LMS API

- Quick start guide -

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Contents

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Introduction

The scope of this document is compilation of the LMS API and running the example applications that utilize LMS API.

2

LMS API

This chapter contains brief description of LMS API.

2.1 LMS API compilation

LMS API and examples are part of LMS7 software suite. It can be downloaded as .zip from:
https://github.com/myriadrf/LimeSuite/archive/IConnection_StreamingRework.zip
or using git :

        git clone https://github.com/myriadrf/LimeSuite.git
        git checkout IConnection_StreamingRework

To compile LMS API and examples follow the instructions provided in 'doc/lms7suite_compilation_guide.pdf' file. Note that wxWidgets library is not required to compile LMS API and examples.

2.2 LMS API function documentation

LMS API function and data type definitions and descriptions can be found in LimeSuite.h file (scr/lime/LimeSuite.h). They are documented using Doxygen comments.

3

LMS API Examples

This chapter contains description of 3 example application that demonstrate usage of LMS API. The source code of the example applications can be found in 'src/examples' directory. After compilation the executable files of the examples should be located in 'build/bin/Release/' directory on Windows systems or in 'build/bin/' directory on Linux systems.

On Linux systems with Gnuplot installed, all examples should plot received samples.

The brief description of examples is provided bellow. For more detailed information refer to comments in the source code of the each example and LMS API function descriptions in "src/lime/LimeSuite.h"

3.1   Example 1: basicRX

Demonstrates basic functionality required to receive data from one channel:
- Open device
- Set center frequency
- Set sample rate
- Configure data stream
- Receive samples

The example application connects to the first detected LimeSDR device, configures it and receives samples for 10 seconds. The number of samples received per read call is printed while receiving samples.

3.2   Example 2: singleRX

More complete RX example than basicRX. Additionally shows how to:
- Obtain allowed value range from device
- Obtain currently set device parameters
- Set gains
- Perform auto-calibration
- Set Low-Pass Filter
- Manually select antenna port
- Get stream status (data rate, fifo size).

The example application connects to the first detected LimeSDR device, configures it and receives samples for 10 seconds. The data transfer rate and FIFO status is printed every second while streaming is active.

3.3   Example 3: dualRXTX

Demonstrates receiving and sending of data using 2 RX and 2 TX channels. Compared to previous examples additionally demonstrates:
- Usage of multiple channels
- Transmitting data samples
- RX and TX synchronizations based on hardware timestamps

The example application connects to the first detected LimeSDR device, configures it and receives and sends samples for 10 seconds. The application retransmits received samples using synchronization based on timestamps to keep a constant offset between TX and RX at RF. The data transfer rate and FIFO status is printed every second while streaming is active.