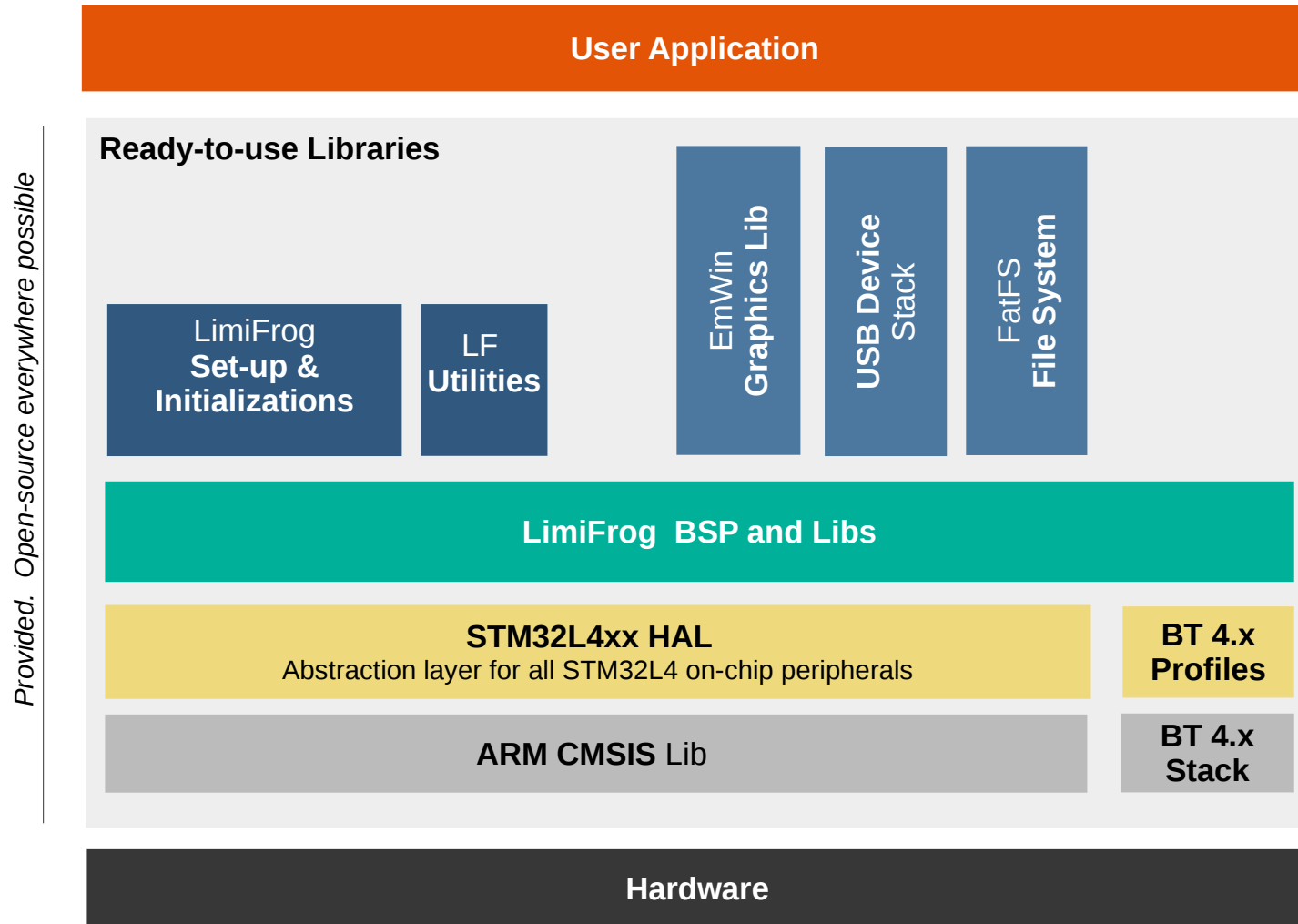


# Software Libraries



*Note: Various options available as real-time/embedded OS kernel if needed, although not provided as part of imiFrog software package at this time.*

# Software Structure

/<xxxx>

## -- /libraries

- /LimiFrog-Lib
  - # Board init and controls - LimiFrog specific
  - # Adaptation Layers for Middlewares (USBD, FatFS, emWin)
- /CMSIS\_L4xx
- /STM32L4xx\_HAL\_Driver
- /STM32L4\_USB-Device\_Library
- /FatFS\_Lib
- /StemWin\_Lib
- /Sensors\_APIs

*LimiFrog libraries*

*ST- and 3rd-party supplied  
libraries*

## -- /projects

### -- /Project-A

- /inc
- /src
- Makefile
- /obj

### -- /Project-B

- .....

### -- /Project-X

- .....

### -- /STARTUP

- startup\_stm32l476xx.s
- STM32L476RE\_FLASH.ld
- sysmem.c
- system\_stm32l4xx.c

## -- /documentation

*Typically,  
user would customize  
these files*

# Software : LimiFrog-Lib Contents

/libraries

-- /LimiFrog-Lib

-- /src

-- /Board\_Support

-- /LBF\_API

-- /Debug\_Utility

-- /LBF\_USB\_MassStorage

-- /LBF\_DataFlash\_FatFS

-- /LBF\_StemWin

-- /inc

-- <same structure>

> IO configuration routines  
> On-chip peripheral inits  
> On-board chip inits  
(fixed and selective – based on  
user configuration files in /Project-xx)

API functions :  
>For access to on-board hardware and  
busses (LED, Switches, Data Flash,  
I2C, ...)  
>To use some STM32 peripherals at  
higher level than HAL

Adaptation layer between ST-supplied  
middleware and LimiFrog  
(any file that is a « template » in ST  
deliverable or needed customization is  
here)

# Software : User Project Contents

/projects

-- / <project name>

-- /src

-- /main.c

-- /<other\_user\_files>.c

-- /stm32\_it.c

-- /inc

-- /stm32\_it.h

-- /User\_Configuration.h

-- /IT\_Priorities\_UserDefinable.h

-- /obj

-- Makefile

-- BriefDesc.txt

> Proposed template does full board initialization and leaves user concentrate on his/her application.

Interrupt request handlers  
& associated callback functions.  
Template proposed.

User defined configurations, esp. :  
- configuration of signals / interfaces  
provided on extension port  
- OLED and BTLE usage

User modifiable priorities of all LimiFrog  
potential interrupt sources.  
All defined in this single central file.

# Software : Include Model

LBF\_Global.h

*Cmsis vs hal ?*

core\_cm4.h

SUPERSEDED – UPDATE IN PROGRESS

stm32l4xx.h

h>

stm32l4xx\_hal\_ppp.h

stm32l4xx\_hal\_def.h

LBF\_XXX\_lowlev\_API.h