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HOW 2 Load and Build Pd Patches into LICH

*Tutorial by Xavi Manzanares
by-sa // 2021*

*LICH Module by ://
Befaco & Rebel Technologies*

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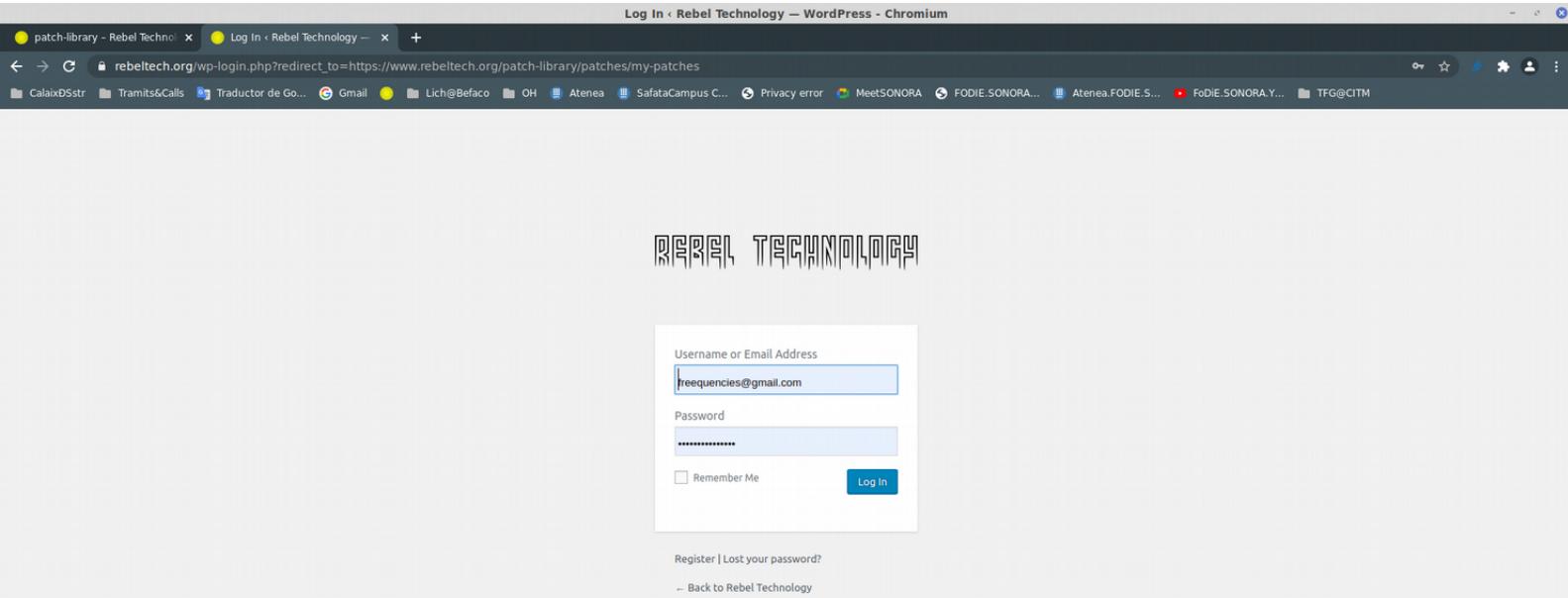
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HOW 2 Load and Build Pd Patches into LICH Firmware

Enter at <https://www.rebeltech.org/patch-library/patches/latest>

Will ask you for your login in order to contribute to the public repos and developments for Lich.



Once registered you'll enter into this interface showing the last developments done by the community.

A screenshot of the Rebel Technology website's patch library section. The URL is rebeltech.org/patch-library/patches/latest. The page has a dark header with the 'REBEL TECHNOLOGY' logo and navigation links for NEWS, PRODUCTS, PATCHES, TUTORIALS, COMMUNITY, RESELLERS, and ABOUT. Below the header is a navigation bar with icons for Latest, Popular, Tags, Authors, Search, My Patches, and Device. A sub-header indicates '309 PUBLIC PATCHES BY 86 AUTHORS.' The main content area displays a grid of nine patch cards. Each card has a title, author, a brief description, and a list of categories at the bottom. The cards include:

- Lich DMTF** by cavitas
- [Lich] Perlin Noise Field** by damikyu
- DualVCA** by jesper
- FlynnFrontier** by Kenromero1337
- [Lich] Polygonal VCO** by Stas Shtin
- [Lich] Melsputter** by befacosynth
- [Lich] Wavenular** by befacosynth
- [Lich] Windrone** by befacosynth
- [Lich] Knoscillator** by damikyu

Each card also includes a small preview image of the patch's visual interface.

*Let's imagine we have build a patch in the computer and we want to upload it into the LICH firmware.
The first thing is to turn on the LICH module and connect it via USB to the computer.*

The screenshot shows the Rebel Technology website with the URL rebeltech.org/patch-library/device. The page title is "patch-library - Rebel Technology - Chromium". The main navigation menu includes NEWS, PRODUCTS, PATCHES, TUTORIALS, COMMUNITY, RESELLERS, and ABOUT. Below the menu are links for Latest, Popular, Tags, Authors, Search, My Patches, and Device. A large central box is titled "DEVICE STATUS" and contains a "CONNECT TO DEVICE" button. At the bottom of the page are social media icons for Facebook, Twitter, Instagram, and YouTube, along with a copyright notice: "Copyright © 2018 Rebel Technology".

Note : You'll need a browser that supports Web MIDI (for ex. Google Chrome) due to the fact that the RebelTechnology's Browser tool requires the MIDI protocol to talk with Lich firmware. In case you still don't have set it up, a pop-up will ask you if you want to allow communication permissions of Midi devices within the browser.

Once connected, there appears the algorythms already loaded in LICH firmware.

The screenshot shows the same website after connecting to the LICH module. The "DEVICE STATUS" box now displays "LOADED PATCH: Stokastic5PentaOSCillat" and "CONNECTED TO: Lich v2.0.10". It also shows "CPU: 63% Memory: 26504" and a "MESSAGE" log entry: "Storage used 337056 deleted 0 free 187232 total 524288". The "PRESETS" section shows a table with four slots:

SLOT	NAME	STATUS
RAM	---	
1	Stokastic5PentaOSCillat	Selected
2	GNRTV.BandPass	SELECT
3	Stokastic5PentaOSCillat	SELECT
4	Stokastic.Patterns.v4	SELECT

Below the status boxes are "DEVICE COMMANDS" buttons for REFRESH, ERASE STORAGE, and RESET DEVICE.

In order to load your patch from the computer, click **MyPatches** section, and **Create Patch**

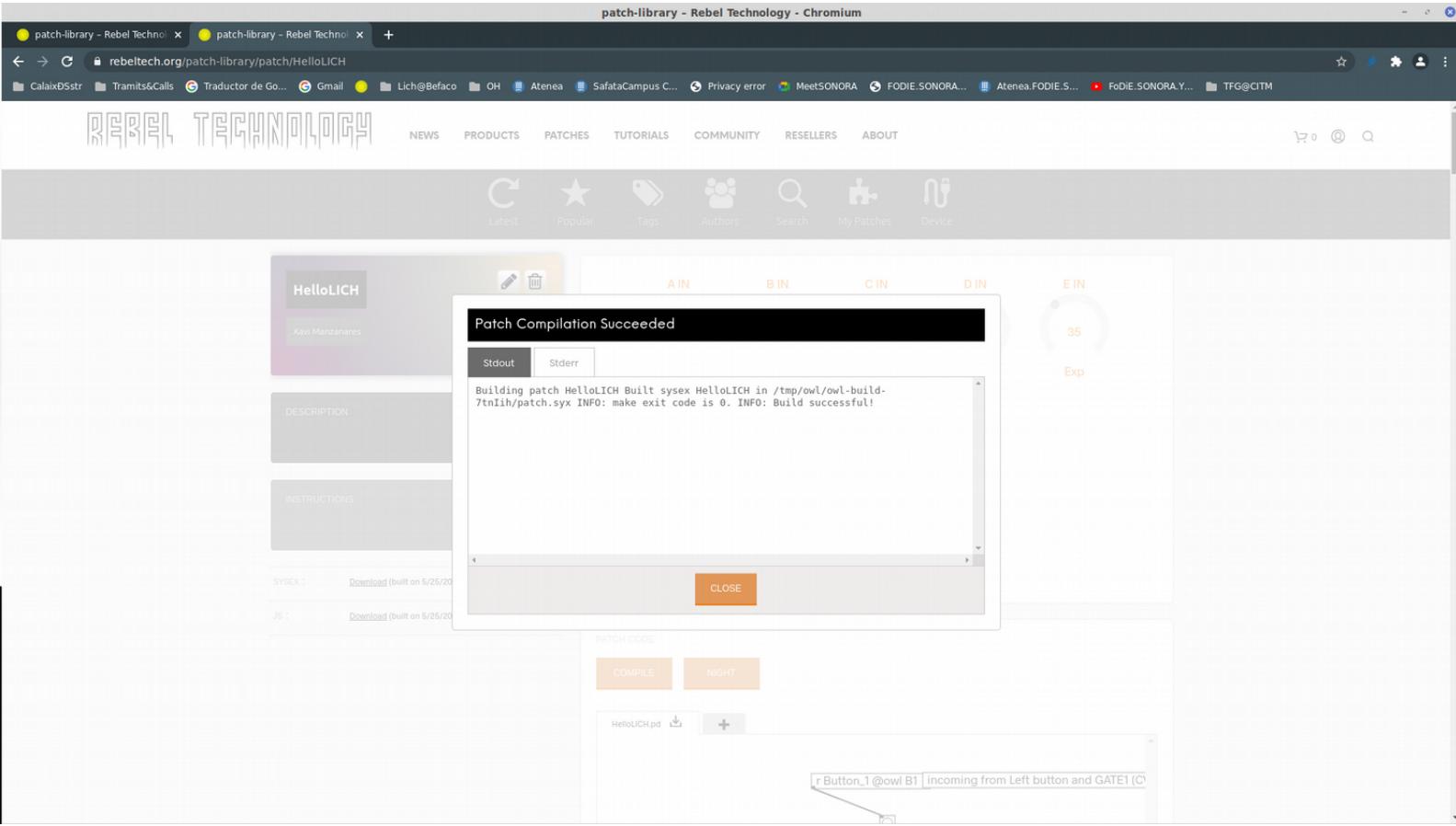
The screenshot shows a web browser window with the URL rebeltech.org/patch-library/patches/my-patches. The page title is "patch-library - Rebel Technology - Chromium". The header includes the Rebel Technology logo, navigation links for NEWS, PRODUCTS, PATCHES, TUTORIALS, COMMUNITY, RESELLERS, and ABOUT, and a search bar. Below the header is a navigation bar with icons for Latest, Popular, Tags, Authors, Search, My Patches, and Device. A banner at the top right says "35 PATCHES". The main content area displays a 3x3 grid of patch cards. The patches shown are: "Create patch" (with a large plus sign icon), "Stokastic.Patterns.v5.pd" (private), "Stokastic5PentaOSCillators+2ADCv3" (private), "GNRTVbandPass" (private), "Stokastic5PentaOSCillators+2ADC_v" (private), "Stokastic5PentaOSCillators+2ADC+" (private), "GRain.gnrtvblockstst" (private), "Stokastic5PentaOSCillators+2ADC" (private), and "GNRTV.BandPass" (private). Each card has a lock icon indicating it is private.

It appears an interface to Upload the Algorythm* (in our case Pd). We can write the name we want, click type `pd` in the `compilation type` after we'll browse the patch in our computer in the `upload files` section. Alternatively we can add the `github's file url` of the patch instead of upload it from our computer. Then we can click 'Save and Compile' button in the bottom.

* can be different codes programmed in C++, pd, heavy, faust, gen , maximilian or soul.

The screenshot shows a web browser window with the URL rebeltech.org/patch-library/create-patch. The page title is "patch-library - Rebel Technology - Chromium". The header includes the Rebel Technology logo, navigation links for NEWS, PRODUCTS, PATCHES, TUTORIALS, COMMUNITY, RESELLERS, and ABOUT, and a search bar. Below the header is a navigation bar with icons for Latest, Popular, Tags, Authors, Search, My Patches, and Device. The main content area is titled "CREATE PATCH". It contains fields for "Patch Name" (Name: HelloLICH), "Compilation Type" (Type: pd, with a dropdown menu showing options: cpp, pd, heavy, faust, gen, maximilian, soul), "Upload Files" (a file input field with a dropdown menu showing options: obj, maxpat, gendsp, soul, soulpatch), "GitHub File Url" (a text input field and an ADD button), and "Source Files" (a list containing "HelloLICH.pd Main File" with a REMOVE button). At the bottom are three buttons: "SAVE", "SAVE AND COMPILE", and "CANCEL".

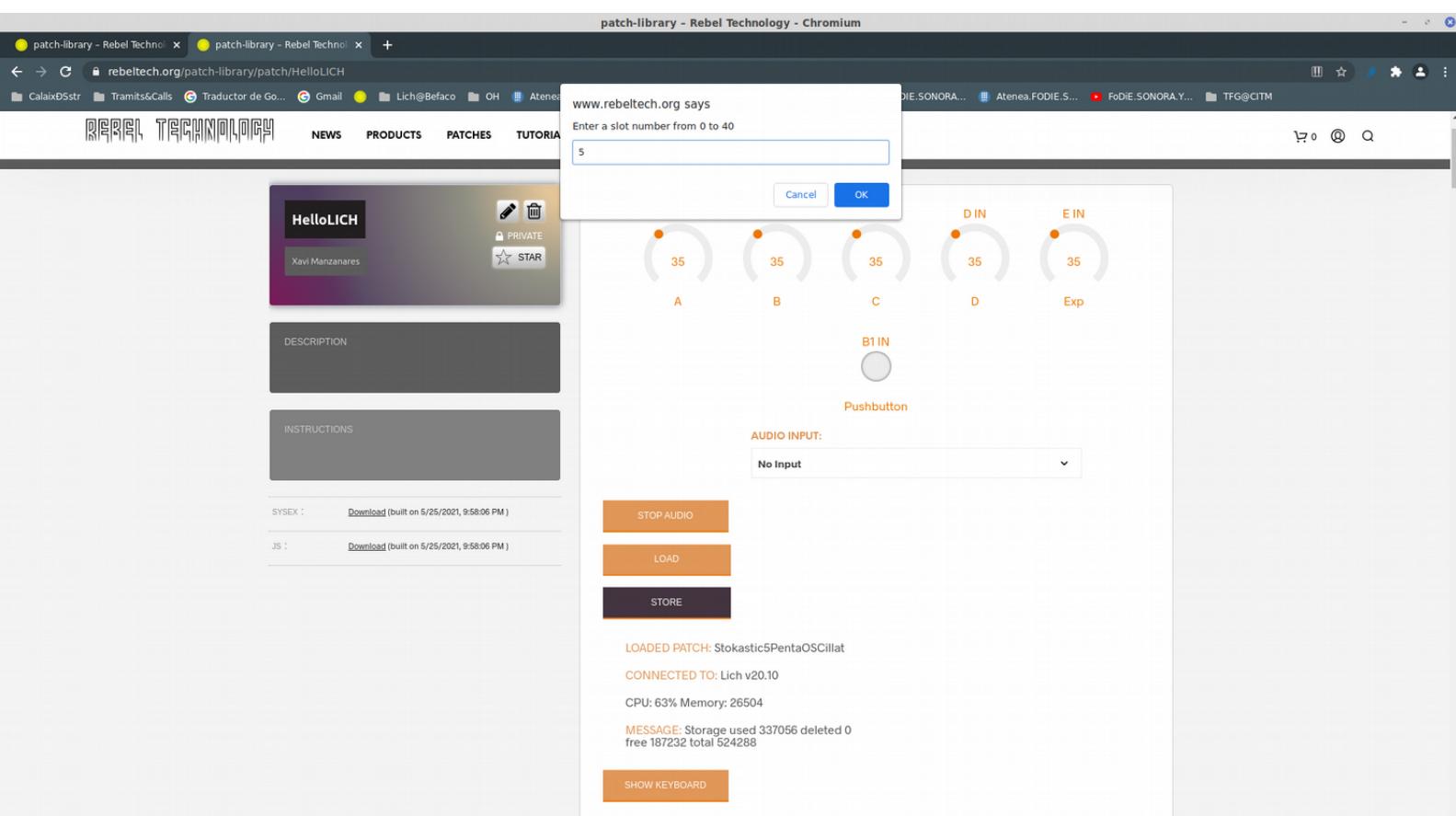
Few seconds later of being pressed ‘Save and Compile’ button, will appear a pop-up informing about the compiling process.



In case there is an error, pd patch will not be loaded into LICH and we have to re-program and debug our patch in the computer, following the clues and errors described in the shell.

Otherwise, in case it appears ‘Build Successful!’ in the pop-up terminal, we have to Close the pop-up, and complete another tweaks : Click Store > It will appear another popup asking us for the slot we want to store the new patch (or code) into the LICH’s firmware.

Important note: in the popup appears slot number from 0 to 40, but I strongly recommend you just store from slots 0 to 9.



After STORE the number, press LOAD, and if there is not an unexpected error, your pd patch will be running in your LICH

The screenshot shows the Rebel Technology patch-library interface. On the left, there's a sidebar with a preview of the patch titled "HelloLICH" by Xavi Manzanares, showing options to edit, delete, or star it. Below this are sections for "DESCRIPTION" and "INSTRUCTIONS". Under "DESCRIPTION", it says "generative rhythm box with a quantized delay line etc etc etc..". Under "INSTRUCTIONS", there is a block of code:

```
delay // knob C > pattern // knob D > delay's feedback // IN L > Incoming audio sliced in the pattern // IN R > Incoming audio sliced in the pattern // GATE1 > external Clock by CV // GATE 2 >
```

. At the bottom of the sidebar, there are download links for "SYSEX" and "JS". On the right, the main panel displays the patch's hardware interface. It features five knobs labeled A IN, B IN, C IN, D IN, and E IN, each with a value of 35. Below them is a pushbutton labeled "B1 IN". There are three orange buttons: "STOP AUDIO", "LOADING ...", and "STORE". Below these buttons, status messages are displayed: "LOADED PATCH: HelloLICH", "CONNECTED TO: Lich v20.10", "CPU: 55% Memory: 27528", and "MESSAGE: Storage used 337056 deleted 0 free 187232 total 524288". A "SHOW KEYBOARD" button is also present.

If you like your development and want to publish it and contribute with the community, you can add Concept Description of your Pd patch and Instructions that describes the parameters associated with the LICH's Hardware (therefore Knobs, buttons, Signal Ins, CV Ins, CV outs, Signal Outs).

This screenshot shows the same patch library interface as above, but with additional documentation added. In the "DESCRIPTION" section, the text "generative rhythm box with a quantized delay line etc etc etc.." has been expanded into a detailed "Concept Description". In the "INSTRUCTIONS" section, the block of code has been expanded into a detailed "Instructions" section. The rest of the interface remains the same, including the hardware interface on the right and the "ADD A SOUNDCLLOUD LINK" button at the top right of the main panel.

*Once edited the info you can save and publish it your patch.
Don't forget to add some tags in the Description, wich will define more details for other users searches.*

The screenshot shows a web browser window with the title "patch-library - Rebel Technology - Chromium". The URL is "rebeltech.org/patch-library/patch>HelloLICH". The page content includes:

- Header:** REBEL TECHNOLOGY, NEWS, PRODUCTS, PATCHES, TUTORIALS, COMMUNITY, RESELLERS, ABOUT.
- Patch Preview:** A dark-themed preview window titled "HelloLICH" by "Xavi Manzanares". It shows icons for edit, delete, private, and star.
- Description:** "generative rhythm box with a quantized delay line etc etc etc.."
- Instructions:**

```
//// knob A > amount of filter //// knob B > quantized
delay //// knob C > pattern //// knob D > delay's
feedback //// Button L > clock defined by Incoming CV
at Gate1 //// Button R > Switch Waveshaper preset
//// IN L > Incoming audio sliced in the pattern //// IN
R > Incoming audio sliced in the pattern //// GATE1 >
external clock by CV //// GATE 2 > switching
waveshaper by CV from another module //// GATE
OUT > clock //// CV OUT 1 > SMOOTH Random CV
value //// CV OUT 2 > STEPPED Random CV value //// 
OUT L > L Channel Audio Signal //// OUT R > R
Channel Audio Signal
```
- Control Panel:**
 - AUDIO INPUT:** A dropdown menu set to "No Input".
 - Buttons:** STOP AUDIO, LOAD, STORE.
 - Information:** LOADED PATCH: HelloLICH, CONNECTED TO: Lich v20.10, CPU: 55% Memory: 27528, MESSAGE: Storage used 337056 deleted 0 free 187232 total 524288.
 - Show Keyboard:** A button at the bottom right.

Enjoy the power of building your algorythms and link them with your modular system!