Reference MANUAL

GLADIATOR

A REVOLUTION IN SYNTHESIS

Reference MANUAL

Table of Contents

Welcome to GLADIATOR

Congratulations on your purchase of Tone2's GLADIATOR synthesizer!

GLADIATOR 3 is the latest version of Tone2's VST-format synthesizer, using the ground-breaking *Harmonic Content Morphing* synthesis method, allowing a unique sound which is not possible with subtractive, additive or FM synthesis methods alone.

Harmonic Content Morphing allows the harmonics of the oscillators to be altered over time to produce stunning dynamic sounds. Just as sounds in the real world have changes in harmonics over time, which makes them sound pleasing and interesting, GLADIATOR mimics this behaviour by changing the harmonic content of its oscillators over a certain time period.

Features

New Features in V3:

- A new interface, which is nearly twice as large
- By clicking on 'EDITOR SIZE' you can select from four different interface sizes
- Added a comfortable, new patch browser
- New sound-quality mode 'high-end'
- Added context sensitive tooltips with detailed descriptions for all controls
- The patches can be ranked by clicking on the stars in the patch browser
- The patch rankings are stored within the file "Ranking.rnk"
- 6 additional lfo waveforms: "Stair 4 up","Stair 8 up","Stair 4 down","Stair 8 down","Stair 4 up/down","Stair 8 up/down"
- Added manuals in English, German, French, Spanish and Italian to the new help menu
- New loop mode "Noise", which jumps to a random section
- New loop mode "\/50%", which ping-pong-loops 50% of the spectrum
- New loop mode "\/25%", which ping-pong-loops 25% of the spectrum
- 3 additional phase-modifiers "Zzzap", which sound like a laser
- 3 additional phase-modifiers "Boing", which sound like a reverse laser
- 2 additional phase-modifiers "Odd noise" and "Even noise", which noisify the spectrum
- 2 additional phase-modifiers "Odd 90" and "Even 90", which sound like a sub-oscillator
- Information tags about the patches are shown in the patch browser
- Extended semitone-range for the arpeggiator from -23 to +23
- Added cross-product-compatibility: Save->'Export...' exports the sound of osc1 as an Icarus compatible wavetable in wav format
- Video tutorials can be shown from the help menu
- Updates and additional sounds can be accessed directly from the help menu

Some of the information in this manual refers to the original version of GLADIATOR. For more information about the latest features of GLADIATOR 3, please check the **Tone2 Forum:** http://www.tone2.org/forum/index.php

GLADIATOR includes the following features:

Advanced Harmonic Content Morphing (HCM Synthesis)
FM
AM
PWM
Sync
Phase modulation
Waveshaping
Distortion
Unison
Resynthesized spectra
Phase distortion
Sample-noise osciallator
30208 waveforms
18 OSCs per voice
40 different stereo filters
20 effects
True stereo architecture
Up to 324x oversampling
Programmable ARP & STEP LFO/Trancegate
BPM syncable
Microtuning
Equalizer
Flexible routing
256 voice polyphony

Harmonic Content Morphing

At this point you may be asking yourself, “I keep hearing about HCM or Harmonic Content Morphing, what is that?”

Harmonic Content Morphing (HCM) is a new synthesis method based on a large and expandable repertoire of standard waves, such as a saw, triangle or pulse, as well as complex waves (multi-waves), such as trumpets, organs, pads, pianos, voice samples, and so on.

The easiest way to understand this amazing new synthesis technique is to imagine the following illustration: Imagine you’re in your home recording studio. You sit down in your chair, pick up your acoustic guitar and strum a note. As the string vibrates through the air and the sound reverberates through the room, this seemingly simple act generates a very complex sequence of harmonic spectra which change over time.

In other words, the guitar’s sound waves change over time, which is what makes an acoustic guitar sound like an acoustic guitar. It is possible to make a sequence of snapshots of these spectra at given times, in essence to capture that change in basic sound over time - this is where GLADIATOR performs its magic.

The sound engineers at Tone2 have analysed the spectra of natural instruments and synthesizer sounds, to produce harmonic content snapshots of various sounds which have been included in the synthesizer as waveform morph-tables. Each snapshot in a morph-table is equivalent to a traditional single oscillator waveform, and each morph-table has 256 snapshots!

In GLADIATOR, these morph-tables can be loaded exactly like traditional oscillators in subtractive synths, but unlike traditional subtractive synths, you can:

> *Modify* the morph-table spectrally by changing the harmonic structure of the sound. You can make a fat sound become thin for example, a thin sound become fat, or you can multiply the harmonics - and much more!
>
> *Control* the playback of the snapshots in each morph-table, over a chosen time period. In other words, you can change the sound over time, however you see fit.

HCM gives you the ability to mimic the sound of true-to-life instruments like guitars and pianos, but also gives you the opportunity to create unique sounds by morphing harmonic content in interesting ways. The possibilities are almost endless!

Unlike traditional synthesis methods, such as subtractive and additive, which usually only have static single oscillators, GLADIATOR allows you to alter your basic sound over time because of the inclusion of 256 snapshots per morph-table.

How to use this manual

This manual has been designed to first provide a “quick start” guide, to start making great sounds straight away with GLADIATOR, followed by a more detailed explanation of GLADIATOR, the user interface and its functions for power users and those who like to go beyond the presets.

What this manual doesn't do is explain the fundamentals of synthesis – there are plenty of good resources for this already.

> Hints and Warnings in the manual are shown with a grey background.

New users should continue reading the following Quick Start section.

Quick Start

This section will get you going straight away.

System requirements

- PC: Windows Vista / 7 / 8 / 8.1 / 10 (32 bit or 64 bit)
- PC formats: 32-bit VSTi, 64-bit VSTi, standalone
- Mac: Mac OSX 10.5 or higher
- Mac formats: 32-bit VSTi, 64-bit VSTi, 32-bit Audiounit, 64-bit Audiounit

Installing Tone2 products on PC

After ordering a product from us, you will receive an email with download links, after downloading your product you will have a ZIP file. Unpack the zip file to a temporary folder. Together with the download links from Shareit / Bestservice you received a key-file (Gladiator2.t2k) attached to the product delivery email. This key-file contains your name & serial number and is used to unlock the full version.

Below you will find both automatic and manual authorization procedures, follow the steps in either of these to authorize your product.

A) Automatic product installation

1. Exit your host program (e.g. Cubase,...).
2. Double-click on the icon of the full version .exe installer and run the installation. Note: the demo versions cannot be unlocked.
3. Open your host program.
4. Do a plugin re-scan in the host if it does not list the plugin you just installed. Detailed instructions on how to perform a re-scan can be found in your host's manual
5. Insert the plugin.
6. Left-click in the "Click here to activate the product" screen.
7. Browse-to and select the key-file (Gladiator2.t2k) you received from us to activate the full version.
8. Restart the plugin. Note that some hosts programs may require a complete restart for the plugin to function correctly.

B) Manual product installation

1. Exit your host program.
2. Install the full version of the plugin. Note: the demo versions cannot be unlocked.
3. Copy your plugin key-file (Gladiator2.t2k) to the same folder as the plugin's DLL file (the VST plugins directory).
4. Open your host program.
5. Insert the plugin.

If you need further information about installing plugins please take a look at the manual of your host software.

Installing Tone2 products on Mac

After ordering a product from us, you will receive an email with download links, after downloading your product you will have a PKG file. You received a key-file (*.t2k) in the email with the download links from Shareit. This key-file is used to unlock the full version. Do not open or edit this key-file with a text editor! This will damage the file!

Below you will find both automatic and manual authorization procedures, follow the steps in either of these to authorize your product.

A) Automatic product installation

1. Exit your host program (e.g. Logic, Ableton...). Make sure that you closed it completely!
2. Double-click on the PKG file and install the full version of the plugin: Note: the demo versions cannot be unlocked.
3. Open your host program.
4. Do a plugin re-scan in the host if it does not list the plugin you just installed. Detailed instructions on how to perform a re-scan can be found in your host's manual. Reboot the Mac if the plugin still can't be found.
5. Insert the plugin.
6. Left-click in the "Click here to activate the product" screen.
7. Browse-to and select the key-file (Gladiator2.t2k) you received from us to activate the full version.
8. Restart the plugin. Note that some host programs may require a complete restart for the plugin to function correctly.

B) Manual product installation

1. Exit your host program. Make sure that you closed it completely!
2. Install the full version of the plugin. Note: the demo versions cannot be unlocked.
3. Copy your plugin key-file (Gladiator2.t2k) to the "HD/Library/Audio/Plug-ins" folder
4. Open your host program.
5. Insert the plugin.

If you need further information about installing plugins please take a look at the manual of your host software.

GLADIATOR interface controls

Button

Off

On

Buttons in GLADIATOR are toggle-type buttons which switch between 2 states, active (*On*) and inactive (*Off*).

Clicking a button changes from the current state to the alternate state: if a button is currently "*On*" then clicking it will change it to "*Off*".

Active buttons are clearly illuminated in orange.

Knob

The knob control increments a parameter value linearly from a minimum threshold value to a maximum threshold value.

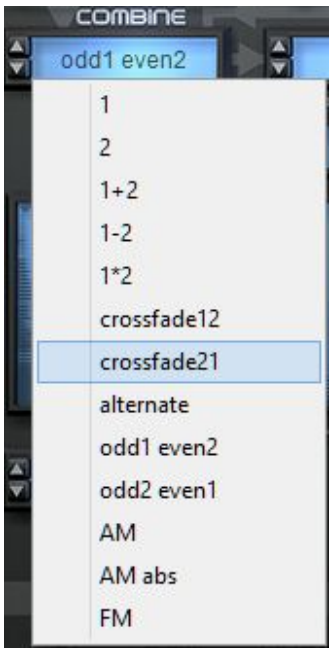
To increase a knob's setting value, turn it clockwise: click-and-hold the knob and then move your mouse up and/or to the right. To decrease, move down and/or to the left, or anti-clockwise.

Some knobs, like the OCT, FINE, SHAPE or PAN knobs have their null position in the middle and you can dial in positive or negative values by rotating the knob clockwise or anti-clockwise.

> Note: Double-clicking a knob sets it back to its default position.

Drop-down

The small LCD-style screens are actually drop-down selectors (excluding the PARAMETER DISPLAY section).



Click on a drop-down box to expand the menu of options. Click on the desired setting to select and close the drop-down. The display changes to show the current value. Alternatetively, step through the settings using the *Previous* and *Next* arrows located to the left of the drop-down (see below).

Previous/Next

Arrows to cycle through the setting are located to the left of every drop-down box.

Click the *Up arrow* to select the previous item in the drop-down. Click the *Down arrow* to select the next item in the drop-down. The display changes to show the current value.

Welcome Tutorial

So you just purchased GLADIATOR, loaded it in your VST host of choice, and now you are dying to start making some noise with it... well, your best bet is of course to check out the wide range of awesome factory presets provided... that is, unless you want to tweak some knobs: then this section is for you!

This quick-start tutorial is by no means comprehensive, as it is a walkthrough of the creation of your very first GLADIATOR patch from scratch, and to show you the synth's basic functionality along the way so you can start familiarizing yourself with this beast. We are going to create a simple yet rich and powerful bass sound - not bad for a first time, huh?

Now select a patch you want to override, press the "Patch init" or "RANDOM" button and let's start at the beginning… (don't worry, you can reset the original preset patch after saving the new patch you are going to create.)

1. OSC1 + Modifiers

The heart of GLADIATOR lies in its powerful oscillator sections, with the huge amount of morph-tables (waves) and modifiers at your disposal. We want a bass so let's select a suitable wave for OSC1, for example "GT Homiebass". This is the spectral representation of an electric bass guitar which will give us a nice harmonic foundation for our patch. Play a few notes... a bit dark, isn't it? No problem, let's enhance its spectra by selecting a modifier such as "Spec formant" and turning the associated knob almost all the way up. That's better...

2. OSC2 + Combine

There are several options to combine oscillator pairs in very interesting ways. In order to give more body to our bass sound let's select a suitable wave for OSC2, for example "EL Saw PD" - a classic phase-distortion saw. Instead of just summing OSC1 and OSC2, we'll use the "odd1 even2" option in the Combine list: this will mix the odd harmonics from our OSC1 with the even harmonics from our OSC2. Play a few notes and see for yourself...

Wait, it gets better...

3. Morphing

The waves in GLADIATOR's oscillators are not really static waves but "morph-tables", which are comprised of 256 "spectral snapshots" each. The morphing options allow you to manipulate how fast and in what order your oscillator will go through those snapshots.

For our bass patch we just want to go through all snapshots in sequence from first to last and stay there, so we'll select the morph mode "\stop". But we also want to do this transition from first to last snapshot slowly, so we'll turn the morph speed knob down until 10 o'clock or so. Finally we can add some key tracking here for a more responsive sound.

There you go, our patch is nice and playable already and we haven't even ventured outside the oscillator sections yet!

4. OSC5

OSC3 and OSC4 behave exactly the same as OSC1 and OSC2, as our goal is a humble bass patch we don't need to use them. But check out OSC5: it's very simple and the range of waves available is totally different from the other oscillators. These are static attack and/or colouring waves designed to be layered along with the other already fully featured oscillators.

So let's layer a nice and sharp attack sound to our bass patch, for example "Perc laser" and make it an octave lower, adding some key tracking for good measure.

5. Mix + Sound

You can adjust the volume of each oscillator and even add some amplitude modulation in the MIX section.

Here we'll just accentuate the attack by increasing OSC5's volume a bit, this is fairly trivial... but take a look at the small SOUND section at the bottom left of the GUI: here you

can control the type and amount of UNISON and SPIRIT in your patch.

UNISON is the layering of multiple copies of the signal produced by the oscillators with tiny (or not so tiny) differences in pitch and/or stereo placement, for a fuller and richer sound. Boy does GLADIATOR's UNISON sound good... so select "2x stereo" mode, add some spread and listen how your patch gets instantly fat.

SPIRIT, on the other hand, allows you to modulate the pitch in different ways: here we'll go with "Analogue 2" mode, which will bring some non-linear movement to our patch.

6. Filter

GLADIATORs filter section offers a single filter with lots of filter types, and all the bells and whistles such as ADSFR envelope, key tracking and velocity tracking.

Here we select the "LP 30dB Fat" type which is as self-descriptive as great sounding, and adjust cutoff, resonance, envelope and tracking to suit our bass and add more movement and dynamism.

7. Volume + Distortion

The volume section is also full-featured, so here we can adjust the attack and add a hint of release to our patch for better playability.

GLADIATOR also offers several types of DISTORTION, both analogue and digital in nature, and even a simple 3-band EQ for shaping the overall sound. We won't need the EQ for this patch but some DISTORTION is always welcome: choose "Presence" and boost it to maybe 12 o'clock for an enhanced and more defined sound.

8. Effects

A full range of effects are provided, including reverbs, delays, choruses, distortions, and so on. There are 2 EFFECT slots and you can route them in serial or in parallel, but we'll be using only one on our patch: choose "Chorus" as EFFECT1 and adjust mix, speed and depth to taste.

9. LFOs + Mod Matrix

Finally we arrive at the extensive modulation capabilities of GLADIATOR: 2 powerful LFOs, 2 global LFOs and a separate STEP LFO, all of them routable to all relevant parameters within the easy-to-use mod matrix (which of course includes other modulation sources such as the filter and volume envelopes, and the usual MIDI sources like modwheel, pitchwheel, velocity, and so on).

At this point our bass is basically done so the operative word here is "subtle", but we can add a bit more movement to make it really shine.

First off we'll be using LFO1 with a fade-in waveform ("/\/\/\ fade in") to modulate the DISTORTION DRIVE positively and the FILTER RESONANCE negatively. The fade-in waveform will leave the attack untouched while adding some interest to the sustained part of our bass. Now we'll program a variable pattern in the STEP LFO to modulate the FILTER CUTOFF, with a soft shape to avoid harshness.

Our patch is almost finished and this is the point where you can put the manual aside for a while and spend a few minutes tweaking, experimenting and basically enjoying your new synth...

10. Final details

... but wait, there's one more step: the sound is right and plays well, but the patch itself is somehow unfinished. So let's spend a couple of minutes putting the final touches on the patch for a professional job.

First off, our bass could benefit from a fast GLIDE setting, for example "BPM*4". Then the default PITCHWHEEL range of +/-2 semitones feels right but we could also assign the modwheel to a relevant parameter such as the FILTER CUTOFF: we'll use the mod matrix for that.

Last but not least, this is a somehow tight bass sound so we want it monophonic: simply go to the SETTINGS section and set VOICES to 1.

That's it, you have created your first GLADIATOR patch and now you just have to come up with a crazy name and save it for future use - congratulations!

Now that was easy - and the possibilities are endless! Hopefully this patch will be the first of a lot more to come. I mean, we haven't even talked about the very special and unique ARP section yet...

The GLADIATOR User Interface

Overview

The GLADIATOR user interface (“UI”) has been specifically designed to keep all the controls on a single screen – no more clicking between tabs or pages. Because of this the UI is larger than other VSTis' but once your patch is built you can switch off the EDITOR view (click the *EDITOR SIZE* button in *Settings*) leaving just the Rack UI.

NEW in V3: If you click the EDITOR SIZE button, you can switch through four different UI Sizes: Big Editor, Big Rack, Small Editor, Small Rack.

(The colour themed user interfaces are only available in Small Editor, Small Rack).

> Parameter setting changes are displayed in the *PARAMETER DISPLAY* section at the top-right of the UI. (Only in Editor view).

Rack View

The Rack View shows just the basic management functions of GLADIATOR – if you're just loading a patch, or browsing for inspiration, this is all you'll need.

The Rack UI – which is also visible at the top of the full UI - holds the following controls and function areas:

Browser

The browser allows loading, saving and general patch management functionality.

Category

The CATEGORY browser allows you to load banks and access Expansion Banks by Tone2 (more on that later).

Gladiator's internal banks will be displayed in categories for more convenience, like pads, basses, etc. Click on the Category drop-down display to access the different internal categorised banks of presets that ship with Gladiator.

New in V3: Below the category browser, you'll find a big button labelled “BROWSER”. This button opens a new browser window, similar to the patch browsers of the other Tone2 synthesizers. Through this window, you can easily access all installed preset banks and patches and you can rate your favourite patches with stars.

Patch

GLADIATOR comes with a huge selection of ready-made patches for you to choose from. To make it easier and more organised for you, the PATCH BROWSER SECTION allows you to select the various patches that are available.

Click the PATCH drop-down BUTTON to view a listing of the available PATCHES in the selected BANK (see section above). You can use the mouse to highlight each patch and left-click your mouse to choose and load the patch in question.

The LOAD button allows you to load a particular patch or bank into GLADIATOR using the common Windows file selector.

The SAVE button will allow you to save a patch or bank you have created or altered. Clicking this button brings up the save dialogue. Choose a location to save the patch or bank file.
New in V3: There is now an option to export the sound of OSC1 as an ICARUS compatible wavetable in wav format.

Click the COPY button to copy a patch. This is useful for organizing patches within a particular bank.

The PASTE button allows you to paste a copied patch into a new location within a bank.

The RANDOM button allows you to randomise most of GLADIATOR's controls, allowing for quick and exciting patch creation. This makes a great starting place for new presets.

WARNING: BE VERY CAREFUL USING THE RANDOM BUTTON!
The RANDOM button could result in unpredictable sounds. Make sure to insert a reliable BRICKWALL LIMITER after GLADIATOR to ensure that you don't blow your speakers - or even worse, your eardrums!

The RESET button, will return the current patch to its original state.

WARNING: Please note that all the edits you have made on the current patch will be lost if you press the RESET button. You might want to save edited patches before. (See the SAVE patch button in the above section).

Be also aware, that in STANDALONE, all patches will revert to their original state if you exit GLADIATOR. To open an edited patch or bank, you have to save them first and reopen them the next time you use GLADIATOR. If you use a host program, the host should remember the last settings of GLADIATOR and open the patch you used in your project with the correct settings.

The INIT button will reset the current loaded patch to a default state (i.e. Sawtooth Wave in OSC1, no filter, etc.).

The RENAME button allows you to rename a patch. Once pressed, click in the PATCH drop-down button to rename the patch in question. (Remember to save the patch, or the bank after renaming!)

Settings

The SETTINGS section holds all the global parameters.

In this section, you can set various control parameters.

The first thing you will notice in this section is the MASTER VOLUME knob. Rotate this knob anti-clockwise to lower the global volume and clockwise to raise the global volume.

Beneath the volume knob is a HELP button. Click this to load the GLADIATOR help files, download updates, buy more sounds or watch video tutorials. This is also the place, where you can check your version number. To the right of the volume knob is the VOICES drop-down button. Click this button to choose the number of voices (1-256) GLADIATOR will be using at once. This directly affects the CPU usage of your computer. If your music is complex or has many chords, you may want to lower the number of voices.

Below that is the QUALITY drop-down button. Click this button to choose the quality level of GLADIATOR (high-end, very high, medium or linear). The QUALITY button affects the rendering and playback quality level. Lower quality decreases CPU usage, but affects the overall quality of the sound. Better quality uses more CPU processing, but greatly enhances the sound of GLADIATOR!

The MICROTUNING drop-down button lets you choose the type of microtuning GLADIATOR will be using. Choose from LIVELY CHORDS, SILKY CHORDS or JUST INTONATION.

Below MICROTUNING is the EDITOR SIZE button. If you click the EDITOR SIZE button, you can switch through four different UI Sizes: Big Editor, Big Rack, Small Editor, Small Rack.

Next to that is the FX MIX button, where you can change the overall level of GLADIATORs effect section.

Expansion

The EXPANSION button provides a convenient way to find the latest and greatest goodies available for GLADIATOR from Tone2. Simply click it to be catapulted to the Tone2 website, and more specifically, the expansion URL.

Parameter

NEW in V3: To provide better screen space management, the PARAMETER DISPLAY is now only visible in the EDITOR views, not in the RACK views anymore.

This very important section provides you with instant feedback for nearly every control and parameter in GLADIATOR! Just hover your mouse over a control to read more about it. When you rotate a dial or click a button, the results will be displayed here. Clicking on the PARAMETER DISPLAY window won’t do anything, but you need to be aware of this section so that you can view the parameter value feedback in realtime, useful for making exact numerical changes to many controls.

Editor View

The EDITOR view is enabled by clicking the EDITOR SIZE button in the SETTINGS section. (If you click the EDITOR SIZE button, you can switch through four different UI Sizes: Big Editor, Big Rack, Small Editor, Small Rack.)

The EDITOR view shows all the available GLADIATOR parameters on a single screen. Each section and its elements are discussed in detail on the following pages.

OSC1 + OSC2, OSC3 + OSC4

The oscillator sections provide the sound generation foundation of GLADIATOR.

This is where you can get the basic timbre of the sound which can be spectrally modified, and the playback of the harmonic content can be controlled through Harmonic Content Morphing (HCM).

GLADIATOR's morph-tables allow the harmonics of an oscillator to change over time.

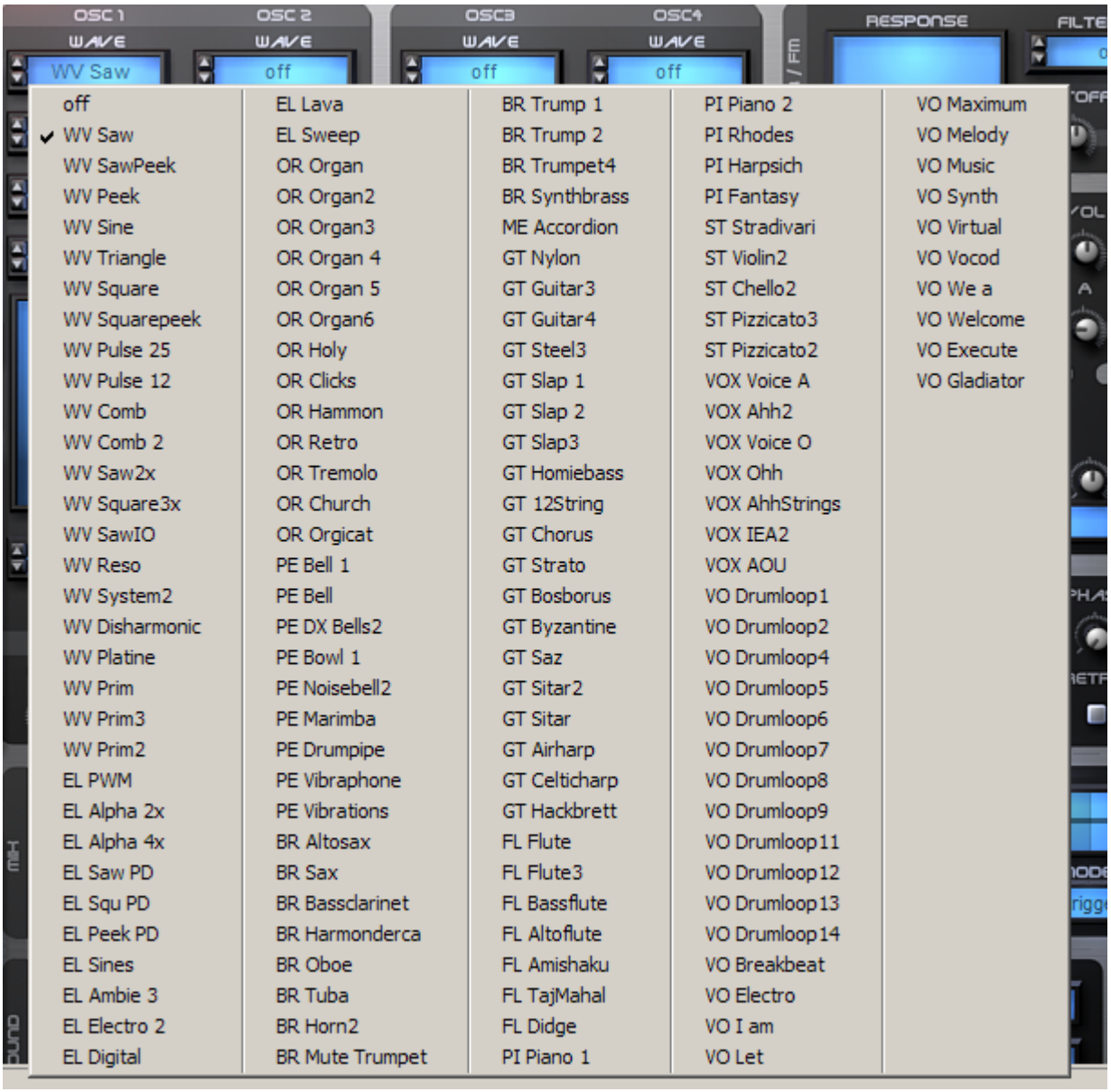
GLADIATOR has five OSCILLATORS (OSC1 + OSC2, OSC3 + OSC4 and OSC5). The first four oscillators are grouped in twos (OSC1 + OSC2 in the first and OSC3 + OSC4 in the second).

GLADIATOR can use as many as 18 oscillators per voice. it works like this:

4x unison * (OSC1+OSC2)	8
4x unison * (OSC3+OSC4)	8
2x unison * (OSC5)	2
8+8+2	18 voices

Click the WAVE drop-down button on any of the 5 oscillator sections (OSC1, OSC2, OSC3, OSC4 and OSC5) to choose a waveform (morph-table) to load into a particular oscillator section. This is the equivalent of choosing a waveform in a traditional subtractive synthesiser, but GLADIATOR stores 256 waveforms (snapshots) for each morph-table. Choosing the OFF choice means no wavetable is used in the oscillator section.

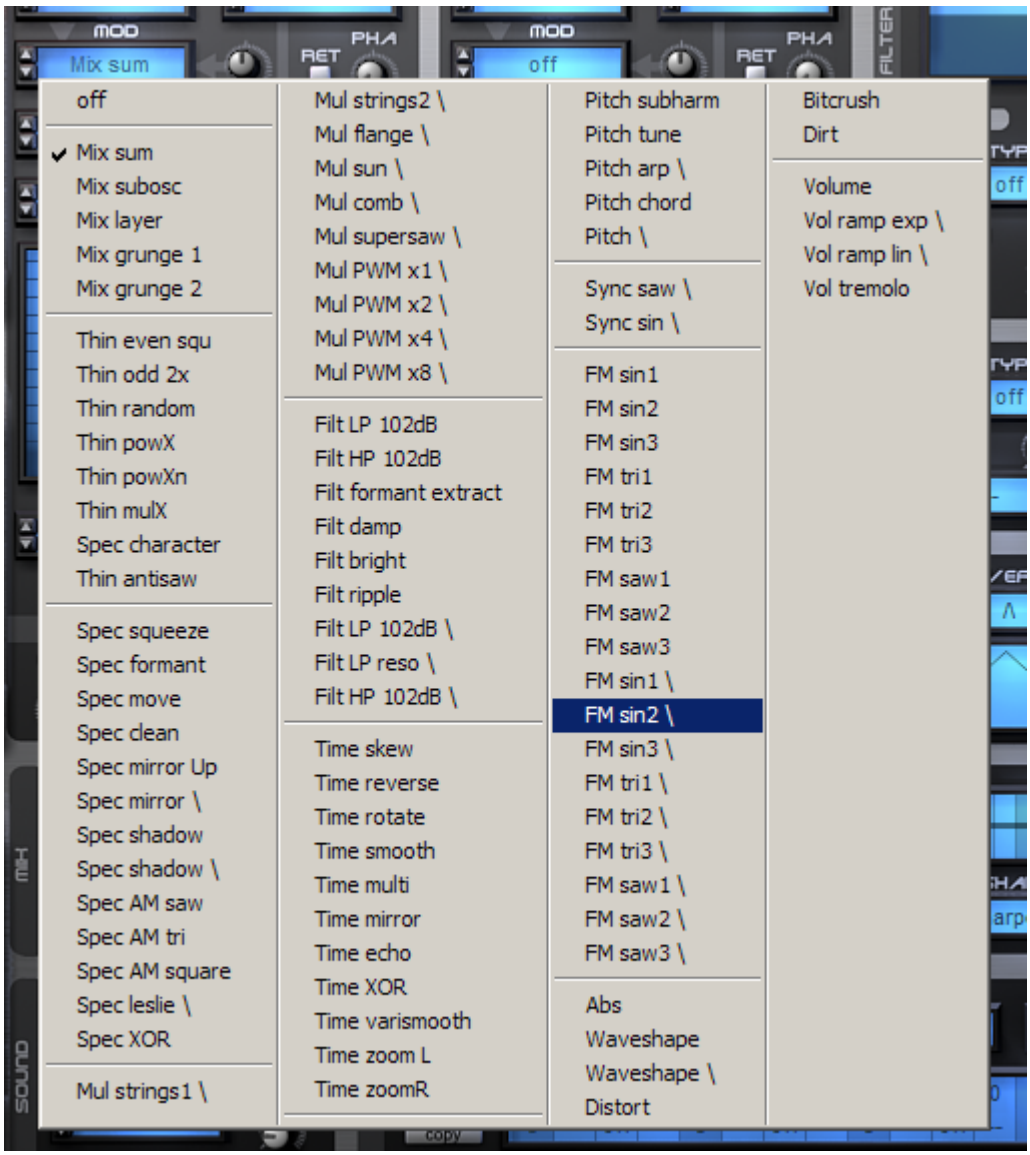
The following image shows the various morph-table choices you have:



Click the MOD drop-down button to choose a modifier to affect the particular oscillator section. The modifier alters the harmonics of the sound. There are two MOD drop-down buttons for OSC1 and two for OSC3.

There is also a MOD drop-down button that affects both OSC1 and OSC2, as well as another MOD drop-down button that affects both OSC3 and OSC4. There are also knobs you can rotate to dial-in how much of the modifiers will affect the oscillators. As usual, anti-clockwise equals less and clockwise equals more.

The following modifiers are available in the MOD drop-down selectors:



off	no modifier is used in this oscillator.
Mix sum	mix the signal with one that is tuned several octaves up. Mod controls the number of octaves.
Mix subosc	Pitch signal 1 octave up and mix a subosc. Mod controls the gain of the subosc.
Mix layer	Mix with a layer-sound (several stacked octaves). Mod controls the harmonics. Gives an organ like sound.
Mix grunge1	Play the waveform once and then twice with one octave pitched up. This gives a grungy sound like Casio CZ. Mod controls the harmonics.
Mix grunge2	Same as above just with 2 octaves up.

Thin even squ	Removes even harmonics. Mod controls the mix amount. Gives a square wave like sound.
Thin odd 2x	Same as above with odd harmonics. Gives a sawtooth like sound.
Thin random	Removes random harmonics. Gives a disharmonic sound. Mod controls the harmonics.
Thin powX	Removes all harmonics except the base frequencies of stacked octaves. Gives an organ like sound. Mod controls the harmonics.
Thin powXn	Gives a bell-like sound. Mod controls the harmonics.
Thin mulX	Removes all not-multiple harmonics of the base frequency. Gives a square wave like sound. Mod controls the harmonics.
Spec character	Emphasises the character of a sound. Removes harsh sounding harmonics. Mod controls the spectral content.
Thin antisaw	Emphasises the character of a sound. Removes sawtooth-like harmonics. Mod controls the amount.
Spec squeeze	Stretches and squeezes the spectrum. Mod controls the stretch factor. Makes the sound darker or brighter.
Spec formant	Stretches and squeezes the formants of a spectrum. Mod controls the stretch factor. Makes the sound darker or brighter. Use this to correct the chipmunk effect of voice sounds.
Spec move	Shifts the spectrum up or down. Gives a harsh or dull sound. Mod controls the offset.
Spec clean	Removes dirt and cleans the spectrum. Gives a more static and harmonic sound. Mod controls the amount of cleaning.
Spec mirror Up	Mirrors the spectrum on the base frequency. Gives a sharp sound. Mod controls the offset.
**Spec mirror **	Mirrors the spectrum on the base frequency and ramps the offset. Gives a sharp sound. Mod controls the offset.

Spec shadow	Make several offset-shifted copies of the spectrum (like an echo in spectrum). Emphasises certain harmonics. Results in an aggressive sounding overtone spectrum of the sound. Mod controls the offset.
**Spec shadow **	Same as above with ramping.
Spec AM saw	Amplitude modulate with a sawtooth wave. Mod controls the frequency of the saw.
Spec AM tri	Amplitude modulate with a triangle wave. Mod controls the frequency.
Spec AM square	Amplitude modulate with a square wave. Mod controls the frequency.
**Spec leslie **	Damps certain frequencies while others are emphasised. Mod controls the slope. Gives a "Leslie wheel"like effect.
Spec XOR	Swaps certain harmonics. Mod controls which ones are swapped. Completely changes the sound.
**Mul strings1 **	One oscillator sounds like several ones. Should be used together with morphmode /\/\/\. Gives a string-like or supersaw-like sound. Mod controls the density.
**Mul strings2 **	Same as above, but sound more flanger-like. Mod controls the density.
**Mul flange **	Same as above, but sound even more flanger-like. Mod controls the density.
**Mul sun **	One oscillator sounds like several ones. Should be used together with morphmode /\/\/\. Gives a unique string-like sound. Mod controls the density.
**Mul comb **	Same as above, but with different character. Mod controls the density.
**Mul supersaw **	One oscillator sounds like several ones. Should be used together with morphmode /\/\/\. Gives a metallic, noisy supersaw-like sound. Mod controls the density.
**Mul PWM x1 **	Pulsewidth modulation. Use this one with squarewaves or other waveforms with odd harmonics. Should be used together with morphmode /\/\/\. Mod controls

	the amount of PWM.
**Mul PWM x2 **	Pulsewidth modulation with one octave shifted modulator. Use this one with sawtooths or other waveforms with even harmonics. Should be used together with morphmode /\/\/\. Mod controls the amount of PWM.
**Mul PWM x4 **	Pulsewidth modulation with one 2octaves shifted modulator. Unique sound. Should be used together with morphmode /\/\/\. Mod controls the amount of PWM.
**Mul PWM x8 **	Pulsewidth modulation with one 3octaves shifted modulator. Unique sound. Should be used together with morphmode /\/\/\. Mod controls the amount of PWM.
Filt LP 102db	102 db lowpass filter. Mod controls cutoff
Filt HP 102db	102 db highpass filter. Mod controls cutoff
Filt formant extract	Extracts the formants of a signal. Sounds like a sawtooth or vocoder. Use this one for speech processing. Mod controls the smoothness.
Filt damp	Damps high frequencies. Make signal sound darker. Mod controls damp factor.
Filt bright	Makes the sound more bright. Emphasises high frequencies.
Filt ripple	Damps repeating harmonics. Adds formants to a signal. Mod controls the formant frequencies.
**Filt LP 102db **	102 db lowpass with filter envelope. Mod controls cutoff.
Filt LP reso	102 db lowpass with resonance. Mod controls cutoff.
Filt HP 102db	102 db highpass filter. Mod controls cutoff
Time skew	Rotates spectrum in time. Mod controls the skew factor. Gives a windspiel like sound.
Time reverse	Reverse signal.

Time rotate	Makes signal symmetric (in time) and rotates signal in time.
Time smooth	Make sound more static. Smooths dirt. Mod controls smoothness factor.
Time multi	Multiple copies in time. Mod controls the number of copies.
Time mirror	Multiple mirrored copies.
Time echo	Adds an echo to the sound. Mod controls delay time.
Time XOR	Completely Swaps signal in time.
Time varismooth	Signal on the left remains noisy, but signal on the right is smoothed.
Time zoom L	Zoom in time. Left border remains. Mod controls zoom factor.
Time zoom R	Zoom in time. Right border remains. Mod controls zoom factor.
Pitch subharm	Add subharmonics to a signal. Mod controls the frequency.
Pitch tune	Harmonic tuning signal (2x,3x,4x,5x,...) . Mod controls the frequency.
**Pitch arp **	Apply Arpeggiator on sound. Mod selects the type. Gives an old-computer game-like sound.
Pitch chord	Create a chord. Mod selects the type.
**Pitch **	Harmonic tuning signal (2x,3x,4x,5x,...) with envelope. Mod controls the frequency. Gives an old-computer game-like sound.
**Sync saw **	Oscillator synchronization with a sawtooth and envelope. Mod controls the frequency.
**Sync sin **	Oscillator synchronization with a sine wave and envelope. Mod controls the frequency.
FM sin1	FM modulate with a sine wave. Mod controls the amount.

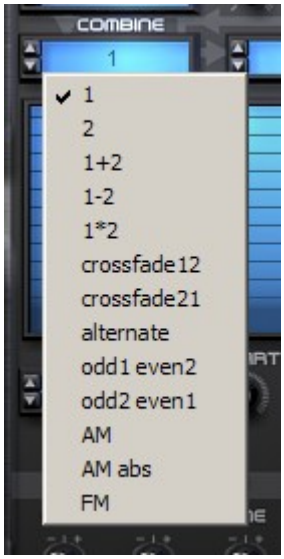
FM sin2	FM modulate with a sine wave with double frequency. Mod controls the amount.
FM sin3	FM modulate with a sine wave with triple frequency. Mod controls the amount.
FM tri1	FM modulate with a triangle wave. Mod controls the amount.
FM tri2	FM modulate with a triangle wave with double frequency. Mod controls the amount.
FM tri3	FM modulate with a triangle wave with triple frequency. Mod controls the amount.
FM saw1	FM modulate with a sawtooth wave. Mod controls the amount.
FM saw2	FM modulate with a sawtooth wave with double frequency. Mod controls the amount.
FM saw3	FM modulate with a sawtooth wave with triple frequency. Mod controls the amount.
**FM sin1 **	FM modulate with a sine wave and envelope. Mod controls the envelope send amount.
**FM sin2 **	FM modulate with a sine wave with double frequency and envelope. Mod controls the envelope send amount.
**FM sin3 **	FM modulate with a sine wave with triple frequency and envelope. Mod controls the envelope send amount.
**FM tri1 **	FM modulate with a triangle wave and envelope. Mod controls the envelope send amount.
**FM tri2 **	FM modulate with a triangle wave with double frequency and envelope. Mod controls the envelope send amount.
**FM tri3 **	FM modulate with a triangle wave with triple frequency and envelope. Mod controls the envelope send amount.
**FM saw1 **	FM modulate with a sawtooth wave and envelope. Mod controls the envelope send amount.

**FM saw2 **	FM modulate with a sawtooth wave with double frequency and envelope. Mod controls the envelope send amount.
**FM saw3 **	FM modulate with a sawtooth wave with triple frequency and envelope. Mod controls the envelope send amount.
Abs	Waveshaping. Mirrors waveform in amplitude and adds harmonics.
Waveshape	A Waveshaper applied. Mod controls the drive amount. Adds harmonics.
**Waveshape **	Waveshaper with envelope. Mod controls the drive amount. Adds harmonics.
Distort	Distort signal. Mod controls drive amount. Adds harmonics.
Bitcrush	Bitcrush signal. Mod controls the bitdepth. Adds harmonics. Gives a digital lo-fi sound.
Dirt	Add dirt to the spectrum. Mod controls the amount of dirt.
Volume	Increase decrease volume.
**Vol ramp exp **	Apply exponential volume envelope to signal. Mod controls decay time.
**Vol ramp lin **	Apply linear volume envelope to signal.
Vol tremolo	Add tremolo effect to signal. Mod controls frequency.
Time Delay	Delays the spectrum and shifts it to the right.
Pitch Harmonizer	Adds additional harmonics.
Pitch Octaver	Adds harmonics that are one octave higher.

One other control in the upper oscillator section is the RET - or continued osc retrigger - ON/OFF button. Click it once to enable retrigger (it will light up) and click it again to disable retrigger on oscillators 1 and 2.

The last control in the upper oscillator section is the PHASE knob. Dial it anti-clockwise for less phase and clockwise for more phase.

Below the mod drop-down buttons is the COMBINE drop-down button.



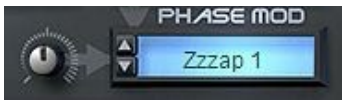
The following COMBINE options are available:

1	Use first OSC only
2	Use second OSC only
1+2	Mix first and second OSC
1-2	Subtract second OSC from first OSC (difference)
1*2	Multiply first and second OSC
crossfade12	Crossfade from first to second OSC. This is in effect a cross-fade between the two waveforms like it is done in Waldorf Q or other wavetable synths.
crossfade21	Crossfade from second to first OSC. This is in effect a cross-fade between the two waveforms like it is done in Waldorf Q or other wavetable synths.
alternate	First play OSC1 then play OSC2. Gives a grungy sound which is known from the phase distortion synthesis of the Casio CZ synths.
odd1 even2	Mixes the odd harmonics of the first OSC and the even harmonics of the second OSC.
odd2 even1	Mixes the even harmonics of the first OSC and the odd harmonics of the second OSC.
AM	Amplitude modulation of first and second OSC.

AM abs	Amplitude modulation of first and second OSC. Sounds richer.
FM	Frequency Modulation: The pitch or frequency of the second OSC (carrier) is modulated by the first OSC (modulator). Use "Vol ramp lin" for "Modifier A", "Pitch tune" for "Modifier B" and "WV" as "OSC Wave" for classic FM synthesis.

Next to COMBINE, you'll find another MOD drop-down button that affects both OSC1 and OSC2.

The last drop-down button is PHASE MOD.



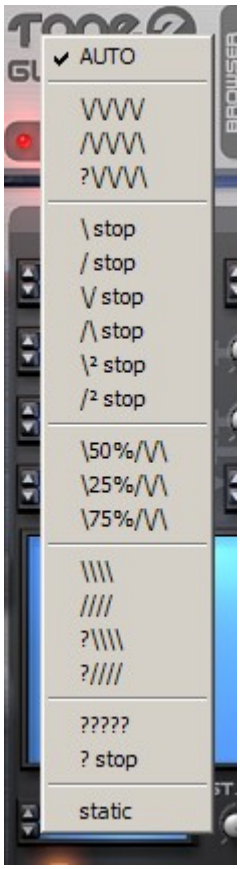
PHASE MOD adds Phase Modulation to the spectrum. The button affects the strength of the applied effect. Faster morphing detunes the sound more than slower morphing.

The following PHASE MOD types are available:

Noise	Different kinds of noise.
Multi	Unison like effect.
Fuzzy	Changes the phase position of single harmonics.
Odd/Even	Changes the phase position of single harmonics.
Vibrato	Cyclical detuning of the oscillators.
Static smear	Creates a noisy sound.
PWM	Phase progression of a pulsewidth modulation.
Phase shift	Shifts the phase.
Zzzap	Laserlike sound.
Boing	Blubbery sound.
Odd/Even noise	Odd or even harmonics get changed.
Odd/Even 90	Odd or even harmonics get shifted by 90 degrees.

The large blue rectangle in the middle of the oscillator section is the WAVEFORM DISPLAY. This shows the actual waveform in real-time as it is affected by the various controls.

Below you'll find the MORPHMODE drop-down button.



MORPHMODE allows you to choose the various morph types to affect the oscillator waveforms. The MORPHMODE function affects how the oscillator waveform changes (morphs) over time. The MORPHMODE can be changed by clicking on the blue box under the MORPHMODE title and then selecting from the drop-down menu.

AUTO

This mode attempts to select the best MORPHMODE based on the selected waveform and modifiers. However, due to the vast number of possibilities available, it does not always produce expected results, which may be a good thing if you are after inspiration for a new sound. If you know what type of sound you want it's probably better to select your MORPHMODE manually.

VVVV

This MORPHMODE morphs through the waveform forwards from the beginning (or the point set by the START knob, if set differently) to the end, then backwards from the end to the beginning of the waveform, forwards and backwards. Imagine a clock

pendulum swinging from left to right to left....etc. This mode is useful for a smooth, evolving sound without any sudden changes.

/VVV

This MORPHMODE does the opposite. It morphs through the waveform backwards from the end (or the point set by the START knob) to the beginning, then forwards to the end, etc. This mode is useful for a smooth, evolving sound without any sudden changes.

?VVV

This MORPHMODE starts from a random position in the waveform and morphs forward to the end of the waveform and then backward from the end to the random start position. This is a good choice if you need a sound with a variable attack but a consistent sustain. Note that because the start point is determined randomly, the START knob does not have any effect.

\stop

This MORPHMODE plays through the waveform once, from beginning (or the point set by the START knob) to end and then stops. This is very similar to a sampler's 'one-shot' mode except that the oscillator will continue to play the frame at the end of the waveform.

/stop

This plays through the waveform once, from the end (or the point set by the START knob) to the beginning and then stop and continue to play the wave at the beginning of the waveform.

V stop

This starts from the beginning (or the point set by the START knob) to the end of the waveform and then back to the beginning. Once it has reached the beginning it stops and continuously plays the frame at the beginning of the waveform.

/\ stop

This MORPHMODE starts from the end of the waveform (or the point set by the START knob) and then plays to the beginning and then back to the end. Once it has reached the end it stops and continuously plays the frame at the end of the waveform.

\₂ stop

This mode is the same as \STOP but uses a quadratic slope. This morphs through the waveform quickly, then slows down. This mode is recommended if you want a fast change during the attack cycle of a sound for added 'punch'.

/2 stop	This mode is the same as /STOP but uses a quadratic slope so it morphs through the waveform quickly, then slows down for a more animated sound during the attack cycle.
\50%/\/	This MORPHMODE starts from the beginning of the waveform (or the point set by the START knob) and morphs to the end. At the end of the waveform it morphs back to 50% (halfway) from the END of the waveform and then back to the end. It will continue looping from the end, to halfway, to the end again.
\25%/\/	This mode starts from the beginning of the waveform (or the point set by the START knob) and morphs to the end. At the end of the waveform it morphs back to 25% (quarter) from the END of the waveform and then back to the end. It will continue looping between these two points. The looping in this mode sounds faster than \50%/\/\ .
\75%/\/	This MORPHMODE starts from the beginning of the waveform (or the point set by the START knob) and morphs to the end. At the end of the waveform it morphs back to 75% (three quarters) from the END of the waveform and then back to the end. It will continue looping between these two points. The looping in this mode sounds slower than \50%/\/\ .
****	This mode plays the waveform from the beginning (or the point set by the START knob) , morphing from beginning to end in a continuous forward loop. This mode is similar to standard looping on a sampler.
////	This mode plays the waveform from the end (or the point set by the START knob), morphing from the end to the beginning in a continuous reverse loop. This is similar to reverse looping on a sampler.
?	This MORPHMODE starts from a random point every time it receives a MIDI note-on message. It will morph forwards from this random point to the end and then jump back to the beginning of the waveform. From here it will behave like the \\\\ MORPHMODE – loop from the beginning to the end continuously. This mode is useful if you want a different attack phase every time you play a note but a consistent sound once you hold the note down.

Note that because the start point is determined randomly, the START knob does not have any effect.

?//// This starts from a random point every time it receives a MIDI note-on message. It will then morph backwards from this random point to the beginning and then jump back to the end of the waveform. It will then behave like the //// MORPHMODE – loop from the end to the beginning of the waveform continuously. This mode is handy if you want a different attack phase every time you play a note but a consistent sound once you hold the note down.

Note that because the start point is determined randomly, the START knob does not have any effect.

????? This mode continuously jumps to a random point of the waveform at a speed set by the SPEED knob in the oscillator section. This MORPHMODE sounds similar to an analogue LFO 'sample & hold' effect. Note that because the start point is determined randomly, the START knob does not have any effect.

? stop This MORPHMODE plays from a random position every time GLADIATOR receives a MIDI note-on message. There is no morphing in this mode so the sound is static. This mode is useful if you want a different 'colour' to the sound every time you play a key but want it to remain consistent for the length of the note.

Note that because the start point is determined randomly, the START knob does not have any effect.

Static This mode plays from a static point determined by the START knob. There is no morphing in this mode. This mode is useful if you have a complex waveform but only need a 'snapshot' from that waveform for your sound.

Noise This mode jumps to a random section.

\/50% This mode ping-pong-loops 50% of the spectrum.

\/25% This mode ping-pong-loops 25% of the spectrum.

The START knob affects the behaviour of most of the MORPHMODEs. Simply, the START knob sets what point in the waveform the morph begins when GLADIATOR receives a

MIDI note-on message. The START knob value has no other effect after the initial note-on and does not control any morphmode loop points.

The START knob can also override the affect of certain MORPHMODEs, most noticeably the / STOP, /2 STOP, \ STOP and \2 STOP modes. For example, if the morphmode is set to \ STOP (play from the beginning of the waveform to the end and then stop) and the position set by the START knob is set to the end of the waveform, a static (non-moving) sound is heard because the waveform cannot morph any further forward. Similarly, if the MORPHMODE is set to / STOP (play from the end of the waveform to the beginning and then stop) and the position set by the START knob is set to the beginning of the waveform, no morphing will be heard. This is important to keep in mind when you are exploring the different morphmodes. If the morphmode does not behave as you expect, check the position of the START knob first.

The SPEED knob controls the speed at which the MORPHMODE envelope is played. Turn the knob to the right to increase speed, turn it to the left to decrease speed. If the BPM SYNC BUTTON is is ON (lit), the speed is locked to an external clock (sent by your DAW or other host) and the SPEED knob will then change the MORPHMODE speed in multiples or divisions of your host's clock speed.

The KEY FOLLOW knob allows you to adjust the cycling speed of the loop. The higher the note, the faster the cycling speed.

The BPM SYNC button tells GLADIATOR to sync to the host application’s beats per minute (BPM) when ON, and to ignore it when OFF.

The last area of each oscillator section is the PITCH CONTROLS. These are made up of four rotating knobs, these are:

OCT Allows you to adjust the OCTAVE of the oscillator, from 3 octaves below to 3 octaves above.

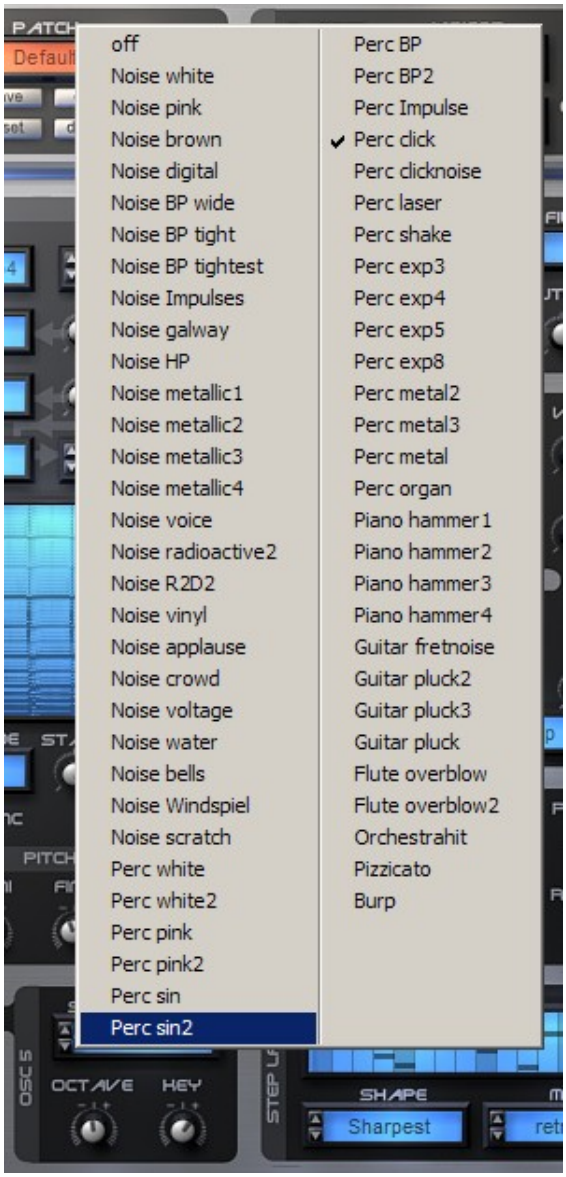
SEMI Allows you to adjust the SEMITONE of the oscillator, from 11 semitones below to 11 semitones above.

FINE Allows you to adjust the FINE TUNING of the pitch of the oscillator, from 50 cents below to 50 cents above.

Finally, the **FORMANT SCALE** knob allows you to adjust the FORMANT of the oscillator from 0.0000 to 1.0000 and all the fractions in between.

OSC5

Last but not least, GLADIATOR offers a fifth oscillator which is very different from the others: it's an independent sample/noise player designed to layer attack hits or background noises, along with the four main oscillators for a richer, more expressive overall sound.



The SAMPLE/NOISE drop-down button allows you to select the specific sampled

waveform to be layered. The waves available here are completely different from the ones available for the main oscillators, as they are not morph-tables but static samples.

A wide range of samples from different sources is provided, from sustained non-chromatic sounds to short percussive hits, through instrument-specific noises, both natural and synthesised, suitable to add some attack, oomph, body and colour to your patches.

The OCTAVE knob allows you to select the pitch octave at which the sample will be played back, with a range of 6 octaves to choose from: 3 up for the positive values and 3 down for the negative values.

The SEMI knob allows you to fine tune the sample within a range of -11 to +11 semitones.

The FINE knob allows you even more fine tuning from -50 to +50 cent.

The KEY knob allows you to associate positive or negative key tracking to the sample playback. With positive values, the higher the key or note played, the higher OSC5's sample pitch will be. With negative values the opposite occurs.

With the START knob, you can define the position where the sample starts when it gets a noteOn command.

The RET button retriggers the phase of OSC5 with noteOn.

Finally the LOOP button switches between one shot and loop mode. The default state is off, meaning the sample is played only once when you hit a key.

Mix

As previously seen, GLADIATOR offers up to 5 different oscillators with different purposes and characteristics which together represent the sound generation of the synth. The mixer section serves the crucial function of consolidating all oscillator signals into a single one to be passed onto the sound processing stages such as the filter, effects, etc.

For this purpose the mixer offers VOLUME and PAN knobs and a MUTE button for each of the following:

OSC1/2 The signal coming from the OSC1 and OSC2 HCM oscillator pair.

AM The amount of Amplitude Modulation desired between the OSC1/2 and OSC3/4 signals.

OSC3/4 The signal coming from the OSC3 and OSC4 HCM oscillator pair.

OSC5 The signal coming from the OSC5 sample/noise player.

The VOLUME knobs regulate the volume of each part relative to the others for a tighter control over the mixed sound, while the MUTE buttons allow you to mute/unmute each part independently which is very useful during sound design. With the PAN knobs, you can define the position of the different OSC groups in the stereo field.

Sound

Before the signal that is coming out of the mixer goes down the signal path into the filter and beyond, GLADIATOR still has a couple of tricks up its sleeve: UNISON and SPIRIT. These 2 functions are included together within the section labelled "SOUND" as they both act over the full signal and serve different but related purposes.

UNISON is the layering of multiple copies of the signal produced by the oscillators with tiny (or not so) differences in pitch and stereo placement, for a fuller and "fatter" sound. This functionality can be found in a myriad of synthesisers both hardware and software, but GLADIATOR's own UNISON sounds particularly good. It only needs 2 controls.

The UNISON MODE drop-down button allows you to select the number of “copies” of the incoming signal and their stereo placement. The available options are:

1x mono	A single copy of the signal, pan-centred (this is the default setting).
OSC12left OSC34right	A single copy of the signal, with the OSC1/2 layer panned left and the Osc3/4 layer panned right for a stereo effect
2x mono	2 copies of the signal, slightly detuned and pan-centered.
2x stereo	2 copies of the signal, slightly detuned and spread across the stereo field.
4x mono	4 copies of the signal, slightly detuned and pan-centered.
4x stereo	4 copies of the signal, slightly detuned and spread across the stereo field.
4x mono oct	4 copies of the signal, stacked over 2 octaves and mixed with the mono signal.
4x stereo oct	4 copies of the signal, stacked over 2 octaves and spread across the stereo field.
4x mono stack	4 copies of the signal, stacked over 4 octaves and mixed with the mono signal.
4x stereo stack	4 copies of the signal, stacked over 4 octaves and spread across the stereo field.
4x mono stack2	4 copies of the signal, stacked over 4 octaves and mixed with the mono signal.
4x stereo stack2	4 copies of the signal, stacked over 4 octaves and spread across the stereo field.

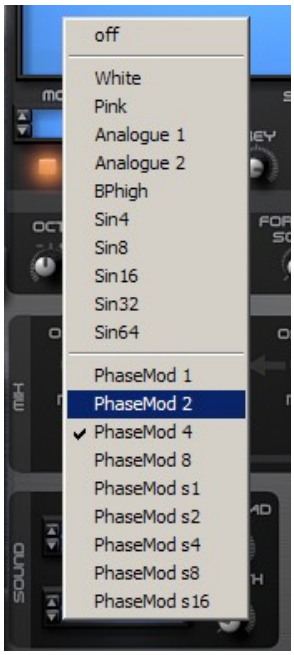
The SPREAD knob allows you to select the amount of detuning and pan spread to be applied to the different copies of the signal. Obviously more depth means that the copies will be more detuned and more separated from each other in the stereo field.

SPIRIT on the other hand, is a proprietary Tone2 technology that allows you to modulate the pitch and/or phase of the signal coming from the mixer in different and interesting ways. This feature is designed to introduce imperfections and irregularities in the pitch and/or phase such as the ones generated by analogue hardware equipment, for a more organic sound. Just like UNISON, it only requires a couple of controls.

The SPIRIT MODE drop-down button allows you to select the type of pitch/phase modulation to be applied to the signal.

The DEPTH knob allows you to choose the amount of modulation to be applied. Low values will have a subtle effect on the signal while high values will have a more extreme

effect.



> Note that the SPIRIT DEPTH can be modulated by using the MODULATION MATRIX. Refer to the MODULATION MATRIX section fur further information.

Filter/FM

GLADIATOR comes with an excellent selection of filters for you to shape and alter the timbre of your patch. The following explains the different controls in this section:

FILTER RESPONSE curve window: this window shows the real time shaping of the filter as you alter the CUTOFF and RESO parameters. The horizontal axis show frequencies from lowest to highest, while the vertical axis represents the gain. This really innovative feature from GLADIATOR gives you immediate visual feedback on your actions and helps you to learn about the specificities of each of GLADIATOR's first class and versatile filters.

The FILTER TYPE drop-down button is used to choose from the extensive range of available FILTER TYPEs:

While there are many different FILTER TYPEs, most are variations on the four main filter types, lowpass, highpass, bandpass and notch.

A lowpass filter allows low frequencies to be heard, but blocks the higher frequencies. It is often used for isolating bass sounds.

A highpass filter allows high frequencies to be heard, but blocks the lower frequencies. It is used to create hi-pitched whistle sounds, and piercing synthesizer leads.

A bandpass filter allows the frequencies within a specific range to be heard, and blocks out all the other frequencies above and below it. It can be used to create a variety of effects, from subtle to insane!

In addition to the above filters, you will also find these other filter types: BR (Band Reject), Equalization, Frequency Modulation, Amplitude Modulation, Vocal, Phaser, Comb, M-Shape and Resample.

FILTER ENVELOPE CONTROLS

The FILTER envelope controls (ADSFR) determine how the FILTER is affected by the envelope. Adjust these parameters to make the FILTER CUTOFF change over time.

A (Filter Attack) Controls the attack time of the filter envelope. If you want the filter cutoff to be immediate, use a short filter attack time. !If you want the cutoff to fade in, use a longer attack time.

D (Filter Decay) Controls the initial filter decay time (i.e. the time it takes the filter cutoff to return to the set “cutoff” value).

S (Filter Sustain) Sets the volume that the sound reaches after the decay phase.

F (Filter Fade) Sets the amount of time it takes the sound to fade from sustain to release.

R (Filter Release) Sets the amount of time the sound takes to go from sustain volume to zero volume, after the decay phase. Increase the release time for long sounds like pads and strings.

With the **SHAPE** knob you can bend the whole FILTER ENVELOPE and give the sound more punch.

Underneath the FILTER envelope are the rest of the FILTER/FM CONTROLS:

Filter/FM Controls

The CUTOFF knob allows you to adjust the cutoff of the filter. CUTOFF is used to set the frequency at which the filter’s behaviour changes, relative to the FILTER TYPE. In a lowpass filter, the cutoff will set the frequency at which the filter begins to ‘close’ and allow less and less of the higher frequencies through. When the frequencies are high enough past the cutoff point, no more sound will be allowed through the filter.

In a highpass filter, the opposite applies – the cutoff sets the frequency point at which the filter begins to reject sounds that are lower than the cutoff point. Sounds far enough below the cutoff point will not be let through the filter at all. In a bandpass or notch filter, the cutoff value acts a little differently – it sets the centre point of the ‘band’ or ‘notch’, which will taper off as the frequencies move away from the cutoff point, both in higher or lower

frequencies.

The RESO knob allows you to adjust the resonance. Understanding how the CUTOFF function works is essential to understanding resonance. In essence, resonance controls the steepness of the ‘slope’ around the cutoff point. A very steep slope would filter more frequencies sooner, relative to the sound moving away from the cutoff point. In comparison, a very soft slope would have the filtering applied more subtly, and require a farther frequency from the cutoff point to achieve complete signal attenuation.

Steep filter response slopes are referred to as having a higher resonance value, or sometimes a higher ‘Q’ (which refers to ‘quality’ – a steeper curve is a higher quality filter because it is more precise). The slope of a filter’s response curve is often measures in dB/Oct, or ‘Decibels per Octave’. Values may look like 18dB/Oct, 30dB/Oct, etc. Using 18dB/Oct as an example, this means that a frequency an octave away from the cutoff point would be attenuated by 18 decibels relative to the full signal. The higher the resonance or ‘Q’ of the filter, the higher the number in the dB/Oct measurement will be.

High resonance values will actually add a boost to the frequencies at the cutoff point, and are useful when you want to really focus on a very precise part of a sound, or generate intense, cutting tones. Low resonance values are better suited to subtle and less precise ‘smoothing’ and shaping of your sounds.

The STEREO knob will allow you to adjust the amount of stereo separation of the filter effect. Positive values (+) will amplify the effect, while negative values (-) will decrease the effect.

The KEY knob allows you to adjust the effect that notes playing will have on the cutoff of the filter. Positive “key” knob values will cause the cutoff to increase when higher keys are played, while negative knob values will cause the cutoff to decrease.

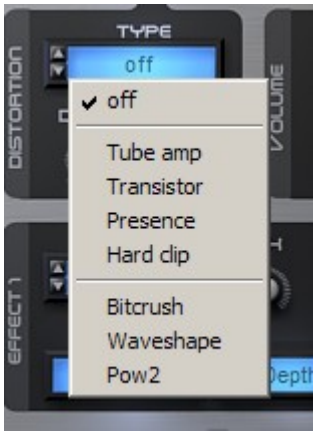
The VEL knob: This bipolar parameter adjusts how much velocity will affect the filter envelope. Positive values will increase the cutoff value according to the filter envelope settings, while negative values will invert the envelope, thus mirroring cutoff parameter values according to envelope values.

The SEND knob: This bipolar parameter Controls the amount of modulation of the envelope filter. Positive values (from 12 O'clock to full clockwise) will increase cutoff values according to the Filter envelope values. Negative values will inverse the envelope, thus mirroring cutoff values according to the filter's envelope settings.

Distortion

GLADIATOR contains a full-featured DISTORTION effects processor, capable of fat, grungy and timbre-mangling goodness!

The TYPE drop-down button allows you to choose from the various distortion effect types.



The following DISTORTION types are available:

off	No effect.
Tube amp	Valve amp simulation with soft saturation and oversampling. Gives a square wave-like sound on high drive values.
Transistor	Transistor amp simulation with asymmetric saturation and oversampling. Gives a sawtooth-like sound on high drive values.
Presence	Valve amp simulation with soft saturation, presence and oversampling. Gives a Guitar-amp-like sound.
Hard clip	Digital clipping with oversampling. Gives a digital and aggressive sound.
Bitcrush	Digital lo-fi effect (Bitcrusher) with oversampling. Has a very digital sound.

Waveshape	With waveshaping synthesis, it is possible to change the spectrum with the amplitude of the sound. Since this is also a characteristic of acoustic instruments, waveshaping has been used effectively for synthesizing traditional musical instruments, and in particular, brass tones.
Pow2	This distortion type adds additional harmonics by using edged non-linear amplification of the audio signal. It is similar to exciters.

The DRIVE knob allows you to dial-in the amount of distortion effect you wish to use. Rotating it towards the negative (-) uses less distortion and towards the positive (+) uses more.

Volume

To control the overall volume shaping of your patch, you can use the VOLUME ENVELOPE section of GLADIATOR.

The VOL knob controls the overall LOUDNESS of the current patch. Rotating it towards the negative (-) makes the patch softer in volume and towards the positive (+) makes it louder.

Please note that another VOLUME knob allows you to control the global Volume: The MASTER VOLUME knob in the SETTINGS section allows you to increase the patch global volume in case the different amp knobs found in the OSC section and in the VOLUME section didn't succeed to give you a sufficient global loudness.

The VEL knob controls the VELOCITY SENSITIVTY of the current patch's volume. Rotating it towards the negative (-) makes the patch have less to null velocity sensitivity and towards the (+) positive makes it more sensitive to velocity changes.
Please note that zero velocity sensitivity will help to emulate instruments like organs or old analogue synths that often lacked any velocity parameters.

The PAN knob allows you to alter the PANNING of the current patch. Rotating it clockwise pans the patch more to the right and rotating it anti-clockwise pans the patch to the left.

With the SHAPE knob you can bend the whole VOLUME ENVELOPE and give the sound more punch.

The VOLUME ENVELOPE controls (ADSFR) determine how the volume of the patch is affected by the envelope.

A (Volume Attack)	Controls the attack time of the volume envelope. If you want the volume cutoff to be immediate use a short volume attack time, or if you want the cutoff to fade in use a longer attack time.
D (Volume Decay)	Controls the initial volume decay time (i.e. the time it takes the volume cutoff to return to the set “cutoff” value).
S (Volume Sustain)	Sets the volume that the sound reaches after the decay phase.
F (Volume Fade)	Sets the amount of time it takes the sound to fade from sustain to release.
R (Volume Release)	Sets the amount of time the sound takes to go from sustain volume to zero volume, after the decay phase. Increase the release time for long sounds like pads and strings.

Feedback

FEEDBACK reroutes the effected signal with a delay back to the input (see also the Effects section below). The DELAY drop-down button lets you select the delay value. GAIN defines the amount of FEEDBACK. CLIP limits the volume of the FEEDBACK.

Warning: Use a limiter, if you deactivate CLIP, because it can result in very high volumes!

Effects Section

GLADIATOR offers you up to two EFFECT slots for perfect tailoring of your sounds. The two slots are equivalent and you can load the same effects in each one, without any restriction. What makes slot 1 different from slot 2 is only the routing of the effects, i.e. their respective place in the signal flow.

Effect routing parameters are described later in this chapter

Effect 1 + Effect 2

The first control you will see in the EFFECTS 1 + 2 sections is the TYPE drop-down button. Click this to view and choose the type of effect you want to use in this section.

The following effects are available in both EFFECT slots:

Reverb	Medium size general purpose Reverb with warm sound.
Reverb predelay	A Reverb with a predelay for echo effects.
Reverb highend	High-End quality reverb with very warm sound. Simulates a huge room.
Pingpong	Pingpong delay. Echo is alternating between left and right.
Pingpong damp	Damped pingpong delay. Echo is alternating between left and right and is getting darker.
Pingpong band	Bandpass filtered pingpong delay. Echo is alternating between left and right and is getting tighter in frequency response.
Pingpong LFO	LFO modulated and bandpass filtered Pingpong delay. Echo is alternating between left and right with a modulating frequency response. The classic "Goa-echo".
Delay	Classic delay effect.
Delay damp	Damped delay effect. Echo is getting darker.
Chorus	Classic chorus effect.
Ensemble	Classic ensemble effect. Has a more rich sound than the chorus.
Flanger	Classic flanger effect.
Rotary	Classic rotary speaker simulation (Leslie effect).
Tube amp	Valve amp simulation with soft saturation and oversampling. Gives a square wave-like sound on high drive values.
Transistor	Transistor amp simulation with asymmetric saturation and oversampling. Gives a sawtooth-like sound on high drive values.
Presence	Valve amp simulation with soft saturation, presence and oversampling. Gives a Guitar-amp-like sound.
Hard clip	Digital clipping with oversampling. Gives a digital and aggressive sound.

Bitcrush	Digital lo-fi effect (Bitcrusher) with oversampling. Has a very digital sound.
Waveshape	In waveshaping synthesis, it is possible to change the spectrum with the amplitude of the sound. Since this is also a characteristic of acoustic instruments, waveshaping has been used effectively for synthesizing traditional musical instruments, and in particular, brass tones.
Surround Pan	Dolby Pro Logic II compatible encoding of the signal (surround). "Pan" controls the placement within the room.

The MIX knob allows you to define how WET or DRY the effects is. Rotate it anti-clockwise for a less wet effect and clockwise for a much wetter effect. The other two knobs change, depending on which effect you choose the in the type drop-down box. The labels will reflect the parameters of the effect you chose. Some Effects only have one parameter to change, in this case the right box will stay empty.

For example, if you choose 'Super strings' as your effect, then the other two knobs become SPEED and DEPTH. Now you rotate these knobs to get more or less of the labelled parameter. For another example, say you now choose 'Surround pan' in EFFECT 2, the first knob becomes PAN, the second one has no function with this effect.

Effect Routing

As you can see, you can have two simultaneous effects running in either SERIAL or PARALLEL, depending on the state of the ROUTING button.

SERIAL (button light is OFF)	in this state the signal coming into the effects section goes to EFFECT1 first, and the output of EFFECT1 then goes to EFFECT2 for further processing.
PARALLEL (button light is ON)	in this state the signal coming into the effects section goes simultaneously to both EFFECT1 and EFFECT2, and their respective outputs are mixed afterwards.

For example a delay, followed by a reverb in serial mode, will result in all echoes receiving reverb. In parallel mode the same configuration (Delay in slot 1, reverb in slot two), will result in echoes remaining unaffected by the reverb.

Please note that the default routing parameter (button light OFF) is SERIAL.

Equalizer

To shape the timbre of the patch even further, you can alter the LOW, MID and HIGH parts of a patch using equalization. An equaliser, in its broad description, allows you to boost or cut the volume of specified frequencies. Equalisation can also be used in a creative way in order to produce original effects.

The LOW knob alters the low-end of the audio spectrum of the patch (around 20-600hz).

The MID knob alters the mid-range of the audio spectrum of the patch (around 1-9kHz)

The HIGH knob alters the high-end of the audio spectrum of the patch (around 10-20kHz)

Rotate all knobs anti-clockwise for less and clockwise for more EQ.

LFOs 1+2

LFO stands for Low Frequency Oscillator.

A 440hz frequency makes 440 cycles per second - the human ear can't hear these cycles. GLADIATOR's LFO frequency range however is from 0.016 to 46 Hz, meaning the cycles are perfectly audible to the human ear.

A LFO doesn't produce any sound in itself, a LFO is used to modulate another sound parameter (Like VOLUME or FILTER CUTOFF, or any target in the MODULATION MATRIX) to achieve cyclic modulations (changes) of this parameter over time, according to the SPEED knob settings.

Please note that the LFO can be synced to the host tempo with the BPM button.

In GLADIATOR LFOs and the MODULATION MATRIX work together. You won't hear any change in the sound, whatever the settings of the LFOs, if no LFO is assigned as a source in the MODULATION MATRIX, and if no accurate destinations are selected. In other terms, there are no hard-wired default modulations. Please refer to the MODULATION MATRIX chapter of this manual for more info on this.

For example, a LFO assigned to VOLUME will give a tremolo effect, assigned to PITCH it will give a vibrato effect, and assigned to FILTER CUTOFF it will give an auto-wah effect.

LFOs in GLADIATOR in 5 easy steps

1: Choose a LFO waveform
2: Choose the SPEED of the LFO
3: Adapt, if needed, the PHASE of the LFO
4: Choose to BPM SYNC or to use RETRIG MODE by clicking appropriate buttons
5: Assign the LFO in the MODULATION MATRIX to modulate a destination sound parameter

Let's see in detail the different parameters of GLADIATOR's LFOs

LFO WAVEFORM and WAVEFORM DISPLAY

This is the most important parameter of an LFO. GLADIATOR has a huge choice of waveforms. The list below will gives you the minimal information required to operate the LFOs.

> The LFO waveform displays will reflect all the changes you make using the WAVEFORM and the PHASE parameters.

Note that the following waveform descriptions describe only one cycle of the LFO. GLADIATOR also has a few non-cycling LFOs. These are also described in the list below.

/	Waveform is a TRIANGLE. The target parameter of the LFO will rise to a peak in a linear way, then decrease to its current state.
/	RAMP UP. The target parameter of the LFO will rise then fall abruptly to its default level.
****	RAMP DOWN. The target parameter assigned to the LFO will decrease, then reach abruptly its default level.
Sin	SINEWAVE. The target parameter assigned to the LFO will be modulated by a sine wave. Note that the choice of this waveform will give you the smoothest and continuous transitions with no jumps in changes.
Square	SQUAREWAVE. The target parameter assigned to the LFO will be modulated by a square wave. Meaning very abrupt transitions over time, from maximum to minimum values.
Pulse 25	This is a variant of the above SQUARE wave where the maximum peak occurs 25% of the time of the cycle, and the minimum peak 75%.
Pulse 12	This is a variant of the above SQUARE wave where the maximum peak occurs 12% of the time of the cycle, and the minimum peak 88%. Use this if you need short regular peaks changes in the modulation target parameter.
-_-_-___	This is a pre-built organisation (template) inside a groove of square waves. Provided for quick settings as you could achieve the same modulations with the STEP LFO.
-_-_---__	Same as above but different Groove template.
-___-__-__	Same as above but different Groove template.
-__-__-_	Same as above but different Groove template.
--_--_-_	Same as above but different Groove template.
___stop	A RAMP DOWN then the modulated parameter returns to his default state AND keeps the default value (Non cycling LFO).
/__stop	Same as above starting with a TRIANGLE WAVE (Non cycling LFO).

\²__stop	Same as above with a faster RAMPDOWN (Non cycling LFO).
/\\/\ Fade in	Delayed SINE WAVE. Use the PHASE button to set delay time. Operates like the SINE WAVE after the delay time, though the amplitude of the sine increases over time.
Random	RANDOM WAVE. Operates like a SQUARE WAVE but the amplitude of the SQUARE is randomly given. The SPEED button determines how often the value will change in a more or less abrupt way.
Noise	The target parameter assigned to the LFO is modulated by a noise wave. The random value changes occurs so fast that you no longer perceive the continuous changes. (i.e. the time between changes is too short).
Rand Sine	Same as above but the changes are slower.
Rand /	Same as sine but the peaks and lows of the SINE WAVE are randomly given. Gives both a continuous but erratic movement to the target parameter
Sin FM	Same as SINE WAVE but the time between two cycles will vary according to the SPEED knob parameter.

As you can see GLADIATOR's LFOs are pretty versatile.

Note: You can switch between LFO 1 and LFO 2 by clicking on the small buttons named '1' and '2' on the left side of the LFO section.

The SPEED knob adjusts the loop speed of the LFO, or the length of the different segments of the LFO when its not a loop type one.

Note: When the BPM button is active (lit) the SPEED of the LFO will be displayed in musical values, i.e. exact multiples or fractions of the host tempo.

The PHASE knob Lets you decide the value of the start point of the LFO wave. Turning Clockwise will move the start point to the right.

The BPM SYNC BUTTON: When this parameter is on (lit) the speed of the LFO will be synced to the host clock. The SPEED of the LFO will be displayed in musical values in the PARAMETER DISPLAY.

The KEY Button switches the LFO frequency key follow on and off. Higher keys result in higher LFO frequencies, while lower keys result in lower frequencies.

The RETRIG button: When this parameter is on, the LFO will start again to the beginning of the waveform after each keystroke. When this parameter is OFF, the LFO plays its cycles according to the SPEED parameter.

Note: It is recommended to use RETRIG MODE when you use non-cycling LFO waveforms.

LFO Tutorial 1 - The PHASE knob

Turning the PHASE knob clockwise will change the start point of the LFO wave. This will be reflected on the LFO Wave Display. You can see the difference between the same basic sine wave on the above picture: The 2nd PHASE knob (right of the picture) has a positive value. The sine wave start point has been moved accordingly to reflect the change.

AUX Envelopes + Global LFOs 3+4

In addition to the two main LFOs, GLADIATOR also has two AUX Envelopes and two Global LFOs.

AUX ENVELOPES:	Use the Aux Envelopes to shape any destinations parameter in the MODULATION MATRIX with an envelope.
GLOBAL LFOs:	Two additional LFOs with a fixed triangle shape. Use them to modulate destination parameters in the MODULATION MATRIX.

Note: You can switch between AUX ENV 1 and AUX ENV 2 by clicking on the small buttons named '1' and '2' on the left side of the AUX ENV section.

LFO Tutorial 2 - LFO and MODULATION MATRIX relationship

The LFO and the MODULATION MATRIX *only* work together. If no LFO is selected as a source of modulation in the MODULATION MATRIX, nothing will happen. You can see on the above picture the relation ship between the two sections. LFO1 deeply modulates the filter cutoff, resulting in a kind of tremolo effect, while LFO2 controls the pan, to give the instrument a dynamic pan movement. Note the highlighted BPM SYNC knobs and the RETRIG button. Both LFOs are synced to host tempo, while only the second is retriggered, so that each new keystroke will make it return to the phase start point, then play.

STEP LFO

The STEP LFO is inspired by the old analogue Step Sequencers that existed in the pre-MIDI world. STEP LFOs are often referred to as the popular trancegate type of effects, but they can do much more.
The main idea is to modulate a target sound parameter with a 1-16 step sequence pattern, synced to tempo host. Each of the 1-16 steps of the sequence can be given a precise

value. This way you can build custom rhythmic patterns and use them to modulate any parameter of the synth available in the MODULATION MATRIX.

Like LFOs, A STEP LFO doesn't produce any sound itself. A STEP LFO is used to modulate another sound parameter (like VOLUME or FILTER CUTOFF, or any target in the MODULATION MATRIX) to achieve cyclic modulations (changes) of this parameter over time, according to the SPEED Knob settings.

Please note that the STEP LFO is always synced to the host tempo.

Use the STEP LFO in 3 easy steps

1: Build your pattern. Define the number of steps the STEP LFO will cycle through.
2: Define the SPEED of the STEP LFO using the SPEED knob.
3: Assign the STEP LFO in the MODULATION MATRIX as source and choose the target parameter it will control.

Lets see the different parameters of the STEP LFO in detail:

The STEP Pattern Display

The STEP Pattern Display is an active display. Here you can assign a unique value to every step. This value will then be added (positive amount in the MODULATION MATRIX) or subtracted (negative amount in the MODULATION MATRIX) to the default value of the target parameter each time the STEP LFO meets this step while cycling.

To input a value just move the little black bar visible in each step on the vertical axis. If the black bar is in the middle nothing will change. The higher the bar over the middle, the higher the value that will be added (or subtracted, this depends on the amount in the MODULATION MATRIX) to the default parameter value. The lower the bar under the middle point, the higher this value will be subtracted from the original value of the parameter (or added in case of negative amount settings in the MODULATION MATRIX).

In other terms, in each step of the STEP LFO you can specify an absolute value that will be added or subtracted to the original target parameter value.

The STEP LFO is really an intuitive tool, though a little bit of maths is necessary if you want to understand precisely what's going on.

The SPEED knob lets you define the SPEED of the LFO in terms of musical values relative to the host tempo.

The SHAPE DISPLAY lets you define how soft or abrupt the transitions between two steps of the STEP LFO will be.

Click in the SHAPE area to open a drop-down menu where you can select more or less sharp transitions. The sharpest will operate like a square LFO, with abrupt changes between two steps, while the softest ones will operate like a sine LFO, with continuous transitions between two successive steps.

The following SHAPE TYPEs are available:

Sharpest, sharp, soft, softer, softest: These shapes vary from square (sharpest) to triangle shape (softest). They can be used for creating custom LFO shapes and trancegates.

Exp These shaping modes represent a 16-stage multi-step envelope. The envelope has an exponential falloff and is retriggered if a step is set to a value different from 0. Exp1 has the slowest decay time and Exp11 the fastest. This envelope is very useful to create punchy 303 like sounds.

Triangle These shaping modes represent 16 separate AD

envelopes with linear falloff. Speed controls the attack and decay time. Triangle 50 has equal attack an decay time an. Triangle 12 is asymmetric. It has a short attack time and a longer decay time. This envelope is useful to build 303 style sounds and should be used with speeds lower than BPM.

Saw These shaping modes represent 16 separate D envelopes with linear falloff. Speed controls the decay time. This envelope is useful to build 303 style sounds and should be used with speeds lower than BPM.

The MODE AREA: Lets you choose between SONG and RETRIGGER. If you choose RETRIG mode, the STEP LFO will return to the first step after each keystroke.

STEPS lets you define the number of steps used in the STEP LFO. Choice is 1-16

THE COPY-PASTE Utility: Use this to copy STEP LFO settings of another GLADIATOR patch into your current patch.

Here’s how to do it, you should:

1: Select another patch in GLADIATOR with an interesting pattern in the STEP LFO.
2: Hit the COPY button to store this pattern into a dedicated clipboard.
3: Reopen your original patch.
4: Hit the PASTE button to copy the clipboard into your current instrument.
5: Don't forget to save your new patch!

Arp

GLADIATOR's ARP is a very versatile arpeggiator, capable of an astounding range of note sequences including classic up/down variations, typical acid lines with accents and slides, very advanced chord combinations, polyphonic gates, and everything in between.

The price to pay for all this power is of course complexity: once you get to grips with this ARP it becomes very easy to use, but at the beginning it can be a bit overwhelming, so bear with us while we try to make sense of it all. For this chapter we assume that you have a working knowledge of simple classic arpeggiators and step sequencers.

The basic idea behind this ARP section is a sequence of a maximum of 16 tempo-synced steps triggered by incoming MIDI keys, where individual notes or chords and specific behaviours can be assigned to each step independently. What the ARP will play and how it will play, is defined by the interactions between the notes being fed to GLADIATOR and the values of its ARP controls and step sequencer. The possibilities are huge... but this might sound way more complex than it really is, so let's describe each control on its own and you will see it all more clearly.

The general behaviour of the ARP section is controlled by the TYPE drop-down button, which offers a wide selection of ARP TYPEs, as follows:

off The ARP is disabled (this is the default option).

Up types The ARP cycles through all the notes being fed to GLADIATOR in increasing order, assigning one to each “active” step in the sequencer. You can choose the octave range to be covered, i.e. “Up 1oct” will play the incoming notes in increasing order through the original octave and one octave higher.

Down types The ARP cycles through all the notes being fed to GLADIATOR in decreasing order, assigning one to each “active” step in the sequencer. You can choose the octave range to be covered, i.e. “Down 1oct” will play the incoming notes in decreasing order through the original octave and one octave lower.

Alt types These types are similar to the Up and Down types, but the ARP will cycle through the notes from first to last and then back to first, instead of from first to last only.

Pop types These types alternate the incoming notes instead of cycling through them, creating familiar patterns used in countless hit tracks.

Gate All the incoming notes will be played at the same time on each active step. This could be best described as a “polyphonic mode”.

The heart of the ARP section is the 16-step, 2-row SEQUENCER. Here you can define the “active” steps (the ones that will play a note), assign a separate note modifier for each step, and define how the notes will be played.

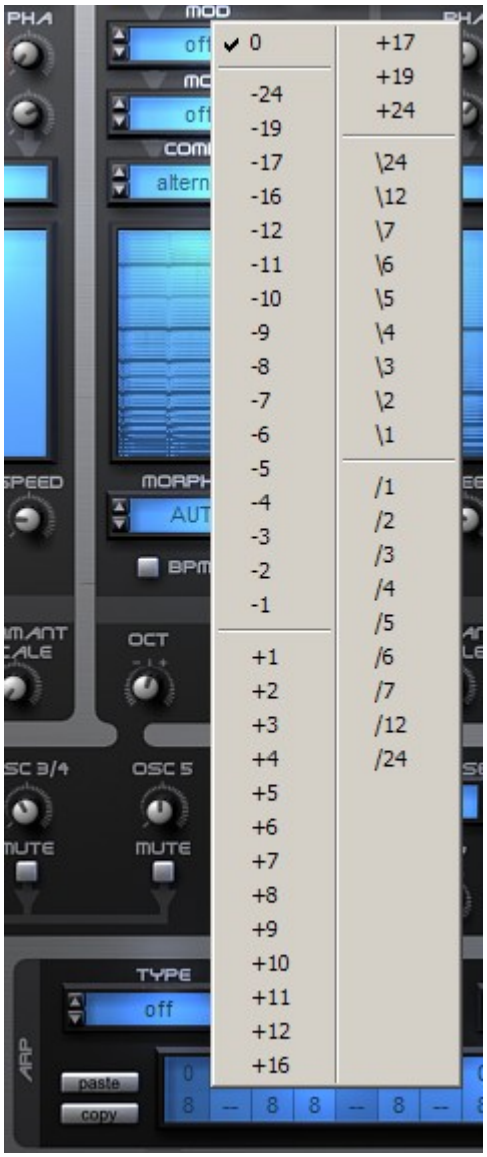
The bottom row represents the “status” of each step. Each step can be in one of the following states:

off The step is inactive, which means that no sound will be generated.

--- The step is an “extension”, which means that it will extend the duration of the previous step. Note that you can chain several of these extension steps so they all extend the duration of the note played by the step right before this

extension chain. Note also that any extension steps right after an inactive one will also be inactive.

1-8 The step is active and will play a fresh note. The higher the number the higher the accent, which means that 8 will play the corresponding note at full volume.



On the other hand, the top row represents the “note modifier” of each step, which defines the actual note to be played relative to the incoming note assigned:

0 “0” means that the note on that specific step will be exactly the incoming note.

from -24 to -1 Negative values mean that the actual note played at that specific step will be as many semitones below the assigned note as specified by the chosen number, up to 24 semitones (or 2 full octaves)

from +1 to +24 Positive values mean that the actual note played at that specific step will be as many semitones above the assigned note as specified by the chosen number, up to 24 semitones (or 2 full octaves)

from /1 to /24 Slide up values mean that at that particular step the note will slide up from the assigned note as many semitones as specified by the chosen number, up to 24 semitones (or 2 full octaves).

from \1 to \24 Slide down values mean that at that particular step the note will slide down from the assigned note as many semitones as specified by the chosen number, up to 24 semitones (or 2 full octaves).

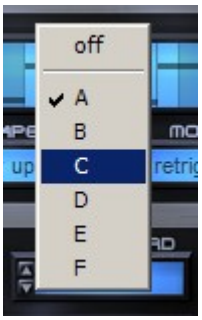
The STEPS control simply defines how many of the steps in the step sequencer will be used, always starting from the first one. This is very useful if you want to generate sequences shorter than 16 steps, or different from the host tempo, or non - 4x4... you name it.

The SYNC control defines how fast the ARP sequence will be played and how it will be synced to host tempo. There are two types of synchronisation:

BPM “Regular” BPM values play back the ARP sequence in sync with the host, starting always from the beginning of the sequence. The selected BPM value will define the playback speed.

Song “Song” BPM values play back the ARP sequence in sync with the host, but starting from the step corresponding to the current song position in the host transport. Again, the selected BPM value will define the playback speed.

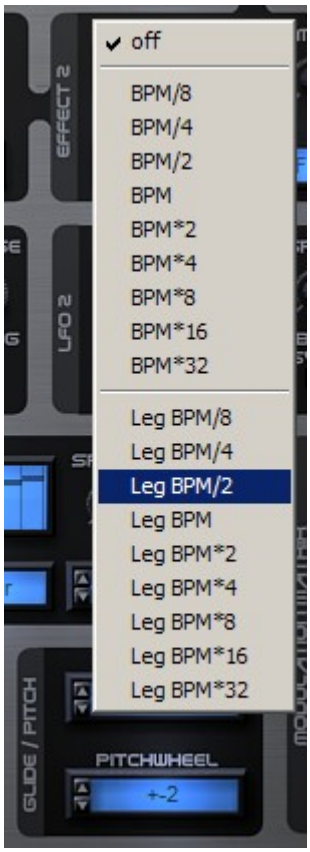
Finally, the AUTOCHORD control offers a range of pre-defined chords that will be played in response to single incoming notes. A complete chord can be played with one finger!



Now with all the details out of the way, it's time for you to play... we encourage experimentation with the different combinations and interactions of GLADIATOR's ARP controls, and soon enough you will be using it to its full potential.

Glide/Pitch

This section contains two controls often overlooked but always very important performance-wise, such as the glide/legato options and the pitchwheel range.



GLIDE (legato) refers to the pitch behaviour for consecutive notes. GLADIATOR offers 3 different behaviours covered by the 3 sets of options for the GLIDE drop-down button:

off Pitch responds immediately to every note, always.

"BPM" options	Pitch slides from one note to the next, always. The tempo selection refers to the beats-per-minute that will take the pitch to slide.
"Leg" (or legato) options	Pitch slides from one note to the next, but only when they overlap. The tempo selection refers to the beats-per-minute that will take the pitch to slide.

Note that GLIDE time is always synchronized to host tempo in GLADIATOR.

On the other hand, PITCHWHEEL range refers to the range of semitones up and down that the pitchwheel of your keyboard will cover. This is controlled by the single PITCHWHEEL drop-down button. The available options range from +-1 (a single semitone up and down) to +-24 (a full 24 semitones or two octaves up and down).

Modulation Matrix

To modulate a parameter just means to make it change.

If you want to modulate the main VOLUME to create a tremolo effect, you need to assign a LFO to the main VOLUME. How much the tremolo will be noticeable is given by the amount of modulation: The higher the amount, the more pronounced the tremolo will be.

The main FILTER and VOLUME envelopes are indeed hard-wired modulators. This means that the modulation destination is fixed (VOLUME, FILTER CUTOFF). But what if you want to control the RESO parameter of the FILTER? Or the PITCH of OSC3/4, or the SPIRIT depth over time? This is where the MODULATION MATRIX enters the game.

The MODULATION MATRIX lets you decide which sources will affect which targets (or destinations) and to specify an amount (strength) of modulation. Note that the amount can be positive (it will increase the value of the target parameter) or negative (it will lower the value of the selected target parameter).

The MODULATION MATRIX in three easy steps

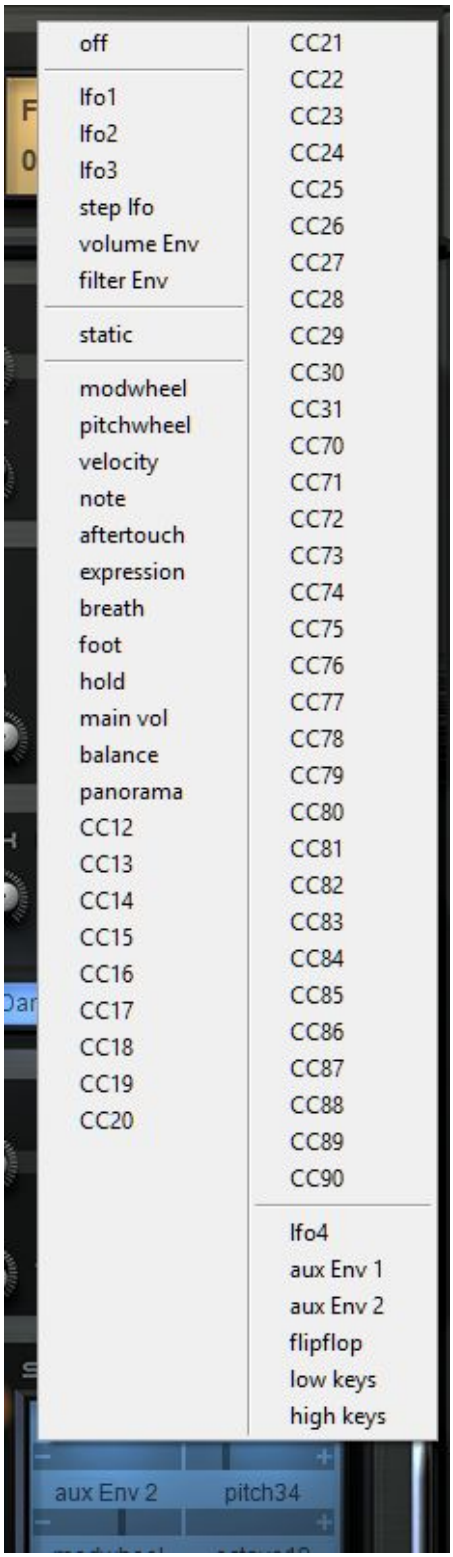
1: Choose a modulator (modulation source) in the drop-down menu
2: Choose a target (destination) in the drop-down menu
3: Specify an amount other than Zero by moving the black bar along the line.

Please note the following:

- The MODULATION MATRIX has 12 slots on 2 pages. So you can build up to 12 SOURCE/DESTINATION pairs. Each pair will use one slot of the MATRIX.
- You can access the two MODULATION MATRIX pages by clicking on the small buttons named '1' and '2'.
- If amount is null, nothing will happen (unless you use the more sophisticated ModAm1-6 parameters which will be described in detail later in this section)
- Amount value is null (or zero) by default.

1 MODULATION MATRIX
2 MATRIX First Line: The harder you hit the keys, the less RESO (negative amount).
3 Lines 2 + 3: LFO controls the PITCH, but MODWHEEL controls the LFO (vibrato effect). Note that ModAm2 refers to the 2nd line of the MATRIX.
4 Click here to open the modulation SOURCE menu.
5 Click here to open the modulation DESTINATION menu.

The following modulation SOURCEs (modulators) are available:



lfo 1 LFO 1 will affect the modulation target using the selected amount value.

lfo 2 LFO2 will affect the modulation target using the selected amount value.

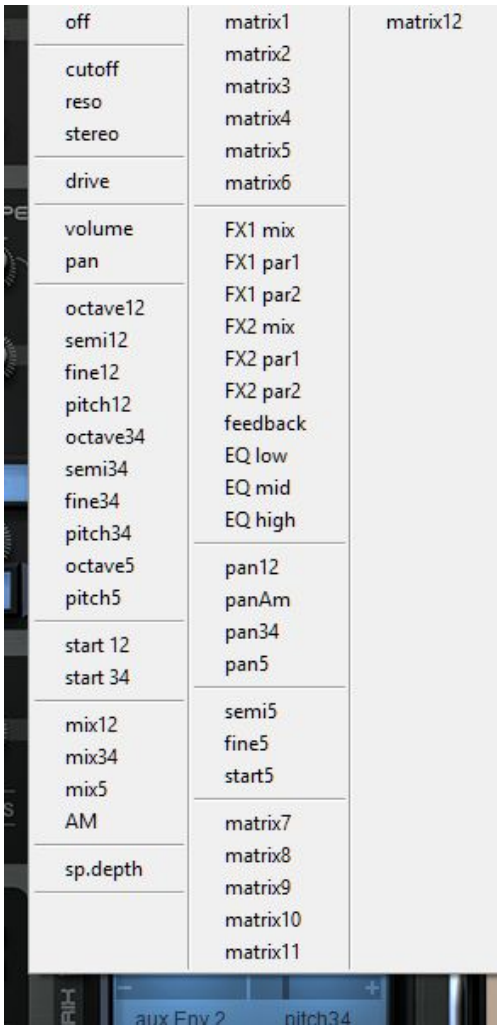
lfo 3	LFO 3 will affect the modulation target using the selected amount value.
step lfo	STEP LFO will affect the modulation target using the selected amount value.
volume Env	Volume Envelope will affect the modulation target using the selected amount value.
filter Env	Filter will affect the modulation target using the selected amount value.
modwheel	Modulation Will will affect the modulation target using the selected amount value.
pitchwheel	Pitch Bend Wheel will affect the modulation target using the selected amount value.
velocity	Velocity will affect the modulation target using the selected amount value.
note	Keyboard mapping will affect the modulation target using the selected amount value.
aftertouch	Aftertouch will affect the modulation target using the selected amount value.
MIDI CC	Midi Controllers 1-90 will affect the modulation target using the selected amount value.

Lets take two seconds to analyse the difference between the different sources:

LFOs, Envelopes, Note (keyboard mapping) are static modulation sources: this means they will perform without any further user interaction.

Modulation Wheel, velocity, aftertouch, CC90 are dynamic (real time) modulation sources that rely on your playing. In other words, if you don't move the modwheel no changes in the parameter assigned to the modwheel will happen.

Let’s see now what we can modulate, change, and alter.



The following DESTINATION parameters are available:

cutoff	FilterCutOff will be modulated by selected source with selected amount.
reso	Filter Reso will be modulated by selected source with selected amount.
stereo	Filter Stereo will be modulated by selected source with selected amount.
drive	Drive will be modulated by selected source with selected amount.
volume	General volume will be modulated by selected source with selected amount.
pan	Global Pan will be modulated by selected source with selected amount.

octave1/2	Pitch of OSC1/2 will be modulated by selected source with Octave jumps.
semi 1/2	Pitch of OSC1/2 will be modulated by selected source with Semitone jumps.
fine 1/2	Pitch of OSC1/2 will be modulated by selected source in a continuous way in a semitone range.
pitch 1/2	Pitch of OSC1/2 will be modulated by selected source in a continuous way without range restriction.
pan 1/2	Pan will be modulated by selected source with selected amount.

The same Pitch and Pan destinations are available for OSC3/4 and OSC5.

start 1/2	Start point of OSC1/2 will be affected by selected source with selected amount.
start 3/4	Start point of OSC 3/4 will be affected by selected source with selected amount.
mix 1/2	Relative balance (volume) of OSC1/2 will be affected by selected source with selected amount.
mix 3/4	Relative balance (volume) of OSC 3/4 will be affected by selected source with selected amount.
mix 5	Relative balance (volume) of OSC 5 will be affected by selected source with selected amount.
AM	Relative balance of AM (mixer section) will be affected by selected source with selected amount.
sp.depth	Spirit Depth parameter will be affected by selected source with selected amount.
FX	FX will be affected by selected source with selected amount.
EQ	EQ will be affected by selected source with selected amount.
Matrix1 - 12	Modulation Matrix Line 1-12 will be affected.

Let's explore a bit further the modulation destinations:

1 The MODULATION MATRIX DESTINATION (target) menu
2 All Menu items are organised in logical sections: filter, output stage, pitch...
Many destinations are self explanatory: Please refer to the FILTER, PITCH, and AMP sections of this manual for further explanations.

Note that the two 'start' destinations (start12 + start34) will only be active if anything other than Auto is selected in the MORPHMODE section of the oscillator.

Matrix1-12 (in earlier Versions of GLADIATOR: ModAmount1-6) require some explanation: Imagine you want to make a vibrato. Its very easy. Just assign a Sine LFO to the FINE PITCH of OSC1/2. Now you can hear your LFO. Problems begin when you don't want your LFO to play continuously but only when you decide. You need to modulate the modulation. GLADIATOR can do this using these Matrix1-12 parameter destinations.

Let's assume that you built the LFO modulation in the first line of the MODULATION MATRIX. Change the amount of modulation in this to zero. You no longer hear vibrato. Now in a new empty slot of the MODULATION MATRIX do the following: assign SOURCE to MODULATION WHEEL, and DESTINATION to Matrix1 (which refers to slot 1 of the MODULATION MATRIX). Change the amount to maximum.

As a result, you now hear vibrato effect ONLY when you move the modulation wheel. In other words you have modulated the vibrato modulation with another modulation source.

MODULATION MATRIX: Hints and tips

Choosing STEP LFO as a source and VOLUME and/or FILTER CUTOFF as destination will result in the well known trancegate effect.

Modulating PITCH by a Ramp down or up LFO with a slow rate will give you a familiar Dub Siren FX.

Modulating a LFO by another LFO will give you complex rhythm figures or total random but always non linear events.

Modulating PAN with LFO will perform rich movements in the stereo field, adding dramatic or subtle effects to pads and cinematic patches.

Choosing NOTE (keyboard mapping) will help you balance the instrument on the whole keyboard range when the destination is VOLUME. Or adjust different partials (oscillators) volumes across the keyboard.

To quickly return an amount to default zero value, Strg-click in the amount line of the MODULATION MATRIX slot or just double-click the line.

Adapt those techniques to your needs. Enjoy.

Patch design

Getting started

Select an empty patch slot
Press the "Patch init" or "RANDOM" button

Setting up an FM sound

It is recommended to use static waveforms for FM ("WAVE" with "WV"). Select "\ stop" as MORPHMODE.

There are 3 ways to do FM in GLADIATOR.

FM with one OSC - using the modifiers:

Use a "MOD" with "FM".

FM with 2 OSCs - using the combiner:

Select a "WAVE" for OSC1 (modulator) and OSC2 (carrier).
Select "Pitch tune" as "OSC1 MOD A".
Select "Vol Ramp lin" as "OSC1 MOD B" (modulator envelope).
Select "FM" as "COMBINE".

FM with the FILTER section:

Select "FM" as FILTER TYPE
Use "CUTOFF", "RESO" and the FILTER envelope to shape your sound.

Setting up an AM sound

It is recommended to use dull sounding oscillators for AM. Modifiers with "Thin" or "Filt" are recommended.

There are 4 methods for doing AM:

AM with one OSC - using the modifiers:

Use a "MOD" with "Spec AM".

AM with 2 OSCs - using the combiner:

Select a "WAVE" for OSC1 and OSC2.
Select "Pitch tune" as "OSC1 MOD A".

Select "AM" as "COMBINE".

AM with the filter section:

Select "AM" as FILTER TYPE
Use "CUTOFF", "RESO" and the filter envelope to shape your sound.

AM in the mixer section:

Use the "AM" knob
Slightly detune ("FINE") OSC12 and OSC34

Setting up PWM

Gladiator can apply PWM on every sound.

Select "/\/\/\" as "MORPHMODE".

Here are 2 common settings:

PWM on Squarewave:

Select "WV Square" as WAVE
Use "MUL PWM x1\" as MOD

PWM on Sawtooth:

Select "WV Saw" as WAVE
Use "MUL PWM x2\" as MOD

Setting up synced sounds

It is recommended to use static waveforms for FM ("WAVE" with "WV").

Select "\ stop" as "MORPHMODE".
Use "Syn saw" or "Sync sin" as MOD.

Setting up PM sounds (Phase modulation)

Select one of the "PhaseMods" as SPIRIT MODE.
Use "Depth" to control the amount.

Setting up vocoder sounds

Select "\ stop" as "MORPHMODE".
Select a "WAVE" with "VO".
Turn formant scale to 50%.
Use "Thin" as MOD for changes in the sound.

Setting up waveshaping

GLADIATOR offers 3 different ways of waveshaping. Waveshaping and distortion are volume dependent effects. A different volume will result in a different harmonic content.

Waveshaping - using the modifiers (per voice):

Select "Abs", "Waveshape", "Distort" or "Bitcrush" as MOD.

Waveshaping - using the distortion (per voice):

Select "Waveshape", "Pow2" or "Presence" as TYPE.

Waveshaping - using the effects (all voices):

Select "Waveshape", "Bitcrush" or "Presence" as TYPE.

Setting up supersaw sounds

GLADIATOR can apply Supersaw on every sound. This makes one OSC sound like several ones. It is recommended to use static waveforms ("WAVE" with "WV").

Select "/\/\/\" as "MORPHMODE".
"KEY" to 50%.
"SPEED" to 2 Hz.
Select "Mul supersaw" or "Mul strings" as MOD

Setting up additive sounds

Select a WAVE for OSC1 and/or OSC2.
Use modifiers "Mix", "Thin" and "Pitch" and "Spec" to add and manipulate the spectrum.
Use COMBINE "1+2", "1" "odd1 even2" or "odd2 even1".

Setting up resynthesis sounds

Resynthesis sounds are very difficult to build. That's why we recommend selecting one of the Nature/Vintage patches and modifying that.

Select one of the resynthesis WAVEs ("OR", "PE", "BR", "ME", "GT", "FL", "ST", "VOX" categories in the drop-down)
Select "AUTO" or "\ stop" as MORPHMODE
Use "Spec squeeze" and "Spec format" as MOD
Use "SPEED" and sometimes "FORMANT SCALE" with 50%

Setting up phase distortion

Select "\ stop" as "MORPHMODE".

There are 2 ways to do Phase Distortion synthesis in GLADIATOR.

Phase distortion - using the preset waves

Select "EL Saw PD", "EL Square PD", "EL Peek PD" or "Sine" as WAVE for OSC1, OSC2, OSC3 and OSC4.
You can use "Mix grunge" as MOD.
Select "alternate" as COMBINE.
You can add some AM. It is recommended to detune OSC12 + OSC34 slightly.

Phase distortion - building custom waves

Select static waveforms ("WAVE" with "WV") for OSC1 and OSC3.
Use "Mul PWM x1\" as MOD
You can use "Mix grunge" as MOD.
Select "1" as COMBINE.
You can add some AM. It is recommended to detune OSC12 + OSC34 slightly.

Setting up wavetable synthesis

Use static waveforms ("WAVE" with "WV") for OSC1 and OSC2.
You can use "Thin" and "Spec" as MOD to manipulate the waveforms.
Select "crossfade12" or "crossfade21" as COMBINE.
Select "\ stop" or "/\/\/\" as "MORPHMODE".
Use "SPEED" to control the crossfade speed.

MIDI CC Mappings

There are no fixed mappings in GLADIATOR. The MIDI CCs are selected in the sources of the MOD MATRIX.

CC1	modwheel
CC11	expression
CC2	breath
CC4	foot
CC64	hold
CC7	main vol
CC8	balance
CC10	panorama

Legal notice & contact

License

The license included with this product is a single user license for an installation on a single computer. Please contact our support team if you need additional licenses. This product is copy protected and uses audio watermarks.
Please note that Tone2 will deactivate licenses of users who share our software without permission. Violators will be excluded from customer resources, services and updates.

By purchasing Tone2 software you will:

- Support a small company
- Provide jobs
- Fund future development
- Support our sound designers, freelancers, artists and families

Support

If you have any difficulties installing or using this product, please visit us:

Tone2 Website http://www.tone2.com

Tone2 Forum http://www.tone2.org/forum/index.php

Support support@tone2.com

http://www.youtube.com/user/Tone2Audiosoftware

https://www.facebook.com/Tone2Audiosoftware

https://twitter.com/Tone2Audio

https://soundcloud.com/tone2-1

Credits

Authors	Laurent Bourgeon aka Lotuzia Juanjo Cotado Markus Krause Mike Felker aka karmacomposer Paul Rees Daniel Sammut aka auricle
Translators	Mario Bianchi aka mabian G. Destot Oliver Stummer Juanjo Cotado
Editor	Paul Rees
Editor & Update V3	Kai Lillich

A huge THANKS! to all the Beta Testers, Sound Designers and Proofreaders, the usual suspects @ the KVR forum, and those who had the faith to pre-order GLADIATOR – you've all provided great ideas and feedback, we couldn't have done this without you lot!

We also want to thank everyone who pays for the software they use – our synths and FX just wouldn't happen without the support of paying customers – so a big thanks to you all!

Cheers!
Tone2

More Tone2 Products:

Icarus

Icarus is the most powerful wavetable synth on the market. The award-winning audio engine provides a gigantic sonic range. It offers the highest possible sound quality and can produce a wide range of sounds impossible with other synths. With Icarus anyone can build fantastic sounds quickly and easily!

Electra2

Our award-winning workstation is not only one of the most popular and powerful synthesizers ever - it's the complete synthesis solution! Explore a vast musical universe of multi-synthesis oscillators, analog modeled filters, chaotic fractals, samples, flexible modulation and an immense sonic range.

Nemesis

Nemesis can do all classic digital synthesis methods as well as a new approach called 'NeoFM'. NeoFM is more powerful and more easy to program than traditional FM. It offers superior sound quality. A signature-sound is generated by its engine, which is capable of providing warm, silky and creamy tones.

RayBlaster2

RayBlaster unveils a completely new dimension of sounds, exclusive to RayBlaster and absolutely impossible with other synths. The revolutionary Impulse Modeling Synthesis is not just a marketing buzzword - but a radically new and different approach to synthetic sound generation.

Saurus2

Finally, true analog sound does no longer require compromises! Saurus2 is an extremely authentic emulation of analog synthesizers. It covers all important aspects of the most famous and expensive analog synths, but without obstacles or disadvantages.

Gladiator3

The award-winning Gladiator is one of the most popular software synthesizers ever. It offers you a groundbreaking approach to sound generation. It's exclusive HCM-synthesis technique covers a new and unique aural territory.

Ultra Space

Ultra Space is the complete ambience-modeling solution. It can simulate nearly every kind of room, echo or acoustic environment with top quality sound. UltraSpace is far more than just another reverb - it's a complete compilation of different effect units covering all important aspects of space simulation.

AkustiX

Akustix is a collection of six essential enhancement tools: Psycho EQ, Ultra Stereo, Phase Enhance, Multi Exciter, Smart Filter and Stereo Width. Each effect is based on the latest research and offers multiple ways to enhance the sound of your recordings by using psycho-acoustic processing.

For more products and information, please visit us at: https://www.tone2.com