



Surround Sound - Realtek ALC AppleHDA_v3

Realtek ALC/Desktop: 885, 887, 888, 892, 898 and 1150 on board audio

These solutions enable OS X surround sound audio for HDMI, optical, analog and USB. There are many other solutions providing similar capabilities. Professional audio is beyond the scope of this guide.

[toleda/audio_ALC_guides](#)

Change Log

1. v3.0 - 1/22/15 - El Capitan
2. v2.0 - 12/20/14 - Yosemite
3. v1.0 - 5/25/14 - Mavericks 1st Release

Requirements

- A. OS X
 1. El Capitan/10.11+
 2. Yosemite/10.10+
 3. Mavericks/10.9+
- B. Surround Speakers - 2.1, 3.0, 3.1, 4.0, 4.1 or 5.1
- C. 5.1 Content

Recommendations (Tested)

- A. HDMI - highest quality surround solution, native/nearly native (Note 1, 2 and 3)
 1. Players
 - a. Plex Media Player (PlexHT_v1.0.13)
 - b. Kodi (XBMC_v13.0) - select System/Audio/Enable Passthrough
 - c. VLC_v2.1.4 - select Audio/Audio Devices/HDMI (Encoded Output)
- B. Optical 5.1 - optical input DD/DTS receiver/speakers (Note 2, 3 and 4)
 1. Players
 - a. Plex Media Player (PlexHT_v1.0.13)
 - b. Kodi (XBMC_v13.0) - select System/Audio/Enable Passthrough
- C. Analog 5.1 - 2.1, 3.0, 3.1, 4.0, 4.1 or 5.1 speakers (Note 2, 3 and 4)

1. Players
 - a. Plex Media Player (PlexHT_v1.0.13)
 - b. Kodi (XBMC_v13.0) - select System/Audio/Analog_5.1_Surround
 - c. VLC_v2.1.4 - select Audio/Audio Devices/Analog_5.1_Surround
- D. USB 5.1 - 2.1 or 5.1 speakers with or without Receiver/optical
 1. USB2Optical 5.1, same as Optical 5.1 above
 2. USB 2Analog 5.1, same as Analog 5.1 above

Installation

- A. HDMI audio
 1. HDMI audio
 - a. [HDMI Audio AppleHDA](#)
 - b. [El Capitan AppleHDA HDMI Audio](#)
 2. Select System Preferences/Sound/Output/HDMI
- B. Optical audio
 1. Onboard audio
 - a. MultiBeast
 - b. Realtek ALC AppleHDA
 - c. [El Capitan: Realtek ALC AppleHDA Audio](#)
 2. Select System Preferences/Sound/Output/Built-in Digital
- C. Analog audio
 1. Onboard audio
 - a. MultiBeast
 - b. Realtek ALC AppleHDA
 - c. [El Capitan: Realtek ALC AppleHDA Audio](#)
 2. Audio MIDI Setup/Aggregate Device/Analog_5.1_Surround
 - a. See Audio MIDI Setup/Create Aggregate Device - Below
 3. Select System Preferences/Sound/Output/Analog_5.1_Surround
- D. USB audio (example, [Sound Blaster Omni Surround 5.1](#))
 1. USB2Optical 5.1
 - a. Audio MIDI Setup/Aggregate Device/USB2Optical
 - i. See Audio MIDI Setup/USB2Optical/Format - Below
 - b. Select System Preferences/Sound/Output/USB2Optical_5.1_Surround
 2. USB2Analog 5.1
 - a. Audio MIDI Setup/Aggregate Device/USB2Analog
 - i. Audio MIDI Setup/USB2Analog/Configure Speakers - Below
 - b. Select System Preferences/Sound/Output/USB2Analog_5.1_Surround

Player Downloads

- A. Plex Media Player - Plex Media Server/Computer/Mac: [Plex](#) and Plex Home Theater: [Plex](#)
- B. VLC: [VLC media player for Mac OS X](#)
- C. Kodi: Kodi | Open Source Home Theater Software
- D. MPlayerX: [mplayerx](#)

Details

- I. Solutions
- II. Player Test Result
- III. Configurations
- IV. Audio MIDI Setup/Create Aggregate Device
- V. Audio MIDI Setup/USB2Optical/Format
- VII. Audio MIDI Setup/USB2Analog/Configure Speakers
- VIII. Notes
- IX. Problem Resolution
- X. Screenshots

I. Solutions

- A. Digital audio - HDMI/DP/DVI devices
 - 1. Supported codec (Note 2)
 - a. Realtek ALC AppleHDA.kext
 - b. Audio ID: 1, 2 or 3
 - 2. Other codec (Note 3)
 - a. Native AppleHDA.kext
 - b. Audio ID: 1
 - 3. HDMI2Optical Adapter
- B. Optical audio - Receiver/Soundbar w/SPDIF input
 - 1. Supported codec (Note 2)
 - a. Realtek ALC AppleHDA.kext
 - b. Audio ID: 1, 2 or 3
- C. Analog audio - 3, 4, 5, 6, 8 speakers
 - 1. Supported codec (Note 2)
 - a. Realtek ALC AppleHDA.kext
 - b. Audio ID: 1 or 2 (Audio ID: 3, not supported)
- D. USB audio - 3, 4, 5, 6 speakers
 - 1. Other codec/No codec (Note 3)
 - 2. USB2Optical 5.1 Adapter (DD/DTS Encoded Digital Audio capable)
 - 3. USB2Analog 5.1 Adapter (up to 48000 Hz/24 bit)

II. Player Test Results (OSX: 10.9.2/C1021/DD 5.1/DTS 5.1)

- A. HDMI 5.1
 - 1. Plex_v0.9.3.4 - Yes/DD D/DTS
 - 2. PlexHT_v1.0.7 - Yes/DD D/DTS
 - 3. PlexHT_v1.0.13 - Yes/DD D/DTS
 - 4. XBMC_v12.3 - Yes/DD D/DTS
 - 5. XBMC_v13.0 - Yes/DD D/DTS (Enable Passthrough), Yes/LPCM
 - 6. VLC_v2.1.4 - Yes/DD D/DTS (HDMI (Encoded Output)
 - 7. MPlayerX_v1.0.22.1 - Yes/DD D/DTS (Preferences/Audio/Pass through AC3=Yes/DTS=Yes)
 - 8. iTunes/QuickTime/DVDPlayer - Yes/DD (AC3), No DTS
- B. Optical 5.1 (48k Hz/2ch-16bit integer)
 - 1. Plex_v0.9.3.4 - Yes/DD D/DTS
 - 2. PlexHT_v1.0.7 - No (Video problem - pause/play)
 - 3. PlexHT_v1.0.13 - Yes/DD D/DTS
 - 4. XBMC_v12.3 - No (Video problem - 0.5x)

5. XBMC_v13.0 - Yes/DD D/DTS (Enable Passthrough) Yes/DD PL II/LPCM (DD/DTS)
 6. VLC_v2.1.4 - Yes/DD PL II/LPCM (DD/DTS)
 7. MPlayerX_v1.0.22.1 - Yes/DD D/DTS (Preferences/Audio/Pass through AC3=Yes/DTS=Yes)
 8. iTunes/QuickTime/DVDPlayer - No (885 yes)
- C. Analog 5.1
1. Plex_v0.9.3.4 - No/2 channel
 2. PlexHT_v1.0.7 - No/2 channel
 3. PlexHT_v1.0.13 - Yes/DD D/DTS
 4. XBMC_v12.3 - Yes/DD D/DTS
 5. XBMC_v13.0 - No/6 channel (Video problem - 2x)
 6. VLC_v2.1.4 - Yes/DD D/DTS
 7. MPlayerX_v1.0.22.1 - No/2 channel
 8. iTunes/QuickTime/DVDPlayer - No/2 channel
- D. USB 5.1
1. Optical 5.1 (48k Hz/Encoded Digital Audio) - as above
 2. Analog 5.1 (48k Hz/6ch-16bit integer) - as above

III. Configurations (audio only)

- A. HDMI 5.1
1. OS X/Player > HDMI > Receiver > Speakers
 2. OS X/Player > HDMI > Sound Bar
 3. OS X/Player > HDMI > TV > Receiver > Speakers
 4. OS X/Player > HDMI > TV > Sound Bar
 5. OS X/Player > HDMI > TV
- B. Optical 5.1
1. OS X/Player > Optical > Receiver > Speakers
 2. OS X/Player > Optical > Sound Bar
- C. Analog 5.1
1. OS X/Player > Speakers
- D. USB 5.1
1. OS X/Player > USB > Optical > Receiver > Speakers
 2. OS X/Player > USB > Optical > Sound Bar
 3. OS X/Player > USB > Speakers

IV. Audio MIDI Setup/Create Aggregate Device

- A. Analog_5.1_Surround (applies to 2.1, 3.0, 3.1, 4.0, 4.1 and 5.1)
1. See [How to enable 5.1-channel analogue audio in OS X](#)
 2. Applications/Utilities/Audio MIDI Setup
 - a. Format: 48000 Hz/2ch-24bit integer, verify the following devices
 - i. Built-in Output
 - ii. Built-in Line Output
 - iii. Built-in Line Output
 - b. Audio Devices/+/Create Aggregate Device
 - c. Select - see Screenshot 1.
 - i. Built-in Output

- ii. Built-in Line Output
 - iii. Built-in Line Output
- d. Verify Selections
 - i. Stream 1 checked
 - ii. Stream 2 checked
 - iii. Stream 3 checked
- e. Select/Configure Speakers - see Screenshot 2.
 - i. Multichannel
 - ii. 5.1 Surround
- f. Verify Speakers
 - i. Select/Left Front
 - ii. Verify Left Front/Sound
 - iii. Repeat for each speaker
- g. Apply
- h. Done
- i. Rename Aggregate Device
 - i. Analog_5.1_Surround

V. Audio MIDI Setup/USB2Optical/Format

- A. USB2Optical_5.1_Surround
 - 1. Applications/Utilities/Audio MIDI Setup
 - a. Audio Devices/USB digital audio - see see Screenshot 3.
 - b. Format: 48000 Hz Encoded Digital Audio
 - c. Done

VI. Audio MIDI Setup/USB2Analog/Configure Speakers

- A. USB2Analog_5.1_Surround
 - 1. Applications/Utilities/Audio MIDI Setup
 - a. Audio Devices/USB analog audio- see see Screenshot 4.
 - b. Format: 48000 Hz/6ch-16bit integer
 - c. Select/Configure Speakers
 - i. Multichannel
 - ii. 5.1 Surround
 - d. Verify Speakers - see see Screenshot 5.
 - i. Select/Left Front
 - ii. Verify Left Front/Sound
 - iii. Repeat for each speaker
 - e. Apply
 - f. Done

VII. Notes

- A. HDMI includes
 - 1. HDMI audio
 - 2. DP audio
 - 3. DP2HDMI audio
 - 4. DVI audio
 - a. Nvidia 4xx and newer

- b. Intel HD4600
 - B. Realtek ALC AppleHDA.kext
 - 1. onboard audio codec support
 - a. ALC885
 - b. ALC887
 - c. ALC888
 - d. ALC889
 - e. ALC892
 - f. ALC898
 - g. ALC1150
 - C. HDMI/DVI audio codec support
 - a. AMD HD 5xxx, HD 6xxx, HD 7xxx, R7/R9 2xx, R7/R9 3xx
 - No HDMI/AMD8000Controller/Hawaii/Bonaire
 - b. Intel HD3000, HD 4000, HD4600+
 - c. Nvidia GT/S/X 4xx, 5xx, 6xx, 7xx, 9xx (750/9xx: Web Drivers)
 - D. Onboard audio is not available with an unsupported codec
 - E. 8 series motherboard onboard audio may frequently unexpectedly stop
 - 1. Best fix is HDMI audio
 - 2. USB audio may stop, significantly. less often

VIII. Problem Resolution (limited support)

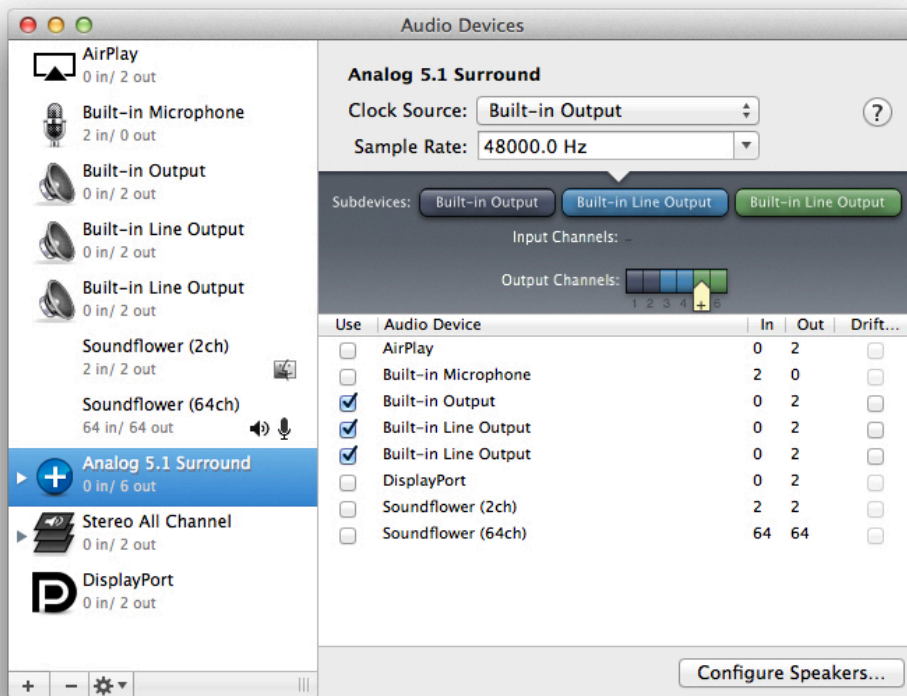
- A. AppleHDA: [Problem Reporting.md](#)/Problem Reporting
- B. HDMI audio: [Problem Reporting.md](#)/Problem Reporting
- C. USB - Start a new thread with device, specs and problem description
 - 1. Install not working
 - a. USB device incompatible with OS X
 - b. Incorrect setup, verify Audio MIDI Setup/Format
 - 2. Stopped working/poor sound quality
 - a. Incorrect setup, verify Audio MIDI Setup/Format
 - b. Restart

IX. More Information

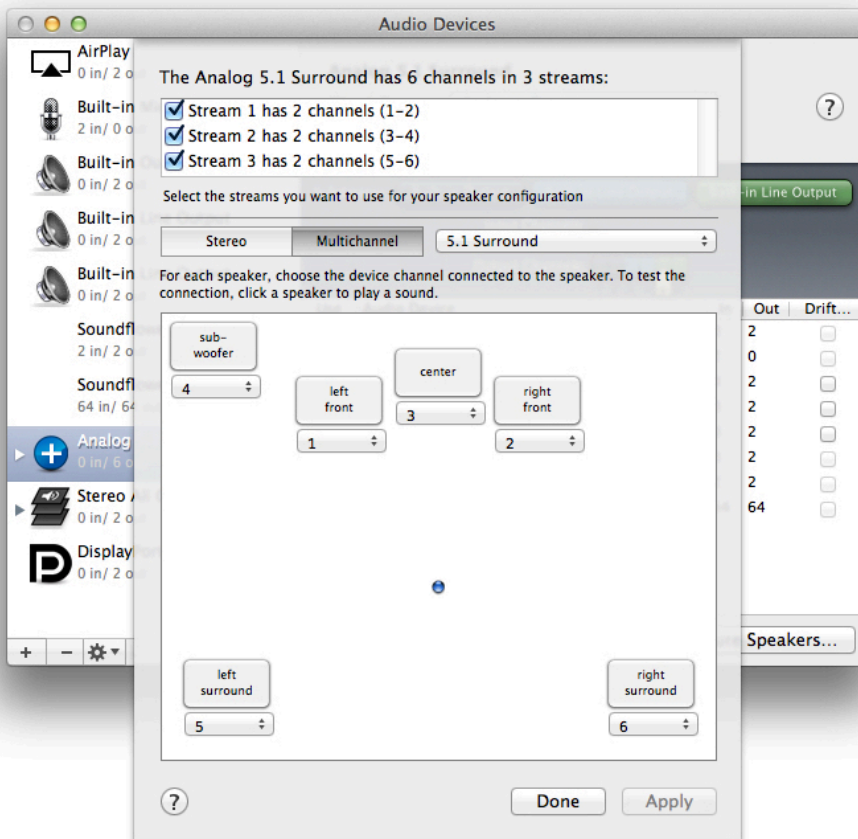
- A. Alexander Thomas: [Setting up surround sound in OS X with a multi-channel sound card](#)

X. Screenshots

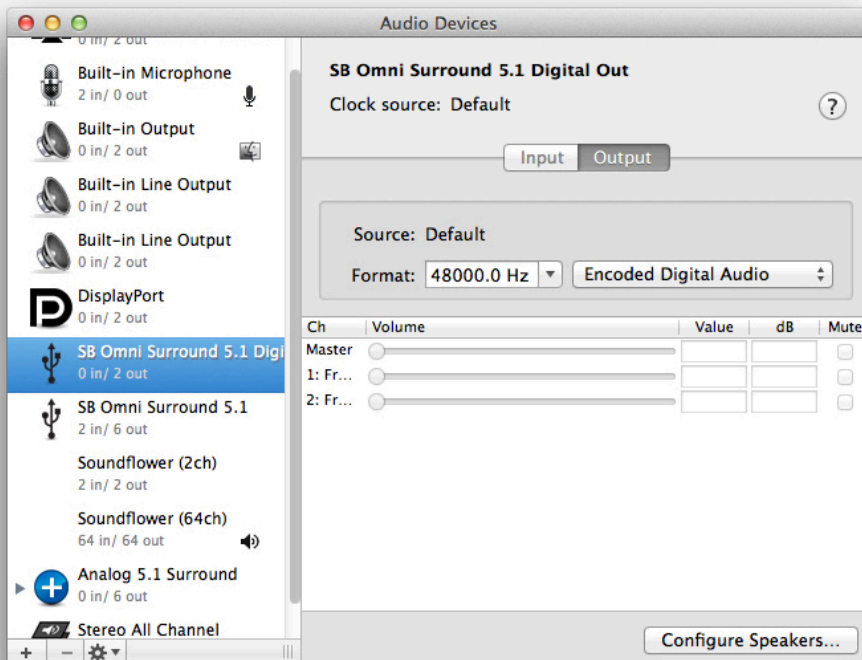
A. Audio MIDI Setup/Audio Devices/+/Create Aggregate Device/Format



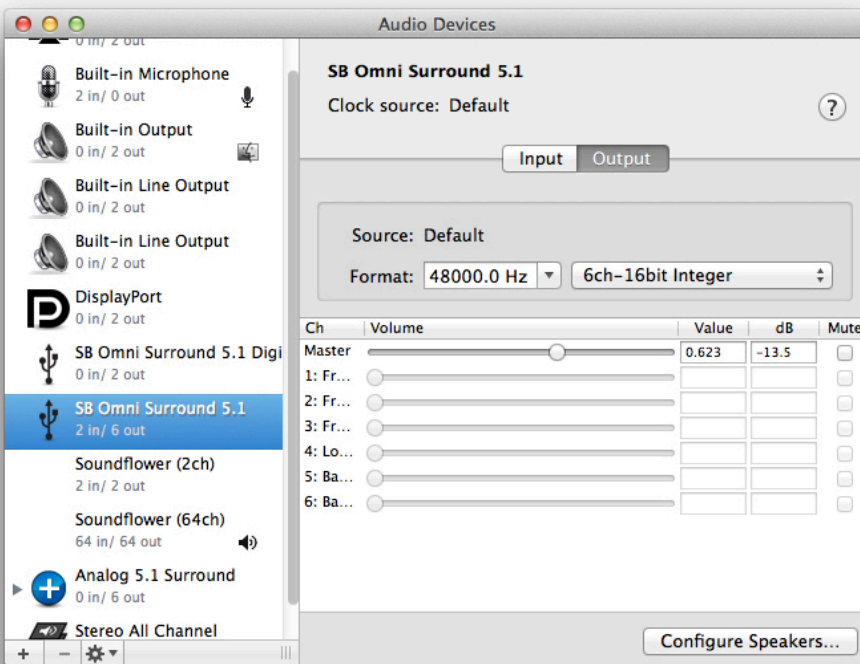
B. Audio MIDI Setup/Audio Devices/+/Create Aggregate Device/Configure Speakers



C. Audio MIDI Setup/USB2Optical/Format



D. Audio MIDI Setup/USB2Analog/Format



E. Audio MIDI Setup/USB2Analog/Configure Speakers

