

iOS Apollo Audio configuration Application

iOS Apollo Configuration App helps configuring the WICED based speakers running the apollo software

Features of the iOS Apollo Config App

- Does a BLE scan of and lists all the WICED based speaker devices which are unconfigured
- Allows you to drag and drop each of these speakers to a master speaker section and remote speaker section
- Allows you to enter network name and speaker names for the master and remote speaker devices
- Allows the user to write the configured BLE characteristic to the remote WICED peripherals

Setup

- 43907B1/43909B0 board
- Apple Mac PC
 - Clone and build the source in Xcode from the following patch : <http://hnd-swgit.sj.broadcom.com:8080/#/c/5750/>
- iPhone or iPad
 - Connect the iPad/iPhone to the Mac PC and install the iOS application
- WiFi Access point with internet connection.

Build and Installation instructions

- Apollo WICED audio application can be downloaded form : \\brcm-sj\dfs\projects\hnd_swbuild\build_wiced\Wiced-SDK-3.5.0 (use the installer WICED-SDK-MFi-3.5.0-IDE-Installer.exe)
- In the SDK, Apollo WICED audio application is located at : apps\demo\apollo
 - Edit apollo's bt_config_dct.h file with the appropriate WICED_BLUETOOTH_DEVICE_ADDRESS otherwise which there will be only one WICED device detected by the iOS App
- Build and download Apollo WICED audio application using the command:

make demo.apollo-BCM943907WAE_1.B1 download run

OR

make demo.apollo-BCM943909WCD1_3.B0 download run

- After the download, Apollo WICED audio application will come up as a remote speaker in its default configuration *and you should see console prints as below*

Config Info: * = dirty

Apollo app DCT:

is configured: yes

apollo role: sink

speaker name: Apollo

channel: (0x00000003) FL FR

buffering: 50 ms

threshold: 40 ms

auto_start: on

clock enable: enable

PLL tuning enable: enable

volume: 50

source type: bt

payload size: 1432

- so in order to take it to an unconfigured state in which the Apollo WICED audio application starts a BLE GATT server and starts advertising the Apollo service configuration characteristics press the "BACK" button on the board and then you should see the console prints as below

0000 00:00:02.217 * Waiting for GATT configuration... *****

wiced_bt_ble_set_advertisement_data 0

- Post configuration after boot up Apollo WICED audio application comes up with either a master speaker mode or a remote speaker mode.
You can observe the below prints in the console

Config Info: * = dirty

Apollo app DCT:

is configured: yes

apollo role: source

speaker name: Apollo

channel: (0x00000003) FL FR

buffering: 50 ms

threshold: 40 ms

auto_start: on

clock enable: enable

PLL tuning enable: enable

volume: 50

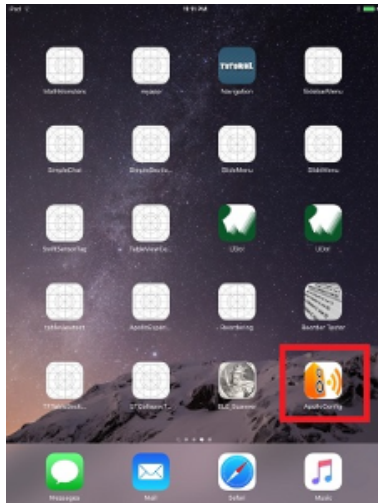
source type: bt

payload size: 1432

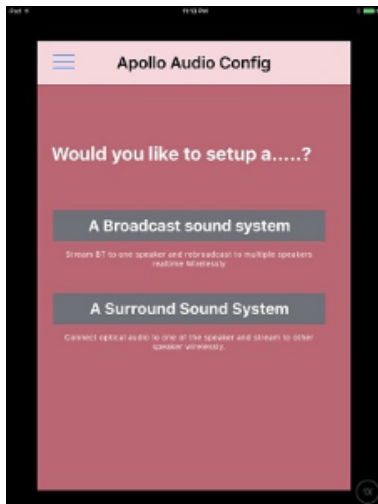
- Ensure BT is turned ON in iPhone/iPad

Configuring the Apollo Broadcast speaker system using iOS Apollo Audio configuration application

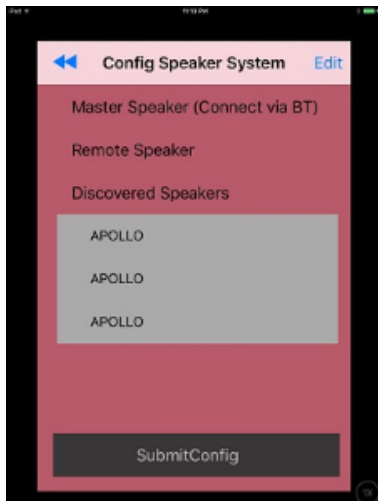
- Step 1 : Ensure that WICED Apollo Audio application are up and in GATT configuration mode on the WICED 909 board
- Step 2 : Turn on BT and open the installed Apollo iOS configuration application whose shortcut icon on iPad looks as follows



- Step 3 : When the application comes up you should see the initial home screen as follows. If by any chance the next screen never comes up and the UI is frozen then it means there is no WICED device present running in unconfigured mode. The other reason could also be due to BT being not turned ON in iPhone/iPad. Kindly take the corrective action and you should immediately see the next screen come up with the devices listed.



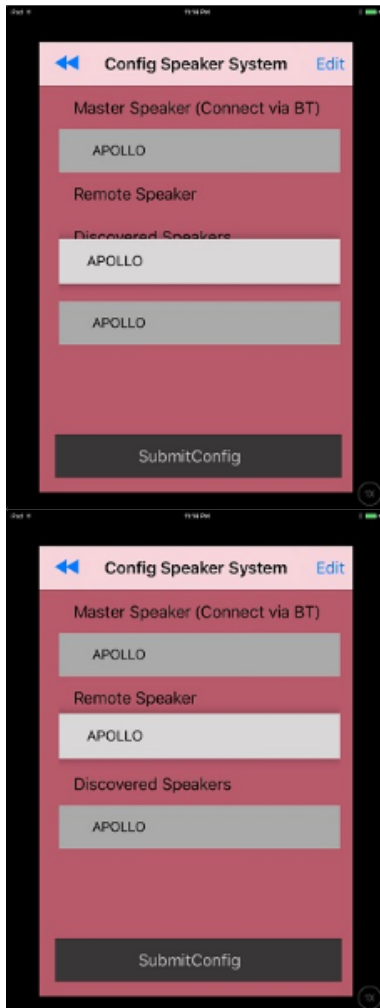
- Step 4 : The iOS app only allows to configure Broadcast sound system in the first cut. So kindly click the button titled "Configure A Broadcast sound system". Clicking "Configure A Surround Sound System" will not do anything. This bring up the screen as below

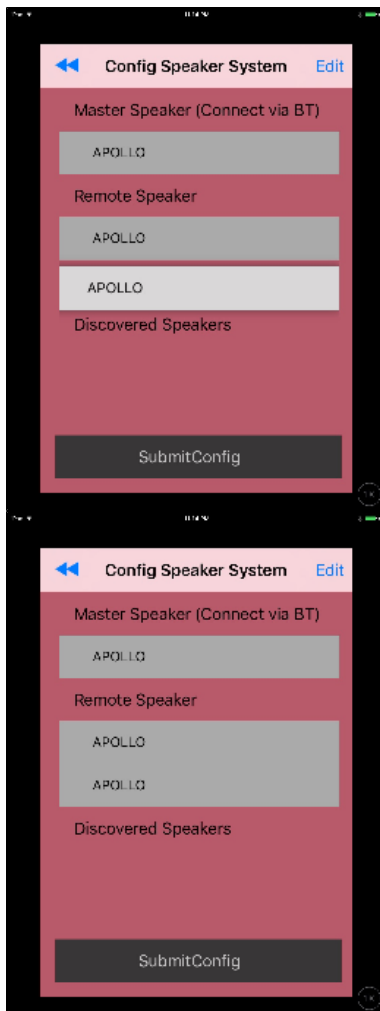


- Step 5 : In the above screen it does a BLE scan and lists all the WICED devices which are running Apollo Audio application in the unconfigured mode.

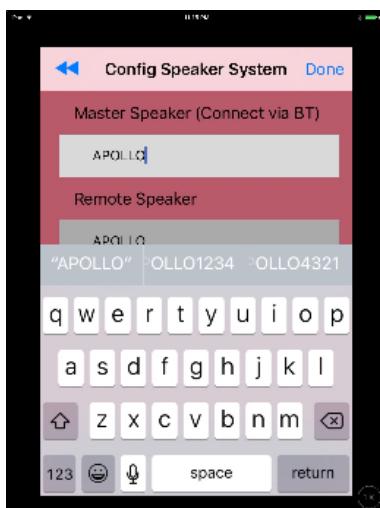
If you see no device or only one device being listed in the "Discovered Speakers" Section this inspite of number of WICED devices running Apollo Audio Application, it means the WICED Apollo Audio application is running in **configured mode**. So click the "Back" button on the WICED board which should again take it back to unconfigured mode which essentially runs the BLE GATT server and start advertising the Apollo configuration service characteristics.
- Step 6 : Once at least two devices are listed under Discovered Speakers section drag and drop each of these devices to the master and remote speaker section.

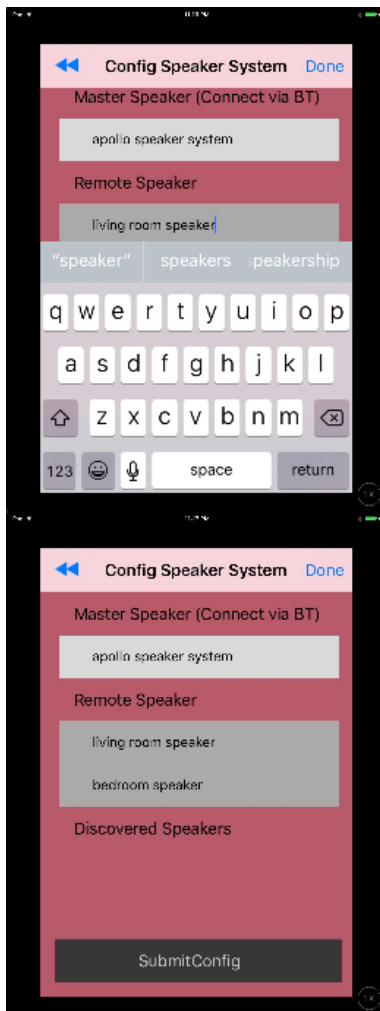
For dragging you will have to tap and hold on the device in Discovered speaker and then start dragging. Make sure Master section and Remote speaker section is at least having one device. Following screen shows the drag and drop in action





- Step 7 : Tap on the Edit button in the top right corner. This brings up the soft keyboard to enter Network Name in the Master Speaker Section. Once entered tap the enter key in the soft keyboard of iPad to close the keyboard. Now similarly enter speaker names for the speakers in Remote Section by tapping on each of them and which pops up the soft keyboard. Following screen shows all of this in action





- Step 8 : Once done tap the "Done" button in the top right corner to signal the application that you are Done with the Editing of the devices.
- Step 9 : Tap the "SubmitConfig" button and you should see the WICED devices console print following where one of the device is being configured as a sender(master) and the all other devices are being configured as sink(remote speakers). Please verify that master device starts a SoftAP with the network name you mentioned in the above screen and so is the speaker names. You should also verify to see if these speakers connect successfully to the masters' network and obtain an IP address.

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[... WICED Console Output ...]

[... WICED Console Output ...]

[... WICED Console Output ...]

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- Step 10 : Once you verify that the speakers have connected to masters' network successfully open the iPad and do a BT discovery. In my case am

using an android device. You should see the master device being discovered with the name "Apollo_BT_Source". Pair with it and once it says its connected successfully starting playing an audio file.

- Step 11 : This audio that is getting played in the iPad/iPhone as a BT A2DP source will be picked up by the master WICED device which also acts as an A2DP sink and broadcast over WiFi to the remotely configured speakers. To verify if the master is successfully broadcasting the audio connect a headset to the middle 3.5mm jack in both the speakers' WICED boards and you should hear the music being played back. The setup is as shown



- Step 12 : After verifying if the Apollo broadcast audio system is configured successfully you can go back to the previous screen to configure a new Apollo broadcast speaker system by clicking the "Back" button at the top left corner.

◀◀

Config Speaker System

Done

Master Speaker (Connect via BT)

apollo speaker system

Remote Speaker

living room speaker

bedroom speaker

Discovered Speakers

SubmitConfig