This is Zenpho's quick and dirty guide to getting Jack, Ableton Live and PureData to work together allowing you to use Pd as an effects plugin via the JACK-PLUGIN Audio Units on MacOSX.

REQUIRED SOFTWARE AND INSTALLATION

Install Jack OsX 0.74 Install Live 5.2 Install PureData Extended 0.38.4 RC8

----Start JackPilot.

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Set JackPilot Preferences to be exactly as below:

Preferences		
Jack Server:		
Driver:	coreaudio	•
Interface:	Built-in Audio	•
Sample Rate:	44100	•
Buffer Size:	512	•
Interface Outpu	it Channels: 2	•
Interface Input	Channels: 2	•
Jack Router:		
Virtual Input Channels: 8		
Virtual Output Channels: 8		
Auto-Connect with physical ports:		
Default Input:		
Default Output:		
System Default	Output:	
Verbose loggin	g for debug purposes:	
Cancel Save		

Click SAVE in JackPilot Preferences.

Back to the JackPilot main window, click START

000	JackPilot		
Start (Routing)	0	CPU Load: 0	

A message will appear "Jack server is starting" and JackPilot window will now show CPU Load and the Routing button un-greyed.

Click ROUTING button:

end Ports:	Receive Ports:	Connections:
▶Built-in Audio	▶ Built-in Audio	

The Connections Manager window is where you connect outputs of to inputs and thus route audio around

between applications. Built-in Audio is the only input /output pair shown at the moment.

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Start AbletonLive





Live will display products information:

Audio MIDI/Sync Plug-In Defa	aults Misc Products
Product	Status
Live 5	Demo Mode
Operator	Hidden
Live 5 Essentials	Installed
Live 5 Lessons	Installed
Operator Pack	Installed
Search for more Live Packs	

Click the AUDIO button (top left). Live will show audio preferences. Change the settings to read exactly as below:

Audio MiDi/Sync	Plug-In Defaults Misc Products
udio Device	
Driver Type	CoreAudio 🗢
Input Audio Device	Jack Router (8 In, 8 Out)
Output Audio Device	Jack Router (8 In, 8 Out)
Buffer Size	512 Samples
Output Latency	13.3 ms
Input Latency	13.4 ms
ettings	
Sample Rate	44100
Overall Latency	13.3 ms + 13.4 ms + 0.00 ms = 26.7 ms
Channel Configuration	Input Config Output Config

# Click OUTPUT CONFING. Change the settings to be exactly as below: Output Config

Choose which audio hardware outputs to make available to Live's tracks. Every output pair can be used as one stereo out and/or two mono outs. Deactivating outputs reduces the CPU load.

1 (mono) & 2 (mono)	1/2 (stereo)
3 (mono) & 4 (mono)	3/4 (stereo)
5 (mono) & 6 (mono)	5/6 (stereo)
7 (mono) & 8 (mono)	7/8 (stereo)

Click OK



Do the same for INPUT CONFIG, change settings to be exactly as below:

input Config			
Choose which audio hardware inputs to make available to Live's tracks. Every input pair can be used as one stereo in and/or two mono ins. Deactivating inputs reduces the CPU load.			
1 (mono) & 2 (mono)	1/2 (stereo)		
3 (mono) & 4 (mono)	3/4 (stereo)		
5 (mono) & 6 (mono)	5/6 (stereo)		
7 (mono) & 8 (mono)	7/8 (stereo)		

Go to the plugins tab (3rd along). Change the settings to be exactly as below:

Audio MiDi/Sync	Plug-In	Defaults
Active Sources		
Re-Scan Plug-Ins		(Re-Scan)
Use Audio Units		On
Use VST Plug-In System Fol	ders	Off
Use VST Plug-In Custom Fo	lder	Off
VST Plug-In Custom Folder		Browse
Not Set		

Close the Live preferences window.

In Live, select the first audio channel; "1 AUDIO" Select the PLUGIN DEVICES BROWSER ICON (top left of the live screen, 3rd icon down)



Scroll down and select the JACK-INSERT plugin within the JACKOSX.COM folder.



DRAG the plugin icon to the "1 AUDIO" channel name strip near the top of the screen.



The lower part of the screen will show the plugin is loaded, and the plugin information will appear.



Now start PureData.



Use the menu to select Media -> Jack

Pd	File	Find	Media	Window	Help
0			audio	ON	₩/
-			audio	OFF	ж.
00	)		porta	udio	Pd
0			🗸 jack	4	
	sa	mple ra	ra Test Audio and MIDI Load Meter		MIDI

In the audio configuration window, change the settings to be exactly as below:



Click OK

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Back in the JackPilot routing Connections Manager, there will be PureData and Live inputs and outputs listed:

000	Connections Manager	
Send Ports:	Receive Ports:	Connections:
▶ Built-in Audio	▶Built-in Audio	pure_data_0:output0
► Live	▶ Live	pure_data_0:output1
▶pure_data_0	▶pure_data_0	Live:out1
		Live:out2

By default; the "1st" and "2nd" channels of Live and PureData (outputs 0 and 1 of PureData, and 1 and 2 of Live)

are routed to Built-in Audio outputs.

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In the Live host, you added an insert plugin JACK-PLUGIN, this is listed in the Live SEND-PORT column

as two mono channels "AUsend1" and "AUsend2".

You can route these to PureData Inputs to use PureData as a custom modular effects processor.

Singleclick the Live: AUsend1 entry in the SEND-PORT column.

AUsend1	
Allsend2	

Doubleclick the pure\_data\_0:input0 entry in the RECEIVE-PORT column. The entry will change red. Singleclicking on it will show a connection in the CONNECTIONS column.



Route the Live:AUsend2 to pure\_data\_0:input1 in a similar way. Also route pure\_data\_0:output0 and output1 entries to Live:AUreturn1 and Live:AUreturn2.

## QUICK GUIDE TO ROUTING IN JackPilot:

To expand and contract groupings, click the triangle to the left of the names.

To make and break routings:

Singleclick on a SEND-PORT entry to select it as a source, Any active routings will be shown in RED and listed in the CONNECTIONS column.

# Doubleclick on entries in the Connections column to remove routings. OR Doubleclick on a RECEIVE-PORT entry to make a routing.

Then build a patch using [ADC~] and [DAC~] objects in pure data to process your live audio. We've made 8 virtual channels in the JackPilot preferences, so you can add 4 more JACK-INSERT plugins before we run out of stereo pairs.

An example patch will help you debug channel activity, and do simple ring modulation on the left input.



Build your patch using the ADC~ and DAC~ objects (with parameters 1 to 8 for the 8 jack channels), for example [ADC~ 6] would access the 6th jack input channel and [DAC~ 3 4] would provide a 2-channel

output pair for the 3rd and 4th jack outputs.

Save your work often, and when you want to quit, you should quit the client applications first, PureData first, then Live, then push STOP in JackPilot, then quit JackPilot.

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## ADDING MORE CHANNELS

To add more channels simply edit JackPilot preferences-> virtual input channels / virtual output channels.

To access these extra channels in PureData, don't forget to route them in JackPilot, and to use  $[ADC \sim n]$  and  $[DAC \sim n]$  where "n" is a channel number.

Channel numbers are inconsistant, so remember that jack numbers channels differently to live and pd.

### \*\*ANOTHER IMPORTANT NOTE\*\*

\*\* Confusingly, the PureData channel numbering system for jack (with 0 being the "1st" channel) \*\* is not consistent, so you MUST USE [ADC~ 3] and [DAC~ 4] inside PureData, even though

\*\* in jack you have routed pure\_data\_0:input2 and 3 and output2 and 3...

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\*\* PLEASE REMEMBER THIS IF YOU GET CONFUSED \*\*