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Chapter 1

Introduction

Mu was created out of a desire to build the ultimate controller for Ableton Live. Max/MSP, with it's integrated OSC support has long been been a perfect partner to JazzMutant's groundbreaking Lemur controller. The arrival of Max for Live meant that access to the inner workings of Ableton Live was finally available to the Lemur via our old friend.

Mu refers not only to a dynamic control template for the Lemur but also to the Max for Live plugin by the same name which we've programmed so you don't have to. With our entirely plug and play system you can finally touch Ableton Live and simply focus on the music.

Of course, we haven't forgotten about the JazzMutant programming enthusiasts and the open architecture of Mu will provide a wonderful starting point for your own Max for Live experimentations and performance systems.

Chapter 2

Setup

Important! It is essential that you update the Lemur's firmware to the most recent version. You can download this and the appropriate JazzUpgrade tool from the User Area of www.jazzmutant.com

2.1 Updating the firmware

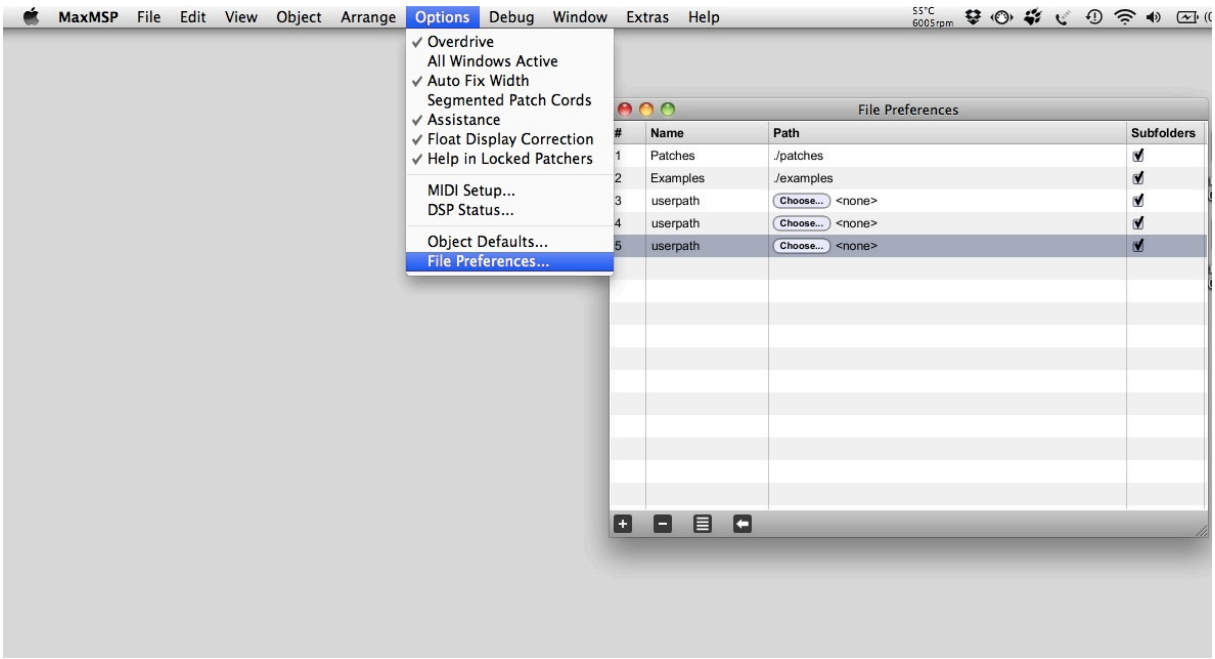
Close JazzEditor and JazzDaemon. Run the JazzUpgrade program included in the package. Select your Lemur and click Upgrade.

2.2 Copy Mu

Copy the Mu folder from the distribution package inside your Max5/cycling '74 folder.

OR

Copy the Mu folder from the distribution package to anywhere you want on your hard drive, and add Mu To Max 5 Path

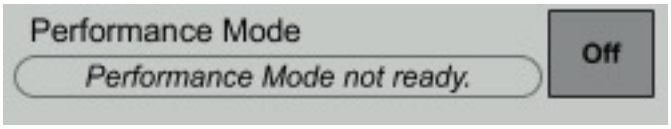


Open Max 5. Click Options in the menu bar, and then File Preferences from the drop down menu (,if you don't have Max 5, you can get to the menu bar by editing any Max For Live device in Live). Click on the + symbol in the lower left corner, and choose your newly copied Mu folder. You should now close Max 5 and Live 8.

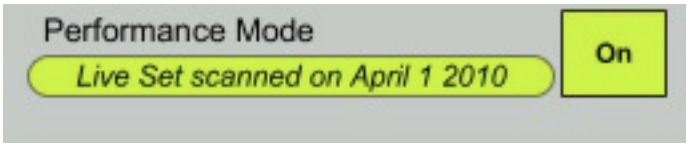
You're now ready to go. Next time you open Live, you can simply drag and drop the Mu.amxd file into any Live Set. Remember, Mu cannot detect your Lemur if JazzEditor is connected. You will not need JazzEditor during normal Mu operation.

Chapter 3

Performance mode



With large sets, the speed at which Ableton Live reports information to the Lemur slows down significantly. This will result in the appearance of your Lemur being slow. For this reason we have implemented a Performance Mode. In this mode, the Lemur no longer reads information online from Live, but from a buffer held in memory.



Performance Mode can be activated from the Max For Live object itself. Find more details in Section 10.2.5.

Chapter 4

Navigation

A few simple concepts will help you understand how to navigate Mu quicky. The Clip Launcher Module is always present in the background. Two extra Module panels are available, one on the top and one on the bottom. Closing either or both of these panels will always revert to the Clip Launcher Module, in half or full screen respectively.

1.1 Show/ Hide Bottom Panel

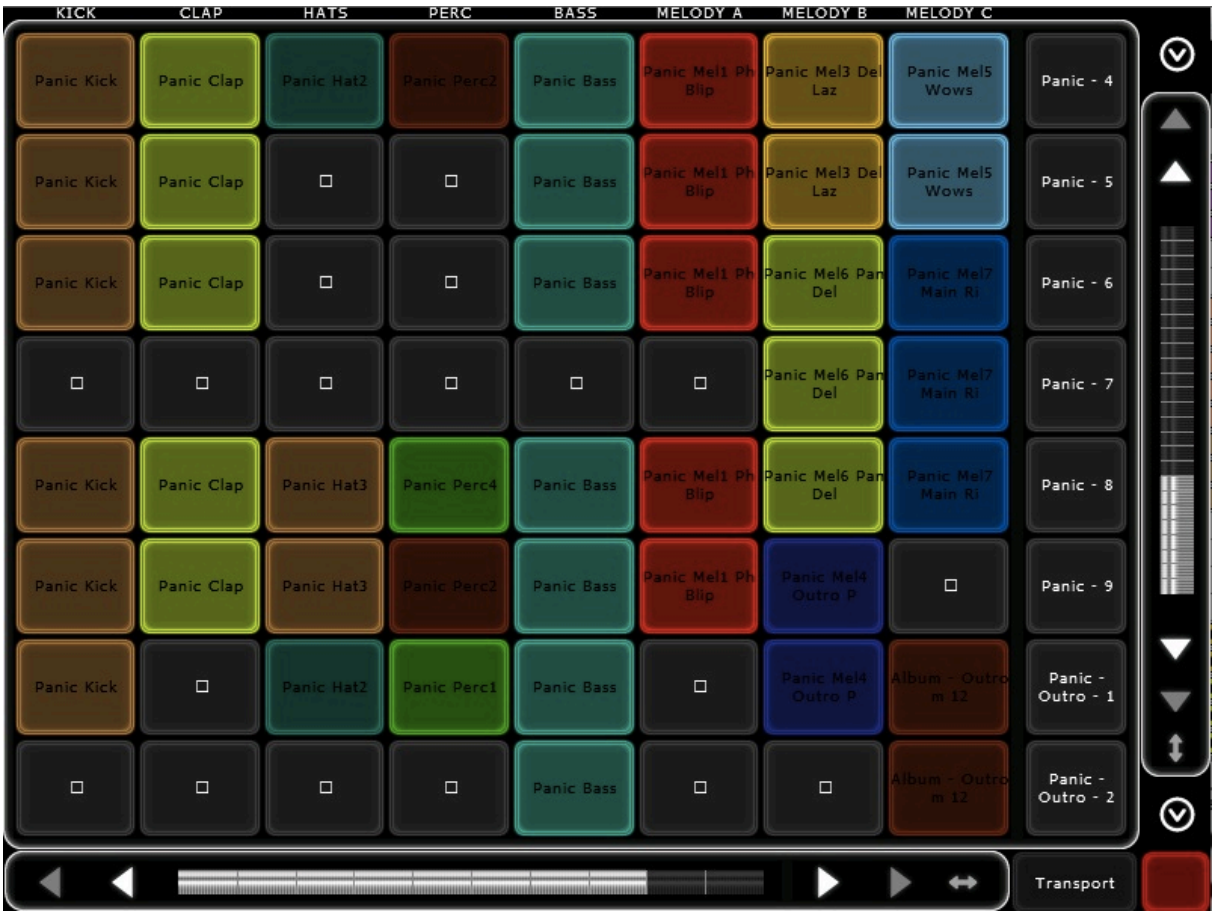
Makes room for the bottom panel Container, which can host one of two different Modules: Volumes and Devices.

1.1 Show/ Hide Top Panel

Makes room for the top panel Container, which can host one of three different Modules: Sends, Pan/Mute/Solo/Arm, or a second Devices Module.

Chapter 5

Clip Launcher



5.1 Clip Matrix

By default the Clip Matrix consists of an 8x8 grid of Pads used to display and launch clips in Ableton Live. When a clip is being played or recorded, the corresponding Pad turns white.

5.2 Scene Launch

This column of Pads can be used to trigger an entire row of clips.

5.3 Scene Navigator

Moving this slider up or down scrolls through your session's scenes. The triangular buttons immediately to the top and bottom of the slider allows for an incremental scroll, while the triangular buttons further away from the slider allow for a quick jump to the next Bank of scenes.

5.4 Vertical Zoom

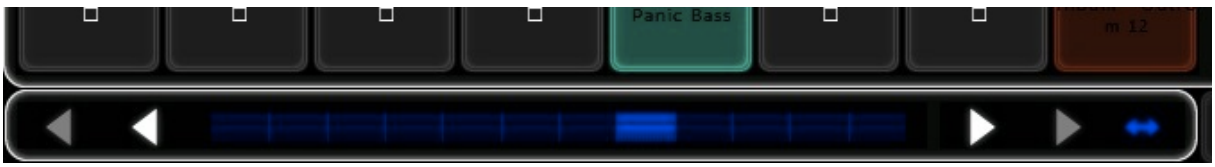
Holding this double-arrow button down turns the Scene Navigator's slider into a magnifying tool for increasing or decreasing your clips' height, and consequently the number of scenes being displayed at once on your Lemur screen (referred to as a Bank).

5.5 Track Navigator

Moving the slider left or right scrolls through your session's tracks. The triangular buttons immediately to the left and to the right of the slider allows for an incremental scroll, while the triangular buttons further away from the slider allows for a quick jump to the next bank of tracks.

5.6 Horizontal Zoom

Holding this double-arrow button down turns the Track Navigator's slider into a magnifying tool for increasing or decreasing your clips' length, and consequently the number of tracks being displayed at once on your Lemur screen (referred to as a Bank).



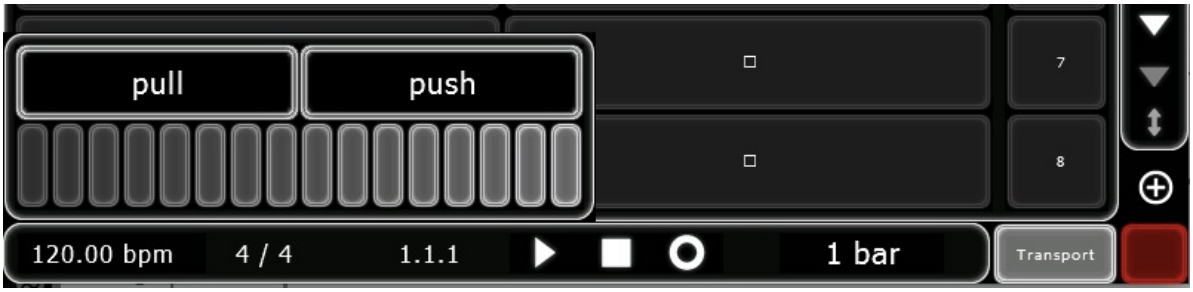
5.7 Stop Button

Holding this button down displays a row of clip Stop Buttons:

5.8 Transport Bar

Pressing the Transport button toggles between Track Navigator and the Transport Bar with tempo and time signature indications, arrangement playback position (in bars-beats-sixteenths) as well as global play, stop and record buttons. The value to the far right indicated the global quantize setting.

Pushing the bpm value itself will open a small popup window. The "pull" and "push" buttons will temporarily slow or speed up the bpm akin to pushing or pulling on a vinyl turntable. The row of pads underneath allow you to increase tempo by swiping your finger across them to the right, and decrease tempo by swiping to the left.



Touching the Global Quantize setting will bring up a small popup menu allowing you to adjust this setting.

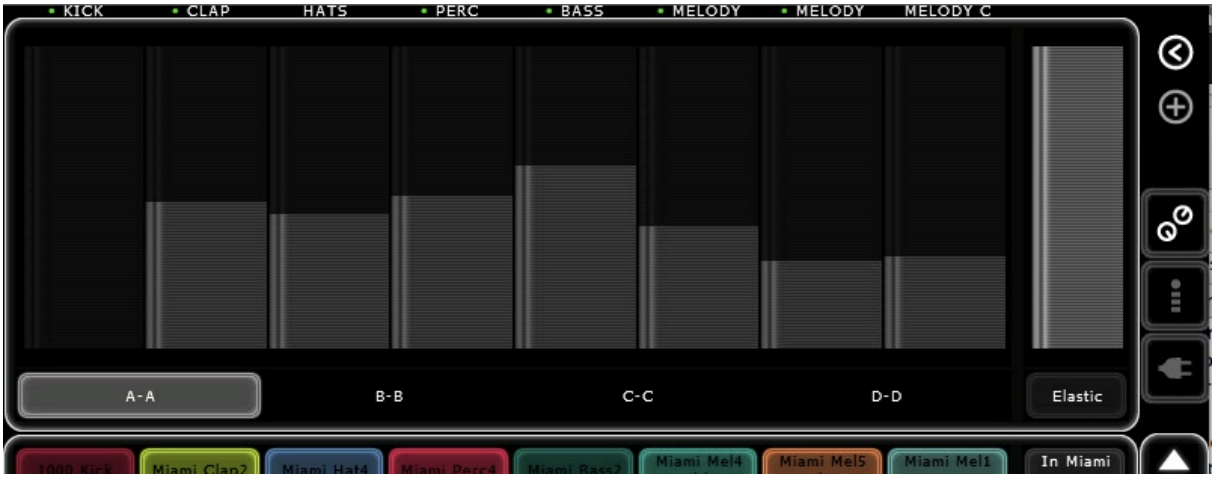
Chapter 6

Faders

The Faders Module features a bank of faders that can be used to control the volumes of the corresponding tracks. The faders feature single LED level meters which indicate the signal level. The "+" button right above the Show/ Hide Bottom Panel button can be used to maximise the bottom panel so that it fills the entire screen.

Chapter 7

Sends



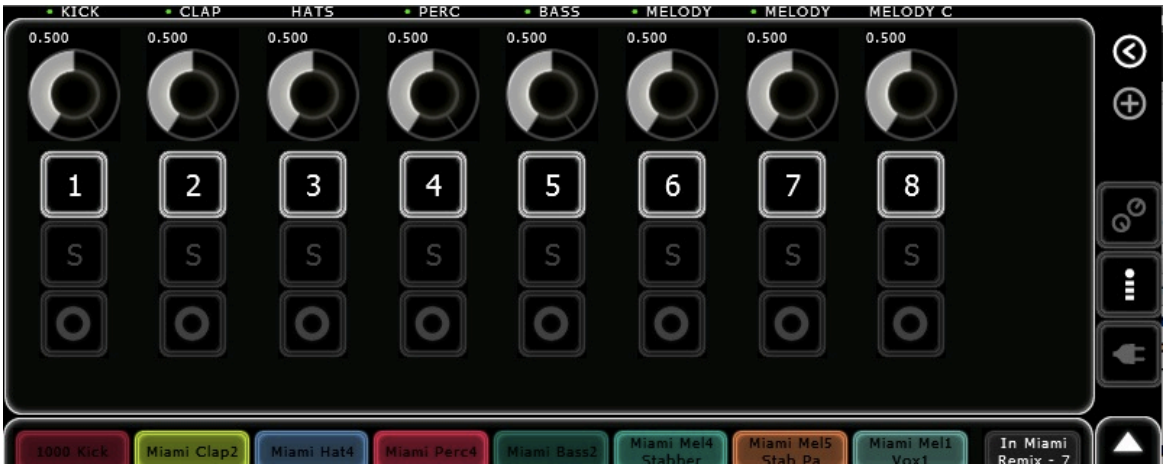
The Sends Module features a MultiSlider object whose individual values control send amount of the corresponding track to any of the return tracks in your Live set. A Pad appears on the bottom of the Module to represent each return track. Select the return you want to send to and the send sliders will update instantly to represent your selection. The slider above the "Elastic" button sets the level of the chosen return track, while the « Elastic » button itself activates the physical string behaviour of the Multislider object - this allows for dramatic multitrack effects.

As with the Faders control set, the Sends panel can be enlarged with the "+" button to occupy the entire screen if needed.

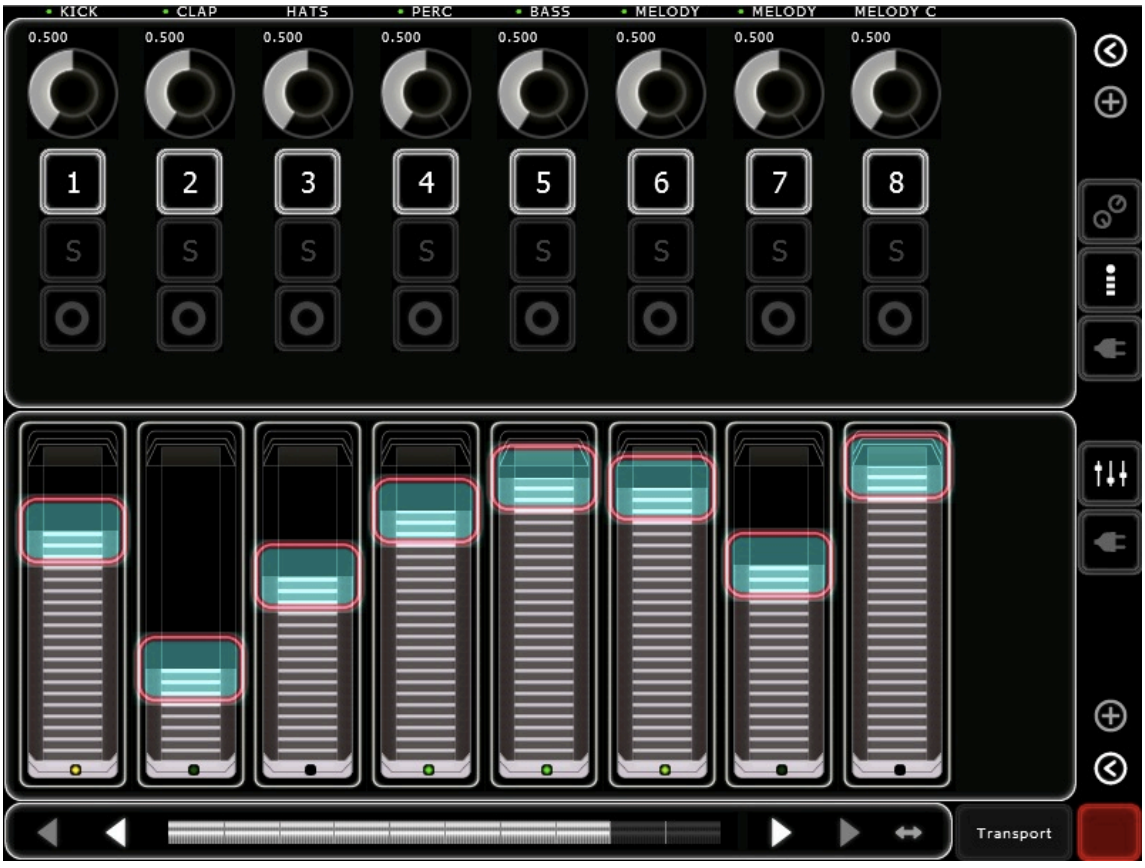
Chapter 8

Pan/Mute/Solo

The Pan/Mute/Solo/Arm Module features controls for panning, activating, soloing or arming a track.



Choosing to display the Faders Module on the bottom panel while having the Pan/Mute/Solo/Arm Module on the top panel results in a something akin to a traditional mixer view.



Chapter 9

Device browser and device modules

The Devices module provides unique controllers for devices in Live. The Mu team have created a controlled for most of Ableton Live's Audio Effects, to see how to create your own controllers for Audio Effects, Instruments, MIDI Effects, Audio Units, VSTs or Max for Live devices please see Section 11.

Pressing the "Refresh" button on the top right of the Module opens the Device Browser, which in turns present an overview of the Devices inserted in each track. To the right of standard audio tracks are the Return tracks (yellow) and the Master (red). Scroll bars on the bottom and right of the screen will allow you to navigate to any Device on any track.

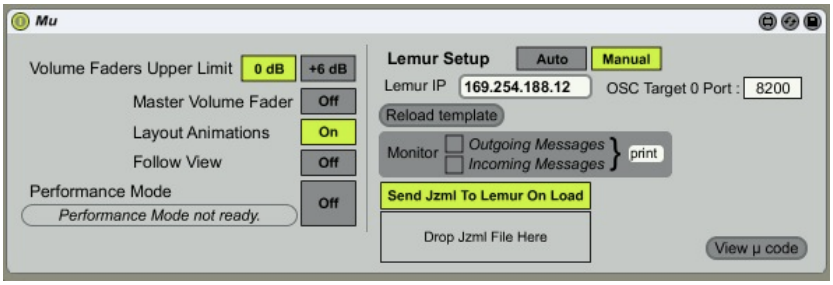
Push a Device's name to load that Device Controller. Some Devices can have several Device Controllers to choose from, in that case you can select your choice from the drop down menu below the "Refresh" button". Push the "Refresh" button again to close the Device Browser see your selected controller.

There are many Device Controllers included with Mu. Many of them have a fullscreen mode which can be activated by pushing the "+" buttons.

Chapter 10

Overview of the Mu Max for Live device

Once you drop Mu into your Live Set, you will see the Max for Live object itself has a number of options. On the right hand side, there is the Lemur configuration, as well as some troubleshooting options and access to the Mu source code. On the left hand side you will find options relating to the look and feel of Mu.



10.1 Lemur Options

10.1.1 Lemur Setup

At the top, you can choose if the Lemur's IP address is AUTO or MANUAL.

The default is AUTO, and in this case there is a RESCAN button underneath. On startup, the network is automatically scanned and the IP address of any detected Lemur will appear in the menu to the right of RESCAN. If there is only one Lemur, it will be automatically selected.

The other option, MANUAL, should only be selected in case of problems with autoconfiguration. Mu should be able to detect the Lemur on most networks. However, in some rare cases, Lemurs can't be automatically detected. Now you will see a field called LEMUR IP. You can find the IP of your Lemur by pressing the Settings button (the leftmost physical button on the top right of the unit). The IP of your Lemur is listed on the first page in Settings, in the TCP/IP box.

10.1.2 OSC Target 0 Port

In both AUTO or MANUAL configuration modes you can choose to set the OSC Target 0 port. By default, it is set to 8000. The only time you would need to change this is if you have another piece of software binded to port 8000 on your network, or if you have more than one Lemur. In that case, choose any number other than 8000.

10.1.3 Reload Template

Click Reload Template to resend the Mu.jzml template to the Lemur. You shouldn't normally need to press this button except in rare cases where the Lemur template fails to load.

10.1.4 Monitor OSC Traffic

You can monitor the OSC traffic going in and out of Mu with the options in the monitor box. By checking either OUTGOING or INCOMING MESSAGES, the appropriate OSC messages will appear in the Max Window. You can view the Max Window by double-clicking on PRINT.

10.1.5 Send jzml To Lemur On Load

This should be de-selected in case you want Mu to NOT send the template when you next reload the Live Set. This can be useful if you are usually working with other templates and you don't want Mu to be automatically loaded onto the Lemur.

10.1.6 Drop jzml here

Any jzml file you drag and drop onto this area will be loaded onto the Lemur and saved as the default jzml for this Live Set.

10.1.7 View µ code

Clicking this button will open the innards of the Mu Max For Live device. This provides easy access to all the Max abstractions, so you can see what's going on without editing the device.

10.2 Look And Feel Options

10.2.1 Volumes Faders Upper Limit

Can be set to 0db or +6dB.

10.2.2 Master Volume Fader

You can toggle the volume fader for the Master Track on or off here. It is visible in the Volumes module when enabled.

10.2.3 Layout Animations

By default, transition animations are activated. You can deactivate them here.

10.2.4 Follow View

Activate this option if you want the layout on the computer screen to follow the track and scene offset selected on the Lemur.

10.2.5 Performance Mode

This is a very important option. The larger your Live Set gets, the slower Live responds to the Lemur for clip name and color requests. To counter this problem, we've created a Performance Mode. When you active this, Mu will scan your entire Live Set and keep the entire grid of clips in memory. Navigation will now be extremely fast and responsive, but the layout will not reflect any changes you make. This is ideal once you've built your Live Set and are ready to perform. If you want to add, move or delete any clips, tracks or scenes, you will need to reactivate Performance Mode. The good news is that Performance Mode data is saved with your Live Set when you Save.The Look And Feel options are also accessible from the Lemur, if you select the Mu device in the Device Browser.

Chapter 11

Creating custom device controllers (Max 5 owners only)

11.1 Overview

The Devices Module is one of Mu's most powerful features. We've built a infrastructure which allows total customization and easy integration. You can create your own Device Controller for any Audio Effect, MIDI Effect, Instrument, or even VST, Audio Unit or Max For Live plugin. After you're done creating your Device Controller, it is instantly available in Mu for you to perform with. A basic knowledge of Max 5 is necessary, but we've built many abstractions to help you along the way.

11.2 File Structure

The first thing you need to know about creating Device Controllers is that everything is organized in a neat folder structure. Go to the the Mu folder and have a look at the Resources/DeviceControllers subfolder. Here you will find each category of Device that can be controlled via Mu: Audio Effects, MIDI Effects, Instruments, AUPluginDevice (Audio Units) and PluginDevice (VST Plugins).

For example, if you have a look in Audio Effects, you will find a subfolder for each Ableton Audio Effect (including Max Audio Effects!), starting with Audio Effect Rack and ending with Vocoder. The same structure is reflected in the MIDI Effects and Instruments, where each Ableton Device has its own folder.

For Audio Units and VST plugins, you can create a folder with the name of the plugin for which you want to create Device Controller, For example, for Future Audio Workshop's Circle synth plugin, you would create a folder called Circle in the AUPluginDevice folder.

Once you know where everything is organized, the next step is creating and editing the actual files used for a particular Device.

11.3 Device Controller files

Any single Device Controller is defined by both a jzlib and maxpat file. The jzlib file is what is loaded into the Container of a Mu Devices Module, and the maxpat is what is loaded in the Max For Live Mu Device. These two files together define the connection between a Lemur object and a Live Device Parameter.

Let's take Utility for example, found in the Audio Effects folder. Open Erosion.jzlib in JazzEditor and Erosion.maxpat in Max 5.

The data from the Lemur object is acquired through the Mu.lemurClient abstraction. Always use the same formatting, for example:

Mu.lemurClient #1/FreqAmt/x #2

FreqAmt is the name of the MultiBall object in the jzlib. The x parameter is being routed to the Frequency parameter of the Erosion Audio Effect. The formatting of the second abstraction should also always be the same:

Mu.deviceParameter #1 Frequency #2

11.4 Device Parameters

You can see the list of available parameters for any device by selecting it in the Device Browser, and then clicking on "View µ code", and then on [p devices]. The two coll objects at the bottom of this new window contain the list of parameters for the loaded Device, on the top or bottom Devices Module.

11.5 Limitations

Max For Live devices will only be recognized if you drop the original device in your Live Set. Saved presets won't be recognized, as a preset has a different device name than the original plugin.

Using Device Controllers is available to all Max For Live users. Editing and creating Device Controllers is only supported for users of the full version of Max 5.

Chapter 12

Mu Custom Interface Pages

You can add as many interfaces to the Mu.jzml as desired. In JazzEditor, open the original Mu.jzml, and click on the button "create interface". In this new interface page, you can build and create whatever you want from scratch. Your new interface can control Live or any other software.

Save this template to a new jzml and then drag & drop this fill to the Mu drop zone. Your template will be automatically be sent to the Lemur, and this setup will be saved with the Live Set.

One thing to remember: do not rename the Mu interface in JazzEditor!

Chapter 13

Troubleshooting

During firmware update: "An error occurred during hardware detection. Please quit both JazzEditor and JazzDaemon applications and try again".

Make sure JazzEditor and JazzDaemon are closed, and that the Lemur is connected. Make sure that there are no routers, and that the Lemur is directly connected to the computer.

"Sending Template Failed. Is JazzEditor running?"

Make sure JazzEditor and JazzDaemon are closed, and that the Lemur is connected. Make sure that there are no routers, and that the Lemur is directly connected to the computer.

"Failed opening file"

Make sure the Mu folder is in the Max 5 path (found in Options / File Preferences)