
Quick Start Guide

Thank you for acquiring the Cirrus Logic Voice Capture Development Kit for Amazon AVS-Enabled Products. This document aims to get you up and running with the kit.

1 Hardware Set Up

This section lists the hardware you'll need, and how to connect it up.

1.1 Supplied Hardware

The development kit comes with:

- CRD1569-1 voice capture board
- Raspberry Pi and power supply
- ribbon cable (optional use)
- passive speaker, to provide functionality (option – your own powered speaker can be used instead)

For the one-time set up of the voice capture board, you'll need to connect the following to the Raspberry Pi directly:

- a USB keyboard and mouse
- an HDMI cable to connect to your monitor
- an Ethernet connection

1.2 Connecting the Hardware

To set up the hardware, you can either mount the voice capture board directly on to the Raspberry Pi, or use the supplied ribbon cable to connect the voice capture board to the Raspberry Pi:

- To mount the voice capture board directly on to the Raspberry Pi, position the board over the Raspberry Pi as shown in Figure 1, ensuring that the connector on the underside of the voice capture board aligns exactly with the pins on the Raspberry Pi, and press the two boards together.

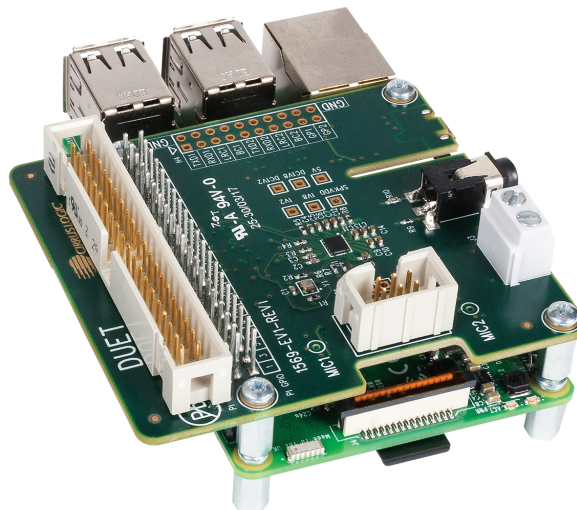


Figure 1 Voice Capture Board Plugged Directly into Raspberry Pi

- To use the ribbon cable, plug the cable connector that has a cable key (a plastic bump on it) in to the long connector on the voice capture board. The cable key fits into a notch in the 40-pin connector, ensuring that the

cable is plugged in correctly. The other end of the cable plugs into the parallel row of pins on the Raspberry Pi, with the side of the cable with the red stripe (pin 1) nearest the SD card slot, as shown in Figure 2.

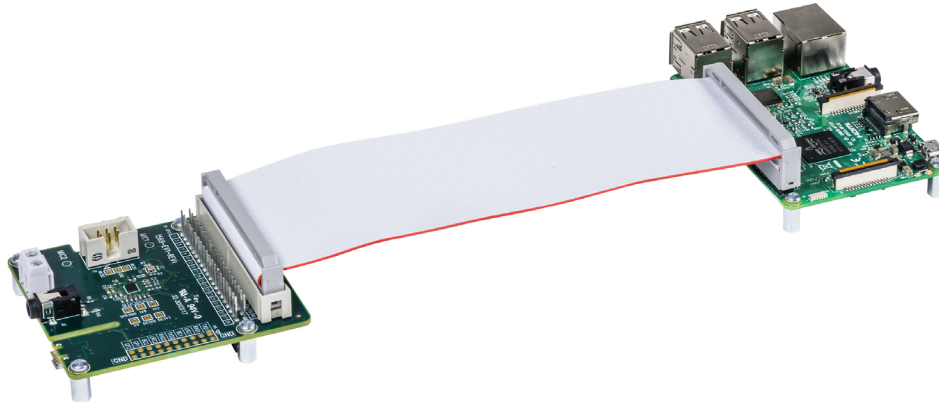


Figure 2 Voice Capture Board Connected by Ribbon Cable to Raspberry Pi

Once the boards are connected, insert the supplied microSD card in to the slot on the underside of the Raspberry Pi, at the opposite end to the USB connectors (the card can be seen protruding at the bottom of Figure 1). Attach the speaker to the screw terminals on the voice capture board (labelled J3), plug in the monitor and Ethernet cables, connect the USB keyboard and mouse, plug the supplied power supply (with the appropriate regional adapter) in to the micro-USB port on the Raspberry Pi, and power up the Raspberry Pi.

Now you're ready to configure the software.

2 Software Set Up

The software set up is performed from the Raspberry Pi, and has three stages – registering with Amazon for an AVS account, configuring the voice capture board, and setting up the internet connection to the Raspberry Pi with Wi-Fi for headless mode operation. (After set up, the voice capture board software will be accessible from your network.)

2.1 Registering for an Amazon AVS Account

To use AVS, you need to register with Amazon for an AVS account. On the Raspberry Pi, start the web browser and enter “<https://developer.amazon.com/login.html>” in the address bar.

Provide an email address, choose the *I am a new customer* button and click on the *Sign in using our secure server* button, shown in Figure 3.

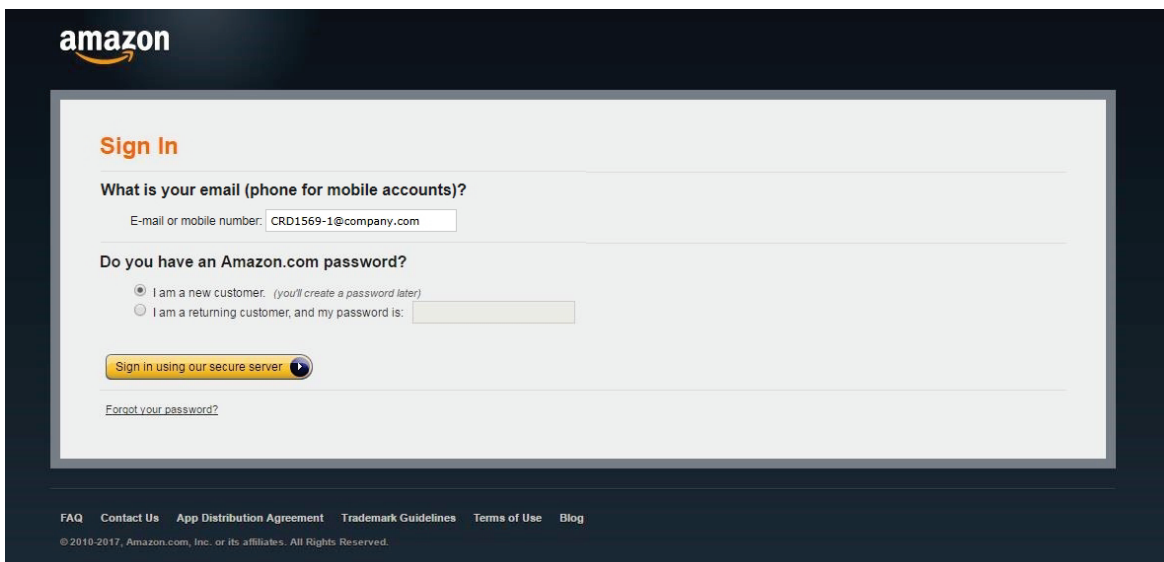
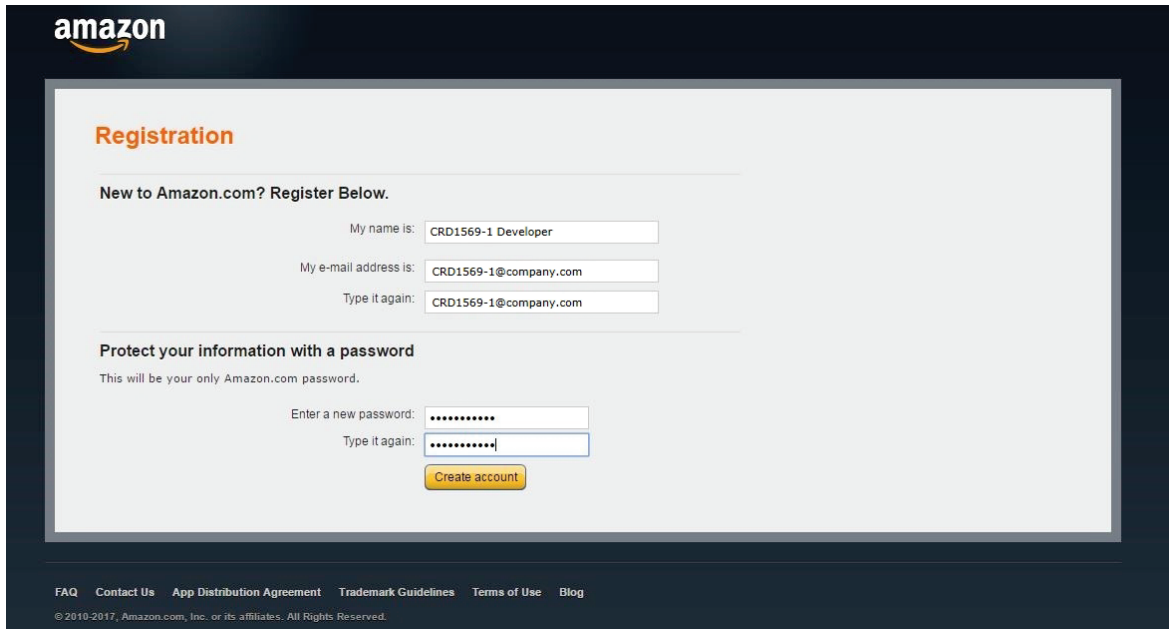
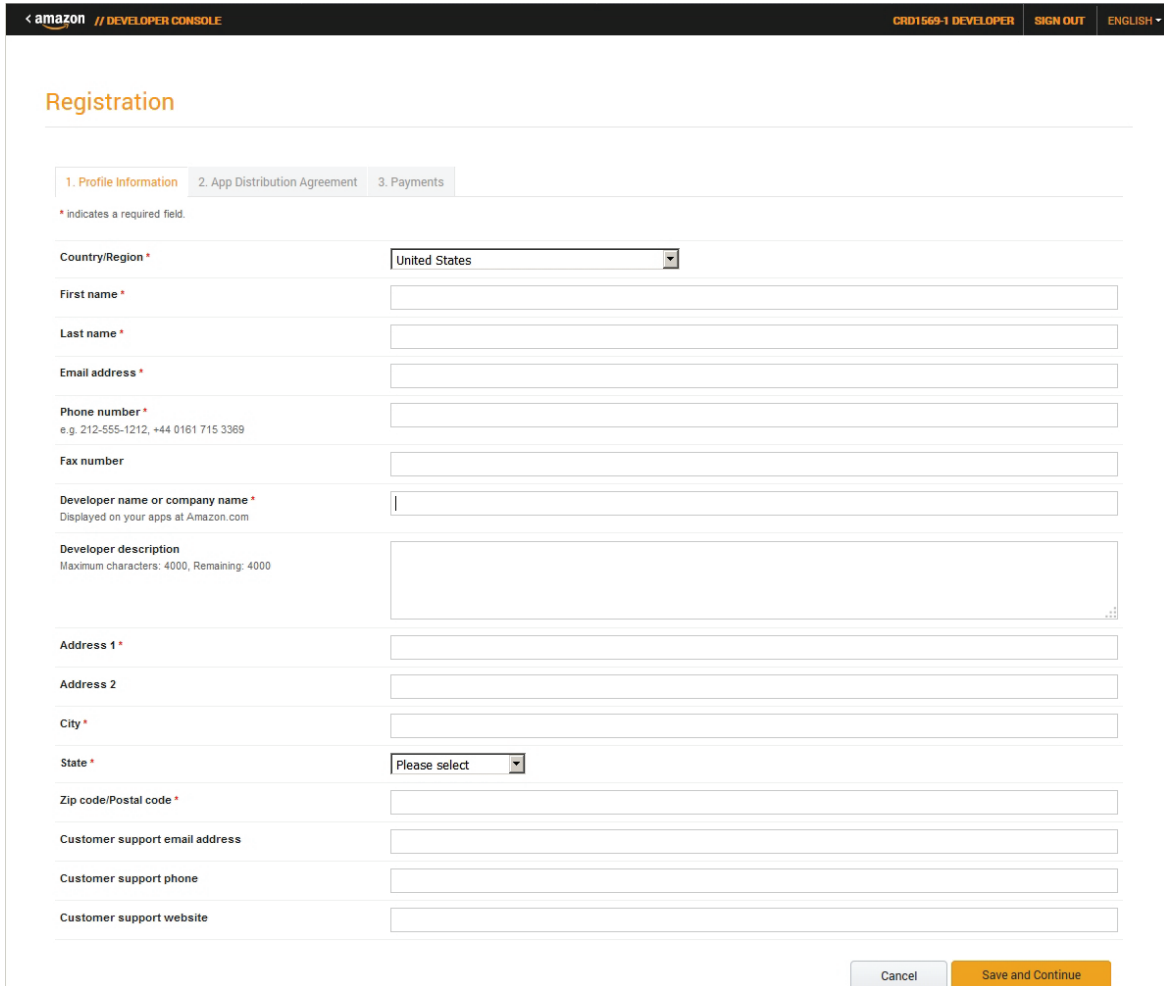


Figure 3 Amazon Developer Account Login Screen

Provide your name, create a password for the new account and click on the *Create account* button, shown in Figure 4.

**Figure 4 Amazon Developer Account Registration Screen 1**

On the registration page, shown in Figure 5, provide the required information and click on the *Save and Continue* button.



The screenshot shows the 'Registration' page in the Amazon Developer Console. The breadcrumb trail is '< amazon // DEVELOPER CONSOLE'. The user is logged in as 'CRD1569-1 DEVELOPER' and the language is set to 'ENGLISH'. The page title is 'Registration'. There are three tabs: '1. Profile Information' (active), '2. App Distribution Agreement', and '3. Payments'. A note states '* indicates a required field.' The form contains the following fields:

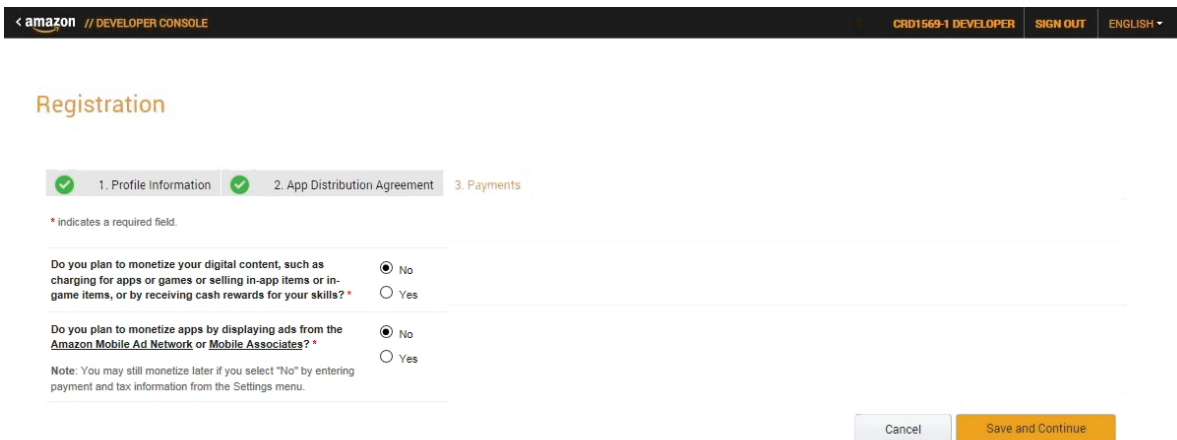
- Country/Region * (Dropdown menu showing 'United States')
- First name *
- Last name *
- Email address *
- Phone number * (with example: e.g. 212-555-1212, +44 0161 715 3369)
- Fax number
- Developer name or company name * (with note: Displayed on your apps at Amazon.com)
- Developer description (Maximum characters: 4000, Remaining: 4000)
- Address 1 *
- Address 2
- City *
- State * (Dropdown menu showing 'Please select')
- Zip code/Postal code *
- Customer support email address
- Customer support phone
- Customer support website

At the bottom right, there are two buttons: 'Cancel' and 'Save and Continue'.

Figure 5 Amazon Developer Account Registration Screen 2

On the license agreement page, click on the *Accept and Continue* button.

On the payment screen, shown in Figure 6, choose the appropriate answers to the two questions, and click on the *Save and Continue* button.



The screenshot shows the 'Registration' page in the Amazon Developer Console, specifically the '3. Payments' tab. The breadcrumb trail is '< amazon // DEVELOPER CONSOLE'. The user is logged in as 'CRD1569-1 DEVELOPER' and the language is set to 'ENGLISH'. The page title is 'Registration'. There are three tabs: '1. Profile Information', '2. App Distribution Agreement' (both with green checkmarks), and '3. Payments' (active). A note states '* indicates a required field.' The form contains the following questions:

- Do you plan to monetize your digital content, such as charging for apps or games or selling in-app items or in-game items, or by receiving cash rewards for your skills? * (Radio buttons for 'No' and 'Yes', with 'No' selected)
- Do you plan to monetize apps by displaying ads from the Amazon Mobile Ad Network or Mobile Associates? * (Radio buttons for 'No' and 'Yes', with 'No' selected)

A note below the questions states: 'Note: You may still monetize later if you select "No" by entering payment and tax information from the Settings menu.' At the bottom right, there are two buttons: 'Cancel' and 'Save and Continue'.

Figure 6 Amazon Developer Account Registration Screen 3

On the following webpage, shown in Figure 7, click on the *ALEXA* tab.

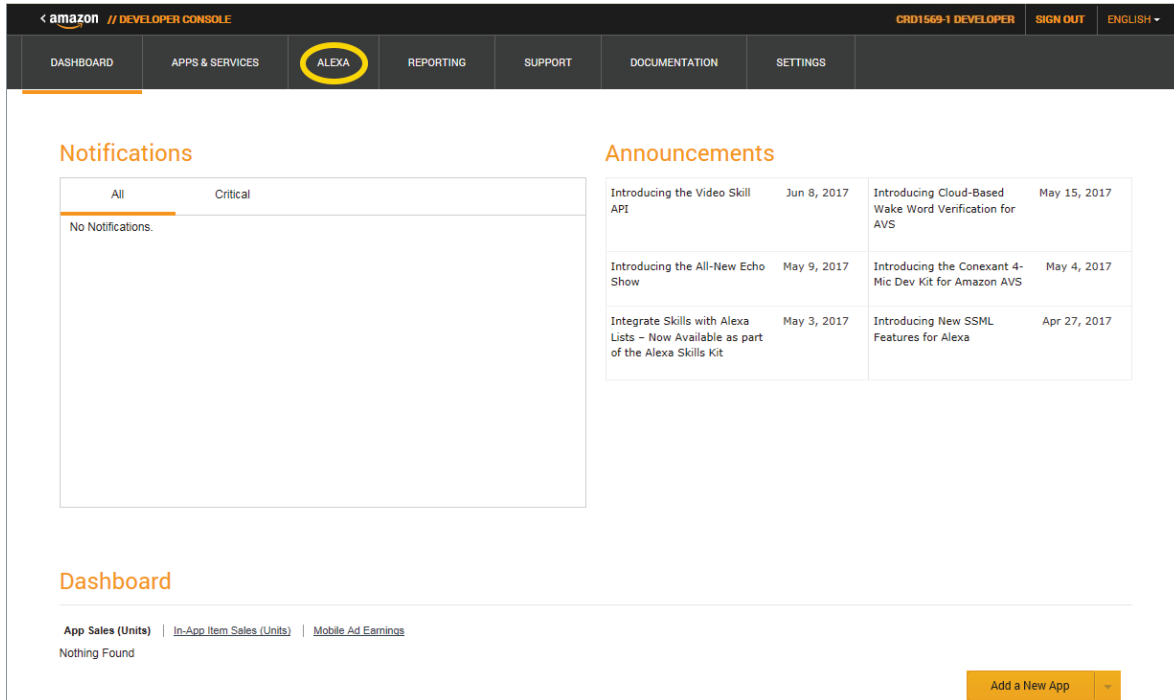


Figure 7 Amazon Developer Account Registration Screen 4

On the following webpage, shown in Figure 8, click on the big *Alexa Voice Service* button.

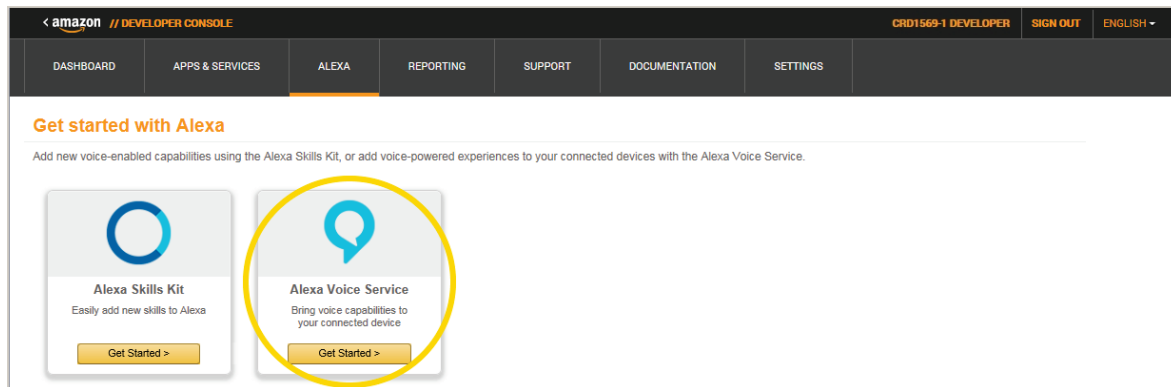


Figure 8 Amazon Developer Account Registration Screen 5

On the following webpage, shown in Figure 9, click on the orange *Register a Product* dropdown's down arrow and choose *Device*.

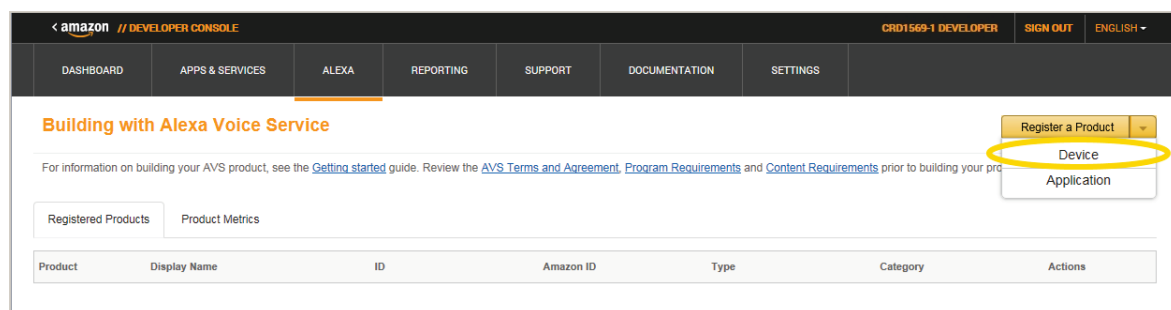


Figure 9 Amazon Developer Account Registration Screen 6

On the following webpage, shown in Figure 10, choose proper names for the *Device Type ID* (you'll use this when logging in to AVS) and the *Display Name*, and click on the *Next* button.

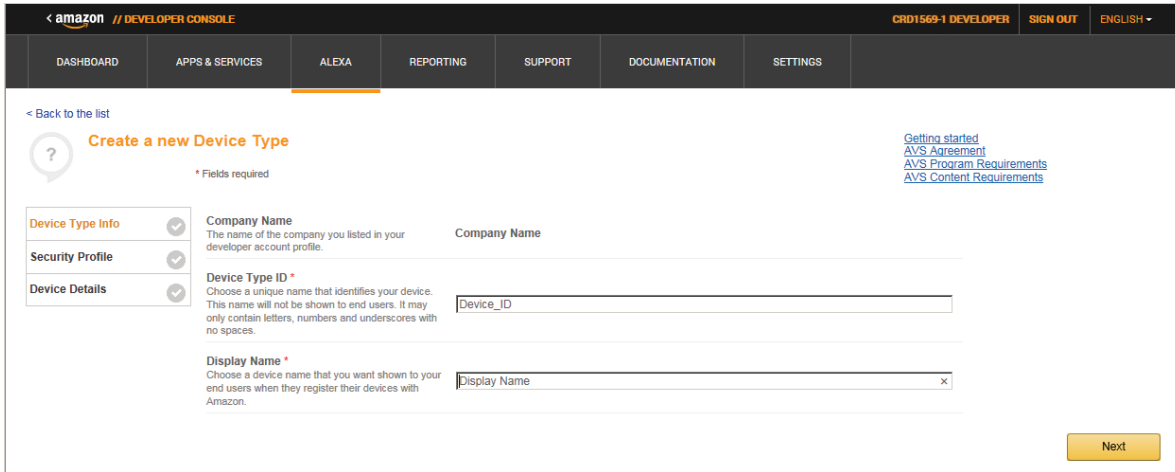


Figure 10 Amazon Developer Account Registration Screen 7

On the following webpage, shown in Figure 11, click on the *Select Security Profile* dropdown, then click on the *Create a new profile* option.

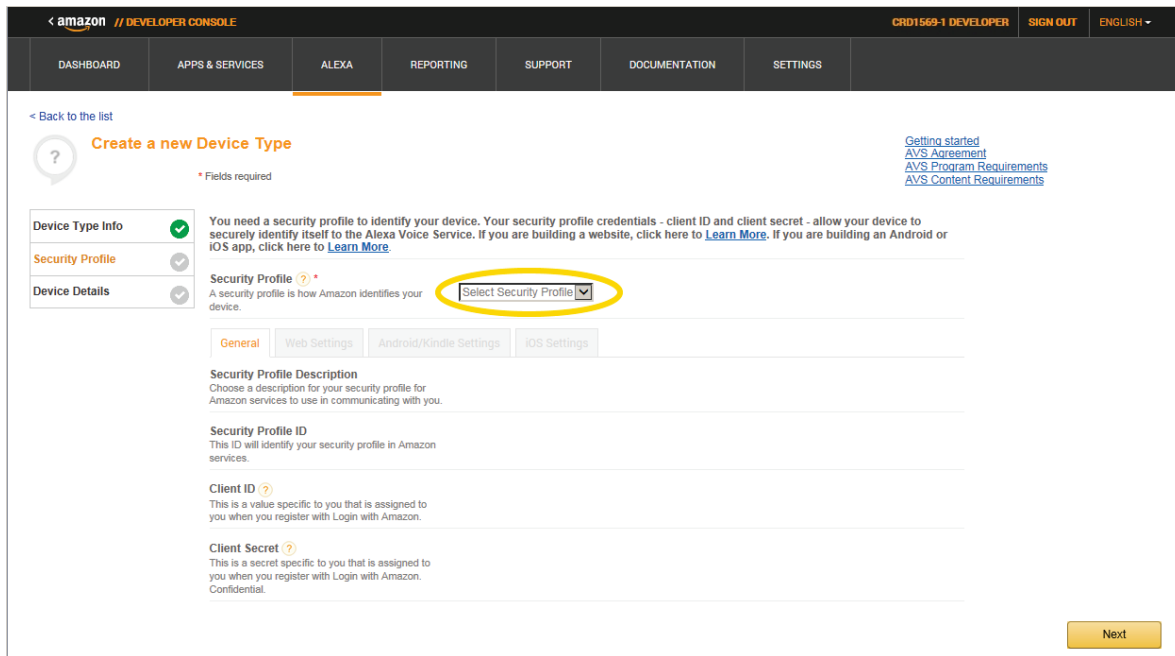


Figure 11 Amazon Developer Account Registration Screen 8

On the following webpage, shown in Figure 12, choose proper names for the *Security Profile Name* and *Description*, and click on the *Next* button.

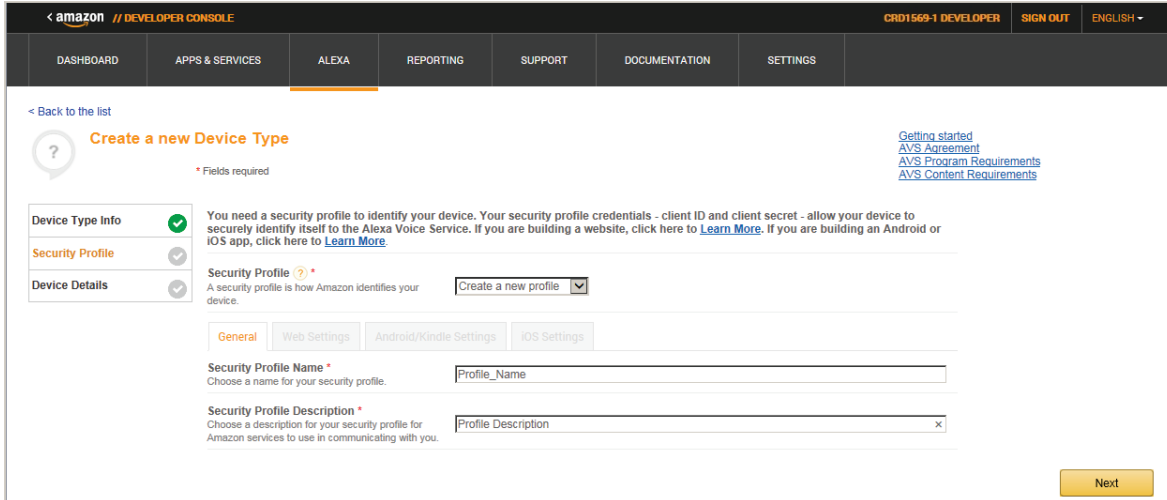


Figure 12 Amazon Developer Account Registration Screen 9

The following webpage, shown in Figure 13, shows the *Client ID* and *Client Secret* strings that are used to configure the voice capture board; you'll return to this webpage later, to allow you to copy-and-paste the strings.

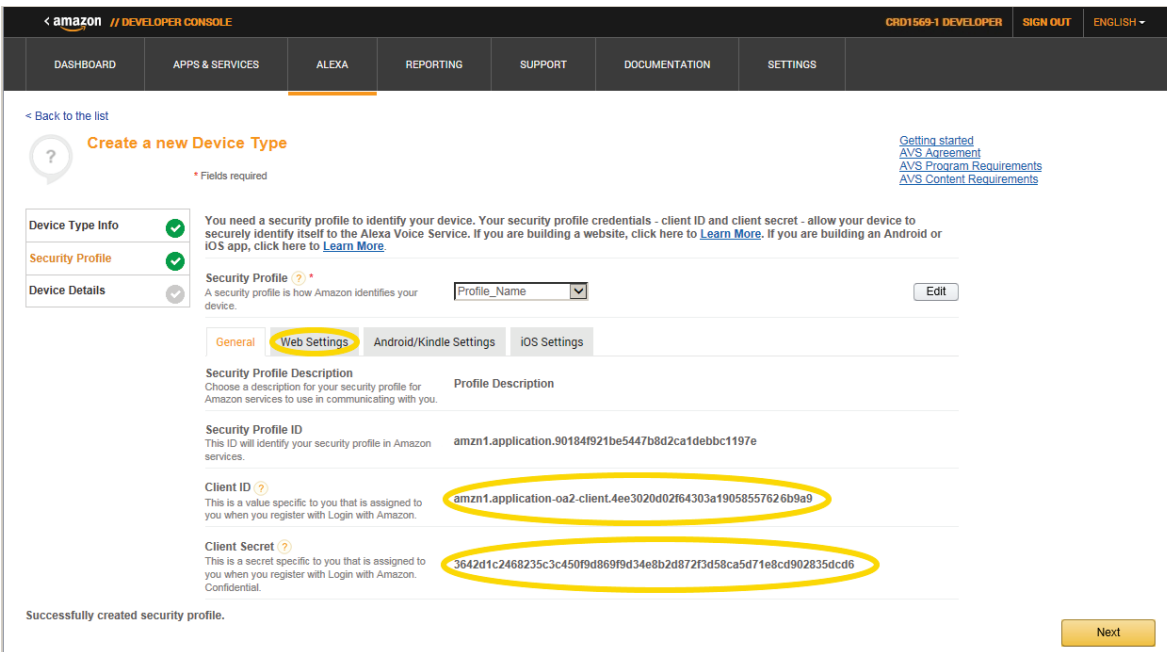


Figure 13 Amazon Developer Account Registration Screen 10

Click on the *Web Settings* tab and, on the following webpage, shown in Figure 14, click on the *Edit* button.

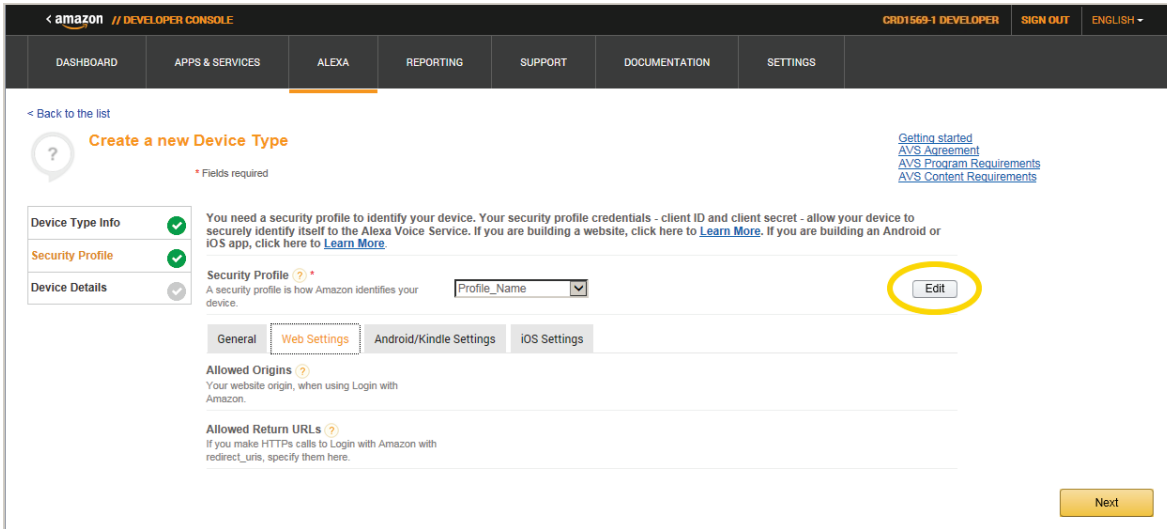


Figure 14 Amazon Developer Account Registration Screen 11

Click on the *Add Another* link for both *Allowed Origins* and *Allowed Return URLs*. Enter the following information, as shown in Figure 15:

- Allowed Origins: `https://raspberrypi:3000`
- Allowed Return URLs: `https://raspberrypi:3000/authresponse`

Then click on the *Next* button.

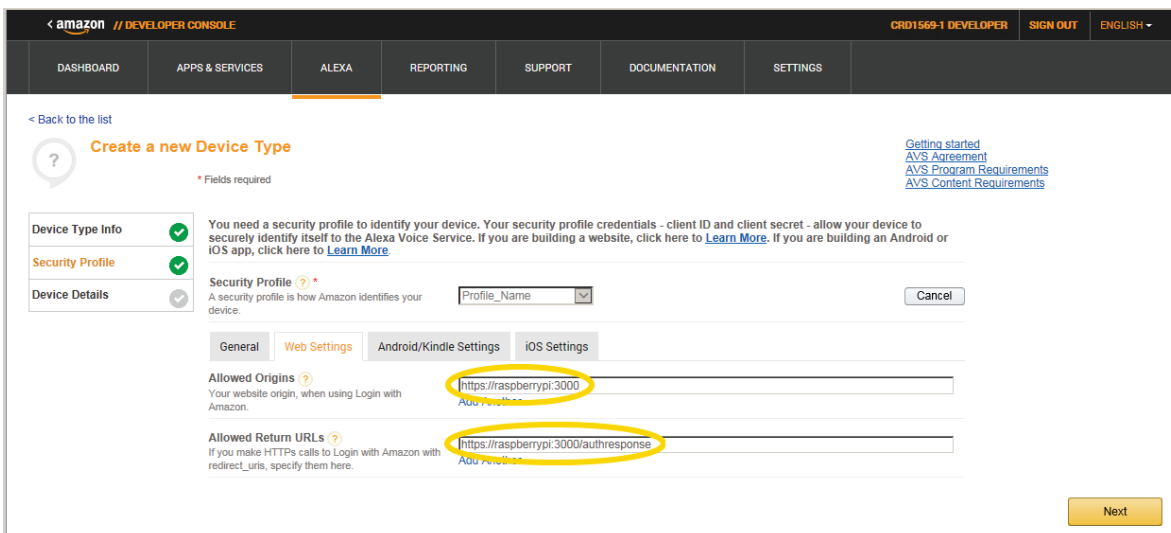


Figure 15 Amazon Developer Account Registration Screen 12

On the following webpage, shown in Figure 16, provide all the required information, then click on the *Submit* button.

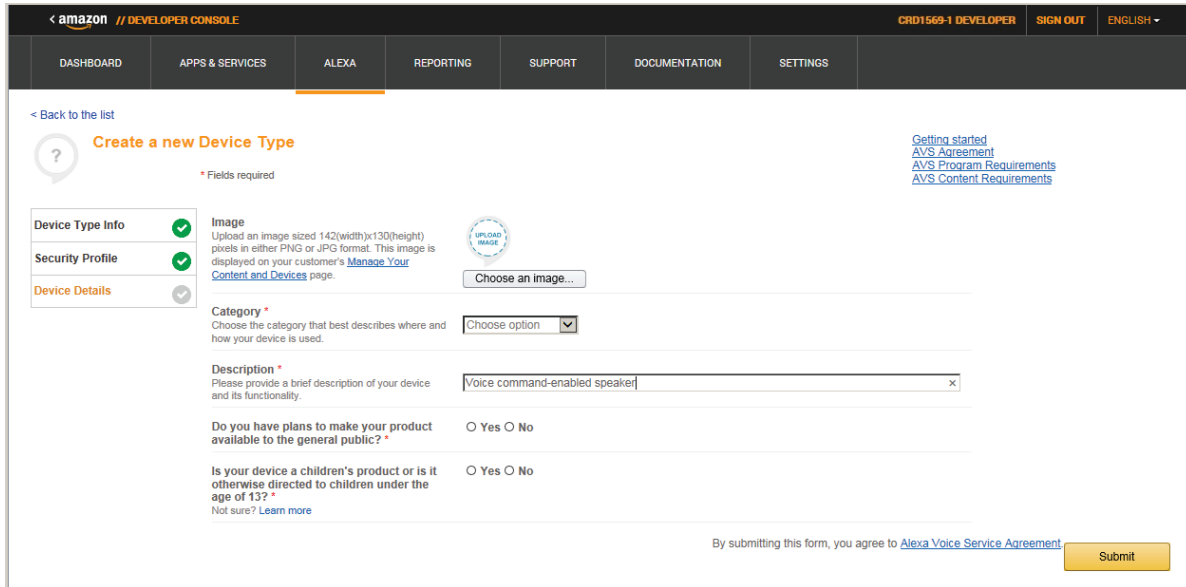


Figure 16 Amazon Developer Account Registration Screen 13

A summary page, similar to that shown in Figure 9 but with the device you just created, is displayed. You'll use the ID when logging in to AVS.

Click the *Edit* button on the right of the new device entry, and then click on the Security Profile tab, as shown in Figure 17, to display again the *Client ID* and *Client Secret* strings, so that they are available for you to copy-and-paste when you configure the voice capture board.

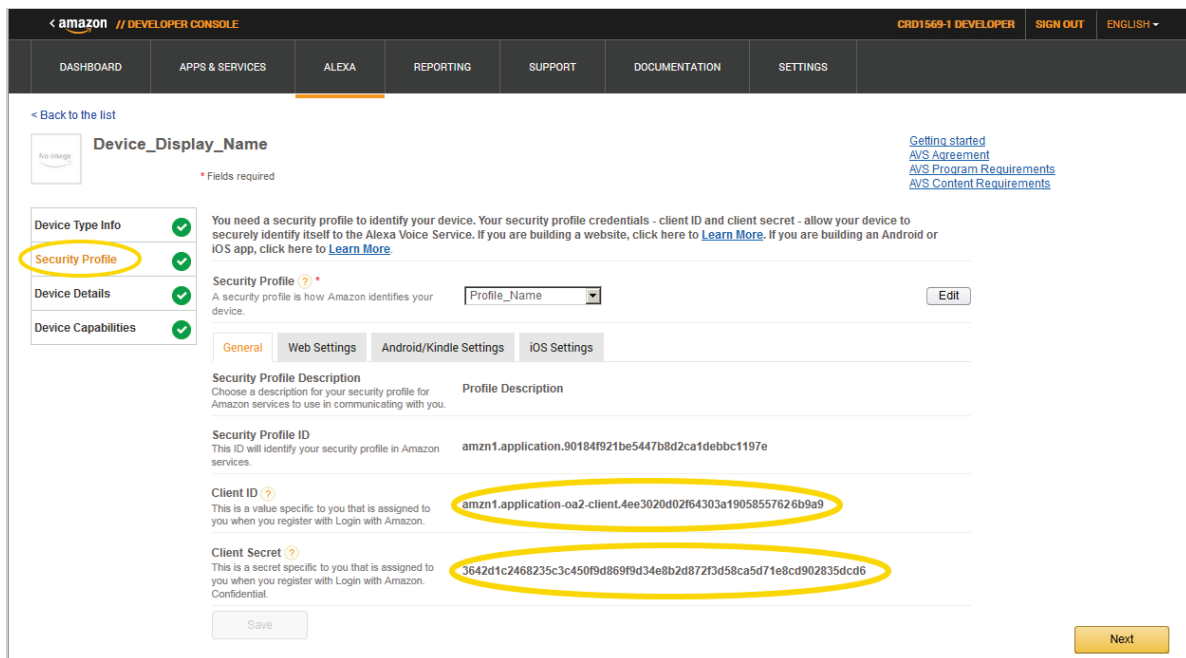


Figure 17 Amazon Developer Account Registration Screen 14

This completes creating an Amazon developer account.

2.2 Configuring the Voice Capture Board

The voice capture board should be available on your network.

- On the Raspberry Pi, open a new browser window and enter “<https://raspberrypi:3000>” in the address bar. A security warning page will come up for the first time access to the console. Click the *ADVANCED* text, then the *Proceed to raspberrypi (unsafe)* link. Read the License Agreement and click on the *Accept* button on the bottom of the page.

You now need to enter the AVS configuration information and log in to Amazon.

- To add the AVS configuration details, open the *Configurations* menu on the left side, and select the *AVS* option, as shown in Figure 18. Provide the *Client ID* and *Client Secret* details from the Amazon developer account previously created (shown in Figure 13), and the *Product ID* (the Device Type ID shown in Figure 10), then click on the *Submit* button at the bottom of the page.

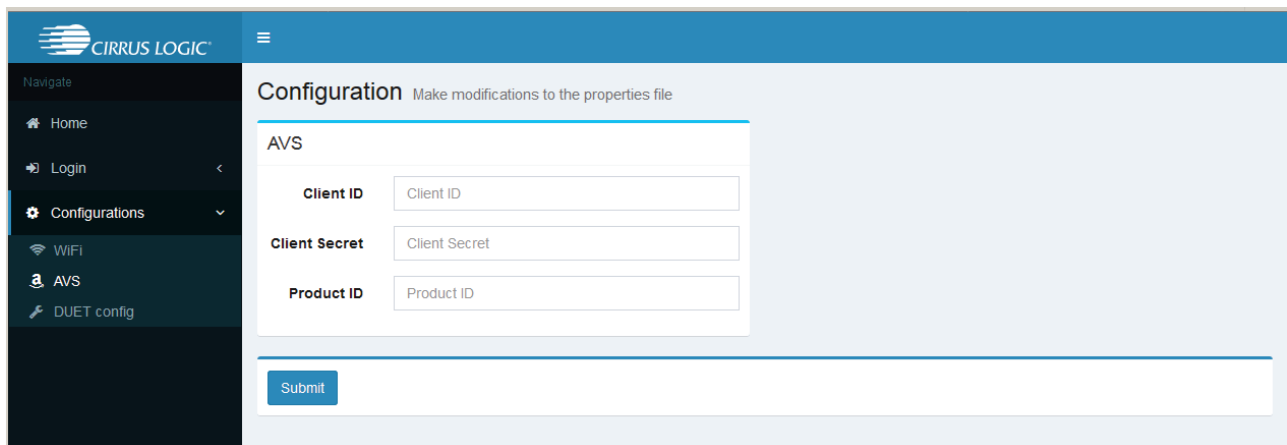


Figure 18 Console – AVS Configuration

A green banner at the top of the page will confirm that the properties were updated successfully.

- To log in to the AVS service, open the *Login* menu on the left side, and select the *AVS Login* option, as shown in Figure 19. Click on the yellow button to sign in to Amazon Voice Services, using the account details you set up previously and accept the terms of use.

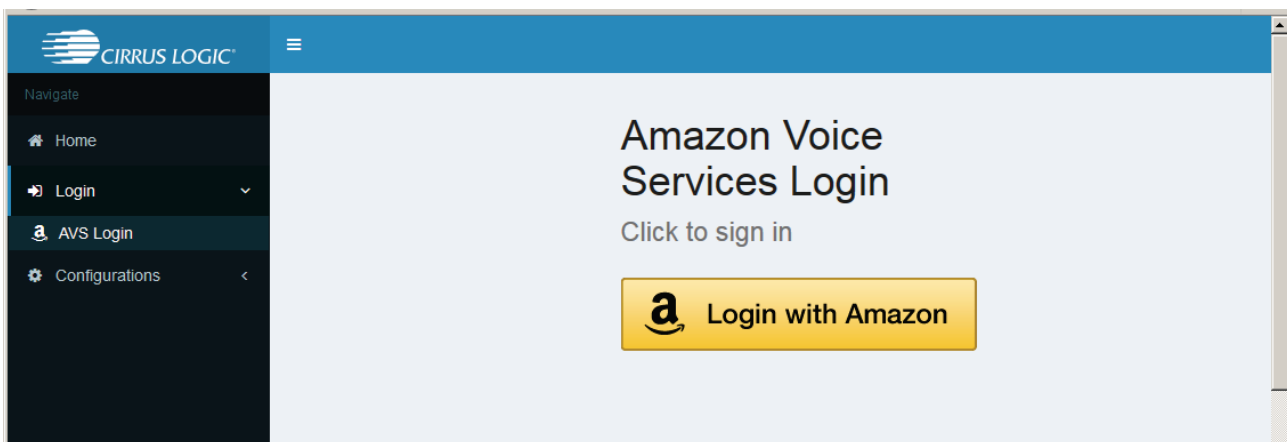


Figure 19 Console – AVS Login

You should be returned to the Console AVS Login screen, with a green banner at the top of the page confirming that login was successful.

Alexa will say "Hello" within about 10 seconds after the login (if she doesn't, go to the *Home* menu and click on the *Stop* and then the *Start* buttons to restart the AVS service).

This completes initial setup. You can start using the Alexa Voice Service.

2.3 Set Up the Wi-Fi Internet Connection

The following steps configure the Wi-Fi connection.

- On the Raspberry Pi, start the web browser and enter “https://raspberrypi:3000” in the address bar. The browser should connect to and display the console, as shown in Figure 20. If a security warning is shown, click the *Reload* button and wait for the connection.

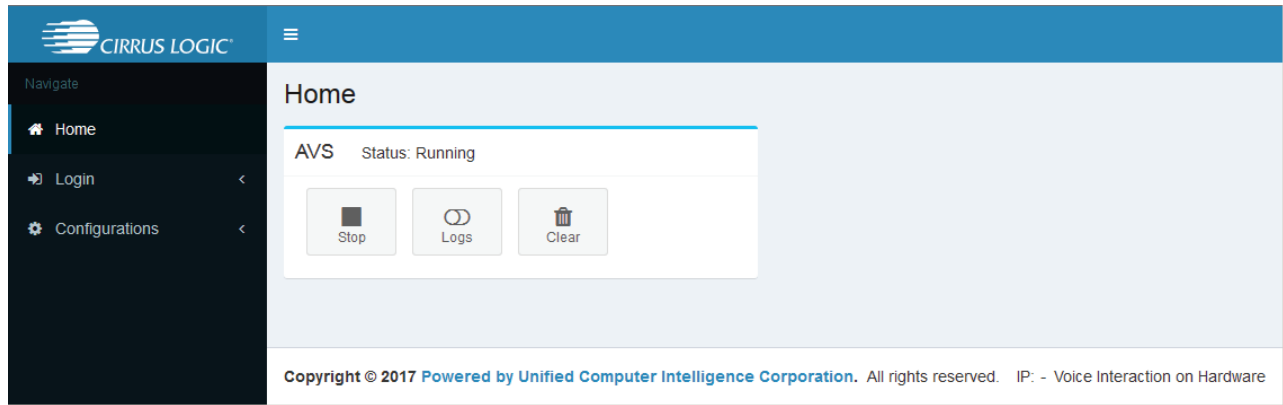


Figure 20 Console – Home

- Open the *Configurations* menu on the left side, and select the *WiFi* option. Click on the *Add new* button, then enter your Wi-Fi SSID name and password. Save this connection by clicking on the *Save* button, and reboot the Raspberry Pi 3 by clicking on the *Connect and Reboot* button. After reboot, the Raspberry Pi 3 should be connected to your Wi-Fi network.

Note: the SSID must be visible if you wish to use a Wi-Fi connection.

2.4 Enabling Headless Mode Operation

So that you can subsequently access the Raspberry Pi from any browser connected to your network (headless mode), you need to know the Raspberry Pi's IP address.

- In the task bar at the top right of the screen, hovering the mouse over the *Wired/Wireless Network* applet displays the information as shown in Figure 21. The IP address is the four numbers separated by '.'; for example, Figure 21 shows an Ethernet IP address of 198.90.202.35 and a wireless IP address of 192.168.1.179 – note the one appropriate for your connection.

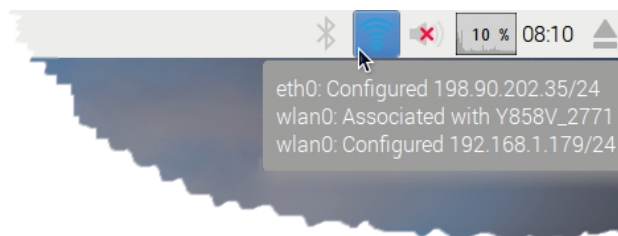


Figure 21 Raspberry Pi Wireless and Ethernet Connections

Now you can access the voice capture board via your network.

- On your computer, start a web browser, and enter `https://<IP address>:3000/` in the address bar, where *<IP address>* is the IP address noted above. The browser should connect to and display the console.

Once the IP address is known, you can use the Voice Capture Development Kit in full headless mode by disconnecting the monitor, USB keyboard and mouse from the Raspberry Pi; if a Wi-Fi connection is enabled, you can also disconnect the Ethernet cable.

3 Testing the Voice Capture Development Kit

The last step in getting the kit up and running is a quick test to ensure that all the basic elements are working.

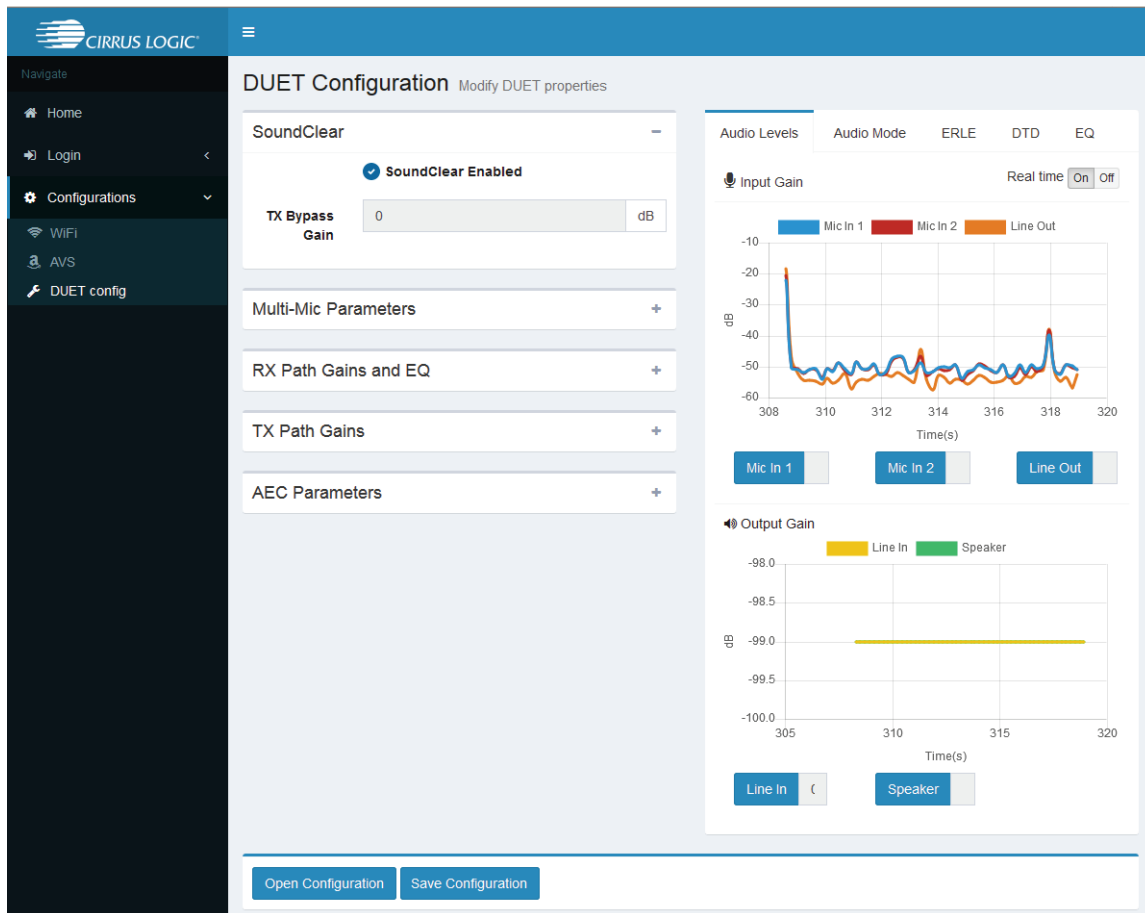


Figure 22 Console – Configuration

- In the console, select the *Home* menu on the left side.
- Restart the AVS application by clicking on the *Stop* button and then the *Start* button.

After a short pause, you should hear Alexa saying "Hello". This confirms that the application, speaker and Amazon connection are all working.

To test that the microphones are responding:

- Open the *DUET config* option in the *Configuration* menu, shown in Figure 22. The graphs on the right side show the microphone output. Speaking or making a loud sound near to the microphones (either side of the white 6-pin connector) should show a spike in the graphs.

Finally, to test Alexa:

- Say "Alexa" into the microphones; the voice capture board should respond with a beep to indicate processing.
- Ask Alexa a question. Following a second beep to indicate that she has finished listening, she should respond.

Further details of the Control Console operation can be found in the CRD1569-1 User Guide.

4 Revision History

Revision History

Revision	Changes
1.0 JUN '17	• First release
1.1 JUL '17	• Integrated with Quick Start Video contents

Contacting Cirrus Logic Support

For all product questions and inquiries, contact a Cirrus Logic Sales Representative.

To find one nearest you, go to www.cirrus.com.

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