user. [Learn more](#)

Key	Value (optional)	Remove
1 Add new key		

You can add 50 more tags.

CancelPreviousNext: Review2

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.

Add user

12345

Review

Review your choices. After you create the user, you can view and download the autogenerated password and access key.

User details

User name	VIA-KVS-SDK
AWS access type	Programmatic access - with an access key
Permissions boundary	Permissions boundary is not set

Permissions summary

The following policies will be attached to the user shown above.

Type	Name
Managed policy	AmazonKinesisVideoStreamsFullAccess

Tags

No tags were added.

CancelPreviousCreate user

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.

Add user

1 2 3 4 5

**Success**

You successfully created the users shown below. You can view and download user security credentials. You can also email users instructions for signing in to the AWS Management Console. This is the last time these credentials will be available to download. However, you can create new credentials at any time.

Users with AWS Management Console access can sign-in at: <https://viatp2.signin.aws.amazon.com/console>

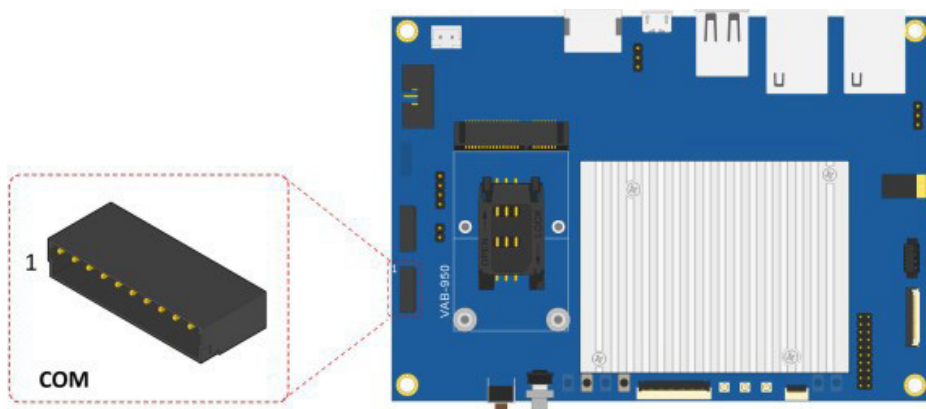
Download .csv

	User	Access key ID	Secret access key
▶	✓ VIA-KVS-SDK	AKIAWO2AXU6URD7WNNZ7	***** Show

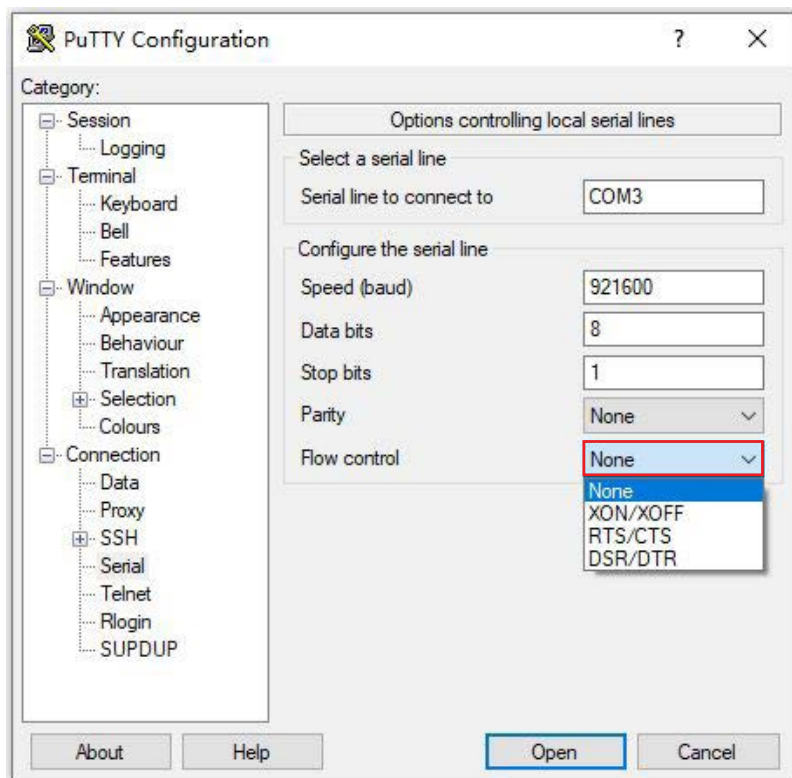
Comprehensive documentation is provided by Amazon Web Services. Follow the AWS development guide to add Kinesis Video Streams with different settings on Amazon Web Services. For more information, please visit: <https://docs.aws.amazon.com/kinesisvideostreams/latest/dg/what-is-kinesis-video.html>.

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.

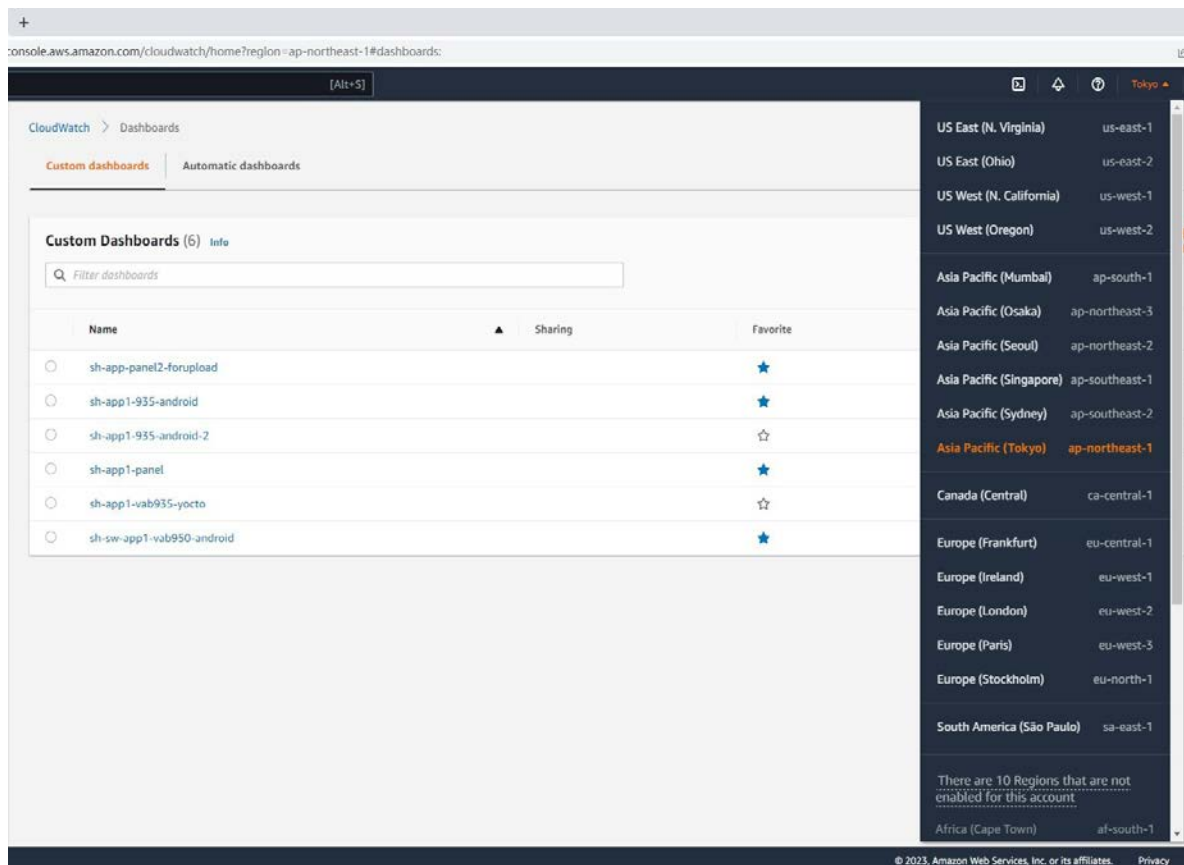
This section guides developers on how to enable and run the "kvs_demo.sh" application.

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.

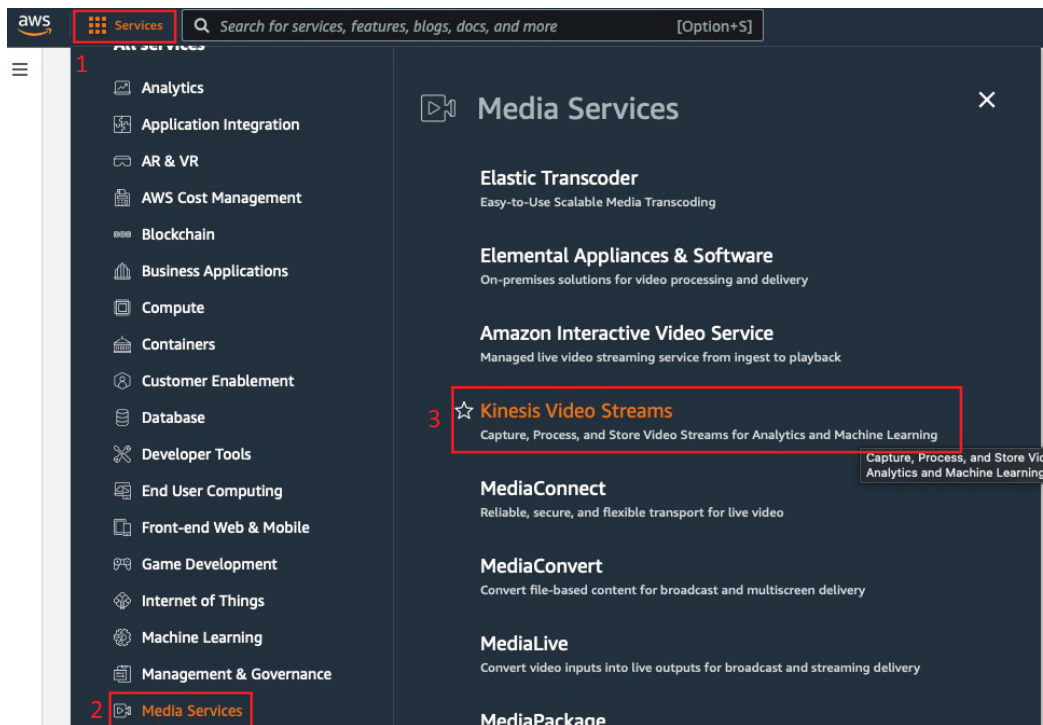


Step 3

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.

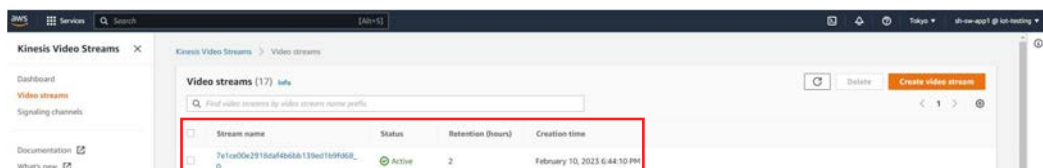


Step 4

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.



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>.

2.5 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/aws-labs/aws-sdk-android-samples/tree/main/AmazonKinesisVideoDemoApp>.

Step 2

Follow the instructions on the following webpages:

- <https://github.com/aws-labs/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.

The screenshot displays the "Stream Configuration" screen of the AmazonKinesisVideoDemoApp. The screen has a dark header with a hamburger menu icon on the left and a three-dot menu icon on the right. The title "Stream Configuration" is centered in the header. Below the header, the "Stream Name" field is filled with "demo-stream". The "Camera" dropdown is set to "Back Facing Camera". The "Codec" dropdown is set to "h264 (video/avc)". The "Resolution" dropdown is set to "1280x720". The "Rotate Camera Preview" dropdown is set to "0.0". At the bottom, there is a checkbox labeled "Maintain Preview Aspect Ratio" which is checked. The screen is shown on a mobile device with a black navigation bar at the bottom.

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
```

adb	bu	ddmsh	gmservice	iptables-restore	mediametrics	od	sanitizer-status	svc	uname
acpi	bugreport	dexlist	groups	iptables-save	mediaserver	oem-iptables-init.sh	schdtest	swapoff	uncrypt
addb	bugreportz	dexoptanalyzer	grub	iptables-wrapper-1.0	net-cmd	otatpreopt	screenap	swapon	uniqu
ae	bugzip2	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
aeo_aed	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
aeo_archive	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
aeo_aed04	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
aeo_archive	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
aeo_core_forwarder	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
aeo_dumpstate	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
ae	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
apexd	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
apppatch	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
apppos	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
app_process	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
app_process32	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
app_process64	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
appwldget	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
arping	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
art_apee_boot_integrity	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
ashmemd	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
atci_service_sys	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
atci	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
atrac	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
audiocmd	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
audio_param_test_sys	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
audiorever	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
audiosetparam	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
audiotest	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
awk	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
badlocks	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
base64	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
basenane	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
batterwarning	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
bc	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
bcc	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
blmk_screen	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
blkid	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
blockdev	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
btop	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
bootanimation	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
bootctl	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
boot_log_updater	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
bootstat	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
bootstrp	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos
bploader	bugbox	diff	gslid	ip-wrappers-1.0	net_log_d	otatpreopt_chroot	screenrecord	sync	unxzdos

For Yocto

```
$ ls /bin
```

ash	chmod	ddmsh	getopt	klogd-start	lsmad.kmod	mount-util-linux	re	stty.coreutils	system-inhibit	umount
bash	chmod.coreutils	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount
bash.bash	chown	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount
busybox	chown.coreutils	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount
busybox.nosuid	chown	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount
cat	chown	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount
cat.coreutils	chown	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount
chattr	chown	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount
chattr.e2fsprogs	chown	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount
chgrp	chown	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount
chgrp.coreutils	chown	ddmsh	getopt-util-linux	klogd	lsmad	mount-util-linux	rm.coreutils	system-machine-id-setup	unmount	unmount

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



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