VocalFusion Stereo Dev Kit for Amazon AVS: Getting Started Guide

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Welcome to the **xCORE VocalFusion Stereo Dev Kit for Amazon AVS** getting started guide.

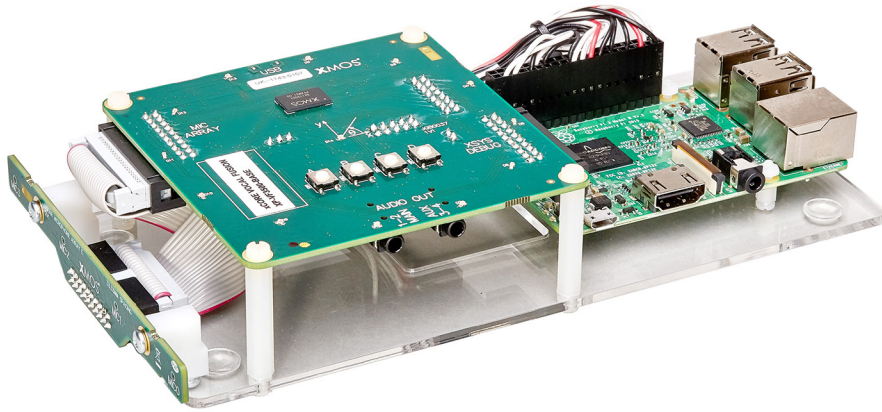

Figure 1: VocalFusion Stereo Dev Kit for Amazon AVS with Raspberry Pi

This getting started guide will get you talking with Alexa using the XMOS XVF3500 far-field voice processor and the Amazon AVS Device SDK running on a Raspberry Pi.

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1 Before you start

To complete this guide, you will need:

- **VocalFusion Stereo Dev Kit for Amazon AVS**
  XK-VF3500-L33-AVS - see Fig 1
- **Raspberry Pi 3** - buy at:
  http://www.amazon.com/dp/B01CD5VC92
- **Raspberry Pi micro-USB power supply** (min. 2A) - buy at:
  https://www.raspberrypi.org/products/raspberry-pi-universal-power-supply
- **MicroSD card** (min. 16GB)
- **Powered stereo speakers** with audio 3.5mm analogue plug, for example:
  Logitech Z130 Speaker: http://www.amazon.com/dp/B003CP0OT2
- USB **keyboard** and **mouse**
- **Monitor** with HDMI input
- **HDMI cable**
- **Fast-Ethernet connection** with internet connectivity
- An **Amazon Developer account**
  If you do not already have one, this guide will explain how to create one

2 Set up VocalFusion Stereo Dev Kit and Amazon Voice Services (AVS)

2.1 Set up xCORE VocalFusion Stereo Dev Kit hardware

Follow the xCORE VocalFusion Stereo Dev Kit for Amazon AVS - Hardware Setup Guide:

https://www.xmos.com/published/xk-vf3500-l33-avs-hardware-setup-guide

2.2 Configure microSD card

You need to install Raspbian OS on your microSD card.

> Note: this guide uses Raspbian **Stretch**. The use of the other versions of Raspbian has not been tested and so is not recommended.

The easiest way to install Raspbian is to load NOOBS (New Out Of the Box Software) onto the card.

Either, purchase a new microSD card with NOOBS preinstalled. For example:

> 16GB: http://www.amazon.com/dp/B01H5ZNOYG

Or, download NOOBS and copy to your own microSD card by following the official Raspberry Pi guide:

> https://www.raspberrypi.org/documentation/installation/noobs.md

2.3 Connect Raspberry Pi and install Raspbian

Insert the microSD card in to the Raspberry Pi, connect your peripherals (keyboard, mouse, monitor and Ethernet) and apply power. Then follow the on screen instructions to install Raspbian.

2.4 Install Amazon Alexa Voice Service (AVS)

XMOS provides an automated installation script to configure the Raspberry Pi audio system to connect to the xCORE VocalFusion Stereo Dev Kit and install and configure the Alexa Voice Service Device SDK on the Raspberry Pi.

This script automates the procedures described in the Amazon Alexa `avs-device-sdk` GitHub repository. It does not require you execute the Amazon steps, you only need to run the script.

http://github.com/alexa/avs-device-sdk/wiki/Raspberry-Pi-Quick-Start-Guide

The remainder of the setup procedure is described in readme of the GitHub repository containing the installation script:

http://github.com/xmos/vocalfusion-stereo-avs-setup

2.5 Configure audio device

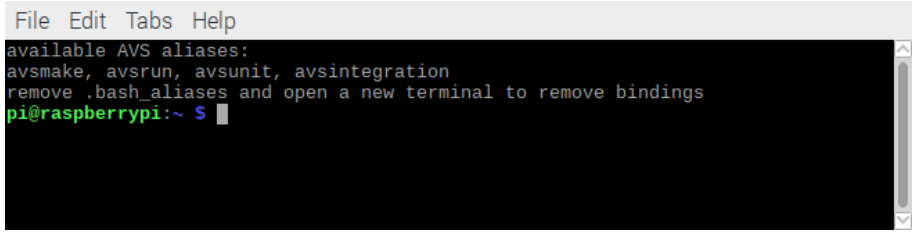
Once the installation script has finished, reboot the Raspberry Pi to complete configuration of the new audio device:

```
sudo reboot
```

After the reboot, the Raspberry Pi will now use the XVF3500 device for audio.

2.6 Run Amazon AVS

The automated installation script creates a number of aliases which can be used to execute the AVS Device SDK client, or run the unit tests. These aliases are listed in a Raspberry Pi terminal, above the prompt, and documented in the vocalfusion-stereo-avs-setup repository at .



To run the AVS Device SDK client, for example, type:

```
avsrun
```

2.7 All done!

Congratulations, Alexa is now ready. Why not try:

Say “Alexa, what time is it?”

Say “Alexa, what is the weather?”

To adjust the playback volume, open a new terminal on the Raspberry Pi and type:

```
alsamixer
```