WICED Studio

WICED™ FLAC Development

Associated Part Family: BT CYW2070x

Doc. No.: 002-19004 Rev. *A

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Contents

About this Document

Purpose and Scope

This document provides instructions to use the WICED FLAC audio codec libraries.

Note: This document applies to WICED SDK 3.3.2 or higher.

Audience

This document is for software developers who are using the WICED Development System to create applications for secure embedded wireless networked devices.

Acronyms and Abbreviations

In most cases, acronyms and abbreviations are defined on first use.

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1 Free Lossless Audio Compression

This application snippet demonstrates how to use the WICED interface to the FLAC decoder.

1.1 Application Instructions:

- Modify the CLIENT_AP_SSID/CLIENT_AP_PASSPHRASE Wi-Fi credentials in the wifi_config_dct.h header file to match your Wi-Fi access point.
- Connect a PC terminal to the serial port of the WICED Eval board, then build and download the application as described in the WICED Quick Start Guide.

1.2 Creating FLAC files:

- We use Audacity (http://sourceforge.net/projects/audacity/).
- NOTE: When you export the file, the “export Audio…” Menu item brings up a dialog. In the bottom right hand corner is an “Options” button. Choose this and choose “16 bit”.
- Currently we support 44.1k and 48k sample rates, 16-bit audio, 2 channels (stereo).

1.3 Server Instructions:

- Use a server program like mini-httpd on Linux. We created a server on an Ubuntu 12.04 system using Mini-httpd (http://acme.com/software/mini_httpd/).
- Create a file called "flac_playlist.txt" in the root directory of your server. Each line in the file is a URL to a FLAC file on the same server. Do not use spaces in the file names.

File example:

```
/flac/track_01.flac
/flac/track_02.flac
/flac/track_03.flac
/flac/track_04.flac
/flac/track_05.flac
/flac/track_06.flac
```

1.4 Running the application:

- After the Application download completes, it connects to the Wi-Fi AP specified in apps/snip/flac/wifi_config_dct.h. If the connection to the AP fails, you can still play the resource file to test FLAC decoding (see below). You can try to join another AP using the "join" console command:

```
>join <ssid> <open|wep|wpa_aes|wpa_tkip|wpa2|wpa2_tkip> [key] [ip netmask gateway]
```

- Encapsulate SSID in quotes in order to include spaces.
- Join an AP. DHCP assumed if no IP address provided.

1.5 Flac Available Commands:

```
>play
```

- Play the FLAC file in the WICED resources.
- This does not require a server or HTTP connection.

```
>connect <your server uri>
```

- This will connect to your server and get the file “flac_playlist.txt" and print the list to the console.

Example:

```
>connect http://192.165.100.37
0 /flac/track_01.flac
1 /flac/track_02.flac
2 /flac/track_03.flac
3 /flac/track_04.flac
4 /flac/track_05.flac
5 /flac/track_06.flac
```

```
>list
```

- Print out the file list to the console after connected.

```
>play <index> <loop>
```

Example: "`play 3`"

- This plays the indicated file in the list from the server.
- Adding "loop" will loop this file after it is finished playing.

```
>play all <loop>
```

- This will play through all of the FLAC files in the list from the server.
- Adding "loop" will loop after it is finished playing the whole list.

```
>info
```

- Show info on the song (play time, sample rate, etc). Note that this may take a few seconds, as the decoder may have gotten ahead of the playback.

```
>skip
```

- Skip to next song (if you used “play all”). Note that this may take a few seconds, as the decoder may have gotten ahead of the playback.

```
>stop
```

- Stop all playback. Note that this may take a few seconds, as the decoder may have gotten ahead of the playback.

1.6 Extra debugging info:

```
>log_debug
```

- Turn on debug-level logging – this is a lot of output ☺
- You may see messages like this, which indicates a bad packet or bad flac file.

```
flac_test_error_callback() FLAC__STREAM_DECODER_ERROR_STATUS_LOST_SYNC
flac_test_error_callback() FLAC__STREAM_DECODER_ERROR_STATUS_BAD_HEADER
```

```
>log_info
```

- Turn on info-level logging. Less info than log_debug.

```
>log_off
```

- Turn off debug logging.

Document Revision History

Document Title: WICED™ FLAC Development

Document Number:002-19004

Revision	ECN	Issue Date	Description of Change
**		08/01/2015	WICED-FLAC-R 1.0: Initial release
		08/03/2015	WICED-FLAC-R 1.1 Removed unnecessary sections
*A		03/16/2017	Converted to Cypress template format.

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