Project Sheet

FritzLight SDL2 Setup Tutorial

This is a tutorial on how to get SDL2[1] running with the FLight. We will denote terminal input by using typewriter font, e.g., `echo this is a shell command`.

If you encounter any errors or problems while executing the steps below, please let us know in the StudIP forums or via e-mail/StudIP message.

1 Preparation (OS dependent)

While the preparation steps depend on which operating system you're using, a common requirement is that you have *stack*[2] installed. If you followed the instructions at the beginning of the semester you should have *stack* installed already. Otherwise, you need to install it before performing the steps described below.

1.1 Windows

1. Open a terminal
2. `stack --system-ghc exec -- pacman -Syu`

   Sometimes, operations may time out at downloading. In these cases, pacman will not complete the transaction ("error: failed to commit transaction"). If so, execute `stack --system-ghc exec -- pacman -Syu` again!
3. Close the terminal, then open another one
4. Execute `stack --system-ghc exec -- pacman -Syu` again
5. `stack --system-ghc exec -- pacman -S mingw-w64-x86_64-pkg-config`
6. `stack --system-ghc exec -- curl -O https://repo.msys2.org/mingw/x86_64/mingw-w64-x86_64-SDL2-2.0.14-2-any.pkg.tar.zst`
   (one long command)
7. `stack --system-ghc exec -- pacman -U mingw-w64-x86_64-SDL2-2.0.14-2-any.pkg.tar.zst`
   (one long command)
8. Close the terminal

[1] https://www.libsdl.org/
[2] https://www.haskellstack.org

1.2 Linux

Debian/Ubuntu based

1. Open a terminal
2. `sudo apt install libsdl2-dev`
3. Close the terminal

Arch based

1. Open a terminal
2. `sudo pacman -S sdl2`
3. Close the terminal

Other

Consult your distribution's package repositories for the SDL2 library. You may need to select a development version (as in the Debian installation). In any case, you need the library binaries and header files. If no pre-packaged binaries are available, you can of course try to compile SDL2 yourself, the source code is available at https://github.com/libsdl-org/SDL.

If you have instructions for a distribution not listed here, please let us know so we can add them.

1.3 MacOS

1. Install *homebrew*[3]
2. Open a terminal
3. `brew install sdl2`
4. Close the terminal

2 Common steps

1. Extract *SDL2FLight.zip*
2. Open a terminal and `cd` to the directory where you extracted the zip file to. If you're using VSCode[4] you can also just right-click the created folder (*SDL2Flight*) and open it in VSCode, then use the built-in terminal.
3. `stack setup`
4. Extra step for Windows: Temporarily deactivate any antivirus software (e.g., Windows Security) for the duration of the next command.
5. `stack build`

[3] https://brew.sh
[4] https://code.visualstudio.com/

6. Use `stack ghci` instead of `ghci`:
    a) `stack ghci`
    b) `:l YourFile.hs` (`SDLEventTest.hs` for the test project)
    c) `main`
    d) Focus the small window that opens (click it) so it can capture keyboard input
    e) When you're done, you can close the window by pressing L-SHIFT+ESC (hold the left shift button and press escape).

3 Known issues

- Incompatibility with Haskell Language Server (HLS). VSCode may show a message that the Haskell extension crashed, you can ignore that.
- The program may temporarily be unresponsive, especially for the first ~10 seconds after startup
- Sometimes you can only close the program by pressing CTRL+C in GHCI, and then exiting GHCI (e.g., with CTRL+D). When you re-enter GHCI, nothing you type shows up. In that case, close the entire terminal and open a new one.

If you encounter any additional issues, please let us know!

4 Supported keys

Key(s)	**Keycode(s) [as Strings]**
Letters [A-Z]	"A", "B", .. "Z"
Digits [0-9]	"0", "1", .. "9"
F-Keys [F1-F12]	"F1", "F2", .. "F12"
Ctrl / Strg (Left/Right)	"L-CTRL" / "R-CTRL"
Shift / Umschalt (Left/Right)	"L-SHIFT" / "R-SHIFT"
Alt (Left/Right)	"L-ALT" / "R-ALT"
Gui / Win (Left/Right)	"L-GUI" / "R-GUI"
Tab	"TAB"
Backspace / Ruecktaste	"BACKSPACE"
Return / Enter	"RETURN"
Space / Leertaste	"SPACE"
Escape	"ESC"
Pause / Untbr / Break	"BREAK"
Insert / Einfg	"INSERT"
Del / Entf	"DELETE"
Comma [,] / Semicolon [;]	"COMMA"
Colon [:] / Period [.]	"PERIOD"
Less [<] / Greater [>] / Bar [|]	"LESS"
Minus [-] / Underscore [_]	"MINUS"
Hash [#] / Single Quote [']	"HASH"
Plus [+] / Tilde [~] / Asterisk [*]	"PLUS"
Print / Druck	"PRINT"
Page Up / Bild Auf [↑]	"PAGE_UP"
Page Down / Bild Ab [↓]	"PAGE_DOWN"
End / Ende	"END"
Home / Pos 1	"HOME"
Arrow Up [↑]	"UP"
Arrow Down [↓]	"DOWN"
Arrow Left [←]	"LEFT"
Arrow Right [→]	"RIGHT"
Num-Pad Lock	"NUM_LOCK"
Scroll Lock / Rollen	"SCROLL_LOCK"
Caps Lock	"CAPS_LOCK"
Num-Pad Digits [0-9]	"NUM_0", "NUM_1", .. "NUM_9"
Num-Pad Multiply [x]	"NUM_MULTIPLY"
Num-Pad Divide [÷]	"NUM_DIVIDE"
Num-Pad Minus (-)	"NUM_MINUS"
Num-Pad Plus (+)	"NUM_PLUS"
Num-Pad Enter	"NUM_ENTER"