Lounge Lizard

USER MANUAL

A|A|S

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Contents

1 Introduction

The *Lounge Lizard EP* is a software electric piano based on the classic instruments of the seventies (Rhodes, Wurlitzer). Each component of these instruments has been modeled with A|A|S cutting edge physical modeling technology to provide realistic and lively sounds. Physical modeling uses the laws of physics to reproduce the behavior of an object. In other words, the *Lounge Lizard EP* solves, in real time, mathematical equations describing how its different components function. No sampling or wavetables are used in the *Lounge Lizard EP*, the sound is simply calculated in real time by the CPU according to the values each parameter is receiving. The *Lounge Lizard EP* is more than a simple recreation of vintage instruments, its parameters can be tweaked to values not possible with the real instruments to get some truly amazing new sounds that still retain a warm acoustic quality.

Each component of the *Lounge Lizard EP* can be modified in real time. They are the hammer, the fork, the pick up and a three band equalizer. In addition, we have added some classic effects that have been long associated with the electric piano, these effects are wah, phaser, chorus, vibrato, flanger, notch filter, tremolo, distortion, delay and reverb.

A large number of presets are included with the *Lounge Lizard EP* covering a wide range from bright clean pianos to nastier ones. Also included are some more experimental sounds.

Before discussing the synthesizer in more detail, we would like to take this opportunity to thank you for choosing an A|A|S product. We sincerely hope that this product will bring you inspiration, pleasure and fulfill your creative needs.

1.1 System requirements

The following computer configuration is necessary to run the *Lounge Lizard EP*:

Mac OS :

- Mac OSX 10.2 (Jaguar) or later.
- G4 733 MHz Processor
- 256 MB RAM
- 1024 x 768 or higher screen resolution
- MIDI Keyboard (recommended)
- Ethernet Port

- Quicktime 4.0 or later

Windows :

- Windows 98SE/ME/2000/XP
- PIII 800 MHz
- 128 MB RAM
- 1024 x 768 or higher screen resolution
- DirectX or ASIO supported sound card
- MIDI Keyboard (recommended)

Keep in mind that the computational power required by the *Lounge Lizard EP* depends on the number of voices of polyphony and the sampling rate used. These computer configurations will enable you to play the factory presets with a reasonable number of voices.

1.2   Installation

Mac OS

Insert the *Lounge Lizard EP* program disc into your CD-ROM drive. Open the CD icon once it appears on your desktop. Click on the *Lounge Lizard EP* Install icon and follow the instructions of the installer.

If you purchased this software online, simply double-click on the installer file that you have downloaded and follow the instructions of the installer.

Windows

Insert the *Lounge Lizard EP* program disc into your CD-ROM drive. Launch Explorer to view the content of the CD-ROM and double-click on the installer file to launch the installer.

If you purchased this software online, simply double-click on the installer file that you have downloaded and follow the instructions of the installer.

1.3   Authorization and Registration

The *Lounge Lizard EP* uses a proprietary challenge/response copy protection system which requires authorization of the product. A *challenge key* is a long string of capital letters and numbers that is generated uniquely for each machine during the registration process. In other words, for each machine you install this program

on, a different challenge key will be generated by the program. The *response key* is another unique string of capital letters and numbers generated from the data encrypted in the challenge key. In order to obtain a response key, you will need to connect to the A|A|S website and provide the following information:

- A valid email address
- Your product serial number (on the back of the sleeve of your CD or in your confirmation email for downloads)
- The challenge key generated by the program

Note that it is possible to use the program during 15 days before completing the authorization process. This period can be convenient if you are installing the program on a computer which is not connected to the internet. After that period, the program will not function unless it is supplied with a response key.

In the following sections we review the different steps required to generate the challenge keys and obtain the response key. The procedure is similar on Windows XP and Mac OS systems.

1.3.1 Step 1: Generating the challenge key

After launching the installer for the first time, a pop-up window will appear asking you if you wish to authorize your product now or later. If you are ready to authorize *Lounge Lizard EP* now, click on the **Next** button otherwise click on the **Authorize Later** button. If your computer is connected to the internet, we recommend that you authorize your product now.

When you click on the **Next** button, a second window appears asking you to enter your serial number. Type your serial number as it appears on the back of the sleeve of the *Lounge Lizard EP* CD-ROM. If you purchased *Lounge Lizard EP* online, an email with your serial number will have been sent to you at the address which you provided during the purchase process.

After entering your serial number, click on the *Next* button and your challenge key will appear automatically in the next pop-up window.

1.3.2 Step 2: Generating the Response key and Registering your Product

If your computer is connected to the internet, click on the link to the A|A|S web server appearing in the pop-up window. This will launch your web browser and
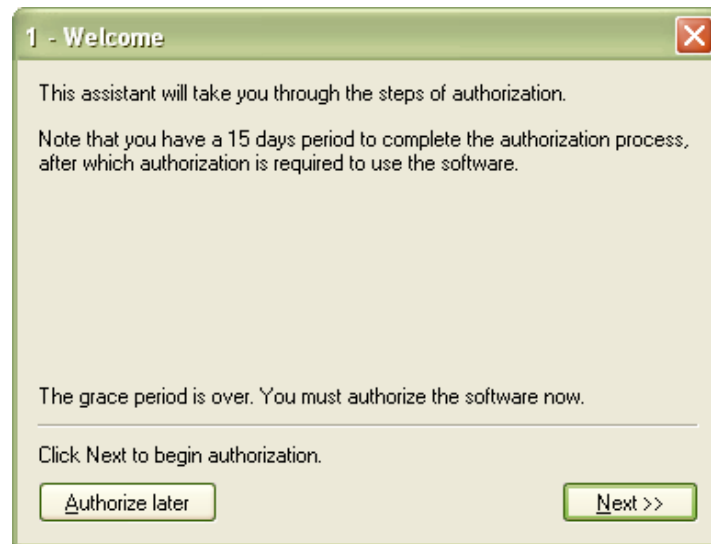
Figure 1: Choosing to authorize *Lounge Lizard EP* now or later.
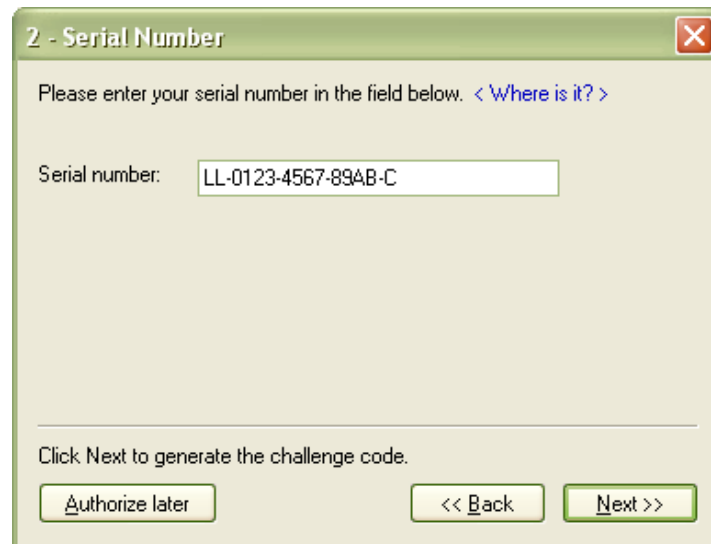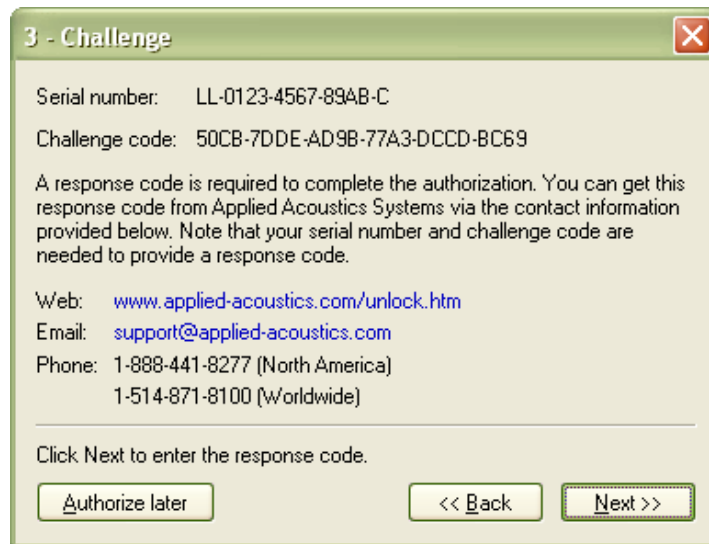
Figure 2: Enter your serial number in the pop-up window.

connect you to the unlock page of the A|A|S web server. Enter your email address, serial number and challenge key in the form as shown below and click on the *Submit* button.

Figure 3: Challenge key appears automatically after entering the serial number.

Figure 4: Enter your registration information on the A|A|S webserver.

The next form asks you to provide additional information about yourself including your mailing address and phone number. This information will be used to register your product. Note that only a valid email address is required to register your product. We nevertheless recommend this information be provided to ensure our support team is able to contact you to resolve any future support issues,

and notify you of product updates promptly. This information is kept completely confidential. Registration of your product will entitle you to receive support and download updates when available, as well as take advantage of special upgrade prices offered from time to time to registered A|A|S users. Note that if you already purchased or registered another A|A|S product, the information that you have already supplied under the same email address will appear in the form. Feel free to update this information if it is outdated. Click on the *Submit* button and your response key will appear on-screen.
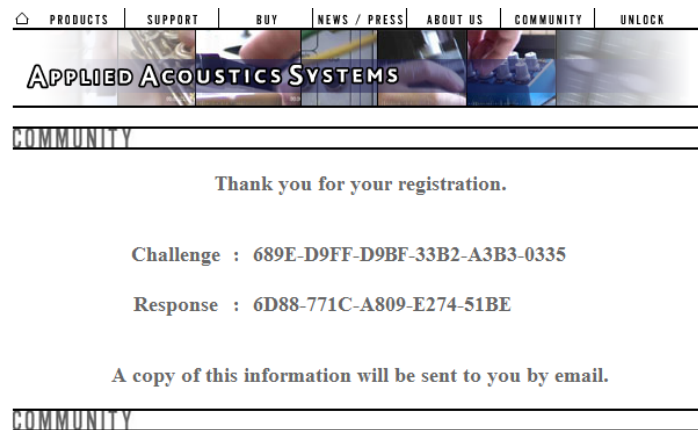
Figure 5: Generation of the response key on the A|A|S server.
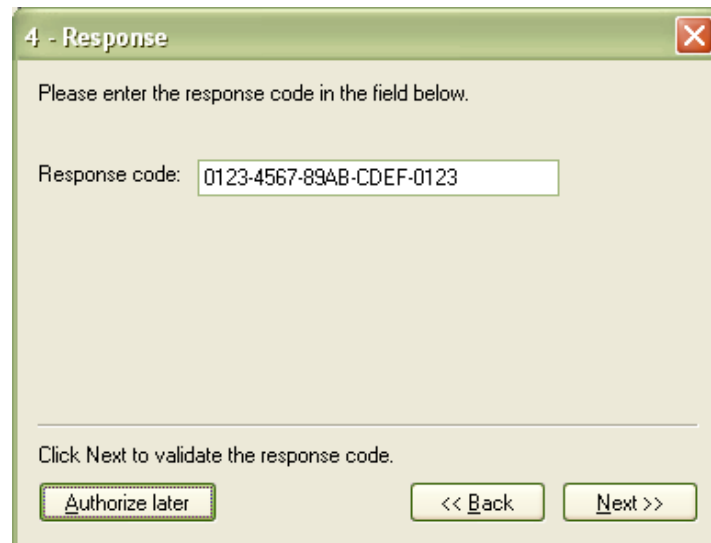
If your computer is not connected to the internet, take note of your serial number and *challenge key* and proceed to an internet connected computer. Launch your browser and go to the unlock page of the A|A|S website at:

http://www.applied-acoustics.com/unlock.htm

Enter your email address, serial number, and challenge key, and click next. You will then receive your response code on-screen as described above.

1.3.3   Step 3: Completing the unlock process

The *response key* corresponding to your serial number and *challenge key* will be printed in your browser window. In order to complete the unlock process, copy the response key and paste it into the corresponding field of the installer window of *Lounge Lizard EP*. If you obtained your response key from another computer, type the response key by hand in the installer window.
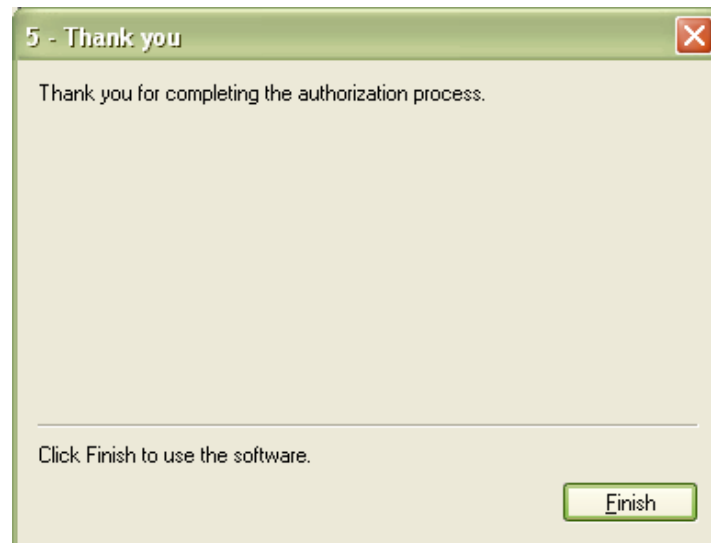
Figure 6: Final step of the unlock process. Enter your response key in the window.

Click on the *Next* button and a pop-up window will appear informing you that the authorization process has been successful. Click on the **Finish** button to complete the process and launch *Lounge Lizard EP*.

Figure 7: Authorization has been successful.

You will normally only need to go this process once for a given computer except for some special cases. On Windows computers your will need to unlock again if:

- You change your computer
- You reformat or upgrade your hard drive
- You change or upgrade your operating system

On Mac OS computers, this will only be necessary if:

- You change your computer
- You change the motherboard of the computer

1.3.4   Obtaining your response key and registering by fax or over the phone:

Should you not have access to the internet, A|A|S support representatives are available to assist you in the unlock and registration process Monday to Friday, 9am to 6pm EST. You may contact us by phone at:

- North America Toll-free number: 1-888-441-8277
- Outside North America: 1-514-871-8100
- Fax Number: 1-514-845-1875
- Email: support@applied-acoustics.com

1.4   Getting started

1.4.1   Using *Lounge Lizard EP* in standalone mode

The *Lounge Lizard EP* comes with a wide range of factory presets right out of the box which amounts to a huge range of sounds before you have even turned a single knob. As you would expect, the best way of coming to grips with the possibilities *Lounge Lizard EP* offers is simply to go through the presets one at a time. We recommend that you first start using the *Lounge Lizard EP* in standalone mode.

- **Windows** - Double-click on the *Lounge Lizard EP* icon located on your desktop or select *Lounge Lizard EP* from the **Start** > **All Programs** > menu.

- **Mac OS** - Double-click on the *Lounge Lizard EP* icon located in the Applications folder.

Before you start exploring the factory presets, take a moment to set up you audio and MIDI configuration as explained below.

Audio Configuration

Audio configuration tools are available from the **Audio** menu. The **Audio Settings** function allows you to select an audio output device from a list, organized by driver type, of those available on your computer. On Windows, if you have ASIO drivers available, these should be selected for optimum performance. Multi-channel interfaces will have their outputs listed as stereo pairs.

- Select your sound card port from the list in the **Audio Configuration** dialog from the **Audio** > **Audio Settings ...** menu.

For more detailed information on audio configuration, sampling rate selection and latency adjustments, please refer to section 6.3.

MIDI Configuration

MIDI configuration tools are available from the **MIDI** menu.

- Select your MIDI input device from the list in the **MIDI Configuration** window available from the **MIDI** > **MIDI Settings** ... menu.

For more detailed information on Audio and MIDI configuration, MIDI links and MIDI maps, please refer to Chapter 6.

1.4.2 Exploring the factory presets

Factory presets can easily be accessed using the '+" and '−" buttons in the lower left corner of the toolbar. These buttons are used to navigate through a list of 128 numbered presets called programs. The content of this program list can be viewed by clicking on the ▼ button of the toolbar. The number of the current program used and the name of the associated preset appear on the right of this button. Programs can also be changed by using the '+" and '−" keys from the computer keyboard

or by selecting programs directly from the list displayed after clicking clicking on the ▼ button.

Presets can also be accessed using the browser appearing on the left of *Lounge Lizard EP*. This browser is similar to the browser your operating system generates to display the contents of your hard disk, or your email program uses to organize your mail and address book. When launching the application for the first time, this "tree view" will include a destination folder for imported presets as well as a **Library** folder. To open a folder, click on the "+" symbol on Windows or ▶ symbol on Mac OS which will reveal the folder content.

The preset library is different from the program list and can be viewed as a repository containing all the presets available to the application. Presets are loaded into the synthesis engine by copying them from the library into the program list. To load a preset, double-click on a preset icon (blue knob) or preset name. This will insert the preset into the program list at the position of the current program. You can also use the arrow keys on the computer keyboard in order to navigate in the preset list and then the Enter key to load a preset. For additional information on presets and programs, please refer to Chapter 2 of this manual.

1.4.3   Using MIDI Links

Every parameter on the *Lounge Lizard EP* interface can be linked to an external MIDI controller. To assign a MIDI Link, right-click (control-click on Mac) on a control (knob, button or slider) and a contextual menu will appear. Select **Learn MIDI Link** and move a knob or slider on your MIDI controller to activate the link. To deactivate the link, right-click (control-click on Mac) on the control and choose the **Forget MIDI Link** command. Refer to section 6.2 for more details on MIDI links.

1.4.4   Using MIDI program changes

The synthesizer responds to MIDI program changes. When a program change is received, the current program is changed to the program having the same number as that of the program change message received by the application.

1.4.5   Using *Lounge Lizard EP* as a Plug-in

The *Lounge Lizard EP* integrates seamlessly into the industry's most popular multi-track recording and sequencing environments as a virtual instrument plug-in. The

Lounge Lizard EP works as any other plug-in in these environments so we recommend that you refer to your sequencer documentation in case you have problems running the *Lounge Lizard EP* as a plug-in.

1.5   Getting help

A|A|S technical support representatives are on hand from Monday to Friday, 9am to 6pm EST. Whether you have a question on *Lounge Lizard EP*, or need a hand getting it up and running as a plug-in in your favorite sequencer, we are here to help. Contact us by phone, fax, or email at:

- North America Toll Free: 1-888-441-8277
- Worldwide: 1-514-871-8100
- Fax: 1-514-845-1875
- Email: support@applied-acoustics.com

Our online support pages contain downloads of the most recent product updates, and answers to frequently asked questions on all A|A|S products. The support pages are located at:

www.applied-acoustics.com/faq.htm

1.6   Forum and User Library

The A|A|S community site contains the *Lounge Lizard EP* user forum, a place to meet other users and get answers to your questions. The community site also contains an exchange area where you will find presets for your A|A|S products created by other users and where you can make your own creations available to other users.

http://community.applied-acoustics.com/php/community/

http://community.applied-acoustics.com/php/forum/

1.7   About this manual

In the next chapter, the use of presets and the browser are described in detail. Chapter 3 describes the general architecture of *Lounge Lizard EP*. In Chapter 4, the different modules and controls are reviewed in detail. Chapter 5 describes the

different functionalities available from the toolbar while Chapter 6 explains the different functionalities related to Audio and MIDI and their settings. General issues involved in the use of *Lounge Lizard EP* as a plug-in in different host sequencers is covered in Chapter 7. Finally a list of available commands and shortcuts is given in Chapter 8.

Throughout this manual, the following conventions are used:

- Bold characters are used to name modules, commands and menu names.
- Italic characters are used to name controls on the interface.
- Windows and Mac OS keyboard shortcuts are written as Windows shortcut/Mac OS shortcut.

2 Presets and MIDI maps

Lounge Lizard EP comes with several factory presets covering a wide range of sounds. This collection of presets lets you play and familiarize yourself with this synthesizer without having to tweak a single knob. Soon, however, you will be experimenting and creating your own sounds and projects that you will need to archive or exchange with other users. You may also want to control the parameters of *Lounge Lizard EP* with a specific MIDI controller. In this chapter, we will review the management of presets and MIDI maps.

2.1 Presets

There are two concepts involved in the management of presets, the preset library and programs.

2.1.1 The Preset Library

The preset library contains the factory presets, modified versions of the factory presets you might have made or any other new presets you might have saved. The library may also contain imported presets as well as MIDI maps as explained in Section 2.6 and 2.7. In other words, the preset library is a repository of all the presets and MIDI maps available to *Lounge Lizard EP*.
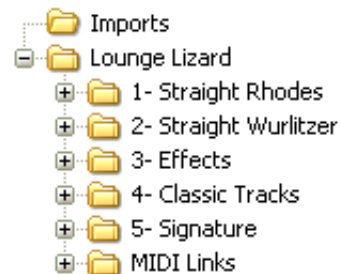
All the operations on the preset library are conveniently managed with the help of the *Lounge Lizard EP* browser, similar to those found in most email programs which use a hierarchical tree structure and a visually intuitive, drag and drop approach. To explore the different presets available in the library, open the different folders by clicking on the "+" icon Windows or ▶ symbol on Mac OS to the left of folders. Each preset is represented by a blue knob icon followed by its name.

2.1.2 The Program list

Presets are loaded into the synthesis engine of *Lounge Lizard EP* from a list of 128 numbered presets called programs. The name
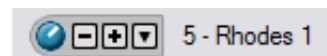
of the current program and its number are displayed in the left of the toolbar at the top of the application window. The entire list of programs can be viewed by clicking on the ▼ button left of the program number.

It is important to note that presets in the program list and in the preset library are stored in different locations. They are in fact different copies of the same presets which may, as explained below, differ even if they share the same name. The version of a preset available in the program list should be viewed as temporary or as a 'working copy" of the preset whereas the version in the library should be viewed as permanent or as the 'reference version".

When you start the application for the first time, the program list contains a selection of presets from the factory preset library. At that point, the presets in the program list are identical to their version in the library.

2.2   Playing and Changing Presets

Presets are always played from the program list. The name of the current program, in other words the one currently loaded in the synthesis engine, as well as its number are displayed in the left part of the toolbar. Its number and name are also preceded by a check mark in the program list. The current program can be changed in different ways:

- scroll up or down in the program list by clicking on the '+" and '−" buttons located on the left of the program name or use the '+" and '−" keys from the computer keyboard,

- Display the content of the program list by clicking on the ▼ button and select a program by clicking on its name.

- Use the **Switch to Program** command from the **Programs** menu and enter a specific program number. This command can also be activated by using the Ctrl-P/Apple-P keyboard shortcut.

- Send MIDI program changes from your MIDI controller. *Lounge Lizard EP* will load the program having the same number as the program change number received by the application.

A Preset can also be loaded from the preset library. It is then stored in the current program replacing the preset that was already stored in this location. It then becomes immediately available to the synthesis engine. Different options are available to load a preset from the preset library into the current program:

- In the browser, double-click on a preset icon.

- Drag and drop presets from the browser onto the *Lounge Lizard EP* interface.

- Select a preset by clicking on its icon and use the Enter key from the computer keyboard. Once a preset has been selected in the library, it is possible to navigate in the library using the Arrow keys from the computer keyboard. A preset is selected when its name is highlighted.

- Select a preset and use the **Open Preset** command from the **File** menu or the Ctrl-O/Apple-O keyboard shortcut.

Note that when a preset is loaded from the preset library to the list of programs, the program name displayed in the toolbar changes but not its number. This indicates that the current program number used by the synthesis engine is still the same but that the preset corresponding to that program has changed. The 128 programs can therefore be customized by selecting different program numbers (by using the '+' and '−' buttons from the toolbar or selecting programs from the program list) and loading presets from the library.

2.3   Editing and Saving Presets

Moving the different controls on the *Lounge Lizard EP* interface modifies the preset loaded in the current program. As soon as the current program is modified, the preset icon located on the left of the program name in the toolbar changes color and a '*' sign is appended to its name in the program list. In this state, the preset loaded in the current program is different from its original version stored in the preset library even if they share the same name. If you wish to keep a permanent copy of the modifications, you must save this new version in the preset library.

- To save the new version in the preset library, use the **Save Preset** command from the **File** menu or the Ctrl-S/Apple-S shortcut. Be careful, however, as using this command will overwrite the original preset. If you are not certain of which preset will be overwritten in the library, first use the **Locate Program in Browser** command from the **Programs** menu or the Ctrl-L/Apple-L shortcut in order to locate it in the browser.

- To create a new preset, use the **Save Preset As** command from the **File** menu. A window will appear asking for a name for the new preset. Once the preset is saved using this command, a new preset icon will appear in the browser directly under the **Library** folder.

- To create a new preset, it is also possible to rename the program using the **Rename Current Program** from the **MIDI** menu (or the Ctrl-R/Apple-R keyboard shortcut) and use the **Save Preset** or **Save Preset As** commands.

When editing presets, it is very helpful to go back and forth between the different stages of your modifications and adjustments. To move back step by step through every modification that was applied to a preset, use the **Undo** command from the **Edit** menu or the Ctrl-Z/Apple-Z shortcut. Once the **Undo** command has been used, it is also possible to move up again through the modifications by using the **Redo** command from the **Edit** menu or the Ctrl-Y/Apple-Y command. The number of **Undo** levels is unlimited and that this command is effective on any control of the interface but not on the different **Save** commands.

Once a preset has been modified, it is also possible to move back and forth between the current state of the preset in the program list and its original version archived in the preset library. To hear the original preset, simply click on the *Compare* button at the top of the interface or use the **Compare** command from the **Edit** menu. Once this button has been pressed, the original settings of the preset are loaded. In this mode, the graphical interface is frozen and it is therefore not possible to modify the preset. To further modify the preset, click on the *Compare* button again or uncheck the **Compare** command in the **Edit** menu to revert to the modified version of the preset and unfreeze the interface. To reload the original version, use the **Locate Preset in Browser** command from the **View** menu, or the Ctrl-L/Apple-L shortcut and double click on its icon in order to reload this version into the current program.

Lounge Lizard EP will make sure that you do not loose modifications to a preset. In the case where a program holds a modified version of a preset and when trying to load a new preset from the library into this program, the application will ask you if you want to save the modified preset in the library. This behavior might not always be convenient and it is possible to deactivate it by deselecting the **Ask to save preset before opening another** option in the **Preferences** command from the **Edit** menu.

2.4   Saving the Program List

When you open *Lounge Lizard EP*, the applications always loads the same program list. This implies that, by default, the program list will always contain the same presets when you open the application and that your modifications to presets will be lost unless they have been saved in the preset library.

- To save the current list of programs and replace the default program list, use the **Save All Programs** command from the **Programs** menu.

This command is helpful if you wish to modify the program list or if you wish to restart the application in exactly the same state as when you left it.

Note that this operation is not necessary when using *Lounge Lizard EP* as a plug-in in a host sequencer as the program list is always saved with a project. The default program list will be loaded only if a new project is started or if a new instance of *Lounge Lizard EP* is opened within a project.

2.5 Organizing the Preset Library

2.5.1 Creating Folders

Sub-folders can be created by first selecting a folder by clicking on it and using the **New Folder** command from **File** menu.

2.5.2 Copying and Moving Presets and folders

Presets and folders can be copied and moved from one location to another. First select an item by clicking on its icon and use the **Copy** command from the **Edit** menu (Ctrl-C/Apple-C shortcut) in order to copy it. Then click on the destination folder and use the **Paste** command from the **Edit** menu (Ctrl-V/Apple-V shortcut) in order to paste it. Groups of items can be copied and pasted at the same time. In order to select many items at once, click on different icons while keeping the Control/Apple key depressed. Alternatively to select, within a folder, all the presets located between two presets, click on the first one and then on the second one while keeping the Shift key depressed. Once a group of items has been selected, use the **Copy** and **Paste** functions as explained above.

2.5.3 Renaming Presets and folders

On Windows systems, to rename a preset or folder, click a first time on the corresponding icon in the browser in order to select it. Then click a second time to enter in name edition mode. Note that this sequence of operation is different from double-clicking on the icon which loads the preset in the case of a preset icon or opens a folder in the case of a folder icon. In other words, there must be a pause between the two clicks.

On Mac systems, first select the item to be renamed and the use the **Rename** command from the **Edit** menu. It is also possible to ctrl-click on the selected item and then choose the **Rename** command.

2.5.4   Deleting Presets and Folders

To delete a preset or folder, first select it by clicking on its icon in the browser, then use the **Delete** command from the **Edit** menu or use the Del key from the computer keyboard. In order to select and then delete many items at once, click on different icons while keeping the Control/Apple key depressed. Alternatively to select, within a folder, all the presets located between two presets, click on the first one and then on the second one while keeping the Shift key depressed. Once the group of items has been selected, use the **Delete** function as explained above.

2.5.5   Documenting Presets

It is possible to document a preset and view related information. To view or edit information on a preset, first select it in the browser and choose the. **Preset Info** command from the **Edit** menu or use the Ctrl-I/Apple-I shortcut. It is also possible to right-click/control-click on the preset icon and choose the **Preset Info** command. Information on a preset includes the author's name, copyright notice, date of creation, last modification date and a text description.

2.5.6   Locating a Preset in the Browser

It might sometimes be helpful to locate in the preset library the preset currently being played or in other words, that corresponding to the current program. To rapidly locate the current preset in the browser, use the **Locate Program in Browser** command from the **Programs** menu or the Ctrl-L/Apple-L shortcut. The **Locate** command will automatically expand the folder containing the currently used preset and select the preset.

2.5.7   Resizing the Browser

In standalone mode, the browser can be resized. In order to change the size of the browser, position the mouse cursor on the line separating the browser from the *Lounge Lizard EP* control panel. When the cursor changes to a double-headed arrow, click-hold and move the mouse to the left or right as desired. In order to

hide the browser completely, move the double-headed arrow cursor fully to the left. Note that when *Lounge Lizard EP* is used as a plug-in, the browser size is fixed and can not be modified.

2.6   MIDI maps

MIDI maps containing information about MIDI links between the MIDI controllers and the *Lounge Lizard EP* interface can easily be created as will be explained in Section 6.2. MIDI maps are represented in the browser with a MIDI connector icon. MIDI maps are treated exactly the same way as presets in the browser and are saved using the **Save MIDI Links** or **Save MIDI Links As** commands from the **File** menu.

2.7   Exporting and Importing Presets and MIDI maps

The **Import** and **Export** commands, found in the **File** drop down menu, allow one to easily exchange presets and MIDI maps with other *Lounge Lizard EP* users. This feature can also be used to decrease the number of elements in the browser by archiving older or rarely used ones elsewhere, on CD-R, or a second hard disk for example. Files containing *Lounge Lizard EP* presets and MIDI maps are equivalent in size to short text file, making it easy to send presets to other users via email.

To export a folder, a group of folders, presets or MIDI maps within a folder, select the elements to export in the browser and use the **Export** command from the **File** menu. When the **Export** window appears, choose a file name and a destination location on your hard disk. *Lounge Lizard EP* export files will be saved with an "lls" extension.

Importing presets and MIDI maps is just as easy. Simply click on the **Import** command from the **File** drop down menu, and select the file to import. A new folder will then appear under the **Imports** directory in the browser, containing all of the files contained within the imported package. These can then be dragged and dropped to a new folder, or remain in the Imports directory.

2.8   Backuping Presets and MIDI maps

There are basically two ways to backup your presets and MIDI maps: exportation and database backup. The database backup is more efficient when there is a large number of elements to backup.

The exportation methods consists in using the **Export** command from the **File** menu as explained in section 2.7. Once you have exported the elements you wish to archive, just save the export file(s) to your usual backup location or medium.

The second backup method will enable you to archive the entire material present in the browser. The content of the browser, including presets, MIDI maps and folders is saved into a database file. This second backup method simply consists in archiving this file. The database file location is different whether you are working on a Mac OS or Windows system.

- On **Windows** systems: C:\Documents and Settings\[User]\Application Data\Applied Acoustics Systems\Lounge Lizard EP.
- On **Mac OS** systems: [System Drive]:Users:[User]:Library:Application Support:Applied Acoustics Systems:Lounge Lizard EP.

The name of the database file is LoungeLizard.tdb. In order to archive your database, just copy this file to your usual backup location or medium. In order to restore a database, replace the version of the LoungeLizard.tdb file with a previously archived one. It is also possible to synchronize different systems by copying this file on different computers where *Lounge Lizard EP* is installed.

2.9 Restoring the Factory Presets and MIDI Links

If necessary, it is possible to restore the original factory library and program list by using the **Restore Factory Library** from the **File** menu. This operation makes a backup of your current database file in the preset database folder as explained in Section 2.8 and creates a new preset database containing only the factory presets and MIDI maps. The next time you open *Lounge Lizard EP*, both the browser and the program list will be in exactly the same state as when you first installed the application.

Note that restoring the factory library should be done with caution as you will loose all the work you might have saved into the library and that this operation can not be undone easily. If you wish to recuperate a certain number of presets and MIDI maps after restoring the factory library, we recommend that you first export all the material you wish to keep using the **Export** command as explained in Section 2.7. After re-installation of the factory library, you will easily be able to re-import this material using the **Import** command.

If you forgot to export material before restoring the factory library or if you wish to bring back the preset library to its state before restoring the factory library,

it is still possible to recover material from the backup file of the preset database which was created automatically when restoring the factory library as explained in Section 2.8. This method should be considered as a last resort, however, as recovering material from this backup file will remove the factory library which you have just installed and force you to redo the operation. Using the Export command before restoring the factory library is much simpler.

Note that the restore of the factory library is actually performed the next time you re-open the application. It is still possible to cancel this operation before exiting the application by using the **Cancel Library Restore** command from the **File** menu.

3   General organization of *Lounge Lizard EP*

The graphical interface of the different modules of the synthesizer have been grouped into two panels as shown in Figures 8 and 9. In the first page (Panel A), one can find the modules related to the control of the synthesizer and an output effect stage. The actual synthesis modules appear on the second page (Panel B). One can switch from one view to the other by using the *Panel A* and *Panel B* buttons appearing at the top of the interface. A master level control and level meters appear on the lower right corner of both panels.

3.1   Panel A

The first row of modules of *Panel A* is an output effect stage which includes two multi-effect modules and a reverb which can be used in different configurations. The second row of this same panel includes the **Keyboard** module, the master **Clock** module, and a **Recorder** module.

Figure 8: Control modules and output stage of *Lounge Lizard EP* (Panel A).

3.2   Panel B

The modules of *Panel B* correspond to the actual sound generating components of
an electric piano. The main elements of the panel are the **Mallet**, the **Fork**, the
Pick Up, the **Damper** and **Tremolo** modules. In addition, an **EQ** module has been
added to further shape the sound.

Figure 9: Synthesis modules of *Lounge Lizard EP* (Panel B).

3.3   Top part of the interface

The top part of both panels is identical and enables one to control general features
of the instrument.

MIDI LED

The red MIDI LED toggles when a MIDI signal is received by the *Lounge Lizard
EP*. This is very useful to see if *Lounge Lizard EP* is receiving MIDI signal from
your keyboard or other controllers. If the LED does not blink when you play your
keyboard, check your connections and the transmit/receive channels you are using
or the MIDI settings of *Lounge Lizard EP* as explained in Section 6.2.

Polyphony Combo Box

Displays the number of voices of polyphony (2 to 32). The number of voices can be adjusted with the drop down menu from the combo box.

MIDI Channel Combo Box

Displays the current MIDI channel on which *Lounge Lizard EP* is receiving MIDI information. The channel can be adjusted with the drop down menu from the combo box. In *omni* mode, *Lounge Lizard EP* responds to all MIDI events from all channels. Note that in this configuration, MIDI links from different controllers having the same controller number but different channel numbers become equivalent.

3.4   General Functioning of an Electric Piano

The individual modules and controls of the user interface will be described in detail in Chapter 4. We will now take a closer look "under the hood" at how an electric piano functions which will help to understand how the different modules of the *Lounge Lizard EP* interact.

The electric piano was invented by Harold Rhodes (1910-2000) during the forties when he was in the army. The first instruments he built were made of aircraft pieces and were intended to entertain army servicemen. It became a very popular instrument in jazz and rock and its warm tone still appears in about all new musical styles these days.

The mechanism of the electric piano is, in fact, quite simple. A note played on the keyboard activates a hammer that hits a fork. The sound of that fork is then amplified by a magnetic coil pick up and sent to the output, very much like an electric guitar. The fork is made of two parts : the tine and the tone bar. The tine bar is where the mallet hits the fork. One can get great varieties of sounds with just these basic components. It is possible to adjust how the mallet will hit the tine and the position of the pick up. On a real electric piano, these settings take a long time to adjust. On the *Lounge Lizard EP*, they can all be obtained with the twist of a knob.

The following diagram shows the mechanism of an electric piano and its corresponding parts on the *Lounge Lizard EP* interface.
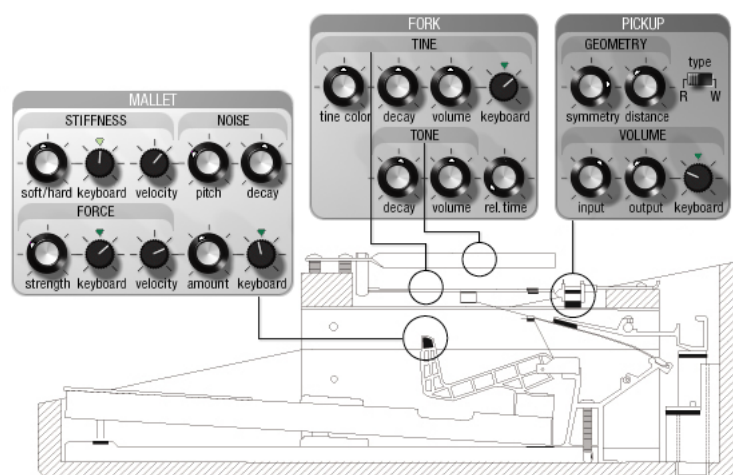
Figure 10: Geometry of an electric piano and corresponding elements on the *Lounge Lizard EP* interface.

4 Parameters

4.1 General Functioning of the Interface

4.1.1 Tweaking Knobs

All the knobs on the interface are selected by clicking on them. Once selected, they can be controlled in different ways depending on the effect you want to achieve.

- For coarse adjustment click-hold on a knob and drag the mouse upwards or downwards to move it clockwise or counter-clockwise.

- For fine adjustment, use the left or down arrow of the computer keyboard to move the knob counterclockwise and the right or up arrow to move it clockwise. The **Page Up** and **Page Down** keys give the same result with slightly faster action. Note that this may not work in certain plug-in formats.

- To move a control to a given position, place the mouse at this position and Shift-click/Option-click. To reach this position slowly, do the same, but use the middle button of the mouse (Windows only).

- Knobs with a green LED above can be moved directly to their center position by clicking on the LED.

Remember that the keyboard shortcuts affect only the most recently selected control. The value of the control currently selected is displayed on the toolbar at the top of the *Lounge Lizard EP* window. The number displayed on the counter is a value corresponding to the setting of the control currently selected.

4.1.2 Buttons

Buttons are switched *on* or *off* by clicking on them. The value appearing in the toolbar when a button is selected represents the state associated with the position of the button.

4.1.3 Drop-down menus and Displays

Clicking on a display with a small down-pointing triangle on its right, such as the *Type* control of the **Reverb** module in the multi-effect section, reveals a drop-down menu with a set of possible settings for the control. Adjustment of the control is

obtained by clicking on a selection or using the up and down arrows and the **Enter** key of the computer keyboard.

The other controls represented by a display without a down-pointing arrow, such as the *Tempo* control of the **Clock** module, are adjusted by click-holding on them and dragging the mouse upward or downward. Selection of these controls is possible when the mouse is positioned on the display and a double pointing arrow appears.

4.1.4   Modulation Signals

Different parameters can be modulated with the note and velocity signals from the **Keyboard**. Modulation signals are controlled with the small black knobs located on the right of the corresponding control knobs in the different modules of the instrument.

The *keyboard* modulation knobs are used to modulate a parameter depending on the note played on the keyboard. When in its center position, the value of the corresponding parameter is equal across the whole range of the keyboard. Turning the knob to the left increases the value of the parameter for low notes while decreasing its value for high notes. The variations are applied relative to the middle C (C3) whose value is always that corresponding to the settings of the actual parameter knob. Turning the modulation knob to the right has the opposite effect and increases the value of the parameter for high notes while decreasing it for low notes.

The *Velocity* modulation knobs are used to modulate the value of a parameter depending on the velocity signal received from the keyboard so that the value of a parameter will increase as notes are played harder on the keyboard. The position of the knob is used to adjust the amount of modulation applied to the parameter. In its leftmost position, the modulation source is turned off and the value of the parameter will not vary with the velocity signal from the keyboard. Turning the knob clockwise will increase the effect of the modulation signal on the value of the parameter.

4.2   The Mallet Module

The **Mallet** module is used to control the parameters related to the mallet found in an electric piano. It is divided in 3 sections, **Stiffness**, **Noise** and **Force**.

4.2.1   Stiffness

The *Soft/Hard* knob determines if the mallet is soft or hard. As this knob is turned clockwise, the mallet gets harder. A softer mallet (knob turned to the left) produces a more mellow tone while a harder one produces a brighter sound.

The *Keyboard* modulation knob adjusts how the stiffness of the mallet is related to the pitch of the notes played on the keyboard. When this knob is turned to the right, the higher the note on the keyboard, the harder the mallet will be. This is a behavior found on acoustic instruments like pianos and mallet driven instruments.
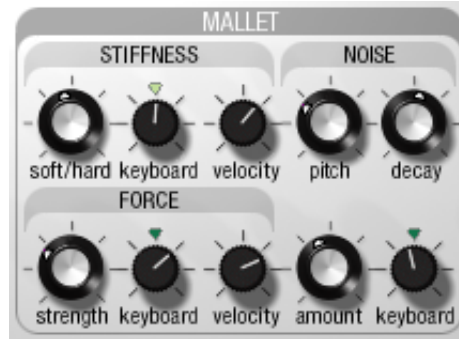
Likewise, the *Velocity* knob controls how the stiffness of the mallet varies with the velocity signal from the keyboard. Turning this knob clockwise causes the mallet to become softer as one plays harder on the keyboard and stiffer as one plays more softly. Again, this is a behavior found on acoustic instruments.

4.2.2   Noise

The **Noise** module is used to control the noise produced by the impact of the mallet on the fork.

The *Pitch* knob is used to determine the center frequency of the noise. Turning this knob clockwise increases the center frequency of the spectrum of the noise signal.

The *Decay* knob is used to adjust the time taken by the noise signal to fade out. As the knob is turned clockwise, the decay time increases. For a more natural sound, a shorter decay is preferable.

The *Amount* knob sets the amplitude (volume) of the noise in the final sound. Turning the knob clockwise increases the amount of noise.

The *Keyboard* is used to control the amount of noise depending on the pitch of the notes played on the keyboard. When turned to the left, there is more noise for low notes than high notes. Turning the knob to the right has the opposite effect and the noise component is higher for high notes than low notes.

4.2.3 Force

The *Strength* knob is used to adjust the force of the impact of the mallet on the fork. When in its leftmost position, the impact is very soft and as the knob is turned clockwise, the impact gets stronger. The strength of the impact can be modulated both with the pitch of the note played and the velocity signal from the keyboard using the *Keyboard* and *Velocity* modulation knob respectively. For example, the strength of the impact of the mallet could be made higher for high notes than low notes by turning the *Keyboard* modulation knob to the right. It could also be adjusted to follow the velocity signal from the keyboard by turning the *Velocity* knob clockwise.

4.3 The Fork Module

The **Fork** module is at the heart of the sound generation mechanisms of the *Lounge Lizard EP*. The fork is the object that produces sound after being excited by the mallet. It has roughly the shape of a tuning fork with a small branch called the **Tine** and a larger one the **Tone** bar.

4.3.1 The Tine Bar

The tine is where the mallet hits the fork. It produces a high metallic sound very important for clear electric piano sounds.

The timbre of the tine bar can be adjusted with the *Tine Color* knob which controls the relative amplitude of low and high partials in the spectrum of the sound produced by the tine bar. Turning this knob to the left will favor lower harmonics while turning it to the right will increase the relative amplitude of the high harmonics present in the spectrum.

The *Decay* knob is used to adjust the time taken by the tine to fade out when a key is depressed on the keyboard and a note is held. Turning this knob clockwise increases the natural decay time of the oscillations.

Finally, the amplitude of the tine signal present in the final sound from the fork is controlled with the help of the *Volume* knob. Turning the knob clockwise increases the presence of the tine in the final sound. The amplitude of the tine

signal can be modulated with the pitch of the note played using the *Keyboard* knob. Turning this knob to the left will increase the presence of the tine in low notes while decreasing it for high notes. Turning this knob to the right has the opposite effect and increases the presence of the tine in high notes while decreasing it in low notes. In its center position the volume of the tine is uniform across the whole range of the keyboard.

4.3.2   The Tone Bar

The tone bar is the biggest part of the fork, it is connected to the tine and starts to oscillate when the mallet hits the tine.

The *Decay* knob controls the time necessary for the oscillations of the tone bar to fade out when a key is depressed and a note is held. Turning this knob clockwise increases the decay time.

The *Volume* knob sets the amplitude of the signal from the tone bar present in the final sound. Turning this knob clockwise results in a louder sound from the tone bar.

4.3.3   The Release Time

The *Rel. Time* knob applies to both the tone and tine bars and is used to control the decay time of the fork oscillations when a key is released and dampers are applied on the fork. Turning this knob clockwise increases this release time. Note that this parameter is different from the *Decay* parameter on the tone and tine bar settings which determine the decay time of the tone and tine oscillations when there is no damper applied to the fork. The characteristics of the noise produced by the dampers when they are applied on the fork are adjusted in the **Damper** module as will be described in section 4.5.

4.4   The Pickup Module

The **Pickup** module simulates the way a magnetic coil captures the sound of the fork in an electric piano.

The position of the pick up relative to the tine bar is a very important parameter in determining the tone of the instrument. Indeed, the shape of the signal measured by the pick up strongly depends on how it is positioned with respect to the tine bar. This geometric parameter is fully adjustable on the **Lounge Lizard EP** for a wide range of tonal colors.

The *Symmetry* knob is used to adjust the vertical position of the pickup relative to the tine bar. In its leftmost position, the pick up is right in front of the tine producing more harmonics in the sound. Turning the knob to the left, moves the pick above the the tine resulting in a more mellow tone. Note that moving the pickup below the tine has the same effect on the spectrum of the sound as moving it above by the same amount.

The *Distance* knob sets the horizontal distance between the pick up and the tine bar. Turning this knob clockwise, increases this distance and moves the pickup away from the tine. Note that the sound becomes more distorted (overdriven) as the pickup is moved closer to the tine.

The *Lounge Lizard EP* uses two different types of pickups in order to expand the tonal possibilities of the instrument. The *R-W* switch is used to select the type of pickup types used by *Lounge Lizard EP*. In the *R* position, *Lounge Lizard EP* uses a model of electro-dynamic pickups such as found in Rhodes™ pianos. In the *W* position, the model used is that of an electro-static pickups such as found in Wurlitzer™ pianos.

The *Input* knob is used to adjust the amount of signal from the fork going into the pick up which will affect the amount of distortion applied to the signal by the pickup. As the knob is turned clockwise, the amount of input signal increases. The *Output* knob controls the amount of signal from the pick up and sent to the effect section. As the knob is turned clockwise, this amount increases. Note that the *Output* signal can be modulated with the pitch of the note played by using the *Keyboard* knob. Turning this knob to the left will increase the output amplitude of low notes relative to high notes while turning the knob to the right will have the opposite effect and increase the relative amplitude of high notes. In its center position, the output amplitude is uniform across the entire keyboard.

One can obtain different sounds with different settings of the *Input* and *Output* parameters. For example, a small amount of input with higher amount of output will produce a cleaner sound then a large amount of input with small output value.

4.5 The Damper Module

The **Damper** module simulates the production of noise when dampers are raised from or applied on the fork when a key is depressed or released. This gives a more realistic and lively sound.

The *Tone* knob is used to adjust the stiffness of the dampers. When in its leftmost position, the dampers are soft producing a more mellow sound. Turning the knob clockwise increases the stiffness of the dampers and the center frequency of the noise produced by the damper.

The *Amount* knob is used to set the amplitude (volume) of the damper noise present in the final sound. Turning the knob clockwise increases the presence of the damper noise in the final sound.

Finally, the *Balance* knob is used to control the amount of noise introduced by the dampers at the beginning or end of a note when the dampers are either lifted from the fork or applied on the fork. When turned to the left, in the *Atk* position, noise will be introduced in the sound during the attack phase of notes while in the *rel* position, noise will be added during the release phase of notes. In its center position, an equal amount of noise will be added both during the attack and release phases of notes.

Note that the **Damper** module responds to the sustain pedal signal via the Damper MIDI Control Change message (CC#64). In order for *Lounge Lizard EP* to respond to a sustain pedal, simply set your synth or MIDI controller to send its sustain pedal signal via this MIDI Control Change message.

4.6   The Tremolo Module

The **Tremolo** module, introduces low frequency amplitude modulation, or tremolo, in the sound. This is an effect extensively used with electric pianos. The effect is switched *on* or *off* using the *On* button.

The *Shape* switch enables one to select the shape of the wave that creates the tremolo. The triangle wave gives a more regular (smoother) tremolo while the soft square wave gives a more chopped effect (like the tremolo on Rhodes™ suitcase pianos).

The *stereo* button is used to determine if the tremolo is mono or stereo. When the button is depressed, the tremolo is *on* and in stereo mode. In this mode, the sound bounces with a 180 degrees phase from left to right. When the button is its *off* position, the tremolo is in mono mode and is the same on the left and right channels.

The *Depth* is used to set the amount of modulation in the amplitude of the signal. In its leftmost position, the amplitude is not modulated and turning the knob clockwise gradually increases the amplitude of the modulation.

The *Speed* knob controls the frequency of the modulation. Turning the knob clockwise increases this frequency and results in a faster modulation rate. Note that this knob is active only when the *Sync* function is *off*.

The *Sync* drop-down menu is used to synchronize the speed of the tremolo effect with the source and tempo set in the **Clock** module. One can choose from a list of values determining the rate at which the tremolo synchronizes when the sync function is *on*. Sync values range from 1/8 of a quarter note (a thirty-second note) to 16 quarter notes (4 whole notes) where the duration of the quarter note is determined by the value (in BPM) appearing in the *Tempo* display of the **Clock** module. Each value can be set to a triplet (t) or a doted note (d).

4.7   The EQ module

The **EQ** module provides equalization over the low, mid, and high frequency bands and is switched *on* or *off* using the *On* button. It is composed of a low shelf filter, a peak filter, and a high shelf filter in series.

The functioning of the low shelf filter is illustrated in Figure 11. The filter applies a gain factor to frequency components located below a cutoff frequency while leaving those above unchanged. The cutoff frequency of the filter is adjusted using the *Freq* knob and the gain amount is controlled with the *Gain* knob.

The high frequency content of the signal is controlled with a high shelf filter that works in the opposite manner as the low shelf filter as illustrated in Figure 11. The filter will multiply a gain factor to components located above a cutoff frequency while leaving those below unchanged. Again use the *Freq* and *Gain* knobs to adjust the cutoff frequency and gain of the filter.

The mid frequency content of the signal is adjusted using a peak filter as illustrated in Figure 12. The filter applies a gain factor to frequency components in a band located around the cutoff frequency of the filter. The cutoff frequency of the filter is adjusted with the *Freq* knob while the gain coefficient is varied with the *Gain* knob.
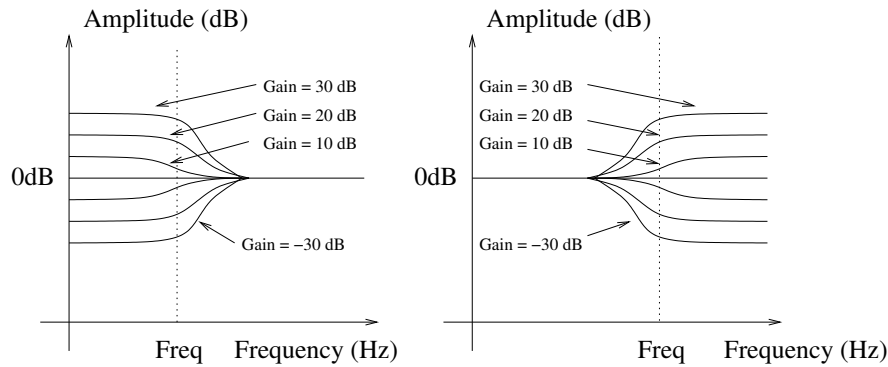
Figure 11: Low and high shelf filters.
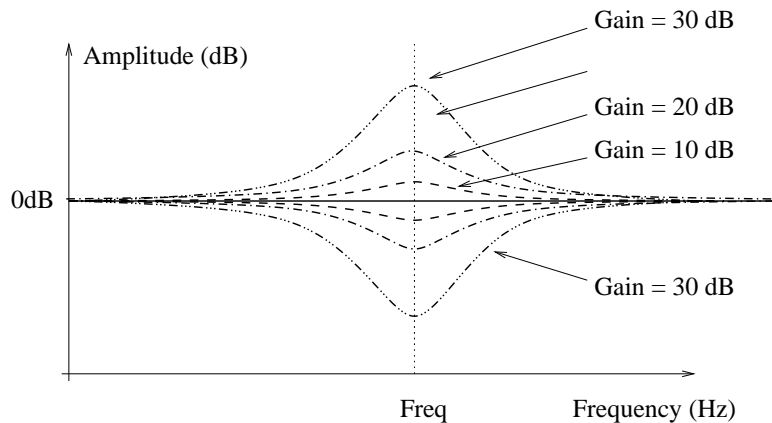
Figure 12: Peak filter.

4.8   The Keyboard Module

The **Keyboard** module controls how the *Lounge Lizard EP* voices respond to the events coming from an external MIDI keyboard or from a MIDI sequencer. The controls in the *Transpose* section are used to fix the pitch of the keyboard while those in the *Micro-Tuning* section are used to set the temperament of the keyboard.

4.8.1   Tuning

The reference pitch of the keyboard is displayed in the *Pitch* display of the transpose section. The default reference note of the keyboard is A4 (set at 440 Hz) but can be changed in the *Ref. Note* button of the Micro-Tuning section. The pitch of

the reference note (in Hertz) is adjusted using the *Tune* knob. Its value can also be transposed by a certain number of octaves or semi-tones using the *Octave* or *Semi* drop-down menus.

One interesting feature of *Lounge Lizard EP* is that it can be tuned using different temperaments using Scala micro-tuning files. Temperament files are loaded by using the *Tuning File* file loading button when the selector switch on the left of the button is adjusted to its *tuning file* position. By default, on Windows systems, *Lounge Lizard EP* will look for Scala files in the c:\Program Files\AAS\Lounge Lizard. On Mac OS systems, *Lounge Lizard EP* will look on the system disk in Library:Application Support: Applied Acoustics Systems: Lounge lizard: Scala. Note that one Scala file (Concert Stretch.scl) is installed by default in these folders. The reference note that will be used as the base note for the scale described in the Scala file is adjusted from the *Ref. Note* button.
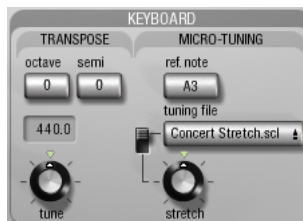
When the selector switch is adjusted to its *Stretch* position, no tuning files are used to tune the keyboard and *Lounge Lizard EP* uses and equal temperament. The temperament can still be tuned, however, by using the *Stretch* knob. In its center position, the octaves will be just. Turning the knob to the left will reduce the interval while turning it to the right will increase it.

Note that the settings of the **Keyboard** module are not saved with a preset. In other words, they remain the same when switching from one preset to another. When the application is started, the settings of the module when the application was last closed will be loaded.

4.9   The Clock Module

This module is used to control the tempo of the different effects of the output section as well as that of the amplitude modulation of the **Tremolo** module. The *Source* drop down menu is used to determine if the sync signal comes from an external source or from the internal clock of the module. The *Tempo* display indicates the value of the tempo in BPM (beats per minute). When *Lounge Lizard EP* is used as a plug-in in a host sequencer and the *Ext* source is chosen, the clock signal will be that sent by the host sequencer while in standalone mode the clock will be that received from an external MIDI clock.

When the *Int* source is chosen, the tempo is determined by the value of the *Tempo* display. The tempo can also be changed by clicking repeatedly on the *Tap* pad which will update the value of the tempo in the *Tempo* display.

Note that the settings of the **Clock** module are saved with presets. In order for the **Clock** module to remain in a specific state even when loading new presets, click on the *Lock* icon in the upper left corner of the module.

4.10   The Recorder Module

This module is used to record the output of *Lounge Lizard EP* to a stereo 16-bit wave or aiff file. The *File* button, is used to choose the name and location of the destination file. One should always use this before starting a recording. The *Record* and *Stop* buttons are used to start or stop the recording. Note that the sampling rate of the recorded file will be that at which *Lounge Lizard EP* was operating when the recording started.

4.11   The Multi-Effect Section

Lounge Lizard EP is equipped with a configurable **Multi-Effect** module. The module is composed of two different sub-modules, **Effect A** and **Effect B**, followed by a **Reverb** module. The sub-modules can be organized in different configurations and synced to an external source or the signal from the **Clock** module. Each effect sub-module can be set to a different effect using the *Type* drop-down menu. The effect list includes chorus (mono and stereo), flanger (mono and stereo), vibrato, digital delay, ping pong delay, tape delay, phaser, auto wah, wah wah, notch filter and distortion. All the effects share the same interface except for the labels under the control knobs which vary depending on the effect chosen.

Note that the settings of the different modules of the output stage are saved with presets. In order for the effects to remain with the same settings even when loading new presets, click on the *Lock* icon at the top of the module.

4.11.1   Topology

The **Effect A**, **Effect B** and the **Reverb** sub-modules of the **Multi-Effect** module can be used in three different configurations as shown in Figure 13 where the **Effect A**, **Effect B** and **Reverb** sub-modules are labeled **A**, **B**, and **R** respectively. To change topology, click-hold on the *Topology* button and move the mouse up or down.

Figure 13: The three topologies in which the effects can be applied; **A** = **Effect A** sub-module, **B** = **Effect B** sub-module and **R** = **Reverb** sub-module.

In the first two configurations, the **Effect A**, **Effect B** and **Reverb** sub-modules are applied in series to the signal from the piano. In the third configuration, the signal is processed by **Effect A** and **Effect B** separately, the two outputs then mixed and the resulting signal sent to the **Reverb** sub-module.

Note that each of the effects can be switched *on* or *off* by using the corresponding *On* button.

4.11.2   Synchronisation

The **Effect A** and **Effect B** sub-modules can be synchronized to the settings of the **Clock** module with the help of the *Sync* drop-down menu. Note that the synchronization source, internal or external, is determined from the *Source* drop-down menu of the **Clock** module. Sync values range from 1/8 of a quarter note (a thirty-second note) to 16 quarter notes (4 whole notes) where the duration of the quarter note is determined by the value (in BPM) appearing in the *Tempo* display of the **Clock** module. The effect can also be synced to a triplet (t) or dotted note (d). Note that the *Sync* feature is inactive when the *auto wah* or *distortion* effects are selected.

4.11.3   Chorus

The **Multi-Effect** module includes both a mono and stereo *chorus* effect. The chorus effects can be controlled with the three knobs appearing at the bottom of the module. The *Mix* knob is used to adjust the ratio of "dry" and "wet" in the

output signal of the module. When the knob is adjusted in the left position, only the original or "dry" signal is sent to the output while in the right position only the processed or "wet" signal is sent to the output. In its center position there will be equal amounts of "dry" and "wet" signal in the output signal. The *Depth* knob is used to control the amplitude of the effect while the *Rate* knob is used to fix the modulation frequency of the effect if the *Sync* function is *off*.

4.11.4   Flanger

The **Multi-Effect** module includes both a mono and stereo flange effect. The flanger effects can be controlled with the three knobs appearing at the bottom of the module. The *Mix* knob is used to adjust the ratio of "dry" and "wet" in the output signal of the module. When the knob is adjusted in the left position, only the original or "dry" signal is sent to the output while in the right position only the processed or "wet" signal is sent to the output. In its center position there will be equal amounts of "dry" and "wet" signal in the output signal. The *Depth* knob is used to control the amplitude of the effect while the *Rate* knob is used to fix the modulation frequency of the effect if the *Sync* function is *off*.

4.11.5   Vibrato

The vibrato effect introduces a periodic low frequency pitch modulation in the signal.

The *Rate* knob is used to set the frequency of the vibrato effect when the *Sync* function is *off*. The *Depth* knob enables one to control the depth of the effect, or in other words the amplitude of the frequency variations. In its leftmost position, there is no vibrato and turning the knob clockwise increases the amount of pitch variation. The *Mix* knob is used to determine the proportion of "dry" and "wet" signals in the output signal from the effect. In its leftmost position, the output is "dry", turning the knob clockwise increases the amount of "wet" signal until, in its center position, there is only "wet" signal. Note that turning further the knob clockwise has no effect.

4.11.6   Delay

The Multi-Effect module includes 3 different types of delay effects: *Ping Pong*, *Digital* and *Tape Delay*. The *Digital* delay consists in a standard delay line with feedback. The tape delay is similar but also includes a low-pass filtering effect in

order to simulate the attenuation of high frequencies in analog tape delays. The *Ping Pong* delay is based on two delay lines resulting in a signal traveling from one channel to the other, each time attenuated by a coefficient.

The *Wet* knob is used to adjust the amount of "wet" signal present in the output signal from the effect. When the knob is adjusted in the left position, only the original or "dry" signal is sent to the output. Turning this knob clockwise increases the amount of processed or "wet" signal sent to the output. The *Feedback* knob is used to adjust the amount of signal re-injected into the delay lines or in other word the amount of feedback introduced in the line. In its leftmost position, there is no signal re-introduced and the effect module only delays the input signal. Turning this knob clockwise increases the amount of signal reflected back at the end of the line. Finally the *Time* knob controls the length of the delay lines and therefore the delay between echoes.

4.11.7   Phaser

The "phasing" effect colors a signal by removing frequency bands from its spectrum. The effect is obtained by changing the phase of the incoming signal and adding this new signal to the original.

The phaser effects can be controlled with the three knobs appearing at the bottom of the module. The *Mix* knob is used to adjust the ratio of "dry" and "wet" in the output signal of the module. When the knob is adjusted in the left position, only the original or "dry" signal is sent to the output while in the right position only the processed or "wet" signal is sent to the output. In its center position there will be equal amounts of "dry" and "wet" signal in the output signal. The *Depth* knob is used to control the amplitude of the effect while the *Rate* knob is used to fix the modulation frequency of the effect when the *Sync* function is *off*.

4.11.8   Wah

The Multi-Effect module includes 2 different types of wah effects: wah wah, and auto wah. Both of them are based on a specially designed bandpass filter with a 12 dB/oct slope. In the wah wah effect, the center frequency of the bandpass filter varies at a certain rate. In the case of the auto-wah, the variations of the center frequency is controlled by the amplitude envelope of the incoming signal.

The *Freq* knob is used to control the central frequency of the filter. Turning this knob clockwise increases the center frequency. In the case of the *Wah Wah* effect, the center frequency will oscillate around the value fixed by the *Freq* knob while

with the *Auto Wah* effect, the setting of the *Freq* will fix the starting point of the value of the center frequency.

The *Depth* knob controls the excursion of the center frequency of the filter. In the case of the *Wah Wah* effect, this excursion is applied around the value fixed by the *Freq* knob while in *Auto Way* effect the value of the center frequency increases from the value fixed by the *Freq* knob. Turning this knob clockwise increases the excursion of the center frequency.

Finally, the *Rate* knob controls the frequency or rate of the modulation of the center frequency of the filter. In the case of the *Wah Wah* effect, turning this knob clockwise increases the rate of the modulation if the *Sync* function is *off*. In the case of the *Auto Wah* filter, this knob controls the time constant of the envelope follower. Turning this knob clockwise decreases the time constant, or in other words the reaction time, of the envelope follower.

4.11.9   Notch Filter

The notch filter does essentially the opposite of a band-pass filter. It attenuates the frequencies in a band located around the center frequency and leaves those outside of this band unchanged. As was the case for the *Wah Wah* effect, the filter is based on a filter having a 12 dB/oct slope and can be modulated.

The *Freq* knobs is used to control the central frequency of the filter. Turning this knob clockwise increases the center frequency. The *Depth* knob controls the excursion of the center frequency of the filter around its center frequency. Turning this knob clockwise increases the excursion of the center frequency. Finally, the *Rate* knob controls the frequency or rate of the modulation of the center frequency of the filter. Turning this knob clockwise increases the rate of the modulation if the *Sync* function is *off*.

4.11.10   Distortion

The **Distortion** module implements a simple distortion or overdrive effect such as that found in distortion pedals for example.

The *Pre* knob is a gain control used to adjust the level of the signal at the input of the **Distortion** effect and hence the amount of saturation introduced in the signal. The color of the output signal from the distortion algorithm can be adjusted using the *Tone* knob. In its leftmost position, high frequencies will be attenuated in the signal while in its rightmost position low frequencies will be filtered out from the signal. In its center position, the signal will be left unchanged. Finally, the *Post*

knob is used to control the amplitude of the signal at the output of the **Distortion** effect.

4.11.11   Reverb

The **Reverb** module is used to recreate the effect of reflections of sound on the walls of a room or hall. These reflections add space to the sound and make it warmer, deeper, as well as more realistic since we always listen to instruments in a room and thus with a room effect.

The *Reverb* drop down menu is used to choose between different reverb algorithms representing different types of rooms or halls. Each algorithm can be adjusted with the knobs located at the bottom of the module. The *Mix* knob is used to set the relative amount of "dry" and "wet" signal which is related to the proximity of the sound source. The *Decay* is used to control the reverberation time of the room. In a real room, the reverberation time is not constant across the whole frequency range because the walls of the hall are generally more absorbent at high frequencies which results in a shorter reverberation time for these frequencies. This effect is controlled with the *Color* knob which sets the reverberation time of high frequencies relatively to the value of the *Decay* knob.

5 Toolbar

The toolbar at the top of the *Lounge Lizard EP* interface allows you to monitor important information related to your current set-up.
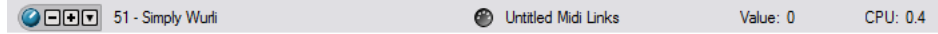
5.1 Program Display

Displays the number and name of the program currently loaded in the synthesis engine. The $+$ and $-$ buttons on the left of the program number, or alternatively the $+$ and $-$ keys on the computer keyboard, are used to navigate upwards and downwards in the program list. The complete list of 128 programs can be viewed by using the ▼ button located on the left of the program number. When the preset associated with the current program is different from the version saved in the preset library, the preset icon to the left of the buttons changes color in order to indicate that saving is necessary in order not to lose the changes that have been applied.

5.2 MIDI map

Displays the name of the currently opened MIDI map. For more information on MIDI maps, please refer to Section 6.2.

5.3 CPU meter

Displays the percentage of the total CPU resources currently used by *Lounge Lizard EP*.

5.4 Value Display

Displays the value of the currently selected control on the interface. The values range from 0 to 127 for knobs and 0 or 1 for buttons depending on whether they are in their *on* or *off* position. For some controls, the value is displayed in the appropriate units.

6   Audio and MIDI Settings

This chapter explains how to select the audio and MIDI devices used by *Lounge Lizard EP* as well as how to create and edit MIDI links and MIDI maps. When referring to commands that are different on Windows and Mac OS systems, the commands are listed in the following order: Windows command/Mac OS command.

6.1   Audio Settings

6.1.1   Selecting a Audio Device

To select the audio device used by *Lounge Lizard EP*:

- Go to the **Audio** menu and choose the **Audio Settings** options. A list of the audio devices installed on your computer will appear in the **Audio Configuration** window.

- Click on the audio device you wish to use and click on the **OK** button.

6.1.2   Audio Control Panel

To launch the audio configuration panel, choose **Audio Control Panel** under the **Audio** menu. This command allows you to select the bit depth sample rate (22.05, 44.1, 48, or 96 kHz) and buffer size, which affects how quickly *Lounge Lizard EP* responds to the control information it receives. The smaller the buffer size, the shorter the latency, and vice versa.

On Windows systems using ASIO drivers, this command opens the control panel provided with the driver and the content of the dialog depends on the driver. Some sound cards also require that you close all programs before making changes to the buffer size or sampling rate. If you discover this is the case with your sound card, please refer to the manufacturer's documentation for details on configuring it for optimum performance. Most sound card manufacturers also update their drivers regularly. It is strongly recommended that you visit your sound card manufacturer's website regularly to ensure you are using the most up to date drivers and support software.

On Mac OS systems, this command launches the **Audio MIDI Setup** configuration application.

6.2   MIDI Settings

6.2.1   Selecting a MIDI Device

To select the MIDI device used by *Lounge Lizard EP*:

- Go to the **MIDI** menu and choose the **MIDI Settings** option. A list of the MIDI devices installed on your computer will appear in the **MIDI Configuration** window.
- Select the MIDI device you want to use and click on the **OK** button.

6.2.2   Creating MIDI Links

Every control on the *Lounge Lizard EP* interface can be manipulated by an external MIDI controller. In most cases this is much more convenient than using the mouse, especially if you want to move many controllers at once. For example, you can map the motion of a knob on the interface to a real knob on a knob box or to the modulation wheel from your keyboard. As you use the specified MIDI controllers, you will see the controls move on the *Lounge Lizard EP* interface just as if you had used the mouse.

To assign a MIDI link to a controller:

- On the interface, right-click/Control-click on a control (knob, button), a contextual menu appears. Select **Learn MIDI Link**.
- Move a knob or slider on your MIDI controller (this can be a keyboard, a knob box, or any device that sends MIDI). This will link the control of the *Lounge Lizard EP* to the MIDI controller you just moved.

MIDI links can also be created by right-clicking/Control-clicking on a control and choosing the **Add MIDI Link** command which will open the **Add MIDI Link** window.

6.2.3   Editing MIDI Links

MIDI links can be edited in the MIDI Links window, which lists all the currently available MIDI links.

- To edit the MIDI link, right-click/Control-click again on the control and choose **Edit MIDI Link** to open the MIDI links window. You can also use the **Edit MIDI Link** command from the **MIDI** menu.

- Click on the MIDI link you wish to modify and then on the **Edit** button to launch the **EDIT MIDI Link** window.

- Specify the MIDI controller number and MIDI channel of the physical controller you wish to link to the parameter in the corresponding drop-down menus.

- You can also adjust the **Minimum Value** and **Maximum Value** of the controller, which are used to limit the range of MIDI controllers. The **Minimum Value** slider is used to determine the position on the *Lounge Lizard EP* control which corresponds to the minimum value sent by the MIDI controller; the **Maximum Value** slider determines the position which corresponds to the maximum value sent by the MIDI controller. The leftmost position of the slider corresponds to the *Lounge Lizard EP* control minimum position (left position for a knob) while the rightmost position of the slider corresponds to the *Lounge Lizard EP* control maximum position (right position for a knob).

- Note that the range of a knob can be inverted by setting the value of **Maximum Value** to a smaller value than that of **Minimum Value**.

- Click on the **OK** button and the link appears in the list of controllers linked to the control.

- Click on the **OK** button again to confirm the change and to leave the MIDI Links window.

- Note that the **Minimum Value** and **Maximum Value** of a MIDI link can also be set by right/control clicking on the corresponding control and selecting the **Set MIDI Link Minimum Value** or **Set MIDI Link Maximum Value** command. The value corresponding to the control position will then be saved as the minimum or maximum value of the MIDI link.

6.2.4   Deleting MIDI Links

- To remove a MIDI link, right-click/Control-click again on the control and choose **Forget MIDI Link** or choose the **Forget MIDI Link** command from the **MIDI** menu.

- MIDI links can also be removed from the MIDI Links window by clicking on the MIDI link to be removed to select it, then by clicking on the **Remove** button and the **OK** button to confirm the change.

6.2.5   Creating a MIDI Map

A set of MIDI links can be saved into a MIDI map by using the **Save MIDI Link As** from the **File** menu. Different MIDI maps corresponding to different MIDI controllers can thereby be saved for *Lounge Lizard EP*. A MIDI map can be loaded by double clicking on the corresponding MIDI connector icon that appears in the browser when a MIDI map is saved. Furthermore a MIDI map can be loaded automatically when an instrument is launched.

- To assign a default MIDI map, right-click/Control-click on the MIDI map icon and choose the **MIDI Link Info** command. In the **Edit Information Window**, select the **Set as default MIDI Links** option.

6.2.6   Empty MIDI Map

The factory MIDI maps include a MIDI map called **No MIDI link**. As its name suggest this map is empty. Loading this map deactivates all the MIDI links.

It is possible to reload the original version of this MIDI map by importing the factory MIDI maps file as explained in Section 2.9 in case it was modified by mistake.

6.2.7   Defining a Default MIDI map

It is possible to define a default MIDI map that will be loaded automatically when *Lounge Lizard EP* is launched.

- First select a MIDI map by clicking on its icon in the browser and choose the **MIDI Link Info** command from the **Edit** or the Ctrl-I/Apple-I keyboard shortcut. One can also right-click/control-click on the MIDI map icon and choose the **MIDI Link Info** command.
- To change the default MIDI map select the **Mark As Default** option.

6.2.8 MIDI Program Changes

MIDI program changes can be used to switch between programs while playing. Lounge Lizard EP will change the number of the current program used by the synthesis engine to the number corresponding to the MIDI program change received by the application.

6.3 Latency Settings

The latency is the time delay between the moment you send a control signal to your computer (for example when you hit a key on your MIDI keyboard) and the moment when you hear the effect. Roughly, the latency will be equal to the duration of the buffers used by the application and the sound card to play audio and MIDI. To calculate the total time required to play a buffer, just divide the number of samples per buffer by the sampling frequency. For example, 256 samples played at 48 kHz represent a time of 5.3 ms. Doubling the number of samples and keeping the sampling frequency constant will double this time while changing the sampling frequency to 96 kHz and keeping the buffer size constant will reduce the latency to 2.7 ms.

It is of course desirable to have as little latency as possible. *Lounge Lizard EP* however requires a certain amount of time to be able to calculate sound samples in a continuous manner. This time depends on the power of your computer, the preset played, the sampling rate, and the number of voices of polyphony used. Note that it will literally take twice as much CPU power to process audio at a sampling rate of 96 kHz as it would to process the same data at 48 kHz, simply because you need to calculate twice as many samples in the same amount of time.

Depending on your machine you should choose, for a given sampling frequency, the smallest buffer size that allows you to keep real-time for a reasonable number of voices of polyphony. To adjust these parameters:

- Launch the **Audio Control Panel**
- Choose the sampling frequency and the audio format (16, 24, 32 bits)
- Adjust the buffer size

Note that this might not be possible on Mac OS or with ASIO drivers on Windows.

In order to optimize the resources allocated to the calculation of audio by *Lounge Lizard EP*, it is possible to decrease the ratio of resources devoted to the

calculation of graphics for the interface in favor of audio related calculations. To adjust this ratio, choose the **Preferences** command under the **Edit** menu and adjust the *Performance* slider to the desired value between **better audio performance** and **smoother graphics**. This setting may have little noticeable effect on recent computers.

7 Using the *Lounge Lizard EP* as a Plug-In

Lounge Lizard EP is available in VST, DXi, AudioUnit and RTAS (for Mac OS only) formats and integrates seamlessly into the industry most popular multi-track recording and sequencing environments as a virtual instrument plug-in. The plug-in versions will work exactly the same way as the standalone version, except for the audio, MIDI, and latency configurations that will be taken care of by the host sequencer. Furthermore *Lounge Lizard EP* works as any other plug-in in these environments so we recommend that you refer to your sequencer documentation in case you have problems running *Lounge Lizard EP* as a plug-in. We review here some general points to keep in mind when using a plug-in version of *Lounge Lizard EP*.

7.1 Window Size

The size of the *Lounge Lizard EP* window is fixed when it is used as a plug-in.

7.2 Audio and MIDI parameters

When *Lounge Lizard EP* is used as a plug-in, the audio and MIDI ports, sampling rate, buffer size, and audio format are determined by the host sequencer.

7.3 Automation

Lounge Lizard EP supports automation functions of host sequencers. Automation can usually be done by using MIDI links and recording MIDI events, or by recording the motion of controls on the interface.

7.4 Multiple Instances

Multiple instances of *Lounge Lizard EP* can be launched simultaneously in a host sequencer.

7.5 Saving Projects

When saving a project in a host sequencer, the program list is saved with the project in order to make sure that the instrument will be in the same state as when you

saved the project when you re-open it even if the preset library of the instrument was modified. MIDI links are also saved.

Note that the default program list (the same as that loaded in standalone mode) appears when *Lounge Lizard EP* is opened in a new project or if a new instance of the plug-in is opened in an existing project. To change the default program list, use the **Save All Programs** command from the **Programs** menu in an instance of the instrument which displays the desired program list.

7.6   MIDI channel

Make sure that the MIDI controller, sequencer and *Lounge Lizard EP* all use the same MIDI channel. If you are not certain of the channel used by your controller or sequencer, set the MIDI channel of *Lounge Lizard EP* to *Omni*.

7.7   MIDI program change

MIDI program changes are supported in the plug-in versions of *Lounge Lizard EP*. When a MIDI program change is received by the application, the current program used by the synthesis engine is changed to that having the same number as that of the MIDI program change message.

7.8   Performance

Using a plug-in in a host sequencer requires CPU processing for both applications. The load on the CPU is even higher when multiple instances of a plug-in or numerous different plug-ins are used. To decrease CPU usage, remember that you can use the **freeze** of **bounce to track** functions of the host sequencer in order to render to audio the part played by a plug-in instead of recalculating it every time it is played.

8 Quick reference to commands and shortcuts

File Menu

Command	Windows	Mac OS	Description
New Folder...		Apple+Shift+N	New Folder in the Browser
Open Preset	Ctrl+O	Apple+Option+O	Open the selected preset
Save Preset	Ctrl+S	Apple+S	Save the current preset
Save Preset As...			Save the current preset under a new name
Save MIDI Links	Ctrl+Shift+S	Apple+Shift+S	Save the current MIDI links
Save MIDI Links As...			Save the current MIDI links under a new name
Import...			Import a .lls file
Export...			Export a .lls file
Restore Factory Library ...			Restore factory library and programs. Everything else in the browser is deleted.
Exit (Quit on Mac)			Quit the application

Edit Menu

Command	Windows	Mac OS	Description
Undo	Ctrl+Z	Apple+Z	Undo last command
Redo	Ctrl+Y	Apple+Shift+Z	Redo last command
Copy	Ctrl+C	Apple+C	Copy selected item
Paste	Ctrl+V	Apple+V	Paste
Delete	Del		Delete selected item
Info. . .	Ctrl-I	Apple+I	Edit information about a selected item (browser)
Compare			Compare modified preset with original settings
Preferences			Display the Edit General Preferences window

Audio

Command	Windows	Mac OS	Description
Audio Settings			Display the Audio Settings window
Audio Control Panel			Display the Latency Settings window if DirectSound is used, the ASIO control panel when ASIO drivers are used and the **Audi MIDI setup** configuration tool on Mac OS systems

MIDI

Command	Windows	Mac OS	Description
MIDI Settings			Display the MIDI Settings window
Learn MIDILink			MIDI link learn mode for the last control touched
Add MIDI Link			Enables one to add a MIDI link on the last controlled touched
Forget MIDILink			Drop a MIDI link
Set MIDI Link Minimum Value			Limit the value of a MIDI link to a minimum value
Set MIDI Link Maximum Value			Limit the value of a MIDI link to a maximum value
Edit MIDIlinks			Display the Edit MIDI links window
Edit Program Changes...			Associate presets with MIDI program changes
All Notes Off			Send an all note off signal

Programs Menu

Command	Windows	Mac OS	Description
Locate Program in Browser	Ctrl-L	Apple-L	Locate the current program in the browser and select it
Rename Program	Ctrl-R	Apple-R	Rename the current program in the program list
Switch to Program	Ctrl-P	Apple-P	Change the current program
Save All Programs			Save the entire program list including modifications to programs. The list will be in exactly the same state the next time you open the application

Help Menu

Command	Windows	Mac OS	Description
About Lounge Lizard EP . . .			Display the About Lounge Lizard EP window
User Manual	F1		Display the user manual
Authorize Lounge Lizard EP . . .			Display the Authorization window. Active only if the application has not been authorized.
Visit www.applied-acoustics.com . . .			Launch the browser and go to the AAS website.
Join the user forum . . .			Launch the browser and go to the AAS forum.
Get support . . .			Launch the browser and go to the support section of the AAS website.

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