Amlogic Buildroot Openlinux Release Note

Revision V20171031

AMLOGIC, Inc.
2518 Mission College Blvd，
Suite 120, Santa Clara, CA 95054
U.S.A.

www.amlogic.com

Revision History

Revision	Date	Author	Changes
V20170630	Jun 30, 2017	Peipeng Zhao	Alpha Release for Chip A113D/A113X
V20170731	July 31,2017	Peipeng Zhao	Beta Release for Chip A113D/A113X
V20170831	Aug 31,2017	Peipeng Zhao	MP Release for Chip A113D/A113X
V20171031	Oct 31,2017	Yuegui.He	MP Release for Chip A113D/A113X

Content

1. Overview

This is SDK release note for Amlogic A113D/A113X . The SDK software stack includes uboot, kernel, buildroot building environment and applications,

Uboot base on 2015 release, kernel is 4.9.54, and buildroot base on 2017.02 release.

2.Supported Boards

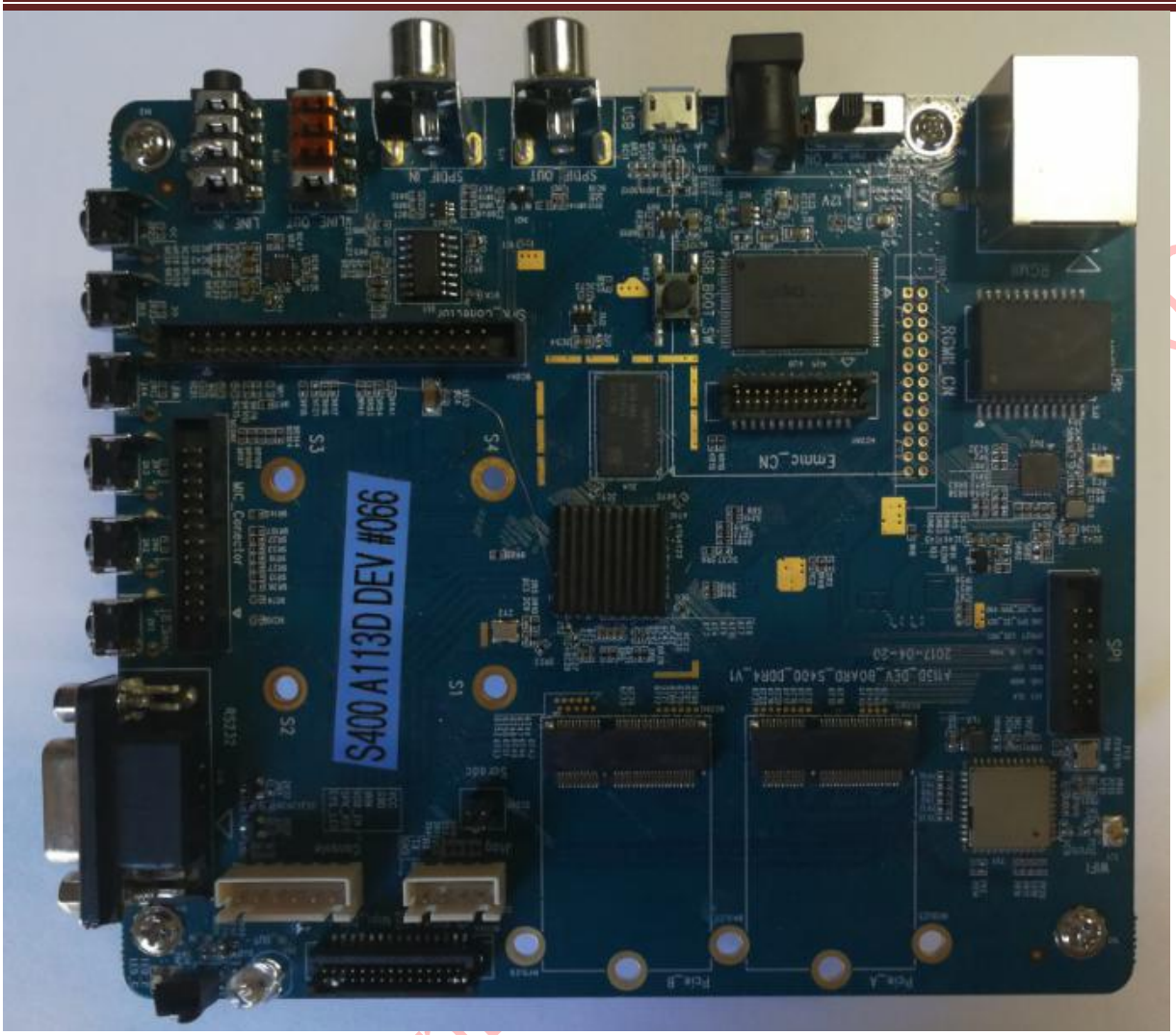
This chapter lists the reference boards that Amlogic currently supports.

List of Supported Boards

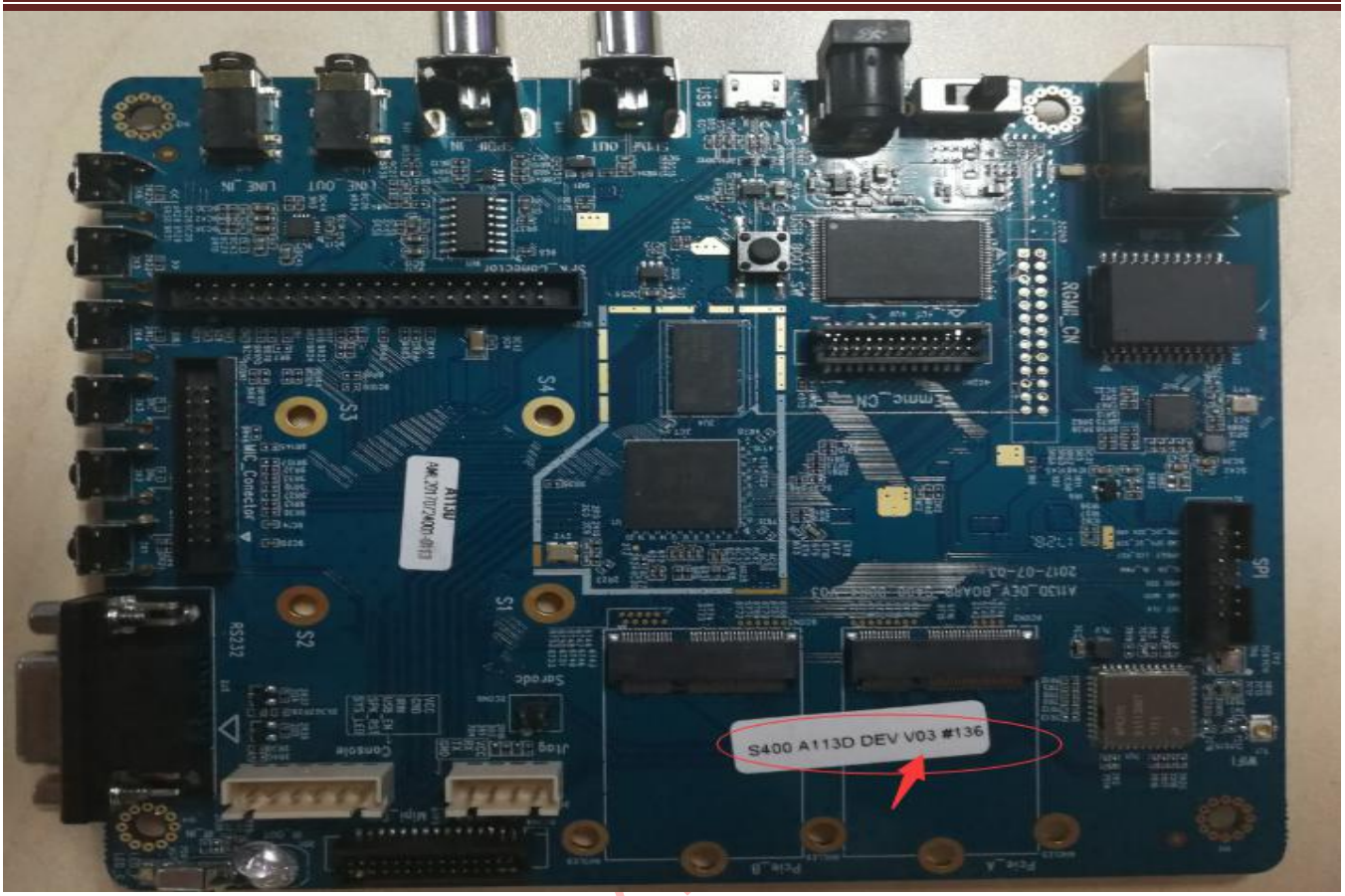
Amlogic supports the following reference boards for Chip A113D and A113X, This section lists the features and peripherals for these boards.

S400 Board:

● Amlogic A113D CPU
● 1G Bytes DDR4(K4A8G165WB-BCRC - 2400)
● SDIO WiFi/BT (AP6255)
● ADC Key x 6
● USB 2.0 OTG
● SLC NAND 512M Bytes(MX30LF4G18AC)
● SPDIF_IN/SPDIF_OUT
● UART Interface(RS232 & jtag)
● Audio Interface x 2(MIC_Connector & SPK_Connector)
● LINE_IN/LINE_OUT
● IR_IN/IR_OUT
● PCIe 2.0 Port x2(size:22mm x 30mm)
● MiPi Display Interface
● Gigabit Ethernet(RTL8211F-CG)
● Power(12V-3A)



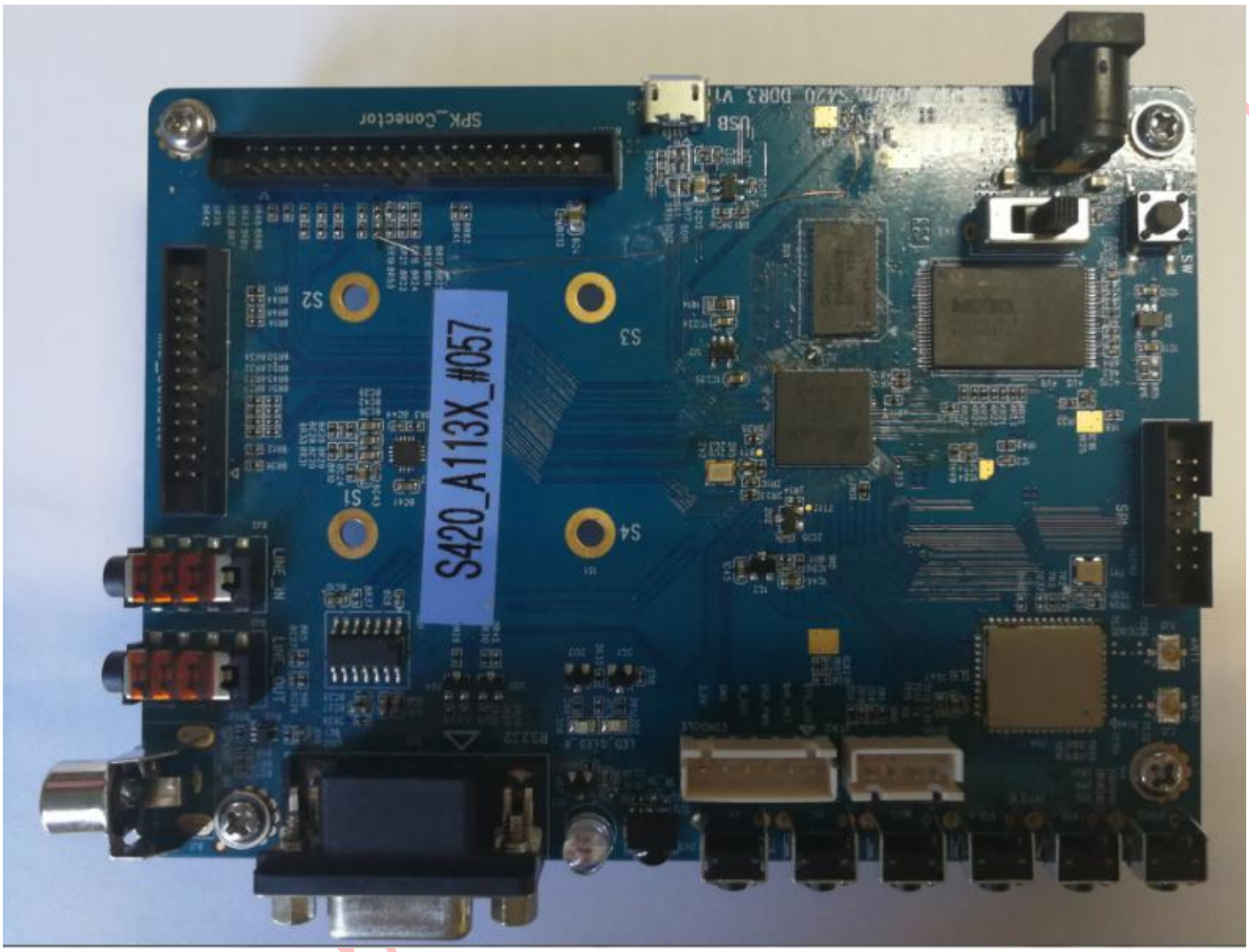
S400 Board Version 01



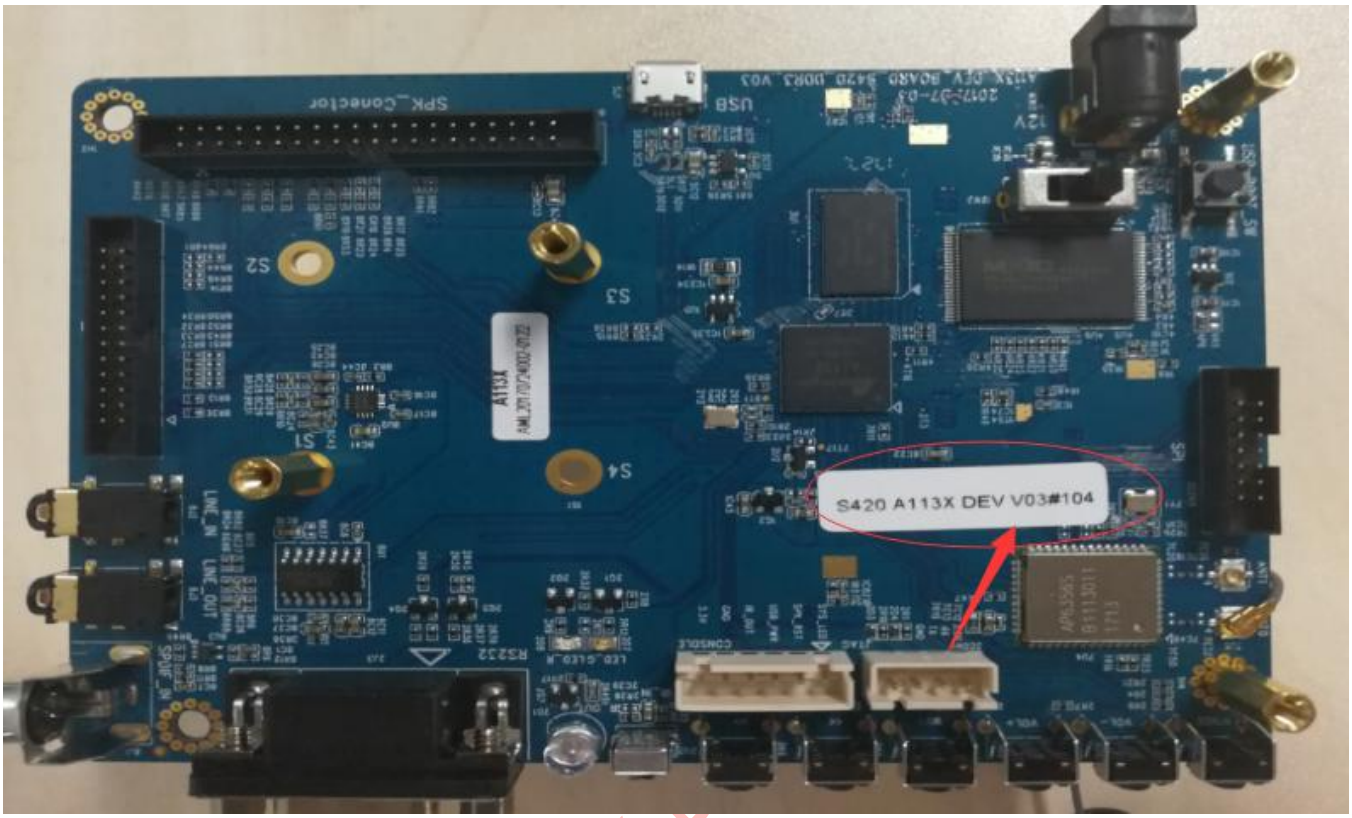
S400 Board Version 03

S420 Board:

● Amlogic A113X CPU
● 512M Bytes DDR3(H5TC4G63CFR-RDC)
● SDIO WiFi/BT (AP6356S)
● ADC Key x 6
● USB 2.0 OTG
● SLC NAND 512M Bytes(MX30LF4G18AC)
● SPDIF_IN
● UART Interface
● Audio Interface x 2(MIC_Connector & SPK_Connector)
● LINE_IN/LINE_OUT
● IR_IN/IR_OUT
● Power(12V-3A)



S420 Board Version 01



S420 Board Version 03

3.System requirements

Buildroot is designed to run on Linux systems. Please use 64bit Ubuntu 12.04 or 14.04 or 16.04 version.
While Buildroot itself will build most host packages it needs for the compilation, certain standard Linux utilities are expected to be already installed on the host system. Below you will find an overview of the mandatory

Mandatory packages

Build tools:

- Which
- sed
- make (version 3.81 or any later)
- binutils
- gcc (version 2.95 or any later)
- g++ (version 2.95 or any later)
- bash
- patch
- gzip
- bzip2
- perl (version 5.8.7 or any later)
- tar
- cpio
- python (version 2.6 or any later)
- unzip
- rsync
- file
- Bc
- Texinfo
- libmpc.so.2
- git

Source fetching tools:

- wget

4. How to Get Code and Compile the System

4.1 Introduction

This document provides the openlinux notes for Amlogic buildroot reference source code release running on Amlogic reference hardware. To obtain Amlogic Buildroot reference source code, you will need to have an account to access Amlogic GIT source code repository.

4.2 How to Get Code

You can download Buildroot source code by running the following repo commands:

```
$ cd ~/<your-buildroot-repo-dir>/
$ repo init -u ssh://git@openlinux.amlogic.com/buildroot-audio/linux/manifest.git
-b buildroot-openlinux --repo-url=ssh://git@openlinux.amlogic.com/repo.git
$ repo init -m    20171031.xml
$ repo sync
```

4.3 Compile the System

We use repo tool to manage the source code. Previous tar package are still exsited, but tar package is not a efficient source code management.

Compilation:

```
$ source buildroot/build/setenv.sh
You're building on Linux
Lunch menu...pick a combo:
1. mesonaxg_s400_32_release
2. mesonaxg_s400_32_debug
3. mesonaxg_s400_debug
4. mesonaxg_s400_release
5. mesonaxg_s400_32_emmc
6. mesonaxg_s400_emmc
7. mesonaxg_s420_32_debug
8. mesonaxg_s420_32_release
9. mesonaxg_s420_debug_release
10. mesonaxg_s420_release_release
Which would you like? [Choice Number]

$ make
```

Note: Do not use make -jN here as Buildroot does not support top-level parallel make.

This does not mean that Buildroot does not support parallel compilation, but just that it will handle this inside the Buildroot compilation system.

4.4 How to Upgrade

There are 4 ways for update.

- **Upgrade with USB_Burning_Tool ,using latest version 2.1.2,include this version.**
    1. Copy aml_upgrade_package.img to your PC.
    2. Install the usb device driver for the board and usb burnning tool on your PC.
    3. Connect the USB cable between PC and board.
    4. With uboot burned on your platform, under uboot command line mode,execute “update”, then enter usb burnning mode.
       # update
    5. When the status shows connection is successful, import the aml_upgrade_package.img.
    6. Press the start button, then aml_upgrade_package.img will be flashed on the board.
    7. When the status shows flashing is successful, unplug the USB cable and reboot.

    System will boot up with kernel and root filesystem on NAND.

- **Single image burn with Flash disk**

    1). Flash disk with one partition in vfat format
    2). Copy u-boot.bin，dtb.img,boot.img，rootfs.ubi to Flash disk
    3).Insert Flash disk into your platform and reboot into uboot.
    4).Uboot burn:
    #usb_update bootloader u-boot.bin
    #reset
    5).dtb.img burn:
    #usb_update _aml_dtb dtb.img
    #reset
    6).Kernel burn：
    #nand erase.part boot
    #usb_update boot boot.img
    #reset
    7).Rootfs burn
    #nand erase.part system
    #usb_update system rootfs.ubi
    #reset

- **Using update command to single image burn with PC, support Linux version and Windows version**

    Mainly Related Informations:
    Windows OS : update.exe:
    Windows version of the update tool, it's command line mode so need be called at Windows' shell cmd.exe.
    Linux OS : Aml_usb_update_tool_4_ubuntu.zip:

Linux version of this update tool, only 64-bit binary is provided, can be called at Ubuntu shell terminal.

1). Copy u-boot.bin dtb.img boot.img rootfs.ubi to PC disk

2).Uboot burn:

Windows:

#update.exe partition bootloader u-boot.bin

#update.exe bulkcmd “reset”

Ubuntu:

#update partition bootloader u-boot.bin

#update bulkcmd “reset”

3).dtb.img burn:

Windows:

#update.exe partition _aml_dtb dtb.img

#update.exe bulkcmd “reset”

Ubuntu:

#update partition _aml_dtb dtb.img

#update bulkcmd “reset”

4).Kernel burn：

Windows:

#update.exe partition boot boot.img

#update.exe bulkcmd “reset”

Ubuntu:

#update partition boot boot.img

#update bulkcmd “reset”

5).Rootfs burn

Windows:

#update.exe partition system rootfs.ubi

#update.exe bulkcmd “reset”

Ubuntu:

#update partition system rootfs.ubi

#update bulkcmd “reset”

- **Single image burn by fastboot**

1) usb link pc & board

2) under uboot command,enter fastboot mode

#fastboot

3) pc cmd brun sigle image by fastboot

Windows:

(1) Bootloader burn:

fastboot erase bootloader

fastboot flash bootloader u-boot.bin.usb.bl2

fastboot erase tpl

fastboot flash tpl u-boot.bin.usb.tpl

(2) kernel burn:
fastboot erase boot
fastboot flash boot boot.img

(3) rootfs burn:
fastboot erase system
fastboot flash system rootfs.ubi

(4) dtb burn:
fastboot erase dtb
fastboot flash dtb dtb.img

If you want to get more detail information,please check with your Amlogic Sales/Technical support window for latest document "Amlogic Update USB Tool User Guide"

5. A113D/A113X Audio Feature

5.1 audio Feature list

Module	Feature Description	Status
TDM in	i2s/pcm mode	Verified
	different bit number	16,24,32 bit verified
	different channel number	2~16 channels verified
	different sample rate	8K~192K verified
TDM out	i2s/pcm mode	Verified
	different bit number	16,24,32 bit verified
	different channel number	2~16 channels verified
	different sample rate	8K ~192K verified
S/PDIF in	different sample rate	22K ~ 192K verified
	different bit number	16, 24,32 bit verified
S/PDIFout	different sample rate	22K ~ 192K verified
	different bit number	16,24,32 bit verified
PDM IN	different bit number	16,24,32 bit Verified
	different channel bit	1,2,4,8 channels
	different sample rate	8K ~ 48K verified

Note: audio change : input & output clk same source for avs.
Note: if you need develop not avs product ,you need change input & outpu clk.

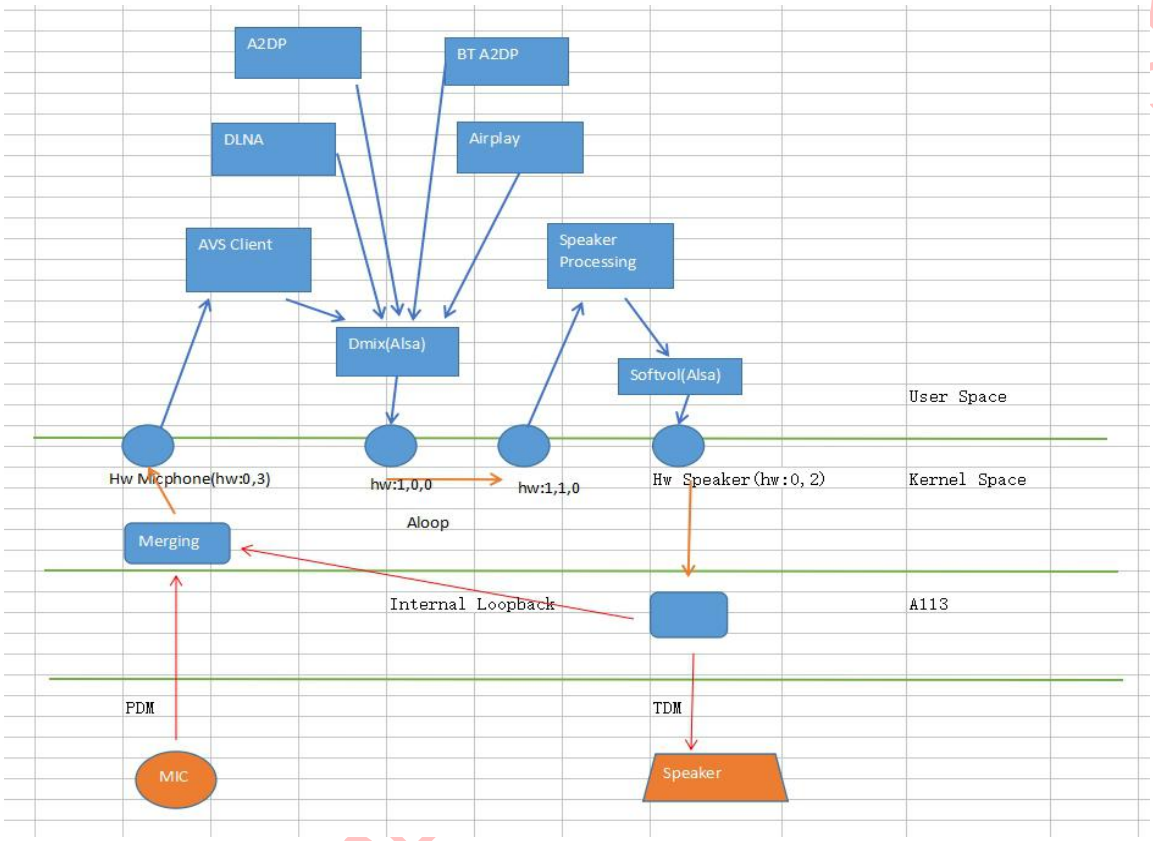
5.2 Speaker processing

The speaker processing module is designed as a daemon running outside of players,To add additional processing onto audio output data, it send player output data to a loopback device(aloop) instead of real speaker hardware device, and the Speaker Processing module get data from the other end of the loopback devices, do some linearity turning and then send back hardware device.

The loopback device is provided by the generic loopback driver, to enable this device, need enable CONFIG_SND_ALOOP in kernel configuration.

Speaker processing is only supported 32bit build at the moment.

Below is audio path for S420 v3 board.



6.Test Reports

Functional Test

name	test case	module case	detail	status
USB OTG		inserted or not		PASS
		read		PASS
		write		PASS
alsaplayer		wav		PASS
		mp3		PASS
		flac		PASS
		ogg		PASS
WiFi	SDIO	wifi driver		PASS
		wifi connected		PASS
		wifi ping		PASS
		wifi throughput		PASS
	PCIE	wifi driver		PASS
		wifi connected		PASS
		wifi ping		PASS
		wifi throughput		PASS
BT		BT handfree		PASS
		send file		PASS
		A2DP		PASS
GPIO		PIO		PASS
		IRQ		PASS
		PULL		PASS
Multi Bootloader	BL2	erase	1~7	PASS
		bad data	1~7	PASS
		half ture data	1~3	PASS
	TPL	erase	1~3	PASS
		bad data	1~3	PASS
		half ture data	1~3	PASS
Ethernet		Ethernet connected		PASS
		Ethernet ping		PASS
		Ethernet throughput		PASS
Display	OSD+GE2D	768x1024		PASS

		256x256		PASS
		1920x1080		PASS
	MiPi	lit LCD		PASS
	QT+DirectFB	QT test		PASS
Airplay	shairprot-sync	play/pause		PASS
		Pre song/next song		PASS
		Volume control		PASS
		Device identification		PASS
		Play music fluncy		PASS
DLNA		play/pause		PASS
		Pre song/next song		PASS
		Volume control		PASS
		Device identification		PASS
		Play music fluncy		PASS
UART		Mutli transmission rate		PASS
ADC_KEY		6 keys		PASS
SPDIF	IN/OUT	Mutli sample rate		PASS
Line in/out		Mutli sample rate Mutli bit number		PASS
ADB				PASS
RNDIS				PASS
FASTBOOT				PASS
OTA				PASS
ScureOs				PASS
SecureBoot				PASS
AVS	acount setup			PASS
	Light Animation			PASS
	Normal function			PASS
loopback				PASS
Web-ui	Wifi setting			PASS
	spotify			PASS
	OTA			PASS

If you want to get more detail information, please check with your Amlogic Sales/Technical support window for latest test reports.

7. Change List

1) Support OTA update by swupdate
2) Support fastboot upgrade
3) Update Alexa Device SDK to 1.1, add companion app(Android) to setup Amazon account
4) Add speaker process to improve linearity , more details refs to 5.2
5) Update WiFi setup UI
6) Update QTversion from 5.8.0 to 5.9.2
7) Support ADB & RNDIS function
8) Support Bluetooth Handfree profile with DSPC AFE
9) Update toolchain for Userspace
   32bit: gcc-linaro-arm-linux-gnueabihf-4.9 to gcc-linaro-6.3.1-2017.05-x86_64_arm-linux-gnueabihf
   64bit: gcc-linaro-aarch64-linux-gnu-4.9 to gcc-linaro-6.3.1-2017.05-x86_64_aarch64-linux-gnu
10) Cut off useless package to save Flash Memory requirements, and provide backlist mechanism

8. Player Software List

1). aplay ,only support wav audio format.
1). alsaplayer, support mp3, ogg, flac and wav 4 audio formats.
2). Gstreamer1, support audio and video function, support mp3,flac and wav 3 audio format.
3). Airplay play music (shairport), iOS version 9.3.2, 10.3.2.
4) DLNA play music (MediaRendererTest)
5) Spotfy play music (librespot)
6). VLC play music, support mp3, ogg, flac and wav 4 audio formats.

9. Supported Packages

Amlogic adopts Buildroot as package management system. See http://buildroot.org/ for more details on how it works.

List of Supported Package

Package	Version	Description
alsa-lib	1.1.3	ALSA User space library. See http://www.alsa-project.org/
alsa-utils	1.1.3	Command line utilities for the ALSA. See http://www.alsa-project.org/
boost	1.61.0	Set of libraries for C++. See http://www.boost.org/
brcmap6xxx		Broadcom wifi driver
busybox	1.25.1	Tiny versions of many common UNIX utilities. See http://www.busybox.net/
bzip2	1.0.6	Bzip compression utility. See http://www.bzip.org/

cairo	1.14.8	2D graphics library. See http://cairographics.org
cjson	1.2.1	ANSI-C compliant JSON parser. See http://sourceforge.net/projects/cjson/
dbus	1.10.16	Message bus system. See http://www.freedesktop.org/wiki/Software/dbus/
dhcpcd	6.11.5	DHCP client daemon. See http://roy.marples.name/projects/dhcpcd/wiki
directfb	1.7.7	Graphics library. See http://www.directfb.org/
dnsmasq	2.76	Network utility. See http://www.thekelleys.org.uk/dnsmasq/doc.html
e2fsprogs	1.43.3	Filesystem utilities for use with the ext2/3/4 filesystem. See http://e2fsprogs.sourceforge.net/
expat	2.2.0	Library for parsing XML written in C. See http://expat.sourceforge.net/
fbdump	0.4.2	Tools to captures the contents of framebuffer device. See http://www.rcdrummond.net/fbdump/
fbgrab	1.3	Framebuffer screenshot program. See http://freecode.com/projects/fbgrab
fbset	2.1	Fbset. See http://users.telenet.be/geertu/Linux/fbdev/
fbterm	1.7.0	Framebuffer based terminal emulator. See http://code.google.com/p/fbterm/
fb-test-app	rosetta-1.1.0	Test suite for Linux framebuffer. See https://github.com/prpplague/fb-test-app
fontconfig	2.12.1	Font configuration and customization library. See http://www.freedesktop.org/wiki/Software/fontconfig/
freetype	2.7.1	Fonts rendering library. See http://www.freetype.org
gdb	7.10.1	GNU debugger. See https://www.gnu.org/software/gdb/
gmp	6.1.2	Library for arbitrary precision arithmetic. See https://gmplib.org/
gnutls	3.5.8	Transport Layer Security Library. See http://www.gnutls.org/.
gst1-plugins-bad	1.10.4	Gstreamer bad set. See http://gstreamer.freedesktop.org/modules/gst-plugins-bad.html
gst1-plugins-base	1.10.4	See http://gstreamer.freedesktop.org/modules/gst-plugins-base.html
gst1-plugins-good	1.10.4	See http://gstreamer.freedesktop.org/modules/gst-plugins-good.html
gst1-plugins-ugly	1.10.4	See http://gstreamer.freedesktop.org/modules/gst-plugins-ugly.html
gstreamer1	1.10.4	Gstreamer. See http://gstreamer.freedesktop.org/
harfbuzz	1.4.2	Opentext shaping engine. See http://www.freedesktop.org/wiki/Software/HarfBuzz/
icu	58.2	International Components for Unicode. See http://site.icu-project.org/

iw	4.9	nl80211 based utility for wireless devices. See http://wireless.kernel.org/en/users/Documentation/iw
kmod	23	Kernel module tools. See https://www.kernel.org/pub/linux/utils/kernel/kmod/
libcurl	7.53.0	Multiprotocol file transfer library. See http://c-ares.haxx.se/
liberation	2.00.1	Font. See http://www.fedorahosted.org/releases/l/i/liberation-fonts
libevent	2.1.8	Signaling events. See http://libevent.org/
libffi	3.2.1	Event notification library. See http://libevent.org/
libglib2	2.50	See https://developer.gnome.org/glib/
libid3tag	0.15.1b	See http://sourceforge.net/projects/mad/files/libid3tag/
libjpeg	9b	Jpeg library. See http://libjpeg.sourceforge.net/
libmad	0.15.1b	MPEG audio decoder. See http://sourceforge.net/projects/mad/
libnl	3.2.27	Libraries for netlink protocol. See http://www.infradead.org/~tgr/libnl/doc/api/
libogg	1.3.2	Ogg container. See https://xiph.org/ogg/
libpng	1.6.28	PNG reference library. See http://www.libpng.org/pub/png/libpng.html
libsamplerate	0.1.8	Sample rate converter. See http://www.mega-nerd.com/SRC/
libtasn1	4.9	ASN.1 library. See https://www.gnu.org/software/libtasn1/
libxml2	2.9.4	XML toolkit. See http://xmlsoft.org/
libxslt	1.1.29	XSLT support for libxml2. See http://xmlsoft.org/XSLT/
linux-amlogic	4.9.36	Amlogic Linux kernel
ncurses	5.9	New curses library. See http://www.gnu.org/software/ncurses/
nettle	3.3	Crypto library. See http://www.lysator.liu.se/~nisse/nettle/.
openssl	1.0.2k	Cryptography library. See http://www.openssl.org/
pango	1.40.3	Library for layout and rendering of text. See http://www.pango.org/
pcre	8.40	Perl compatible regular expression. See http://www.pcre.org/.
pixman	0.34.0	Low-level pixel manipulation library. See http://www.pixman.org/
qt5base	5.9	Cross-platform application and UI framework. See http://qt-project.org/
qt5imageformats	5.9	See http://qt-project.org/
qt5multimedia	5.9	See http://qt-project.org/
qt5sensors	5.9	See http://qt-project.org/
qt5serialport	5.9	See http://qt-project.org/
qt5svg	5.9	See http://qt-project.org/
qt5xmlpatterns	5.9	See http://qt-project.org/
rtk8188eu		Realtek 8188EU driver
rtk8189es		Realtek 8189ES driver

rtk8723au		Realtek 8723AU driver
rtk8723bs		Realtek 8723AU driver
sqlite	3160200	SQL database engine. See http://www.sqlite.org/
taglib	1.11.1	Audio tags. See https://taglib.github.io/
util-linux	2.29.2	Essential utilities for Linux. See https://www.kernel.org/pub/linux/utils/util-linux/
wavpack	5.1.0	Open audio codec. See http://www.wavpack.com/
wpa_supplicant	2.6	See http://hostap.epitest.fi/wpa_supplicant/
Shairport-sync	3.1.3	https://github.com/mikebrady/shairport-sync
boa	0.94.14rc21	http://www.boa.org
Upnp-app	1.0.0	vendor/amlogic/external/platinum/upnp-app/src
wifi-fw		Wifi DSP firmware
zlib	1.2.11	Data compression library. See http://www.zlib.net/

10. Appendix A: SDIO Interface Wi-Fi Enabling Procedures

The appendix describes procedures for enabling Wi-Fi on Amlogic Linux platform manually:

- Check module existence:

```
# lsmod
Module                  Size  Used by    Not tainted
dhd                   410618  0
```

If not,

```
# modprobe dhd
```

Note: “dhd” is the driver module name for broadcomm WIFI module. This name may vary depends on different WIFI modules equipped on your platform.

- Set up /etc/wpa_supplicant.conf:
  Example:

```
ctrl_interface=/var/run/wpa_supplicant
ctrl_interface_group=0
ap_scan=1

network={
    ssid=”myAP”
    pairwise=CCMP TKIP
    group=CCMP TKIP
    proto=WPA RSN
    key_mgmt=WPA-PSK
    priority=5
    psk=”my_passwd”
}
```

- Restart wpa_supplicant:
  `# /etc/init.d/S42wifi reload`
  or enable wpa_supplicant directly:
  `# wpa_supplicant -B -Dnl80211 -iwlan0 -c/etc/wpa_supplicant.conf`
- Enable DHCP client:
  `# dhcpcd`
- Put your wpa_supplicant.conf under /board/amlogic/mesonaxg_XXX/rootfs/etc/ and regenerate your file system. Next time system will automatically enable Wi-Fi.

11. Appendix B: GStreamer Test Procedures

This appendix demonstrates how to use gst-play-1.0 to exercise Gstreamer. (For non-X platforms only)

I. Local file playback
gst-play-1.0 file.mp3

II. Play audio and video file (connected mipi display screen)
gst-play-1.0 file.mp4

Playing back a playlist:

gst-play-1.0 can take commands k to show command list during playback.

Interactive mode - keyboard controls:

```
space       : pause/unpause
q or ESC : quit
> or n      : play next
< or b     : play previous
?            : seek forward
?            : seek backward
?            : volume up
?            : volume down
+            : increase playback rate
-           : decrease playback rate
d            : change playback direction
t           : enable/disable trick modes
a            : change audio track
v            : change video track
s           : change subtitle track
0           : seek to beginning
k           : show keyboard shortcuts
```

12. Appendix C: WiFi Setup.

This appendix demonstrates how to setup the device WiFi.

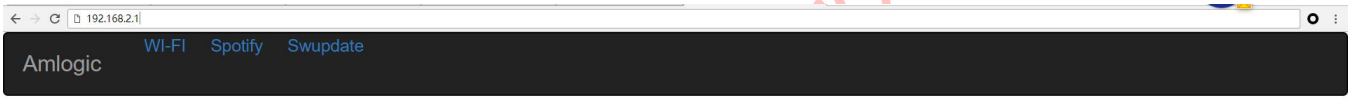
I. After the device is upgraded, WiFi will auto enter AP mode. You can use web to send SSID and Password to device, it will connect to WiFi AP.

Step1:

Open WLAN on your phone or your tablet PC , you can find AP, its name is “amlogic-audio”, please to connect it, password is “12345678”

Step2:

Open web app to setup WiFi, please input the URL : 192.168.2.1 ,and then click search button, you will find the following picture.



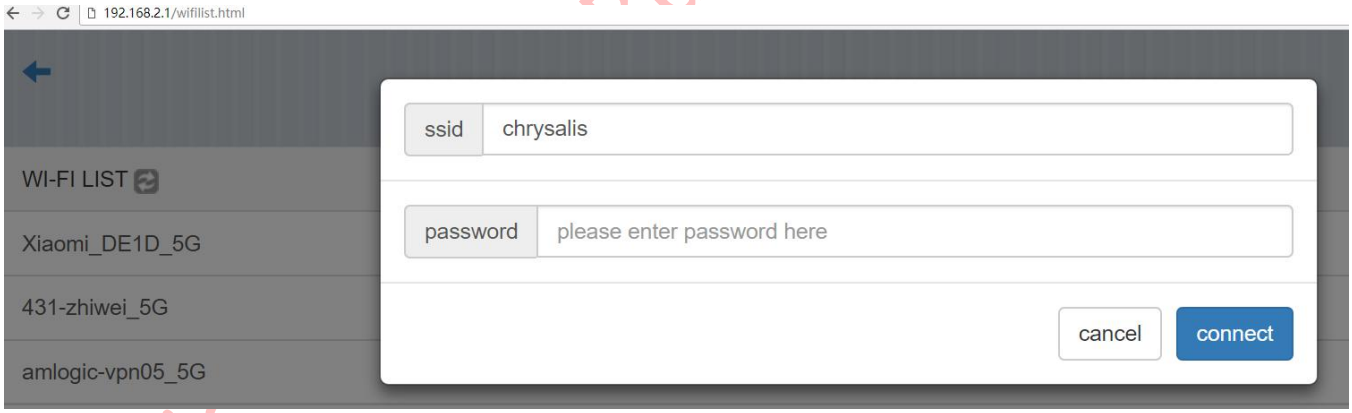
Function list:

Wi-fi:

1 scannig near wifi ssid, click on WI-FI LIST eg: 12.1(wifi_scan)

2 set s400/s420 connect other wifi(for connect internet), eg:12.2(wifi setting)

12.1(wifi_scan)



12.2(wifi setting)

Spotify:

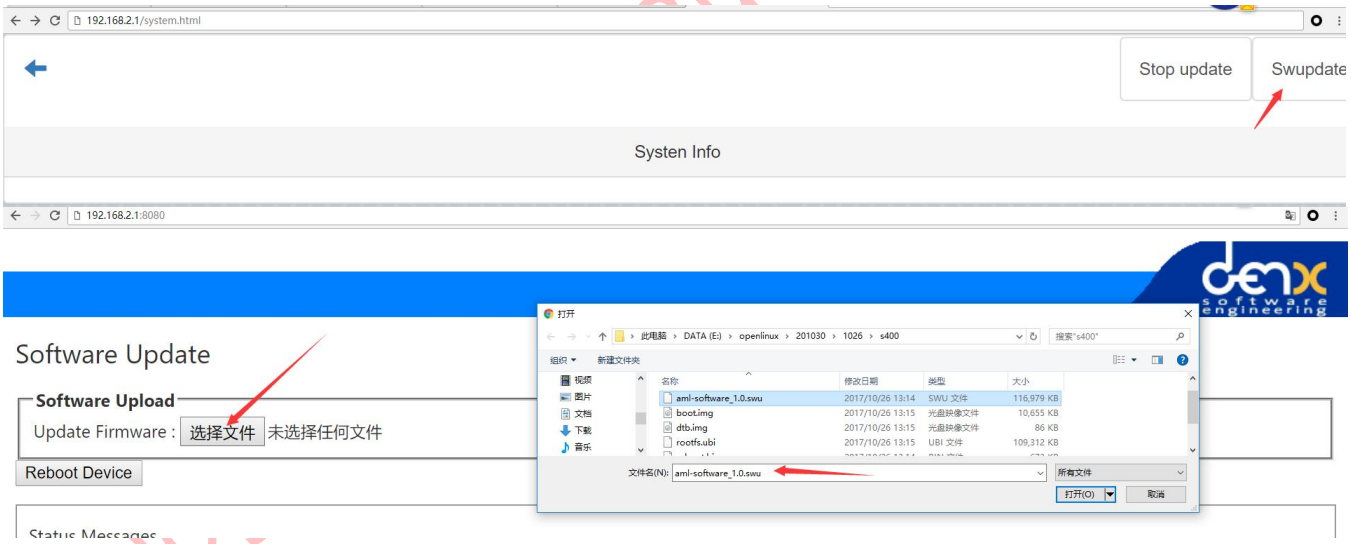
Setting spotify: device name & username & passord

Swupdate:

OTA upgrade function, eg : 12.3(OTA_upgrade)

aml-software_1.0.swu builded by trun code, path:

output/mesonaxg_*_release/images/aml-software_1.0.swu



12.3(OTA_upgrade)

13. Appendix D: AVS account setup via Companion App.

Before running AVS, developer need setup AVS account first, it will create AlexaClientSDKConfig.json in the board, we provide two methods to achieve this.

Method 1. AVS base on Amlogic app

###step 1: create your amazon acount
https://developer.amazon.com/public/apis/engage/login-with-amazon/docs/adding_website.html

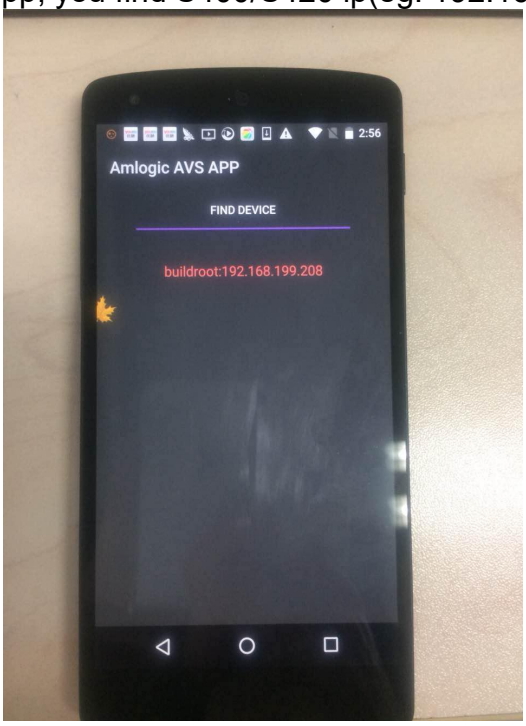
###step 2: update AlexaClientSDKConfig.json by Amlogic avs apk(android)

(1) S400/S420 connect wifi network (12. Appendix C: WiFI Setup Procedures)

(2) Android device install Amlogic avs apk & connect wifi network(the same local area network with S400/S420).

(3) update AlexaClientSDKConfig.json

Open amlogic avs app, you find S400/S420 ip(eg: 192.168.199.208)



click on “buildroot 192.168.199.208” , click on “log in”, after will update AlexaClientSDKConfig.json

(4) using AVS function.

Speaking to S400/S420 , that will connect amaon server,and respond your request.

Method 2: AVS bese on your alexa function envirment

1).Create your AlexaClientSDKConfig.json for Alexa Auth

Before you create your build, you'll need to install some software that is required to run `AuthServer`. `AuthServer` is a minimal authorization server built in Python using Flask. It provides an easy way to obtain your first refresh token, which will be used for integration tests and obtaining access token that are required for all interactions with AVS.

IMPORTANT NOTE: `AuthServer` is for testing purposed only. A commercial product is expected to obtain Login with Amazon (LWA) credentials using the instructions provided on the Amazon Developer Portal for **Remote Authorization** and **Local Authorization**. For additional information, see [AVS Authorization](https://developer.amazon.com/public/solutions/alexa/alexa-voice-service/content/avs-api-overview#authorization).

Step 1: Install `pip`

If `pip` isn't installed on your system, follow the detailed install instructions [here](https://packaging.python.org/installing/#install-pip-setuptools-and-wheel).

Step 2: Install `flask` and `requests`
For Windows run this command:
```
pip install flask requests
```
For Unix/Mac run this command:
```
pip install --user flask requests
```
Step 3: Obtain Your Device Type ID, Cliend ID, and Client Secret
If you haven't already, follow these instructions to [register a product and create a security profi le](https://github.com/alexa/alexa-avs-sample-app/wiki/Create-Security-Profile).
Make sure you note the following, you'll need these later when you configure `AuthServer`:
* Device Type ID
* Client ID
* Client Secret

python AuthServer/AuthServer.py /path/to/AlexaClientSDKConfig.json

IMPORTANT NOTE: Make sure that you've set your **Allowed Origins** and **Allowed Ret urn URLs** in the **Web Settings Tab**:
* Allowed Origins: http://localhost:3000
* Allowed Return URLs: http://localhost:3000/authresponse
More details
in https://developer.amazon.com/public/apis/engage/login-with-amazon/docs/adding_website.h tml

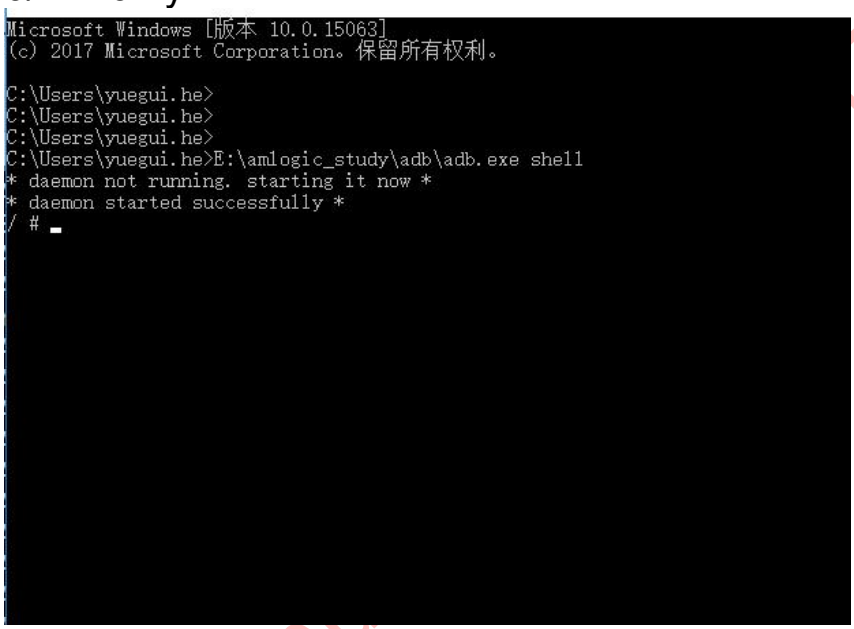
2). Donwload and to run

Update aml_upgrade_package.img via usb_burning tool
cp AlexaClientSDKConfig.json to **/etc/**
cd /usr/bin (ONLY support SampleApp from /usr/bin now)
./SampleApp /etc/AlexaClientSDKConfig.json

14. Appendix E:ADB & RNDIS & TELNET.

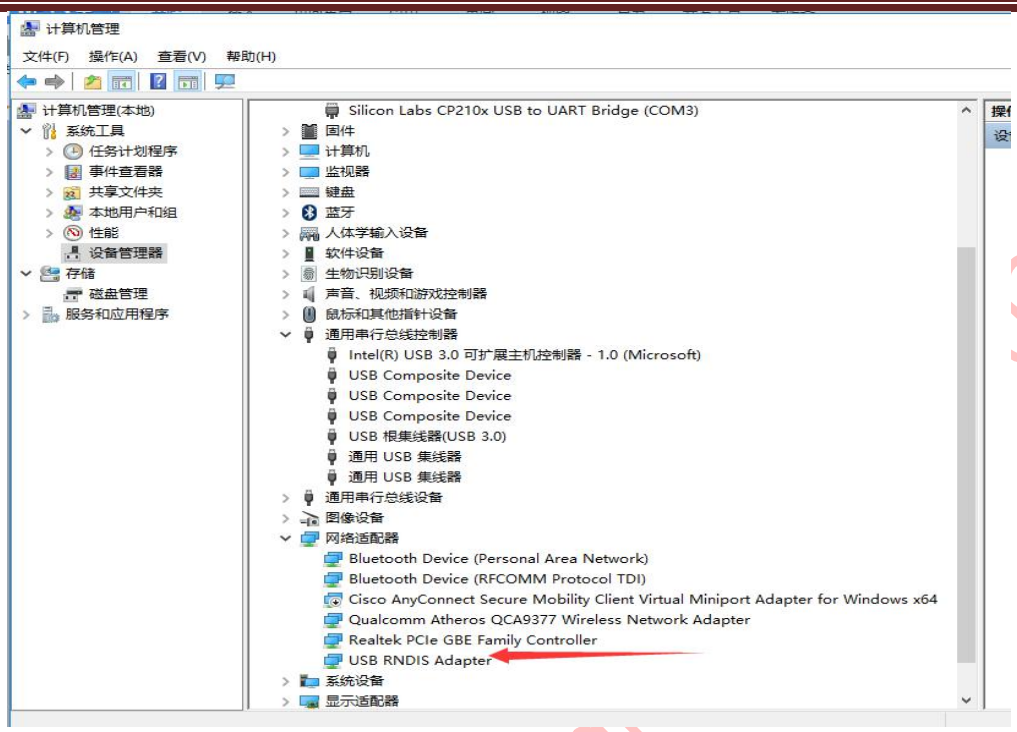
The software is provided couple of way to access the device, developer can choice serial, ADB, RNDIS,telnet or ssh.

1) control S400/S420 by ADB



2) control S400/S420 by RNDIS interface

Windows:



S400/S420:

```
usb0      Link encap:Ethernet  HWaddr 02:16:29:BE:57:CF
          inet addr:192.168.5.1  Bcast:192.168.5.255  Mask:255.255.255.0
          inet6 addr: fe80::16:29ff:febe:57cf/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:326 errors:0 dropped:4 overruns:0 frame:0
          TX packets:63 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:27500 (26.8 KiB)  TX bytes:14432 (14.0 KiB)
```

3) control S400/S420 by telnet(rndis or wifi)

windows:

telnet 192.168.5.1