Live Owners Manual Addendum (Version 1.5.1)

1. ReWire Master and Slave Functionality

1.1. Rules of the Game

Live can now act as both a ReWire master and slave. Common ReWire master applications are Steinberg Cubase, Emagic Logic Audio, MOTU Digital Performer, and Cycling 74 Max/MSP. Common ReWire slave applications are Propellerheads Rebirth, Propellerheads Reason, and Max/MSP.

Live will run in ReWire slave mode if it detects a running ReWire master application at startup time. Therefore, **always start the ReWire master application first, then start Live**. Likewise, you will first have to quit Live, then the ReWire master application.

Users of Steinberg Cubase: please activate at least one ReWire channel prior to launching Live. Live will not launch in ReWire slave mode, otherwise!

Live's operation in ReWire slave mode differs from the usual operation in some regards:

- Live will not have direct access to the audio interfaces; audio input / output is handled by the ReWire master application. No audio input will be available to Live.
- The sample rate is determined by the host application rather than by Live. Please see the following chapter for details.
- External synchronisation will be disabled (synchronise the ReWire master application instead). Live will not send sync, or controller messages to the MIDI output. Controlling Live via MIDI will still be possible.
- Live will not act as a ReWire master application. For instance, you cannot run Rebirth as a ReWire slave of Live while Live is running as a ReWire slave of Cubase. You can, however, run both Live and Rebirth as ReWire slaves of Cubase at the same time.

1.2. Setting the Sample Rate

When Live is running in ReWire slave mode, the ReWire host application determines the sample rate. Due to technical issues, Live cannot track sample rate changes in the host program. A sample rate mismatch between Live and the ReWire host can easily be identified:

- the sample rate setting in Live's audio Preferences differs from the sample rate setting in the host application;
- the external sync indicator in the Control Bar is flickering.

To avoid a sample rate mismatch, please proceed as follows:

- save your work and quit Live;
- change the sample rate in the host application;
- if you are using Emagic Logic: start and stop Logic's song playback;
- re-launch Live and open your Live Set. Live's sample rate setting will now match the host's.

1.3. Fixing ReWire Problems

When running Live as a ReWire slave, you might encounter problems which are caused by the host program's implementation of the ReWire subsystem. Ableton is in contact with the host program manufacturers about these issues. The problems might be solved in future updates of those host programs. For now, we can offer workarounds for those who are affected.

Fixing Problems related to Emagic Logic

There are several problems with Logic's ReWire implementation. Live identifies these problems and installs a workaround. Please be sure you restart both Logic and Live after Live has shown an alert message regarding problems with the ReWire host. Be aware that some problems you might experience with Logic as a ReWire master cannot be solved automatically by Live. These problems are be due to the Channel Count or Sample Rate problems to be described below.

Fixing Problems related to the ReWire Channel Count

The total number of ReWire channels is limited in several ReWire host programs (this problem is known for Steinberg Cubase and Emagic Logic). If several ReWire slave programs are installed on your computer, this limit might be exceeded, a condition which is very likely to result in crashes. By default, Live offers 16 output channels to the ReWire host application.

To find out if your host program's ReWire channel count is maxed out, please see your host program's list of ReWire channels. If the list does not show all channels of all installed ReWire slave applications, the maximum is exceeded.

Live can be configured to run with more, or less ReWire channels:

- you might have to reduce the number of ReWire channels because the host program's ReWire channel count is maxed out;
- you might want to increase the ReWire channel count to get more channels from Live into the host program. Please be sure the program's ReWire channel count is not maxed out yet (because other ReWire slave programs are installed).

To modify the ReWire channel count, please create a text file called "LiveOptions.txt" and put it in the folder where Live.cfg is found (Mac OS 9: System Folder:Preferences:Ableton; Windows: [Installation Directory]\Ableton\Preferences). This file can contain program options which Live will read at startup time. Please add this line to LiveOptions.txt:

`-ReWireChannels=X` (where X is the number of channels)

Please be aware of the following points:

- Please use even channel counts only.
- By setting the channel count to zero (`-ReWireChannels=0`), Live's entire ReWire slave functionality can be disabled.
- Changing Live's ReWire channel count, or installing or uninstalling ReWire slave applications might alter the ReWire related routings in existing song documents created by your ReWire master program. This is a known problem with Emagic Logic and in Steinberg Cubase, which is certainly going to be solved in future versions of these programs.

If you cannot seem to solve ReWire-related problems by changing the ReWire channel count, your ReWire host might

not be able to handle all ReWire clients you have installed. Please try to temporarily uninstall other ReWire client applications.

Fixing Problems related to Cakewalk Sonar

There is a known compatibility problem between Live and Sonar 2.0. Sonar crashes when Live is inserted as a ReWire device. An update from Cakewalk that will solve this problem is due for release. Please check www.cakewalk.com. Until this update is available, the problem can be remedied using the following workaround:

Please create a text file called "LiveOptions.txt" and put it in the folder where Live.cfg is found (Mac OS 9: System Folder:Preferences:Ableton; Windows: [Installation Directory]\Ableton\Preferences). This file can contain program options which Live will read at startup time. Please add this line to LiveOptions.txt:

```
-ReWireSonar
```

This option sets Live's ReWire audio channels 3-64 to mono.

What to do if nothing helps

Should your ReWire problem persist, please contact the ableton technical support at support@ableton.com.

2. The Render to Disk Command

The new Render to Disk command, which is accessed through the File menu, allows you to export Live's Master audio output as a new sample.

2.1. What signal will be rendered?

Render to Disk will always render the signal at Live's Master output. If you are monitoring the Master output, you can be sure that the rendered file will contain just what you hear. To export individual tracks, please deactivate all other tracks by turning off their 'Speaker'-switches in the mixer.

If you call Render to Disk while the Arranger View is up, Live will render the selected time range. If you'd like to render the current Arrangement loop, choose the Select Loop command from the Edit menu prior to calling Render to Disk. Keep in mind that the selection of tracks is irrelevant: the signal to be rendered is the Master output.

If you call Render to Disk while the Session View is up, Live will ask you to specify the length of the sample to be rendered. The Render to Disk dialog will come up with a Bars:Beats:Sixteenths field where you may type in the length. Live will capture audio from the Master out starting at the current play start position for the specified duration.

2.2. Rendering Options

The Render to Disk dialog contains several options:

- Normalize. If activated, the sample resulting from the render process will be normalized, ie. the full dynamic range will be used.

- Render as Loop. If activated, Live will create a sample that can be used as a loop. Suppose your Live Set is using a delay effect. If Render as Loop is on, Live will go through the rendering process twice: the first pass will not actually write samples to disk, but it is necessary to allow the delay effect to build up; as the second pass starts writing audio to disk, the delay effect delivers the delay "tail" that results from the first pass.

- File Type, Bit Depth, Sample Rate. These options specify the type of sample to be created.
- Create Analysis File. If activated, Live will create an .asd file that contains analysis information about the rendered sample. If you intend to use the new sample in Live, you should check this option.
- Convert to Mono. If activated, Live will create a mono file instead of a stereo file.

3. New MIDI and Sync options

3.1. Sending MIDI Sync

Live is now capable of sending MIDI clock. MIDI clock messages will be sent to the device which is selected in the MIDI / Sync Preferences MIDI Synchronisation Output Device setting. Choose "None" to avoid sending MIDI clock.

3.2. Sending Controller Messages

Live is now capable of sending MIDI controller messages to outboard gear. This is useful when working with controller boxes with endless knobs or motor faders. These devices need to be updated when a control's value changes in Live, because the position of motor faders or LED chains has to match the new value. MIDI controller messages will be sent to the Device which is chosen from the MIDI / Sync Preferences MIDI Control Output Device. There is a "Send Control Updates Now" button that can be used to send the current state of all of Live's controls after connecting an external device.

3.3. Mapping to Incremental Controllers

You can now use "endless" knobs to remote-control Live. There are a number of conventions for sending incremental control changes that are used by MIDI hardware manufacturers. Each of these conventions is using a different interpretation of the 0..127 MIDI controller value range to identify value increments and decrements:

Mode	**Relative (Signed Bit)**	**Relative (BinOffset)**	**Relative (2's Comp.)**
Increment	65 - 127	64 - 127	1 - 64
Decrement	1 - 64	63 - 1	127 - 65

Live tries to auto-detect the convention used when making an assignment. You can override the setting using the pop-up menu that appears in the Status Line while mapping a Live control.

3.4. Mapping Controller Messages to Slots and Switches

As of version 1.5, controller messages can be mapped to slots for recording and playing clips. This is particularly useful for users of foot switches. Controller messages can also be mapped to all switches, buttons, and radio buttons.

4. New Multi-Channel Audio Options

4.1. Input / Output Configuration

You might have noticed your computer's performance suffers when you are using multi-channel audio interfaces. This is due to the increased bus traffic which is caused by audio data travelling from the processor to the interface. Live 1.5 offers you the ability to deactivate the inputs and output channels that you are not using, and to thereby

reduce the bus traffic.

When an ASIO driver is chosen in the Audio Preferences, you will see two buttons "Input Config." and "Output Config.". Clicking these buttons brings up a dialog which lets you enable / disable the selected interface's input and output channels. Live will change the audio configuration when you leave the dialog by clicking the OK button. You can leave the dialog without making any changes by clicking Cancel.

A change of the audio configuration usually causes an interruption of the incoming and outgoing audio stream. Notice that changing the input and output routing of tracks in Live's mixer does not change the audio configuration.

4.2. Choosing the Audio Clock Source

When an ASIO driver is chosen in the Audio Preferences, you will notice a "Audio Clock Source" pop-up menu. Use this menu to select among the available audio clock sources; the available choices depend on the selected driver.

5. The Reverb Effect

5.1. Input Processing

The input signal passes first through high and low cut filters, whose x-y control allows you to change the center frequency of the passed band (x-axis) and to change the bandwidth (y-axis). Either filter may be switched off when not needed.

Pre-delay controls the delay time, in milliseconds, before the onset of the first early reflection. It is used to delay the reverberation relative to the input signal. Ones impression of the size of a real room is partly dependent on this delay. Very large pre-delay values can be used to add some swing to the reverb relative to the source.

5.2. Early Reflections

These are the earliest echoes which arrive from the walls of the room, before the onset of the diffuse sound. Their amplitude and distribution give an impression of the character of the room.

The shape control allows to sculpt the prominence of the early reflections, as well as their overlap with the diffuse sound. At small values of this control, the reflections decay more gradually and the diffuse sound occurs sooner, leading to a larger overlap between these components; at large values, the reflections decay more rapidly, and the diffuse onset occurs later. Source intelligibility can sometimes be improved by setting a higher value, while the production of a smoother decay may depend on setting a lower one.

Spin is the label we apply to modulation of the early reflections. The 2-D control gives access to the depth and frequency of these modulations. A larger depth will tend to provide a less-colored (more spectrally neutral) late diffusion response. If the modulation frequency is too high, doppler frequency shifting of the source sound will occur, along with strange panning effects! Spin may be turned off, using the associated switch, with modest CPU savings.

5.3. Global Settings

The quality pop-up menu allows to control the tradeoff between reverb quality and performance. Economy mode uses the least CPU resources, while First Class delivers the richest reverberation.

The size parameter controls the apparent volume of the room. An intermediate range of values is available to give the impression of acoustic rooms of varying sizes. At one extreme, a very large size will lend a shifting, diffuse delay effect to the reverb; at the other extreme, a very small value will give it a highly-colored, metallic feel.

The stereo image control determines the width of the stereo image delivered at output. At the highest setting of

120 degrees, each ear receives a reverberant channel which is completely independent of the other, a property also of the diffusion of real rooms; at its lowest setting, the output signal is mixed to mono.

5.4. Diffusion Network

The diffusion network is responsible for the reverberant tail which follows the early reflections. The decay time control allows to adjust the time required for this tail to attenuate to 1/1000th of its earlier amplitude.

High and low shelving filters are responsible for the frequency dependent decay of the reverberation. The high-frequency decay models the absorption of sound energy due to the air and the walls and other materials in the room (people, carpeting, and so forth). With the low shelf, one may achieve a thinner decaying sound. Each filter may be turned off to save CPU consumption.

The freeze control freezes the diffuse response of the input sound. When it is on, the reverberation will sustain almost endlessly. Cut is a modifier to freeze which will prevent the input signal from adding to the frozen reverberation; if it is off, the input signal will steadily contribute to the diffuse amplitude. Flat bypasses the high and low shelf filters

when freeze is on. If flat is instead off, the frozen reverberation will lose energy in the attenuated frequency bands, depending on the state of the high and low shelving filters.

The echo density and scale parameters allow additional control over the density and coarseness of the diffusion, and, when the room size is extremely small, these have a large impact on the coloration contributed by the diffusion.

The chorus section adds a little modulation and motion to the diffusion. Like the spin section, one may control the frequency and amplitude of the modulations, and one may turn them off.

5.5. Output

At the output of the reverb, one may adjust the overall dry/wet mixture of the effect, and adjust the amplitudes of reflections and diffusion using the reflect level and diffuse level controls.

6. Live's CPU Saving Scheme

Previous to version 1.5, all tracks and all effects in a Live Set would permanently contribute to the program's CPU consumption. In Live 1.5, this behaviour has been modified in order to reduce the CPU load. Essentially, the new CPU saving scheme deactivates computation of tracks and effects while they are not heard.

You can easily verify that dragging effects into a Live Set which is not running does not significantly increase the CPU load by watching the CPU load meter in the Control Bar. The CPU load goes up only as you start playing clips or feed live audio into the effects. When no more audio is fed into the effects, the effects keep calculating audio until their output has died off (reverb and delay tails have become inaudible). Then, the effects are deactivated by the power saving scheme.

While this scheme is very effective for reducing the *average* CPU load of a Live Set, it can do nothing to decrease the *peak* load. To make sure your Set performs well even under worst case conditions, please play a clip in every track with all effects enabled.

7. Miscalleneous New Features

7.1. Adjusting Launch Quantization per Clip

In 1.5, every clip can have its own launch quantisation. Double-click a clip to view it in the Clip View. In the "Clip"

section, you will find a new menu for choosing the quantization. When "Global" is chosen, the clip will be launched with the global quantization, which is adjusted in the Control Bar (at the top of the Live screen). Choosing any other value will make this clip quantize in a different way than the other clips in the Set do.

Here's a typical use case for this: obviously, triggering loops or phrases with sixteenth-note quantization, or no quantization at all is fun, but risky: it's easy to loose the downbeat. You and your audience might end up rhythmically deranged. Here's the remedy: for each scene, select one looping clip with a pronounced beat and set it to one-bar quantization; all other clips remain subject to global quantization.

7.2. The Select on Launch preference

By default, clicking a Session View clip's play button also selects the clip. This is an obvious link as you might want the Clip View to show the clip you have just launched. Live power users have argued that one's current focus, for instance a send track's effects, should not disappear just because a clip has been launched. Obviously, this can be very annoying when the clip has been started for the purpose of trying it with the send effect settings.

Live 1.5 includes the "Select on Launch" Preference (in the Misc tab), which is chosen by default. Please turn off this preference if you prefer the selection not to change when you launch clips or scenes.

7.3. Working with Templates

As a frequent Live user, you might have found yourself making identical settings to every Live Set you work with:

- Routing tracks to the individual ins and outs of your multi-channel audio hardware;
- Placing an EQ4 and / or a Compressor in every track;
- Mapping computer key buttons / MIDI notes to specific Session View slots;
- Mapping MIDI controllers to mixer / effect parameters.

Live 1.5 offers the option to make these settings once and store them as a default Set. Live will use this Set as a template for new Sets which are created by the New command. Any Live Set can be saved as a template. To create a template Set, you can either remove everything but the desired default settings from an exisiting Set, or you start from scratch. To save the template, please Save As "LiveTemplate" (Mac) / "LiveTemplate.als" (Windows) in this folder:

- Mac OS 9: System Folder:Preferences:Ableton;
- Mac OS X: ~/Library/Preferences/Ableton;
- Windows: [Program Install Directory]\Ableton\Preferences).

Should you have trouble finding this folder, you can also search your harddisks for "Live.cfg". Live looks for the template Set in the folder where Live.cfg is found.

To discard your template settings, simply delete LiveTemplate.

8. Table of Live Keyboard Shortcuts

Keyboard shortcuts that were introduced in version 1.5 are printed bold.

Function	Key	Command / Control	Shift	Alt / Option

8.1. Menu Shortcuts

File Menu

Close	W	Command / Control		
New Live Set	N	Command / Control		
Open Live Set...	O	Command / Control		
Save Live Set	S	Command / Control		
Save Live Set As...	S	Command / Control	Shift	
Render to Disk...	**R**	**Command / Control**		
Quit	Q	Command / Control		

Edit Menu

Undo	Z	Command / Control		
Redo	Y	Command / Control		
Cut	X	Command / Control		
Cut Time / Scenes	X	Command / Control	Shift	
Cut Envelope	X	Command / Control		Alt / Option
Copy	C	Command / Control		
Copy Envelope	C	Command / Control		Alt / Option
Paste	V	Command / Control		
Paste Time / Scenes	V	Command / Control	Shift	
Duplicate	D	Command / Control		
Duplicate Time / Scenes	D	Command / Control	Shift	
Duplicate Envelope	D	Command / Control		Alt / Option
Dolete	Del / Backspace			
Delete Time	Del / Backspace	Command / Control	Shift	
Delete Scenes	Del / Backspace	Command / Control	Shift	

Insert Time	I	Command / Control		
Insert Scenes	I	Command / Control		
Insert Track	T	Command / Control		
Insert Send Track	T	Command / Control		Alt / Option
Split	E	Command / Control		
Add / Remove Slot Button	E	Command / Control		
Loop Selection	L	Command / Control		
Select Loop	L	Command / Control	Shift	
Select All	A	Command / Control		

View Menu

Info	?			
Overview	O	Command / Control		Alt / Option
Input / Output	I	Command / Control		Alt / Option
Sends	S	Command / Control		Alt / Option
Mixer	M	Command / Control		Alt / Option

Options Menu

Edit MIDI Map	M	Command / Control		
Edit Key Map	K	Command / Control		
One Bar Quantization	1	Command / Control		
Half Note Quantization	2	Command / Control		
Quarter Note Quantization	3	Command / Control		
Eigth Note Quantization	4	Command / Control		
Sixteenth Quantization	5	Command / Control		
Thirty-Second-Note Quantization	6	Command / Control		
No Quantisation	0	Command / Control		

Snap to Grid	G	Command / Control		
Follow	F	Command / Control		

8.2. Navigation

Jump to neighbouring area	Arrow keys			Alt / Option
Jump to neighbouring control	Arrow keys	Command / Control		
Toggle Session / Arranger	Tab			
Toggle Browsers	F11			
Hide / Show Browser Area	F11		Shift	
Toggle Detail Area	F12			
Hide / Show Detail Area	F12		Shift	

8.3. Controls

Increment / Decrement	Arrow keys			
Increment / Decrement (Large Steps)	Page Up / Dn			
Go Default	Del / Backspace			
Dolete Automation	Del / Backspace	Command / Control		Alt / Option
Type in numerical	0..9			

8.4. Transport

Play / Stop	Space			
Record	F9			
Back to Arrangement	F9		Shift	
Back to Arrangement	F10			

8.5. Clips / Mixer

Launch selected Clip	Return			
Activate / Deactivate Track 1..8	F1..F8			

8.6. Clips View Sample Display

Move selected Warp Marker	**Arrow left / right**			
Select Warp Marker	**Arrow left / right**	**Command / Control**		
Move Loop by Loop Length	**Arrow up / down**			