Chor'X

User Manual

www.xils-lab.com

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1 Introduction

Thank you for choosing the **Chor'X** !

Chor'X is a Dual Bucket-Brigade delay emulation based chorus, featuring a new way to tweak its parameters in a fast and intuitive way.

Knowing that some audio material need to keep their transient unprocessed, **Chor'X** offers a special Dry Mode, and to increase effect as the audio input level is increasing, it also adds a special amount function.

And last but not least, **Chor'X** offers the Xils-lab **True Stereo Dynamic Engine** which allows to put your dry or wet channels at the right stereo position with a unbelievable reality.

2 Features

Chor'X offers:

- True stereo path, independent Right and Left chorus

- Three Chorus emulations

- Four Bucket-brigade delay emulations

- True Stereo Dynamic Engine

- Impulse follower

- Envelope follower

- All parameters are MIDI controllable

Chor'X is available in the following formats:

- **Mac OSX 10.5 and later**: 64 and 32 bits, VST, Audio Unit, RTAS (Pro Tools 7.0 and later)
- **Windows 7, XP and Vista**: 64 and 32 bits, VST, RTAS (Pro Tools 7.0 and later)

Minimum system requirements: 1 Gigabyte of RAM and a 1 GHz processor.

Chor'X is a plug-in and is not available as a standalone application

3 Installation

3.1 *Serial number*

Chor'X uses a simple proprietary serial number based protection.
When launching **Chor'X** for the first time, it will ask for this number.
After submitting, you must close and re-launch it once to complete the registration. This serial number will never be asked for again, even when installing updates.

Tip: It is always a good idea to back up this serial number, or to print it, in case you should have to reinstall **Chor'X** (i.e. if you encountered a HD crash for example, or have to reinstall your OS).

3.2 *Windows (XP, VISTA, Windows 7)*

To install **Chor'X** on Windows XP, Vista or Windows 7, launch the installer file chorx_win_setup.exe. Please download the latest version from the XILS-lab website.

Once you have accepted the license agreement, you will be asked to select the installation directory and provided with a default one. Presets and various files, like this manual, used by the **Chor'X** will be stored in this directory. Please note that this location is different from the VST install directory, which you will need to specify in the next step of the installer.
Once the installation directory is specified, you will be asked to select the VST plug-in directory, with a suggested default location. Keep this default directory if you do not use the VST version.

Important notice for Vista or Windows 7: be sure to use a folder owned by the user (do not use "c:/program files" for instance). Otherwise you will have to run your music application with "administrator rights".

The RTAS plug-in and its table control management ProTools are directly copied into the following directory: C:\Program Files\Common Files\Digidesign\DAE\Plug-Ins

3.3 *Mac (OSX 10.5.0 and later)*

To install **Chor'X** on a computer equipped with Mac OSX 10.5.0 or later, double-click the file chorx_osx_setup.dmg.
Please download the latest version from the XILS-lab website.
Then launch the install program, ChorX.pkg, and follow the instructions. Warning: the install program will ask you for your system password.

The various files of the **Chor'X** will be copied into the following directories:
      Library/Application Support/Digidesign/Plug-Ins
      Library/Audio/Plug-Ins/Components
      Library/Audio/Plug-Ins/VST/XILS-lab (32)
      Library/Audio/Plug-Ins/VST/XILS-lab (64)
      Library/Application Support/Documentation/XILS-lab/ChorX
      Library/Application Support/XILS-lab/ChorX
      users/username/Library/Preferences/XILS-lab/ChorX

4 Getting Started

4.1 Insert or Bus

Like any other Chorus unit effect, **Chor'X** can be inserted in the instrument channel of your mixer or DAW, or be used on an auxiliary bus. Lets see the pros and cons of each method.

4.1.1 Chor'X as insert

When inserted on the instrument channel, you can adjust the dry/wet signal between the incoming dry signal and the delay signal (wet) using the DRY/WET knob located at the bottom right of the unit.

This can result in a loss of the global volume; therefore you should use the Global Output Gain knob to compensate for this.

The main advantage of this method is that you can use the **Chor'X** advanced stereo processing to put your track in the stereo field in a real, easy and intuitive way.

4.1.2 Chor'X on a Bus

When placed in an auxiliary bus, **Chor'X** provides you total control of the processed signal: You can EQ it, compress it, choose to add reverb on it, or a different reverb than on the dry signal, in short you can perform all the processing you want. You can also render the signal of **Chor'X** on an audio track then cut/paste/slice/edit it.

In an auxiliary track, **Chor'X** can also receive data from SEVERAL separate audio channels.
You can experiment with this and create stunning effects that would be different if **Chor'X** received only a single channel signal.

In that method, you must turn full right the Dry/wet parameter remove the dry signal. To mix between dry and wet, you will use the global level of each individual tracks, and/or the global level of the **Chor'X**.

4.2 Toolbar
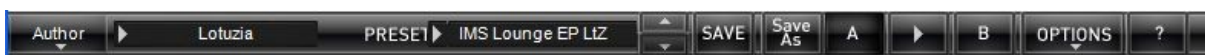
Note: The toolbar at the top of the interface allows you to load or save presets, make a comparison between settings A and B, or modify the options. These functions are described in detail later in this manual.

Click on the **PRESET** name field to show the available presets in the current sorted group. Please note that selecting a new preset without saving your current settings will erase any changes you have made to those settings.

Click on the **sort arrow** button to display the current sorted group and to choose the preset within it.

You can sort presets by: **Author, Feeling, Type, Style, Bank or Projects**.

Click on the sorting label over the sorted group name, to sort your preset according to your preferences

Please note that **Chor'X** powerful Preset management is fully detailed in chapter 5 of this manual.

5 Preset Management

5.1 Main Toolbar

At the left of the toolbar you can find one, displaying the category name (Bank, Author, Type, Style, Feeling or Project), which open the sort management menus.

The first text fields show the current sorting group and the second one shows the current preset.

Clicking on the name field of the category or preset names opens the corresponding menus.

Note: When a parameter is modified, the name of the preset is followed by a *****, indicating that the current settings of the **Chor'X** no longer match the stored preset.

When you want to save a modified preset, click on the **Save or Save As** button.

In order to prevent you from erasing them, the Factory presets cannot be modified. When you edit a Factory preset, the **Save** button will be grayed out, and you will have to use the Save As function to save it in another bank.

If you edit any other preset than a Factory one, the Save and Save As function will both be available.

The main difference is that the Save function will save the preset under its current name, and with its current tags, overwriting the previous incarnation of the preset, while the Save as function opens a dialog box where you can modify the name of the preset, the bank in which it will be stored, and all its tags

The settings of **Chor'X** are then saved in the currently displayed preset, and the ***** disappears. Clicking on the **Save As** button to duplicate and save this preset with an other name and/or to other sorting groups, clicking on the **Move To** will change its name and/or other sorting groups.

5.2 Preset menu

Factory Presets: Chor'X contains many Factory Presets, including standard well-known Bucket-Brigade Delay based chorus.

Hint: We'd recommend to Choose TYPE as first criteria in the sorting menu when you begin to play with **Chor'X**, and use the preset type corresponding to the situation.

Click the **Preset** name field to open the preset menu. Here you can choose and load another preset from the current sort groups into **Chor'X**

You can also use the Up (next preset) /Down (previous) arrows located at the right of the preset name to browse presets

In this menu, other actions are also available:

Delete Preset: use this to delete the current preset (a popup confirmation window appears). This option is only available if the current preset is not a factory one.

Export Preset: Use this function to export the current preset in an external file (.mskd format). This file can be imported later as a new bank. It always makes sense to back up your presets on external support like CD ROMs etc.

Open preset Information (or click on SAVE AS): opens the following preset information window where the name and all other information related to the current preset can be displayed or changed.

In this window you can modify the **Name** of the preset, specify the **Bank** in which the preset will be saved, and also enter information in the other fields:

- **Author (Your** name, otherwise used by Sound Designers for factory presets**)**,
- **Type (Category** of the instrument like Keys, Leads, Basses, etc.)
- **Style** (Musical Genre**)**,
- **Feeling** (Cold, warm, soft)
- **Project** (My_Song, My_Live_Project).

Note: You can also see its creation date and the last update date.

To modify a preset name, click in the preset field and enter the new preset name this will also save all the current settings.

To change preset information, click on the display, this will open a menu when you can select one of the existing items.

Note: You can add a new item in any category, and therefore create custom banks, custom styles, Projects, categories of instruments etc.

To add a new item in any filed, select "**New....**"at the bottom of the list.
Note: You may have to browse until the end of the list in order to select "new" depending on its length.

A Pop Up window opens when you can enter the new name. The current preset will then be associated to this new item.

Note: Please be aware that creating too many categories can also have its drawbacks and make browsing become from difficult and painful to nearly impossible. Should you create around 200 different custom instrument categories, it would become very difficult to browse the library using the Style sorting.

Once you have filled all the desired/required fields:

SAVE AS: Will save the current preset in the chosen Bank, with its new (or unchanged) Name, tags in all the fields you filled in.

MOVE TO: Allows saving the current preset in another location. This is handy to gather a lot of preset into a single location, or User Bank, which you can export in a single file containing all the presets you created or edited for a given project.

CANCEL: Will just cancel all operations and return to the standard **Chor'X** GUI.

5.3 Sort menus

The sorting menus are a powerful and unique tool. Allowing you to perform sophisticated tasks like displaying the preset list with one of the following selections:

- All the Chorus tagged with a given musical genre
- All the presets you have made for one tack, one live project etc.

5.4 Sorting Menu: Additional Functions

In this menu, other actions are also available:

Delete: deletes all of the presets of the current group that are not factory ones. IMPORTANT: Use this function with care: If the bank does not contain any factory presets, ALL PRESETS IN THIS BANK WILL BE PERMANENTLY DELETED.

Rename: modifies the current group name. Selecting this choice will open a window where the new name will be entered.

Use Factory: enables or disables the display of factory presets.

Sort By: sorts the presets according the bank, author, project, or shows all presets (**Bank Name**, **Author Name**, **Project Name**, **All Presets**). The preset menu will show presets of the same category (same author, same project or same bank).

Export Bank: exports a bank in **Chor'X** proprietary cross platform format, (Mac and PC). The selected bank (i.e. the bank which contains the currently active preset) will be exported to a user specified location on your hard drive.

Import Bank: allows you to browse your hard drives to select a file and imports a Masque bank.

5.5 *A/B comparison*

You can store two different settings at the same time and instantly switch from one to the other to compare their settings. These two settings are stored in the **A** and **B** memories.

When you launch **Chor'X**, the default-activated memory is A. When you load or modify a preset, this memory –A- is also modified in real time according to your edits. You can switch to B memory by clicking on the B button.

To copy the current active memory content to the other memory slot, just press the button labeled -> or <-, according to the current active memory.

With this A/B comparison system, you can easily have two settings and compare them in a convenient way.

6 Adjusting the instruments parameters (Knobs)

On **Chor'X**, most sound parameters, like the delay time and feedback, or the filter's Cut Off frequency are controlled using Knobs.

To adjust the parameters of **Chor'X** with the mouse, you have two axes: horizontal and vertical, which will give the same results.

To increase a parameters value, click and drag the knob to the right or to the top.
To decrease a parameter value, click and drag the knob to the left or to the bottom.

If you right-click on a parameter, or if you hold shift while clicking, you can adjust the parameter with fine precision (the *?* button of the toolbar displays a panel summarizing these shortcuts).

Right clicking in the BBD setting Pad allows moving all the dots at the same time, keeping their relative value.

Right clicking in the Advance Stereo Pad allows keeping a correct Left-right balance.

Keyboard shortcuts

In addition we have provided some soft keys combination to perform several very useful tasks:

Windows:

- CTRL+left click: reset parameter to its default value.
- CTRL+right click or CTRL+Shift+left click: initialize the default value of the parameter.
- Win+Alt+CTRL + click: open the MIDI Control panel, with the parameter already selected.

OSX:

- Apple+left click: reset parameter to its default value.
- Apple+Shift+left click: initialise the default value of the parameter
Apple+Alt+CTRL + click: open the MIDI Control panel, with the parameter already selected.

7 The Main Panel

The base concept of **Chor'X** is that everything you need to play with it live is available from the Main Panel, except the advance modulation settings.

You'll find on the main Panel the following areas: the dry/wet and output level area, the bucket brigade delay settings, the stereo space area and the special settings functions, under the audio path draw.

7.1 *The Dry/Wet and output level area*

Two vu-meters help to keep the volume at the correct level.

LEVEL: set the output gain of the Chor'X. It has a wide range as the stereo space can bring small gain

DRY/WET: the mix between the dry and the processed signal. Depending on the **DRY** button, located near the stereo space, the dry signal can also be processed by the advance stereo algorithm.

The LEDS colors match the lights you will find on this stereo space: red for the right, green for the left, blurred for the wet signal.

7.1.1 Chorus Type setting

The **Chor'X** provide three standard chorus structures you can choose by clicking on the **Sy**, **Di** or **Cs** button.

"Sy" structure, based on two BBD and two LFO per channel.	"Di" structure, based on one BBD per channel and only one LFO dispatched in inverted phase to the left and the right channel	"Cs" structure, based on one BBD and two LFOs per channel. The LFOs are also modulating the level.

As the number of BBD and LFOs differs from a type to another, the BBD pad settings are updated accordingly

Notice: for the "Di" type, as there is only one LFO, changing the LFO frequency can be done either with the Left or with the Right dot (or Knob), the other will follow.

7.1.2 Bucket-Brigade Delay settings, SY structure

	There are four bucket-brigade emulations, two for the left and two for the right channel. Each delay is modulated in frequency and range, according to the position of the lights. The mix between the two delays of each channel can be done with to the knobs **DBB MIX** left and right. The colors shows, which delay is used. When a light is moved within the 2-D area, the corresponding delay is modulated according to its position. Horizontal movement gives more or less amount; vertical movement gives more or less speed. The **Knob** button allows seeing these settings as standard dual concentric knobs. Right clicking on a light allows moving the four lights all together, keeping their relative position. The **HISS** knob can control some of the character of the brigade delay, adding more or less hisses and noises.

7.1.3 Bucket-Brigade Delay settings, Di structure

	There are two bucket-brigade emulations, one for each channel. Each delay is modulated by a unique LFO, in range accordingly to the horizontal position of the lights, in frequency according to the vertical position of the lights. As there is only one LFO, the vertical positions of the lights are the same for the both. When a light is moved around the 2-D area, the corresponding delay is modulated according to its position. Horizontal movement gives more or less amount; vertical movement gives more or less speed. The **Knob** button allows these settings to be seen as standard dual concentric knobs. Right clicking on a light allows the two lights to move all together, keeping their relative position. The **HISS** knob can control some of the character of the brigade delay, adding more or less hiss and noise. **MODE 1**: Changes the LFO symmetry **MODE 2**: increase the Left-Right cross feedback level

7.1.4 Bucket-Brigade Delay settings, Cs structure

	There are two bucket-brigade emulations, one for each channel. Each delay is modulated in frequency and range, according to the position of the lights. When a light is move around the 2-D area, the corresponding delay is modulated according to its position. Horizontal movement gives more or less amount; vertical movement gives more or less speed. The **Knob** button allows these settings to be seen as standard dual concentric knobs. Right clicking on a light allows moving the four lights all together, keeping their relative position. The **HISS** knob can control some of the character of the brigade delay, adding more or less hisses and noises.

7.1.5 Animation of the Bucket-Brigade settings

A chaotic animation can be added to the brigade-delay settings, giving a more dense and fat chorus.

AMOUNT sets the amount of the variation as **SPEED** sets the speed of these chaotic variations.
FREEZE stops the animation, leaving the settings in the position they was, and **Hrz** and **Vert** allow the animation to be horizontal or vertical only.

7.1.6 The True Stereo Dynamic Engine

Chor'X offers a powerful stereo processing allowing you to put your audio signal in a true stereo space. This is done in an easy and intuitive way as well as giving you a real stereo feeling.
You can only process the wet signal (the blurred lights) or, by clicking on the **DRY** button, also process the dry signal.

Important: as in the reality, putting your audio sources far from the microphones will reduce the level. You will need to compensate for this, using the general output level, which offers a wide range. If you are processing the dry signal, the relative position between them affects directly the mix of the dry and wet signal. You may need to compensate with the Dry/Wet level.

MIC ANGLE set the position of the microphones and **WIDTH**, which makes the space more or less wide.
Moving the lights around the area gives you the right position for your sound.

Right click allows keeping a left/right balance identical.

Clicking and moving the microphones allows opening your stereo effect.

As for the bucket-brigade settings, you can add chaotic movement to the stereo position of your wet signal, with **AMOUNT** and **SPEED**, **Hrz** and **Vert** allowing the animation to be horizontal or vertical only.

Red and **green** lights are for the right and left dry channels. Blurred **Pink** and **yellow** lights are for the right and left wet channels.

7.1.7 The Special modulations

Some audio materials don't like very much chorus because of the blurring effect of the attacks.

Thanks to the **SPECIAL DRY**, **Chor'X** allows to avoid processing the attacks of the signal. To open the special modulation panel, just click on the button under "**MODULATIONS**"

For the special dry feature, you first need to set the threshold: Clicking on the green light and moving it around the 2-D area, you will easily find the right threshold position: During this setting you will only hear the detected impulses.
The upper left corner gives you the maximum of detection as the bottom right corner the minimum.

Important: Of course, this must be done with an audio material that presents strong attacks like drums or plucks. ***Otherwise nothing will be detected, so you won't hear anything.***

When the threshold is set, just click on the **SPECIAL DRY** button and set the **AMOUNT**. The detected attacks will be unprocessed.

For other materials like strings or pads, you may need to increase the chorus settings depending on the level. This is done with the **SPECIAL AMNT**. Click on this button and set the **AMOUNT**, the bucket brigade settings will be modulated according to the level of the audio signal.

Important notice: Closing the Special modulation panel will disable these two special modulations.

8 Option menu

This menu allows choosing the global settings. These settings are defined for all the instances of the **Chor'X**. Each time an option is changed, the related option file is saved.

8.1 *Main*

In the toolbar, the **Options** button opens a menu for selecting various options for the **Chor'X**.
This menu shows the following options settings:

Chor'X About: displays information about the **Chor'X** (version, build date and credits).

Open MIDI settings panel: Opens a popup where you can assign MIDI controllers for each of the **Chor'X**'s parameters. Click on the parameter label to select the parameter you want assign, then enter the MIDI controller number (from 0 to 127), or switch on the learning switch and send a MIDI command with the correct MIDI controller number. The **Chor'X** will memorize it. This setting popup can also be opened by CTRL+ALT+Apple+Left-click (Mac) or CTRL+Win+ALT+Left-click (Win) on the desired **Chor'X** parameter.

8.2 *Display*

Display low frequency as BPM: Allows displaying the low frequency in BPM instead of Hz.

Output level follows presets: When checked, this option allows the output level to follow the presets. That means that the output level is programmed with the value saved in the preset.   Otherwise it keeps its value.

Popup On: shows a popup window while modifying the value of a knob.

Popup Over On: shows a popup window when the mouse is over a switch.

Popup Name On: the name of the current modified parameter is displayed.

GUI update: low: slow refresh rate for the GUI. Useful when it is necessary to save CPU power.

GUI update: middle: standard refresh rate for GUI.

GUI update: fast: fast refresh rate for GUI. Useful when it is necessary to precisely follow the sequencer's led for instance.

8.3 *Misc*

Init settings from current settings: initializes the default values of the **Chor'X** from the current settings. All the new presets will be created from these settings, when the **init settings** choice is selected. These parameters will also be used when setting a control to its default value. (Win: CTRL+Click, OSX: ALT+Apple+Click).

Hiss gated: This setting allows the internal noise be mute when no audio signal is incoming .

Wheel Incr: 0.01: parameter increment of 0.01 when using of the mouse wheel.

Wheel Incr: 0.05: parameter increment of 0.05 when using of the mouse wheel.

Wheel Incr: 0.1: parameter increment of 0.1 when using of the mouse wheel.

9   Credits

Concept of Chor'X and original UI design was done by:
Xavier Oudin

Additional designs were done by
Xavier Oudin and Laurent Bourgeon

Chorus, Stereo processing concept and coding were done by:
Xavier Oudin

Digital Signal Processing and plug-in coding was done by:
Xavier Oudin

The graphical user interface was created by:
Xavier Oudin helped by Laurent Bourgeon

The graphics created by:
Yannick Bonnefoy

This manual was written by
Xavier Oudin

And proofread and corrected by:
Michael Logue

The presets were done by:
Lotuzia, Kelvin Ford, Tzadi.