

Rapture Pro

User Guide

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Welcome to Rapture Pro

Thank you for purchasing Rapture Pro!

Rapture Pro is a sample-based synthesizer, capable of recreating just about any type of sound. Oscillator, Multisample, Subtractive and Additive synthesis coming together to form a professional synthesizer, capable of meeting the needs of any sound designer, musician, and first-time user. The comprehensive modulation capabilities lend itself to the creation of sounds spanning all genres of music, and sound design. Rapture Pro draws on a comprehensive patch library covering every aspect of contemporary music. Rapture Pro is also expandable, meaning more sounds can be added to the instrument via expansion packs, or user multisamples.

We have worked hard to make Rapture Pro sound great and look great. We packed in a lot of features but tried to keep the interface clean, simple, and intuitive. As a result, you should be able to find your way around without the documentation.

However, there are some very complex and detailed features in Rapture Pro, so we strongly recommend reading this manual to get an in-depth understanding of what Rapture Pro is capable of.

If you have upgraded from a previous version of Rapture, here are some of the new features you will find in Rapture Pro:

- ▶ Bigger user interface (UI) with a more intuitive layout.
- ▶ Browser.
- ▶ Chain Elements.
- ▶ New patches.
- ▶ Performance macro controls.
- ▶ 2 independent X/Y Pads.
- ▶ Vector mixer.
- ▶ Load patches from Dimension, Dimension Pro, Dimension LE, Rapture, Rapture LE.

Installing Rapture Pro

Please note before installing:

- ▶ In order to install Rapture Pro, you must log in to your Windows system as a user who has administrative privileges, or OS X system with the admin account. Once installed, the program can also be used by users who do not have administrative privileges.
- ▶ If system monitoring software, such as anti-virus programs are installed on your computer, you must close them until you have finished installing Rapture Pro. You must also remember to close applications that are not shown in the Windows taskbar.

Cakewalk Command Center provides the easiest way to install Rapture Pro. Simply log in with your Cakewalk account and Cakewalk Command Center automatically retrieves your serial number and simplifies the download and installation process. Cakewalk Command Center also makes it easy to install future software updates. For details, see “[Cakewalk Command Center](#)” on page 7.

If you are not using Cakewalk Command Center, there are a few things you will need to know before getting started:

- ▶ Where on your computer the program should be installed. If you are not sure you can simply accept the default path suggested by the installer.
- ▶ Where on your computer the Instrument content, sample project files and additional content should be stored.
- ▶ Your Rapture Pro serial number. Your serial number will be available at www.cakewalk.com/my-account, or it was delivered to you via email.

To install Rapture Pro

1. Start your computer.
2. Close any programs that are open or running.
3. Do one of the following:
 - ▶ **If you are installing from Cakewalk Command Center:** Follow the instructions under “[Cakewalk Command Center](#)” on page 7. Cakewalk Command Center provides the easiest way to download and install Rapture Pro. Simply log in with your Cakewalk account and Cakewalk Command Center automatically retrieves your serial number and simplifies the installation process.
 - ▶ **If you are installing from a digital download:** Locate the file `Rapture_Pro_Setup_[BuildNumber].exe` (Windows) or `Rapture_Pro_Setup_[BuildNumber].pkg` (OS X) that was saved to your computer's hard drive and double-click on it to begin the installation.
4. Click the **Install** button.

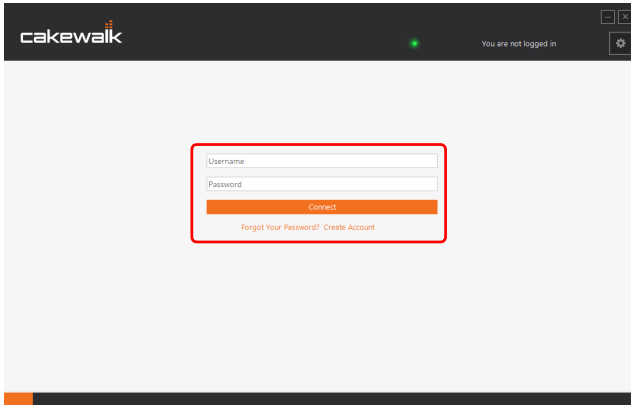


Note: If you exit Setup without completing the installation, repeat step 3 to restart the installation process.

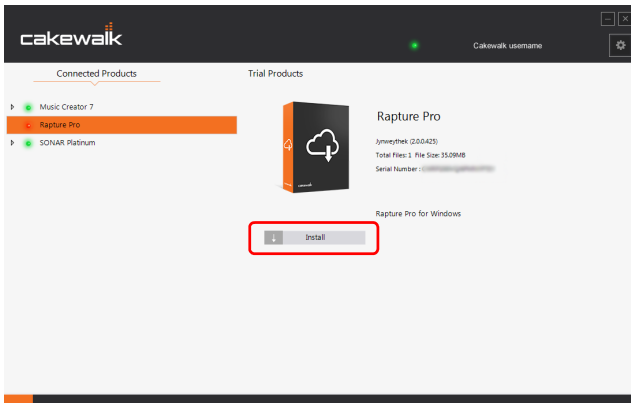
5. Follow the installation instructions on the screen.

Cakewalk Command Center

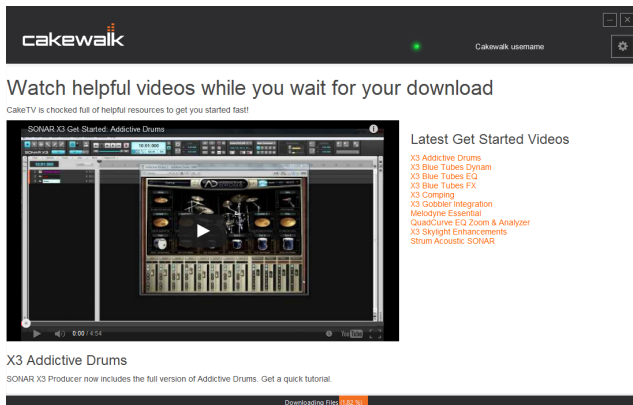
1. Download Cakewalk Command Center from <http://www.cakewalk.com/Command-Center>, then install it on your computer.
2. Double-click the Cakewalk Command Center shortcut on your desktop to start Cakewalk Command Center.
3. Type your Cakewalk account username and password, then click **Connect**. If you do not yet have an account, click **Create Account**.



4. Your purchased products are listed under **Connected Products**. Select **Rapture Pro**, then click **Install**. Cakewalk Command Center will download and install Rapture Pro.



During the download process, you may be presented with helpful information about the product that is being downloaded. A download progress bar is displayed at the bottom of the page.



5. When installation is complete, click **Launch** to open Rapture Pro.



Note: *Cakewalk Command Center lists your purchased products under **Connected Products**. The color-coded lights indicate the following:*

- *Red = Not installed*
- *Yellow = Installed and update available*
- *Green = Latest version installed*

Uninstalling Rapture Pro

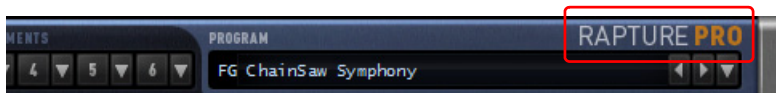
1. Double-click the Cakewalk Command Center shortcut on your desktop to start Cakewalk Command Center.
2. Your purchased products are listed under **Connected Products**. Select **Rapture Pro**, then click **Uninstall**.

Demo mode

If you have not authorized Rapture Pro in the Cakewalk Store (or on Steam), Rapture Pro will function in Demo mode.

The following restrictions apply to Demo mode:

- ▶ Rapture Pro will randomly output silence at different intervals.
- ▶ Only a limited number of programs are installed.
- ▶ Rapture will reference the Dimension Pro and Rapture 1 multisample locations.
- ▶ The About Box shows "Demo" instead of your username and serial number (click the Rapture Pro logo in the top panel to open the About Box).



Architecture of Rapture Pro

Rapture Pro is composed of six individual sound generation components, called Elements.

A Rapture Pro program (stored as a file with a `.prog` extension) is defined by the settings of all parameters within all Elements and the Global section. Each Element has a complete engine composed of an Oscillator or Sample, or Multi-Sample `.sfz` file, a per-voice DSP stage (Bit Reduction, Decimation, Drive and two multi-mode resonant filters), graphic equalizer, effect insert, and a set of Modulators (envelope generators, low frequency oscillators and step generators) applied to the main sound generation parameters. The sound generated by the six Elements is mixed and routed to a global Mixer Page, containing two effect sends, three band parametric equalizer, Step Generator, and global FX insert.

The Oscillator is the core of the sound manufacturing process. Each Oscillator is capable of high-quality, high-performance wavetable synthesis. This type of synthesis is an efficient method of creating sustained sounds by looping a minimal amount of audio data. In Rapture Pro, the wavetable is defined by a single-cycle audio file.

During the wave loading procedure, Rapture Pro creates all the sample images required for the Oscillator to play the single cycle across the whole keyboard range without any aliasing distortion. Rapture Pro ships with over two hundred wavetable definition files, which can be expanded.

The Player

Each element has a *player*, the core of the sound manufacturing process. Each player is capable of high-quality, high-performance sample playback, oscillator/wavetable synthesis or waveguide synthesis.

The player mode depends on the type of multisample file that is loaded into the element. The following player modes are available in Rapture Pro:

Sample-Playback Generator

In sample-playback mode, the player can load a single sample, or multiple samples, arranged as defined in a Multisample Definition File, using the open standard, text based `sfz` format.

`Sfz` multisample definition files allow very complex sample arrangements that extend beyond traditional sample mapping parameters. Besides the standard keyboard and velocity splits, a definition file allows multiple layers, dimensions, release triggers, crossfades, legato playback, random and alternate (round robin) and samples triggered on MIDI controllers.

Wavetable Oscillator

Any element in Rapture Pro can work as a wavetable oscillator, with the wavetable definition being a single-cycle audio file. Rapture Pro will turn the element into an oscillator when a file containing less than 4000 samples is loaded.

During the loading procedure, Rapture Pro will create all the images for the oscillator required to play the single cycle across the whole keyboard range without any aliasing distortion.

Rapture Pro ships with over a hundred wavetable definition files, which can be expanded.

Waveguide Generator

A special sfz opcode is reserved to tell the Player in each element to treat the loaded sample as an impulse that will be directed to a waveguide.

Consequently, this turns the Player into a waveguide generator, generally used to emulate the sound of plucked strings.

Rapture Pro ships with over fifty impulse files, which can be expanded.

Controllers

To get the most out of Rapture Pro, we recommend using a good MIDI controller. Many programs use the Mod Wheel, Aftertouch, Velocity, X/Y Pads, Vector Mixer, and 8 assignable Macro Controls to change the sound of the program while the program is playing back.

Using Rapture Pro

“To load a Program” on page 15

“To load an Element” on page 16

“To combine Elements into a new Program” on page 17

“To save a Program” on page 21

“To save an Element” on page 22

“To save the default Program” on page 21

“To assign a modulation source to a Rapture Pro parameter (modulator destination)” on page 100

“To assign parameters to the X/Y Pad” on page 41

“To reorder the Filter FX chain” on page 51

“Using the Filters” on page 53

“Using the DSP effects” on page 56

“Copying, unloading, and resetting Elements” on page 90

“Chaining Elements” on page 91

“To turn on an Envelope Generator” on page 77

“To control an envelope’s LFO” on page 85

“To control Keytracking” on page 86

“To apply master Insert FX to a Program” on page 109

“To load an Oscillator or Sample file” on page 20

“To select next/previous Program” on page 15

“To load a Scala microtuning definition for any Element” on page 115

“To reset an Element to standard tuning” on page 116

“To use sinc interpolation” on page 117

“To use Rapture Pro as a multi-timbral instrument” on page 117

Getting started

This section provides a brief-but-useful introduction to Rapture Pro's more significant concepts and most-used functions. More detailed information is included in later sections.

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[“File organization”](#) on page 13

[“Loading programs”](#) on page 15

[“Loading Elements”](#) on page 16

[“Combining and mixing Elements”](#) on page 17

[“Loading samples”](#) on page 19

[“Saving Programs and Elements”](#) on page 21

[“Using effects”](#) on page 22

Programs, Elements and audio files

You will find a broad variety of program examples with direct application in many music styles, but with the main focus of showcasing the sound processing and modulation of Rapture Pro. By reverse-engineering the factory presets, you will be able to edit, adapt, and enhance the factory programs to fit your tracks perfectly, or use them as a starting point for completely new sounds.

The **Program** menu allows for several common operations like saving and loading programs and banks, and initialize programs (see “**Program Handling menu**” on page 26).

A Rapture Pro program has 6 Elements at its disposal, making for sophisticated sound programming potential. A program consists of the settings for these 6 Elements, including references to the wavetables used by all oscillators, and all global settings.

File organization

After installation, the following folders will be created inside the Rapture Pro folder:

Folder	Stores
\Documentation	Documentation folder Release Notes, User Manual and Registration information.
\LFO Waveforms	LFO Waveforms folder All factory LFO waveforms. User-defined waveforms can be stored here as well.
\MIDI	MIDI folder All MIDI Learn data.
\Multisamples	Multisamples folder All factory wavetables, multisample definitions and sample collections.
\Programs	Programs folder All factory presets/programs. Rapture Pro will point to this folder on Save > Program .
\Programs\Elements	Elements folder All factory Elements. Rapture Pro will point to this folder on Save > Element .
\Sample Pool	Sample Pool folder Project/Demo song specific samples.
\Tunings	Tunings folder All microtuning and alternate tuning files.

Table 1. *Rapture Pro folders*

Program files

Rapture Pro can load Rapture Pro, Rapture, Rapture LE, Dimension Pro, and Dimension LE programs.

Program files (.prog) can be anywhere in the disk or network. The \Programs folder was created for organizational purposes, but you can save a program anywhere.

Program files are not required for the Song Persistence to work. A copy of the program file is saved as persistence, and it's reloaded on song reload.

This means each song will include a 'snapshot' of the used programs in the moment the song was last saved. This allows you to preserve old songs and their settings even if factory programs are updated in the future.



You can add your own folders within the default \Programs folder that Rapture Pro installs. These folders will then display in the Program Browser, helping you to separate your custom programs with factory programs.

Elements

Rapture Pro can save and load individual Elements to file. The idea here is making an 'Element Set', capable of serving as 'quick construction kit' for new programs. An Element file contains all settings for an Element, including the wavetable and oscillator parameters, with all modulators and DSP settings applied.

Audio files

Rapture Pro specializes in using single-cycle audio files to define wavetables, driving the Oscillator for wavetable synthesis. However, Rapture Pro allows a variety of other audio file types to be loaded as well. Unlike Program files, audio files (.sfz, .wav, .aif, .aiff, .flac, .fla, .rcy, .rex, .rx2) are not included in the Song Persistence. Therefore, songs will be affected by any changes to the original audio source.

Additionally, the samples are external standard wave files which can be edited using a standard wave editor. Consequently, this warning is here: if a multisample definition file is edited, and/or a sample file is edited, the old song might sound different after reloading it if it happens to use the edited files.



Tip: *Changing the name or folder structure of the \Multisample folder could result in programs not loading their sample content. Save a copy of any factory content sample file before editing to ensure all programs load properly.*

Samples

If a sample defined inside an .sfz definition file is missing, Rapture Pro will try to load it from the original location on Program/Song reload.

If that wave file isn't in the original location, Rapture Pro will try to find it in the \Sample Pool folder. This simplifies exchanging sample files between users.

Rapture Pro creates a log file that lists every sample/.sfz it can't find after above attempts fail. The log file is located in the following locations:

Windows: \Cakewalk Content\Logs

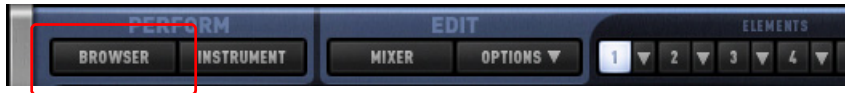
OS X: \User\Documents\Cakewalk\Logs

Loading programs

A Rapture Pro program is made of up to six Elements. Each Element contains a wavetable oscillator and a chain of effects, filters, envelope generators, step generators, and LFOs. You can turn each Element off or on from the Mixer page or from its corresponding Element page. If you want to use Rapture Pro as a six-part multi-timbral synth, you can also set each Element to respond to a different MIDI channel (see “To use Rapture Pro as a multi-timbral instrument” on page 117).

To load a Program


1. Click the **BROWSER** button in the top panel to open the Browser page:



The Program Browser appears. For details, see “The Browser page” on page 32.


2. In the Browser, navigate to the folder where the desired program is located, and double-click the name of the program.

Rapture Pro loads the program you double-clicked, and displays the program name in the program window.

You can also load a program by clicking the Program Handling button  and choosing **Load Program** from the pop-up menu, or by drag and dropping a .prog file into the Rapture Pro window.

When you load a program, you load all the Elements at once, along with all the associated effects, filters, etc.

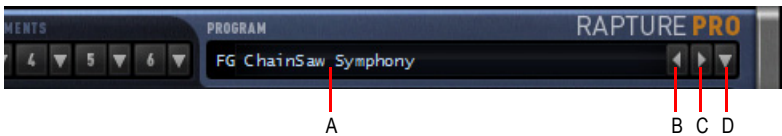


Tip: You can easily access a list of your most recently loaded programs. Click the Program Handling button  and select from the pop-up menu that appears.

To select next/previous Program

In the top panel, click the Previous Program or Next Program button.


Figure 1. Top panel Programs section.



A. Current program **B.** Select previous program **C.** Select next program **D.** Program Handling menu

Loading Elements

Rapture Pro allows you to create and load single Element files. An Element file stores a single Element's selected Oscillator, Multisample files, modulators, EQ and insert effect settings as a disk file with an `.elem` extension. Element files can then be reloaded and recombined to create new programs.

Loading an Element file does not change any settings in the unselected Elements. If you wish to clear settings from all Elements before loading any Element files, initialize the program first by clicking the Program Handling button  and choosing **Initialize Program** from the pop-up menu.

To load an Element

1. Click the small down button to the right of the Element that you want to load a sound into (1–6).



2. Select **Load Element** from the pop-up menu:
The **Load Element** dialog box appears.
3. Navigate to the folder where the desired Element is located, click the name of the Element, and click the **Open** button.

Rapture Pro loads the Element you clicked and the Wavetable Display window shows the name of the wave file used by the wavetable oscillator. The graphic represents the single-cycle waveform used by the Oscillator to create a sustained sound.



A. Waveform display of the single-cycle wave file B. Name of the selected wave file


You can also load an Element by selecting any of the files in the `\Elements` folder of the Program browser, or by drag and dropping an `.elem` file into the Rapture Pro window.

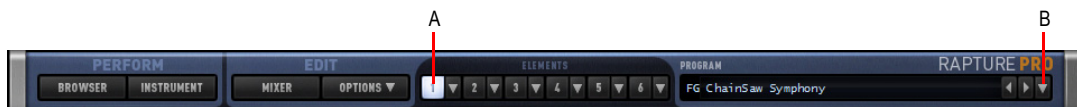
Combining and mixing Elements

If you want to combine different Elements into a new program, simply load up to six Elements and then save a new program. This is valuable if you want to play different timbres at the same time: for example, you could double a lead and a pad.

Here's the procedure:

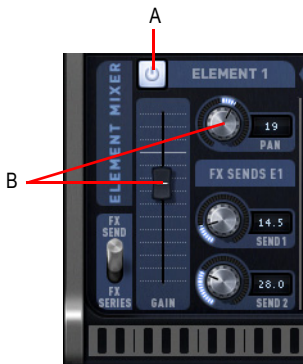
To combine Elements into a new Program

1. Initialize the program to clear all sounds and effects: click the Program Handling button  and choose **Initialize Program** from the pop-up menu (click **Yes** to the **All Current Settings Will Be Discharged** prompt). Click the Element 1 button to display the controls for Element 1.



A. Element 1 button B. Program Handling button

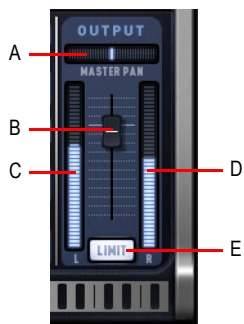
2. Load an Element into Element 1: Click the small down button to the right of the Element 1 button, choose **Load Element** from the pop-up menu, navigate to the desired Element, select it and click the **Open** button.
3. Adjust any effects, filters, etc. for Element 1, and make sure Element 1's On button is enabled on the Mixer page:



A. Click to turn Element 1 on or off B. Click and drag to adjust Element 1's pan and volume controls

You can also adjust each Element's individual pan and volume settings on the Mixer page.

4. Repeat steps 2 and 3 for any additional Elements you want to combine for this program (for Element 2, click button E2 to display the controls for Element 2, load an Element into Element 2, adjust settings for Element 2, and make sure Element 2's On button is enabled; for Element 3, click button E3, etc.).
5. When you've loaded and configured up to six Elements, adjust the program's master stereo mix in the Master Output section (see "Master Output section" on page 28).



A. Master pan B. Master level C. Left channel level meter D. Right channel level meter E. Limiter

These master controls, Pan and Volume, modify the combined signal of all currently active Elements. The level meter gives a visual indication of Rapture Pro's stereo output.



Note: If the levels are high and you want a hard limiter applied to this program, enable the Limiter On button in the Master section. The limiter will ensure levels are always kept below digital zero (0 dB), which is very useful for highly resonant or distorted sounds. 

6. When the program sounds the way you want, save the program as described in "Saving Programs and Elements" on page 21.

Loading samples


You can load single samples (PCM Wave, AIFF, FLAC, or ReCycle files), or multisamples, (SFZ files) which already contain key mapping and velocity switching assignments. You can load samples in any bit depth and sample rate, in mono or stereo, in looped or unlooped format. Wave and AIFF files can be loaded directly, or as a sample inside an SFZ definition file.

Samples can be of any bit depth (8 to 64-bit), any sample rate, and either mono or stereo. Each sample in a multisample can be a standard PCM Windows wave file (.wav), an Apple audio format (.aiff) or a compressed file in the standard, high-quality, open and royalty-free FLAC format (.fla, .flac). Those files can also be loaded directly into an Element.

Alternatively, it is possible to open multisample definition files (.sfz) or individual samples by drag and dropping them into Rapture Pro window. The sample will be loaded into the selected Element.



Tip: *If a multisample or individual sample (even samples inside a multisample) is loaded more than once, across multiple Elements, or multiple instances of Rapture Pro, the sample will exist in memory only once. The size indicated for the second and subsequent instances will be zero, which boosts memory efficiency.*

Loading a sample or multisample does not clear the effects that may be patched into Rapture Pro at the time of loading. If you want to clear all effects first, initialize the program by clicking the Program Handling button  and choosing **Initialize Program** from the pop-up menu.

A multisample consists of a group of samples, their key mapping, and velocity switching. If you want to change key mapping and/or velocity switching, you can edit each multisample's .sfz file, which is found in the multisample folder along with the multisamples. You can use Notepad to edit a .sfz file.

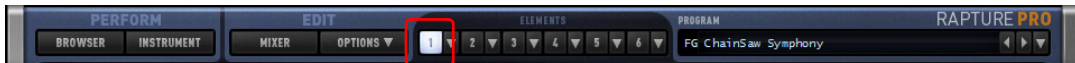


Note: *Rapture Pro can read .sfz files in Unicode (little or big endian), UTF-8 and ANSI. Inside Unicode/UTF files, any character set can be used in the definition of folder and filenames. It is possible to install Rapture Pro in a Unicode-named folder.*

Save a copy of any .sfz file before editing to ensure all programs load properly. Keep the original .sfz file in its current location. Edit the copy, rename it, and put it next to the original .sfz to ensure the samples load when the sfz is loaded in an Element.

To load an Oscillator or Sample file

1. Click the Element 1 button to display the controls for Element 1.



2. In the OSC/SMP section, click the **LOAD** button to open the **Load Multisample** dialog box, and navigate to the folder where the desired wavetable or sample is located.



Note: *Rapture Pro streams samples from RAM, so only samples under a minute in length are suitable for loading, depending on the amount of RAM in your computer. Playback of a stereo sample will use more CPU than a mono sample, but less CPU than two mono samples. Most modern computers can load sample files several minutes in length. This can be used for easy re-sampling, re-mixing individual tracks. The CPU is the limit!*

3. Click the name of the oscillator or sample file, and click the **Open** button.

Or

- ▶ Drag a wave file from the Windows Explorer or the MacOS Finder to Rapture Pro's OSC / SMP section.




Tip: *You can navigate forwards and backwards through wave files in the current wave directory without opening a browse dialog by left-clicking or right-clicking (CTRL-click on a Mac) the waveform in the Wavetable Display window.*

Saving Programs and Elements

After you have configured a Program or an Element the way you want it, you can save it to your `\Programs` or `\Elements` folders. Rapture Pro also allows you to set the program it will automatically load every time a new Rapture Pro instance is inserted.

To save a Program

1. When the program sounds the way you want it, click the Program Handling button  and choose **Save Program** or **Save Program As** from the pop-up menu.
2. If you chose **Save Program**, Rapture Pro saves the program under its current name in its current folder.
3. If you chose **Save Program As**, the **Save Program** dialog box appears: navigate to the folder where you want to save the program, type a name for the program, and click the **Save** button.

Rapture Pro will automatically add the `.prog` extension to the program, and the program name display will be updated to reflect the program name.



Note: Only programs with a `.prog` file extension will load in Rapture Pro.


To save the default Program

Every time you start Rapture Pro in stand-alone mode, or when you insert a new instance in a host when using it as VSTi, Rapture Pro checks the `\Contents\Rapture Pro\Programs` folder under installation directory for files named **DefaultRegion.sfz** and **DefaultEffects.sfz**, which are the default files used when initializing a program.

If it finds these files, it automatically loads them, and all its programs will be instantly available. This is the way the default patches are shipped.



Warning: If you delete the default `.sfz` files, Rapture Pro will load without programs. You will need to reinstall the product in order to restore the factory patches.

1. Load the program that you want Rapture Pro to use when you haven't chosen a program.
2. Click the Program Handling button  and choose **Save Default Program** from the pop-up menu.
3. Click **Yes** when Rapture Pro asks you if this is what you want to do.

Rapture Pro saves the current program as the default program.

To initialize a Program

To initialize a program to a basic status, click the **Program Handling** button and choose **Initialize program**. All settings on the program will revert to default, allowing you to start programming from scratch.

When initializing a program, Rapture Pro looks for **DefaultRegion.sfz** and **DefaultEffects.sfz** files in the `\Contents\Rapture Pro\Programs` folder.

To save an Element

1. When the Element sounds the way you want it, click the small down button to the right of the Element button, and choose **Save Element As** from the pop-up menu. This opens the **Save Element** dialog box.
2. Navigate to the folder where you want to save the Element, type a name for the Element, and click the **Save** button.

Backwards compatibility

Rapture Pro supports loading legacy program files (.prog) created by Rapture 1.x and Dimension 1.x.

All legacy programs will sound the same as they did in Rapture 1.x and Dimension 1.x. They will not phase cancel, due to engine improvements, but as long as all sample files are loaded, they will sound virtually identical to the original.

Save format

Multisamples can be loaded from either the legacy Rapture and Dimension locations (depending on the program type), or the Rapture Pro location (when creating new programs), and the new save format supports the ability to create programs where one Element loads multisamples from a legacy Dimension, one Element loads from a legacy Rapture location, and another Element loads from the Rapture Pro location. Programs saved in the new format will not load in older Rapture or Dimension products.

Saving with a DAW session

The same format used to save a .prog file to disk is used to save and load the program state with a DAW session.

Using effects

Rapture Pro provides various flexible ways to add effects to the signal chain. You can apply effects to individual Elements, or globally to all Elements.

To apply effects to individual Elements

To apply effects to individual Elements, do *one* of the following:

- ▶ Use the Insert section on the Elements page. For details, see “[Insert effects](#)” on page 60.
- ▶ Insert global Send 1 and Send 2 effects on the Mixer page, then use the Element Mixer to adjust the send levels for each Element. For details, see “[Send FX](#)” on page 95 and “[Element Mixer](#)” on page 110.

To apply effects globally to all Elements

To apply effects to globally to all Elements, use the Insert section on the Mixer page. For details, see “[Global Insert effects](#)” on page 108.

The interface

Figure 2. *Rapture Pro interface.*



A. Show Browser page B. Show Instrument page C. Show Mixer page D. Global options E. Select Element 1–6 F. Program name G. Program Handling options H. Top panel I. Preview Ribbon J. Master output

The Rapture Pro interface consists of six main areas:

- ▶ **Top panel.** The top panel shows relevant parts of the synth, and provides quick access to the Browser page, Instrument page, Mixer page, global options, Elements 1–6, and program selection. The currently-selected page is highlighted. For details, see “[Top panel](#)” on page 25.
- ▶ **Browser.** The Browser page lets you easily find and select any Rapture Pro program. For details, see “[The Browser page](#)” on page 32.

- ▶ **Instrument.** The Instrument page contains assignable performance-friendly controls that are mapped to sensible parameters via the Modulation Matrix on the Mixer Page. There are 2 X/Y Pads, a Vector Mixer, and 8 performance macro knobs. For details, see [“The Instrument page”](#) on page 36.
- ▶ **Element pages.** Rapture Pro has 6 identical Element pages. You can load a waveform or SFZ file into each Element, add filters, DSP effects, EQ, and insert effects, and modulate parameters with the Step Generator, Envelope Generator, or LFOs. Only one Element can be selected and edited at a time. The selected Element is highlighted. For details, see [“The Element page”](#) on page 43.
- ▶ **Mixer.** The Mixer page contains the Element Mixer, Modulation Matrix, global effects, Master EQ and a Global Step Generator that adjusts Rapture Pro’s stereo output. Settings made here affect all Elements within a program. For details, see [“The Mixer page”](#) on page 93.
- ▶ **Preview Ribbon.** The Preview Ribbon lets you audition the selected program. For details, see [“Preview Ribbon”](#) on page 26.

See also:

[“Master Output section”](#) on page 28

[“Using the controls”](#) on page 29

[“Getting started”](#) on page 12

Top panel

The top panel shows relevant parts of the synth, and provides quick access to the Browser page, Instrument page, Mixer page, global options, Elements 1–6, and program selection. The currently-selected page is highlighted.

Figure 3. *Top panel.*



A. Show Browser page **B.** Show Instrument page **C.** Show Mixer page **D.** Global options **E.** Element selector **F.** Element menu **G.** Previous program **H.** Current program name **I.** Next program **J.** Program Handling menu

The top panel contains the following controls:

- ▶ **PERFORM** section:
 - ▶ **Browser.** Select the Browser page. For details, see “[The Browser page](#)” on page 32.
 - ▶ **Instrument.** Select the Instrument page. For details, see “[The Instrument page](#)” on page 36.
- ▶ **EDIT** section:
 - ▶ **Mixer.** Select the Mixer page. For details, see “[The Mixer page](#)” on page 93.
 - ▶ **Options.** Open the global options menu. For details, see “[Options menu](#)” on page 27.
- ▶ **ELEMENTS** section:
 - ▶ **Element selector.** Select Element 1–6. For details, see “[The Element page](#)” on page 43.
 - ▶ **Element menu.** Open options menu for Element 1–6. For details, see “[Element menu](#)” on page 45.
- ▶ **PROGRAM** section:
 - ▶ **Current program.** Shows the currently-selected program. For details, see “[Programs, Elements and audio files](#)” on page 13.
 - ▶ **Previous program.** Load previous program. For details, see “[Loading programs](#)” on page 15.
 - ▶ **Next program.** Load next program.
 - ▶ **Program Handling menu.** Open the Program Handling menu. For details, see “[Program Handling menu](#)” on page 26.

Preview Ribbon

Figure 4. Preview Ribbon.



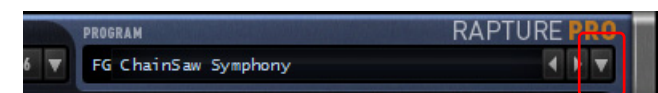
Rapture Pro features the unique Cakewalk Preview Ribbon, which allows you to preview programs by clicking and dragging on it. The Preview Ribbon, at the bottom of the screen, plays different note velocities as you click higher or lower within the ribbon. You can hold up to 8 notes simultaneously by holding down the SHIFT key while clicking the ribbon, or by right-clicking the ribbon.

The ribbon sends MIDI Note-On/Note-Off messages with velocity to the host when Rapture Pro is used as VSTi, so those events can be recorded in real time if the host supports that feature.

The ribbon is very useful to set release times, performing a glissando by dragging the mouse over it.

Program Handling menu

Figure 5. Program Handling menu button.



The Program Handling menu contains the following commands.

Command	Description
Initialize Program	Resets all controls Rapture-wide to their defaults.
Load Program	Launches Explorer or Finder so a user can load a .prog file from the system's file browser.
Save Program	Saves over the current settings. If no previous .prog file was loaded, this option is unavailable.
Save Program As	Saves the current settings into a .prog file, using the system's file browser and going to the selected folder in the browser.
Save Default Program	Sets the default patch so the current settings, so that Rapture will load with this patch each time it is instantiated.
Set Instrument Type	Sets the current programs Instrument type so programs are grouped by category in the Browser, and the correct background is displayed on the Instrument page.

Table 2. Program Handling menu commands

See also:

[“Programs, Elements and audio files”](#) on page 13

Options menu

Figure 6. Options menu button.



The Options menu contains the following commands.

Command	Description
Use SINC interpolation when freezing/rendering	When you freeze or play back a Rapture Pro track, you have the option to use a higher-quality algorithm called sinc interpolation when freezing or playing back a Rapture Pro track. For details, see “Sinc interpolation” on page 117.
Set Program as Multitimbral	Each of the six Elements can function as a separate instrument, if you want to use a single instance of Rapture Pro as a six-part multi-timbral instrument. The six Elements respond to MIDI channels 1–6, respectively. For details, see “Using Rapture Pro as a multi-timbral instrument” on page 117.

Table 3. Options menu commands

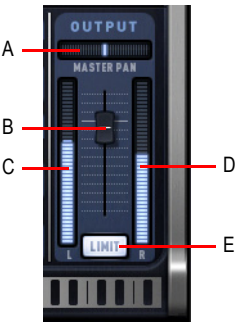
Master Output section

The Master Output section lets you adjust the combined signal of all currently active Elements. The level meter gives a visual indication of Rapture Pro’s stereo output.

The soft limiter reduces the signal amplitude in the boundaries of the clipping point, completely avoiding the clipping that would occur if the signal level goes above 0dB. As a result of the Limiter operation, output level is more predictable. However, it is important to carefully set all gain stages inside a program to preserve the dynamic range at the highest possible level.

The Master Output section is shown in the bottom right corner of the Instrument, Element, and Mixer pages.

Figure 7. Master Output section.



A. Master pan B. Master level C. Left channel level meter D. Right channel level meter E. Limiter

The Master Output section contains the following controls:

Parameter	Description
Master pan	Master Panoramic control for all Elements.
Master level	Master output level for all Elements in the selected program.
Left and right VU meters	Shows the main stereo output level for the left and right channels.
Limit	Final limiting stage at the end of the signal path. When enabled, the limiter will ensure levels are always kept below digital zero (0 dB), which is very useful for highly resonant or distorted sounds.

Table 4. Master Output controls

See also:

“Element Mixer” on page 110

Using the controls

All the controls in Rapture Pro were specially designed to provide maximum flexibility and convenience. They fully support mouse, mouse wheel, and keyboard commands to perform the functions described below.

Horizontal selectors

The horizontal selectors are always in the header of a section, and are used to choose a ‘page’ for editing in a multiple-page context.

Knobs

Parameters that are continuously variable and suited for automation are controlled by knobs (or faders in the Element Mixer and Master Output sections). The knobs in Rapture Pro can be operated by mouse movements, mouse wheel, keyboard, or MIDI messages.

When a parameter is not active (if the whole section is off, for instance), the knob will become semi-transparent.

To use knobs

- ▶ Hovering the mouse over the knob for a moment (without clicking on it) will make a tooltip appear, displaying the currently selected Element, the parameter name and the current parameter value.
- ▶ Clicking on the knob, then moving the mouse vertically will adjust the parameter value. A tooltip will show the parameter value for current adjustment.
- ▶ Double-clicking on the knob will set the parameter to its default value (the ‘natural’ value for each parameter).
- ▶ After a knob is clicked (or double-clicked), it becomes ‘active’. When a knob is active, it receives mouse wheel messages and keystrokes.
- ▶ The mouse wheel will change the parameter value in $\pm 5\%$ steps for the active knob. If the SHIFT key is down while moving the wheel, the knob will move in $\pm 1\%$ steps, allowing for more precise adjustment. Tooltips will display the parameter value for mouse wheel messages as long as the mouse cursor is over the knob. Knobs won’t generate interpolated values on mouse wheel.
- ▶ If a knob is ‘active’, it will receive keystrokes. The following keyboard shortcuts can be used to change the parameter value:

Key	Change
LEFT ARROW, RIGHT ARROW	$\pm 0.1\%$
UP ARROW, DOWN ARROW	$\pm 1\%$
HOME	Minimum
END	Maximum

Table 5. *Knob keyboard shortcuts*

Tooltips will display the parameter value for mouse wheel messages as long as the mouse cursor is over the knob. Knobs won't generate interpolated values on keystrokes.

Buttons

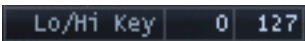
Buttons are used to turn on/off a component.



Clicking on a button will turn the component on/off, and the button image will reflect the status.

Up/Down selectors

Parameters with numerical values, not suitable for automation are controlled via Up/Down selectors. An example of this type of parameters is the Low and High Keyboard Note for any Element, in the Oscillator control display.



- ▶ The Up/Down selectors are controlled in the same way as the knobs: clicking on it and moving the mouse vertically. However, adjusting an Up/Down selector won't result in interpolated values. A tooltip will show the parameter value for current adjustment.
- ▶ Like the knobs, after an Up/Down selector is clicked, it becomes active. The font color will change to orange when in that status.
- ▶ When a text selector is active, it can receive mouse wheel messages and keystrokes.
- ▶ (Windows only) Double-clicking a numerical value allows you to enter the desired value in a text box.
- ▶ Since many parameters represented by Up/Down selectors have broad ranges, and at the same time they require precise adjustments, the following modifiers can be used to achieve different speed/ resolution changes while using the mouse:

Modifier	Change
SHIFT	Small steps (small parameter movements, increased resolution)
CTRL (Command on a Mac)	Big steps (big parameter changes, reduced resolution)

Table 6. *Parameter modifier keys*

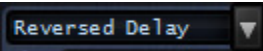
- ▶ The range and step size for each parameter is shown in the ‘Parameter Ranges’ table. See “[Parameter reference](#)” on page 118.
- ▶ If an Up/Down selector is active, it will receive keystrokes. The following keys can be used to change the parameter value:

Key	Parameter Value
UP/DOWN ARROW	Next/Previous parameter value. Standard Steps.
PAGE UP/DOWN	Step forward/backward 10 steps

Table 7. *Parameter value keyboard shortcuts*

Text selectors

The text selectors are used to choose a value for parameters that have multiple options, non-numerical. An example of this kind of parameter is the Insert FX Type.



A text selector will advance to next/previous value when the display text is left/right clicked (left click/CTRL+click on a Mac).

When a Text Selector is clicked, it becomes active. The font color will change to orange when in that status.

When a text selector is active, it can receive mouse wheel messages and keystrokes. The following keys can be used to change the parameter value:

Key	Change
UP/DOWN ARROW	Next/Previous parameter value
PAGE UP/DOWN	Step forward/backward 10 steps

Table 8. *Parameter keyboard shortcuts*



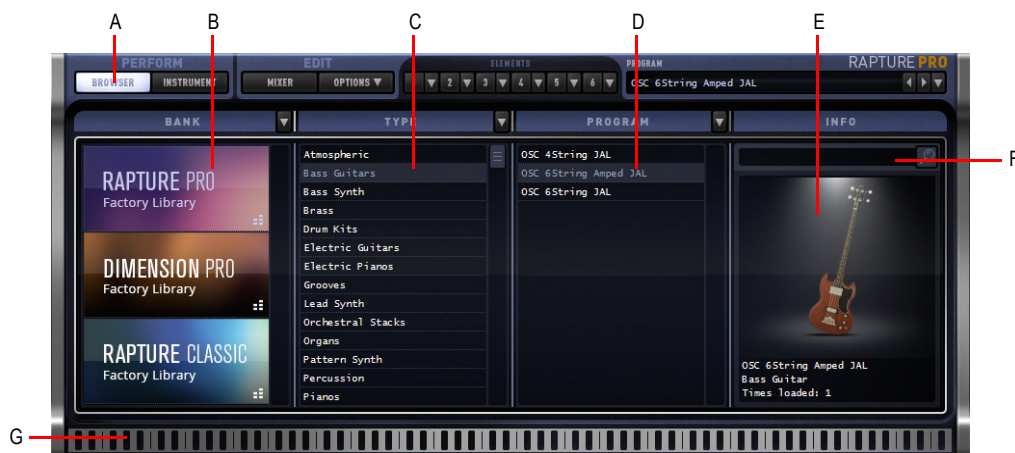
Tip: Many text selector values can also be accessed via a menu. Click the gray triangle to the left or right of a text selector to view available options in a pop-up menu.

The Browser page

The Browser page lets you easily find and load any available Rapture Pro, Rapture, Rapture LE, Dimension Pro, and Dimension LE program.

To show the Browser, click the **BROWSER** button in the top panel.

Figure 8. *The Browser page.*



A. Open Browser page **B.** Bank **C.** Type **D.** Program **E.** Info **F.** Search **G.** Preview ribbon

The Browser page contains the following controls:

- ▶ **Bank.** The **Bank** column shows all local program banks and installed expansion packs (see “[Expansion packs](#)” on page 33). You can download any expansion packs you already own via Cakewalk Command Center. Select a bank to show all related instrument types and programs.
- ▶ **Type.** The **Type** column shows all available instrument types in the selected bank. Select a type to show all related programs. For details, see “[To specify a Program’s Instrument Type](#)” on page 34.
- ▶ **Program.** The **Program** column shows all available programs in the selected bank and type. Double-click to load a program. For details, see “[To load a Program](#)” on page 34.
- ▶ **Info.** The **Info** column shows the following information about the selected program:
 - ▶ Artwork.
 - ▶ Program name.
 - ▶ Instrument type.
 - ▶ How many times the program has been loaded.

You can also search for programs by name. For details, see “[To search for a Program by name](#)” on page 33.

Expansion packs

You can download any Rapture and Dimension Pro expansion packs you already own via Cakewalk Command Center (see “[Cakewalk Command Center](#)” on page 7). After you have installed a new expansion pack, press F5 while Rapture has focus in order to refresh the program library. All expansion packs are shown in the **Bank** column.

Using the Browser

The Browser page lets you quickly find any saved program. There are two basic ways to browse programs:

- ▶ Show all programs that belong to a specific bank and instrument type.
- ▶ Show only programs that contain a specific name.


To search within a bank

By default, the Browser shows all available programs in the selected bank and instrument type. You can filter the list by choosing to only look in certain banks and particular categories.

1. Select a bank in the **Bank** column.
2. Select an instrument type in the **Type** column. For details, see “[To specify a Program's Instrument Type](#)” on page 34.

The **Program** column is progressively filtered to only show the corresponding programs.

To search for a Program by name

To automatically show only programs that contain a specific word or phrase, type the desired name in the Search box in the **Info** column, then press the ENTER key or click the **Program Search** button . The Browser shows all programs that contain the search phrase, or which live in a bank or instrument type that contains the search phrase.



To load a Program

To load a program from the Browser, do *one* of the following:

- ▶ Double-click program name in the **Program** column.
- ▶ Use the UP ARROW and DOWN ARROW keys to select the program you want to load, then press ENTER.



Tip: Use the *LEFT ARROW* and *RIGHT ARROW* keys to navigate between the **Bank**, **Type**, and **Program** columns.


To sort the Browser

Click the **Bank**, **Type**, or **Program** column header drop-down button and select one of the following sort options from the pop-up menu:


- ▶ Alphabetical
- ▶ Alphabetical (Reversed)
- ▶ Most Used (**Program** column only)
- ▶ Least Used (**Program** column only)

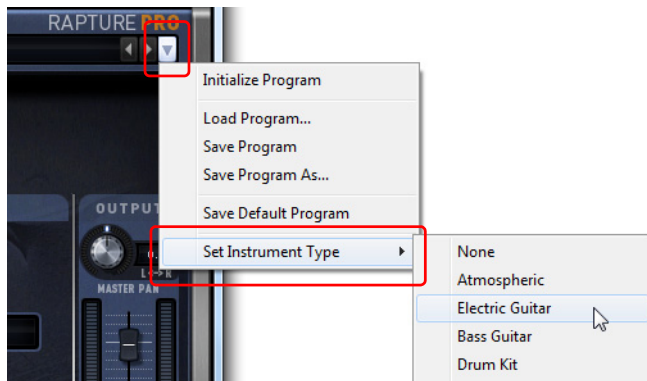
To specify a Program's Instrument Type

Each Program is associated with an Instrument Type (guitar, percussion, synth, bass, etc.). The instrument type makes it easier to find related programs in the Browser, and allows the Instrument page to show appropriate background artwork and controls. A program can be assigned to any of 20 different instruments types.

1. Load the program you want to assign to an instrument type. For details, see [“To load a Program”](#) on page 34.
2. Click the Program Handling button  in the top panel, point to **Set Instrument Type**, then select the desired instrument type on the pop-up menu:
 - ▶ Atmospheric
 - ▶ Electric Guitars
 - ▶ Bass Guitars
 - ▶ Drum Kit
 - ▶ Piano
 - ▶ Electric Piano
 - ▶ Organ
 - ▶ Bass Synth
 - ▶ Lead Synth
 - ▶ Pattern Synth
 - ▶ Sound FX
 - ▶ Splits

- Grooves
- Vocals
- Brass
- Strings
- Percussion
- Woodwind
- World Instruments
- Orchestral Stacks

3. Save the program to store the assigned instrument type: click the Program Handling button  in the top panel and select **Save Program** on the pop-up menu:



Note: If you have older Rapture or Dimension Pro programs that have not been assigned to an instrument type yet, Rapture Pro defaults to the program folder's "Type" name.

See:

["The Browser page"](#) on page 32

["The Instrument page"](#) on page 36

["The Mixer page"](#) on page 93

["The Element page"](#) on page 43

["Programs, Elements and audio files"](#) on page 13

The Instrument page

The Instrument page contains assignable performance-friendly controls that are pre-mapped to sensible parameters. There are 2 X/Y Pads, a Vector Mixer, and 8 performance macro knobs that can be assigned to various parameters in the Modulation Matrix.

To show the Instrument page, click the **INSTRUMENT** button in the top panel.

Figure 9. *Instrument page.*



A. Top Bar **B.** Instrument Mode button **C.** X/Y Pad 1 & 2, Vector Mixer Selection Tabs **D.** X/Y Parameter Selector **E.** X/Y Pad 1 or Vector Mixer Cursor Speed Control **F.** X/Y Pad or Vector Mixer **G.** X/Y Pad or Vector Mixer Cursor **H.** Instrument Type & Background Image **I.** Current Program **J.** 8 Macro Controls **K.** Macro labels **L.** Master Output **M.** Preview Ribbon

See:

[“Performance macro controls”](#) on page 37

[“X/Y Pad”](#) on page 39

[“Dynamic Performance Vector Mixer”](#) on page 42

Performance macro controls

Figure 10. Performance macro controls.



The 8 assignable Macro Control knobs allow you to control various Rapture Pro parameters from a single convenient location. Each knob can also be named with a custom label.

By default, the macro controls are mapped to sensible parameters based on the instrument type.

To assign a macro control

The 8 performance macro knobs that can be assigned to various parameters in the Modulation Matrix.

1. Display the Modulation Matrix by clicking the **MOD MATRIX** button on the Mixer page.
2. In the **Source** column, click the arrow at the right side of the column to open the Modulation Source menu.
3. From the Source menu, point to **Macro Knobs**, then select the Macro Knob (Macro Knob 1–8) you want to assign to a parameter.
4. In the **Destination** column, click the arrow at the right side of the column to open the Modulation Destination menu (a list of Rapture Pro parameters).
5. From the Destination menu, select any of the available synth parameters.
6. In the **Amount** column, drag up or down to enter a number that controls how strongly and in which direction the parameter responds to changes by the Macro Knob (negative numbers produce an inverse relationship).
7. In the **Smooth** column, drag upward to produce a number that smooths out the response of the Destination to the Source.

The Macro Knob will now control the selected parameters. You can assign as many parameters to the Macro Knobs as space provides in the Modulation Matrix.

Figure 11. Modulation Matrix.



To rename a macro control

Click the text label below the knob and type the desired label.



X/Y Pad

Figure 12. X/Y Pad.



This X/Y Pad allows you to modulate synth parameters by dragging the X/Y crosshair around the pad using the mouse or Trackpad (OSX). Parameter levels rise and fall as you move the crosshair.

Rapture Pro has two independent X/Y Pads. A pair of parameters can be assigned directly from the X/Y Pad, and you can assign multiple parameters via the **Source** column in the Modulation Matrix (see LINK).

The **Speed** control allows you to slow down the response of the cross hair—higher values cause a slower response.

Open the X/Y Pad by clicking the **X/Y Pad 1** or **X/Y Pad 2** button on the Instrument page.

The position of the X-Y Pad is saved in the program, and all movements can be recorded as automation in all hosts supporting direct parameters automation.

X-Y Pad X and Y movements can be MIDI-learned. For more information about MIDI Learn, see “[MIDI Learn](#)” on page 113.

Figure 13. *X/Y Pad.*



A. Show X/Y Pad 1 **B.** Show X/Y Pad 2 **C.** X axis parameter **D.** Y axis parameter **E.** Cross hair **F.** Speed

Each X/Y Pad contains the following controls:

- ▶ **X.** Specify which parameter is modified when moving the X/Y Pad cross hair along the X-axis.
- ▶ **Y.** Specify which parameter is modified when moving the X/Y Pad cross hair along the Y-axis.
- ▶ **Speed.** Determines how long it takes for the node in the center of the X/Y Pad to get from one point to a newly clicked point.

To assign parameters to the X/Y Pad

Parameters can be assigned directly from the X/Y Pad:

1. On the Instrument page, click **X/Y PAD 1** or **X/Y PAD 2**, depending on which X/Y Pad you want to configure.
2. Click the **X** or **Y** control drop-down button and select the desired parameter from the pop-up menu.



Note: To adjust the minimum/maximum parameter value of the X/Y Pad, navigate to the Modulation Matrix on the Mixer page. Once the Destination is assigned in the X/Y selector on the Instrument page, it will show up in the Modulation Matrix, and vice versa.

To assign more than 2 parameters to the X/Y Pad(s), use the Modulation Matrix:

1. Display the Modulation Matrix by clicking the **MOD MATRIX** button on the Mixer page.
2. In the **Source** column, click the arrow at the right side of the column to open the Modulation Source menu.
3. From the Source menu, select **X/Y Pad 1 X**, **X/Y Pad 1 Y**, **X/Y Pad 2 X**, or **X/Y Pad 2 Y**.
4. In the **Destination** column, click the arrow at the right side of the column to open the Modulation Destination menu (a list of Rapture Pro parameters).
5. From the Destination menu, select any of the available synth parameters.
6. In the **Amount** column, drag up or down to enter a number that controls how strongly and in which direction the parameter responds to changes by the Macro Knob (negative numbers produce an inverse relationship).
7. In the **Smooth** column, drag upward to produce a number that smooths out the response of the Destination to the Source.

The X/Y Pad(s) will now control the selected parameters. You can assign as many parameters to the X/Y Pads as space provides in the Modulation Matrix.

Dynamic Performance Vector Mixer

Figure 14. Vector Mixer.



The Vector Mixer is an extra gain stage located after the Mix section in the signal chain. The Vector Mixer allows you to dynamically mix the output of the six Elements on a graph. You can balance the output of all active Elements by dragging the cross hair through the six regions of the graph.

The **Speed** control allows you to slow down the response of the cross hair—higher values cause a slower response.

Open the Vector Mixer by clicking the **VECTOR MIXER** button on the Instrument page.

Figure 15. Vector Mixer.



A. Speed B. Vector mixer

See also:

["Element Mixer"](#) on page 110

The Element page

A Rapture Pro program is made of up to six Elements. You can load an oscillator, sample file, or SFZ file into each Element, add filters, DSP effects, EQ, and insert effects, and modulate parameters with the step generator, Envelope Generator, or LFOs.

Rapture Pro has 6 identical Element pages. Only one Element can be selected and edited at a time. The selected Element is highlighted.

Figure 16. *Element page.*



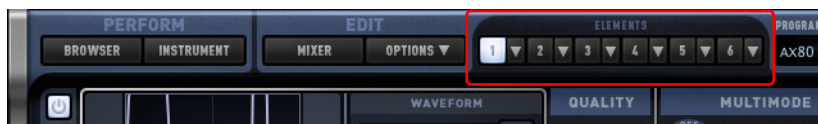
A. Select an Element (1–6) **B.** OSC / SMP section **C.** Filter FX section **D.** Insert FX section **E.** Modulation section (Step Generator, Envelope Generator, LFO/Keyboard Tracking) **F.** Equalizer **G.** Perform section **H.** Main Output section


The Elements page contains the following sections:

- ▶ **Element selector and menu.** Select which Element you want to edit. Only one Element can be selected and edited at a time. The selected Element is highlighted. For details, see “[To select an Element for editing](#)” on page 44 and “[Element menu](#)” on page 45.
- ▶ **Oscillator / Multisample (OSC / SMP).** After a wavetable is loaded into the Element, you can adjust a number of mapping, tuning, and performance parameters. For details, see “[Oscillator / Multisample section \(OSC / SMP\)](#)” on page 46.
- ▶ **Filter FX.** The Filter FX section contains Filter, Drive and LoFi effects. For details, see “[Filter FX section](#)” on page 50.
- ▶ **Equalizer.** The 3 band stereo equalizer gives you tremendous control over the sound of each Element. For details, see “[Equalizer section](#)” on page 58.
- ▶ **Insert FX.** Rapture Pro has a complete effects processing section featuring several effects, including delay, chorus, phaser, LFO filter, reverb, and distortion. For details, see “[Insert effects](#)” on page 60.
- ▶ **Modulation.** The Modulators section allows you to generate envelopes to control an Element’s pitch, cutoff and resonance for both filters, pan and amplitude/volume. For details, see “[Modulation section](#)” on page 67.

To select an Element for editing

To select one of the 6 Elements for editing, click the corresponding (Element) **1–6** button in the top panel.



 **Note:** Rapture Pro allows you to “chain” the output of one Element into the effects of the next, for the first five Elements. For details, see “[Chaining Elements](#)” on page 91.

See:

- “[Element menu](#)” on page 45
- “[Oscillator / Multisample section \(OSC / SMP\)](#)” on page 46
- “[Filter FX section](#)” on page 50
- “[Equalizer section](#)” on page 58
- “[Insert effects](#)” on page 60
- “[Modulation section](#)” on page 67
- “[Step Generator](#)” on page 69
- “[Envelope Generator](#)” on page 74
- “[LFO / Keyboard Tracking](#)” on page 81
- “[Perform section](#)” on page 88

See also:

[“The Browser page”](#) on page 32

[“The Instrument page”](#) on page 36

[“The Mixer page”](#) on page 93

[“Programs, Elements and audio files”](#) on page 13

Element menu

The Element menu offers various options for each Element.

To open an Element’s menu, click the small down arrow to the right of the Element button.

Figure 17. *Element menu button.*



Each Element menu contains the following commands.

Command	Description
Unload Element	Unloads the waveform or multisample from the oscillator without removing parameter settings.
Reset Element	Unloads the waveform or multisample from the oscillator and removes all parameter settings.
Load Element	Loads an Element file.
Save Element As	Saves an Element file.
Copy Element	Copies all information from current Element, including multisample assignments and all parameter settings, to the clipboard. For details, see “Copying, unloading, and resetting Elements” on page 90.
Paste Element	Pastes copied Element data from the clipboard to the current Element.
Paste Element Fx	Pastes only Insert Fx and EQ settings from a copied Element to the current Element.
Chain to next Element	Allows Elements to share EQ and Effect settings to save CPU. This option is only available for Elements 1-5. For details, see “Chaining Elements” on page 91.
Ring Modulate Previous Elements	Ring modulates the Element with all Elements before it. Adjust the Tune and Transpose settings of the Elements to create interesting effects. For details, see “Ring Modulation” on page 92.

Table 9. *Element menu commands*

Oscillator / Multisample section (OSC / SMP)

Figure 18. OSC/SMP section.



A. Element Power B. Previous Waveform C. Waveform display D. Next Waveform E. Name F. Load Waveform G. Phase H. Quality I. MultiMode Voices J. RingMod K. Detune L. Glide M. Tracking N. Transpose O. Scala tuning P. Tune Q. Level R. Pan

After an oscillator is loaded into the Element, you can adjust a number of mapping, tuning, and performance parameters. The OSC/SMP section dynamically displays either a waveform or multisample keyboard display depending on the size of the loaded wavetable:

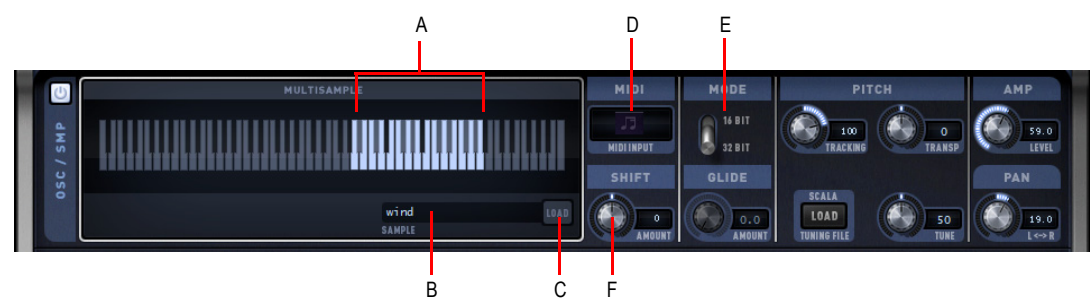
- ▶ **Waveform oscillator.** Supported sample files less than 3000 samples in length are displayed in the Oscillator view.
- ▶ **Multisample keyboard.** Supported sample files larger than 3000 samples in length load in the Sample view.

Figure 19. Oscillator display (<3000 samples).



A. Previous Waveform B. Waveform display C. Next Waveform D. Name E. Load Waveform F. Phase

Figure 20. Sample keyboard display (>3000 samples and SFZ multisample files).



A. Keys that have assigned samples **B.** Sample name **C.** Load sample **D.** MIDI Input **E.** Mode **F.** Shift

The OSC/SMP section contains the following controls:

Parameter	Description	Values / Functions
Element Power	Turns the Element On or Off. Note: This control is also duplicated in the Element Mixer on the Mixer page.	On, Off
Previous Waveform (Oscillator display only)	Go back one waveform or sfz.	
Waveform display (Oscillator display only)	Shows the waveform of the currently loaded wavetable.	
Keyboard Multisample display (Sample display only)	Shows the multisamples mapped to keys in an SFZ file. Wavetables greater than 3000 samples are displayed as a multisample keyboard. The keyboard dynamically highlights the keys that have samples assigned to them.	88 keys
Next Waveform (Oscillator display only)	Goes forward one waveform or sfz.	
Load	Opens the file system to load an oscillator waveform. You can load the following sample file types: <ul style="list-style-type: none">▶ SFZ (.sfz)▶ Windows PCM Wave (.wav)▶ Apple AIFF PCM Wave (.aif, .aiff)▶ FLAC Lossless Compressed Wave (.flac, .fla)▶ ReCycle Loops (.rcy, .rex, .rx2) SFZ multisample files always use the Multisample keyboard display. For details, see "Loading samples" on page 19.	

Table 10. OSC/SMP section controls

Parameter	Description	Values / Functions
Shape / Sample	Displays the name of the currently loaded oscillator or multisample.	
Phase (Oscillator display only)	Adjusts the initial phase of the oscillator, from 0 to 360 degrees, when a MIDI Note On event arrives. It is possible to create complex sound textures by combining waveforms in two oscillators with different starting phases.	0 – 360 degrees
Quality (Oscillator display only)	Defines the wavetable rendering quality. “Standard” should be used when no exposed pitch sweeps are performed with that oscillator. “High” will perform a high-order partial-level interpolation, allowing huge pitch sweeps without audible aliasing.	High, Standard
Voices (Oscillator display only)	Turns the currently loaded wavetable into multiple oscillators (voices), spread across the stereo field at even distributions and with different detuning levels to thicken the sound. Note: The detuning level is regulated by the Detune control.	OFF, 3V, 5V, 7V, 9V
Detune (Oscillator display only)	Applies to the most-detuned oscillators when in Multi or Ring Mod mode; the middle oscillators are interpolated from that value. The Detune range is one semitone, or 100 cents. For details, see “ Ring Modulation ” on page 92.	0 – 100 cents
RingMod (Oscillator display only)	Changes the oscillator into two oscillators that ring modulate each other. For details, see “ Ring Modulation ” on page 92. Note: The detune level between both oscillators is regulated by the Detune control.	On/Off
Glide	Sets the amount of portamento time between notes, when the polyphony-voices of the Element is set to 0.	0-100 cents
MIDI Input (Sample display only)	Drag and drop a MIDI file from this location to your DAW. Some Programs have MIDI files saved with the program. The eighth note lights up when a MIDI file is loaded and associated with the program.	
Shift (Sample display only)	This value is used to transpose samples inside a multisample, but keeping the original mapping. This can be combined with the Transpose value to create timbre variations of the multisamples.	± 48 semitones
16 bit/32 bit Mode (Sample display only)	Defines how the samples will load into memory. 32-bit mode has a lower CPU tag, but twice the memory. Quality is not affected by Loading Mode.	32-bit. 16-bit
Pitch Tracking	Changes the amount that each sample is transposed when the trigger note is raised by a half-step. The default is 100 cents, or one half-step. When disabled at 0, all notes will trigger at C5.	± 200 cents/key
Transpose	Transposes the pitch of the oscillator (keyboard mapping is unaffected).	-96 – +96 semitones

Table 10. OSC/SMP section controls (Continued)

Parameter	Description	Values / Functions
Load Scala Tuning file	Accesses the file menu to load a Scala Tuning file (.sc1). For details, see "Microtuning and alternative tunings" on page 115.	
Tune	Tunes the pitch of the oscillator in one-cent increments, up or down.	-100 – +100 cents
Amp Level	Adjusts the amplitude of the Element. Note: This control is also duplicated in the Element Mixer on the Mixer page.	± 96dB
Pan	Adjusts the pan of the Element. Note: This control is also duplicated in the Element Mixer on the Mixer page.	100% Left – 100% Right

Table 10. OSC/SMP section controls (Continued)

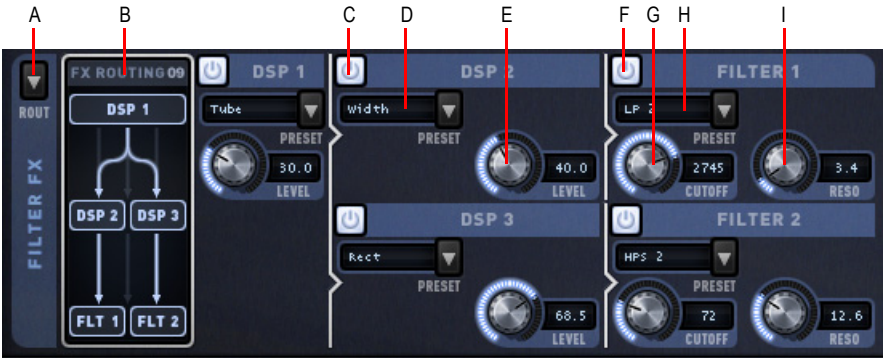


Tip: The *Multi* and *Ring Mod* controls are suitable for much higher detuning factors, if extreme effects are wanted. Further detuning is available via the *Modulation Matrix*.

Filter FX section

The Filter FX section of Rapture Pro contains Filter, Drive and LoFi effects. Independent controls are provided for the two filters and their resonance parameters, plus a control for each of the 3 DSP effects that can be used in the chain. The order of these processes can be altered, thereby modifying the signal path and the resulting sound.

Figure 21. *Filter FX section.*



A. Routing picker **B.** Routing signal flow diagram **C.** DSP On/Off **D.** DSP Preset **E.** DSP Level **F.** Filter On/Off **G.** Filter Cutoff **H.** Filter Preset **I.** Filter Resonance

The Filter FX section comes after the oscillator, and allows you to load a total of 5 effects in a row: 2 Filter effects, each with Cutoff and Resonance controls, and 3 DSP Waveshaping and tonal FX, each with a Level control.

The Cutoff and Resonance of both Filters can be modulated.

The FX Routing section shows the current effect chain. The signal flows from top to bottom, then gets passed into the Equalizer section. You have full control over the effect chain.

To reorder the Filter FX chain

To reorder the effect modules, click the ROUT drop-down button and select the desired routing on the pop-up menu.

You can also click the signal flow diagram to cycle through the available reordering options or to Bypass the section entirely. Left-click or right-click (CTRL-click on a Mac) on the signal path to iterate forwards or backwards respectively.

Figure 22. *Filter FX routing.*

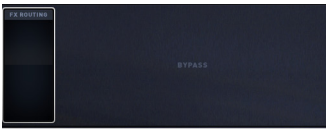


A. Click to change the order of DSP processes

The following figure shows all 15 possible routing options, including the first “Bypass” option.

Figure 23. DSP routing options.

00. Bypass



01. DSP1 -> DSP2 -> F1 -> DSP3 -> F2



02. F1 -> DSP1 -> DSP2 -> DSP3 -> F2



03. F1 -> DSP1 -> F2 -> DSP2 -> DSP3



04. F1 -> DSP1 -> DSP2 || F2 -> DSP3



05. DSP1 -> DSP2 -> F1 || DSP3 -> F2



06. DSP1 -> DSP2 -> DSP3 -> F1 || F2



07. DSP1 -> DSP2 -> DSP3 -> F1 -> F2



08. (DSP1 -> F1 || DSP2 -> F2) -> DSP3



09. DSP1 -> (DSP2 -> F1 || DSP3 -> F2)



10. DSP1 -> DSP2 -> (F1 || F2) -> DSP3



11. F1 -> (DSP1 || DSP2) -> DSP3 -> F2



12. F1 -> (DSP1 || DSP2) -> F2 -> DSP3



13. (DSP1 || DSP2) -> F1 -> DSP3 -> F2



14. (DSP1 || DSP2) -> DSP3 -> F1 -> F2



Using the Filters

The DSP section provides two multimode filters. This is useful for filter effects, such as combining low-pass and high-pass frequency filters or using two separate bandpass filters. Rapture Pro's filters provide a wide selection of filter types, which you choose from the Preset drop-down menu:

Figure 24. *Filter FX.*



A. *Click to choose a filter type*

Each filter contains the following controls.

Parameter	Description	Values / Functions
Filter on/off	Turns the filter On or Off.	On, Off
Preset	Select the filter type.	
Cutoff	Adjusts the cutoff frequency.	8.2 Hz – 22350.6 Hz
Resonance	Adjusts the resonance level.	0.0 dB – 40.0 dB

Table 11. *Filter FX controls*

The following table lists the available Filter types.

Filter	Description
LP 1	Low Pass, One-Pole filter (6dB/octave roll-off). Allows passing all frequencies below the specified by the Cutoff knob. Above that frequency, there's a 6dB/octave roll-off, very gentle. This filter doesn't feature resonance.
HP 1	High Pass, One-Pole filter (6dB/octave roll-off). Allows passing all frequencies above the specified by the Cutoff knob. Below that frequency, there's a 6dB/octave roll-off, very gentle. This filter doesn't feature resonance.
BP 1	Band Pass composed of two One-Pole LP and HP filters in series (6dB/octave roll-off). Allows passing all frequencies in the neighborhood of the specified by the Cutoff knob. Above and below that frequency, there's a 6dB/octave roll-off, very gentle.
BR 1	Band Rejection composed of two One-Pole HP and LP filters in series (6dB/octave roll-off). Allows passing all frequencies except the ones in the neighborhood of the specified by the Cutoff knob. Surrounding that frequency, there's a 6dB/octave roll-off, very gentle. This filter doesn't feature resonance.
AP 1	All Pass, One-Pole filter. This filter is used to introduce sub-sample delay times. This is useful when phase aligning samples between different Elements. This is a very subtle effect.
LP 2	Low Pass, Two-Pole filter (12dB/octave roll-off). This filter allows passing all frequencies below the specified by the Cutoff knob. Above that frequency, there's a 12dB/octave roll-off in amplitude. This filter features resonance, which is a boost of the frequencies surrounding the cutoff frequency. Resonance can dramatically increase the loudness. Please make sure you have the main Limiter turned on when editing programs with high resonance.
HP 2	High Pass, Two-Pole filter (12dB/octave roll-off). This filter allows passing all frequencies above the specified by the Cutoff knob. Below that frequency, there's a 12dB/octave roll-off in amplitude. This filter features resonance, which is a boost of the frequencies surrounding the cutoff frequency. Resonance can dramatically increase the loudness. Please make sure you have the main Limiter turned on when editing programs with high resonance.
BP 2	Band Pass, Two-Pole filter (12dB/octave roll-off). This filter allows passing all frequencies around the specified by the Cutoff knob. Below and above that frequency, there's a 12dB/octave roll-off in amplitude. This filter features resonance, which is a boost of the frequencies surrounding the cutoff frequency. High resonance settings on a band pass filter result in a narrow output bandwidth. For most sounds, this is perceived as a reduced loudness. However, if the incoming sound frequency matches the filter cutoff, a dramatically high loudness is expected. Please make sure you have the main Limiter turned on when editing programs with high resonance.

Table 12. *Filter types*

Filter	Description
BR 2	Band Rejection, Two-Pole filter (12dB/octave roll-off). This filter allows passing all frequencies except the ones around the specified by the Cutoff knob. Surrounding that frequency, there's a 12dB/octave roll-off in amplitude.
PK+ 2	Peak Filter. This filter will reinforce the Cutoff frequency by 6dB, and the surrounding frequencies with a slope of 12dB/octave. The width of the peak is adjusted with the Resonance knob.
PK- 2	Peak Filter. This filter will lower the Cutoff frequency by -6dB, and the surrounding frequencies with a slope of 12dB/octave. The width of the peak is adjusted with the Resonance knob.
LP 4	Low Pass, Four-Pole filter (24dB/octave roll-off). This filter allows passing all frequencies below the specified by the Cutoff knob. Above that frequency, there's a 24dB/octave roll-off in amplitude. This filter features resonance, which is a boost of the frequencies surrounding the cutoff frequency. Resonance can dramatically increase the loudness. Please make sure you have the main Limiter turned on when editing programs with high resonance.
HP 4	High Pass, Four-Pole filter (24dB/octave roll-off). This filter allows passing all frequencies above the specified by the Cutoff knob. Below that frequency, there's a 24dB/octave roll-off in amplitude. This filter features resonance, which is a boost of the frequencies surrounding the cutoff frequency. Resonance can dramatically increase the loudness. Please make sure you have the main Limiter turned on when editing programs with high resonance.
LP 6	Low Pass, Six-Pole filter (36dB/octave roll-off). This filter allows passing all frequencies below the specified by the Cutoff knob. Above that frequency, there's a 36dB/octave roll-off in amplitude. This filter features resonance, which is a boost of the frequencies surrounding the cutoff frequency. Resonance can dramatically increase the loudness. Please make sure you have the main Limiter turned on when editing programs with high resonance.
HP 6	High Pass, Six-Pole filter (36dB/octave roll-off). This filter allows passing all frequencies above the specified by the Cutoff knob. Below that frequency, there's a 36dB /octave roll-off in amplitude. This filter features resonance, which is a boost of the frequencies surrounding the cutoff frequency. Resonance can dramatically increase the loudness. Please make sure you have the main Limiter turned on when editing programs with high resonance.
Comb	Comb filter. A comb filter creates several frequency 'notches', which color the sound in a particular way.
Pink	Multiple Knee filter, composed of multiple Low Pass, One-Pole filters. This is a static filter, generally used to create pink noise. When applied to sample material it has the effect of creating a slight darkening on the tone, without affecting the sound character at all.

Table 12. *Filter types (Continued)*

Filter	Description
LPS 2	State Variable Low Pass, Two-Pole filter (12dB/octave roll-off). This filter allows passing all frequencies below the specified by the Cutoff knob. Above that frequency, there is a 12dB/octave roll-off in amplitude.
HPS 2	State Variable High Pass, Two-Pole filter (12dB/octave roll-off). This filter allows passing all frequencies above the specified by the Cutoff knob. Below that frequency, there is a 12dB/octave roll-off in amplitude.
BPS 2	State Variable Band Pass, Two-Pole filter (12dB/octave roll-off). This filter allows passing all frequencies around the specified by the Cutoff knob. Below and above that frequency, there is a 12dB/octave roll-off in amplitude.
BRS 2	State variable Band Rejection, Two-Pole filter (12dB/octave roll-off). This filter allows passing all frequencies except the ones around the specified by the Cutoff knob Surrounding that frequency, there is a 12dB/octave roll-off in amplitude.

Table 12. *Filter types (Continued)*

Using the DSP effects

Rapture Pro's DSP section contains 3 selectable effects, DSP 1, DSP 2, and DSP 3, each with their own controls.

Figure 25. *DSP FX.*



A. Click here to select an effect **B.** Drag knob to adjust effect

Each DSP FX contains the following controls.

Parameter	Description	Values / Functions
DSP FX on/off	Turns the DSP On or Off.	On, Off
Preset	Selects the DSP type.	
Level	Adjusts the DSP level.	0 – 100%

Table 13. *DSP FX controls*

The following table lists the available DSP types.

Mode	Description
Off	Effect bypassed.
Tube	Very soft effect. A shaping process like the one found in tube amplifiers is applied.
Soft	Slight overdrive.
Mid	Mid overdrive.
Hard	Aggressive overdrive effect, ideal to be applied on solo lead instruments
Asymmetric	Bright distortion effect.
Soft Clip	Signal peak compression. Introduces moderate distortion.
Hard Clip	Signal peak trimming. Introduces notable distortion.
Warp	Generates discontinuities in the audio signal by mirroring the audio above a threshold (adjusted by the knob). Produces a bright, distinctive tone.
Break	Introduces signal distortion by zeroing parts of the audio signal below a threshold (adjusted by the knob). Produces a bright and harsh tone.
Rectify	Inserts a full-wave rectifier diode in the signal path. Most signals get the effect of an octave doubler.
Decimator	Reduces signal sample rate (amount is adjusted with the knob). Introduces digital noise and aliasing effects.
Bit Reduction	Simulates the effect of reducing the bit-depth for the signal path.
Width	Reduces stereo width. Only perceived with stereo wavetables or stereo samples.

Table 14. *DSP types*

See also:

[“Global Insert effects”](#) on page 108

[“Using effects”](#) on page 22

Equalizer section

The Filter FX section also features a 3 band stereo equalizer, which gives you tremendous control over the sound of each Element.

All DSP, Filter, and Equalizer controls can be modulated, except for the filter selectors.

Figure 26. *Equalizer section.*



A. Master Element EQ Power **B.** Band Enable **C.** Band Select **D.** Band Type (Lo Shelf, Band Pass, and High Shelf) **E.** Freq **F.** Q **G.** Gain **H.** EQ plot

To select a band, do *one* of the following:

- ▶ Click the Band Select drop-down menu.
- ▶ Click a node in the EQ plot.

The graph shows the equalization curve. Each band is identified by a unique color, and the sum of all bands is displayed as a white line.

- ▶ Band 1 = Yellow
- ▶ Band 2 = Green
- ▶ Band 3 = Blue

The Equalizer contains the following controls.

Parameter	Description	Values / Functions
Master Element EQ Power	Turns the entire EQ On or Off.	On, Off
EQ Band Select	Selects the EQ Band to edit.	1 – 3
EQ Band Enable	Enables or disables the selected EQ band.	On/Off
EQ Band Type	Changes the selected EQ type: <ul style="list-style-type: none">▶ LO (Low shelf): the EQ modifies all frequencies below the Freq knob value.▶ BP (Band pass): the EQ modifies all frequencies surrounding the Freq knob value.▶ HI (High shelf): the EQ modifies all frequencies above the Freq knob value.	LO, BP, HI
Frequency	Adjusts the selected band's frequency.	20 Hz- 20480 Hz
Q	Adjusts the selected band's Q (range of affected frequencies).	0.1 – 8.0
Gain	Adjusts the selected band's gain.	-24 dB – 24 dB

Table 15. *Equalizer controls*

In addition to the per-Element equalizer on the Element page, Rapture Pro also features a stereo 3-band master equalizer on the Mixer page, capable of being modulated via the Modulation Matrix. For details, see “[Master EQ](#)” on page 97.

Insert effects

Figure 27. Insert Effects Section.



A. Effect type B. Input level C. Effect parameters D. Dry/wet mix

Rapture Pro has a complete effects processing section featuring several effects, including delay, chorus, phaser, LFO filter, reverb, and distortion.

Most effects parameters can be MIDI-learned (see [“MIDI Learn”](#) on page 113), and some of them can be real-time modulated as destinations in the Modulation Matrix (see [“Modulation Matrix”](#) on page 99).

There are two ways to apply insert effects. Insert FX are available for each individual Element, and a Program can contain both per-Element Insert FX and global Insert FX.

- ▶ To apply effects to individual Elements, use the Insert section on the Elements page (as explained in this section), or use the Send 1 and Send 2 sections on the Mixer page (see [“Send FX”](#) on page 95).
- ▶ To apply effects to globally to all Elements, use the Insert section on the Mixer page (see [“Global Insert effects”](#) on page 108).

There are 4 different effect types:

- ▶ **Delay.** Delay effects use a combination of Delay, Filter, and LFO parameters.
- ▶ **Modulation.** Modulation effects (chorus and phaser) use a combination of Modulation, Filter, and LFO parameters.
- ▶ **Reverb.** Reverb effects use a combination of different reverb parameters depending on the reverb type.
- ▶ **Distortion.** Distortion effects use two different distortion parameters.

To insert an effect

To insert an effect, click the small down arrow in the top left area of the Inset section, then select the desired effect from the pop-up menu.

Figure 28. Insert Effects Section.



A. Click here to insert an effect

Insert effect types

The following table lists all available insert effects.

Name	Type	Description
Off	None (bypass)	No Effect. All CPU usage is recovered.
Stereo Delay	Delay	A stereo delay effect, with independent delay lines for both stereo channels and output filter. The delay output is routed through the filter.
Cross Delay	Delay	Two independent delay lines, with the feedback of each channel routed to the input of the other. The delay output is routed through the filter.
Ping Delay	Delay	A delay effect where the echoes bounce in the stereo field. The delay output is routed through the filter.
L/R/C Delay	Delay	The first echo appears in left channel, the second in the right channel and subsequent images move gradually to the center. The delay output is routed through the filter.
R/L/C Delay	Delay	The first echo appears in right channel, the second in the left channel and subsequent images move gradually to the center. The delay output is routed through the filter.
Triple Delay	Delay	Similar to Stereo Delay, but a mono echo image with independent delay time appears centered in the stereo field. The delay output is routed through the filter.
Detuning Delay	Delay	A static delayed image appears, tuned differently than the original according to the Modulation Frequency and Depth settings.
Chorus	Modulation	A standard stereo modulated delay, with feedback. This setting allows for several Chorus and Flanger effects.
Symphonic	Modulation	Similar as the Chorus effect, but with multiple voices at different phase intervals.
Phaser	Modulation	A classic Phaser effect, combining the signal and a copy, slightly out of phase with the original signal. Modulated by an LFO, and tonally controlled by a selectable Filter.
Chorus/Phaser	Modulation	Chorus and Phaser effects combined in series.
LFO Filter Delay	Delay	Similar to Stereo Delay, but a low frequency oscillator is used to change the filter cutoff. Filter is applied to the wet signal only.
Panning Delay	Delay	A delay effect where the echo image is panned in the stereo by a low frequency oscillator.
Auto Pan	Modulation	The low frequency oscillator is used to move the sound in the stereo field cyclically.

Table 16. *Insert FX types*

Name	Type	Description
LFO Filter	Filter	Signal is processed by the filter, and the filter cutoff is modulated by the Low Frequency Oscillator.
Phased Delay	Delay	Similar to Stereo Delay, with the output passed thru a Phaser. The CENTER, LFO FREQ and LFO DEPTH control the Phaser behavior.
Filter/Phaser	Modulation	A combination of a Filter effect with a Phaser effect. Both effects are controlled with the same LFO, so LFO FREQ and LFO DEPTH will control the filter and phaser sweep and depth simultaneously.
Reversed Delay	Delay	A delay effect where the echoes are reversed in the stereo field. The delay output is routed through the filter.
Small Room	Reverb	Reverb Processor, reproducing a Small size Room acoustic environment
Mid Room	Reverb	Reverb Processor, reproducing a Mid size Room acoustic environment
Large Room	Reverb	Reverb Processor, reproducing a Large size Room acoustic environment
Small Hall	Reverb	Reverb Processor, reproducing a Small size Hall acoustic environment
Mid Hall	Reverb	Reverb Processor, reproducing a Mid size Hall acoustic environment
Large Hall	Reverb	Reverb Processor, reproducing a Large size Hall acoustic environment
Chamber	Reverb	Reverb Processor, reproducing a Chamber acoustic environment
Stereo Large Hall	Reverb	Reverb Processor, reproducing a Stereo Large Hall acoustic environment, with minimal control for an exact sound.
Spring	Reverb	Reverb Processor, reproducing a mechanical Spring Reverb with minimal control for an exact sound.
Ambience	Reverb	Reverb Processor, reproducing an Ambient acoustic environment, with minimal control for an exact sound.
Stereo ER	Reverb	Reverb Processor, reproducing an Stereo acoustic environment, with a slightly delayed effect specific for Drums, with minimal control for an exact sound.
Distortion 1	Distortion	Light overdrive effect, with tone and filter control.
Distortion 2	Distortion	Aggressive overdrive effect, with tone and filter control.

Table 16. *Insert FX types (Continued)*

Insert effects parameters

The following table lists all available insert effect parameters. Only a subset of these parameters are available for each effect.

Parameter	Description	Values / Functions
Effect type	Select the effect type (see “Insert effect types” on page 61).	
Input Level	Adjusts how much of the Element's signal to feed into the insert effect.	0% – 100%
Delay parameters:		
Left Delay Time	The delay time for L and R when Tempo Sync is off.	1/8th – t – 16 d
Center Delay Time	The delay time for L and R when Tempo Sync is off.	1/8th – t – 16 d
Right Delay Time	The delay time for L and R when Tempo Sync is off.	1/8th – t – 16 d
Feedback	Adjusts the feedback level.	0% – 100%
Filter parameters:		
Filter Cutoff	Adjusts the filter cutoff frequency.	8.2Hz – 22350.6Hz
Filter Resonance	Adjusts the filter resonance level.	0dB – 40dB
LFO parameters:		
LFO Frequency	Adjusts the filter LFO frequency.	0Hz – 10Hz
LFO Depth	Adjusts the filter LFO depth.	0% – 100%
Modulation parameters:		
Left Delay Time	The delay time for chorus and flanger effect. This control also regulates the frequency range of phaser effects.	1/8th – t – 16 d
Right Delay Time	The delay time for chorus and flanger effect. This control also regulates the frequency range of phaser effects.	1/8th – t – 16 d
Feedback	Sets the amount of feedback.	0% – 100%

Table 17. *Insert FX parameters*

Parameter	Description	Values / Functions
Reverb parameters:		
Predelay	Time for the delay line before the wet signal reaches the reverb processor.	0ms – 200ms
Size	Length of reverb tail (decay time), used to recreate the room size.	0% – 100%
Damp	Diffusion of high frequencies.	0% – 100%
Tone	Reverb tone	0% – 100%
Feedback	Reverb feedback.	0% – 100%
Distortion parameters:		
Feedback	Distortion feedback.	0% – 100%
Tone	Post-filtering stage. This control adjusts the brightness of the distortion effect.	0% – 100%
Mix parameters:		
Dry/Wet	Controls the dry/wet mix.	0% – 100% 100% – 0%

Table 17. *Insert FX parameters (Continued)*

Delay

Delay effects use a combination of Delay, Filter, and LFO controls.

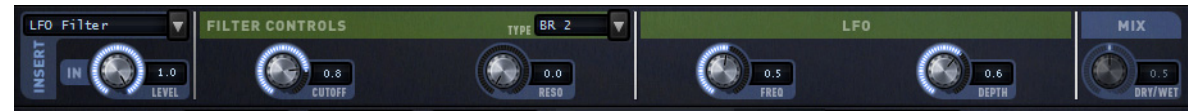
Figure 29. *Delay controls.*



Filter and LFO

Certain delay and modulation effects use a combination of Filter and LFO controls.

Figure 30. *Filter and LFO controls.*



Modulation

The Modulation stage in Rapture Pro is capable of many different effects, including several variants of chorus and phaser.

Modulation effects use a combination of Modulation, Filter, and LFO controls.

Figure 31. *Modulation controls.*



Reverb

The stereo reverb in Rapture Pro features a sophisticated engine that simulates different rooms, adding ambience to the sound.

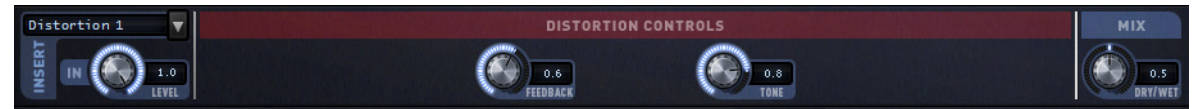
Figure 32. *Reverb controls.*



Distortion

The polyphonic drive stage in Z3TA+ acts on the filters, creating non-linearities ranging from subtle to aggressive. The special Heavy Metal mode adds a monophonic distortion stage to the filters output, mostly used to create the classic “power fifths” guitar effect.

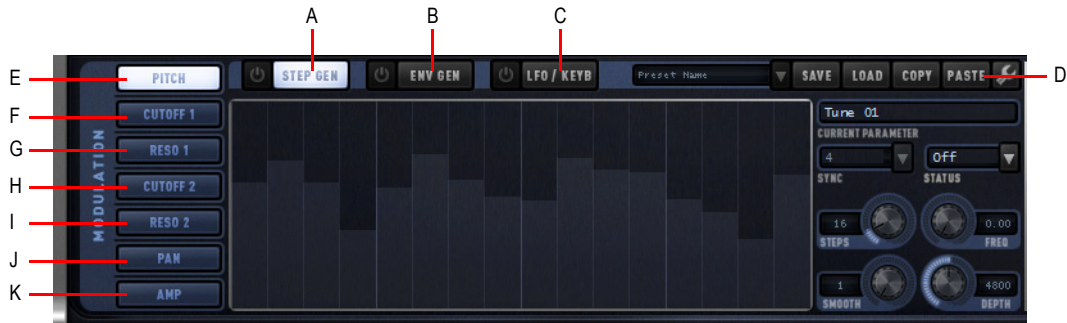
Figure 33. *Distortion controls.*



Caution: Distortion effects can be very loud, so make sure you have the Limiter turned On before applying them. Use the DRY/WET knob to adjust the overall level of the distortion effect. The Limiter can be turned Off after the adjustment is complete.

Modulation section

Figure 34. Modulation section.



A. Step Generator B. Envelope Generator C. LFO/Keyboard tracking D. Menu E. Pitch F. Cutoff 1 G. Resonance 1 H. Cutoff 2 I. Resonance 2 J. Pan K. Amplitude

Unlike other synthesizer designs where just a few Envelope Generators (EG), Low Frequency Oscillators (LFO), Keyboard Tracking generators, etc. are shared and routed to the destination parameter via a Modulation Matrix, Rapture Pro has one set of dedicated components for each destination.

In this way, a total of forty-two Envelope Generators, forty-two Low Frequency Oscillators, forty-two Keyboard Tracking Generators, and forty-two Step Generators are available for a program, and they can be all active at once with their own settings.

The Modulation section allows you to generate envelopes to control an Element's pitch, cutoff and resonance for both filters, pan and amplitude/volume.

The currently-selected knob in Rapture Pro is indicated by a green focus outline. If the selected knob can be modulated, the green focus outline also shows a small yellow square, and the parameter is shown in the Modulation section as the "Current Parameter".

Figure 35. Selected knobs that can be modulated show a yellow square.



A. Can be modulated B. Cannot be modulated

To select a modulation target

There are two ways to select any of the 7 available modulation targets:

- ▶ Click the knob directly. Any modulatable parameter will show a green focus outline and a small yellow square.
- ▶ Click the corresponding button in the Modulation section.

Figure 36. Modulation section.



The following table lists all modulatable parameters.

Parameter	Knob label	Section
Pitch	Tune	OSC / SMP
Filter 1 Cutoff	Cutoff	Filter FX
Filter 1 Resonance	Reso	Filter FX
Filter 2 Cutoff	Cutoff	Filter FX
Filter 2 Resonance	Reso	Filter FX
Pan	L <-> R	OSC / SMP
Amp	Level	OSC / SMP

Table 18. Modulatable parameters

Modulation sources

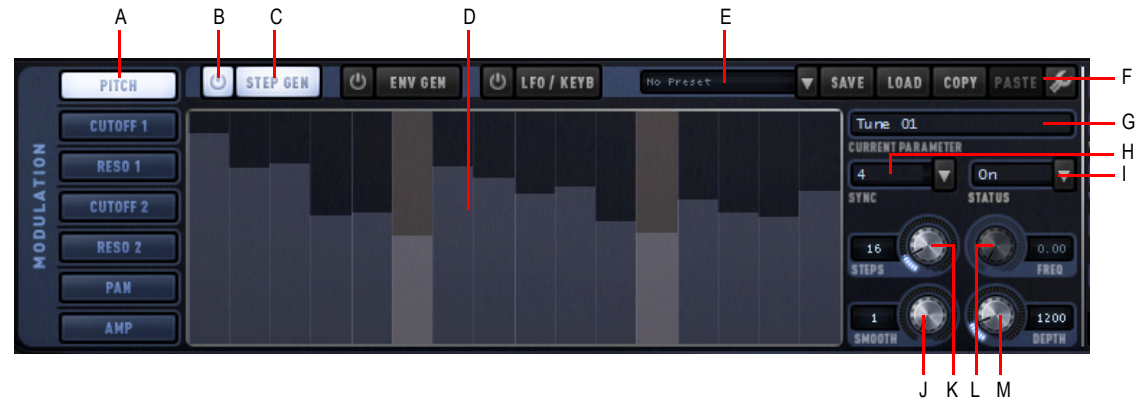
The Modulation section contains 3 separate modulation sources:

- ▶ **Step Generator.** The Step Generator filter is a 12 dB-per-octave (two-pole) resonant low-pass filter, which allows you to create exciting rhythmic effects by simply drawing with your mouse. For details, see [“Step Generator”](#) on page 69.
- ▶ **Envelope Generator.** For details, see [“Envelope Generator”](#) on page 74.
- ▶ **LFO / Keyboard Tracking.** For details, see [“LFO / Keyboard Tracking”](#) on page 81.

Step Generator

To show the Step Generator, click the **STEP GEN** button in the Modulation section.

Figure 37. Step Generator.



A. Modulation targets B. Enable/disable Step Generator C. Show Step Generator D. Steps E. Presets F. Toolbar G. Current Parameter H. Sync I. Status J. Smooth K. Steps L. Frequency M. Depth

The Step Generator is a a 12 dB-per-octave (two-pole) resonant low-pass filter modulation source. In fact, it is 7 independent step-based modulators, one each for the currently-selected Element's pitch, filter 1 cutoff, filter 1 resonance, filter 2 cutoff, filter 2 resonance, pan, and volume.

Creating exciting rhythmic effects in the Step Generator is as easy as drawing with your mouse:

The Step Generator is much like an LFO, where the 'shape' can be defined by setting arbitrary values to variable range steps for Pitch, Cutoff, Resonance, Pan and Amplitude modulation at regular time intervals.

To set values in a given step, hold left-click (hold click on a Mac) and drag across the Step Generator.

Step Generator controls

The Step Generator is affected by the following controls:



A. Sync B. Status C. Smooth D. Steps E. Frequency F. Depth

The **Current Parameter** display shows which parameter is currently being modulated. Each destination parameter's range of values in the Step Generator is specified below:

Parameters	Description	
Sync	Synchronize to Host Tempo, in Beats. When Sync is in the Off position, the Step Generator will move at the frequency defined by the previous value (Freq). When a Sync value is selected, from 1/8t to 128d, the Step Generator will follow the host tempo and position, generating one cycle each time the host moves through the specified beat value. For instance, if Sync is set to 1, the Step Generator will generate one cycle in each host beat.	1/8t – 128d
Status	Changes the Step Generator mode.	Off, Shot (1-shot), On, Step (Step-through)
Steps	Sets the number of steps in the generator, from 2 to 128.	2 – 128
Freq	Frequency, in Hertz. Defines the number of times that the drawn pattern repeats per second, from 0 to 40Hz.	0.00 – 40.00
Smooth	Controls the rate at which a step value rises or falls to meet the next value.	0 – 1000
Depth	Variable range, dependent on modulation destination. Controls the max range for Step Generator values in the current modulation mode.	Variable

Table 19. *Step Generator parameters*

Depth values vary according to the selected modulation mode:

Mode	Depth Range
Pitch	0 – 9600 cents (8 octaves)
Cutoff 1	0 – 12000 cents
Res 1	0 – 20 dB
Cutoff 2	0 – 12000 cents
Res 2	0 – 20 dB


Table 20. *Step Generator Depth values*


Mode	Depth Range
Pan	0 – 100%
Amp	0 – 100%

Table 20. *Step Generator Depth values (Continued)*

The Step Generator toolbar contains the following controls:

- ▶ **Preset.** Load a Step Generator preset from the drop-down list.
- ▶ **Save.** Save the current pattern as a preset.
- ▶ **Load.** Load a Step Generator preset from file.
- ▶ **Copy.** Copy the current parameter's step values to be pasted to another parameter.
- ▶ **Paste.** Paste step values copied from a parameter to the current parameter.
- ▶ **Tools.** Opens the Step Generator menu, which contains various advanced Step Generator functions.

Click the Tools button  in the Step Generator to access the Step Generator's menu, which contains more helpful functions.

Note to SONAR users: In order to use Rapture Pro shortcut keys, you must first press the **Give All Keystrokes to Plug-in** button  in the top right corner of the Rapture Property page.

Menu item	Description
Presets	Select a preset from the submenu.
Load	Load a Step Generator preset from file.
Save As	Save the current pattern as a preset.
Reset All Steps	Resets all steps to a default value. Shortcut key: R
Randomize Steps	Sets a random value to each step. Shortcut key: N
Reverse Step Levels	Reverses the order of the values in the current sequence.
Invert Step Levels	Turns each step "upside down," so a 70% value becomes 30%, 45% becomes 55%, and so forth. Shortcut key: I
Mirror Step Levels	Copies the first half of the steps to the second half, but in reverse order.
Normalize Step Levels	Expands the dynamics for the current Step Generator pattern to fit in the maximum available range.
Shift Step Levels to Left	Moves each step value one step to the left. The value of the first step "wraps" around to the last step.
Shift Step Levels to Right	Moves each step value one step to the right. The value of the last step "wraps" around to the first step.

Table 21. *Step Generator menu commands*

Menu item	Description
Copy Shape from LFO	Copies the LFO shape from the currently selected modulator into the Step Generator, including the LFO phase setting.
Extract Shape From Sample File	Calculates the amplitude envelope of any sample file (WAV/AIFF/OGG), and assigns it to the selected Envelope Generator.
Copy Steps	Copies the current parameter's step values to be pasted to another parameter.
Paste Steps	Pastes step values copied from a parameter to the current parameter.
No Snap; Snap to 10 Levels, 12 levels, 24 levels	Subdivides the step into "n" equal values, useful for articulating step sequences
MIDI Note Entry (C4 = Base) Note: Available for Pitch Modulation only	Enter step sequence using MIDI note events starting at C4. Default depth setting is to 2400 (two octave range), but may need to be adjusted by user. Any note lower than C4 backs up one step. MIDI note entry mode ends by entering a note for every step in the sequence.

Table 21. *Step Generator menu commands (Continued)*
Here are a few additional procedures for manipulating Step Generator data:

To reset a step value to default

- ▶ CTRL-click and CTRL-click-drag (Double-click and Command-click-drag on a Mac).

To draw straight lines across the Step Generator

- ▶ SHIFT-click-drag to draw step levels in a straight line.

To snap all steps to the nearest pitch or logical value

- ▶ Press P.

To increase/decrease all step values

- ▶ Scroll the mouse wheel up/down over the active Step Generator.



Tip: When using the Step Generator to control Pan modulation, the Element's Pan knob in the Mixer must be set to hard Left (-100%) for the Step Generator to represent the full stereo field. After making this adjustment, step values of 0% will equal Left, 50% will equal Center, and 100% will equal Right.

To retrigger the Envelope Generator

You can use the Step Generator to retrigger the Envelope Generator. To do so, ALT-click (or CTRL-click on a Mac) any step to insert a special EG Retrigger step. The EG Retrigger step appears in a lighter color than regular steps. When a Step Generator sequence reaches a EG Retrigger step, the corresponding Envelope Generator is retriggered. You can insert multiple EG Retrigger steps.



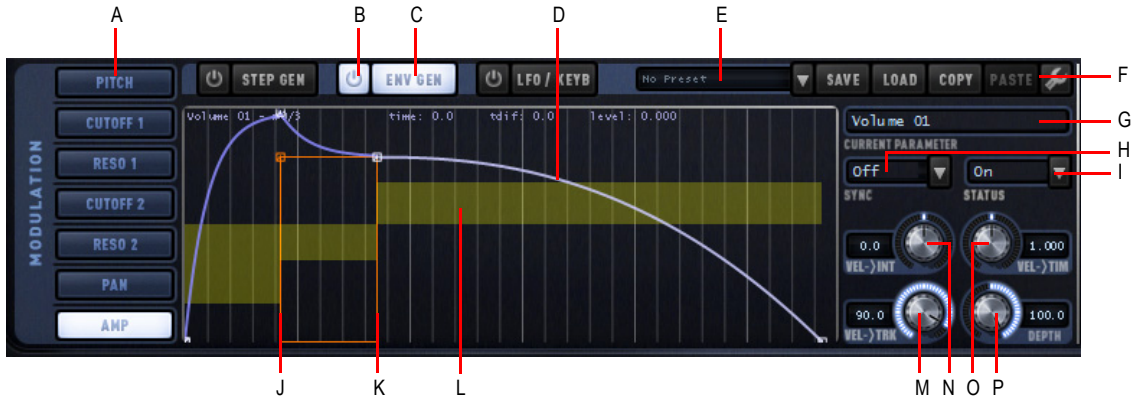
A

A. EG Retrigger steps

Envelope Generator

To show the Envelope Generator, click the **ENV GEN** button in the Modulation section.

Figure 38. Envelope Generator.



A. Modulation targets **B.** Enable/disable Envelope Generator **C.** Show Envelope Generator **D.** Envelope segments
E. Presets **F.** Toolbar **G.** Current Parameter **H.** Sync **I.** Status **J.** Loop Start **K.** Loop Sustain **L.** Time Velocity Tracking (green) or Time Keyboard Tracking (yellow) **M.** Velocity Tracking **N.** Velocity Intensity **O.** Velocity to Time **P.** Depth

Rapture Pro's Envelope Generators (EG) are possibly the most advanced EG system currently available, and provide much of the basis for Rapture Pro's versatility. Each EG features an arbitrary amount of envelope segments, with adjustable shape, keyboard tracking and velocity tracking for each segment. The EG also allow looping, so they can be turned in a complex wave low frequency oscillator.

The EG will start working on note-on, and will follow all defined segments until the last node, if there's no loop nor sustain point defined. Once the final node is reached, the level will remain unchanged for the whole note duration.

When the Amplitude Envelope Generator reaches the last node and if no loop is defined, it will deactivate the layer (layer expired).

If a sustain point is defined, the EG will start on note on and will follow all defined segments until the sustain node is reached. Then the level will remain unchanged until the Note-Off event for the layer. Then the segments defined after sustain point will be operational, stopping once the final node is reached.

If a loop is defined, the EG will move to the defined loop start node once it reaches the sustain node, over and over again.



A. Sync B. Status C. Velocity Tracking D. Velocity Intensity E. Velocity to Time F. Depth


The **Current Parameter** display shows which parameter is currently being modulated. The following table lists each destination parameter's range of values in the Step Generator.

Parameter	Description	Values / Functions
Status	Changes the mode	Off, Shot (1-shot), On
Sync	Speed of EG	1/8t – 128d
Vel->Tim	Adjusts how velocity affects EG times, as a multiplier of the time.	Value changes based on modulator
Vel->Int	Controls the intensity in which the Note-on velocity affects the modulation depth.	Value changes based on modulator
Depth	The strength of the EG	Value changes based on modulator
Vel->Trk	Adjusts how velocity affects the current envelope's value.	Value changes based on modulator
Preset Load	Click to explore preset folder	
Preset Save	Click to save settings as a preset	
Preset screen	Window displaying the preset name	

Table 22. Envelope Generator parameters

The Envelope Generator toolbar contains the following controls:

- ▶ **Preset.** Load an Envelope Generator preset from the drop-down list.
- ▶ **Save.** Save the current pattern as a preset.
- ▶ **Load.** Load an Envelope Generator preset from file.
- ▶ **Copy.** Copy the current parameter's node values to be pasted to another parameter.
- ▶ **Paste.** Paste node values copied from a parameter to the current parameter.
- ▶ **Tools.** Opens the Envelope Generator menu, which contains various advanced Envelope Generator functions.

Click the Tools button  in the Envelope Generator to access the Envelope Generator's menu, which contains more helpful functions.

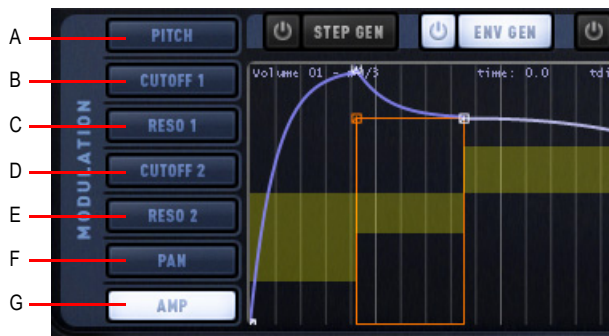
Command	Description
Presets	Select a preset from the submenu.
Load	Load an Envelope Generator preset from file.
Save As	Save the current pattern as a preset.
Reset All Nodes	Resets all nodes to a default value.
Set/Clear Active Node as Sustain	Set/Clear the SUSTAIN point (loop end).
Set/Clear Active Node as Loop Start	Set/Clear the Loops Start point.
Toggle Segment Shape	Change a line segment from the default “variable power” curve to an exponential curve, or vice versa.
Edit Segment Time Velocity Tracking	When enabled, drag vertically in the Envelope Generator to adjust Time Velocity Tracking for a segment.
Edit Segment Time Keyboard Tracking	When enabled, drag vertically in the Envelope Generator to adjust Time Keyboard Tracking for a segment.
Zoom In	Zoom in horizontally in the Envelope Generator.
Zoom Out	Zoom out horizontally in the Envelope Generator.
Fit	Zoom the Envelope Generator so it shows the entire envelope.
Snap	Snap envelope nodes to grid lines when editing envelopes.

Table 23. *Envelope Generator menu commands*

Here are some procedures for generating envelopes:

To display an envelope

- ▶ To display the envelope for pitch, cutoff, resonance, pan, or amplitude, respectively, click the Pitch button, Cutoff 1 or 2 button, Resonance 1 or 2 button, Pan button, or Amplitude button, respectively. .



A. Pitch B. Cutoff 1 C. Resonance 1 D. Cutoff 2 E. Resonance 2 F. Pan G. Amplitude

To turn on an Envelope Generator

1. Display the desired envelope.
2. Click the EG **Status** field so that it's on.




To edit EG depth and velocity response

- ▶ To edit EG Depth, adjust the **DEPTH** control.
- ▶ To edit velocity intensity, adjust the **VEL->INT** control. This controls the intensity in which the Note-on velocity affects the modulation depth.
- ▶ To edit how velocity affects EG times, as a multiplier of the time, adjust the **VEL->TIM** control.
- ▶ To edit how velocity affects the current envelope's value, adjust the **VEL->TRK** control.

To graph or edit an envelope

- 1. Click an envelope button to display the desired envelope, and make sure the EG Status field is On.
- 2. Add and edit nodes according to the following table.

Note to SONAR users: In order to use Rapture Pro shortcut keys, you must first press the **Give All Keystrokes to Plug-in** button  in the top right corner of the Rapture Property page.

To Do This	Do This
Add a node to the envelope.	Right-click the envelope (CTRL-click on a Mac). If the envelope does not have any line segments and nodes yet, right-click the graph where you would like to insert a line segment and a node.
Remove a node.	Right-click the node (CTRL-click on a Mac).
Move a node.	Drag the node.
Move a node without moving other nodes.	CTRL-drag the node (Command-drag on a Mac).
Edit a line segment.	Drag the line segment.
Reset a line segment.	Double-click the segment or hold the SHIFT key and click the segment.
Adjust a line segment shape.	CTRL-click the segment and drag vertically (Command-click on a Mac).
Remove/reset all nodes.	Press R or click above the EG grid and choose Reset All Nodes from the context menu.
Display the values of a node.	Hold the mouse over the node. The node values appear at the top of the graph, including node number, time, distance from previous node, and level.
Scroll the graph.	Drag the border at the bottom of the envelope window.
Fit the envelope to the window.	<div>▶ Double-click the border at the bottom of the envelope window. or ▶ Click above the EG grid and choose Fit from the context menu.</div>
Zoom in on envelopes.	<div>▶ Scroll the mouse wheel up; hold the CTRL key (Command on a Mac) down for finer adjustments or ▶ Hold the mouse over the center of the area you want to zoom in on, and press the * key on the Num Pad. or ▶ Click above the EG grid and choose Zoom In from the context menu.</div>

Table 24. Editing envelopes






To Do This	Do This
Zoom out on envelopes.	<ul style="list-style-type: none"> ▶ Scroll the mouse wheel down; hold the CTRL key (Command on a Mac) down for finer adjustments or ▶ Hold the mouse over the center of the area you want to zoom out on, and press the / key on the Num Pad. or ▶ Click above the EG grid and choose Zoom Out from the context menu.
Specify the zoom mode	By default, Rapture Pro zooms around the mouse pointer. There is also an alternative zoom mode that lets you zoom around the center of the EG grid. This mode ignores the current mouse pointer position. To toggle between the two zoom modes, press the C key.
Change a line segment from the default “variable power” curve to an exponential curve, or vice versa. See the tip on amplitude editing below.	Hold your mouse over the end node of the line segment, and press N on your keyboard, or click the Tools button  and choose Toggle Envelope Shape from the menu. The segment turns dark blue when the exponential curve is being used.
Precisely move a node.	Click the node, then press any of the Arrow keys. Hold the SHIFT key down to move by finer increments.
Set/Clear/Reposition SUSTAIN point (loop end)	Select the desired node and press S on your keyboard, or click the Tools button  and choose Set/Clear Active Node as Sustain from the menu. Rapture Pro adds a vertical red line under the node. Open the context menu or press S again to clear the loop point.
Set/Clear/Reposition LOOP START point	Select the desired node and press the key L, or click the Tools button  and choose Set/Clear Active Node as Loop from the menu. Open the context menu or press L again to remove loop start point.
Save a preset	Click the Tools button  and choose Save As from the menu.
Load a preset	Click the Tools button  and choose Load from the menu, or point to Presets and select a preset from the submenu.

Table 24. *Editing envelopes (Continued)*




To Do This	Do This
<p>Adjust Time Velocity Tracking for a segment.</p> <p>Try increasing the velocity tracking value for different parts of a sample's amplitude curve, and playing your keyboard harder or softer to hear the difference. For example, if you set a positive value for the attack segment of an amplitude curve, playing your keyboard harder increases the time that the attack segment takes.</p>	<p>Make the EG window active (click anywhere on it), then press the V on your keyboard (this is a toggle command), or click the Tools button  and choose Edit Segment Time Velocity Tracking from the menu.</p> <p>Green-shaded bars appear above or below the horizontal center line of the graph, depending on each segment's velocity tracking setting.</p> <p>Positive bars (above the center line of the graph) mean higher velocity = longer time.</p> <p>Negative bars (below the center line of the graph) mean higher velocity = shorter time.</p> <p>If there is no positive or negative value for velocity tracking in a segment, no orange bar appears.</p> <p>To add or adjust a velocity tracking value to a segment, drag in the area above or below the center line of the graph within a line segment's boundaries. The tracking value works by multiplying the segment time, from 0.1x to 10x.</p>
<p>Adjust Time Keyboard Tracking for a segment</p> <p>Try increasing the time keyboard tracking value for different parts of a sample's amplitude curve, and playing your keyboard higher or lower to hear the difference. For example, if you set a positive value for the attack segment of an amplitude curve, playing higher notes on your keyboard increases the time that the attack segment takes.</p>	<p>Make the EG window active (click anywhere on it), then press the K on your keyboard (this is a toggle command) or click the Tools button  and choose Edit Segment Time Keyboard Tracking from the menu.</p> <p>Yellow-shaded areas appear above or below each line segment, depending on each segment's time keyboard tracking setting.</p> <p>Positive bars (above the center line of the graph) mean higher range = longer time.</p> <p>Negative bars (below the center line of the graph) mean higher range = shorter time.</p> <p>To add a time keyboard tracking value to a segment, drag in the area above or below the center line of the graph within the line segment's boundaries.</p> <p>To adjust a value, click between the two nodes surrounding the desired segment, drag vertically to adjust. The tracking value works by multiplying the segment time, from 0.1x to 10x.</p>

Table 24. *Editing envelopes (Continued)*

Amplitude editing

Rapture Pro actually uses two amplitude envelopes. If you don't turn on the Amplitude EG, Rapture Pro uses a master envelope that makes sure the amplitude reaches zero after you stop playing the current Element. If you turn on the Amplitude EG and create an amplitude envelope, that envelope controls the amplitude, unless the envelope that you created does not eventually reach zero amplitude. If your envelope does not eventually turn the sound off, the master envelope does it for you.

 **Tip:** If you are editing the amplitude for a sample from an acoustic source, and want a more natural release, you can change the type of envelope curve Rapture Pro uses. The default type is variable power, which is CPU-friendly, and works well when you're using heavy reverb or delay. The optional exponential type works better with exposed acoustic sounds by creating a more natural sounding release.

To change the envelope curve to exponential

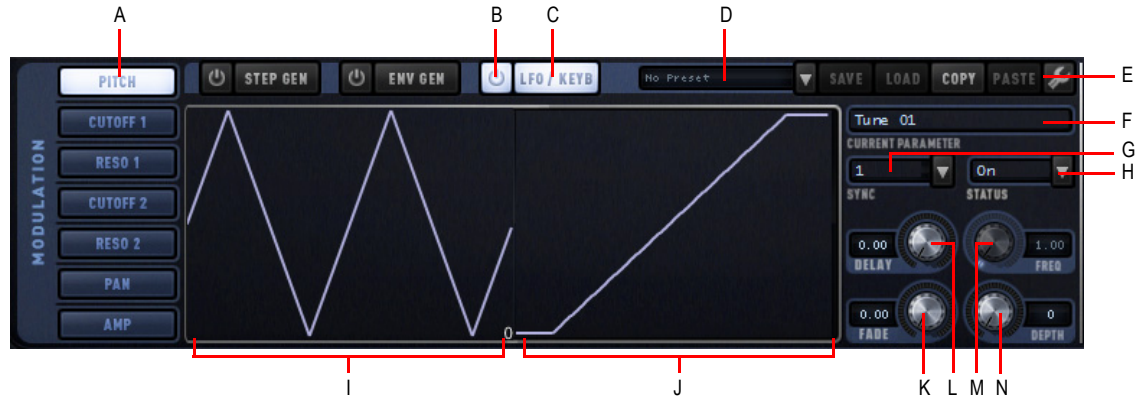
1. Display the Amplitude curve for your sample.
2. Highlight the ending node for the segment by holding the mouse over the node.
3. Press the **N** key on your keyboard.

The envelope segment turns dark blue, meaning that it is now an exponential curve. You can press the **N** key again to return to the default envelope type.

LFO / Keyboard Tracking

To show the LFO / Keyboard Tracking section, click the **LFO / KEYB** button in the Modulation section.

Figure 39. LFO / Keyboard Tracking.



A. Modulation targets **B.** Enable/disable LFO / Keyboard Tracking **C.** Show LFO / Keyboard Tracking section **D.** Presets
E. Menu **F.** Current Parameter **G.** Sync **H.** Status **I.** LFO display **J.** Keyboard Tracking display **K.** Fade **L.** Delay
M. Frequency **N.** Depth

LFO / Keyboard Parameters:

Parameter	Description	Values / Functions
ON/OFF	Turns the LFO On	On, Off
Status	Changes the mode	Normal, 1-shot, On
Frequency	Speed of the LFO	0Hz – 40Hz
Sync	Speed of LFO (Only Speed or Freq can be used at one time	1/8t – 128d
Delay	Time from Note On to LFO Startup	0.00 – 10.00 seconds
Fade	Time for LFO Fade in	0.00 – 10.00 seconds
Depth	The strength of the LFO	Value changes based on modulator
LFO Phase	Change the starting position of the LFO waveform	0 – 360 degrees
Preset Load	Click to explore preset folder	
Preset Save	Click to save settings as a preset	
Preset screen	Window displaying the preset name	
Keyboard Tracking Reset	Resets Keyboard tracking settings	On, Off

Table 25. LFO / Keyboard Tracking parameters

The Low Frequency Oscillators (LFO) in Rapture Pro are a great component to add animation and movement to the sound. Originally intended to emulate the vibrato and tremolo found in natural acoustic instruments, synthesizers have redefined their use, making them a fundamental component in the construction of evolving pads and textures.

As with the EG, one LFO is available for each destination in each Element, for a total of forty-two LFOs which can be operative simultaneously.

The LFO main parameter is the LFO waveform. Rapture Pro has a graphical waveform selector, which allows selecting the wave shape and phase for the selected waveform.

Selections	Description
Waveform	<ul style="list-style-type: none">▶ Left/Right-click (Left/Control-click on a Mac) on the waveform to select next/previous waveform, or▶ Right-click (CTRL-click on a Mac) above the LFO window to access all LFO options from a pop-up menu.
Phase	<ul style="list-style-type: none">▶ Hold the SHIFT key, then click on the waveform and drag horizontally to select the LFO start-up phase▶ Press the LEFT/RIGHT ARROW keys for 1 degree adjustment▶ Press SHIFT plus the LEFT/RIGHT ARROW keys for 10 degree adjustment

Table 26. *LFO waveform editing*



Tip: *Rapture Pro allows user-defined waveforms for LFOs as well. The following requirements must be satisfied to add your own waveforms:*

- *User defined waveforms need to be stored in the folder \LFO Waveforms.*
- *Files must named in a consecutive numbering order:*
LfoWaveform030.wav
LfoWaveform031.wav
LfoWaveform032.wav
etc...
- *Note that the first twenty waveforms (0 to 19) are hard-coded, therefore numbering should begin at "... 020."*
- *Rapture Pro supports up to 80 user-defined LFO wave files (020 to 099).*
- *LFO files must be standard wav files, 8 to 64-bit mono (stereo will be converted to mono by adding both channels), any sample rate and length.*
- *Note that waveform 100/101 is an internal random generator, unipolar/bipolar respectively.*

Beyond the selected waveform, each LFO features the following parameters:

Parameters	Description
Status	Turns the LFO on or off, or puts it in Shot mode. Shot is short for “one-shot,” and means the LFO plays one cycle of the LFO shape at the beginning of the voice event and does not repeat.
Freq	Frequency, in Hertz. The waveform indicator will display the selected frequency, with a horizontal scale of two seconds. This is, two cycles will be shown when the frequency is set to 1Hz.
Sync	Synchronize to Host Tempo, in Beats. When Sync is in the Off position, the LFO will move at the frequency defined by the previous value (Freq). When a Sync value is selected, from 1/8t to 128d, the LFO will follow the host tempo and position, generating one cycle each time the host moves through the specified beat value. For instance, if Sync is set to 1, the LFO will generate one cycle in each host beat.
Delay	Time from Note-On message to LFO startup, in Seconds. After Note-On, the LFO will wait a time to start working, as specified by this parameter. A value of zero means instant startup.
Fade	Time for LFO fade-in, in seconds. Once the LFO starts working (after LFO Delay time), the LFO modulation level will rise gradually to a maximum, which will be reached after the time specified by the Fade parameter.
Depth	LFO modulation depth. This determines how much the LFO will affect the selected destination, expressed in the destination units. For instance, for the Pitch LFO, the depth is expressed in cents.

Table 27. *LFO parameters*

The LFO / Keyboard Tracking toolbar contains the following controls:

- ▶ **Preset.** Load an LFO preset from the drop-down list.
- ▶ **Copy.** Copy the current parameter’s shape to be pasted to another parameter.
- ▶ **Paste.** Paste the shape copied from a parameter to the current parameter.
- ▶ **Tools.** Opens the LFO menu, which lets you select an LFO shape.

To control an envelope's LFO

- ▶ Click the LFO Status field to turn the LFO on or off.

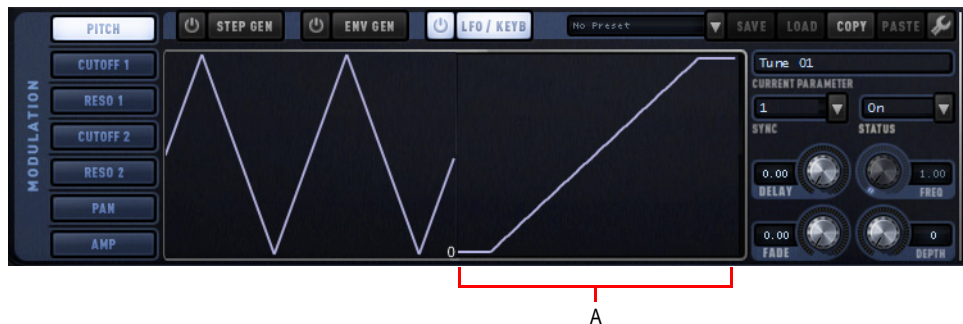


- ▶ Click the Preset control to select from several waveform options.



- ▶ Drag in the fields to adjust other LFO parameters as described above.

The keytracking control adjusts how the selected parameter changes with the keyboard (hence 'keyboard tracking'). The left node represents MIDI Note 0, the right node represents MIDI Note 127. The shape and orientation of the curve in between represents the parameter variation in the whole note range.



A. Scala tuning map

To control Keytracking

- ▶ Drag the nodes or curve of the Keytrack envelope where it appears under the LFO waveform. You can drag the line segment into a curve, or reset the line segment by double-clicking it. You can move both nodes by pressing the UP ARROW or DOWN ARROW keys, or by pressing the PAGE UP or PAGE DOWN keys for larger increments.

Keytracking maps the range of your MIDI controller to changes in the current envelope. For example, if you display the Cutoff envelope, and drag the Keytrack envelope into an upward slope, playing higher notes on your controller will raise the cutoff frequency. On the Amplitude envelope, you can actually use the Keytrack envelope as a global gain—drag both nodes of the Keytrack envelope up or down to control global output volume.

Here's another example of using Keytracking: if you load a bright waveform, for instance a saw, and apply a low-pass filter on it, then set the cutoff to 800 Hz, playing high notes in the keyboard will result in a lower volume than playing low notes. This happens because higher notes will result in more-filtered notes. Here's where keytracking enters in action. Two options are available:

- ▶ Adjust the CUTOFF keytracking control so the cutoff point moves together with the played note. This results in all notes having the same amount of harmonics, hence the same output level.

OR

- ▶ Adjust the AMPLITUDE keytracking control. This will keep higher notes dull and filtered, but will raise the volume of those notes so they will better match the volume of the unfiltered low notes.



Tip: When adjusting any envelope but Pitch, you can reset the Keytrack envelope by right-clicking the Keytrack window and selecting Keyboard Tracking reset from the context menu. When in Pitch mode, this launches the Load Tuning Definition File window. See *“Microtuning and alternative tunings”* on page 115 for more details.

Modulator Copy/Paste

Sometimes it is desirable to have identical settings for the EG, LFO or Keytrack in two different parameters or Elements. Rapture Pro offers the ability to Copy/Paste any EG, LFO, Keytrack, Step Generator or the whole Modulator to a new destination, or to the same destination in another Element.

To copy/paste a Modulator value

1. To copy a whole Modulator, just one envelope, an LFO, a Keytrack setup, or a Step Generator, select desired the modulator target (Pitch, Cutoff 1, Resonance 1, etc.), then click the **COPY** button.



2. To paste what you just copied, select desired the modulator target where you want to paste the copied data, then click the **PASTE** button.

You can paste between instances of Rapture Pro.



Tip: You can also save and load Envelope Generator and Step Generator presets.

Perform section

The Perform section contains parameters that affect how Rapture Pro responds to external MIDI data.

Figure 40. *Perform section.*



A. Voices B. Low Velocity C. Low Key D. Bend Down E. Sustain F. High Velocity G. High Key H. Bend Up I. Sostenido

The following settings are available.

Parameter	Description	Values / Functions
Voices	The polyphony for the Element (maxim number of notes that can be played simultaneously). Setting Voices to 1 puts that Element in monophonic mode, setting it to 0 puts that Element in monophonic and legato mode. 0 also allows Glide control to be used, for controlling the portamento amount.	0 – infinity
Low Velocity	Lowest Velocity the Element will play.	0 – 127
High Velocity	Highest Velocity the Element will play.	0 – 127
Low Key	Lowest note the Element will play.	0 – 127
High Key	Highest note the Element will play.	0 – 127
Bend Down	Interval to bend when the bend wheel is turned fully down.	-12 – +12 scale degrees
Bend Up	Interval to bend when the Bend wheel is turned fully up.	-12 – +12 scale degrees
Sustain	Sustain On/Off Determines whether the Element responds to MIDI Sustain data (cc # 64).	On, Off
Sostenido	Sostenido On/Off Determines whether the Element responds to MIDI Sostenuto data (cc # 66).	On, Off

Table 28. *Perform section parameters*

Copying, unloading, and resetting Elements

Click the small down arrow button to the right of an Element (1–6) button to expose the following commands:



- ▶ **Unload Element.** Removes the multisample from the multisample window without removing parameter settings.
- ▶ **Reset Element.** Removes the multisample from the multisample window and removes all parameter settings.
- ▶ **Load Element.** Loads an Element file.
- ▶ **Save Element As.** Saves an Element file.
- ▶ **Copy Element.** Places all information from current Element, including multisample assignments and all parameter settings, on the clipboard.
- ▶ **Paste Element.** Pastes copied Element data from the clipboard to the current Element: to paste, right-click (Control-click on a Mac) the Element button of the Element that you want to paste to, and select **Paste Element** from the pop-up menu.
- ▶ **Paste Element FX.** Pastes only Insert Fx settings from a copied Element to the current Element.
- ▶ **Chain to Next Element.** Allows Elements to share EQ and Effect settings to save CPU. This option is only available for Elements 1-5. For details, see [“Chaining Elements”](#) on page 91.
- ▶ **Ring Modulate Previous Elements.** Ring modulates the Element with all Elements before it. Adjust the Tune and Transpose settings of the Elements to create interesting effects. For details, see [“Ring Modulation”](#) on page 92.

Remember, only one Element can be selected and edited at a time.

Chaining Elements

Sometimes a program requires two different wavetables to be processed with their own LoFi, Filter and Drive settings, but with the same EQ and effects applied to both.

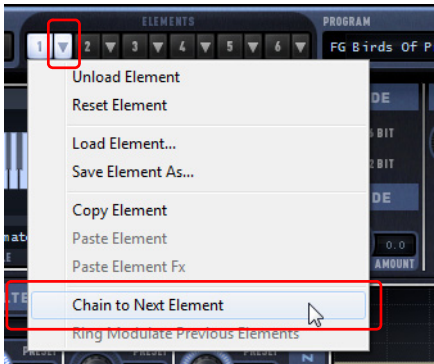
The result of that operation is the same as mixing the two Elements and then applying the EQ and effects on the mix. However, the CPU usage in the latter is much lower, since only one set of effects is operational.


Rapture Pro allows you to “chain” the output of one Element into the effects of the next, for the first five Elements.

To chain/unchain Elements

To chain/unchain Elements, do *one* of the following:

- ▶ Click the small down button to the right of the Element that you want to chain to the next Element (1–5), and select **Chain to Next Element** on the pop-up menu.



- ▶ On the Mixer page, click the Element’s Chain button  in the Element Mixer.



Ring Modulation

“Modulation” in this sense means that an aspect of the audio signal is being modified in an explicit way using digital signal processing. Ring Modulation is a process in which two audio signals are used to create a new signal containing the sum and differences of those frequencies. These frequencies will typically be non-harmonic, resulting in rather disharmonic, bell-like sounds.

Mathematically, the resulting frequency is the sum and the difference of the input frequencies, or the 'sidebands' where the upper sidebands are the sums and the lower sidebands are the differences.

Rapture Pro offers the **Ring Modulate Previous Elements** option in the Element context menu. When this menu item is checked, the current Element will ring-modulate the output of all previous Elements. Adjusting the Tune and Transpose settings of the Elements will create more interesting effects.



Tip: You can also use Ring Modulation on individual Elements in the Oscillator Control section. Enabling the Ring Mod turns the oscillator into two oscillators that ring-modulate each other. Adjust the Detune value to enhance the sonic result. Use Rapture Pro's Detune parameter in either the Oscillator section or the Modulation Matrix (destination Detune), to control the modulation amount.

The Mixer page

The Mixer page contains the Element Mixer, Modulation Matrix, global effects, Master EQ and a Global Step Generator that adjusts Rapture Pro's stereo output. Settings made here affect all Elements within a program. To show the Mixer page, click the **MIXER** button in the top panel.

Figure 41. Mixer page.



A. Send 1 section **B.** Send 2 section **C.** Step Generator, Master EQ, and Modulation Matrix **D.** Insert FX section **E.** Element Mixer **F.** Master Output

The Mixer page conducts the signal through the following path:

1. Global Send FX 1 (standard insert FX menu + controls, applied to all Elements). For details. see [“Send FX”](#) on page 95.
2. Global Send FX 2 (standard insert FX menu + controls, applied to all Elements). For details. see [“Send FX”](#) on page 95.
3. Global Step Generator; a Left/Right channel Step Generator output level modulator; note that this level gates even effects tails from upstream delay lines and reverbs. The Global Step Generator is controlled in the same way as the Step Generator in the Modulator section, but instead provides discrete left and right channel control of Rapture Pro's stereo mix. For details. see [“Global Step Generator”](#) on page 97.



Note: *You can achieve identical level patterns using the Step Generator's Copy and Paste functions. For details, see [“Copying, unloading, and resetting Elements”](#) on page 90.*

4. Master EQ section (3 standard multimode band EQs). For details. see [“Master EQ”](#) on page 97.
5. Master Insert FX (standard insert FX menu + controls, applied to the post Global Step Generator mix). For details. see [“Insert effects”](#) on page 60.

See:

[“Send FX”](#) on page 95

[“Global Step Generator”](#) on page 97

[“Master EQ”](#) on page 97

[“Modulation Matrix”](#) on page 99

[“Insert effects”](#) on page 60

[“Element Mixer”](#) on page 110

Send FX

Figure 42. *Send FX.*



Rapture Pro has a complete effects processing section featuring several effects, including delay, chorus, phaser, LFO filter, reverb, and distortion.

To use Send FX

1. Insert the desired Send effect(s). The global Send 1 and Send 2 effects are identical to the effects found in the Insert section on the Element page. For details, see “Insert effects” on page 60.
2. In the Element Mixer, set the toggle switch to **FX SEND** (parallel mode).
3. In the Element Mixer, use each Element’s **SEND 1** and **SEND 2** knobs to adjust the send levels independently for each Element.

Figure 43. *Element mixer.*



A

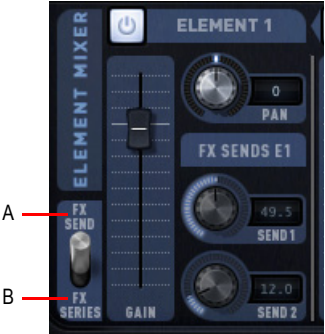
A. Set toggle switch to FX SEND

Parallel/Series Effects Mode

Global send effects can be routed in parallel or series.

In Parallel mode (toggle switch set to **FX SEND**), the **SEND 1** and **SEND 2** knobs are used to set the send levels independently for each Element.

In Series mode (toggle switch set to **FX SERIES**), the **SEND 1** and **SEND 2** knobs are inactive, and instead all send levels are applied equally to all Elements.



A. Parallel mode B. Series mode

See:

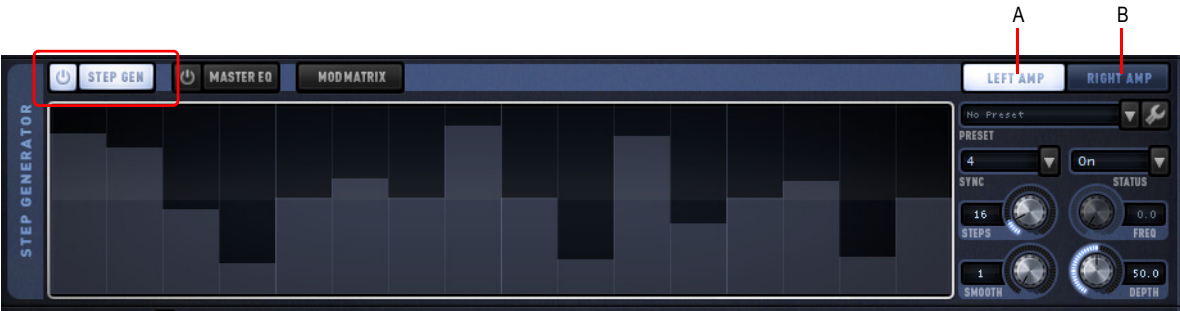
[“Element Mixer”](#) on page 110

Global Step Generator

The global Step Generator is identical to the per-Element Step Generator, but instead provides discrete left and right channel control of Rapture Pro's stereo mix.

To show the global Step Generator, click the **STEP GEN** button on the Mixer page.

Figure 44. Global Step Generator.



A. Show left channel controls B. Show right channel controls

For information about using the Step Generator, see “Step Generator” on page 69.



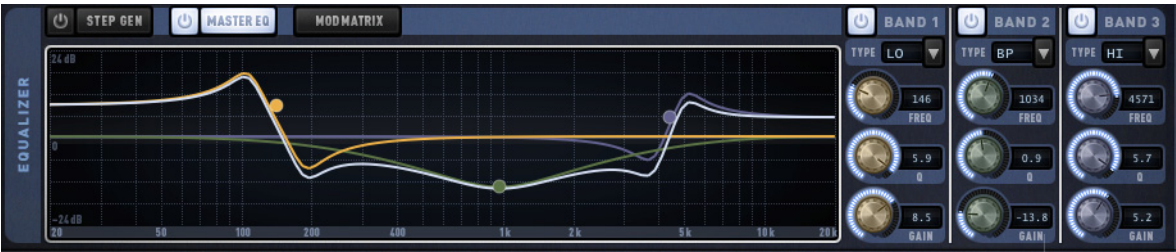
Note: You can achieve identical level patterns using the Step Generator's Copy and Paste functions. For details, see “Copying, unloading, and resetting Elements” on page 90.

Master EQ

In addition to the per-Element equalizer on the Element page (see “Equalizer section” on page 58), Rapture Pro also features a stereo 3-band master equalizer, capable of being modulated via the Modulation Matrix.

To show the Master EQ, click the **MASTER EQ** button on the Mixer page.

Figure 45. Master EQ.



The graph shows the equalization curve. Each band is identified by a unique color, and the sum of all bands is displayed as a white line.

- ▶ Band 1 = Yellow
- ▶ Band 2 = Green
- ▶ Band 3 = Blue

Each band features the following controls.

Figure 46. Master EQ.



Parameter	Description	Values / Functions
Band Enable	Enables or disables the EQ band.	On, Off
Type	Changes the selected EQ type: <ul style="list-style-type: none">▶ LO (Low shelf): the EQ modifies all frequencies below the Freq knob value.▶ BP (Band pass): the EQ modifies all frequencies surrounding the Freq knob value.▶ HI (High shelf): the EQ modifies all frequencies above the Freq knob value.	LO, BP, HI
Frequency	Adjusts the selected band's frequency.	20 Hz – 20480 Hz
Q	Adjusts the selected band's Q (range of affected frequencies).	0.1 – 8.0
Gain	Adjusts the selected band's gain.	-24 dB – 24 dB

Table 29. Master EQ controls

To edit a band

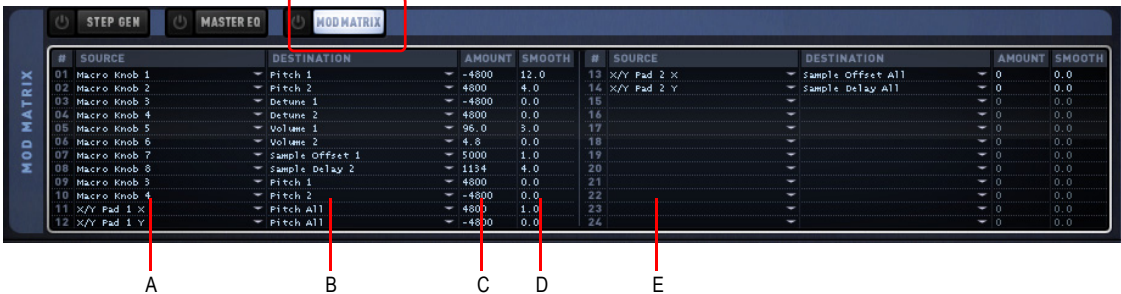
To adjust a band, drag the band's color-coded node in the graph, or adjust any of the band's controls in the Master EQ section.

Modulation Matrix

Rapture Pro features a very powerful Modulation Matrix that lets you link any modulation source to almost any synthesizer and effects parameter. You can use the Modulation Matrix to virtually 'connect' different modulation sources to several parameters. The Modulation Matrix expands the control and performance behavior of a program.

To show the Modulation Matrix, click the **MOD MATRIX** button on the Mixer page.

Figure 47. Modulation Matrix.



A. Source (1–12) B. Destination C. Amount D. Smooth E. Source (13–24)

The Modulation Matrix features 24 rows that can connect any of the over 130 possible sources to over 150 destinations. All those 'connections' can have a specified depth and a smooth value, and are stored in the program file.

The Modulation Matrix features the following parameters:

Parameter	Description
Source	The Source is the MIDI control which Rapture Pro will use to change the parameter selected as destination. Sources can be any MIDI Control Message (CC1-CC127), Pitch Bend, Channel and Polyphonic Aftertouch, Keyboard, Keyboard Gate, Attack and Release Velocity, Unipolar and Bipolar Random and Alternate, X/Y Pads, and Macro Knobs.
Destination	Element Pitch, Cutoff, Resonance, Pan, Amplitude and their LFO Depth and Speed, Envelope and Step Generator parameters, plus most EQ/FX parameters can be used as destinations.
Amount	The depth for the modulation, in parameter units.
Smooth	Smooths out the response of the Destination to the Source.

Table 30. Modulation Matrix parameters

See also:

["MIDI Learn"](#) on page 113

To assign a modulation source to a Rapture Pro parameter (modulator destination)

1. Display the Modulation Matrix by clicking **MOD MATRIX** button on the Mixer page.
2. In the **Source** column, click the arrow at the left side of the column to open the Modulation Source menu.
3. Pick a Modulation Source that you want to use to control a Rapture Pro parameter.
4. In the **Destination** column, click the arrow at the left side of the column to open the Destination menu (a list of Rapture Pro parameters).
5. Click the Rapture Pro parameter that you want to control with the Source you chose in the left column.
6. In the **Amount** column, drag up or down to enter a number that controls how strongly and in which direction the parameter responds to changes in the source (negative numbers produce an inverse relationship).
7. In the **Smooth** column, drag upward to produce a number that smooths out the response of the Destination to the Source.

Modulation Matrix parameters

The following section provides a reference for MIDI Matrix parameters. Of particular note is the nature of input sources, which include many different types of MIDI events and other functions.

Note about “mapped to”: “Mapped to” values, such as “0 – 1” describe the mathematical product of the source function as it modulates the specified destination parameter.

Example:

If you map the cutoff frequency to a depth of 1000 cents, a value of 64 from a given MIDI controller will change the cents value to 500 ($1000 * 0.5 = 500$).

Modulation Matrix Sources

Source	Description
CC 1 – CC 127	MIDI Continuous Controllers 1 – 127 Any MIDI Controller can be used as source, mapped to 0-1.
Pitch Bend	MIDI Pitch Bend messages, mapped to 0-1.
Channel Aftertouch	MIDI Channel Aftertouch, mapped to 0-1.
Polyphonic Aftertouch	MIDI Polyphonic Aftertouch messages, mapped to 0-1.
(Attack) Velocity	Incoming Note-On MIDI Velocity, mapped to 0-1.
Release Velocity	Incoming Note-Off MIDI Velocity, mapped to 0-1.
Keyboard	Incoming Note-On MIDI Note, mapped to 0-1 (Note 0 = 0, Note 127 = 1).
Keyboard Gate	Digital value based on MIDI Note-On messages: 0 when no keys are depressed, 1 when there's any note depressed.
Random Unipolar	Random value generated on MIDI Note-On messages, 0-1.
Random Bipolar	Random value generated on MIDI Note-Off messages, -1 – 1.
Alternate	Alternate value generated on MIDI Note-On messages, 0 or 1 in each new note-on.
X/Y Pad 1 X	Value based on user's horizontal motion over X/Y Pad 1. For details, see "X/Y Pad" on page 39.
X/Y Pad 1 Y	Value based on user's vertical motion over X/Y Pad 1.
X/Y Pad 2 X	Value based on user's horizontal motion over X/Y Pad 2.
X/Y Pad 2 Y	Value based on user's vertical motion over X/Y Pad 2.
Macro Knobs 1-8	Value based on the performance macro knobs. For details, see "Performance macro controls" on page 37.

Table 31. *Modulation Matrix sources*

Modulation Matrix Destinations

Destination	Description	Range	Unit
Off	Leave the modulation destination unassigned.		
Sample Offset 1–6, All	When loading a sample (wav/aif/ogg/sfz), offset sets the point where the playback starts. When a wavetable is loaded, it sets the startup phase (same as the main Phase control). For Elements 1–6, and for all Elements simultaneously.	±441000	samples
Sample Delay 1–6, All	Time elapsed since note-on to sample playback. For Elements 1–6, and for all Elements simultaneously.	±100000	ms
Pitch 1–6, All	Pitch for Elements 1–6 and for all Elements simultaneously.	±2400	cents
Detune 1–6, All	Detune for Elements 1–6 and for all Elements simultaneously. This setting will only effect oscillators In MULTI or RINGMOD modes.	±4800	cents
DSP1 1–6, All	DSP1 depth for Elements 1–6 and for all Elements simultaneously.	±100	%
DSP2 1–6, All	DSP2 depth for Elements 1–6 and for all Elements simultaneously.	±100	%
DSP3 1–6, All	DSP3 depth for Elements 1–6 and for all Elements simultaneously.	±100	%
F1 Cutoff 1–6, All	Filter 1 Cutoff for Elements 1–6 and for all Elements simultaneously.	±13700	cents
F1 Resonance 1–6, All	Filter 1 Resonance for Elements 1–6 and for all Elements simultaneously.	±40	dB
F2 Cutoff 1–6, All	Filter 2 Cutoff for Elements 1–6 and for all Elements simultaneously.	±13700	cents
F2 Resonance 1–6, All	Filter 2 Resonance for Elements 1–6 and for all Elements simultaneously.	±40	dB
Pan 1–6, All	Pan for Elements 1–6 and for all Elements simultaneously.	±100	%
Volume 1–6, All	Volume for Elements 1–6 and for all Elements simultaneously.	±100	cents
Pitch LFO Depth 1–6, All	Depth for the Pitch LFO added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±2400	cents

Table 32. *Modulation Matrix destinations*

Destination	Description	Range	Unit
F1 Cutoff LFO Depth 1–6, All	Depth for the filter 1 Cutoff LFO added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±13700	cents
F1 Reso LFO Depth 1–6, All	Depth for the filter 1 Resonance LFO added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±40	dB
F2 Cutoff LFO Depth 1–6, All	Depth for the filter 2 Cutoff LFO added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±13700	cents
F2 Reso LFO Depth 1–6, All	Depth for the filter 2 Resonance LFO added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±40	dB
Pan LFO Depth 1–6, All	Depth for the Pan LFO added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±100	%
Volume LFO Depth 1–6, All	Depth for the Volume LFO added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±6	DB
Pitch LFO Freq 1–6, All	Frequency of the Pitch LFO added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
F1 Cutoff LFO Freq 1–6, All	Frequency of the filter 1 Cutoff LFO added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
F1 Reso LFO Freq 1–6, All	Frequency of the filter 1 Resonance LFO added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
F2 Cutoff LFO Freq 1–6, All	Frequency of the filter 2 Cutoff LFO added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
F2 Reso LFO Freq 1–6, All	Frequency of the filter 2 Resonance LFO added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
Pan LFO Freq 1–6, All	Frequency of the Pan LFO added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
Volume LFO Freq 1–6, All	Frequency of the Volume LFO added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
Pitch LFO Delay 1–6, All	Delay of the Pitch LFO added to the static delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
F1 Cutoff LFO Delay 1–6, All	Delay of the filter 1 Cutoff LFO added to the static delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms

Table 32. *Modulation Matrix destinations (Continued)*

Destination	Description	Range	Unit
F1 Reso LFO Delay 1–6, All	Delay of the filter 1 Resonance LFO added to the static delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
F2 Cutoff LFO Delay 1–6, All	Delay of the filter 2 Cutoff LFO added to the static delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
F2 Reso LFO Delay 1–6, All	Delay of the filter 2 Resonance LFO added to the static delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
Pan LFO Delay 1–6, All	Delay of the Pan LFO added to the static delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
Volume LFO Delay 1–6, All	Frequency of the Volume LFO added to the static delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
Pitch LFO Fade 1–6, All	Delay of the Pitch LFO added to the static fade setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
F1 Cutoff LFO Fade 1–6, All	Delay of the filter 1 Cutoff LFO added to the fade delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
F1 Reso LFO Fade 1–6, All	Delay of the filter 1 Resonance LFO added to the fade delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
F2 Cutoff LFO Fade 1–6, All	Delay of the filter 2 Cutoff LFO added to the static fade setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
F2 Reso LFO Fade 1–6, All	Delay of the filter 2 Resonance LFO added to the fade delay setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
Pan LFO Fade 1–6, All	Delay of the Pan LFO added to the static fade setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
Volume LFO Fade 1–6, All	Frequency of the Volume LFO added to the static fade setting for Elements 1–6 and for all Elements simultaneously	±10000	ms
Pitch StepGen Depth 1–6, All	Depth for the Pitch StepGen added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±2400	cents
F1 Cutoff StepGen Depth 1–6, All	Depth for the filter 1Cutoff StepGen added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±13700	cents
F1 Reso StepGen Depth 1–6, All	Depth for the filter 1Resonance StepGen added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±40	dB
F2 Cutoff StepGen Depth 1–6, All	Depth for the filter 2 Cutoff StepGen added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±13700	cents

Table 32. *Modulation Matrix destinations (Continued)*

Destination	Description	Range	Unit
F2 Reso StepGen Depth 1–6, All	Depth for the filter 2 Resonance StepGen added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±40	dB
Pan StepGen Depth 1–6, All	Depth for the Pan StepGen added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±100	%
Volume StepGen Depth 1–6, All	Depth for the Volume StepGen added to the static depth value for Elements 1–6 and for all Elements simultaneously.	±6	dB
Pitch StepGen Freq 1–6, All	Frequency of the Pitch StepGen added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
F1 Cutoff StepGen Freq 1–6, All	Frequency of the filter 1 Cutoff StepGen added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
F1 Reso StepGen Freq 1–6, All	Frequency of the filter 1 Resonance StepGen added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
F2 Cutoff StepGen Freq 1–6, All	Frequency of the filter 2 Cutoff StepGen added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
F2 Reso StepGen Freq 1–6, All	Frequency of the filter 2 Resonance StepGen added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
Pan StepGen Freq 1–6, All	Frequency of the Pan StepGen added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
Volume StepGen Freq 1–6, All	Frequency of the Volume StepGen added to the static frequency setting for Elements 1–6 and for all Elements simultaneously	±40	Hertz
Pitch StepGen Smooth 1–6, All	Smooth of the Pitch StepGen added to the static smooth setting for Elements 1–6 and for all Elements simultaneously	±1000	Hertz
F1 Cutoff StepGen Smooth 1–6, All	Smooth of the filter 1 Cutoff StepGen added to the static smooth setting for Elements 1–6 and for all Elements simultaneously	±1000	ms
F1 Reso StepGen Smooth 1–6, All	Smooth of the filter 1 Resonance StepGen added to the static smooth setting for Elements 1–6 and for all Elements simultaneously	±1000	ms

Table 32. *Modulation Matrix destinations (Continued)*

Destination	Description	Range	Unit
F2 Cutoff StepGen Smooth 1–6, All	Smooth of the filter 2 Cutoff StepGen added to the static smooth setting for Elements 1–6 and for all Elements simultaneously	±1000	ms
F2 Reso StepGen Smooth 1–6, All	Smooth of the filter 2 Resonance StepGen added to the static smooth setting for Elements 1–6 and for all Elements simultaneously	±1000	ms
Pan StepGen Smooth 1–6, All	Smooth of the Pan StepGen added to the static smooth setting for Elements 1–6 and for all Elements simultaneously	±1000	ms
Volume StepGen Smooth 1–6, All	Smooth of the Volume StepGen added to the static smooth setting for Elements 1–6 and for all Elements simultaneously	±1000	ms
Pitch EG Attack 1–6, All	Time for the Pitch EG Attack added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
F1 Cutoff EG Attack 1–6, All	Time for the filter 1Cutoff EG Attack added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
F1 Reso EG Attack 1–6, All	Time for the filter 1Resonance EG Attack added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
F2 Cutoff EG Attack 1–6, All	Time for the filter 2 Cutoff EG Attack added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
F2 Reso EG Attack 1–6, All	Time for the filter 2 Resonance EG Attack added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
Pan EG Attack 1–6, All	Time for the Pan EG Attack added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
Volume EG Attack 1–6, All	Time for the Volume EG Attack added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
Pitch EG Release 1–6, All	Time for the Pitch EG Release added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
F1 Cutoff EG Release 1–6, All	Time for the filter 1Cutoff EG Release added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
F1 Reso EG Release 1–6, All	Time for the filter 1Resonance EG Release added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
F2 Cutoff EG Release 1–6, All	Time for the filter 2 Cutoff EG Release added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms

Table 32. *Modulation Matrix destinations (Continued)*

Destination	Description	Range	Unit
F2 Reso EG Release 1–6, All	Time for the filter 2 Resonance EG Release added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
Pan EG Release 1–6, All	Time for the Pan EG Release added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
Volume EG Release 1–6, All	Time for the Volume EG Release added to the static time value for Elements 1–6 and for all Elements simultaneously.	±100000	ms
Eq1 Gain 1–6, All	Gain of the first Eq band.	±24	dB
Eq1 Frequency 1–6, All	Frequency of the first Eq band.	±12000	cents
Eq1 Q 1–6, All	Q of the first Eq band.	±1	
Eq2 Gain 1–6, All	Gain of the second Eq band.	±24	dB
Eq2 Frequency 1–6, All	Frequency of the second Eq band.	±12000	cents
Eq2 Q 1–6, All	Q of the second Eq band.	±1	
Eq3 Gain 1–6, All	Gain of the third Eq band.	±24	dB
Eq3 Frequency 1–6, All	Frequency of the third Eq band.	±12000	cents
Eq3 Q 1–6, All	Q of the third Eq band.	±1	
Fx Feedback 1–6, All	Fx Delay Feedback	±100	%
Fx Cutoff 1–6, All	Fx Filter Cutoff	±13700	Cents
Fx Resonance 1–6, All	Fx Filter Resonance	±40	dB
Fx LFO Frequency 1–6, All	Fx LFO Frequency	±10	Hertz
Fx LFO Depth 1–6, All	Fx LFO Depth	±100	%
Fx Input Level 1–6, All	Fx Input Level	±100	%
Fx Dry/Wet 1–6, All	Fx Dry/Wet	±100	%

Table 32. *Modulation Matrix destinations (Continued)*

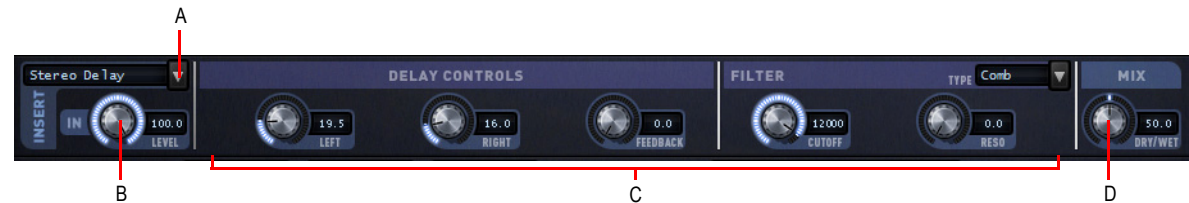
Global Insert effects

Rapture Pro has a complete effects processing section featuring several effects, including delay, chorus, phaser, LFO filter, reverb, and distortion.

There are two ways to apply insert effects. Insert FX are available for each individual Element, and a Program can contain both per-Element Insert FX and global Insert FX.

- ▶ To apply insert effects to individual Elements, use the Insert section on the Elements page (see “Insert effects” on page 60).
- ▶ To apply effects to globally to all Elements, use the Insert section on the Mixer page.

Figure 48. *Insert Effects Section.*



A. *Effect type* **B.** *Input level* **C.** *Effect parameters* **D.** *Dry/wet mix*

The global Insert effects are identical to the effects found in the Insert section on the Element page. For information about using insert effects, see “Insert effects” on page 60.

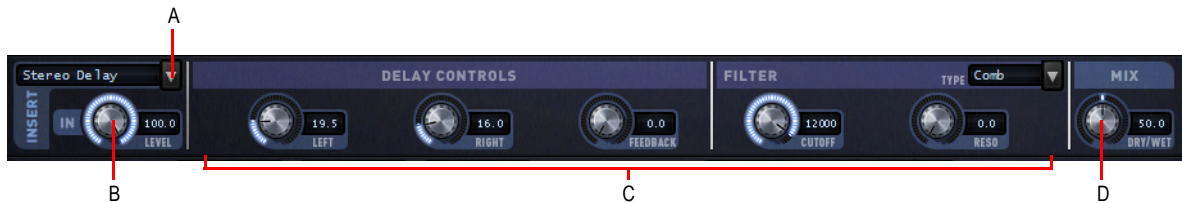
Here’s the procedure for adding a master effect to your program:

Each Element in Rapture Pro contains an Insert FX section featuring several combinations of Delay, Filter, Modulation, Phaser, Reverb and Distortion effects. Depending on the mode selected, the knobs control different effect parameters as described below.

To apply master Insert FX to a Program

1. Click the **MIXER** button in the top panel to show the Mixer page.

The Insert FX section is located just above the Element Mixer section.



A. Click to choose an effect B. Input level C. Effect parameters D. Dry/wet mix

2. Choose an effect type by clicking the arrow in the FX window and then choosing an effect from the pop-up menu that appears.
3. Adjust the effect with the corresponding parameter knobs.

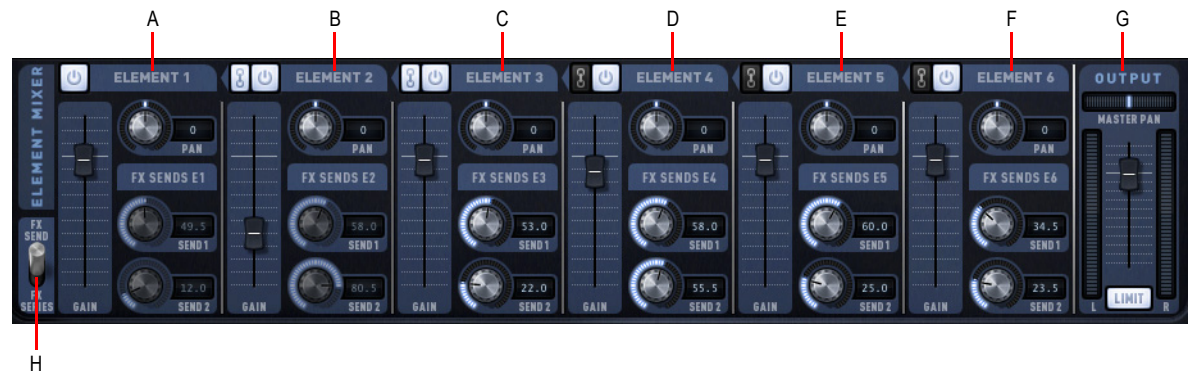
For more information about effects, see ["Insert effects"](#) on page 60.

Element Mixer

The Element Mixer contains gain, pan, and effect send level controls for the 6 Elements, as well as master controls to adjust the final stereo mix. You can also turn each Element off or on in the Element Mixer.

The Gain and Pan controls are also available on the Element page (see “The Element page” on page 43), but the Element Mixer conveniently makes the Gain and Pan controls for all 6 Elements accessible simultaneously. This makes it faster to balance the mix between the Elements.

Figure 49. Element Mixer.

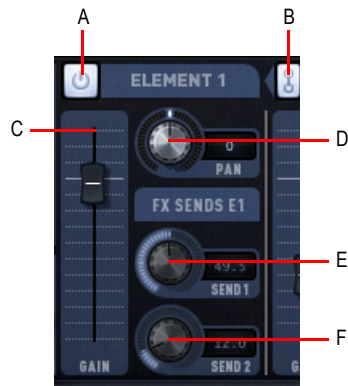


A. Element 1 controls B. Element 1 controls C. Element 1 controls D. Element 1 controls E. Element 1 controls F. Element 1 controls G. Master Output controls H. Parallel/Series effect processing toggle

Element Mixer controls

Each Element features the following mixer controls.

Figure 50. Per-Element mixer controls.



A. On/Off B. Chain C. Gain D. Pan E. Send 1 F. Send 2

Control	Description	Values / Functions
On/Off	Turns the Element on or off. When an Element is off, it won't use any CPU resources.	On, Off
Gain	Main Element level.	0%-100%
Pan	Element stereo panoramic position.	100% L/R
Send 1	Adjusts how much of the Element's signal is routed to the global Send 1 effect.	0%-100%
Send 2	Adjusts how much of the Element's signal is routed to the global Send 2 effect.	0%-100%
Chain	Link the output of the Element to the effects of the next Element. This option is only available for Elements 1-5. For details, see "Chaining Elements" on page 91.	On, Off

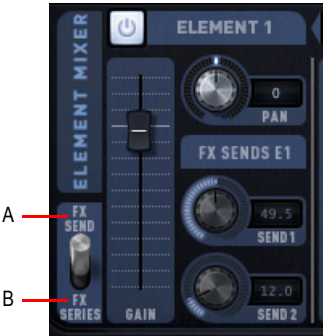
Table 33. *Element Mixer controls*

Parallel/Series Effects Mode

Global send effects can be routed in parallel or series.

In Parallel mode (toggle switch set to **FX SEND**), the SEND 1 and SEND 2 knobs are used to set the send levels independently for each Element.

In Series mode (toggle switch set to **FX SERIES**), the **SEND 1** and **SEND 2** knobs are inactive, and instead all send levels are applied equally to all Elements.

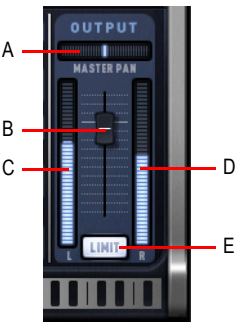


A. Parallel mode B. Series mode

Master Output controls

The Master Output section lets you adjust the combined signal of all currently active Elements. The level meter gives a visual indication of Rapture Pro's stereo output.

Figure 51. Master Output section.



A. Master pan B. Master level C. Left channel level meter D. Right channel level meter E. Limiter

For details, see ["Master Output section"](#) on page 28.

MIDI Learn

In addition to the Modulation Matrix, Rapture Pro features one of the most advanced MIDI control customization systems of any virtual synthesizer. The MIDI Learn feature allows you to assign any knob or button on the screen to any MIDI controller, even assigning multiple controllers to a single parameter or vice-versa. Where the Modulation Matrix settings are per-program, MIDI Learn settings are Global and stay active for all programs.

To invoke the MIDI Learn menu, just right-click (CTRL-click on a Mac) on a knob or button. To assign a MIDI controller, select **MIDI Learn** from the pop-up menu.

Once you select **MIDI Learn**, Rapture Pro enters a “waiting” mode, expecting a MIDI controller to be received. You can send the controller by using a physical MIDI control device or by using your sequencer to send a MIDI continuous controller (CC). Multiple knobs/buttons can be set to “waiting” mode at once in order to assign them to the same control.



Note: When sequencers’ Start/Stop Audio Streaming functions occur, they send numerous controllers. Avoid those operations while Rapture Pro is in “waiting” mode, as it might learn unexpected controller numbers.

As soon as MIDI controller information is received, Rapture Pro assigns it to the selected controls. The controls will display new values according to the incoming controller values.

Once a control is assigned, you can scale it (setting the minimum and maximum) and reverse the control polarity. To perform these operations, call the MIDI Learn menu again by right-clicking (CTRL-click on a Mac) the control. New options will appear:

Menu option	Description
MIDI Learn	Assigns additional controllers to the parameter. This option will always remain active since it is possible to assign multiple controllers to any parameter.
MIDI Forget	Removes all MIDI controller associations from the knob/button.
Set Min	Sets the minimum value this control will have when the incoming MIDI control value is zero.
Set Max	Sets the minimum value this knob will have when the incoming MIDI control value is 127.
Reverse	Inverts the MIDI control polarity.

Table 34. MIDI Learn options

Any MIDI controller can be learned except CC0, CC32 (bank change), CC120 (all sounds off), CC121 (all controllers off), and CC123 (all notes off).

Aftertouch and pitch bend MIDI messages can also be assigned as standard controllers. When Pitchbend is assigned, the center will be calculated according to the Min and Max settings for selected parameter.



Note: *Some MIDI controllers are hard-wired in Rapture Pro but can still be learned. This means that if an additional parameter is assigned to a hard-wired MIDI controller, that controller will adjust both the new parameter and the hard-wired one simultaneously.*

The following controllers are hard-wired:

- CC7 = Volume
- CC11 = Expression
- CC64 = Sustain (can be enabled/disabled per-Element using display control)
- CC66 = Sostenuto (can be enabled/disabled per-Element using display control)
- CC73 = Global Amplitude Attack
- CC72 = Global Amplitude Release

Copy and paste functions

You can copy and paste settings for (per-Element) Step Generator, Envelope Generator, and LFO / Keyboard Tracking.

To copy settings, select the source component and click the **COPY** button, then select the destination component and click the **PASTE** button.

Microtuning and alternative tunings

Microtuning has been an interesting field of research for musicians and physicists for years. Several synthesizers have included some sort of microtuning abilities to allow performers to use alternative tunings to the standard 12-tone equal-tempered system. One of the powerful features of Rapture Pro is that it can load native Scala™ .scl microtuning files.

Scala is a powerful freeware software tool for experimentation with musical tunings, such as just intonation scales, equal and historical temperaments, microtonal and macrotonal scales, and non-Western scales. It supports scale creation, editing, comparison, analysis, storage, tuning of electronic instruments, and MIDI file generation and tuning conversion. All this is integrated into a single application with a wide variety of mathematical routines and scale creation methods.

Scala is ideal for the exploration of tunings and becoming familiar with the concepts involved. In addition, a very large library of scales is freely available for Scala and can be used for analysis or music creation.



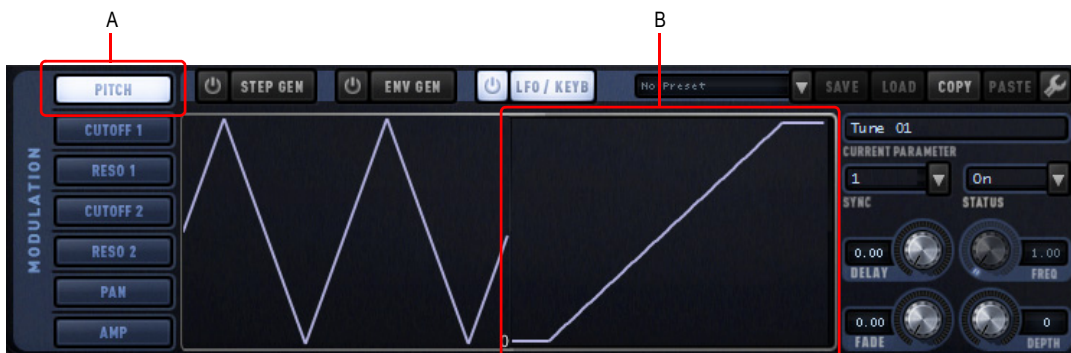
Note: For more information about Scala, visit the Scala home page at www.huygens-fokker.org/scala.

Rapture Pro allows each Element in a program to use a specific microtuning definition, so multiple microtuning sets can be used in a single patch.

To load a Scala microtuning definition for any Element

1. Select the Element button (1–6) in the top panel to show the Element page.
2. In the Modulation section, select the PITCH modulation target.
3. Click on the Keyboard Tracking window.

Figure 52. LFO / Keyboard Tracking.



A. PITCH modulation target **B.** Keyboard Tracking display

A File Open dialog box appears.

4. Select the microtuning definition file of your choice.

The Keyboard Tracking window will display a graphical representation of the selected tuning scale. A tooltip will display the currently loaded definition file.



Note: You can also load a Scala Tuning file by clicking the **LOAD** button in the OSC / SMP section.

Figure 53. OSC/SMP section.



To reset an Element to standard tuning

1. Select the PITCH modulation target for that Element.
2. SHIFT-click on the Keyboard Tracking window.

The tuning definition file selected is remembered and reloaded with the program.

Not limited to 12-tone scales, Rapture Pro microtuning support allows for any number of notes, including mean-tone and quarter-tone scales. Rapture Pro includes 200 Scala tuning definition files with the default installation. A file with over 2900 tuning definition files (.scl) can be downloaded for free from:

www.huygens-fokker.org/docs/scales.zip

You can find a brief description of the Scala files here:

www.huygens-fokker.org/docs/scalesdir.txt

Sinc interpolation

When you freeze or play back a Rapture Pro track, you have the option to use a higher-quality algorithm called sinc interpolation. This can increase the time it takes to freeze tracks, and use a little more of your computer's resources when you play back audio. If you're using distortion, you don't need this algorithm.

To use sinc interpolation

1. Open the **Options** menu by clicking the **OPTIONS** button in the top panel.
2. Select the **Use SINC interpolation when freezing/rendering** check box.

Using Rapture Pro as a multi-timbral instrument

Each of the six Elements can function as a separate instrument, if you want to use a single instance of Rapture Pro as a six-part multi-timbral instrument.

To use Rapture Pro as a multi-timbral instrument

1. Load the program that you want to use as a multi-timbral program.
2. Click the **OPTIONS** button. The **Options** menu opens.
3. **SELECT** the **Set Program As Multitimbral** option.
4. Save the program, if you want to change it to a multi-timbral program.

When a program is in Multi-timbral mode, the six Elements respond to MIDI channels 1–6, respectively.

Parameter reference

This section provides a reference for every Rapture Pro parameter. Each parameter is described in terms of its value ranges (Min/Max/Default), increment size (Fine/Norm/Coarse) and unit type (Unit).

Also included is information on Rapture Pro resource usage.

Rapture Pro parameters

Number	Name	Min	Max	Default	Fine	Norm	Coarse	Unit
1	LoKey	0	127	1	1	1	12	Note
2	HiKey	0	127	1	1	1	12	Note
3	LoVel	0	127	1	1	1	10	-
4	HiVel	0	127	1	1	1	10	-
5	Bend Up	0	24	2	1	1	1	St
6	Bend Down	0	24	2	1	1	1	St
7	Sustain	Off, On						
8	Sostenuto	Off, On						
9	Transpose	-96	96	0	1	1	12	St
10	Tune	-100	100	0	1	1	10	Ct
11	KeyTrack	-200	200	100	1	1	10	Ct/Key
12	Phase	0	360	0	1	1	10	Deg
13	Quality	Std, High						
14	Multi	Off, 3v, 5v, 7v, 9v						
15	Ringmod	Off, On						
16	Detune	0	100	10	1	1	10	Ct
17	Porta Time	0	10	0	0.01	0.1	1	s
18	Polyphony	0	inf	16	1	1	10	Layer
19	DSP Order	Bypass, F1->LoFi->Drive->F2, F1->Drive->F2->LoFi, F1->Decim + F2->Drive						

Table 35. Rapture Pro parameters

Number	Name	Min	Max	Default	Fine	Norm	Coarse	Unit
20	Filter 1Type	Off, LP1P, HP1P, BP1P, BR1P, LP2P, HP2P, BP2P, BR2P, LP4P, HP4P, LP6P, HP6P, COMB, PINK						
21	Filter 1 Cutoff	8.2	22350	8.2	Log	Log	Log	Hz
22	Filter 1 Reso	0	40	0	0.04	0.4	4	dB
23	BitRed On/Off	-	-	Off	-	-	-	-
24	BitRed Amount	0	100	0	0.1	1	5	%
25	Decim On/Off	-	-	Off	-	-	-	-
26	Decim Amount	0	100	0	0.1	1	5	%
27	Drive Type	Off, Tube, Soft, Mid, Hard, Asymmetric						
28	Drive Shape	0	100	0	0.1	1	5	%
29	Filter 2Type	Off, LP1P, HP1P, BP1P, BR1P, LP2P, HP2P, BP2P, BR2P, LP4P, HP4P, LP6P, HP6P, COMB, PINK						
30	Filter 2 Cutoff	8.2	22350	8.2	Log	Log	Log	Hz
31	Filter 2 Reso	0	40	0	0.04	0.4	4	dB
32	EG Status	Off, On						
33	EG Depth							
34	Pitch	-9600	9600	0	1	10	50	Ct
35	Cutoff 1/2	-12000	12000	0	1	10	100	Ct
36	Resonance 1/2	-40	40	0	0.01	0.1	1	dB
37	Pan	-100	100	0	0.01	0.1	1	%
38	Amplitude	-100	100	0	0.01	0.1	1	%
39	EG Vel->Int							
40	Pitch	-9600	9600	0	1	10	50	Ct
41	Cutoff 1/2	-12000	12000	0	1	10	100	Ct
42	Resonance 1/2	-40	40	0	0.01	0.1	1	dB
43	Pan	-100	100	0	0.01	0.1	1	%
44	Amplitude	-100	100	0	0.01	0.1	1	%

Table 35. *Rapture Pro parameters (Continued)*

Number	Name	Min	Max	Default	Fine	Norm	Coarse	Unit
45	EG Vel->Tim	-1024	1024	0	0.01	0.1	1	x (mul)
46	VelTrack	0	100	100	0.01	0.1	1	%
47	Pitch	-9600	9600	0	1	10	50	Ct
48	Cutoff 1/2	-13700	13700	0	1	10	100	Ct
49	Resonance 1/2	-40	40	0	0.01	0.1	1	dB
50	Pan	-100	100	0	0.01	0.1	1	%
51	Amplitude	-100	100	0	0.01	0.1	1	%
52	LFO Status	Off, Shot, On						
53	LFO Waveform	20 internal waveforms, 80 external waveforms, random unipolar, random bipolar						
54	LFO Frequency	0	40	1	0.001	0.01	0.5	Hz
55	LFO Sync	1/8t, 1/8, 1/8d, 1/4t, 1/4, 1/4d, 1/2t, 1/2, 1/2d, 1t, 1, 1d, 2t, 2, 2d, 4t, 4, 4d, 8t, 8, 8d, 16t, 16, 16d						
56	LFO Delay	0	10	0.001	0.01	0.05	2	S
57	LFO Fade	0	10	0.001	0.01	0.05	2	S
58	LFO Depth							
59	Pitch	0	4800	0	1	1	50	Ct
60	Cutoff 1/2	0	6000	0	1	1	100	Ct
61	Resonance 1/2	0	20	0	0.01	0.1	0.5	dB
62	Pan	0	100	0	0.1	1	5	%
63	Volume	0	6	0	0.1	1	2	dB
64	StepGen Status*	Off, On						
65	StepGen Steps	2	128	16	1	1	4	Step
66	StepGen Frequency	0	40	1	0.001	0.01	0.5	Hz
67	StepGen Sync	1/8t, 1/8, 1/8d, 1/4t, 1/4, 1/4d, 1/2t, 1/2, 1/2d, 1t, 1, 1d, 2t, 2, 2d, 4t, 4, 4d, 8t, 8, 8d, 16t, 16, 16d, 32t, 32, 32d, 64t, 64, 64d, 128t, 128, 128d						
68	StepGen Smooth	1	1000	1	1	10	100	ms
69	StepGen Depth							

Table 35. *Rapture Pro parameters (Continued)*

Number	Name	Min	Max	Default	Fine	Norm	Coarse	Unit
70	Pitch	0	9600	0	1	1	50	Ct
71	Cutoff 1/2	0	12000	0	1	1	100	Ct
72	Resonance 1/2	0	20	0	0.01	0.1	0.5	dB
73	Pan	0	100	0	0.1	1	5	%
74	Amplitude	0	100	100	0.1	1	5	%
75	Eq On/Off	Off, On						
76	Eq Type	Lo Shelf, Peaking, Hi Shelf						
77	Eq Gain	-24	24	0	0.024	0.24	2.4	dB
78	Eq Freq	8.2	22350	8.2	Log	Log	Log	Hz
79	Eq Q	0.1	8	1	Log	Log	Log	-
80	Fx Type*	Off, Stereo Delay, Cross Feedback Delay, Ping Delay, L/R/C Delay, R/L/C Delay, Triple Delay, Detuning Delay, Chorus, Symphonic, Phaser, Chorus/Phaser, LFO Filter Delay, Panning Delay, Autopan, LFO Filter, Phased Delay, Filter/Phaser, Reversed Delay, Small Room, Mid Room, Large Room, Small Hall, Mid Hall, Large Hall, Chamber, Stereo Large Hall, Spring, Ambience, Stereo ER, Distortion 1, Distortion 2						
81	Fx, Global Fx Filter Type	Off, LP1P, HP1P, BP1P, BR1P, LP2P, HP2P, BP2P, BR2P, LP4P, HP4P, LP6P, HP6P, COMB, PINK, LPS2, HPS2, BPS2, BRS2						
82	Fx Delay Left	1/8t, 1/8, 1/8d, 1/4t, 1/4, 1/4d, 1/2t, 1/2, 1/2d, 1t, 1, 1d, 2t, 2, 2d, 4t, 4, 4d, 8t, 8, 8d, 16t, 16, 16d (0 to 50ms for Chorus and Symphonic for L and R)						
83	Fx Delay Center							
84	Fx Delay Right							
85	Fx Delay Feedback	0	100	0	0.1	1	5	%
86	Fx Filter Cutoff	8.2	22350	8.2	Log	Log	Log	Hz
87	Fx Filter Resonance	0	40	0	0.04	0.4	4	dB
88	Fx Lfo Freq	0	10	0	0.01	0.1	0.5	Hz
89	Fx Lfo Depth	0	100	0	0.1	1	5	%
90	Fx Input	0	100	0	0.1	1	5	%
91	Fx Dry/Wet	100:0	0:100	50:50	0.1	1	5	%

Table 35. *Rapture Pro parameters (Continued)*

Number	Name	Min	Max	Default	Fine	Norm	Coarse	Unit
92	Mixer Element Status	Off, On						
93	Mixer Pan	-100	100	0	0.2	2	10	%
94	Mixer Volume	0	100	0	0.1	1	5	%
95	Mixer Volume	0	100	0	0.1	1	5	%

Table 35. *Rapture Pro parameters (Continued)*



Note: All Fx parameters are also applicable to Global Fx. In addition, all StepGen parameters are applicable to Global StepGen L and R.

Rapture Pro resource usage

Your Rapture Pro synthesizer uses state-of-the-art technology to economize resources, while preserving a superb sound quality. However, as any virtual synthesizer Rapture Pro relies on the main CPU of your computer to generate and process the sound realtime.

Every component in Rapture Pro can be enabled/disabled individually. When a component is disabled, it doesn't use any CPU. Consequently, is very important to turn off all unused components while the process of program creation or tweaking.

As described, the more components you use for a given patch, the more CPU Rapture Pro will use.

Micro host (stand-alone mode)



Note: The stand-alone Rapture Pro instrument is currently only available on the Windows platform.

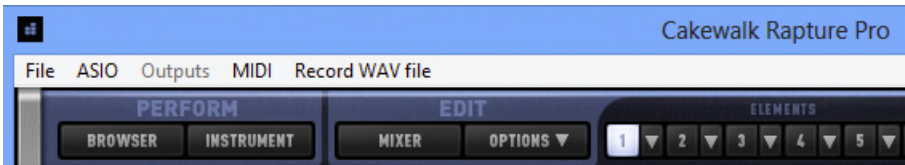
Rapture Pro can be used as a stand-alone instrument that requires no host application. In stand-alone mode, Rapture Pro interacts directly with your computer’s audio and MIDI hardware interfaces.

In stand-alone mode, Rapture Pro is a VST ASIO host. Stand-alone mode supports 44.1, 48, 88.2 and 96 kHz sample rates.

Figure 54. Micro host.



Figure 55. Micro host menu.



To start Rapture Pro in Stand-alone mode

Click **Start** and go to **Programs > Cakewalk > Rapture Pro** and choose **Rapture Pro**.

See:

“Main menu reference” on page 124

“Configuring MIDI input” on page 125

“Configuring audio output” on page 125

“Recording audio (Windows only)” on page 126

“Keyboard shortcuts (Stand-alone mode only)” on page 126

Main menu reference

This menu reference describes each menu command in stand-alone mode.

- ▶ **File > Exit.** This command closes Rapture Pro.
- ▶ **Audio Device.** Choose your audio device from this menu.
- ▶ **ASIO.**
- ▶ **Audio Device > ASIO Control Panel.** This command opens the ASIO Control Panel, which allows you to configure various settings for your ASIO audio device.
- ▶ **Outputs.** Choose your audio device output from this menu.
- ▶ **MIDI.** Choose your MIDI input device from this menu.
- ▶ **Record WAV File > 16-bit.** Use this command to start recording audio in 16-bit WAV format. This menu command changes to Stop Recording while recording is in progress.
- ▶ **Record WAV File > 32-bit IEEE float.** Use this command to start recording audio in 32-bit IEEE float WAV format. This menu command changes to Stop Recording while recording is in progress.
- ▶ **Stop Recording.** Use this command to stop recording (this menu command is only enabled when recording).
- ▶ **Tempo.** Use this command to specify the tempo (10-500 BPM).



Note: You can also adjust the tempo with keyboard shortcuts. See “Keyboard shortcuts (Stand-alone mode only)” on page 126 for more information.

See:

“Configuring MIDI input” on page 125

“Configuring audio output” on page 125

“Recording audio (Windows only)” on page 126

“Keyboard shortcuts (Stand-alone mode only)” on page 126

Configuring MIDI input

Because stand-alone mode communicates directly with your computer's MIDI hardware interface, it is necessary to specify the MIDI input setting.

To configure MIDI input

1. Start Rapture Pro in stand-alone mode.
2. Click **MIDI** and choose your MIDI device's input port.

See:

[“Main menu reference”](#) on page 124

[“Configuring audio output”](#) on page 125

[“Recording audio \(Windows only\)”](#) on page 126

[“Keyboard shortcuts \(Stand-alone mode only\)”](#) on page 126

Configuring audio output

Because stand-alone mode communicates directly with your computer's audio hardware interface, it is necessary to specify the audio output setting.

To configure audio output

1. Start Rapture Pro in stand-alone mode.
2. Click **Audio Device** and choose your audio device.



Note: Select **ASIO Control Panel** to configure the ASIO driver settings.

3. Click **Outputs** and choose your audio device's output port.

See:

[“Main menu reference”](#) on page 124

[“Configuring MIDI input”](#) on page 125

[“Recording audio \(Windows only\)”](#) on page 126

[“Keyboard shortcuts \(Stand-alone mode only\)”](#) on page 126

Recording audio (Windows only)

When used in stand-alone mode, you can record the audio output of *Rapture Pro* to a 16-bit wave (.wav file.

To record audio

- 1. Click **Record WAV File-16-bit**.
- 2. Enter a name for the WAV file and click **OK**.
Recording starts and the **Record WAV File** menu item changes to **Stop Recording**.
- 3. When you are finished recording your audio take, click on **Stop Recording**.

See:

- “Main menu reference” on page 124
- “Configuring MIDI input” on page 125
- “Configuring audio output” on page 125
- “Keyboard shortcuts (Stand-alone mode only)” on page 126

Keyboard shortcuts (Stand-alone mode only)

You can use the computer keyboard to control Rapture Pro in stand-alone mode. Below is a list of all keyboard shortcuts.

Key	Description
ESC	All Notes Off
F3	Set to 44,100 Hz
F4	Set to 48,000 Hz
SHIFT+F3	Set to 88,200 Hz
SHIFT+F4	Set to 96,000 Hz
F5	Transpose -12
F6	Transpose -1
F7	Transpose +1
F8	Transpose +12
F11	Previous Program
F12	Next Program

Table 36. Stand-alone Mode keyboard shortcuts

Key	Description
LEFT ARROW	Bend Down
RIGHT ARROW	Bend Up
UP ARROW	CC1
DOWN ARROW	CC2
SPACEBAR	Aftertouch
NumPad +	Increase tempo by 1 BPM (tempo range = 10-500 BPM)
NumPad -	Decrease tempo by 1 BPM
NumPad *	Increase tempo by 10 BPM
NumPad /	Decrease tempo by 10 BPM
Z	MIDI Note 36 (C3) (this is the default root note; you can transpose notes with the F5, F6, F7 and F8 keys)
S	MIDI Note 37 (C#3/Db3)
X	MIDI Note 38 (D3)
D	MIDI Note 39 (D#3/Eb3)
C	MIDI Note 40 (E3)
V	MIDI Note 41 (F3)
G	MIDI Note 42 (F#3/Gb3)
B	MIDI Note 43 (G3)
H	MIDI Note 44 (G#3/Ab3)
N	MIDI Note 45 (A3)
J	MIDI Note 46 (A#3/Bb3)
M	MIDI Note 47 (B3)
, (comma)	MIDI Note 48 (C4)
L	MIDI Note 49 (C#4/Db4)
. (period)	MIDI Note 50 (D4)
; (semi-colon)	MIDI Note 51 (D#4/Eb4)
/	MIDI Note 52 (E4)

Table 36. Stand-alone Mode keyboard shortcuts (Continued)

Key	Description
Q	MIDI Note 53 (F4)
2	MIDI Note 54 (F#4/Gb4)
W	MIDI Note 55 (G4)
3	MIDI Note 56 (G#4/Ab4)
E	MIDI Note 57 (A4)
4	MIDI Note 58 (A#4/Bb4)
R	MIDI Note 59 (B4)
T	MIDI Note 60 (C5)
6	MIDI Note 61 (C#5/Db5)
Y	MIDI Note 62 (D5)
7	MIDI Note 63 (D#5/Eb5)
U	MIDI Note 64 (E5)
I	MIDI Note 65 (F5)
9	MIDI Note 66 (F#5/Gb5)
O	MIDI Note 67 (G5)
0 (zero)	MIDI Note 68 (G#5/Ab5)
P	MIDI Note 69 (A5)
- (minus)	MIDI Note 70 (A#5/Bb5)
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