USER'S MANUAL

ANALOG LABORATORY

49 ANALOG EXPERIENCE
THE LABORATORY

TAE®
True Analog Emulation

Arturia©
MUSICAL INSTRUMENTS

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Thank you for purchasing Arturia's Analog Laboratory!

This manual concerns two distinctive products:

- **Analog Laboratory**, a software synthesizer allowing to play and modify 3,500 sounds.

- **Analog Experience "The Laboratory"**, a bundle of the above mentioned software along with a dedicated 49-key control keyboard.

In this package you will find:

- A CD-ROM containing the Analog Laboratory installer for Mac OS X and Windows XP/Vista/Seven

- A registration card (credit card format) including the Serial Number and Unlock Code.

- The User's Manual for the Analog Laboratory software and the Analog Laboratory keyboard.

- A 49-key Analog Laboratory keyboard *(Analog Experience "The Laboratory" only)*

- An USB cable *(Analog Experience "The Laboratory" only)*

Carefully store your registration card!

In order to actually use the software, you have to register, then authorize, your virtual instrument. By registering, you identify yourself as the legitimate owner and thus will be sure to receive the latest news and updates for your instrument.

The Serial Number and Unlock Code are required to register & authorize Analog Laboratory, so these codes are the real value of your product.

See Chapter 3 for more information about the authorization process.

Special Message Section

The MIDI keyboard uses USB or an external power adapter. Do not connect this product with any power supply or adapter than the one described on this manual specifically recommended by Arturia. (See chapter 7.2.2 for more details)

WARNING:

Do not place this product in a place or position where one might walk on, trip over or roll anything over power or connecting cords.

The use of an extension cord is not recommended! If you must use one, make sure that the cord has the ability to handle maximum current needed by this product. Please consult a local electrician for more information on your power requirements.

This product should be used only with the components supplied or recommended by Arturia. When used with any components, please observe all safety markings and instructions that accompany the accessory products.

SPECIFICATIONS SUBJECT TO CHANGE:

The information contained in this manual is believed to be correct at the time of printing. However, Arturia reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

IMPORTANT:

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, damages, fire or other risks.

The product used either alone or in combination with an amplifier, headphones or speakers, may be able to produce sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high level or at a level that is uncomfortable.
If you encounter any hearing loss or ringing in the ears, you should consult an audiologist.

NOTICE:

Service charges incurred due to a lack of knowledge relating to how a function or feature works (when the unit is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owner's responsibility. Please study this manual carefully and consult your dealer before requesting service.

PRECAUTIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

1. Read and understand all the instructions.

2. Always follow the instructions on the instrument.

3. Before cleaning the instrument, always remove the electrical plug from the outlet, as well as the USB cable. When cleaning, use a soft and dry cloth. Do not use gasoline, alcohol, acetone, turpentine or any other organic solutions; do not use liquid cleaner, spray or cloth that's too wet.

4. Do not use the instrument near water or moisture, such as a bathtub, sink, swimming pool or similar place.

5. Do not place the instrument in an unstable position where it might accidentally fall over.

6. Do not place heavy objects on the instrument. Do not block openings or vents of the instrument; these locations are used for air circulation to prevent the instrument from overheating. Do not place the instrument near heat vent or any place of poor air circulation.

7. Only use the recommended specified AC adaptor (12V DC 500mA)

8. Make sure the line voltage in your location matches the input voltage specified on the AC power adaptor.

9. Do not open and insert anything into the instrument which may cause a fire or electrical shock.

10. Do not spill any kind of liquid onto the instrument.

11. Always take the instrument to a qualified service center. You will invalidate your warranty if you open and remove the cover, and improper assembly may cause electrical shock or other malfunctions.

12. Do not use the instrument with thunder and lightening present; otherwise it may cause long distance electrical shock.

13. Do not expose the instrument to hot sunlight.

14. Do not use the instrument when there is a gas leak nearby.

15. Arturia is not responsible for any damage or data loss caused by improper operations to the instrument.

HANDLING CD-ROMS:

Avoid touching or scratching the shiny underside (encoded surface) of the disc. Damaged or dirty CD-ROM disc may not be read properly. Keep your CD-ROMs clean, using a commercially available CD cleaner.

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1 INTRODUCTION

1.1 History

In early 2001, Arturia began working on advanced algorithms for the digital emulation of analog circuit audio characteristics. They are known as TAE®, standing for True Analog Emulation. In non-technical language, this is an unprecedented way of creating the very unique sound one finds in a synthesizer such as the Moog Modular. Nearly a year after they began work on the algorithms, Arturia was ready for feedback. At the 2002 NAMM show in California, Arturia shared an early version of what would later be the Moog Modular V with the renowned maker of the original Moog synthesizer, Doctor Bob Moog.

In seeking insight from sound production experts, such as Dr. Moog, as well as avid synthesizer users, Arturia was able to ensure the quality of the instruments they made; so well in fact the Dr. Moog himself endorsed the Moog Modular V. The launch of this sound powerhouse was an instant success, winning awards from several top magazines, and leading to the development of other synth recreations.

Shortly thereafter, Arturia started receiving many requests from musicians, producers and bands. Many of them explained how they were planning to replace their original hardware synthesizers by virtual instruments. Artists around the globe were beginning to see the advantages of a software alternative to hardware-based synthesizers.

The CS-80V emulated the legendary Yamaha CS-80, considered by many as "the ultimate polyphonic" synthesizer, and was launched at the AES 2003 in New York. Imagine some of your favorite music from diverse artists such as Keith Emerson or Stevie Wonder, and you'll get an idea of what the CS-80V is capable of.

Released at the NAMM 2004, the Minimoog V was our recreation of the Minimoog, quite possibly the most famous synthesizer ever. The original Minimoog has been big on the music scene since the 70's; still today the Minimoog has a large following thanks to its many sound capabilities.

The ARP 2600 V was launched at the NAMM 2005 in Anaheim. This is a faithful reproduction of the ARP 2600 and is great for just about any sound one might wish to create: everything from drum n' bass stabs to Star Wars' R2-D2 sounds have been made with the ARP.

At the Winter NAMM Show 2006, ARTURIA announced the release of its seventh product: the Prophet V. This powerful hybrid gives you two instruments in one: it combines the warmth of the legendary Prophet 5 programmable analog synth with the unique Vector Synthesis textures of the digital Prophet VS.

And finally, at the summer 2007 NAMM Show, Arturia launched the Jupiter-8V. In terms of sonic possibilities, it complemented its "Arturia siblings" by bringing something different. The Jupiter-8 V was capable of creating very versatile sounds. You could easily make 'fat' or 'Crystal' sounds with it. In fact, the Jupiter-8 sounded the way it looked, 'sleek and polished'.

The electro-pop community became quickly convinced by the qualities of the original Jupiter-8. 'Relax', by Frankie Goes to Hollywood was produced incorporating a Jupiter 8, and players such Vince Clarke, John Foxx, and Martyn Ware also used it abundantly. The path to classic status of the Jupiter started there.

Other artists that have used The Jupiter-8 include: Howard Jones, Tangerine Dream, Underworld, Jean Michel Jarre, Depeche Mode, Prince, Gary Wright, Adrian Lee, Heaven

17, Kitaro, Elvis Costello, Tears for Fears, Huey Lewis and the News, Journey, Moog Cookbook, Yes, Devo, Freddy Fresh, Simple Minds, Jan Hammer and BT.

1.2   Here and Now

Analog Laboratory brings you the full spectrum of sounds from all of the above instruments in an easy to use, no-hassle interface. As you will soon see in exploring the instrument yourself, a single instrument gives you your pick from the most complete synthesis sound palette one could ask for: the great bass of the Moog Modular, the brass and strings of the Prophet, the pads and FX of the ARP 2600, etc.

If you have never played a real synth, or even if you don't know what a synthesizer is, it doesn't matter; you will be glad to have invested in such a powerful instrument once you hear the difference Analog Laboratory makes in your studio.

1.3   TAE®

TAE®, True Analog Emulation, is Arturia's outstanding technology dedicated to the digital reproduction of analog circuits used in vintage synthesizers.

When implemented in software code, TAE®'s algorithms guarantee authentic emulation of hardware specifications. This is why Analog Laboratory, and all of Arturia's virtual synthesizers, offer an unparalleled quality of sound.

TAE® combines three major advances in the domain of synthesis:

1.3.1 Aliasing-free oscillators

Standard digital synthesizers produce aliasing in high frequencies, and also when using Pulse Width Modulation or FM.

TAE® allows the production of totally aliasing-free oscillators in all contexts (PWM, FM…), and at no extra CPU cost.

Linear frequency Spectrum of an existing well-known software synthesizer
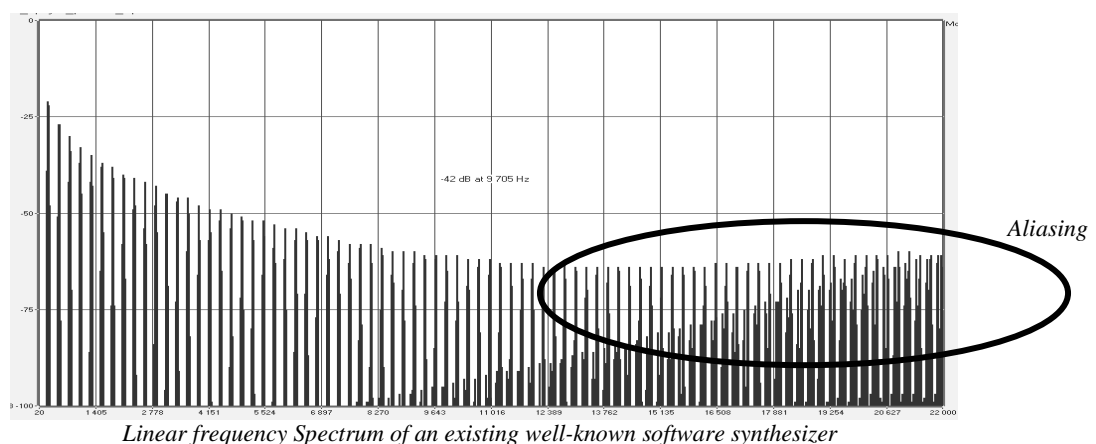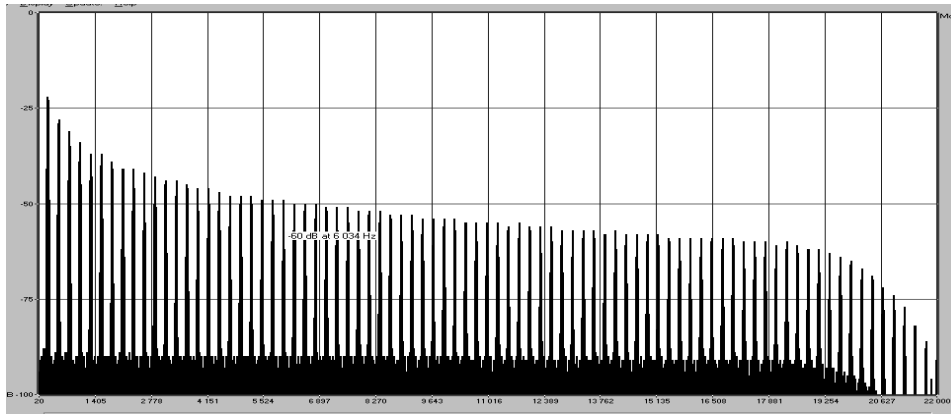
Linear frequency spectrum of the Analog Laboratory oscillator made with TAE®

1.3.2 A better reproduction of analog oscillator waveforms

The waveforms produced by the oscillators in analog synthesizers are marked by the presence of a capacitor in the circuits. The discharge of the capacitor results in a light bend in the original waveform (notably for saw tooth, triangular and square waveforms). TAE® reproduces the result of this capacitor discharge in software. This is the analysis of a waveform from one of the 5 original instruments that Arturia's software emulates, followed by one made by Analog Laboratory. They are both equally deformed by the low-pass and high-pass filtering.
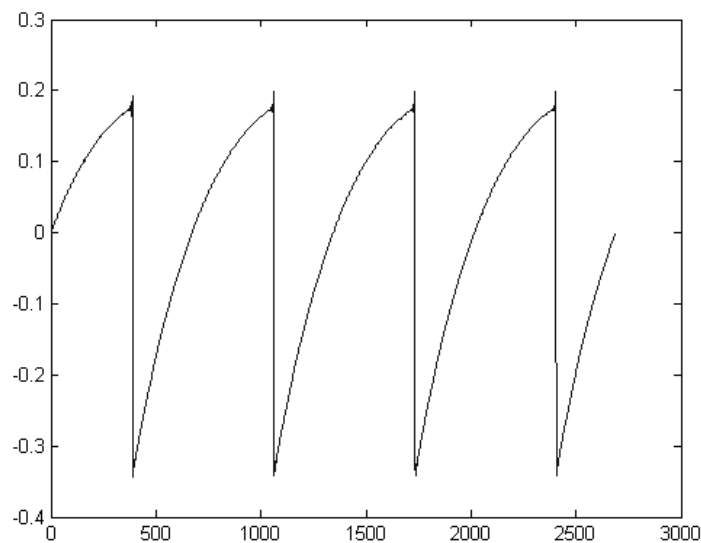
Temporal representation of a "saw tooth" waveform of a hardware synthesizer
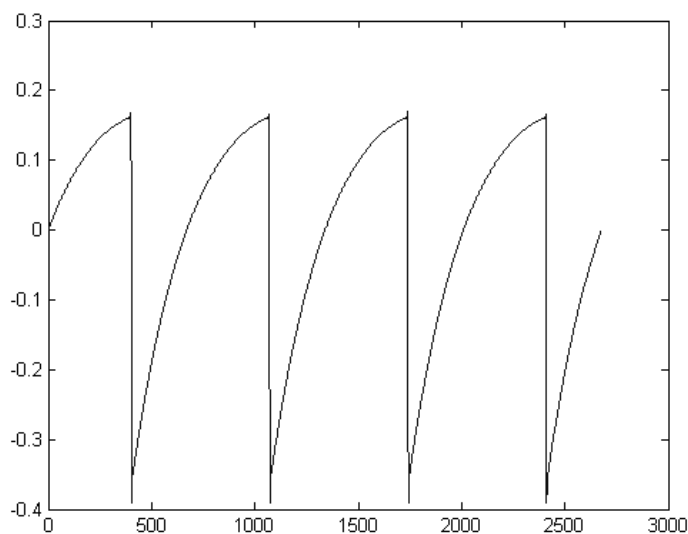
Temporal representation of a "saw tooth" waveform reproduced by TAE®

What's more, the hardware analog oscillators were unstable. In fact, their waveform varies slightly from one period to another. If we add to this the fact that the starting point for each period (in Trigger mode) can vary with the temperature and other environmental conditions, we see why vintage synthesizers have such a typical sound.

TAE® reproduces the instability of oscillators, bringing a fatter and "bigger" sound.

1.3.3 Direct Filter Circuit Modeling

Due to advances in computer processing power, Analog Laboratory can now employ direct filter modeling techniques to achieve unprecedented accuracy in the emulation of a hardware synthesizer's filter. By modeling the operation of the individual hardware components of the filter circuit, the warm nuances synonymous with analog sounds are recreated. This graph is a frequency domain plot as just a single example of direct circuit modeling in action; it shows the generation of harmonics at multiples of the resonant frequency when the filter is in self oscillation mode, for both one of Arturia's virtual instruments and what it is emulating. These harmonics are characteristic of hardware synthesizer filters and are due to the non-linear behavior inherent to its analog circuitry. The harmonics generated add to the richness and warmth of the sound produced by the filter. As a result of the direct recreation of this analog circuitry, the same characteristics of the sound are present, thus giving the user a truly analog sound.
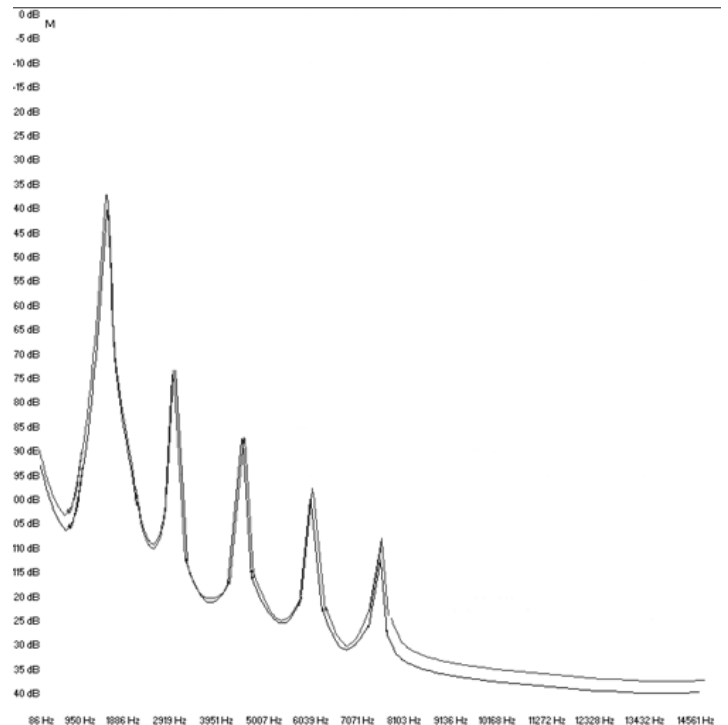
Comparison of harmonics generated by the filter circuits in self oscillation of Analog Laboratory and a hardware synthesizer

2 INSTALLATION

2.1 Windows installation (XP/VISTA/7)

Insert the CD-ROM into the drive. Explore the contents of the CD-ROM, double click on the icon named `Analog Laboratory Setup.exe`.

At the first steps of the installation, you shall read and accept the terms of the License Agreement, then choose the destination folder for the Analog Laboratory installation. By default, it will be installed in this location:

`C:\Program Files\Arturia\Analog Laboratory`

You can change the destination with the Browse button.
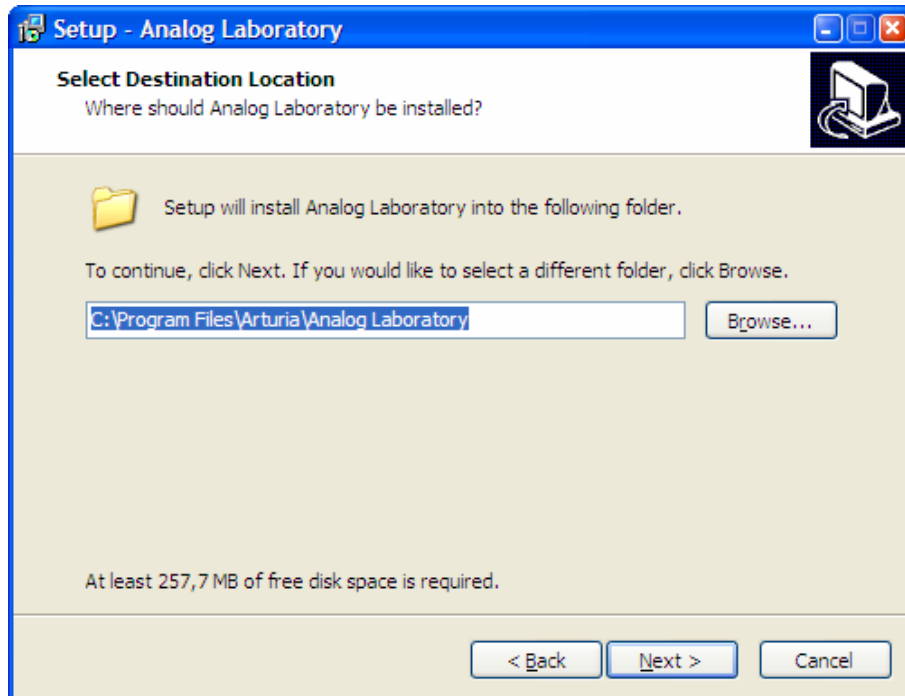
Choose the installation folder

Analog Laboratory will be installed as a standalone application. The following stage will let you choose to install Analog Laboratory as a plug-in. To do this, choose the protocol(s) that you wish to use (VST or RTAS). For more information on these protocols, go to Chapter 6. However for a better compatibility purpose, the Full installation is a safe and recommended choice, which will not eat much drive space.
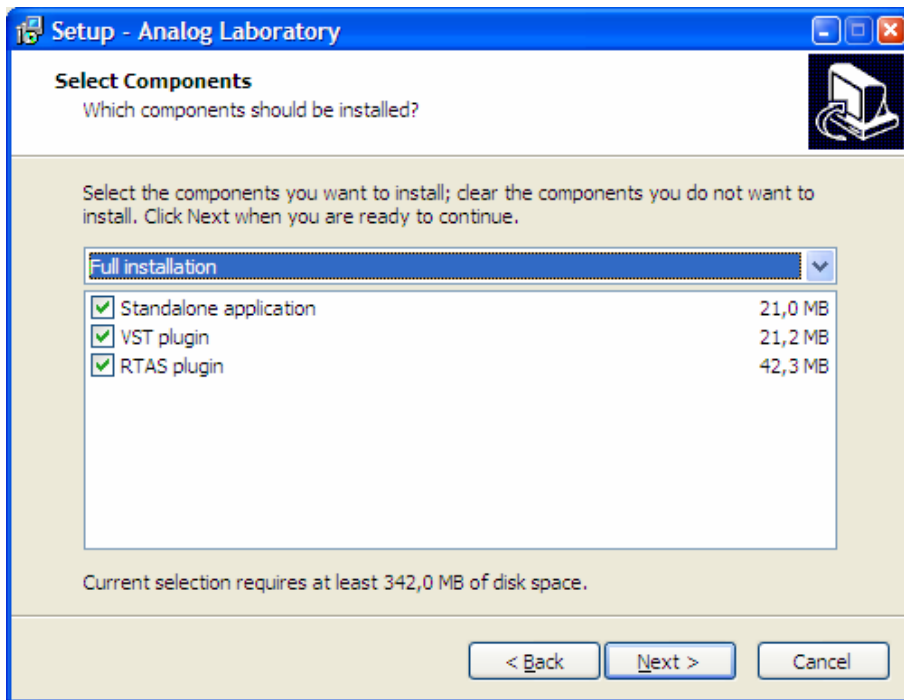
Choice of protocols

For the VST protocol, you must choose an installation folder in order for the host application to use Analog Laboratory as a plug-in. If you do not know how to make this choice, please refer to Chapter 6.
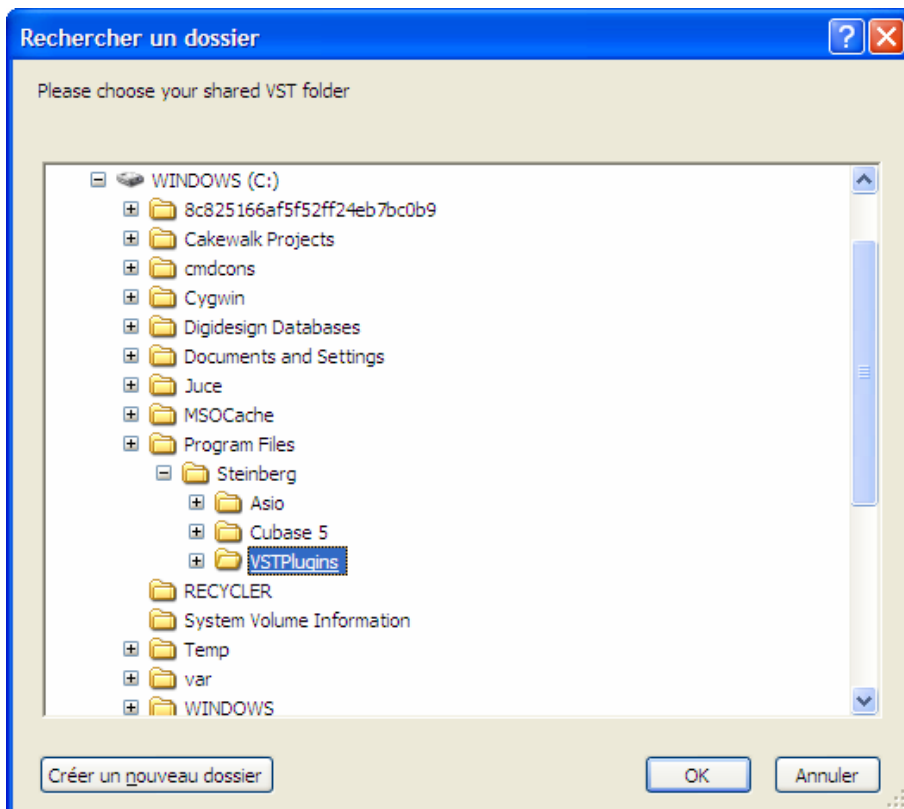
Choice of VST plug-in installation folder

The installation program now has enough information to complete the installation. When the installation process is completed, please proceed to authorization step (Chapter 3).

2.2   Mac OS X installation

Insert the CD-ROM into the drive. Explore the contents of the CD-ROM, then double-click on the icon named `Analog Laboratory.pkg`.

Follow these steps:

- read and accept the End User License Agreement,

- select a destination.

When prompted, enter the administrator name and password of your computer in the authentication window.
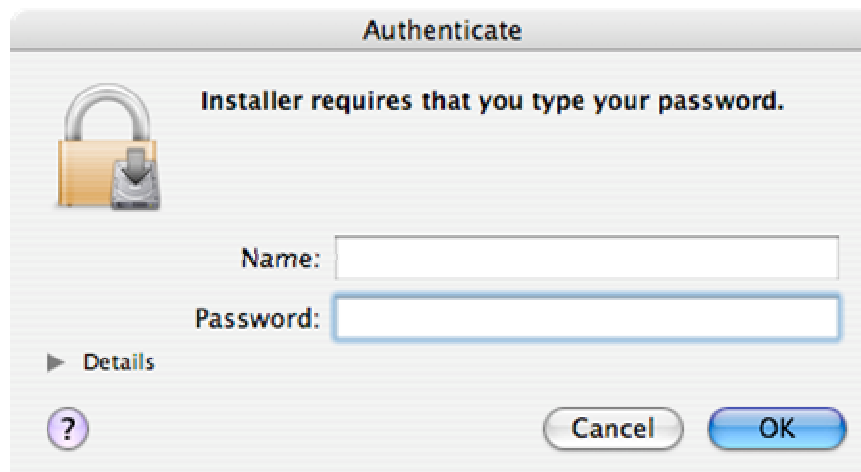
Authentication window

Analog Laboratory will next be installed as a standalone application, but also as VST, AU and RTAS plug-ins.

The installation program now has enough information to complete the installation. When the installation process is completed, please proceed to authorization step (Chapter 3).

3 AUTHORIZATION

Now that your Analog Laboratory has been installed, you have to authorize the synthesizer.

The Analog Laboratory uses the "Soft-eLicenser" virtual dongle solution by default. Avoiding the use of a USB port, this system allows using the synthesizer on one machine which must be connected to the Internet during the authorization process.

To transfer your license on another computer, or simply use Analog Laboratory on several computers (one instance at a time), you will need:
* to use one USB-eLicenser hardware dongle (sold separately, also used by many other software editors);
* in the eLicenser Control Center, to drag-and-drop your license from Soft-eLicenser to USB-eLicenser.
This transfer, requiring a valid Internet connection, can be done both ways:
* from Soft-eLicenser to USB-eLicenser;
* from USB-eLicenser to Soft-eLicenser.
Please check the eLicenser documentation installed on your computer for any further technical details.

3.1 Registration
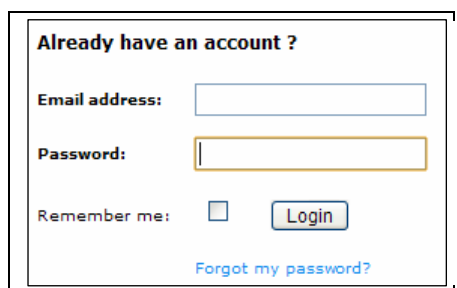
The first step is to register your software in order to obtain the activation code that will enable you to actually use the software.

You should have handy the license serial number of Analog Laboratory and the unlock code (these are integral part of the software and are printed on a small plastic card)

Connect your computer to the Internet, and go to this web page:

http://www.arturia.com/login

If you **already have** an Arturia account setup, simply log in:
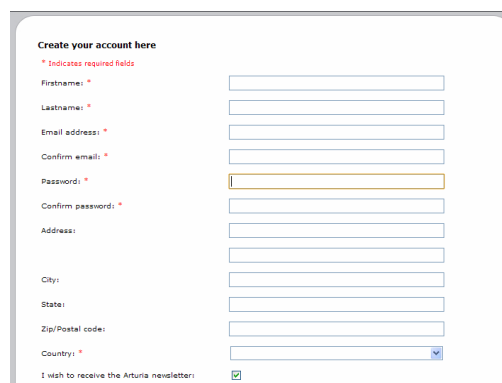
If you **don't have** any Arturia account yet, please create one now:

Want to create an account* ? Click here

This will lead you to this form to fill:

Once you are logged into your account, you can register your Analog Laboratory and request your activation code.

Go to the "My Registered Products" section of your account and click on the "Add" button:

In the form that appears, select "Analog Laboratory" from the drop down menu, and key in your synthesizer **serial number** and **unlock code** (as written on the registration card):
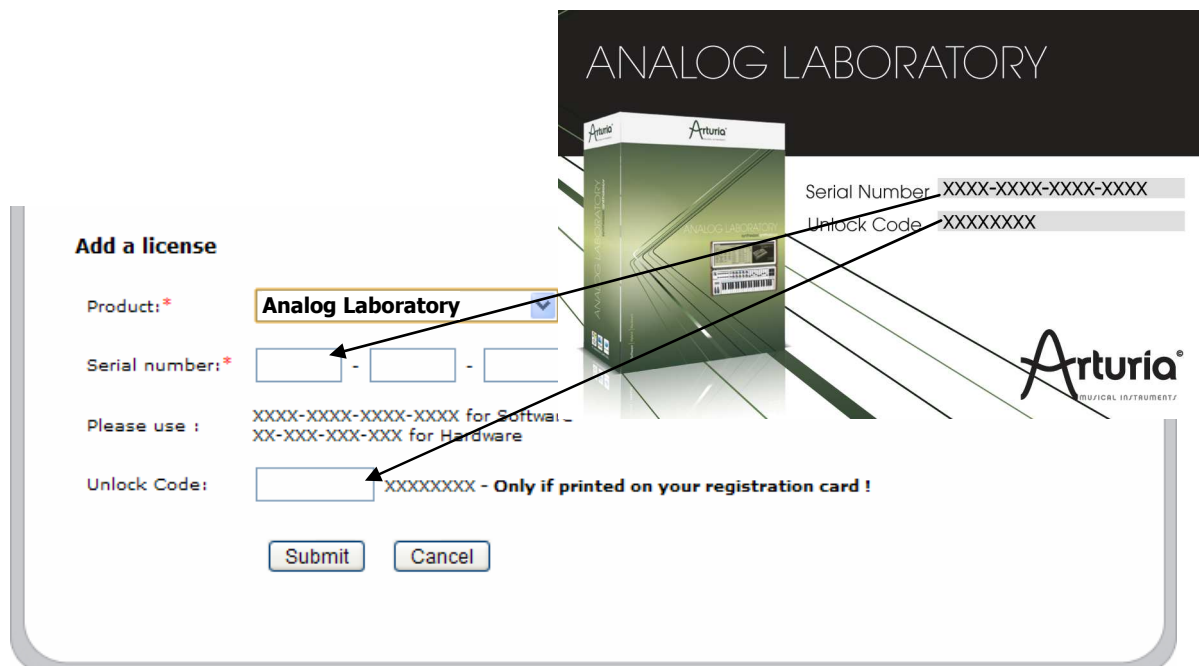
You should then see the confirmation screen:

Please confirm the following information:

- E-mail address :
- Product : **Analog Laboratory**
- Serial Number : XXXX-XXXX-XXXX-XXXX

[Submit]   [Cancel]
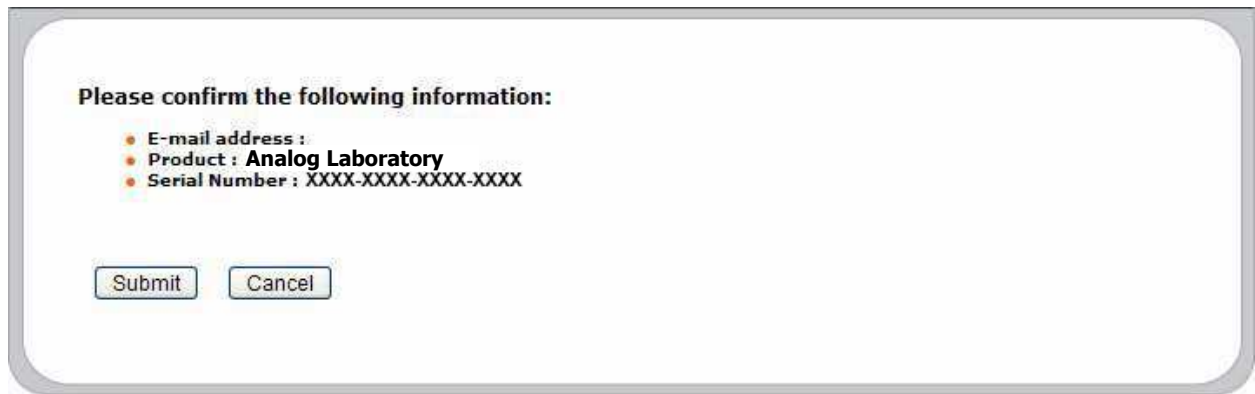
And finally there is a screen from which you can copy the **eLicenser activation code**. The very same information is sent to you by email as a backup.

3.2 <u>License download</u>

Now that you have retrieved the **activation code**, launch the eLicenser Control Center. This application has been automatically installed on your computer along with Analog Laboratory. It is accessible here:

- Windows: Start > Programs > eLicenser > eLicenser Control Center
- Mac OS X: Finder > Applications > eLicenser Control Center

⚠ *The hereunder screenshots have been taken under a Mac OS X running computer; however the process is strictly identical under a machine running Windows XP/Vista/7. The same functions apply, only the graphical user interface differs, and possibly also the language used. These small details should not prevent you from understanding the full process.*

In the eLicenser Control Center main window you should see a "SeL" virtual dongle installed onto your computer.
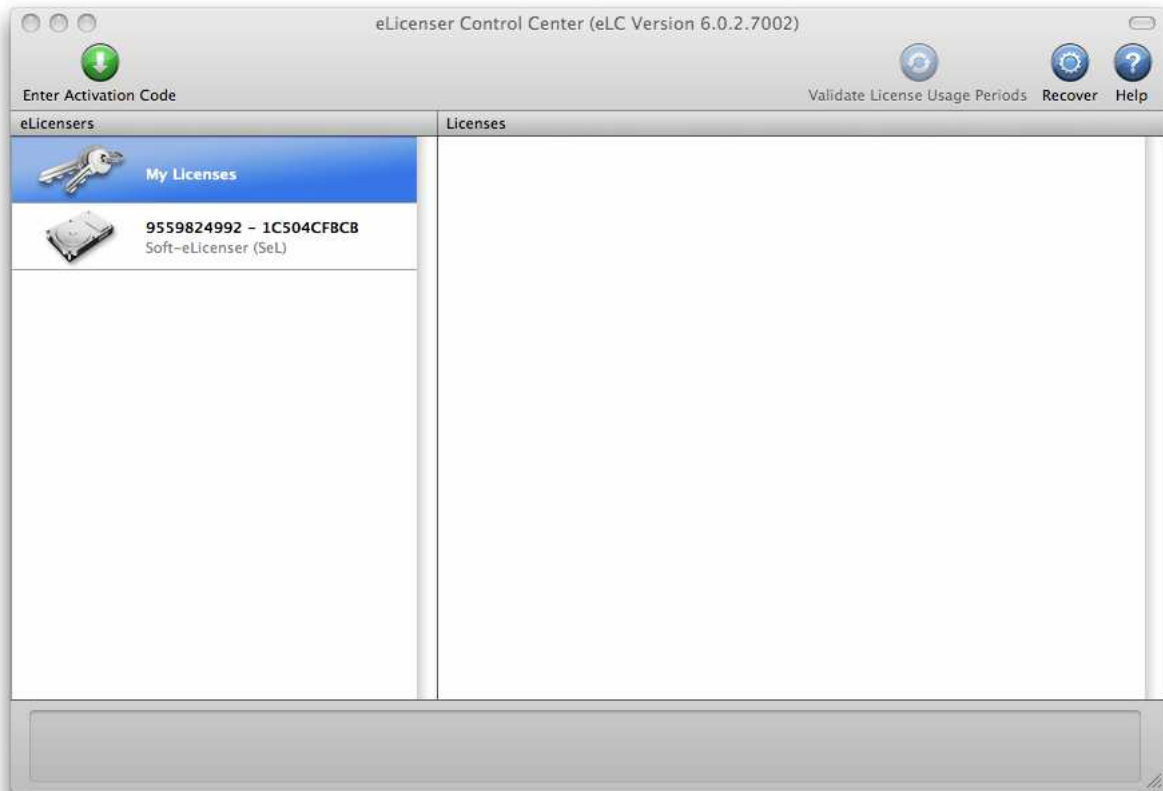
The eLicenser Control Center main window, showing an empty Soft-eLicenser

In the eLicenser Control Center menu, click on the "Enter Activation Code" button, and enter the code when prompted. Simply paste in the 32-digit code you've just copied from your account on the ARTURIA website:
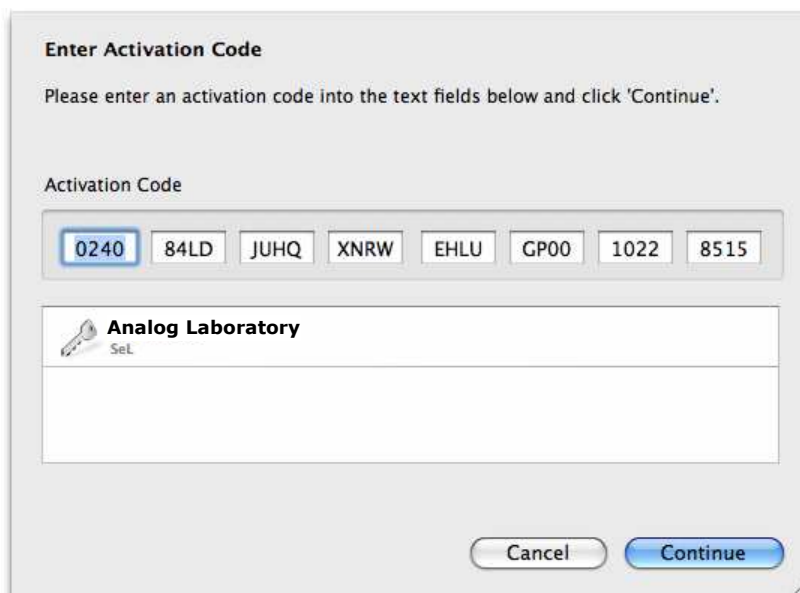
Enter the activation code

The eLicenser Control Center is now ready to download the software license that will allow you to use Analog Laboratory. Click on Start, the progress bar should advance until

downloading is complete. A popup window will confirm completion, then just click "Close".

⚠ *If an USB-eLicenser hardware dongle is found connected to your computer, the Center will favor it as the default destination for the license download, which is a much pertinent and reliable option.*

Now the main eLicenser Control Center window should show your Analog Laboratory license installed and activated:
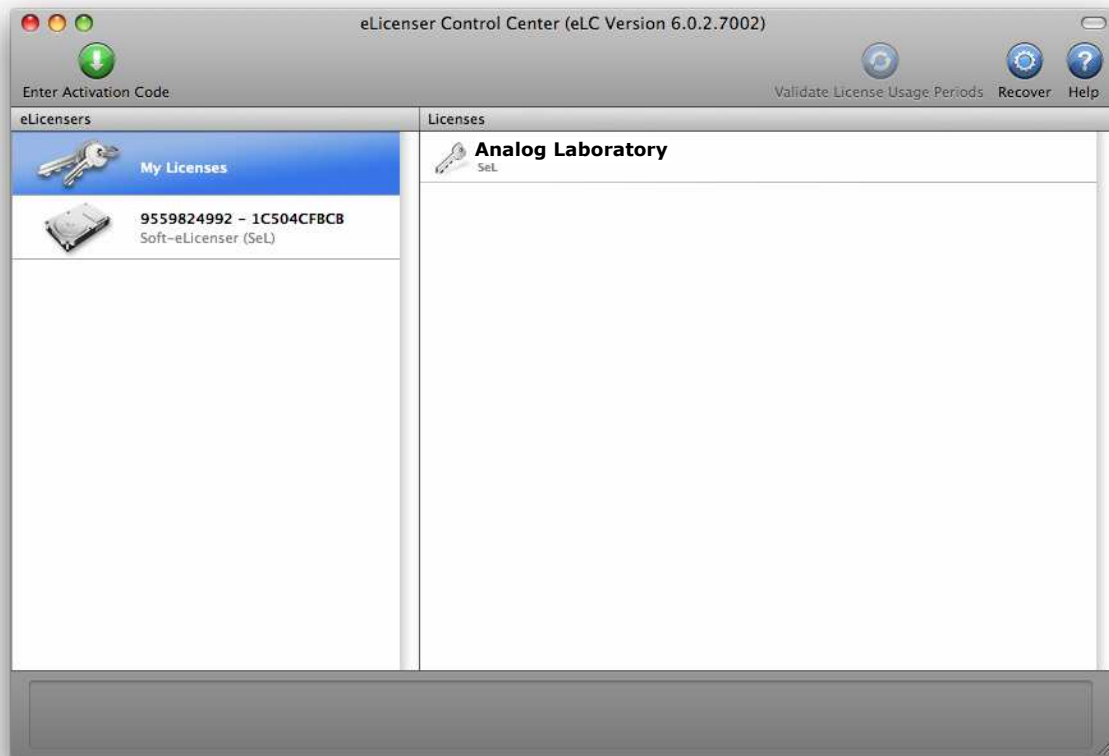
License is installed and activated

It's now time to launch the Analog Laboratory.

4   QUICKSTART GUIDE

The following chapter is a quick overview of how to start using Analog Laboratory immediately. It does not go into every detail, but rather shows an example of how one might begin creating sound rapidly and easily with this software. For more detailed information and more in depth descriptions of how Analog Laboratory works, please see Chapter 5.

4.1 Audio & MIDI Setup

Before getting into any fun sound making, the first and most important thing to check, once you have opened Analog Laboratory, is that your software is set to output Audio correctly and receive MIDI from an external keyboard.

4.1.1 Audio setup

In order to make sure your Analog Laboratory Software is set to send audio out the correct audio driver. To check this, open the Audio & MIDI Settings window from the Setup drop-down menu.

The Audio & MIDI Settings menu item, on Mac OS X   *…same on Windows*

Select your preferred audio output driver, then click the Test Tone button. You should hear a short sine wave. If so, then your audio is correctly setup. If not, then make sure the correct audio driver is selected and that your headphones or speakers are correctly connected and turned on.
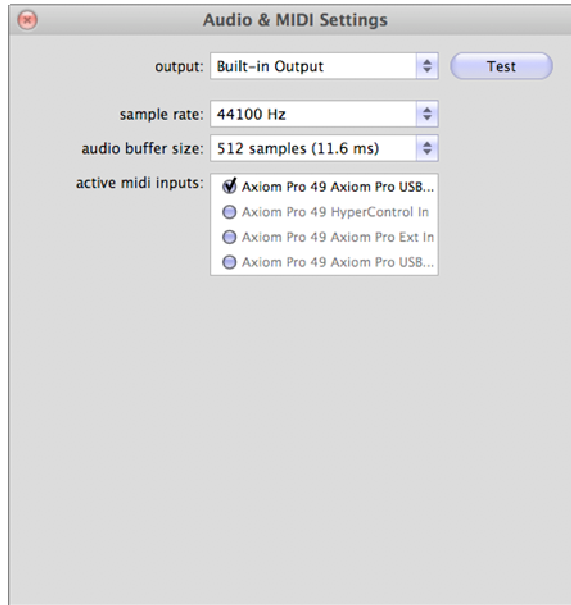
Audio and MIDI Settings window

4.1.2 MIDI setup

Using an external MIDI keyboard with Analog Laboratory can really enhance your user-experience and comes highly recommended. Using a USB MIDI keyboard controller with Analog Laboratory is very simple.

Just like in the previous step, MIDI preferences are found in the Audio & MIDI Settings window which can be opened from the Setup drop-down menu.

4.2 Sound Mode Quick Start

4.2.1 Select a preset

Once your Audio preferences are correctly setup, making sound with Analog Laboratory is a breeze because this software has 3,500 production-ready sounds right at your fingertips.

From the main window, select the beige "Sound" tab on the top-right corner to toggle into Sound mode.

Sound Mode Tab

From this window you'll be able to select single presets and play them via the virtual MIDI keyboard display or via an external MIDI source.

Analog Laboratory works really well to help you find a specific type of sound thanks to all the different filters available, you can sort the 3,500 sounds by:

- Instrument (the original synth the preset was based on)

- Type (the kind of sound: Bass, Pad, Lead, etc.)
- Characteristic (Digital, Soft, etc.)
- User or Favorites programs

This can be done using the preset filter menus on the left of the Sound Search Screen:

The Preset filters of the Sound Search screen

Let's say you're looking for a Pad sound. You can start by clicking "Pad" in the "Type" filter, it will now darken to show that this filter is active.

Pad has been selected in the Type filter

Once selected the box darkens, and the Preset list to the right now only contains presets of the "Pad" type. If you want to select only sounds made by a Modular V, click the corresponding box in the Instrument Filter area. Once again it will darken to show that this Filter, in addition to the Type filter, is active.

Modular V has been selected in the Instrument filter

Now, thanks to the 2 active filters, only "Pad" sounds made using the "Moog Modular V" software are available in the preset list to the right:

The list of presets that correspond to the "Modular V" and "Pad" filters

The Entries Found number on the bottom left of the Preset list shows how many presets were found that match your selection criteria (in this case there are 102 presets that use a "Modular V" instrument to make a "Pad" sound).

Let's listen to the "Spliff Pad" preset on the top of the list. In order to load the preset, just click on its name. If it is darkened, then it has been loaded.

"Spliff Pad" preset is selected

If you have an even more specific idea of the sound you are looking for you can add additional filter criteria using the Characteristic filter. If you click on the "Digital" box, you will now have only digital sounding pad presets that were made using Moog Modular V in the Preset list to the right. As you can see, "Spliff Pad" is still contained in the list, because it has "Digital" characteristics to it.

4.2.2 Modify a preset

One of the great features about Analog Laboratory are the Controls and Envelope sections. These sections contain the most important and useful parameters of the selected preset that can be modified by the user. Basically, they allow you to tweak a preset to your specific taste.

Let's continue using the Spliff Pad preset to look a little closer at the Controls section, that should look like this:

The Controls section

Now, imagine that the sound we're looking for is close to the Spliff Pad, but we'd actually like something brighter; in that case, we could try and filter the sound a little less by increasing the Cutoff knob in the Controls Section all the way to the right.

Filter Cutoff knob turned full-clockwise

If we listen back we can hear the same sound but with more high-frequencies content.

This time, let's imagine that we want our sound to start immediately, without the fade in that it has on each note played. To do that, let's move to the Envelope section that should look like so:

The Envelope section

If we want the sound of each note to start right away, we need to reduce both Attack1 and Attack2 to zero (bottom). Your Controls and Envelopes should look like this:

Setting the Controls & Envelope parameters

By adding these modifications to the original "Spliff Pad" preset, our sound should now not only be bright, but should strike harder when a note is played.

Each one of the 10 knobs in the Controls section and 8 faders in the Envelope section can change the selected preset just as drastically, giving the user a very wide sonic palette for sound design. Please see Chapter 5.4 for more information regarding the functions of these controls.

4.2.3 Saving a preset

Once a preset has been modified to fit the user's needs it can be saved as a User preset. In this way, the preset can be renamed and recalled exactly as is. Let's take our modified "Spliff Pad" preset and hit the "Save As" button on the left hand side of the tool bar:

Save As button

A window will appear asking you for the name of your preset- type its new name and hit "Save As". You will now see your new preset in the Preset List of the Sound Search window.

Note that the information found in the Scene Edit window, like Pitch bend range and Polyphony, can now be customized as well (see Chapter 5 for more information).

4.2.4 Saving a Snapshot

In order to have even faster access to your new User preset that has just been made, it can be saved as a Snapshot.
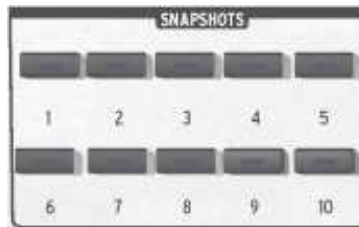
The Snapshots section

There are 10 available Snapshots that are stored in the software and reloaded upon opening. To store the currently loaded preset as a Snapshot simply [Shift]+click on Windows, [Cmd]+click on Mac, on any of the snapshot buttons on the virtual keyboard.

If you open the "Spliff Pad" preset by clicking on it, you can then save it to Snapshot 1 with a [Shift]+click on Windows, [Cmd]+click on Mac, on the button number 1.

Now you can recall it at anytime by simply clicking on the same button, even after quitting and restarting the software.

4.3 Scene Mode Quick Start

4.3.1 Select a Scene preset

Just like in the Sound part of the Quickstart Guide, the Scene mode contains many different aspects that are sure to inspire you and spark your creativity. From the main window, select the blue "Scene" tab on the top Left corner to toggle into Scene mode.

Scene Mode tab

From this window you are able to select the Scene presets and play them via the virtual MIDI keyboard display or via an external MIDI source.

A Scene preset includes quite more than a Sound preset, it actually contains enough sounds to make a fully produced track:

- 2 Sound presets (Upper part and Lower part)
- 1 Melody (an advanced arpeggiator)
- 4 Pads that trigger rhythmic sounds (either loops or one-hit fills/FX)

There are 200 Scenes, all of which are organized by 11 genres to help you find the right sound faster.
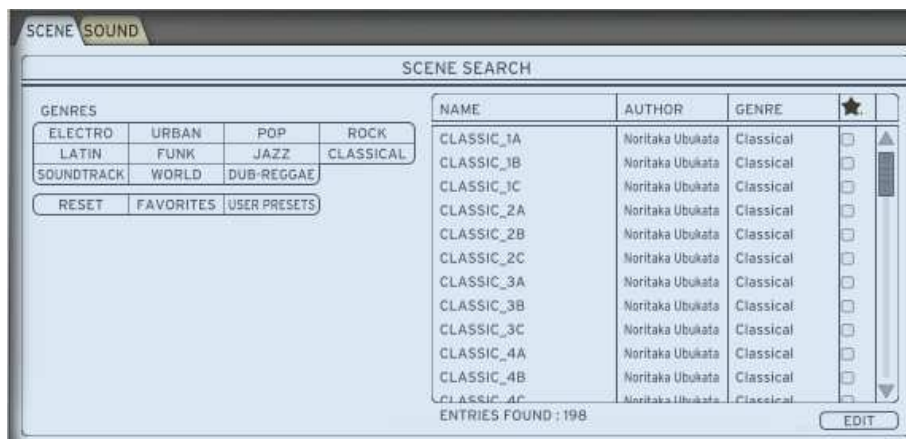
Scene Search window with Genres filter and Preset list

Just as in the previous portion of this chapter, let's take a case example: say you're looking for an Electro kind of sound. You can start by clicking "Electro" in the "Genre" Filter.
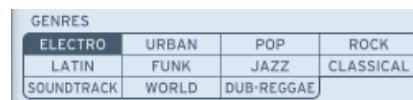
Click on "Electro" in the Genres filter

Once selected, the box darkens and the Preset list to the right will only contain presets of the "Electro" genre.
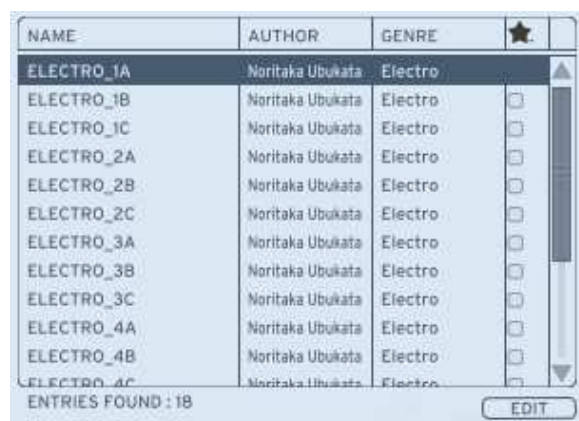
The results returned for the "Electro" genre

Let's check out the "Electro_4A" preset in the list that's now filtered to "Electro" Scene Genres. In order to load the Preset, just click on its name. It darkens when it's loaded.

The "Electro_4A" preset is loaded

When exploring a scene for the first time, it's a good idea to try out everything in order to get the best idea of what the Scene offers. Let's look at what "Electro_4A" has to offer.

Playing the Pads will let you hear what rhythmic sounds are available. If you hit a Pad a loop or one-shot rhythmic sample will play. Try playing all four of them by clicking on the four different Pads. When you click a Pad it plays and turns yellow. If the pad stays yellow then it will loop until clicked a second time or until another exclusive Pad is hit.
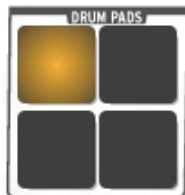
The Drum pads: the top left pad is now looped.

Scenes have 2 presets, and this scene has split the voices between Upper and Lower parts. The split point is shown by a red triangle that appears above the keys on the virtual keyboard.

The Split point: lower notes are sent to the Lower sound, higher notes to the Upper sound

All keys to the right (higher keys) will play the Upper sound; all keys to the left (lower keys) will play the Lower sound. Not all presets are split, some can be layered on set as Multis; please see chapter 5 for more info.

Also, we can hear that the "Electro_4A" has a Melody (Arpeggiator) applied the Upper voice. The Melody is an advanced mix between an arpeggiator and a sequencer. It is a series of predefined notes and rhythms that are triggered once a first note is played, and is composed to fit the selected preset Genre stylistically.

Now that we have explored this "Electro_4A" preset a bit, let's try and customize it a bit.

4.3.2 Modifying the Sounds of a Scene Preset

Modifying a Scene preset is just as easy as in the previous Sound portion of this Quickstart guide. In a Scene we can modify many things about the two Sounds (Upper and Lower Parts), Pads and Melody.

We are going to continue with our "Electro_4A" preset example. To modify the two Upper and Lower parts, we will once again use the Controls and Envelope sections of the Virtual Keyboard, that includes 10 Control knobs and 8 Envelope faders to allow you to tweak a preset to your specific taste.

Controls and Envelope section for tweaking

Thanks to the Kbd portion of the virtual keyboard (on the left hand side of the above screen) you can choose whether the parameters of the Controls and Envelope portions are those of the Upper or Lower part.

Kbd: choose which sound (Upper or Lower) receives the Controls and Envelope parameters

Let's say you want more resonating, acid Bass sound for the Lower Part, and longer notes in the Upper Part.

To make the Lower part a little more acid, we first need to make sure the Controls and Envelopes are those of the Lower part by clicking on "Lower" in the Kbd section (see screen shot above). Once you've clicked on "Lower", you are set to acidify this part's sound by bringing up the "Resonance" of the preset filter in the Controls section. It should now sound acid and look like this:

The Resonance controller being raised

Now we can take care of the Upper part. We'll need to head back to the Kbd section and this time click on "Upper". Note than when you click on upper, all of the knobs and faders change because they now correspond to the Upper sound instead of the Lower sound.

The Upper button clicked

Once "Upper" is selected, we can be sure that the knobs in the Controls section and faders in the Envelope section are set to control the Upper Part.

We decided that we'd like to change the length of our notes in the Upper part. In order to do that, we need to increase the Decay amount of the amplitude envelope, or "Decay1" (second fader from the left). Now when a note is pressed it should ring after we let it go, and should look like this:
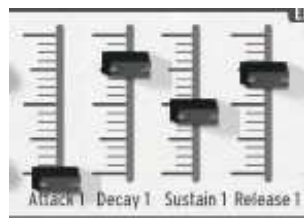
The first envelope is set

For complete information on how each of these Control and Envelope parameters can affect the sound of your preset, please see chapter 5.4.

4.3.3 Modifying the Melody and Pads of a Scene Preset

In addition to just modifying the sounds of the presets, we can also change quite a few aspects of the Pads and Melodies. We are not going to go into every detail here (please see Chapter 5 for that), but we will look at how to modify one or two aspects of this "Electro_4A" preset.

Let's say we want to change a few things:

- Move the Melody to the Lower part (to play lead or solos on the Upper Sound)

- Transpose the Bass (Lower Sound) up one octave

- Select a different Sound for the Upper part

In order to operate any of these functions, we must first toggle into the Scene mode's Edit mode by hitting the "Edit" button in the lower right-hand corner of the Scene search screen:

Edit button (underneath the Preset list)

Once clicked, it darkens and the Scene edit window appears. It contains quite a bit of useful information and options that are explained in detail in Chapter 5, but for now we must concentrate on achieving our 3 goals.

The Scene Edit window

First of all, to move the Melody from the Upper to Lower sound, we need to look at the Melody panel in the middle right of the above screen. We can see that "Upper" is highlighted, meaning that the Upper Sound receives the Melody. We just need to click on "Lower" to send the Melody to the Lower sound; it should then look like this:

Melody is assigned to the Lower part

Note that to remove the Melody all together, we just need to click on Lower again so that neither Upper or Lower are highlighted.

Now, to move the Bass up an octave we should look at the Sounds portion of the Sound Screen.
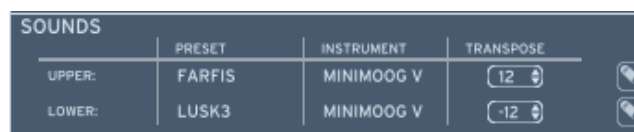
Transpose the sounds

As you can see, there is a Transpose section for both the Upper and Lower parts. The Lower transpose is now set to -12, but we can click on it and select 0 instead. Now our Bass sound will be one octave higher, and should look like this:
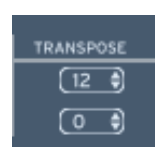
Lower sound transposed 1 octave higher

And now for the last part, we want to change the Sound for the Upper Part. Scenes come preloaded with 2 sounds but we can replace any one or both of them will another preset, even a user preset!

In order to change the preset, we need to click on the "pencil" icon to the right of the Upper Sound information, just to the right of the Transpose menu:

The pencil button

Once you click on that, you will toggle into the Sound Setup screen:
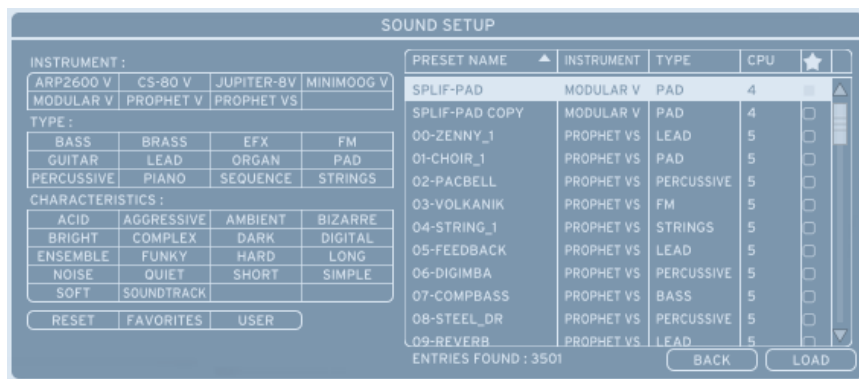
The Sound Setup screen

This should be familiar to you, it is the same as the Sound Search screen, and allows one to replace the current Upper sound's preset. We can also use the filters just like in the Sound Search Mode. Let's select "Splif" pad: clicking back will cancel our choice, and load will replace the current Upper Sound with the "Spliff Pad" preset.

Note that we can change the Lower sound in exactly the same way, by clicking on the "Pencil" Icon to the right of the Lower sound.

Also note that we can change the Melody and Pad sounds as well in exactly the same way; please see Chapter 5 for in-depth explanations.

4.3.4 Save Scene preset as a User preset

Saving a Scene preset as a User preset is done the same way as with a Sound preset, by using the Save As button (please see 4.2.3). Snapshots are done in the same way (please refer to 4.2.4)

4.4   Analog Experience "The Laboratory" keyboard

Your Analog Laboratory keyboard can connect to the Analog Laboratory software, creating a Hybrid combination that allows you to control nearly every aspect of the software directly from the keyboard. This is especially useful in a live context, and really lets the user put away his mouse and get into Analog style sounds. Hands on!

The first step to achieving this is to plug the keyboard into the computer using the provided USB cable. This cable not only transmits data to control the software, it also

provides power to the keyboard controller: no need to use a power supply when used with a computer, so the USB cable is the only cable that needs to be connected. The USB plug is situated on the rear panel of the keyboard, and should be plugged into any free USB port on the computer. Once the keyboard is plugged in and the computer is powered on, the keyboard will light up showing that it is working correctly.

Next step is to launch the Analog Experience the Laboratory software. Once the software is launched, you should be able to directly hear notes you play on the keyboard. If not, please make sure that your audio output is correctly set and that your Analog Experience the Laboratory keyboard shows up as an active MIDI input (see the beginning of this Quickstart guide for more information on setting up Audio and MIDI Settings).
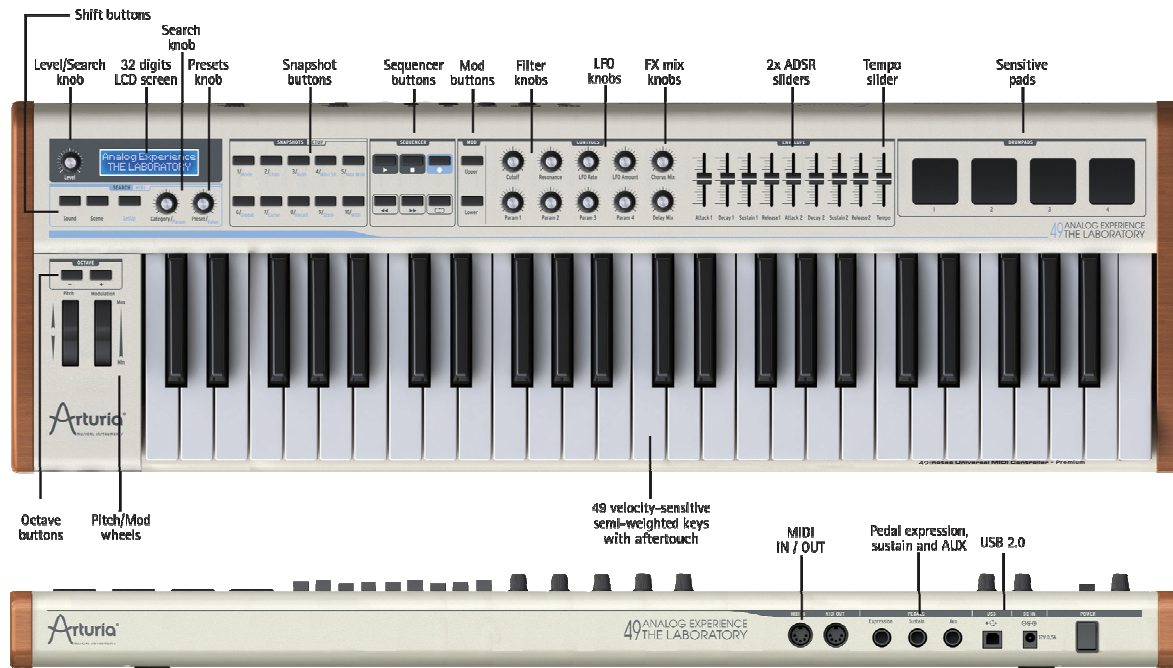
The hardware keyboard (Analog Experience "The Laboratory" only)

5   USING ANALOG LABORATORY

Analog Laboratory is similar to its preceding 'little brothers' software Analog Factory and Analog Player; it contains many presets taken from the Arturia's award winning softsynth emulations of the world's greatest hardware synthesizers.

5.1   Configuration

5.1.1 General options

Preferences are set by clicking on the [ANALOG EXPERIENCE THE LABORATORY] logo on the virtual keyboard, or on the PREFS button in the tool bar.
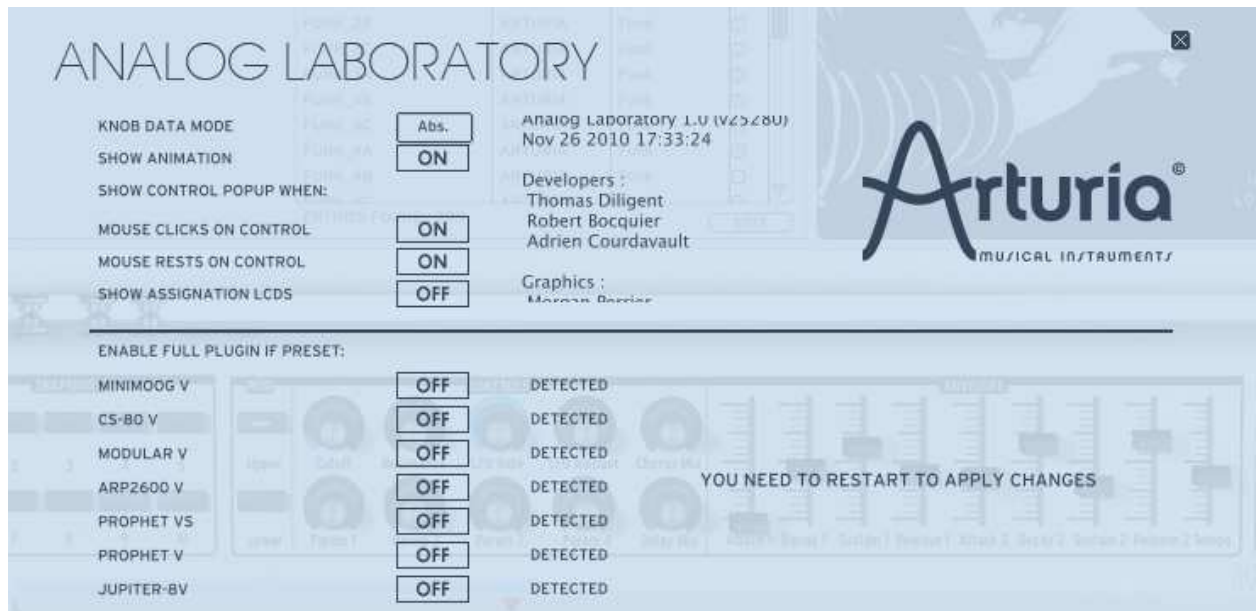
The "Preferences" window

The following options are available:

KNOB DATA MODE	Here you can choose the data transmission mode of the encoders:
	▪ ABS is absolute mode, the controller sends the exact value of the parameter;
	▪ REL1 is usual relative mode, the controller sends increment and decrement information, as well as acceleration;
	▪ REL2 is binary offset mode (two's complement), a special encoding used by some MIDI controllers.
	Default is ABS.
SHOW ANIMATION	Choose to activate or deactivate the animation (keyboard and Preset Manager folding).
SHOW CONTROL POPUP WHEN MOUSE CLICKS ON CONTROL	A small popup window appears each time that the mouse clicks on a modifiable parameter in order to give information about the parameter and modifiable values. Choose ON to activate this preference, or OFF to deactivate it. Default is ON.
SHOW CONTROL POPUP WHEN MOUSE RESTS ON CONTROL	A popup window will appear when the mouse remains idle on a modifiable parameter, giving information about the parameter and the modifiable values. Choose ON to activate this preference, or OFF to deactivate it. Default is ON.
SHOW ASSIGNATION LCDS	Toggles the display of the small label screens showing the current key parameter knob assignments.
ENABLE FULL PLUGINS IF PRESENT	Enables editing of an Analog Laboratory preset in the full Arturia synthesizer the preset originally came from, if the full version is owned and fully active on the same computer (therefore marked as "detected"). Turn this ON in order to use the "Open" function in the Sound Search screen.

5.1.2 Audio & MIDI Settings

The Audio & MIDI Settings window is where you can define basic Audio and MIDI options.

The "Audio &MIDI Settings" window, for Windows and Mac OS X

(Windows) **AUDIO DEVICE TYPE**	Selects the appropriate driver for your audio device.
(Mac OS) **OUTPUT** *(Windows)* **DEVICE**	Chooses which audio output Analog Laboratory will send sound out of. Default is "Built-in Output" on the Mac; for Windows we highly suggest to use an adequate ASIO driver for your sound card.
TEST	Send out a short sine wave tone to help make sure sound is being sent out the correct device.
SAMPLE RATE	Choose the sample rate; default is 44,100 Hz. Increasing the sample rate increase the quality of sound, but adds a bigger load to CPU.
AUDIO BUFFER SIZE	Chooses the audio buffer size, displayed in samples and milliseconds. Default is 512 samples. Decreasing this number lowers latency, but adds more load to CPU. Increasing lessens load on CPU but augments latency (latency is the delay between a note played and actual sound output).
ACTIVE MIDI INPUTS	Displays the available MIDI inputs that can be used to control Analog Laboratory. For example, if you'd like to use an external keyboard with Analog Laboratory, it can be selected here.

5.2 Tool Bar

The tool bar consists of a set of essential icons, organized from left to right:

Tool Bar

The tool bar allows you to see or have access to:

SAVE	Save changes to the current USER program.
SAVE AS	Saving programs. This function allows the user to save a sound program that has been modified, including giving it a new name. This new program will then be a USER program, not a FACTORY program. When one chooses the "Save As" function, a window opens allowing the user to name and classify the new program according to TYPE and CHARACTERISTICS).
	⚠️ *So that the foundations of the instrument remain intact, it is not possible to save or delete a Factory preset (Presets that come installed with the software). However, the Save As function allows the modification and saving of a Preset under another name that the user chooses.*
DELETE	You can delete any USER program with this function.
PRESET NAME INSTRUMENT TYPE	Name of the current program, name of the Instrument (for a Sound) or Genre (for a Scene), and the Type of instrument (for a Sound).
EXPORT	Choose this function to export USER programs. Click on "Export", choose the destination of the "*.alpresets" document which will be created, and give it a name.
	⚠️ *So that the foundation of the Analog Laboratory remains intact, it is not possible to Import/Export factory presets.*
IMPORT	Permits the user to import a document containing the USER programs for Analog Laboratory (allowing you to add new programs to your personal collection). The document referred to is called "*.alpresets". To import, click on IMPORT and then the local "*.alpresets" document in your computer. If the document(s) being imported have the same name as existing presets, the following options will appear: ▪ "Duplicate" leaves two presets with the same name listed in the Preset Manager. ▪ "Replace" will replace the current preset with the same name with that of the one being imported. ▪ "Skip" will stop the new preset from being imported.
MIDI	A drop-down menu offers the channel choice from which Analog Laboratory receives MIDI information. Default is ALL (responds to data on all MIDI channels). The close-by little light signals the MIDI activity: it illuminates when a note from an external MIDI controller or keyboard is pushed.
TUNE	General settings for the tuning of Analog Laboratory. This allows the user to finely adjust the global tuning of the instrument.
ALL BOTTOM UP	Choose the view of the interface. The selection buttons offer the choice to view all of Analog Laboratory ("ALL"), only the keyboard ("BOTTOM"), or simply the preset manager ("UP").

5.3 Using the Sound screen

The Sound screen is where single presets can be found; it is grey-green in color.

Presets account for the various sounds of Analog Laboratory: there are 3,500 of them! A preset contains all the setting information of the different controllers necessary to reproduce a sound.
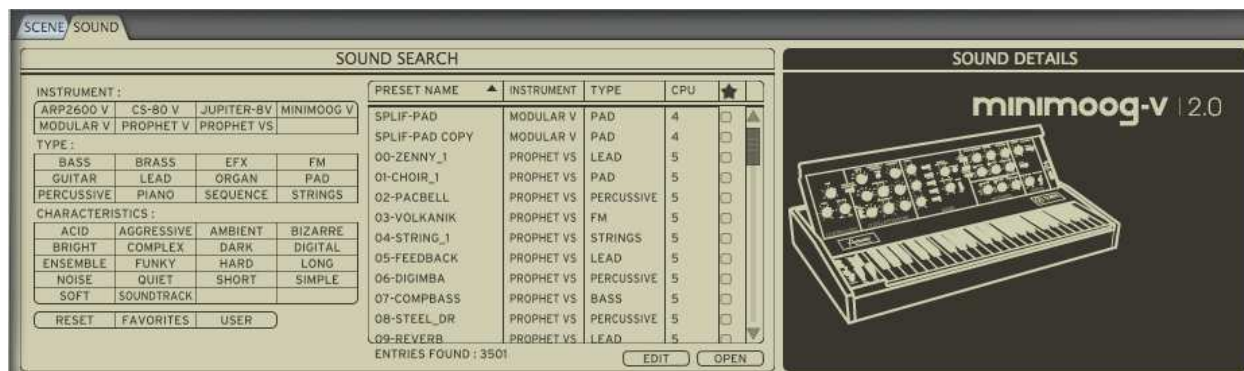
Sound screen (Sound Search and Sound Details)

In order to load a preset, just double click on the name of a preset in the preset list on the right side of the Sound Search screen:

Presets list in the Sound Search screen

In Analog Laboratory, there are various ways in which the Presets are classified and filtered in order to simplify preset management and find the appropriate sounds for a song; one won't have to search 3,500 presets to find the desired sound. These filters are listed on the left of the Sound Search menu and presented as follows: Instrument, Type, and Characteristics. Let's take a moment to look at each.

5.3.1 Sound Instrument

The Sound Instrument filter

"Instrument" refers to one of the 7 instruments from which Analog Laboratory draws its sound. The instruments include:

- ARP 2600 V
- CS-80 V
- Jupiter-8V
- Minimoog V
- Moog Modular V
- Prophet V
- Prophet VS

If, for example, one clicks on CS-80 V, the Preset Manager will provide a list of presets uniquely from the CS-80 V. But one can also choose to browse for more than one Instrument; that means the user can look for sounds from CS-80 V and ARP 2600 V at the same time by selecting both instruments in the "Instrument" frame. When no instrument is selected for preset filtering, then the Manager will either automatically list all presets or list presets based on other filters.

All presets are listed to the immediate right of the filters under Preset Name.

5.3.2 Sound Type

The Sound Type filter

"Type" refers to instrument type being synthesized. Just as in the above example, one may select "Type" only in order to have access to the list below:

- Bass
- Guitar
- Percussive
- Brass
- Lead
- Piano
- EFX
- Organ
- Sequence
- FM
- Pad
- Strings

As with the Instrument filter, one can choose one or more Types of presets. By selecting only BASS, the user will be given a list that contains only bass presets, and if one chooses BASS and STRINGS both Types will be provided.

The user may also search deeper by selecting and combining the different filters. For example, one may choose BASS, PAD, and STRINGS under the Type filter and MOOG MODULAR V and ARP 2600 V in the Instruments filter. The Preset Manager will then offer a list fulfilling only the above criteria.

5.3.3 Sound Characteristics

The Sound Characteristics filter

To further filter choices, there is a third filter offered. "Characteristics" allows the user to choose presets according to a mood or ambiance. The choices available are as follows:

- Acid
- Bright
- Ensemble
- Noise
- Soft

- Aggressive
- Complex
- Funky
- Quiet
- SoundTrack

- Ambient
- Dark
- Hard
- Short

- Bizarre
- Digital
- Long
- Simple

Once again, these filters can be applied either individually or in any combination that the user wishes in order to find the ideal presets.

5.3.4 Entries found

This number, found at the bottom right of the Preset Manager, indicates the number of Presets that correspond to a preset search.

5.3.5 Sound filter options

The Sound filter options

Above the filters are three buttons: Reset, Favorites, and User. These buttons function as follows:

RESET	Removes any filters that the user may have applied to the presets so that a new search may be started.
FAVORITES	Presents only the favorites that the user has checked in the presets list. When the FAVORITES filter option is selected, then the filters (Instrument, Type, and Characteristics) will be applied only to the list of favorites.
USER	An abbreviation of USER PRESETS. Since the user can modify and create new presets, he may also choose the filter option "USER" in order to view and search exclusively among presets created by the user.

5.3.6 Sound details

To the right of the Sound Screen is the Sound Details screen.
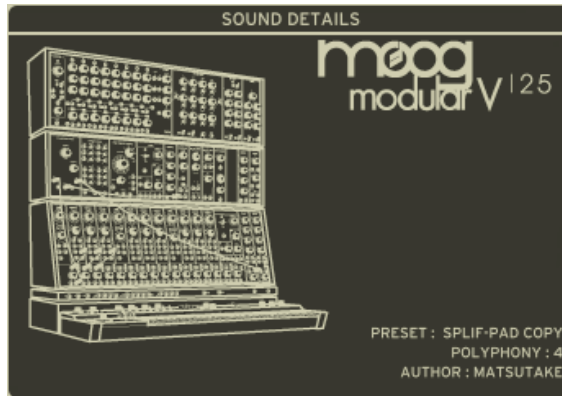
Sound Details

Information on the current preset, kind of "Identity Card", is found to the right of the Preset Manager. An image of the original instrument which the preset is based upon is presented along with the following information:

PRESET	The name of the current preset
INSTRUMENT	The name of the virtual instrument
AUTHOR	The name of the sound designer who created the preset
POLYPHONY	The number of available voices for the current preset.

5.3.7 Editing a preset

If the selected preset is a USER Preset, it is possible to edit its information by clicking on the "Edit" button in the lower right hand side of the Sound Search screen:

Edit button

By clicking on this option, a window similar to that of the Save As function appears. Many different options can be modified by the User in this window, as long as the current preset is a User Preset. If it is a factory preset, then the information will stay locked in place, and no modification will be possible. To change a factory preset, one can simply save it as a User preset first (using the "Save As" function), then proceed to modify the User copy.

Edit Preset window

PRESET NAME	The name of the current preset. Click in here to change the preset Name.
TYPE	The name of the virtual instrument (Bass, Brass, Pad, Lead, etc.)
CHARACTERISTICS	This is where one defines the sound via the list of adjectives available (simply click in the boxes corresponding to the 18 possible options: Bright, Dark, Aggressive, Quiet, Hard, Soft, etc.). These characteristics will be taken into account when the Characteristics filter is used. For instance, if one saves a preset with 'Simple' checked, then when searching for a Simple preset using the Characteristic filter, the preset will appear in the preset list along with the other Simple presets.
PITCH BEND RANGE	Chooses by how many semitones a played note will be shifted (up or down) when the Pitch Bend wheel of Analog Laboratory is used. Any pitch bend message received by an external sequencer of keyboard will also affect Analog Laboratory's pitch bend.
POLYPHONY	Allows the user to choose the number of available voices for the current preset, between 1 and 32 voices. To the right there is an additional drop down menu that allows you to specify whether the preset is in mono (one voice), unison (multiple voices only on the same note) or poly (multiple simultaneous notes). Adding Polyphony increases the richness of a preset because many notes can be played at once, but also augments CPU load.
SEQ. STEP SIZE	If the Preset uses a sequencer, then this option allows the user to adjust the step size of the preset internal sequencer. T is the Time base, and when an option with * is selected, the rate of the sequencer is multiplied. When an option with / is selected, the rate becomes a subdivision of the initial T. For instance, "T*2" means "twice the tempo".
LFO MIDI SYNC	If the preset contains an LFO, this option enables external syncing for tempo-matched LFO variations.

Clicking "Save" on the bottom right hand side validates the modified options, saves them to the preset and brings back the Identity Card Sound Details screen.

⚠️.*A Factory preset cannot be modified; you must first save it as a User preset.*

5.3.8 Opening a preset

At the very bottom right-hand corner of the Sound Search screen is the Open button:
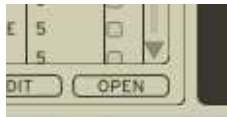
The Open button

As previously mentioned, all of the presets in Analog Laboratory are taken from Arturia's award-winning virtual soft-synths. One of the powerful additions to the Laboratory version (professional grade of the series), is that any of these presets can be opened up and edited in the original synth it was created in.

By clicking on this button, the currently selected preset will be opened in the same synthesizer that was originally used to make it. In order for this to work, the full version of the original software synthesizer must be installed and fully functional.

For instance, if you own a copy of the ARP2600 V, then you can open any of the ARP2600 V presets included in Analog Laboratory, edit, and then save it as a new User preset.

⚠️.*Factory presets cannot be overwritten, but only modified and saved as User presets.*

Preset ARP2600 V being called and edited from Analog Laboratory

5.3.9 Organization

In addition to the preset filters that help the user easily search and select among the 3,500 various presets, there are also view options within the Preset Manager that allows the user to choose how the presets are listed.

When the user selects the filter criteria, the list of Presets appears in a vertical column in the middle of the screen under **Preset Name.** By default, the presets will be listed automatically in alphabetical order from A to Z under Preset Name. However, if the user prefers, the presets can be arranged on the screen according to other criteria in the adjacent columns:

INSTRUMENT	In this column, the name of the original instrument that produced the sound is offered for each preset. Therefore, it will list among the following instruments: Minimoog V, Moog Modular V, ARP2600 V, CS-80 V, Prophet V, Prophet VS or Jupiter-8V. By clicking on the title bar labeled Instrument, the columns will reorganize alphabetically under the Instrument column.
TYPE	In this column, the type of instrument appears corresponding to each preset. By clicking at the top of the column on the Type title bar, the presets presented will be listed alphabetically according to Type in the same column.
CPU	In this column, the CPU usage rate appears for each preset. By clicking the title bar labeled CPU at the top of this column, the presets will be arranged on a scale from 1 to 5. 1 represents a low CPU usage rate while 5 represent a high CPU usage rate.
FAVORITES (FAV)	Allows to classify presets according to usage or general preference as one does in popular media players. Simply check one's Favorite presets and access them by clicking the title bar at the top of the column. One may also easily access the favorites with the Favorites filter option.

5.4 Keyboard view

The Keyboard view of the Analog Laboratory (accessed either by the "Keyboard" or "All" view in the toolbar) gives the user access to both the virtual keyboard and all the controls with which the user can modify the sounds of the presets. We will take a moment now to look at these controls.

5.4.1 Virtual keyboard

The LEVEL knob controls the general volume of Analog Laboratory. The more the knob is turned to the right the higher the output level is raised.

The virtual keyboard visually presents 49 keys and allows producing the sounds of the Analog Laboratory without the need for an external master MIDI keyboard. With the help of the OCTAVE transpose function found on the left of the virtual keyboard, above the pitch and modulation wheels, the user may scroll up or down the keyboard for notes in higher or lower ranges than is visually presented.

Virtual keyboard

5.4.2 The wheels and Octave buttons

The wheels found on the left side of the virtual keyboard give the user control over the frequency of the sound ("Pitch") and the modulation rate ("Mod").

Wheels and Octave buttons

PITCH WHEEL	Wheel controlling the pitch of the sound. When pushed in the up direction, the sound "bends" and becomes higher in tune. When pushed in the down direction, the sound "bends" and becomes lower in tune.
MOD	Wheel controlling modulation (MIDI controller #1). ⚠ *The modulation wheel is not necessarily connected on every preset! It will depend on the preset being used.*
OCTAVE	The Octave button transposes all notes played up or down one or more octaves. This allows one to play notes one or more octaves higher or lower without changing the keyboard zone in which the notes are being played.

5.4.3 Kbd

The Kbd (Keyboard) section is used only for the Scene Mode (see Chapter 5.5). It contains 2 buttons allowing to choose whether the knobs in the "Controls" section are controlling the Upper or Lower voice of the Scene.

The Kbd buttons on the left, and Controls section on the right

If "Upper" is selected in the Kbd section, then all of the rotary controls in the Controls section will affect the Upper sound of the Scene. If "Lower" is selected, then the knobs in the Controls section will correspond to the Lower sound of the Scene.

5.4.4 Filter

Filter

CUTOFF	Modifies the cut-off frequency: this filter has the ability to make the sound more or less bright by controlling the amount of high frequencies.
RESO	Modifies the resonance of the filter: the sound becomes more "cutting" when the parameter is pushed.

5.4.5 LFO

The LFO, Low Frequency Oscillator, is used as a modulation source for Analog Laboratory's sound. It allows the user to create variations in a sound parameter to generate diverse effects such as a vibrato, "wahwah" effect, etc. The two parameters that may be modulated within the LFO are:

LFO

RATE	Sets the LFO rate/speed.
AMOUNT	Sets the amount of LFO modulation.

5.4.6 Key parameters

The key parameters section will prove to be particularly useful. This section is found in the middle of the *Keyboard View* and labeled with the aforementioned name (*Key Parameters)*.

Key parameters

Each preset offers the four most pertinent parameters unique to that preset. Our sound designers have taken the greatest care to assign parameters that will enrich and give depth to the sound of each preset. In this way, only the parameters that are the most beneficial when modifying/tweaking a given sound are available, facilitating the production process.

To know which 4 parameters have been selected for each preset, one can simply point the mouse over a Key Parameter knob and an information block will appear specifying the parameter name.

5.4.7 FX MIX (Effects Mix)

Analog Laboratory also carries a simple yet efficient effects section. The two effects, Chorus and Delay, are automatically synchronized to the tempo of a piece in the user's sequencer. If in spite of this the user wishes to access more advanced effects, they are available in most sequencer programs (Cubase, Garage Band, Pro Tools, to name just a few).

FX MIX

CHORUS	The Chorus effect permits one to double and detune the sound in order to make it deeper and richer. The Chorus Mix controls the amount of chorus applied to the original sound, making it more wet or dry.
DELAY	The Delay carries an echo effect (repetition of the sound) that gives space to the tone. The speed of these repetitions is automatically synchronized to MIDI tempo (the tempo of a song in the host sequencer). The user can simply adjust the Delay Mix knob to control the quantity of the effect.

5.4.8 ADSR faders

The "ADSR" envelope is composed of four successive sequential periods in the life of a note: Attack time, Decay time, Sustain level, and the Release time.

ATTACK	Begins when a note is activated. The attack time may be short and dry (as in percussion) or long and ascending (as with a pad sound).
DECAY	Follows the Attack. The decay is a period in which the amplitude of the sound is reduced to the sustain level.
SUSTAIN	The sustain level of the note, as long as the note is active/held.

RELEASE	The end of the sound, once a key is released. The release can be short or stretch out over a longer duration.
TEMPO	The 9th and final fader on the right controls internal Tempo. This is used for the rhythms and Melodies in Scene mode. Please refer to chapter 5.5.9 of this Manual for more information.

Thanks to these 4 faders (A, D, S, and R) one can very simply edit the amplitude curve envelope of each sound within Analog Laboratory. If, for example, one finds a sound pleasant but the attack is too long, he can use the A fader to reduce it.

ADSR envelopes

As will be described in the following paragraphs, the diverse parameters of Analog Laboratory can be controlled from an external MIDI keyboard making the manipulation of the instrument much more practical and quicker than manipulations with a mouse. It is in this spirit that the instrument was created. It is highly recommended to use Analog Laboratory with an external MIDI keyboard.

5.4.9 SNAPSHOTS buttons
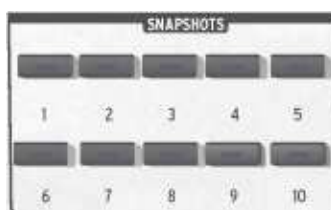
Snapshots buttons

The snapshots buttons are found at the top left hand corner of the Keyboard view. These eight buttons allow the user to quickly save any preset being used, along with modifications that may have been made to it, for easy access. These 10 snapshots are automatically saved when Analog Laboratory closes and will be automatically available when the program is reopened.

This feature is especially useful when an artist plays live because these 10 snapshots can then be easily accessed from a MIDI interface. This means that the user can stock 10 of his favorite presets along with any modifications previously made, and have everything they need at the touch of a button on a MIDI interface during a live session without referencing the computer screen.

It can also be useful for comparing modifications to sound in order to choose which fits best into a musical production. For example one could store 10 different states of the same preset: first state or original, second with the Cutoff applied, third state using the delay, etc.

To take a snapshot:

‣ Simply [Shift]+click on one of the buttons in order to save the preset currently being used.

‣ Then later, to recall the preset along with any modifications that may have been made to it, simply click on the same button.

‣ If the same assignation operation is done on the same button, then the current Snapshot will be replaced without prompting the user.

5.4.10 Pads

The pads add an exciting new rhythmic dimension to Analog Laboratory, and are part of what makes this software a complete production suite. They are used only in the Scene mode to trigger loops and effects in many different ways. Please see 5.5.10 for more information.

Pads Section

5.4.11 MIDI control

Most of the knobs, sliders, and switches on the Analog Laboratory can be manipulated with external MIDI controllers, and this is ideally the way they should be controlled, in order to get a high level of usability. Before anything else, the user should make sure that the MIDI device being used is correctly connected to the computer, and that the sequencer or the Analog Laboratory standalone application is correctly configured to receive MIDI events coming from the device.

Every instance of the Analog Laboratory receives MIDI events transmitted on a given channel. This reception channel is defined in a global manner for the synthesizer, either in the sequencer, or in the standalone Analog Laboratory application. On the reception channel, the Analog Laboratory can receive different MIDI controls.

It is possible to choose a reception control for each knob, which means assigning an external controller to a given parameter. This MIDI assignation is done through:

• [Ctrl]+click on Windows

• [Cmd]+click on Mac OS.

A configuration window appears and offers the choice of a MIDI control number. The user can also click on the "Learn" button and move one of the physical MIDI controllers. In this case, the control number will be detected and configured automatically. To deactivate the MIDI control of a knob, simply uncheck the "Active" option in the MIDI control window.

Assigning an external MIDI controller

5.5 Scene Mode

The Scene mode is one of the exciting and innovative concepts behind the new Analog Laboratory software. By adding Melodies, Pads, a Mixer as well as split and layer options, it turns your software into a stand alone production center. It is the second part of the software, and is light-blue in color.
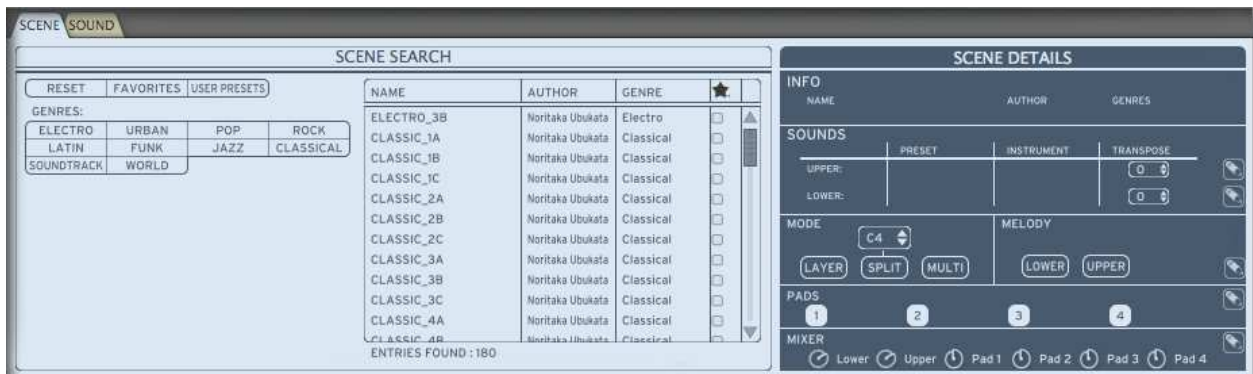
The Scene Screen

Scenes are comprised of the following elements:

- 2 sounds (an upper and lower preset)

- 1 mode (split, layered, multi)

- Melody

- 4 pad samples

- 1 mixer for volumes and panning of the 2 sounds and 4 pad samples

There are many options in order to customize the scenes, all of which are accessed in the Scene Edit screen. This will be thoroughly explored later in this chapter between 5.5.5 and 5.5.11.

5.5.1 Scene Search

Analog Laboratory comes packed with 200 Scenes that are ready to be played. They can easily be browsed and selected in the Scene Search Screen:
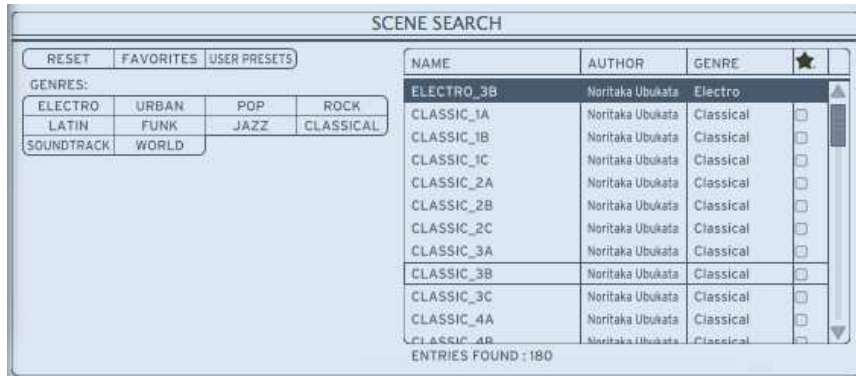
The Scene Search screen

On the right side of Scene Search screen is a list of all the available Scenes. Clicking on any one of these Scene Presets recalls it automatically along with everything in it: both Upper and Lower Sound Presets, 4 Pad Sounds, Mode and Mixer settings.

The Scenes are organized by name, and contain the following information as well:

NAME	The name of the Scene preset. Scenes are listed alphabetically.
AUTHOR	In this column, the name of the Scene creator is listed.
GENRE	The genre states what musical style the preset is.
★ (FAVORITES)	By checking the box in this column, the corresponding preset becomes a Favorite, and will appear when the Favorite filter option is enabled (see 5.5.3)

5.5.2 Genres filter
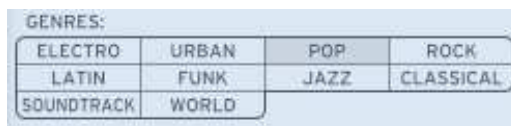
The Genres Filter Criteria

"Genres" refers to the musical style of a Scene preset. Each preset has one or more genres associated with it, allowing one to quickly access a particular scene thanks to this filter list. These are the available Genres to choose from:

- Electro
- Urban
- Pop
- Rock
- Latin
- Funk
- Jazz
- Classical
- Soundtrack
- World

As with the filters in Sound mode, one can choose one or more Genres of presets. By selecting only POP, the user will be given a list that contains only pop presets, and if one chooses POP and JAZZ both Types will be provided.

5.5.3 Filter options

The Filter options

Above the filters are three buttons: Reset, Favorites, and User Presets. These buttons function as follows:

RESET	Removes any filters that the user may have applied to the presets so that a new search may be started.
FAVORITES	Presents only the favorites that the user has checked in the favorites list. When the favorites Filter option is selected, then the filters (Instrument, Type, and Characteristics) will be applied only to the list of favorites.
USER PRESTS	Since the user can modify and create new presets, he may also choose the Filter option "USER" in order to view and search exclusively among presets created by the user.

5.5.4 Entries found

This number, found at the bottom right of the Preset Manager, indicates the number of Presets that correspond to a preset search.

5.5.5 Scene Edit

The Scene Edit page is on the right hand side of the Scene screen. It includes important information about the scene, and allows the user to modify the current Scene to his liking.

Scene Edit screen

Thanks to this window, one can view and/or modify:

- Scene Info

- Scene Sounds (Upper and Lower)

- Scene Mode

- Scene Melody

- Scene Pads

- Scene Mixer

5.5.6 Scene Info

This screen gives important information regarding the current Scene: the Name, Author (preset creator) and musical Genre. This section is display only, nothing can be edited.

Scene Info portion of the Scene Edit Screen

5.5.7 Scene Sounds

As previously mentioned, Analog Laboratory's Scenes include 2 sounds; one Upper sound and one Lower sound. All information regarding both sounds can be found in the "Sounds" portion of the Scene Edit screen, as shown below:

Sounds portion of the Scene Edit Screen

SOUNDS	Top line is the Upper sound, bottom line is the Lower sound.
PRESET	The name of the preset currently assigned to the Upper/Lower part. This information is read-only.
INSTRUMENT	In this column, the name of the original software synthesizer used to create the preset.
TRANSPOSE	Allows one to quickly transpose the Upper or Lower sound.

Both the Upper and Lower sounds can be chosen from among the 3,500 sound presets by clicking on the little "pencil" icon on the far right of this screen:

The pencil icon

This toggles into the "Sound Setup" screen where the user may choose a different preset. This action may be performed on both Upper and Lower sounds, since both the Upper and Lower sounds may be changed.

For example, if you'd like to choose a different preset for the Upper Sound, then click on the pencil icon on the same line as the Upper information, all the way to the right. This opens the "Sound Setup" screen:
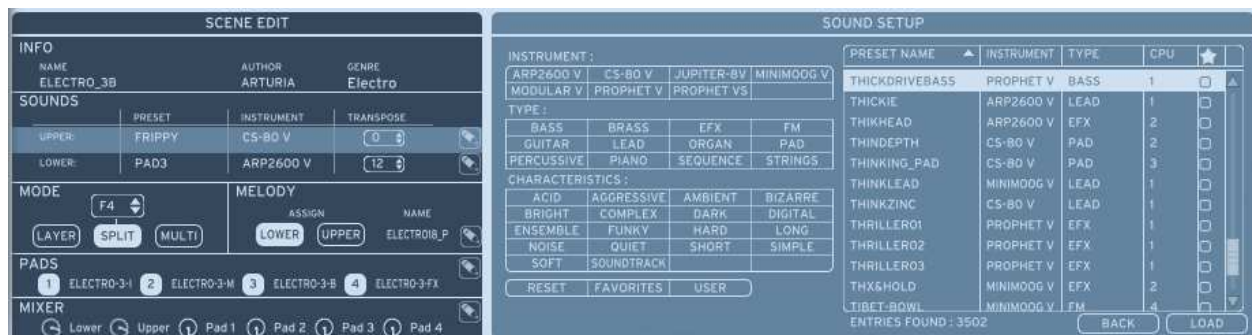
Sound Setup screen for the Upper sound

Once in this window, you may select a new preset in the same way that you would select a preset in the Sound Mode, including the handy filters (Instrument, Type, and Characteristic). Please return to Chapter 5.3 for more information on choosing a preset.

If you'd like to validate your choice, press "Load" on the bottom right hand side of the screen. To cancel, click on the "Back" button. Both options close the Sound Setup screen and return to the initial screen layout.

Changing the Lower Sound is done in exactly the same manner, by clicking the corresponding pencil icon.

5.5.8 Scene Mode

The Scene Mode is where the user decides how the 2 sounds of the Scene (Upper and Lower) are mapped to the keyboard. The various options are explained in the table below:

Scene Mode screen

LAYER	Layers the Upper and Lower voices together: all notes will trigger sounds from both of the presets.
SPLIT	Split sets a split point on the keyboard, that can be chosen via the menu situated above the "Split" button. All keys positioned to the left of the Split point will play the Lower sound. All keys positioned to the right of the Split point will play the Upper sound.
MULTI	The multi allows for two separate input sources to play the Upper or Lower sounds. This means, for example, that an external MIDI sequence can play the Lower sound while a keyboardist with a MIDI keyboard can play the Upper sound.

5.5.9 Melody

The Melody is an integral part of Analog Laboratory, and allows complex harmonic and melodic patterns to be easily played. In short, it is a combination of an arpeggiator and a sequencer: a sequence of notes that is triggered upon each note played.

The melody can be assigned to either the Upper sound of the Scene, the Lower sound of the Scene, or deactivated if none is selected. This is done in the Scene Edit screen shown below, the name of the currently selected melody also appears here:
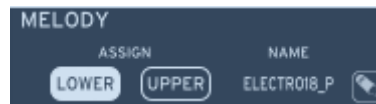
Melody section of the Scene Edit screen

Tempo is set using the Tempo fader, to the right of both ADSR envelopes, or can be synced to an external source.

Tempo fader

There are 180 melodies available to choose from in 10 different styles. There is a Melody assigned to each Scene preset by default, but the user may change it if he or she wishes. In order to do that, one must open the Melody Setup Screen by clicking on the pencil icon in the lower right-hand corner of the Melody section. The interface that appears looks like this:
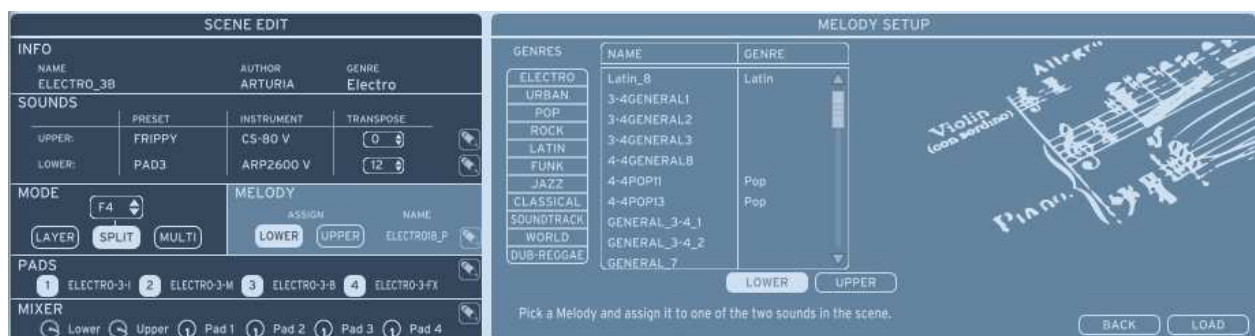
The Melody Setup screen

The Melody setup screen is a filter that allows the user to choose only a specific musical style from among the presets. For example, if one clicks on Electro, only Electro-style Melodies will appear in the Melodies zone, which are listed by Name and Genre (musical style).

For example, if you wanted to change the Melody of a scene you would click on the pencil icon in the Melody section of Scene Edit, browse the Melodies directly or use the

Genres tab to filter down the amount, then select "Load" to validate the choice, or "Back" to cancel (both options are in the lower right hand part of the screen). Both of these options close the current screen and return to the standard Scene view.

5.5.10 Pads

The Pads section is a powerful section of Analog Laboratory and is a part of what makes it a complete sound workstation. There are 4 pads that can trigger audio loops and effects that really complement the two Sounds of a Scene rhythmically.

Pads are triggered from the Pad GUI section on the Top right part of the Keyboard view:

The Pads

The Pad section in the Scene Edit Screen gives an overview of the names of the 4 sounds currently being used in the Scene:

The Pads section of the Scene Edit

There are quite a few different options to customize the Pads of a Scene. These options can be accessed by clicking on the pencil icon on the right-hand side of this Pads section. Doing this will open the Pads Setup screen, as seen below:
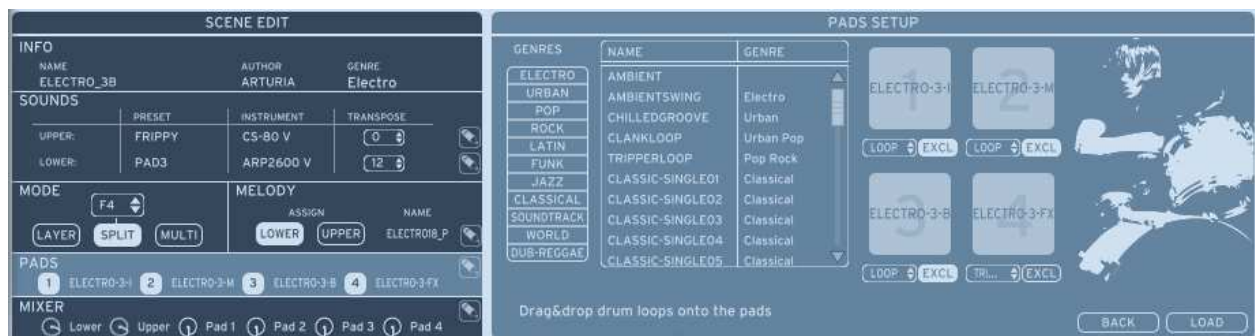
The Pad Setup screen

This screen allows one to:

- Browse a Pad preset

- Filter the entire Preset list by Genre

- Customize how each Pad sound is played

The Preset table (middle) is a complete list of all available Pad presets. The left column contains the preset Name, the right column contains the Genre, or musical style it belongs to. Each Pad preset includes 4 sounds and individual triggering options that will be explored further in this section.

The Genres tab (left side) is a filter that allows one to quickly access only certain types of Presets. For example, if one clicks on "Urban" then only the Urban-style pad presets will be displayed in the middle Preset list.

In addition to selecting a specific pad preset, there are different options that control how each sample is played, and they can be customized by the user in the right-most section of the Pad Setup screen:
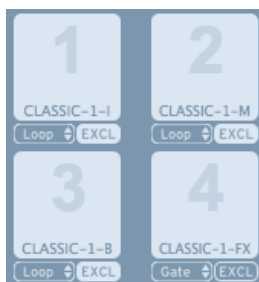
For each Pad sound, one can choose between Gate, Trigger or Loop in the drop down menu below the corresponding pad. In addition, the Pad sound can be Exclusive or not. All of these functions are explained in the following table:

GATE	The sample plays while the pad is pressed down, stops when it is released. The sample is not synchronized with the sequencer but just starts when the pad is pressed down.
TRIGGER	The sample starts playing when the pad is pressed and stops at the end of the sample: it just plays once. The sample is synchronized with the global Tempo.
LOOP	The sample starts playing when the pad is pressed, and loops until the same pad is pressed a second time. The sample is synchronized with the global Tempo.
EXCLUSIVE	Starting this sample stops the other ones. This function is important for "break" or "fill" style parts.

The "Load" button validates and stores any changes made, "Back" will restore the settings as they were before the screen was opened. Both options close the Pads Setup screen and return to the initial Scene Edit view.

Like in the case of the Melody, the tempo is set using the Tempo fader, to the right of both ADSR envelopes, or can be synced to an external source.

Tempo fader

5.5.11 Mixer

The final bottom portion of the Scene Edit Screen is the Mixer section. This straightforward yet essential portion of Analog Laboratory allows one to adjust volume and panning for every sonic component in the Scene:

- 2 Sounds (Upper and Lower)

- 4 Pads

There are therefore 6 channels in this mixer, each with level and pan. Using the mixer is key in order to get a professional sounding balance between the 6 elements of the Scene, and make it ready for the stage or the studio.

The Scene Edit screen contains 6 faders that control the volumes of the 6 sonic elements in a Scene: Upper Sound, Lower Sound, Pad1, Pad2, Pad3 and Pad4.

The Mixer section of the Scene Details screen

By clicking the pencil icon on the right hand side of this Mixer screen, one can access more in depth Mixing functions in the Mixer Setup Screen:

Mixer Setup screen

In the Mixer Setup screen there are individual knobs for Pan and Volume, for each of the 6 sound sources of the Scene. These should be used to create a balance between the sounds. The "Load" button validates and stores any changes made, "Back" will restore the settings as they were before the screen was opened. Both options close the Mixer Setup Screen and return to the initial Scene Edit view.

6   MODES OF OPERATION

6.1 Standalone and MIDI configuration

The stand-alone application allows the use of Analog Laboratory outside of any host application. You can open the instrument from its location in the start menu or on your desktop, and play directly with the help of a master MIDI keyboard or external hardware sequencer.

6.1.1   Launching the standalone application

To launch the standalone application:

- On Windows: Start menu > Programs > Arturia > Analog Laboratory
  …and choose Analog Laboratory.

- On Mac OS X: Finder > Applications > Arturia Analog Laboratory
  …and double-click on the Analog Laboratory application icon.

6.1.2   Preferences configuration

In order to access the preferences window, click on the menu Setup > Audio & MIDI Settings. This window allows you to configure the global preferences of the Analog Laboratory application. These are saved automatically.

The Audio & MIDI Settings menu item, on Mac OS X   *…same on Windows*

The "Audio &MIDI Settings" window, for Windows   ... and Mac OS X

(Windows) **AUDIO DEVICE TYPE**	Selects the appropriate driver for your audio device.
(Mac OS) **OUTPUT** *(Windows)* **DEVICE**	Chooses which audio output Analog Laboratory will send sound out of. Default is "Built-in Output" on the Mac; for Windows we highly suggest to use an adequate ASIO driver for your sound card.
TEST	Send out a short sine wave tone to help make sure sound is being sent out the correct device.
SAMPLE RATE	Choose the sample rate; default is 44,100 Hz. Increasing the sample rate increase the quality of sound, but adds a bigger load to CPU.
AUDIO BUFFER SIZE	Chooses the audio buffer size, displayed in samples and milliseconds. Default is 512 samples. Decreasing this number lowers latency, but adds more load to CPU. Increasing lessens load on CPU but augments latency (latency is the delay between a note played and actual sound output).
ACTIVE MIDI INPUTS	Displays the available MIDI inputs that can be used to control Analog Laboratory. For example, if you'd like to use an external keyboard with Analog Laboratory, it can be selected here.

6.2 VST

6.2.1 Installation

6.2.1.1 Windows

During installation, select the box "VST" among the proposed format choices of plug-ins. The installer will automatically detect the VST folder of the instruments shared by Cubase or any another compatible VST sequencer.

6.2.1.2 Mac OS X

The VST plug-in is automatically installed in the folder of the system corresponding to the VST instruments: `/Library/Audio/Plug-Ins/VST/`. The VST plug-in will be usable by all your VST host applications.

6.2.2   Instrument use in VST mode

The opening of VST Analog Laboratory plug-ins is the same as opening all other VST plug-ins. Please consult the instruction manual of your favorite host sequencer for more specific information.

For instance, under Cubase, open the menu "VST Instruments", and choose Analog Laboratory in the rack.
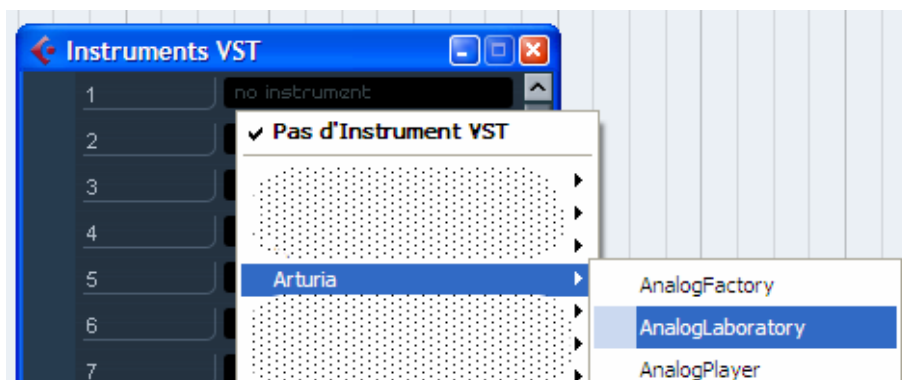
Using Analog Laboratory in Cubase

6.2.2.1 Connection to an Instrument track

In order for Analog Laboratory to play information coming from an Instrument track, you have to choose an Instrument track and select Analog Laboratory as output of this track. See the picture below for more detail on how this is accomplished.
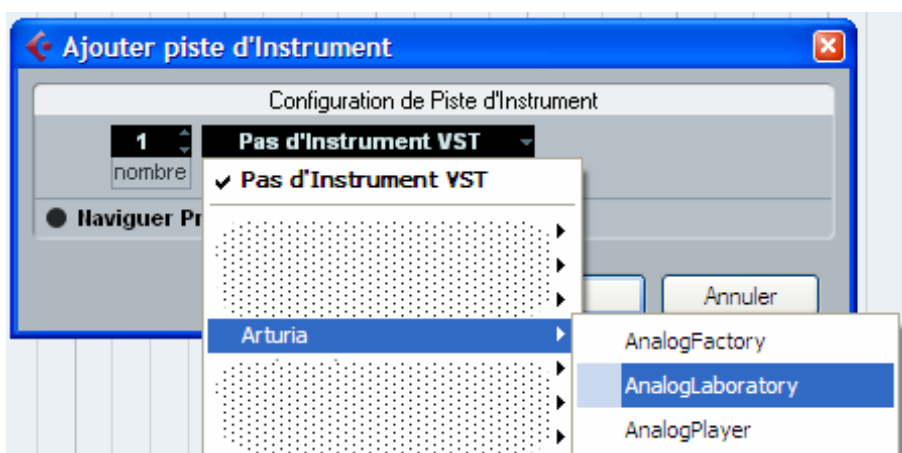
Connection of an Instrument track to Analog Laboratory

The events played on a MIDI keyboard are recorded by your host sequencer, and now you can use the MIDI editing possibilities of the sequencer to control any parameter in Analog Laboratory.

6.2.2.2 Saving presets

When the session/project is saved, Analog Laboratory is saved in its last mode of operation, with all modifications intact. For instance, if you are working on a "P1" preset in which you have modified parameters (without saving this as a separate preset in the plug-in itself), at the next opening of the piece, Analog Laboratory will load the "P1" preset and the modifications as well.

The drop-down menu with the VST sequencer allowing you to save a new preset is of course usable with Analog Laboratory. However, it is <u>highly advised to use the Analog Laboratory internal menu</u>: the presets saved in this way are usable in any other mode (standalone or with another sequencer), they can be exported and exchanged more easily, and they will remain compatible with the future Analog Laboratory versions.

6.2.2.3 Automation

The automation works the same with Analog Laboratory as with any VST plug-in (for more detail about automation, refer to the VST sequencer documentation).

6.3 Audio Unit (Mac OS X only)

6.3.1 Installation

The Audio Unit plug-in is automatically installed in the folder reserved for this purpose, typically: `/Library/Audio/Plug-Ins/Components/`.

6.3.2 Use in Logic Pro

Since version 7, there has been an Audio Unit plug-in manager in Logic. To launch it, click on the menu Preferences > Audio Units Manager.
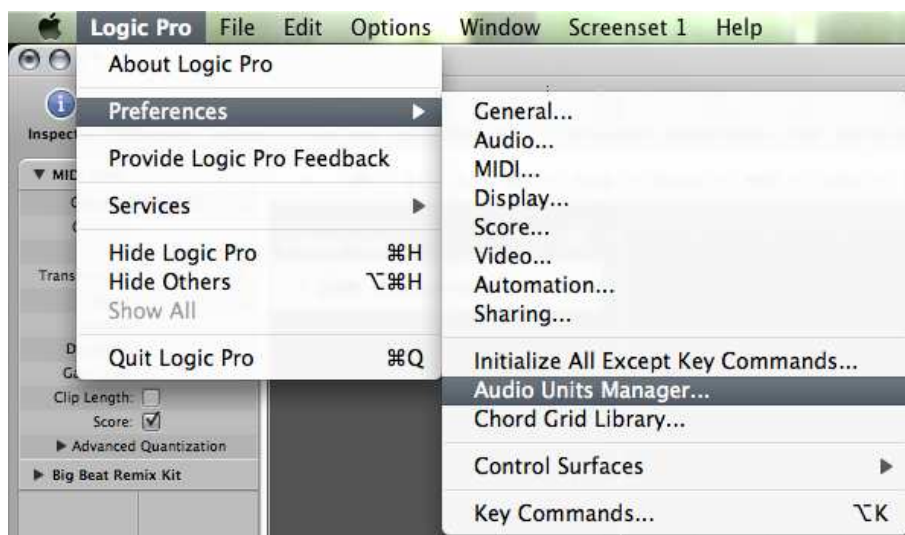
Launching the Audio Unit Manager in Logic Pro

This Manager allows to see the list of the available plug-ins, to test their compatibility with Logic, and then to activate or de-activate them.

If it happens that one of the Arturia plug-ins poses a problem in Logic, start by checking that this plug-in has passed the compatibility test, and that it is actually selected for use.

Select an Instrument track. On the slice of the mixer corresponding to the selected track, click on the button "I/O" to obtain the list of plug-ins, then select AU Instruments > Arturia > Analog Laboratory > Stereo.
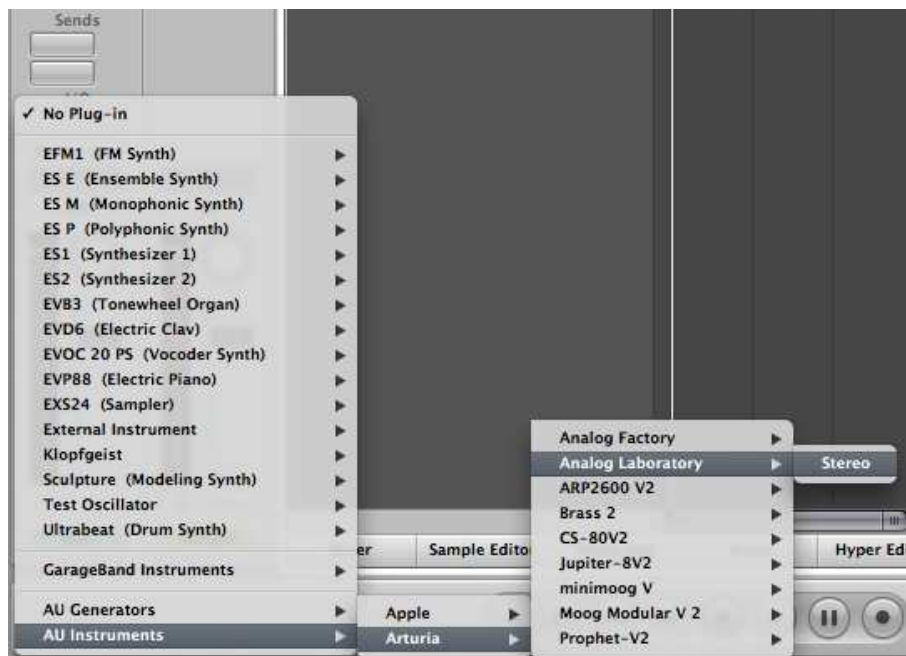
Analog Laboratory opening in Logic

6.3.3 Use in Digital Performer

To add an instrument, choose the menu Project > Add Track > Instrument Track > Arturia > Analog Laboratory.
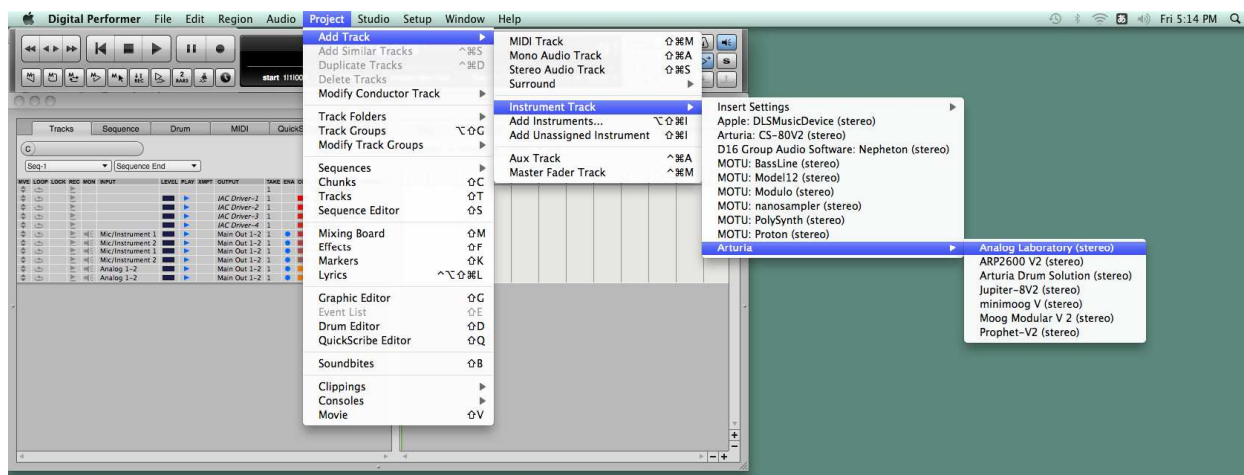
Create an Instrument track in Digital Performer

Once you have added this instrument, it's possible to assign a MIDI track to it. In the connection menu of the MIDI track, select the instrument and the MIDI channel that you want to use. Make sure to activate the track before starting to play or record.
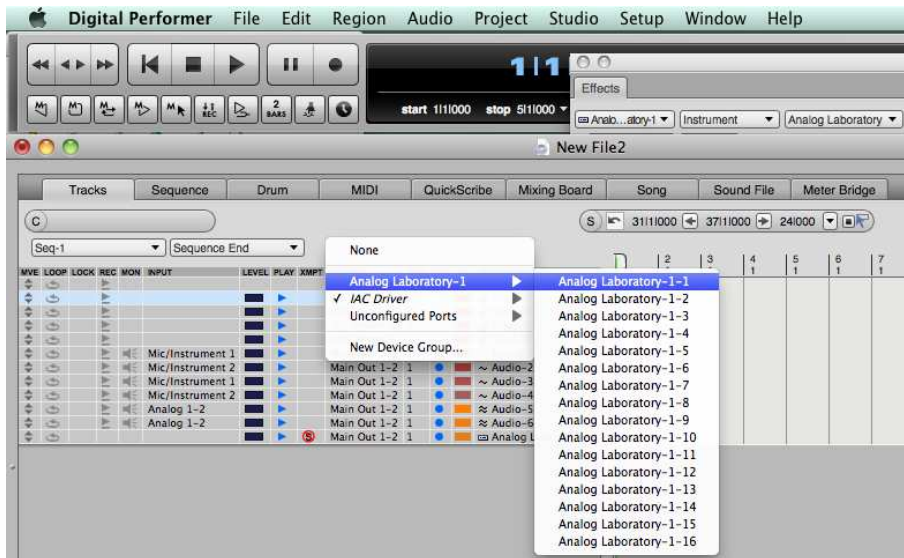
Connection from a MIDI track to Analog Laboratory

6.4 Pro Tools

6.4.1 Installation

On Mac OSX, the plug-in is directly installed in the folder reserved for the Pro Tools plug-ins, in `/Library/Application Support/Digidesign/Plug-Ins/`.

On Windows, at the time of the installation procedure, select the RTAS plug-in among the proposed choices of plug-ins. Then, when the system asks, indicate the folder in which the other RTAS plug-ins are located.

Usually, this path is: `C:\Program Files\Common Files\Digidesign\DAE\Plug-Ins\`

6.4.2 Utilization of the plug-in

6.4.2.1 Opening the plug-in

Access to the Analog Laboratory plug-in is like all other plug-ins, simply create a stereo Instrument track:
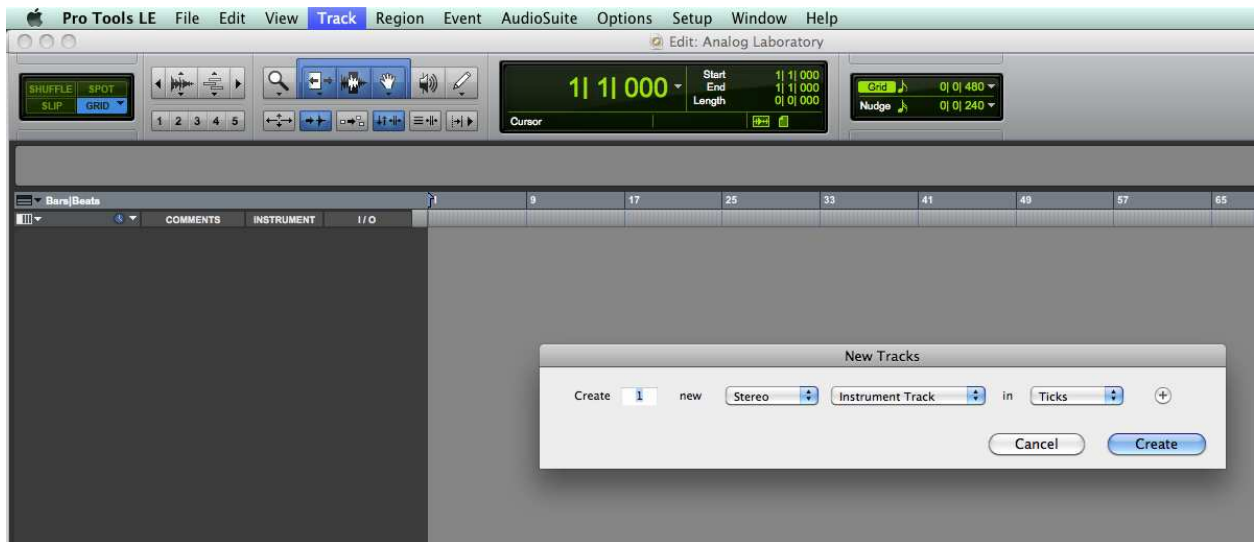
Creating an Instrument track in Pro Tools

So that Analog Laboratory can play the information coming from the Instrument track, you have to associate it to an Insert channel via the appropriate menu.
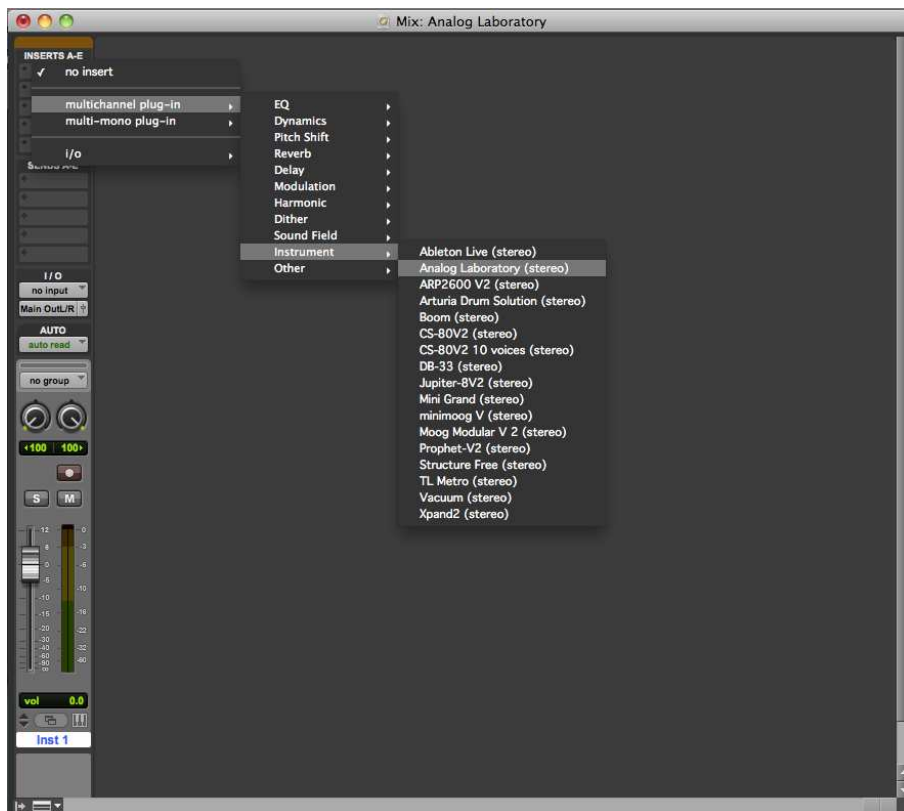
Connecting an Instrument track to Analog Laboratory

More information on plug-in connections shall be found in the Pro Tools User's Manual.

6.4.2.2 Saving the presets

When the session is saved, the status of Analog Laboratory is saved as it is, even if its programming does not correspond to the preset. For example, if you are working on a

preset P1 in which you have modified the parameters (without saving them in the plug-in itself), the next time you open the session, Analog Laboratory will charge the P1 preset plus the modifications.

The Librarian Menu of Pro Tools can be used with Analog Laboratory like with all other plug-ins. Nevertheless, it is highly recommended to use the internal Analog Laboratory menu: with the presets saved like this, they are usable no matter which mode (standalone or other sequencer), and they can be exported, exchanged more easily, and will stay compatible with the future versions of Analog Laboratory.

6.4.2.3 Automation under Pro Tools

The automation functions with Analog Laboratory like with all RTAS/HTDM plug-ins (make reference to the Pro Tools documentation for more details on the plug-in automations).

7 ANALOG EXPERIENCE "THE LABORATORY": THE HARDWARE KEYBOARD

The keyboard that comes with Analog Experience "The Laboratory" is a 49-key velocity sensitive keyboard including a control surface designed to meet the Analog Laboratory software interface. The information in this chapter refers to the hardware keyboard itself and only briefly touches on the different parameters in the software that the keyboard controls. For more details on these parameters, please refer to the corresponding chapters of this manual.

Setting up the Analog Laboratory keyboard is fast and simple:

1) First install the Analog Laboratory program on your computer (see chapter 2), make sure to correctly authorize it (see chapter 3).

2) After unpacking the keyboard it is time to connect it to the computer. As the Analog Laboratory keyboard is bus-powered by USB, connecting it by only one simple USB cable to your computer is all you have to do. If you wish to use an adapter instead of the bus power, connect a standard 12V DC - 500mA power adapter (not included) to the back of the Analog Experience "The Laboratory" keyboard.

   ⚠️ *The DC adapter is not included on the Analog Experience pack. Before connecting an external DC adapter, make sure you are connecting a compatible adapter. See the technical specifications for compatibility details!*

3) It is not necessary to install the driver for the Analog Laboratory keyboard in order to get it to function with your computer. Analog Experience "The Laboratory" is plug-and-play compatible. The driver is automatically installed when you install Analog Experience "The Laboratory".

4) Launch the Analog Laboratory software synthesizer; go to menu Setup > Audio & MIDI Settings, and choose the keyboard as main MIDI input.

7.1 Front panel overview
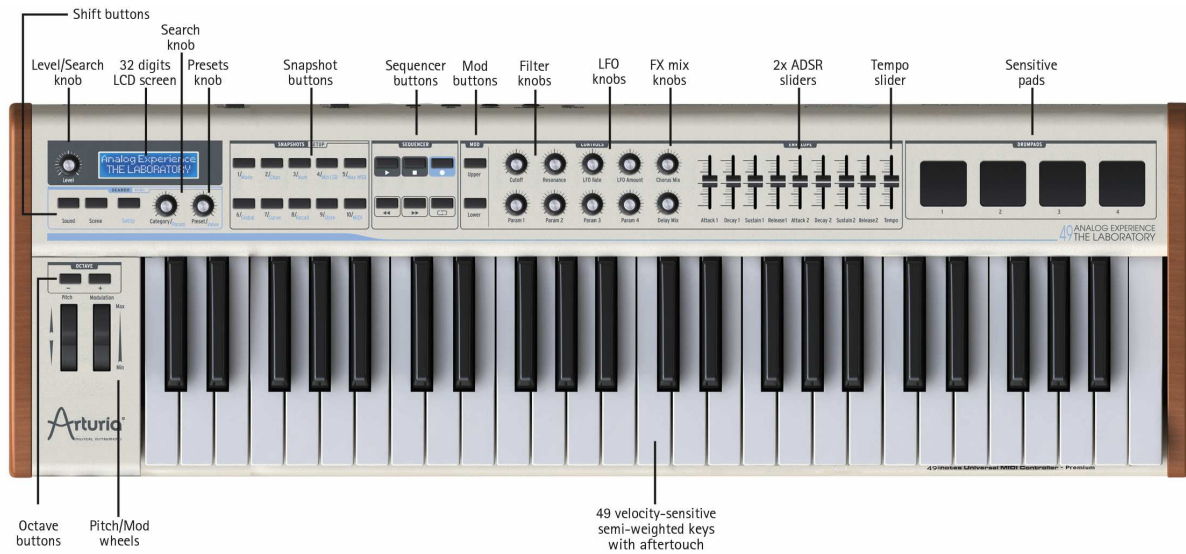
7.1.1 Keyboard

The Analog Laboratory keyboard is a 49-key velocity sensitive controller. It also transmits channel aftertouch: that is a pressure value common to all pressed keys. This can be finely set in Setup mode, snapshot button #7/Curve.

7.1.2 Pitch and Modulation wheels

These two controllers are used for real time pitch shift and modulation amount settings.

Moving the Pitch Wheel up or down alters the pitch of the played sound. The octave range of the pitch wheel depends on which preset is selected.

Moving the Modulation Wheel up or down alters the modulation amount of the played sound. The level of modulation introduced by moving the modulation wheel depends on which preset is selected.

⚠️ *The modulation wheel is not necessarily connected on every preset! It will depend on the preset being used.*
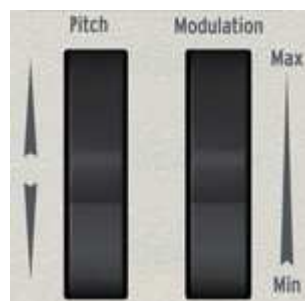
Pitch and Modulation wheels

7.1.3 Octave buttons

Pushing the minus or plus button makes the software transpose up to three octaves up or down to set the preferred octave section.

Seven states of leds will help you to visually locate the current octave setting:

- Octave -3 : led- blinks at speed 3, led+ does not blink

- Octave -2 : led- blinks at speed 2, led+ does not blink

- Octave -1 : led- blinks at speed 1, led+ does not blink

- Octave 0 : led– and led+ do not blink

- Octave +1 : led+ blinks at speed 1, led- does not blink

- Octave +2 : led+ blinks at speed 2, led- does not blink

- Octave +3 : led+ blinks at speed 3, led- does not blink

Octave buttons

7.1.4 Level rotary encoder

The "Level" rotary encoder sets the general volume of Analog Laboratory.

The Level encoder

7.1.5 Search/MIDI section

The Search/MIDI section

7.1.5.1 Sound and Scene buttons
The Sound and Scene buttons allow toggling between both modes in Analog Laboratory.

7.1.5.2 Setup button
The Setup button can set the Analog Laboratory keyboard in setup mode. When the button is pushed it will call a secondary function you cannot get in the initial mode. This button lights up when the Setup mode is activated.

When the Setup mode is activated, the interface changes as follow:

- The Category encoder now selects the item Parameter;
- The Preset encoder now sets the item Value: this must be explicitly validated using the "push" action of the encoder.

When this mode is entered, the LCD display shows the currently edited name and values.

7.1.5.3 Category/Param encoder

In usual mode, the Category/Param encoder allows to select a filter option for the preset list.

In Setup mode, this encoder selects an item Parameter.

7.1.5.4 Preset/Value encoder

In usual mode, this button allows to select a preset in the Presets Manager. This is a "push" encoder, press it to validate your choice.

In Setup mode, it edits the Value of the hereabove item Parameter; push the encoder to validate this value.

7.1.6 Snapshots buttons

In usual mode, the Snapshots buttons enable to recall or save a snapshot. Snapshots are direct links to a selection of 10 favorite programs, allowing quick access to the essential sounds.

To **save** a snapshot program, press on one of the 10 buttons for a time superior for more than 1 second. All editable functions of Analog Laboratory are saved within the snapshot.

To **recall** a snapshot program, shortly press one of these buttons. All editable functions of Analog Laboratory are restored with the snapshot.

The snapshots buttons take alternative functions when the Setup mode is activated. The 10 snapshot buttons now select these categories:

Mode	Set the controller mode for a specific item. Available modes are:
	- Off: the controller is disabled, and no message is sent whatsoever. - Control: the usual (absolute) MIDI control. For knobs, a virtual position is maintained internally. - Relative Control: the knobs send relative values. - RPN/NRPN: these modes transmit (N)RPN messages. The target controller is programmed in Max/MSB and Min/LSB parameters.
Chan	Set the channel used to transmit data for a specific item:
	1-16 : explicit MIDI channel. - Lwr: the current lower channel. - Upr: the current upper channel. - Pnl: either upper or lower channel, according to the state of the "Panel" buttons.

Num	MIDI number for a specific item:

- For a pad or button in note mode, contains the actual note number.
- For the transport buttons in MMC mode, contains the MMC command number.
- For a knob or fader in NRPN/RPN mode, contains the actual controller number used for data transmission (6 or 38).
- For a button in Prog mode, holds the program change number.

Min LSB	Various functions depending on the controller:

- For a knob, pad or fader in Ctrl mode, contains the minimum value sent.
- For a knob or fader in NRPN/RPN mode, contains the NRPN/RPN controller number LSB (Less Significant Byte).
- For a button in Ctl mode, holds the value sent at release time.
- For a button in Prog mode, holds the bank LSB.
- For a button in Note mode, holds note off velocity.

Max MSB	Various functions depending on the controller:

- For a knob, pad or fader in Ctrl mode, contains the maximum value sent.
- For a knob or fader in NRPN/RPN mode, contains the NRPN/RPN controller number MSB (Most Significant Byte).
- For a button in Ctl mode, holds the value sent at press time.
- For a button in Prog mode, holds the bank MSB.
- For a button in Note mode, holds note on velocity.

⚠ *It's perfectly legal for Min to be greater than Max, in that case the controller is effectively inverted.*

Global	Used to set the global parameters:

- FaderMod: fader draw bar mode, Normal or Drawbar.
- KnobMode: knob mode, Absolute or Relative.
- OctTrans: octave transposition, from -3 to +3 octaves.
- ChroTrns: chromatic transposition, from -12 to +12 semitones.
- LowerCh: lower MIDI Channel, from 1 to 16.
- UpperCh: upper MIDI Channel, from 1 to 16.
- SplitMod: split mode, On or Off.
- SplitPnt: split point, from C-2 to G8.
- MMCDevID: MMC device ID, from 0 to 127.
- DeviceID: this device ID, from 16 to 127.

⚠ *When editing the split point, hitting a key on the music keyboard should set the split point accordingly (without preventing this strike to have the usual effect).*

Curve	Used to set the global curves, the following settings are available:
	• Velocity: the Velocity curve, from 0 to 10
	• Aftertch: the Aftertouch curve, from 0 to 10
	• PadVeloc: the Pad velocity curve, from 0 to 10
	• KnobAccl: the Knob acceleration, from 0 to 10
	• KeyATmin: the Minimum Key aftertouch, from 0 to 127
	• KeyATMax: the Maximum Key aftertouch, from 0 to 127
	• PadATmin: the Minimum Pad aftertouch, from 0 to 127
	• PadATMax: the Maximum Pad aftertouch, from 0 to 127
Recall	Recall the keyboard settings from memory or to reset to default settings.
Store	Store the keyboard settings into memory.
MIDI	Allows sending an immediate MIDI message. In this mode a MIDI message is selected using the encoders, and sent right away when the Value encoder is pushed. The available messages are as follow:
	• Program: Program Change, from 1 to 128.
	• Bank MSB: the bank most significant byte, from 0 to 127.
	• Bank LSB: the bank less significant byte, from 0 to 127.
	• Reset: resets GM1, GM2, GS, XG and All notes off.

The Snapshots buttons

7.1.7 Sequencer section

The Analog Laboratory keyboard embeds standard sequencer transport functions, which allow controlling any external hardware or software sequencer.

Buttons send standard MMC messages: Start, Stop, Record, Backward, Forward and Loop.
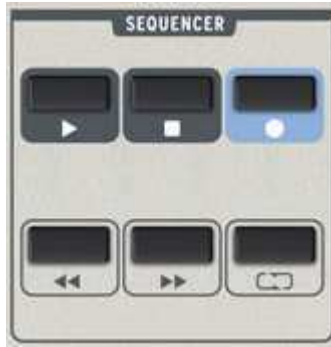
The Sequencer transport section

7.1.8 Synthesis section

This part presents all the synthesis parameters for Analog Laboratory. As mentioned in the beginning of this chapter, more ample information can be found in the corresponding section of the manual.

7.1.8.1 Kbd switch

These two buttons are used in the Scene mode. The Scene mode allows use of 2 presets that can each be controlled from the keyboard using the Control knobs and Envelope faders:

When the Upper button is selected, all of the knobs and faders in the Control and Envelope sections will control the Upper preset of the Scene.

If Lower is selected, then control information on the keyboard from the Control and Envelope knobs and faders will be sent to the Lower preset of the current Scene.

7.1.8.2 Filter

There are two rotary encoders available to alter the filter settings of the selected preset. These two encoders are "Cutoff" and "Resonance".

Filter encoders

7.1.8.3 LFO

There are two rotary encoders available to alter the LFO settings of the selected preset. These two encoders are "Rate" and "Amount" that will set the speed of the LFO and how much is used, respectively.

LFO encoders

7.1.8.4 FX Mix

There are two FX Mix rotary encoders available on the Analog Laboratory keyboard. These two encoders are for "Chorus" and "Delay". Both encoders set the dry/wet level of the effect.

FX Mix encoders

7.1.8.5 Key Parameter

There are four "Param" rotary encoders available on the Analog Laboratory keyboard. Tweaking these parameters can alter the sound of the preset in various ways. Which parameters are affected depends on the selected preset, and are displayed on the software interface.

Key Parameter encoders

7.1.8.6 Envelopes

Nine sliders that can be found on the right part of the controller's interface affect the envelope generators of Analog Experience "The Laboratory".

There are two sets of four sliders marked A, D, S and R that correspond to the Attack, Decay, Sustain and Release of the two envelopes. These envelopes can control various VCAs or VCFs of the preset, and depend on which preset is selected.

The last slider is to set the Tempo of a preset sequence, if applicable.

More generally the nine sliders are freely assignable; for instance, they are absolutely ideal to control the drawbars of the software emulation of an organ.
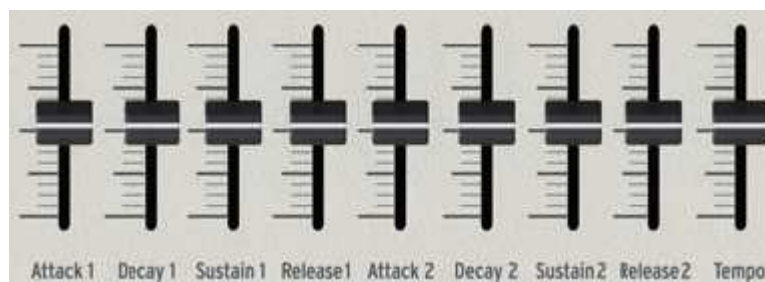
Envelope sliders

7.1.9 Pads

The 4 pads on the top right of the keyboard controller are also used in the Scene mode. Each Scene has 4 sounds assigned to it: they can be Rhythms, Fills or FX style sounds. These pads trigger the pre-assigned sounds in the Pads section of the Scene.
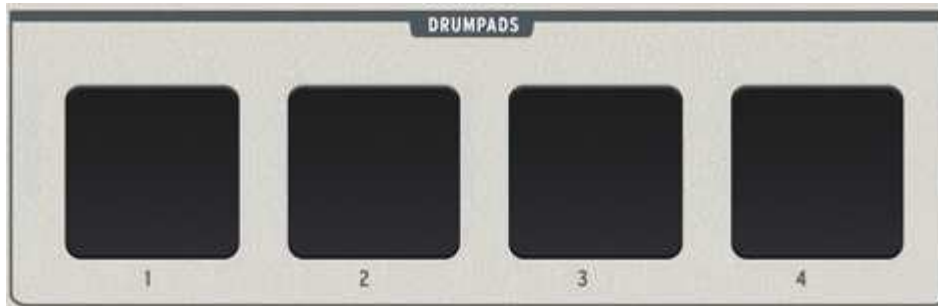
The Drumpads

7.2   Rear panel overview

Back panel interface of the Analog Experience "The Laboratory" keyboard overview, from right to left:

- Power on/off switch
- DC In connection: 12V 500mA ⊖──◉──⊕
- USB connection
- Breath controller input
- Auxiliary pedal connection
- Sustain pedal connection
- Expression pedal connection
- MIDI Out connection
- MIDI In connection

Back panel

7.2.1 MIDI connections

The Analog Laboratory Keyboard sends and receives MIDI via USB. Furthermore the Analog Laboratory Keyboard can function as a MIDI interface. A MIDI Out connector is located on the back of the keyboard. This connector lets you send MIDI data to anything that has a MIDI in connector. This could be a sound module, synthesizer, sequencer or drum computer for instance.

7.2.2 Power supply

Although the Analog Laboratory keyboard is USB bus-powered, it is also possible to use a DC adapter when this is required. If you wish to use an adapter instead of the bus power, it is possible to connect an optional 12V DC 500mA adapter to the back of the Analog Experience "The Laboratory" keyboard.

7.3 Basic MIDI control

Every parameter of Analog Laboratory is controllable by the included keyboard controller. Once the software is started and the keyboard controller is connected, the software can be totally controlled without the use of mouse or a computer keyboard. Every physical controller (knob, fader, button) on the hardware is mapped to a part of the software, and is dependant on each preset.

8   ARTURIA ANALOG LABORATORY – LEGAL INFORMATION

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IMPORTANT: When connecting this product to accessories and/or another product, use only high quality shielded cables. Cable (s) supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FFC authorization to use this product in the USA.

NOTE: This product has been tested and found to comply with the limit for a Class B Digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide a reasonable protection against harmful interference in a residential environment. This equipment generate, use and radiate radio frequency energy and, if not installed and used according to the instructions found in the users manual, may cause interferences harmful to the operation to other electronic devices. Compliance with FCC regulations does not guarantee that interferences will not occur in all the installations. If this product is found to be the source of interferences, witch can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

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- Use power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter(s).
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8.3 CANADA

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AVIS: Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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