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S O F T W A R E M A N U A L

1.1.4

INFORMATION

East West Sounds, Inc.
6000 Sunset Blvd.
Hollywood, CA 90028
USA

For questions about licensing of products: licensing@eastwestsounds.com

For more general information about products: info@eastwestsounds.com

For technical support for products: https://www.soundsonline.com/support

CREDITS

PRODUCTION COORDINATOR
Blake Rogers

OPUS SOFTWARE
Wolfgang Kundrus, Wolfgang Schneider, Eike Jonas, Klaus Lebkücher; QA by: Gerrit Haasler
Inspiration by: Doug Rogers, Nick Phoenix, Blake Rogers, Rhys Moody, Justin Harris, Jason Coffman

USER MANUAL
Jason Coffman

DEDICATED TO THE MEMORY OF
Rhys Moody

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1. GETTING STARTED

Welcome to the Opus software, the revolutionary sample engine that powers our award-winning libraries.

1.1 WELCOME TO OPUS

Opus comes with some incredible new features that allow you to completely customize the sound of each instrument. It's faster, more powerful, more flexible, and better looking than the previous generation engine.

1.2 ABOUT EASTWEST

EastWest operates sounds and software development divisions in Hollywood, USA; Berlin, Hamburg, and Munich, Germany.

1.3 SUPPORT

Visit our Support Center to Live Chat with a Support Agent, or watch videos on installation and setup, product trailers and walkthroughs.

1.1 WELCOME TO OPUS

Our brand new Opus software engine replaces Play and has been years in development. “Many improvements were made to the Play software engine over the last decade but we suddenly had a unique opportunity,” says producer Doug Rogers, “we were able to bring Wolfgang Kundrus in as head of software development. He was the mastermind behind the creation of Cubase, Nuendo, and Studio One.

Then we were able to bring in Wolfgang Schneider, the creator of Kontakt. With these two titans of music software development now on our team, we decided it was time to develop a brand new software engine from the ground up. The Opus software engine is the realization of this effort, and will be the launching pad for many exciting new products in the future.”

The Opus software engine is the realization of this effort. Not only is it faster, more powerful, more flexible, and better looking than Play, it comes with some incredible new features such as individual instrument downloads, customized key-switches, new effects for the mixer page, scalable retina GUI upgrades for legacy products, a powerful new script language, and many more features that allow you to completely customize the sound of each instrument. It’s one of the most exciting developments in the history of our company and will be the launching pad for many exciting new products in the future.

PLEASE NOTE: Opus and Play are two separate software products. Anything you have saved in your projects will still load up inside the saved Play version of the plug-ins. You can update your current/existing projects to Opus if you so choose, or leave them saved within Play.

MAIN FEATURES

Below is a brief list of some of the main features of the Opus software engine. Continue reading this manual for more in-depth coverage of all the powerful controls and features available in Opus.

- **ON DEMAND DOWNLOADS** mean you no longer have to wait hours for large libraries to download. Now instruments can be downloaded individually at the speed of your internet connection. With Audio Previews, audition a sound, download it, and be playing in minutes!

- **FAST AND EFFICIENT PERFORMANCE** was a top priority as Opus was being developed from the ground up. With an emphasis on achieving the most efficient use of computer resources possible, it is the fastest sample engine on the market. Opus runs natively on Apple's new M1 processors, and Intel-based Macs, and is compatible with the latest MacOS Monterey and Microsoft Windows 11 operating systems.

- **HIGH RESOLUTION USER INTERFACES** are now available for all EastWest product's in Opus. The high resolution (retina) user interfaces are also scalable to any size, providing ultimate flexibility when used with high-resolution computer monitors.

- **A POWERFUL SCRIPTING LANGUAGE** is an essential part of overall instrument design. It is used to model instrument behavior, implement sonic features not possible to achieve otherwise, and define user interaction. Opus features a brand new, powerful script language called OpusScript developed by Wolfgang Schneider, the creator of Kontakt. It empowers sound designers to express their ideas, and deploy actual functionality and behavior beyond what the underlying software contains.

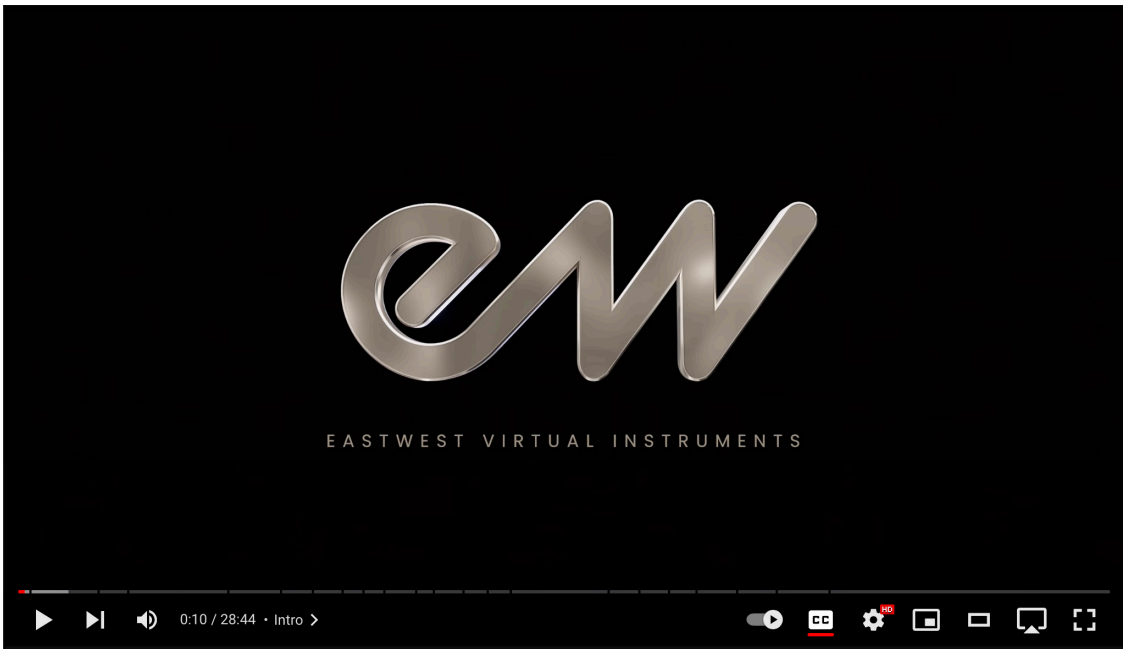
- **CUSTOM KEYSWITCHES** allows users to build their own keyswitch instruments, and the ability to create multi-articulation instruments with a variety of options to switch between articulations on the fly. Trigger Options include Keyswitches, Continuous Controllers (CCs), Velocity, Program Changes, and more.

- **ADVANCED AUTOMATION** options come pre-configured on a per-instrument basis, with custom settings tailored to that instrument or library's unique features. Users are also free to configure their own automation settings by adding automation parameters and macro parameters, the latter of which controls multiple targets with a single macro. Existing MIDI Controller Mapping assignments can also be remapped to any freely available MIDI CC assignment you like.

- **MULTI-INSTRUMENT SETUPS** are easier than ever to manage thanks to a dedicated area of the user interface that handles these 'Performances'. Use an array of controls and options that allow you to customize how multiple instrument interact with each other, including defining octaves, key ranges, trigger actions, and more.

VIDEO WALKTHROUGHS

Visit EastWest Sounds on YouTube for all the latest trailers, software and product walkthroughs, composing tips, and more!



Below are direct links to some of our most popular videos, including a detailed walkthrough of the Opus software engine.

- EastWest Opus Engine Walkthrough
- EastWest Hollywood Orchestra Opus Edition
- EastWest Hollywood Orchestrator

1.1.1 WALKTHROUGH

This section guides you through the first 10 minutes of using Opus, covering basic tasks like setting up your Audio and MIDI devices, and loading your first instrument.

WELCOME TO OPUS

The first time Opus is launched, an initial setup process will begin that helps optimize the CPU and disk performance based on how you plan to use it.

To begin, launch Opus in stand-alone mode by double-clicking on the application in this directory:

- MacOS: MacHD/Applications/EastWest
- Windows: C:\Program Files\EastWest

This will launch the 'Startup Wizard', which will help you optimize Opus. Proceed through the prompts, outlined below.

MULTI-PROCESSING options determine optimal settings depending on whether you intend to use many plugin instances with a moderate number of voices each, or fewer instances (or just a single instance) with many voices. When in doubt, stick to the default.

- I will be using many plugin instances with only 1 instrument each in a DAW.
- I will be using few plugin instances with multiple instruments in a DAW.
- I will be using only one plugin instance in a DAW or in Standalone.

DISK SPEED options determine the type of disk drive(s) samples are being streamed from, how fast they respond, and how much memory is required to ensure seamless playback. The slower the disk, the more memory is required, which can add up significantly for large projects. You can also change these settings manually on a per-drive basis in the preferences at any time.

- I store my libraries on a mechanical hard drive (slow, needs considerable memory).
- I store my libraries on a solid state drive (faster, needs less memory).
- I store my libraries on a a fast NVMe (M.2 / PCIe) drive (needs the least memory).
- I store my libraries on a high end, high performance RAID device (M.2 / PCIe) and / or want to save as much memory as possible (no pre-load memory required)

SERVER REGIONS enable optimal settings for single instrument downloads by selecting the region nearest to you.

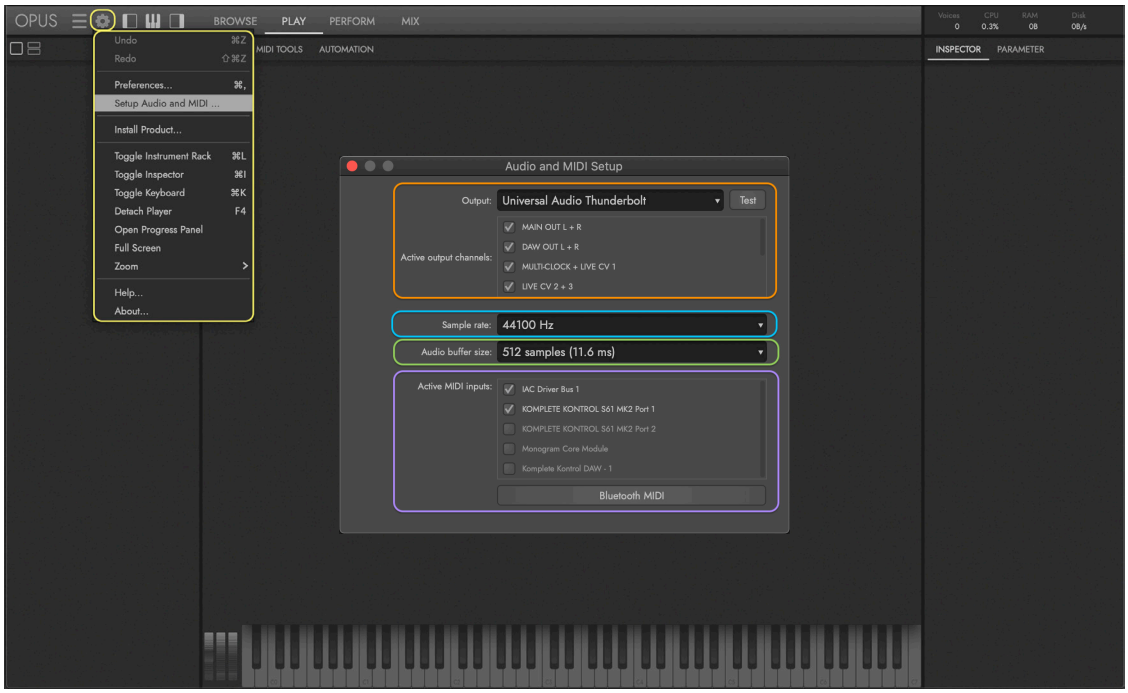
- United States
- Europe
- Asia / Pacific

CONTINUE READING | **SECTION 1.1.3** PREFERENCES to change the preferences set during the welcome prompts at any time.

AUDIO AND MIDI SETUP

Before beginning, click in the **SETTINGS** MENU and select the **SETUP AUDIO AND MIDI** OPTION from the menu to setup your audio and MIDI devices.

Select an audio device from the **OUTPUT** MENU, then test the connection by clicking the **TEST** BUTTON to send a test tone to the audio device selected. If you don't hear anything, make sure the audio device is selected and that it is not muted, or turned down.

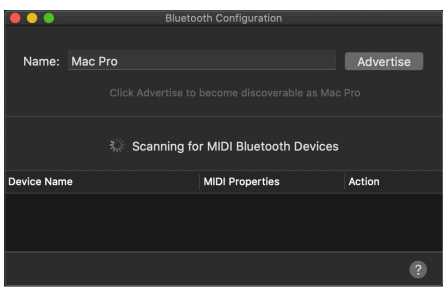


In the **SAMPLE RATE** SELECTION, select between 4 sampling rates: 44.1 kHz, 48 kHz, 88.2 kHz, and 96 kHz. Please note, the higher the sampling rate, the more CPU-intensive it is.

By default, the **AUDIO BUFFER SIZE** SELECTION is set to 512 samples, which introduces 11.6 milliseconds (m/s) of latency (the time it takes for you to hear a sound after playing a note). This is a good place to start, but we recommend you find the lowest audio buffer size your computer can run before encountering performance issues (dropped notes, crackling playback, etc). Please remember, the voice count can climb very quickly with large instruments containing many layers and/or multiple microphone positions.

The **ACTIVE MIDI INPUTS AREA** will show all MIDI inputs that are available. Check the box next to the MIDI device(s) you wish to enable.

Click the **BLUETOOTH MIDI** OPTION in this area to call up the 'Bluetooth Configuration' pop-up window. Here, you can scan for any installed MIDI Bluetooth devices on your system.

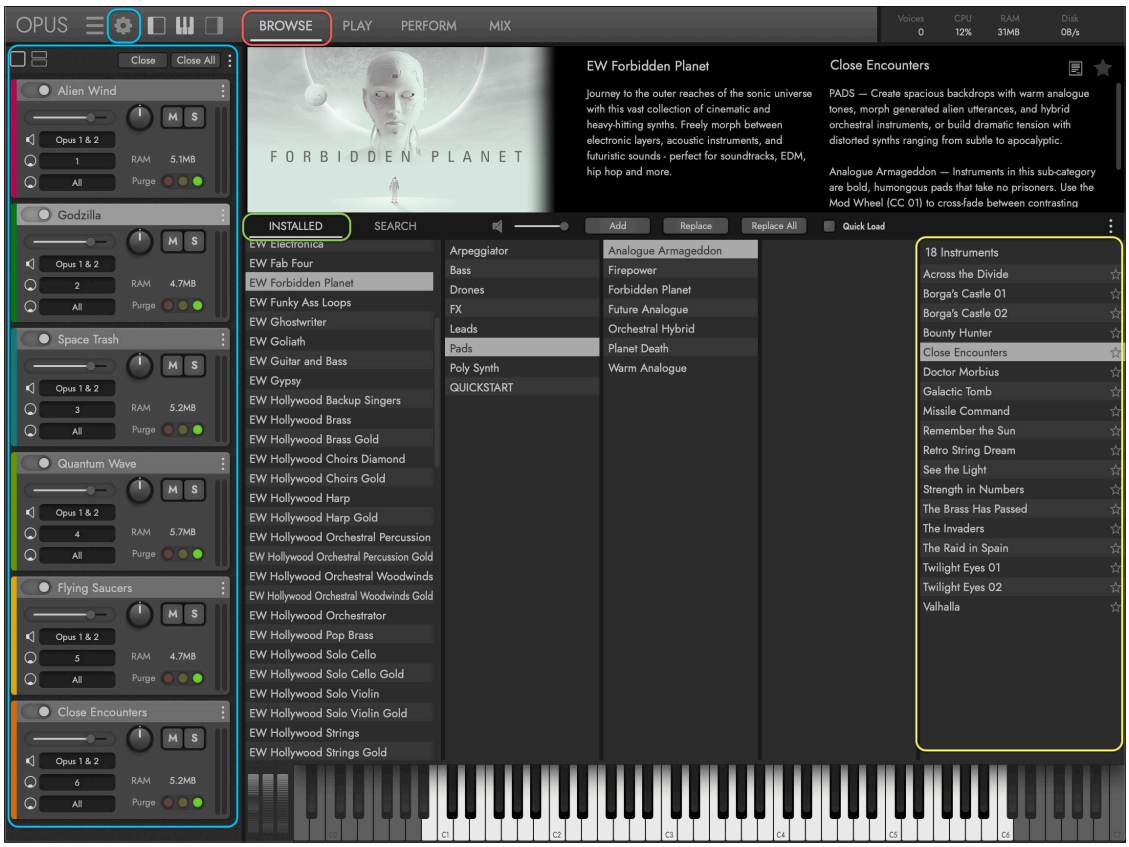


LOADING AN INSTRUMENT

To load an instrument, first click the **BROWSE PAGE** SELECTOR in the **NAVIGATION** BAR to enter the Browse page.

Click on the **INSTRUMENT RACK** BUTTON in the **NAVIGATION** BAR to show the **INSTRUMENT RACK** AREA that appears on left side of the user interface. All loaded instruments populate here with a few basic controls like volume, pan, and MIDI channel assignment.

In the **INSTALLED MODE** AREA, select a product from the list that populates the column on the left, and use the middle columns to browse that product's folder structure.



When a folder containing instruments has been selected from the middle columns, instruments will populate the **RESULTS LIST** COLUMN on the right. Double-click on an instrument to load it, at which point it will populate in the Instrument Rack. Replace the existing instrument by simply double-clicking on another instrument, or hold option (alt) while double-clicking to add instruments to the current selection.

CONTINUE READING | **SECTION 2.1** THE BROWSE PAGE for details about the ways to find, preview, and load instruments.

PLAYING AN INSTRUMENT

Once an instrument is loaded, click the **PLAY PAGE** SELECTOR in the **NAVIGATION** BAR to enter the Play page. The **PLAYER SUB-PAGE** SELECTOR is the default selection in the **PALETTE** MENU, which shows the user interface for the selected instrument (Forbidden Planet shown below).

With an instrument loaded, the **INSTRUMENT SELECTOR** ARROWS can be used to advance to the next preset, or go back to a previous preset. The up/down arrows keys on your keyboard can also be used to advance/previous the preset. The **INSTRUMENT** MENU displays the current instrument selection, with the user interface reflecting its control settings.

Use the **PURGE** CONTROL to adjust the currently selected instrument's memory allocation. To remove an instrument from memory, click the red purge button on the left. The yellow indicator will light up as samples are loaded into memory by playing an instrument's notes in real-time. To load an instrument back into memory, click the green load button on the right. The RAM Status Display will show an instrument's current memory footprint.

The Play page contains other sub-pages that include controls for MIDI processing, automation parameters, and articulation management.

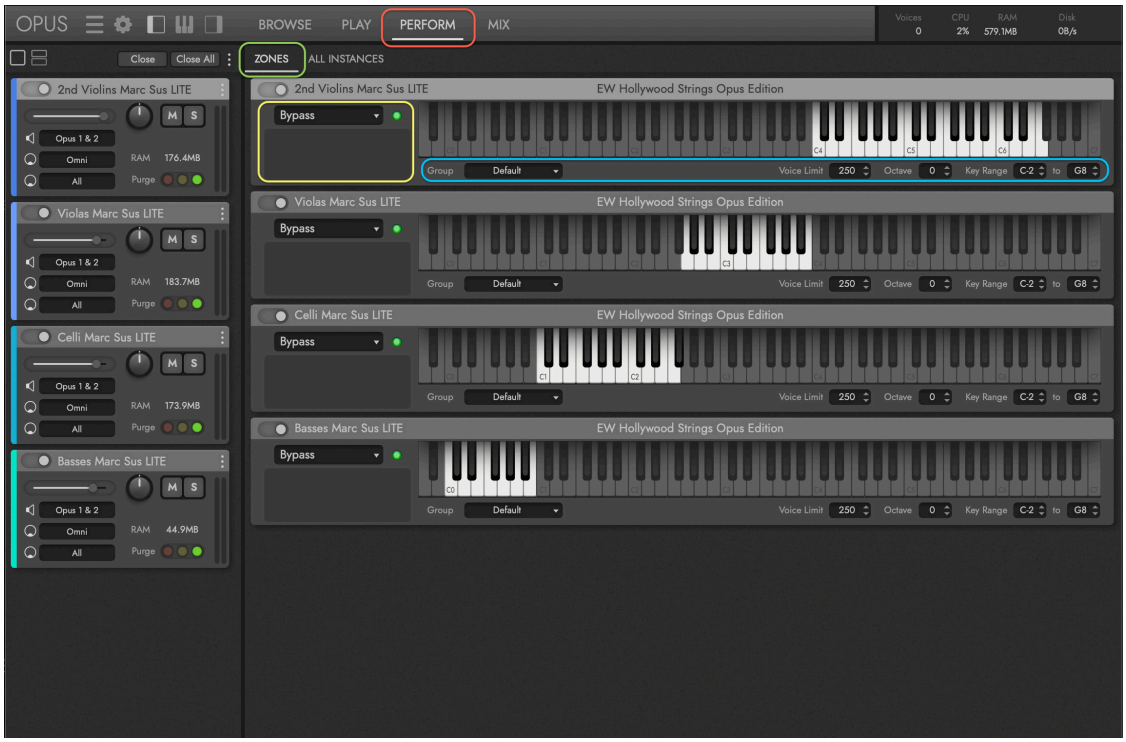
CONTINUE READING | SECTION 2.2 THE PLAY PAGE for more details about the various sub-pages, and the controls available in each.

BUILDING A PERFORMANCE

Create multi-instrument setups (or 'performances') by defining a variety of parameters that control how instruments interact with each other.

Load multiple instruments (or a performance), then click on the **PERFORM PAGE** SELECTOR in the **NAVIGATION** BAR to enter the Perform page.

The **ZONES SUB-PAGE** SELECTOR is the default selection in the **PALETTE** MENU, and displays the instrument properties for all instruments, enabling you to quickly build multi-instrument setups, called performances. Each instrument appears with a panel of controls for applying various **INSTRUMENT ZONE** OPTIONS, and **INSTRUMENT TRIGGER** OPTIONS.



The **ALL INSTANCES SUB-PAGE** SELECTOR can be selected to populate the Perform page with an overview of instruments loaded across all instances of Opus loaded in a DAW. A range of options are available, similar to those in the Zones sub-page, but with additional controls for purging instruments from memory, and selecting individual articulations within a keyswitch instrument.

Some EastWest products feature custom sub-pages that are available in the Perform page that appear after the Zones and All Instances sub-page selectors. For example, Hollywood Choirs features the WordBuilder sub-page, and Hollywood Orchestra Opus Edition features the Orchestrator sub-page.

CONTINUE READING | SECTION 2.3 THE PERFORM PAGE for more details about the various sub-pages and controls available to manage performances.

MIXING AND EFFECTS

Click the **MIX PAGE** SELECTOR in the **NAVIGATION** BAR to enter the **MIX PAGE**, where instruments can be mixed and effects applied.

The **EFFECTS** AREA occupies the top half of the Mix page, and displays the insert effects loaded on the selected channel (by default, the Master channel).

The **MIXER** AREA is located in the bottom-half of the Mix page, and populates with the mixer channel setup based on the product the instrument orginates from.

Shown above is an instrument from Forbidden Planet, which has a standard mix setup that contains a Master channel, 2 Sub Mixer channels, and 2 FX Bus channels, with effects inserted on each.

Click the **ADD INSERT EFFECT** BUTTON in the **PALETTE** MENU to select an effect from 7 main categories: EQ, Dynamics, Distortion, Modulation, Harmonics, Delay, and Reverb. This will add it to the next available insert effect slot on the currently selected channel (which by default is the the Master channel).

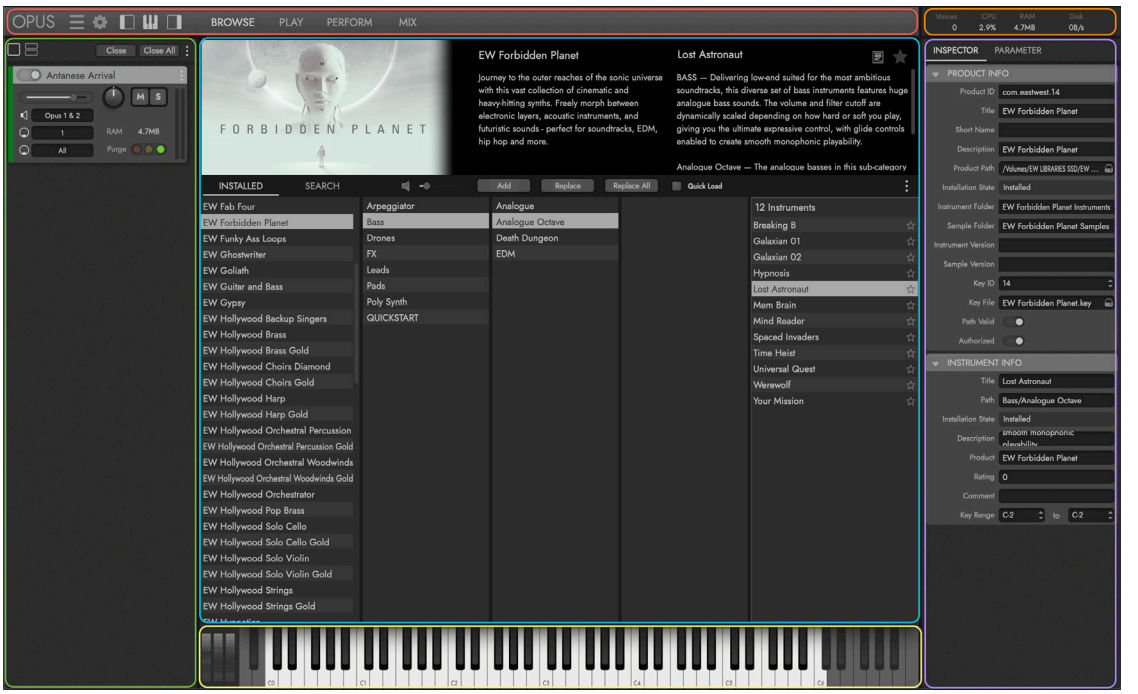
CONTINUE READING | **SECTION 2.4** THE MIX PAGE for details about the how to mix, add effects, and finalize the output for all loaded instruments.

1.1.2 USER INTERFACE

The Opus user interface is divided into 6 main areas (some initially hidden from view). They are briefly outlined below, and expanded upon in the following sections.

At the top is the **NAVIGATION BAR** AREA that contains important menus and buttons to access all the main areas of the Opus user interface (from left to right):

- The **OPUS** BUTTON opens an 'About' window with software info and credits.
- The **MAIN MENU** OPTIONS (horizontal lines) are related to saving and opening instruments and performances, and the **SETTINGS MENU** OPTIONS (gear icon) contain preferences for audio and MIDI, and more.
- The **INTERFACE** TOGGLES show and hide parts of the Opus user interface: the Instrument Rack (left), the Virtual Keyboard (middle), and the Inspector (right).
- The **PAGE** SELECTORS switch the **MAIN DISPLAY** AREA between the Browse (shown), Play, Perform, and Mix pages.



The **INSTRUMENT RACK** AREA populates with loaded instruments, and includes basic controls for volume, pan, solo / mute, and more.

The **VIRTUAL KEYBOARD** AREA shows the selected instrument's sampled key range, pitch wheel, modulation wheel (CC 01), and expression wheel (CC 11).

The **SYSTEM USAGE** AREA area provides real-time stats related to the number of simultaneous voices, CPU usage, RAM usage and disk usage.

The **INSPECTOR** AREA shows information based on the selection, whether that's an instrument selected in the Browse page, or a channel selected in the Mix page.

MAIN DISPLAY

Much of the action in Opus happens in the Main Display area. It populates with different controls and functions depending on the selected page (and sub-page).

Use the **PAGE** SELECTORS in the **NAVIGATION** BAR to switch the **MAIN DISPLAY** AREA between the 4 main pages: Browse, Play, Perform, and Mix.

Additionally, the Play and Perform pages also have multiple **SUB-PAGE** SELECTORS located in the **PALETTE** MENU which influence what appears in the Main Display.

In the example shown above, an instrument from Hollywood Orchestra Opus Edition is first loaded in the Browse page.

When the Play page is selected, the Main Display will change to show the custom user interface for this instrument. It appears in the Player sub-page (which is the default sub-page selection). Selecting other sub-pages will change the Main Display to their respective interface and control set.

Selecting the Perform page will populate the Main Display with controls that help manage multi-instrument performances, including those unique to certain products like Hollywood Choir's WordBuilder, or Hollywood Orchestra's Orchestrator.

Finally, the final output of an instrument, or set of instruments, can be polished in the Mix page, by using an array of mixer controls and effects processors.

INSTRUMENT RACK

The **INSTRUMENT RACK** AREA appears on the left side of the Opus user interface, and can be opened and closed by clicking on the **INSTRUMENT RACK** TOGGLE in the **NAVIGATION** BAR. All loaded instruments appear in this area along with a number of controls and options further detailed below.

Instruments can be viewed in the default **FULL RACK** VIEW by clicking on the full square icon, or the **HALF RACK** VIEW by clicking on the smaller stacked square icon. The Full Rack view provides access to all available controls, and the Half Rack view provides access to essential controls like volume, pan, mute, and solo. These essential controls are the same as those available in the Mix page.

The **CLOSE / CLOSE ALL** BUTTONS will remove the selected instrument, or all loaded instruments, from the Instrument Rack, purging them from memory (RAM). If no changes to the instrument(s) were made, the instrument(s) will be removed. If any of the instruments were modified, a dialog box that says 'Instrument needs saving' will appear, giving you the options outlined in the bullets below.

- Select **DISCARD CHANGES** to remove the current instrument and lose any unsaved changes. This option allows you to go through each instrument individually and determine whether to discard or save changes.
- Select **DISCARD ALL CHANGES** to remove all instruments and lose unsaved changes.
- Select **SAVE** to retain any changes made to the instrument for later recall.
- Select **CANCEL** to close the dialog box and return to the Opus user interface.

ON / OFF SWITCH is located in the top-left corner of an instrument's rack space, allowing it to be deactivated, and removed from memory.

ESSENTIAL CONTROLS are a row of controls just below the instrument header, and include volume, pan, mute, and solo.

Use the **AUDIO MIDI I/O** SELECTORS to determine (starting at the top) an instrument's audio output, MIDI Channel Assignment, and MIDI input port.

- The **AUDIO OUTPUT** SELECTOR controls the selected instrument's audio output.
- The **MIDI CHANNEL** SELECTOR allows the selection of various modes that control the way in which incoming MIDI is received by the selected instrument. The various MIDI channel modes are described in the table below.

MIDI Mode	Description
MULTI	This MIDI mode is useful for MIDI guitar controllers by allowing per-note control of Mod Wheel (CC1), Expression (CC11) and Pitch Bend by sending those MIDI messages only to the voices on the same MIDI channel as the controller event.
MPE	This MIDI mode stands for "Multi-Dimensional Polyphonic Expression" and is a MIDI standard developed by the MIDI Manufacturer Association to accommodate a new class of MIDI controllers like the Roli Keyboard, the Linnstrument, and the EigenHarp. In this mode, each note is sent to its own MIDI channel, cycling through an allocated block of channels that enables MIDI messages (restricted to Note On, Note Off, Channel Pressure, Pitch Bend and CC74) to be sent per-note, while global MIDI messages like CC7 (Volume) and CC64 (Sustain) are applied to all voices, regardless of the MIDI channel they were sent over.
OMNI	This MIDI mode sets an instrument to receive MIDI on all channels (1-16), with Mod Wheel (CC1), Expression (CC11) and Pitch Bend modulation applied to notes on all MIDI channels. This is useful when layering sounds intended to be played together, like when stacking separate string sections together to create a full string patch.
1-16	Set instruments to receive MIDI on discrete channels (1-16), with Mod Wheel (CC1), Expression (CC11) and Pitch Bend modulation applied to notes on that specific MIDI channel. This is useful when using Opus as a Multi-Timbral plugin, where individual control is needed.

- The **MIDI PORT** SELECTOR allows the selection of any active MIDI inputs that are enabled in the Settings menu under the Audio and MIDI Setup window.

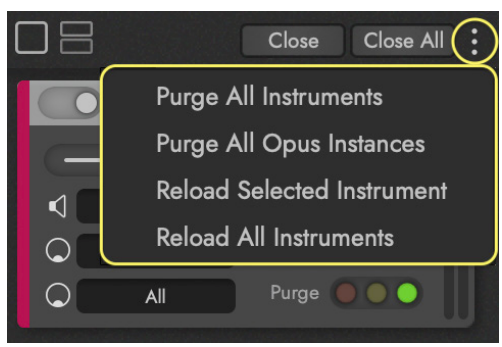
Use the **PURGE** CONTROL to manage an instrument's memory (RAM) allocation. It provides both buttons that change the purge state itself, as well as visual feedback that indicates an instrument's current purge state.

- The **RED** BUTTON / INDICATOR will completely remove an instrument from memory (RAM), and its indicator will light up.
- The **YELLOW** INDICATOR will light up as samples are loaded into memory (RAM) from a completely purged state, as notes of an instrument are played in real-time.
- The **GREEN** BUTTON / INDICATOR will completely load an instrument into memory (RAM) based on the 'Default Preload Size' set in streaming preferences, and its indicator will light up.

- The **RAM STATUS** DISPLAY shows how much memory (RAM) an instrument is currently using, which will change depending on the instrument's purge state.

The **INSTRUMENT RACK OPTIONS** MENU contains options for purging and updating instruments.

- The **PURGE ALL INSTRUMENTS** OPTION removes instruments from memory (RAM) in the given instance.
- The **PURGE ALL OPUS INSTANCES** OPTION removes instruments from memory (RAM) across all instances of Opus.
- Select the **RELOAD SELECTED INSTRUMENT** OPTION to update the selected instrument with the latest instrument file currently installed (otherwise, the instrument saved with the project file will be loaded).



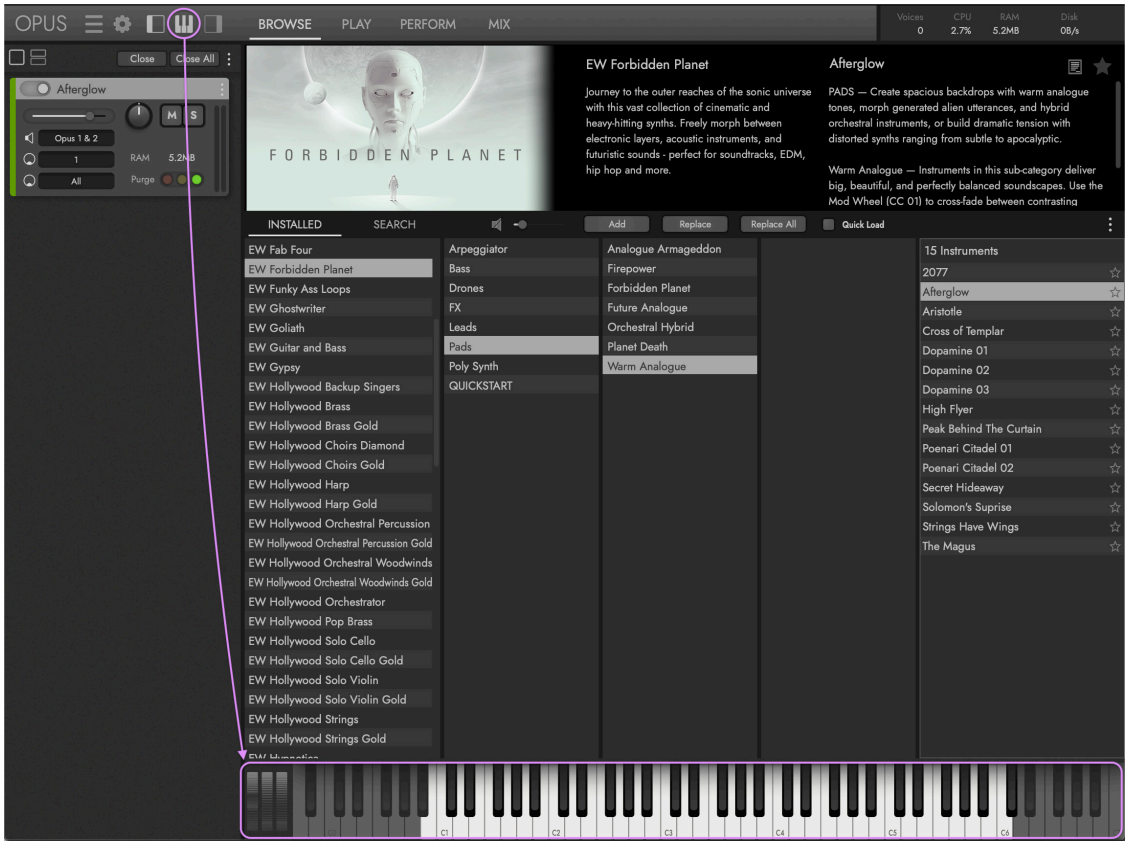
- Select the **RELOAD ALL INSTRUMENTS** OPTION to update all loaded instruments with the latest instrument files currently installed (otherwise, the instruments saved with the project file will be loaded).

The **INSTRUMENT OPTIONS** MENU contains options for removing and revealing instruments.

- Select the **REMOVE** OPTION to remove the instrument from the Instrument Rack (effectively the same as using the 'Close' option above.
- Select the **REVEAL IN LIBRARIES** OPTION to jump to the EastWest Library an instrument originates from in the Installed mode of the Browse page.

VIRTUAL KEYBOARD

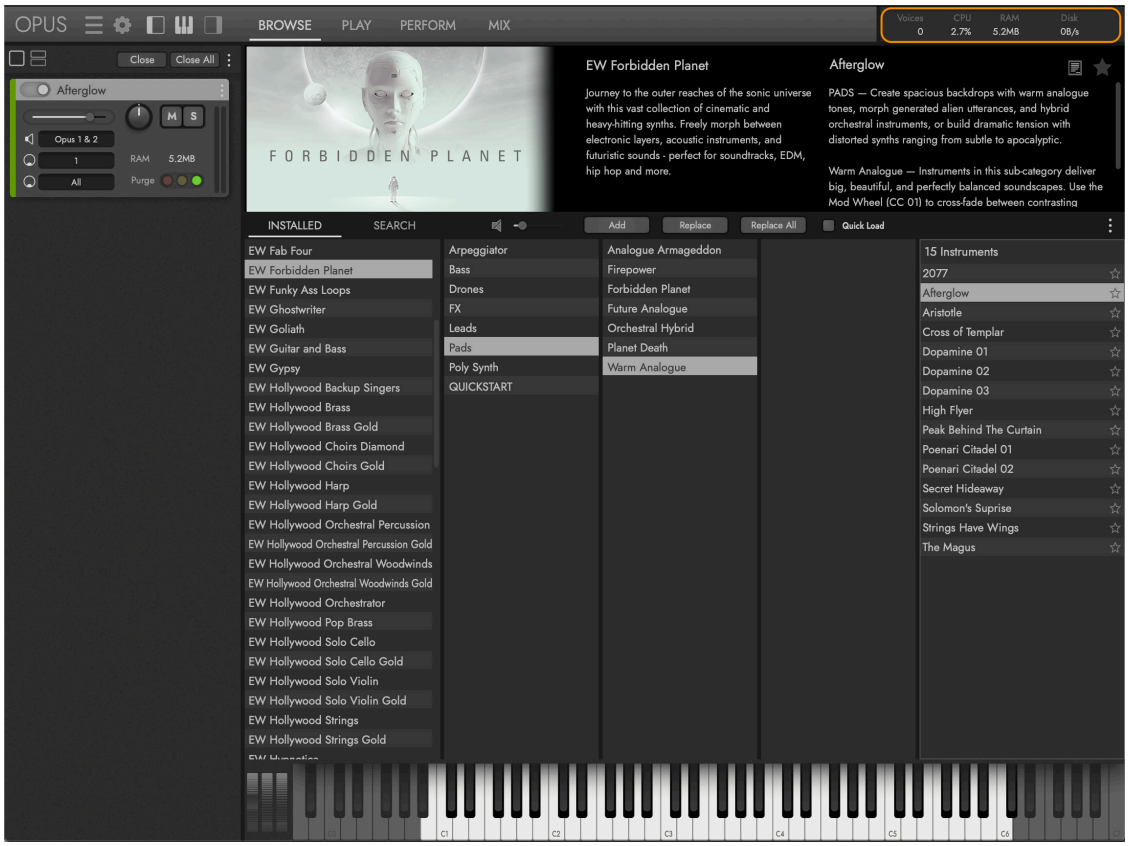
The **VIRTUAL KEYBOARD** AREA appears at the bottom of the Opus user interface, and is opened and closed by clicking on the **VIRTUAL KEYBOARD** TOGGLE in the **NAVIGATION** BAR. This area displays various information and controls that can be viewed in all pages and sub-pages.



- The **KEY RANGE** is the playable (sampled) range of notes that appear as white keys on the Virtual Keyboard. Keys appear gray if no samples are mapped. The MIDI note number appears at every octave on note C.
- The **KEYSWITCHES** are blue-colored keys that appear outside the Key Range of an instrument. They allow instant switching between articulations, and are highlighted yellow to indicate the current selection.
- The **PITCH BEND WHEEL** raises or lowers the pitch of an instrument plus (+) or minus (-) the designated amount programmed into the instrument.
- The **MOD WHEEL (CC 01)** controls the amount of modulation applied to an instrument between the values of 0 and 127. It typically controls the cross-fade between dynamic layers and/or vibrato layers, but can be programmed to control anything.
- The **EXPRESSION WHEEL (CC 11)** typically controls overall volume or the cross-fade between dynamic layers between the values of 0 and 127, but it can be programmed to control other parameters in certain use cases.

SYSTEM USAGE

The **SYSTEM USAGE** STATS appear in the top-right corner of the Opus user interface. They provide real-time feedback about the resources being used by your computer.



- The **VOICES** readout displays how many simultaneous voices are active, including voices that are playing, but not heard. For example, instruments that use the Mod Wheel (CC 01) to cross-fade between multiple layers playback all layers at once, but only those active at the Mod Wheel position are heard.
- The **CPU** readout displays the percentage of computer processing power being used. The percentage of computer processing power required is determined by multiple factors, including the number of simultaneous voices, and effects processing.
- The **RAM (MEMORY)** readout displays the current amount of memory (RAM) used. The amount of memory used depends on the number of instruments loaded, and how large those instrument are in terms of number of velocity layers, microphone positions, and more.
- The **DISK** readout displays the amount of disk activity occuring. A portion of each instrument is loaded into memory (RAM), while the remaining portion is streamed from the disk drive in real-time. The allocation of each instrument that is loaded into memory, versus streamed from the disk drive is determined by the 'Audio Drive' settings, found in the Settings Menu / Preferences / Audio Drives area.

INSPECTOR

The **INSPECTOR AREA** appears on the right side of the Opus user interface, and can be opened and closed by clicking on the **INSPECTOR TOGGLE** in the **NAVIGATION BAR**. It is made up of the **INSPECTOR TAB** and the **PARAMETER TAB**, which are described in more detail below.

INSPECTOR reveals different information and controls depending on which part of the user interface you're interacting with.

When interacting with the **BROWSE PAGE**, the Inspector populates with the following:

- **PRODUCT INFO** contains information like the product title, installation state, instrument and sample directory paths, and more.
- **INSTRUMENT INFO** contains information like the instrument name and path, installation state, sampled key range, and more.

When interacting with the **PLAY PAGE** and **PERFORM PAGE** the Inspector populates with:

- **PERFORMANCE** contains information about the selected performance, including its name, file path, tempo (BPM), and more.
- **INSTRUMENT** contains information about the selected instrument, including its name, file path, tuning scale, MIDI channel, voice limit, and more.
- **INSTRUMENT ZONE** contains an instrument's key range, and octave transposition.

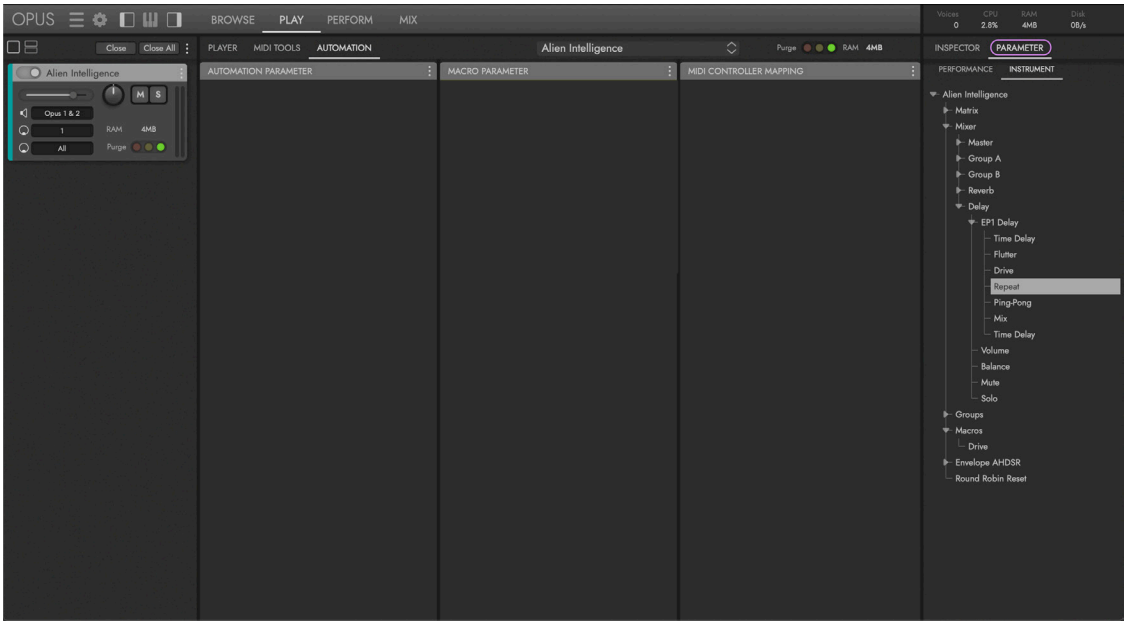
When interacting with the **MIX PAGE**, the Inspector populates with:

- **CHANNEL** contains information like the volume, pan, audio output, and more.

- **EFFECT** contains all the controls available on the effect's interface.

PARAMETER reveals a Parameter Tree containing a set of controls for both instruments and performances (whichever is selected).

The Parameter Tree is setup in a hierarchical structure that outlines the basic building blocks (parameter control sets) of instruments and performances.



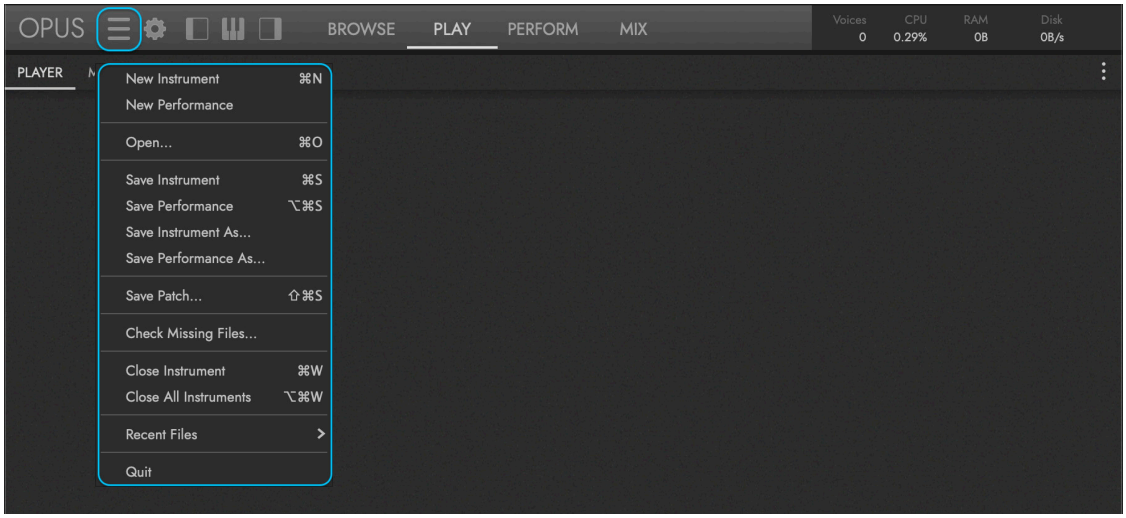
Navigate the Parameter Tree by clicking on the small triangle buttons that open and close the various hierarchy structures.

Using the option (alt) key while clicking on these buttons to enable all structures within a given sub-hierarchy to be opened and closed at once.

CONTINUE READING | SECTION 2.2.3 AUTOMATION SUB-PAGE 'Adding Parameters' for how to use the Parameter Tree to make parameters automatable in a DAW.

MAIN MENU

Click the **MAIN MENU** BUTTON in the **NAVIGATION** BAR for menu options related to opening, saving loading instruments and performances, and more.

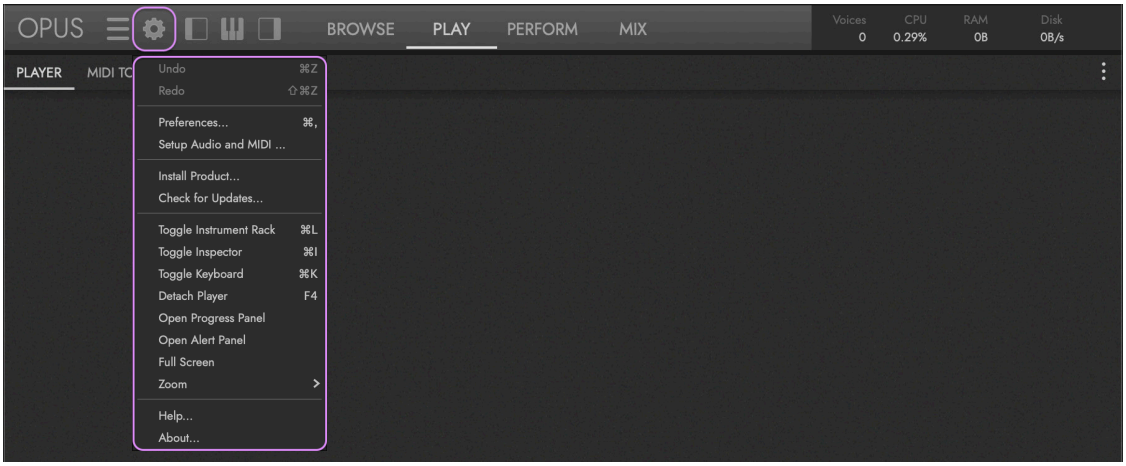


OPTIONS	SHORTCUTS *	DESCRIPTIONS
New Instrument	⌘ N	Brings up the 'Create Instrument' dialog, where a new Project and Template can be chosen to save it to.
New Performance		Brings up the 'Create Performance' dialog, where a new Project and Template can be chosen to save it to.
Open	⌘ O	Opens a search window, where an existing instrument can be searched for and loaded.
Save Instrument	⌘ S	Saves any changes made to the existing instrument.
Save Performance	⌥ ⌘ S	Saves any changes made to the existing performance.
Save Instrument As...		Opens a 'Save As' window, where an existing instrument can be saved as a new file in the selected directory.
Save Performance As...		Opens a 'Save As' window, where an existing performance can be saved as a new file in the selected directory.
Save Patch...		Saves a reference file for the selected instrument, where Player and Mixer parameters modified by the user can be saved.
Check Missing Files...		A command that checks an instrument for missing files.
Close Instrument	⌘ W	A command that closes the currently selected instrument.
Close All Instruments	⌥ ⌘ W	A command that closes all loaded instruments.
Recent Files		A sub-menu that shows the last 15 instrument and/or performances that have been loaded.
Quit		A command that quits the Opus software.

* Windows Users must use the Control modifier key instead of Command (⌘).

SETTINGS MENU

Click the **SETTINGS MENU** BUTTON in the **NAVIGATION** BAR for a menu of options that includes Preferences, Audio and MIDI Setup, Install Product, and more.

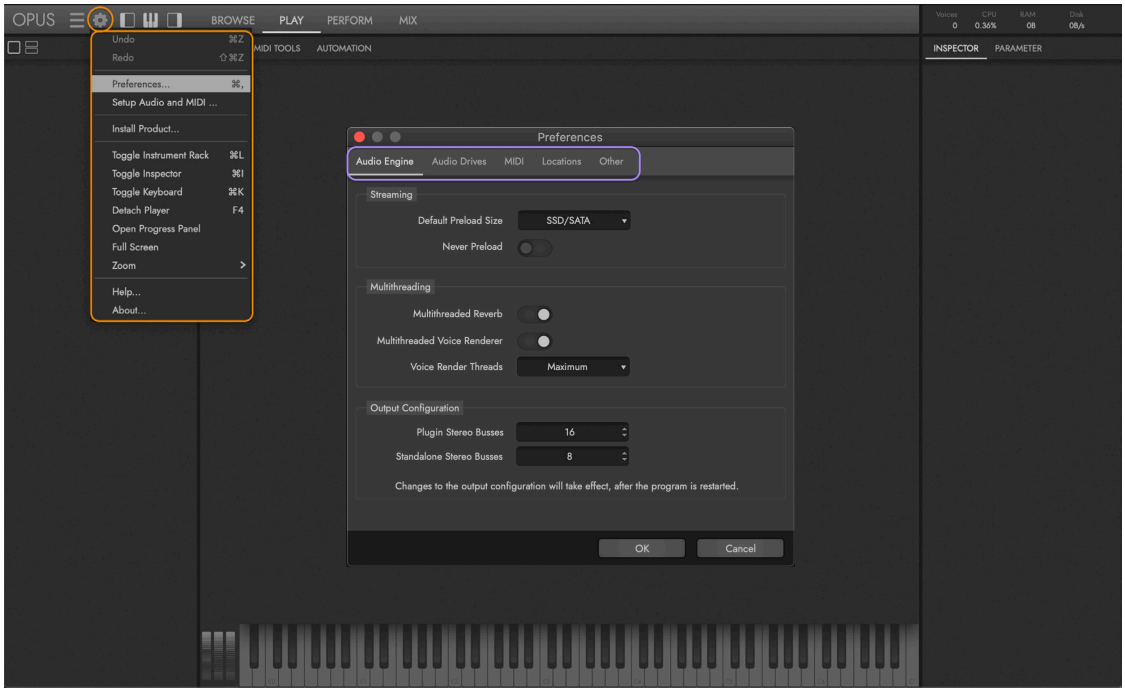


OPTIONS	SHORTCUTS *	DESCRIPTIONS
Undo	⌘ Z	Undo the last action.
Redo	⇧ ⌘ Z	Redo the last action.
Preferences	⌘ ,	A variety of preferences across a range of categories. For details, see the 'Preferences' section of this manual.
Setup Audio and MIDI		Setup Audio and MIDI devices. For details, see the 'Audio and MIDI Setup' section.
Install Product...		For product's that do not appear in the Installed mode of the Browse page, install it with this option by navigating to, and selecting that product's library folder.
Check for Updates...		Click this option to check for available software updates.
Toggle Instrument Rack	⌘ L	Show and hide the Instrument Rack, which populates with loaded instruments. It appears as a panel on the left side of the Opus user interface.
Toggle Inspector	⌘ I	Show and hide the Inspector, which populates with properties depending on what's currently selected. It appears as a panel on the right side of the Opus user interface.
Toggle Keyboard	⌘ K	Show and hide the Virtual Keyboard, which appears on the bottom of the Opus user interface.
Detach Player	F4	This option will detach the Play page from the Opus user interface, offering flexibility in multi-monitor setups.
Open Progress Panel		Opens a panel that displays instruments currently downloading.
Open Alert Panel		Opens a panel that displays software engine alerts.
Full Screen		Enters Opus into a full screen mode.
Zoom		Offers varying zoom levels to accommodate different monitor resolutions and sizes: 50%, 75%, 100% (default), 150%, 200%.
Help		Opens the Opus Software Manual PDF.
About		Brings up a splash screen with information related to Opus, including the version number, build date, and software credits.
* Windows Users must use the Control modifier key instead of Command (⌘).		

1.1.3 PREFERENCES

Click the **SETTINGS MENU** BUTTON in the **NAVIGATION** BAR, then click on the 'Preferences' option to open the 'Preferences' pop-up window.

In this window there are 5 selectable **PREFERENCE** TABS that run along the top, one for each preference category. They include Audio Engine, Audio Drives, MIDI, Locations, and Other. Each category is covered in detail below.



AUDIO ENGINE

These preferences are for Streaming, Multi-threading and Output Configuration.

The **STREAMING** OPTIONS determine the ratio of how much of each instrument is loaded into memory (RAM), versus how much of it is streamed from a drive in real-time. Faster drives require less memory, since more can be streamed directly from the drive, while samples streamed from slower drives require more memory because less can be streamed from the drive in real-time.

- **DEFAULT PRELOAD SIZE** allows you to choose between types of drives, which determines the amount of each instrument that is loaded into memory (RAM) versus streamed from disk.
  - **HDD (HARD DRIVE):** mechanical hard drive (slow, needs considerable memory).
  - **SSD (SATA):** SSD on a SATA connection (faster, needs less memory).
  - **SSD (PCIe):** SSD NVMe (M.2 / PCIe) drive (needs the least amount of memory).
- **NEVER PRELOAD** allows you to exclusively stream from the drive in real time, with nothing loaded into memory (RAM). For optimal performance, this requires high-end, high

performance drives (M.2 / PCIe) in a RAID 0 configuration, which combines 2 drives into a single volume to increase its speed.

The **MULTI-THREADING** OPTIONS determine whether or not multithreading is enabled on the Reverb and Voice Renderer, and how many Voice Render Threads to allow. Multi-threading is the ability for multiple threads (processes) to be executed simultaneously on separate processors. The settings configured during the initial setup are intended to help select the best options based on your computer specifications.

- **MULTI-THREADED REVERB** can be enabled and disabled by using the switch.
- **MULTI-THREADED VOICE RENDERER** can be enabled by using the switch.
- **VOICE RENDERER THREADS** can be selected as 'minimum', 'medium', and 'maximum'. Larger settings require more CPU resources, but enable more voices.

The **OUTPUT CONFIGURATION** OPTIONS determine how many stereo outputs are available when using Opus in standalone mode, or as a plugin.

- **PLUGIN STEREO BUSSES** can be set between 1 and 16. Use the up or down arrows to select a number.
- **STANDALONE STEREO BUSSES** can be set between 1 and 8. Use the up or down arrows to select a number.

AUDIO DRIVES

These preferences specify the type of each drive, which will change the ratio of how much of each instrument is loaded into memory (RAM), versus how much of it is streamed from a drive in real-time. Faster drives require less memory, since more can be streamed directly from the drive in real-time, while samples streamed from slower drives require a higher ratio to be loaded into memory, to compensate for slower disk speed.

- **DEFAULT** uses the drive type selected in the **STREAMING** OPTIONS menu.
- **HDD (HARD DRIVE)** is a mechanical hard drive (slow, needs considerable RAM).
- **SSD (SATA)** selects a SSD on a SATA connection (faster, needs less RAM).
- **SSD (PCIe)** selects a fast NVMe (M.2 / PCIe) drive (needs the least amount of RAM).

There are several factors that determine what kind of performance you can expect when streaming samples from a hard drive in real-time, including the type and speed of the drive itself, the speed of the connection type, and other options (like using a RAID 0 setup) for increasing transfer speed.

- **SOLID STATE DRIVES (PCIe)** using NVMe gives you seek and retrieval times that are near instantaneous, allowing for smooth performance even when working with larger projects, with less memory and with lower latencies. To take full advantage of the speed, use with high bandwidth interfaces like PCIe (M.2), or externally via a USB 3.1 gen 2 or Thunderbolt 3 ports.
- **SOLID STATE DRIVES (SATA)** also gives fast seek and retrieval times, and allow for smooth performance with larger projects. While much faster than traditional Hard Disk Drives (HDD), next-generation SSDs using NVMe are many times faster. Re-

gardless, to take most advantage of their speed, install them internally to a SATA III connection, or externally via a USB 3.1 gen 1 or Thunderbolt 2 port, or higher.

- **HARD DISK DRIVES (HDD)** are mechanical hard drives running at 7200 rpm (non-energy saving). They are the minimum drive specification, are slow, and need considerable memory for optimal performance. It's best to install these drives internally to a SATA III connection, or externally via eSATA or USB 3.0. Slower connection types like USB 2.0 or Firewire 400 / 800 will offer much less performance, and may not be fast enough for instruments with high voice counts.
- **RAID 0 SETUPS** are ideal for professional users who want to achieve the highest performance configuration when using drives to stream samples. This configuration combines 2 drives into a single volume to increase its speed. There are many resources available online that provide instructions, or you can consult a computer specialist.
- **OTHER CONSIDERATIONS** to ensure best performance include using multiple drives dedicated solely to streaming. This avoids bottlenecks with intensive projects that are streaming thousands of voices simultaneously.

MIDI

These preferences set options for several important MIDI functions.

MIDI CHANNEL ASSIGNMENT OPTIONS determine the way in which instruments are assigned to MIDI channels using various modes.

- **AUTO-INCREMENT** mode assigns each newly loaded instrument to the next available MIDI channel (1, 2, 3, etc). Select this option when you wish to use Opus in a multitimbral fashion.
- **OMNI** mode assigns instruments to receive MIDI on all channels (1-16). Select this option if you wish to have all instruments play simultaneously, useful for instrument stacks or splits (the latter of which requires key range definitions to be set in the Perform page).
- **MPE** stands for "Multi-Dimensional Polyphonic Expression" and is a MIDI standard developed by the MIDI Manufacturer Association to accommodate a new class of MIDI controllers like the Roli Seaboard, Expressive E Osmose, the Linnstrument, and the EigenHarp. In this mode, each note is sent to its own MIDI channel, cycling through an allocated block of channels that enables MIDI messages (restricted to Note On, Note Off, Channel Pressure, Pitch Bend and CC74) to be sent per-note, while global MIDI messages like CC7 (Volume) and CC64 (Sustain) are applied to all voices, regardless of the MIDI channel they were sent over.

The **ROUND ROBIN** OPTIONS determines what MIDI CC or Note will reset the Round Robin cycle back to the first rotation.

- **RESET CONTROLLER** enables a MIDI CC number to reset the Round Robin (RR) cycle. Use the up or down arrows, or click in the field and type a number directly in.

- **RESET NOTE** allows a MIDI Note to reset the Round Robin (RR) cycle. Use the up or down arrows, or click in the field and type the MIDI Note number directly in.

The **ARTICULATION** OPTIONS includes a switch to enable the 'Program Change to Articulations' option that allows program change messages to change articulations.

LOCATIONS

The **DOWNLOAD** OPTIONS area allows you to manage the location in which to store instruments that are downloaded individually.

- **ON DEMAND DOWNLOAD DIRECTORY** can be defined by clicking on the disk icon on the right to open a search window, where you can select a location to download individual instruments to, then click 'Open'.
- **SERVER REGION OPTION** can be chosen by selecting the region closest to you, with options that include Americas, Europe, and Asia/Pacific.
- **DOWNLOAD WITHOUT ASKING** can be enabled to allow the download of instruments without asking your permission to proceed each time.

The **LIBRARY** DIRECTORIES area allows you to manage the location(s) of libraries that were downloaded in their entirety.

- **ADD / REMOVE LIBRARIES** can be used to Add (+) a new location containing libraries, or Remove (-) one. Click the Add (+) button to open a search window, where you can navigate to a location where libraries are stored, then click 'Open' to add it. Select an entry from the list and click the Remove (-) button to remove it.
- **UP / DOWN** can be used to move the library directories up and down in the list.
- **RECONNECT LIBRARIES** scans the locations(s) set in the Library Directories list and re-establishes the directory path for the libraries within.

PLEASE NOTE: Opus works in a seamless fashion with products whose entire library has been fully downloaded, and with libraries whose instrument(s) have been downloaded individually (called a partial download), or a combination of both.

CONTINUE READING | SECTION 2.1.6 DOWNLOAD INSTRUMENTS for more information about managing instrument and library downloads.

OTHER

These preferences contain options related to the user interface and loading effects.

The **USER INTERFACE** OPTIONS contains several options that affect the user interface.

- **METER DECAY** allows you to choose how fast the volume meters decay from their peak, between 1 and 12 milliseconds.

- **ZOOM PLAYER UI** will scale the Player sub-page when the size of the UI is increased. Disabling this option keeps the Player sub-page a default size regardless of the UI size.
- **ZOOM PERFORMANCE UI** will scale the Perform pages when the size of the UI is increased. Disabling this option keeps the Perform page a default size regardless of the UI size.
- **SHOW ALERT POP-UP ON TOOL BAR** will display any error message alerts in the toolbar.
- **USE OPEN GL ACCELERATION** to delegate certain computing tasks to hardware graphics cards and/or drivers that support OpenGL mode. This can speed up processing by taking advantage of dedicated hardware systems instead of relying on software alone.

The **LOAD** OPTIONS contains a 'Load With Effects Off' switch that when enabled will load an instrument with all of the effects turned off. This is both helpful for those that wish to save CPU resources, and for those that prefer to setup instrument's effects bus routing within their DAWs.

1.1.4 PLUG-IN USE

This section covers some common setups when using Opus in a DAW, specifically those related to multi-timbral use (up to 16 channels per instance), and multi-output configurations (up to 16 stereo outputs).

PLEASE NOTE: Logic Pro is the DAW used in the examples below. Please refer to the documentation for the DAW of your choice for instructions on using plug-ins in their software.

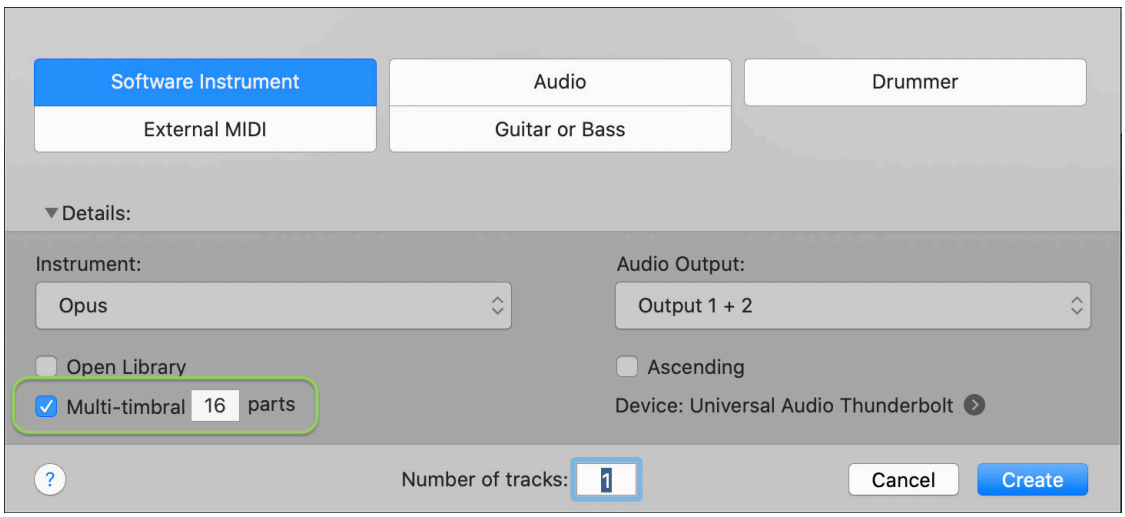
LOADING OPUS

In Logic Pro, use the 'Add Tracks' window to select 'Software Instrument' track (default), then click in the Instrument drop-down menu. Navigate to 'AU Instruments', then navigate to East West / Opus.

While hovering over Opus, 2 output configurations become available: Stereo, and Multi-Output (16xStereo). For this example, select the Multi-Output (16xStereo) option.

MULTI-TIMBRAL SETUP

Next, check the **MULTI-TIMBRAL** CHECKBOX, and use the default setting of 16 parts, then click 'Create' to load an instance of Opus into Logic with 16 MIDI channels.



MIDI CHANNEL ASSIGNMENTS

Before you begin loading instruments into an instance of Opus setup as a multi-timbral plug-in, first make sure the 'Auto Increment' setting in the MIDI Channel Assignment area is enabled. This will assign each successive instrument loaded to the next available MIDI channel (1, 2, 3, etc), up to 16.

Make sure the 'Auto Increment' switch is enabled by going to the Settings Menu / Preferences / MIDI / MIDI Channel Assignment area.

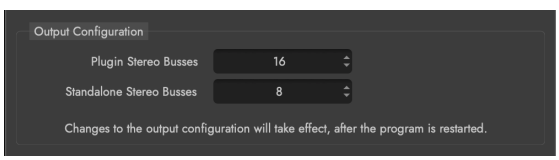
MULTIPLE OUTPUTS

There are many ways to setup multiple outputs, but in this case we could output up to 16 instruments on their own stereo pair, enabling each instrument it's own mixer channel and effects in Logic.

For instruments with multiple microphone positions, each microphone could be sent to a specified output, across all instruments, to allow the entire orchestra to be mixed with control over each microphone position.

For example, in the Mix page in Opus, click on the **SUB MIXER** BUTTON to open and close the Sub Mixer channels. In the **OUTPUT** SELECTOR assign each microphone to output on their own stereo pair (1/2, 3/4, 5/6, 7/8, etc), up to 16 stereo pairs.

To enable multiple outputs, enter a number up to 16 into the 'Plugin Stereo Busses' field in the 'Output Configuration' section of Opus, which can be found in Settings Menu under Preferences / Audio Engine.



AUTOMATION

Add interest by automating parameter changes over time to create movement in an instrument's musical line.

To see an instrument's automatable parameters, click on the **PLAY PAGE** SELECTOR in the **NAVIGATION** BAR, then click on the **AUTOMATION SUB-PAGE** SELECTOR in the **PALETTE** MENU.

This area populates with automation parameters, macro parameters, and MIDI controller mapping based on the currently selected instrument. Custom parameters can also be added to instruments.

> **CONTINUE READING | SECTION 2.2.3** AUTOMATION SUB-PAGE for details on how to add your own parameters, and the various controls to customize them.

The **AUTOMATION PARAMETERS** AREA populates with automation parameters that appear in a DAW's plug-in automation lanes.

The **MACRO PARAMETERS** AREA populates with macro parameters controlled by MIDI CCs. They can be recorded live into a DAW's MIDI automation lanes, along with the rest of your MIDI performance. For real-time control, set the knobs and sliders of a MIDI controller to a parameter's MIDI CC assignments.

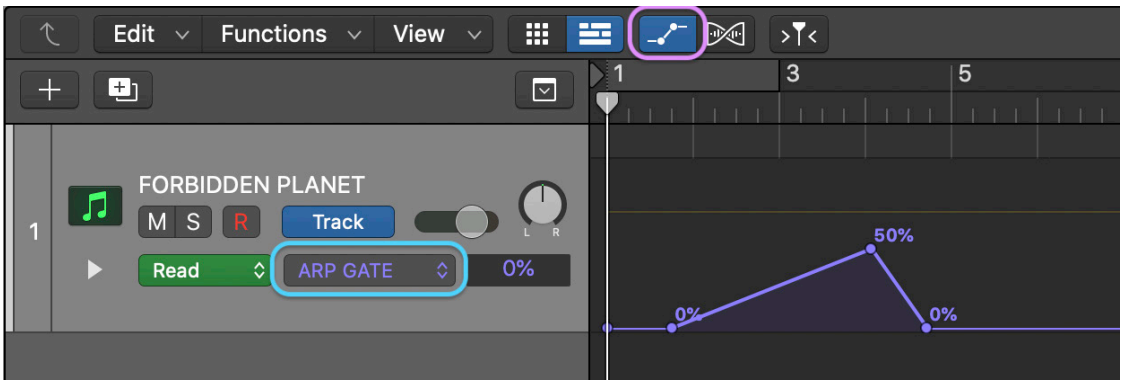
The **MIDI CONTROLLER MAPPING** AREA populates with MIDI CCs used in the currently selected instrument. In the same way as Macro Parameters, these can be automated in a DAW or controlled in real-time with a MIDI controller. Click inside the drop-down menu to "remap" existing MIDI CC assignments to any MIDI CC you like.

AUTOMATION PARAMETERS IN LOGIC are accessible once you load Opus as a plug-in, and load an instrument. In this example, an instrument from Forbidden Planet is used.

Click the **AUTOMATION** BUTTON to reveal the Automation Mode in Logic Pro, or press the 'a' keyboard shortcut.

Now click inside the **AUTOMATION** MENU and navigate to '1 Opus', then to the instrument name, and finally select one of the available parameters to automate (in this case, 'Arp Gate' is selected).

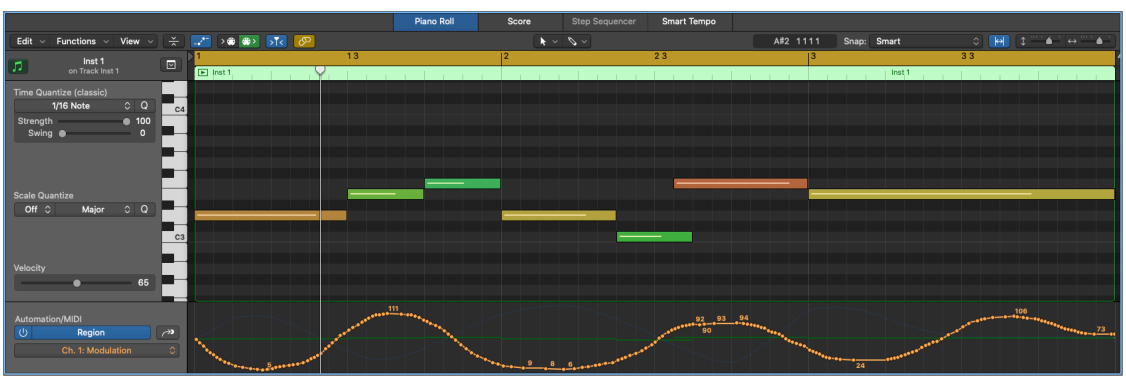
Once a parameter is selected, use the automation lane to change the parameter value over time. In this example, 'Arp Gate' is increased up over the course of a few measures, lengthening the 'Arp Gate' time, then decreased back to its original value.



MACRO PARAMETERS IN LOGIC can be recorded into a MIDI clip in Logic along with the rest of your MIDI performance, or drawn manually into the MIDI CC automation lane after the recording or creation of a MIDI clip.

To record MIDI CCs in real-time, the MIDI CC numbers that correspond to these parameters must be programmed into your MIDI controller. Please refer to the MIDI controller's documentation for instructions.

To access the MIDI CC automation lane in Logic, double-click on the MIDI clip to open the Piano Roll area in the Editor window, or click the 'e' keyboard shortcut. In the lower-left corner of the Piano Roll, click inside the drop-down menu under the 'Automation/MIDI' header, then click inside the 'MIDI Control 0-63' or 'MIDI Control 64-127' menus to select the desired MIDI CC to automate.



1.1.5 EXPRESSION MAPS

Opus supports Sound Variations (Studio One), Expression Maps (Cubase/Nuendo), and Articulation Sets (Logic), making the handling of individual articulations found in keyswitch instruments (abbreviated with a 'KS' in their instrument names) easier and faster. Now, simply select articulations in the MIDI editor of your supported DAW, without having to manually draw in MIDI notes to trigger keyswitches.

SOUND VARIATIONS IN STUDIO ONE (5.2 OR HIGHER)

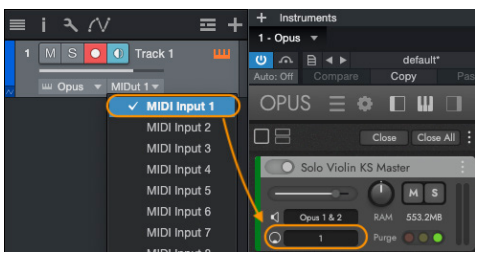
Sound Variations are Studio One's answer to triggering multi-articulation sampled instruments during playback in a variety of ways. Follow the instructions below to get started, and click the link below for more information.

FOR MORE INFORMATION: Presonus | Studio One - Sound Variations

1. Load Opus as a VST3 plugin on an instrument track in Studio One (the standard VST2 plugin will not work).

2. In Opus, go to the Browse page by clicking on the **BROWSE** PAGE SELECTOR, located in the Navigation Bar that runs along the top of Opus.

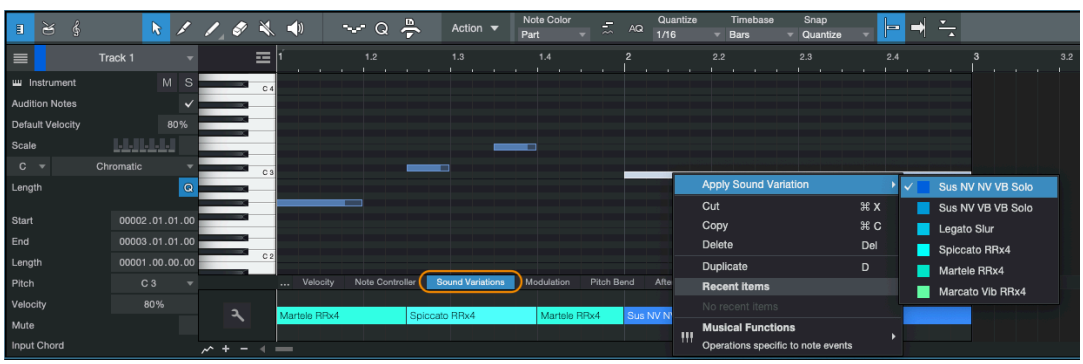
3. In the **LIBRARIES** MODE in the left column, select an EastWest Library containing a keyswitch (KS) instrument, and load it from the **RESULTS LIST** COLUMN that appears in the right column.



PLEASE NOTE: The MIDI channel for the track in Studio One must match the MIDI channel for the instrument loaded in Opus. Do not use 'OMNI' (All channels) mode!

4. Create a MIDI Event, then double-click on it to open the MIDI Editor. Sound Variations will now be available to use with the tool symbol.

5. Highlight a selection of notes, then right-click to open an options menu, choose 'Sound Variations', then choose an articulation from the list. You can also draw them directly into the Sound Variations control lane (highlighted below).



EXPRESSION MAPS IN CUBASE AND NUENDO

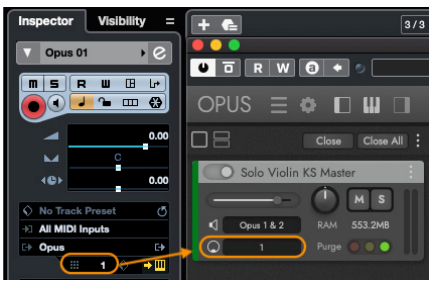
Expression Maps are Cubase and Nuendo's answer to triggering multi-articulation sampled instruments during playback in a variety of ways. Follow the instructions below to get started, and click the link below for more information.

FOR MORE INFORMATION: Steinberg | Cubase / Nuendo - Expression Maps

1. Load Opus as a VST3 plugin on an instrument track in Studio One (the standard VST2 plugin will not work).

2. In Opus, go to the Browse page by clicking on the **BROWSE** PAGE SELECTOR, located in the Navigation Bar that runs along the top of Opus.

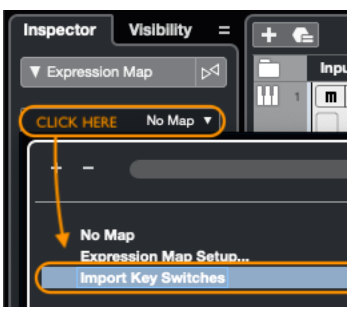
3. In the **LIBRARIES** MODE in the left column, select an EastWest Library containing a keyswitch (KS) instrument, and load it from the **RESULTS LIST** COLUMN that appears in the right column.



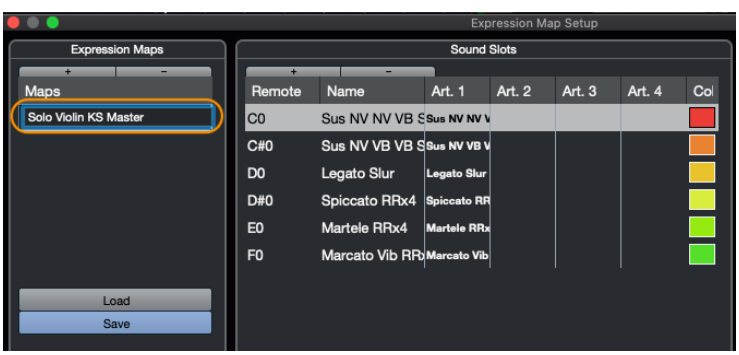
PLEASE NOTE: The MIDI channel for the track in Cubase / Nuendo must match the MIDI channel for the instrument loaded in Opus. Do not use 'OMNI' (All channels) mode!

4. Create a MIDI Event, then double-click on it to open the MIDI Editor.

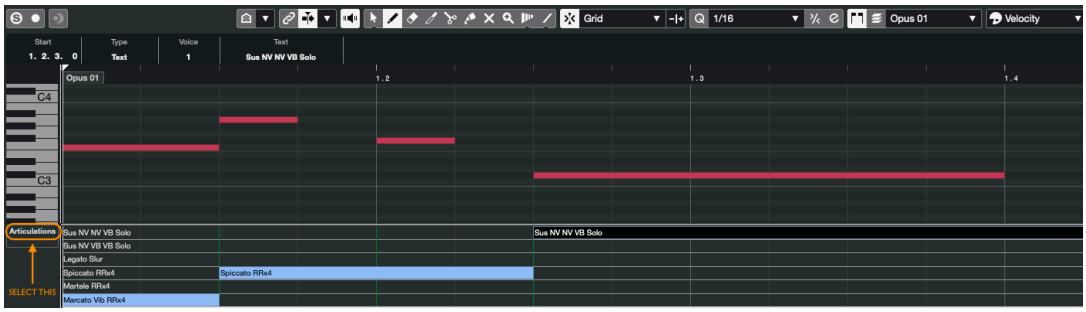
5. Go to 'Expression Maps' on the left inspector pane and click on the drop-down menu, then choose the 'Import Keyswitches' option.



6. An 'Expression Map Setup' window will appear where you can rename and save the Expression Map for the keyswitch instrument you imported in Step 5.



7. Now that the keyswitch instrument is imported and saved as an Expression Map, the individual articulations will appear in the MIDI Editor's Articulation/Dynamics control lane, where you can draw in the desired articulation with the pencil tool on the sequencer time line (highlighted below).



ARTICULATION SETS IN LOGIC PRO

Articulation Sets are Logic Pro's answer to triggering multi-articulation sampled instruments during playback in a variety of ways. Hollywood Orchestra Opus Edition Articulation Sets are installed automatically and have separate instructions, while all other EastWest instruments can be imported on their own (see the 'Importing Your Own Keyswitch Instruments' section below).

FOR MORE INFORMATION: Apple | Logic Pro - Articulation Maps

HOLLYWOOD ORCHESTRA OPUS EDITION

Articulation Sets are available for each of the 7 libraries contained in the Hollywood Orchestra Opus Edition collection. They will appear in the Articulation Sets menu in the Track Inspector.

PLEASE NOTE: These Articulation Sets contain all available articulations, not just those that are active by default in the instrument. To use these inactive articulations, follow these instructions:

1. Once the Product Installer has been installed (see above), load the Opus plugin into Logic Pro, then click on the **INSTRUMENT** SLOT in Logic Pro to bring up the Opus plugin window.

2. In Opus, go to the Browse page by clicking on the **BROWSE PAGE** SELECTOR, located in the Navigation Bar that runs along the top of Opus.

3. In the **LIBRARIES** MODE in the left column, select a Hollywood Orchestra Opus Edition library, select an instrument, then navigate to its respective 'Keyswitch' folder,

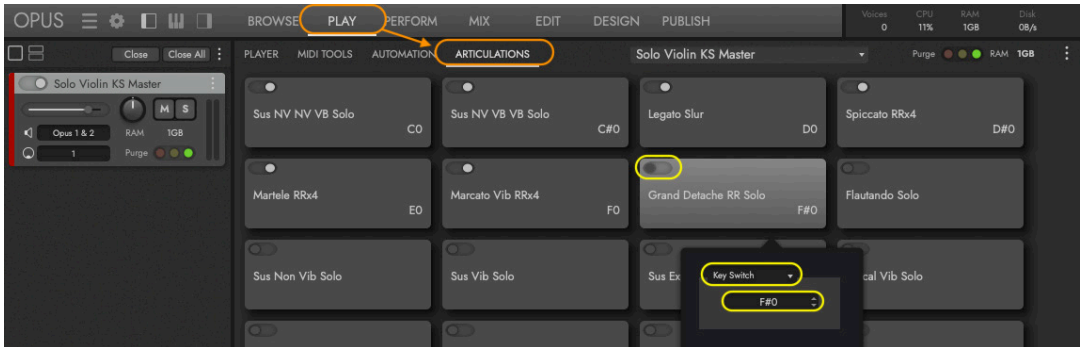
and load the 'KS Master' instrument from the **RESULTS LIST** COLUMN that appears in the right column.

4. Click on the **PLAY** PAGE SELECTOR in the Navigation Bar, then click on the **ARTICULATIONS** WINDOW button from the **PALETTE** MENU.

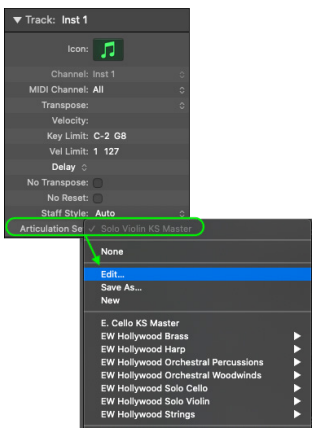
5. In the **ARTICULATIONS** CELL of an inactive articulation, click the **ACTIVE** SWITCH to the ON position (right).

6. Right-click in the **ARTICULATIONS** CELL to reveal a pop-up dialog, and click in the drop-down menu labeled 'none' and choose the **KEYSWITCH** TRIGGER ACTION from the list of Trigger Options.

7. The **KEYSWITCH** TRIGGER will automatically be assigned to the subsequent MIDI note number, but this can be modified to any MIDI note you like.



8. Select the corresponding **ARTICULATION SET** from the drop-down **ARTICULATION SET** MENU in Logic. In this example, we're using the EW Hollywood Solo Violin KS Master instrument.

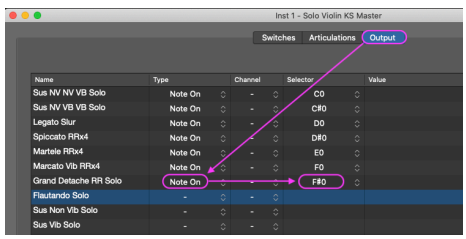


9. To edit the selected **ARTICULATION SET**, click the **ARTICULATION SET** MENU again, but this time select 'Edit'.

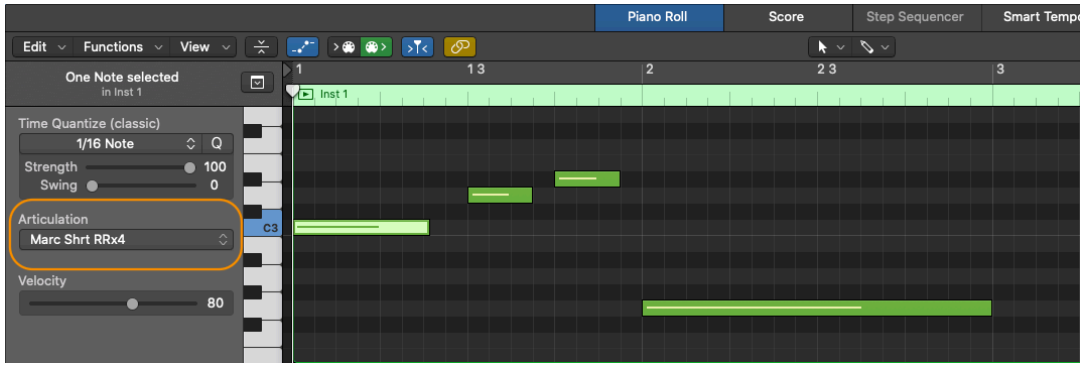
10. An Edit window will appear. Click on the **OUTPUT** TAB where a list of all available articulations will populate in the **NAME** COLUMN.

11. In the **TYPE** COLUMN, click in the empty ' - ' area to reveal a drop-down menu and select the **NOTE ON** OPTION from the list.

12. In the **SELECTOR** COLUMN, click in the empty ' - ' area to reveal a drop-down menu and select the **MIDI NOTE NUMBER** OPTION keyswitch trigger from the list (make sure it's the same MIDI note assigned to that articulation in Opus).



13. Now, individual articulations within keyswitch (KS) instruments can be handled in Logic Pro's Piano Roll. Simply highlight a note or group of notes, and use the drop-down **ARTICULATION** SELECTOR menu to assign it.

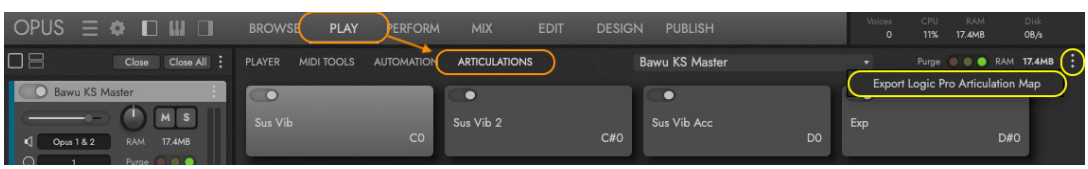


CREATING YOUR OWN ARTICULATION SETS IN LOGIC PRO

Articulation Sets can be created for any EastWest keyswitch (KS) instrument by using the 'Export Logic Pro Articulation Map' option in Opus.

PLEASE NOTE: Articulation Sets are stored in the [user] ~/Music/Audio Music Apps directory. Please ensure that permissions on this folder are set to read and write before you begin (and apply those permissions to all enclosed folders). Please follow this link for more information on how to set permissions on MacOS.

1. Load the Opus plugin into Logic Pro, then click on the **INSTRUMENT** SLOT in Logic Pro to bring up the Opus plugin window.
2. In Opus, go to the Browse page by clicking on the **BROWSE PAGE** SELECTOR, located in the Navigation Bar that runs along the top of Opus.
3. In the **LIBRARIES** MODE in the left column, select an EastWest Library, then navigate to a Keyswitch (KS) instrument, and load it from the **RESULTS LIST** COLUMN that appears in the right column.
4. Click on the **PLAY PAGE** SELECTOR in the Navigation Bar, then click on the **ARTICULATIONS SUB-PAGE** BUTTON from the **PALETTE** MENU.

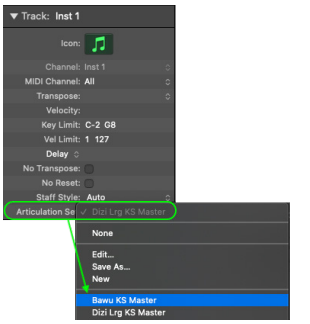


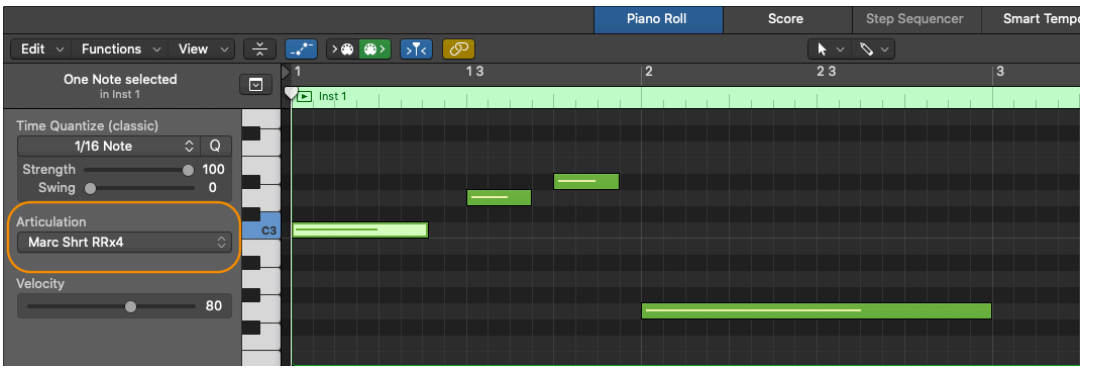
5. Click on the **ARTICULATIONS SUB-PAGE** MENU found in the top-right area of the **PALETTE** MENU, and then select the 'Export Logic Pro Articulation Map' option to create a new Articulation Set entry named the same as the exported instrument.

   In this example, we're using the Bawu KS Master from the EW Silk library.

6. Select the corresponding 'Bawu KS Master' Articulation Set from the drop-down **ARTICULATION SET** MENU in Logic.

7. Now, individual articulations within the keyswitch (KS) instrument can be handled in Logic Pro's Piano Roll. Simply highlight a note or group of notes, and use the drop-down **ARTICULATION** SELECTOR menu to assign it.





1.1.6 WHAT'S INCLUDED

EastWest Opus Software includes:

- Opus standalone application (MacOS and Windows)
- Opus plugin (VST, AU, AAX)
- Opus Software Manual (PDF)
- Installation Center application to install software and documentation

A NOTE ABOUT ILOK

An iLok account is required for a machine-based (electronic) license to be placed on your computer. You may also place the license on an optional iLok 2 or 3 key. The iLok 1 key is no longer supported.

PLEASE NOTE: Due to the age and release date of this hardware, the iLok 1 key is no longer supported by the latest iLok License Manager, Play & Opus engines and Installation Center software. It will result in very slow loading speeds, or the programs not locating the libraries. Please move your licenses either to your computer as a Machine License or to an iLok 2 or 3 key. Simply having the iLok 1 key plugged in to your computer is known to also exhibit this limiting behavior.

REQUIRED INTERNET CONNECTION

An Internet connection is required for several things:

- The first time download of the EW Installation Center and Opus software
- The first time activation of perpetual licenses
- To use the 'Auto Update' feature in Opus
- The renewed activation of subscription licenses (ComposerCloud)
- The download of EastWest Libraries (see below for other options)

Once everything is setup, you will only need a connection once per month so that the license remains active. If you're not active and the sync doesn't happen automatically, you will need to deactivate, then reactivate the license using the iLok License Manager.

1.1.7 SYSTEM REQUIREMENTS

Below are the minimum and recommended hardware and software specifications for using Opus on MacOS and Windows operating systems.

Opus runs natively on Apple M1 CPUs, and Intel-based Macs, as well as the latest MacOS Monterey and Microsoft Windows 11 operating systems.

MINIMUM REQUIREMENTS:

- CPU: Quad-core (four cores), running at 2.7 GHz (or above)
- RAM: 16 GB
- OS: MacOS 10.13 (or later); Windows 10 (or later) with ASIO sound drivers
- Drive: HDD (7200 rpm, non-energy saving)

RECOMMENDED REQUIREMENTS:

- CPU: Octa-core (eight cores), running at 2.7 GHz (or above)
- RAM: 32 GB or more
- OS: MacOS 10.13 (or later); Windows 10 (or later) with ASIO sound drivers
- Drive: SSD (SATA or PCIe)

PLEASE NOTE: Drives need to be formatted in an Operating System's native file format, otherwise installation issues, and largely inflated file sizes can occur. Use NTSF format for Windows drives, MacOS journaled / extended for MacOS 12 and below, and APFS for MacOS 13 and above.

1.1.8 SEQUENCER COMPATIBILITY

The chart below outlines the MacOS and Windows 64-bit operating systems and sequencers that are officially supported (fully tested) with the latest version of Opus.

PLEASE NOTE: Most DAWs (Sequencers) are VST2, VST3, AU and AAX plug-in format compatible, but only those specified in the chart below are officially supported.

Sequencer		Operating Systems	
DAW Software	Version	MacOS (10.13 +)	Windows 10
EW Opus Stand-Alone	1.2 +	√	√
Ableton Live	10.0 +	√	√
Apple Logic Pro	10.0 +	√	-
Apple Garageband	10.3 +	√	-
Avid Pro Tools	2018.1 +	√	√
Bitwig Studio	3.0 +	√	√
Cockos Reaper	6.0 +	√	√
Image-Line FL Studio	20 +	√	√
Motu Digital Performer	9.0 +	√	√
Steinberg Cubase (1)	9.0 +	√	√
Steinberg Nuendo (1)	8.0 +	√	√
Presonus Studio One	4.0 +	√	√
VSL Vienna Ensemble Pro	6.0 +	√	√
Notation Software			
Avid Sibelius (2)	7.0 +	√	√
MakeMusic Finale (2)	25.0 +	√	√
Steinberg Dorico (2)	2.2 +	√	√

(1) VST3 Usage is recommended.

(2) Notation programs work with Opus, but do not support the full feature set of some East West Libraries, such as those that use WordBuilder. Please contact support for details.

1.2 ABOUT EASTWEST

EastWest (www.soundsonline.com) is the #1 online source for professional sounds and virtual instruments. It operates sounds and software development divisions in Hollywood, USA; and Berlin, Hamburg, and Munich, Germany.

1.2.1 EASTWEST SOUNDS

With clientele that spans the music, film, television, games, multimedia and performing arts, EastWest has led the industry for 30+ years and provides professionals with the very best music creation tools available.

Virtual instruments enable composers and others involved in music production to use music keyboards connected to computers to create music that is virtually indistinguishable from a live performance, at a fraction of the cost. A high percentage of the music produced for all media today is produced on computers using EastWest Virtual Instruments.

EastWest won the NAMM TEC Award “Best Music Software Instrument” for Hollywood Choirs, the industries top award. Pictured receiving the award are (from L-R) Dinshah Sanjana (Vice-President of Sales), Rhys Moody and Blake Rogers (Production Coordinators), Wolfgang Kundrus (Software Development), and Doug Rogers (Producer).

EastWest/Quantum Leap virtual instruments are considered to be the best available, and are used and endorsed by the who’s who of the music, film, TV, and games industries, including James Newton Howard (The Hunger Games, King Kong, Batman

Begins), Danny Elfman (Fifty Shades Of Grey, Silver Linings Playbook, Alice In Wonderland), John Powell (Solo: A Star Wars Story, Rio, Kung Fu Panda), Brian Tyler (Avengers: Age of Ultron, Iron Man 3, Thor), Jeff Beal (House of Cards, Blackfish, Rome), Thomas Newman (Skyfall, Saving Mr. Banks, Wall-E), David Newman (Ice Age, Tarzan, Scooby-Doo), J.J. Abrams (Director/Creator: Star Wars VII, Star Trek, Lost), Zedd (Zedd, Lady Gaga, Ariana Grande), Mark "Spike" Stent (Coldplay, Lady Gaga, Bruce Springsteen, Muse), Herbie Hancock (12-time Grammy Winning Pianist and Composer), David Kahne (Producer Paul McCartney, Miley Cyrus, Lana Del Rey), David Campbell (Pearl Harbor, Armageddon, World War Z, Adele's 21, Muse's 2nd Law), Mac Quayle (The People v. OJ Simpson, Mr. Robot, American Horror Story), Alex Lacamoire (Hamilton, Dear Evan Hansen, In The Heights), Jeff Russo (Star Trek: Discovery, Legion, The Night Of), Jordan Rudess (Dream Theatre, David Bowie, Enrique Iglesias), Brody Brown Grammy-Award Winning Producer and Songwriter for Bruno Mars, Teddy Riley (Producer Michael Jackson "Dangerous" and "Invincible"), Paul 'Wix' Wickens (Keyboards/Musical Director, Paul McCartney), Rob Abernethy (Video Games: Pacific Rim, Despicable Me, Dead Space), Christophe Beck (Frozen, Pink Panther 2, Under the Tuscan Sun), Steve Jablonsky (Desperate Housewives, Transformers), and countless others.

EastWest launched the first subscription service in the sounds industry, ComposerCloud, which dramatically lowered the cost of entry to more than 40,000 virtual instruments included in ComposerCloud, so anyone interested in fully exploring their musical creativity could also afford it without compromise.

1.2.2 EASTWEST STUDIOS

EastWest owns and operates a large recording studio complex in Hollywood. 136 Grammy nominations were recorded or mixed at EastWest The 21,000 sq. ft. facility, since remodelled by master designer Philippe Starck, houses five recording studios and is the world headquarters for EastWest.

For more information, please visit: www.eastweststudios.com.

1.2.3 DOUG ROGERS

With over three decades of experience in the audio industry, founder and producer Doug Rogers is the recipient of many industry awards including “Recording Engineer of the Year”. “The Art of Digital Music” named him one of “56 Visionary Artists & Insiders” in the book of the same name.

In 1988 he founded EastWest, the most critically acclaimed virtual (software) instrument developer in the world. Since then, EastWest has been the recipient of over 120 international industry awards. Rogers uncompromising approach to quality, and innovative ideas has enabled EastWest to lead the industry for over 30 years.

After forming EastWest, he produced the very first commercial drum samples collection, followed with a sequel co-produced with Bob Clearmountain, which was so successful a new industry was born. Rogers and Clearmountain produced subsequent releases that won many awards. In 1991, Rogers released the first collection to include MIDI driven drum loops, which enabled users to adjust each loop tempo in their sequencer without adjusting pitch or decreasing quality.

With sampling technology improving, Rogers released the Ultimate Piano Collection in 1995, the first multi-velocity sampled piano collection, which received many industry awards. In 1997 Rogers partnered with Nemesys to create the GigaSampler software and instrument collections, which pioneered the use of “streaming from hard drive technology”, a technical breakthrough without which, the high quality virtual instruments of today would not be possible.

In 2003 he co-produced with Nick Phoenix the first surround sound virtual orchestra, Symphonic Orchestra, engineered by 11-time Grammy nominated classical recording engineer Keith Johnson, and recorded in a ‘state of the art’ concert hall (awarded Keyboard Magazine “Key Buy Award,” EQ Magazine “Exceptional Quality Award,” Computer Music Magazine “Performance Award,” and G.A.N.G. [Game Audio Network Guild] “Best Sound Library Award”); and followed that release with Symphonic Choirs (awarded Electronic Musician “2006 Editor’s Choice Award,” G.A.N.G. “Best Sound Library Award,” and Keyboard Magazine “Key Buy Award”). Symphonic Choirs and it’s predecessor Voices of the Apocalypse were the first music software products to enable users to type in words for the choirs to sing in any key with a computer. This was followed in 2007 with EastWest/Quantum Leap Pianos, the most detailed virtual piano collection ever produced, also in surround sound.

In 2005 Rogers established a software development division for EastWest, and released the first 64-bit virtual instruments that became the new standard. Rogers most recent productions include Forbidden Planet, co-produced with Nick Phoenix; Hollywood Orchestra Opus Edition, co-produced with Nick Phoenix; Hollywood Orchestrator, co-produced with Sonuscore; Hollywood Backup Singers, co-produced with Nick Phoenix; Voices Of Opera featuring Larisa Martinez (Andrea Bocelli’s soprano) and Carlton Moe (Phantom of the Opera tenor), co-produced with Nick Phoenix; Voices

Of Soul featuring C.C. White, co-produced with Nick Phoenix; Hollywood Choirs, co-produced with Nick Phoenix; Spaces II Reverb, co-produced with Nick Phoenix; Voices Of The Empire featuring Uyanga Bold, co-produced with Nick Phoenix; EastWest MIDI Guitar Series, co-produced with Nick Phoenix; ProDrummer 1, co-produced with Mark "Spike" Stent; ProDrummer 2, co-produced with Joe Chiccarelli; Ghostwriter, co-produced with Steven Wilson; Hollywood Solo Violin, Hollywood Solo Cello, and Hollywood Harp, co-produced with Nick Phoenix; Hollywood Strings, Hollywood Brass, Hollywood Orchestral Woodwinds, and Hollywood Orchestral Percussion, co-produced with Nick Phoenix and Thomas Bergersen. The Hollywood Orchestra series was engineered by 2019 Grammy winner (Best Engineered Album, Classical) Shawn Murphy (Indiana Jones and the Kingdom of the Crystal Skull, Star Wars: Episode II - Attack of the Clones, Star Wars: Episode III - Revenge of the Sith, Star Wars: A Musical Journey, Solo: A Star Wars Story, Star Wars: Rise Of Skywalker, Jurassic Park, Jurassic Park The Lost World, Harry Potter and the Prisoner of Azkaban, Titanic, Minority Report, Saving Private Ryan, Munich, The Passion Of The Christ, X-Men: The Last Stand, Memoirs of a Geisha and Ice Age, etc.); The Dark Side, co-produced with David Fridmann; and Fab Four with Beatle's engineer Ken Scott, inspired by the sounds of the Beatles. Both Fab Four and The Dark Side won M.I.P.A Awards, judged by over 100 international music magazines.

1.2.4 NICK PHOENIX

Nick Phoenix joined Doug Rogers in the early days of sampling and together they have produced dozens of the most popular virtual instruments available today.

Phoenix's career has been driven by new ideas and innovation. He pioneered concepts like creating choirs that can sing the words you type on the keyboard and reverse engineered musical performances to create virtual instruments capable of flowing and expressive performances. Virtual instruments like Silk captured the "complete" sound of unusual world instruments using an innovative multi-mic, phase aligned technique. Phoenix co-produced the EastWest Quantum Leap Symphonic Orchestra and Hollywood Orchestra, the two most popular complete orchestral virtual instruments ever released. These collections were the result of many talents, with Phoenix directing the performance, attitude and articulation of the orchestra. Cutting edge reverb to accompany these orchestral sounds became an obsession for Phoenix. After many years of struggling with available reverbs, Phoenix created a method of capturing instrument specific and stage location specific convolution reverb and created Spaces and Spaces 2.

Phoenix's career as a composer has always been a huge part of what he does as a virtual instrument producer. He was involved in the birth of trailer music in the early 90s. Epic collections like Stormdrum and Voices Of The Apocalypse were created to allow him to compose huge soundscapes on a very tight schedule for blockbuster trailers. In the early 2000s, Phoenix scored over 1000 film trailers and TV ads.

Phoenix partnered with Thomas Bergersen in 2006 and started Two Steps From Hell. Two Steps From Hell is credited as starting a whole new genre of music called “Epic Music.” Two Steps is currently the #1 streaming film music artist worldwide with 1.6 million YouTube subscribers. Their albums “Invincible” and “Battlecry” both went gold. They are touring Europe in 2022.

For more information, please visit: www.twostepsfromhell.com

Phoenix and Rogers have never been interested in rehashing old ideas. Every product has been an attempt to bring something new to the table. Stormdrum 3 with Mickey Hart captured unique instruments way outside the spectrum. Hollywood Pop Brass is the first pop brass collection that sounds like a hit record out of the box. Hollywood Choirs has taken the word building concept to new levels and has won numerous awards. The latest release “Forbidden Planet” is the result a 20 year journey with analogue synthesizers. It is unlike any synth plug-in ever created.

Phoenix also started a solo rock career in 2021. The band has members from John Mayer’s band and Death Cab. Phoenix has described it as modern rock with classic rock undertones. It is his current passion. Phoenix has a unique website that allows you to create your own mixes of his music, among other things.

For more information, please visit: www.nickphoenix.com

1.3 SUPPORT

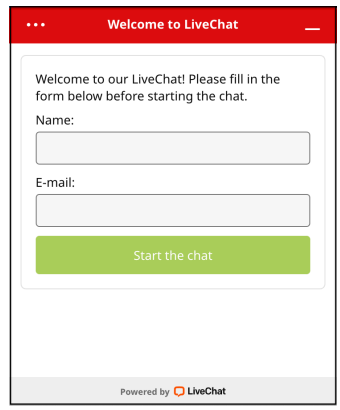
This section provides links to a variety of help resources where you can go to get help if you encounter trouble installing your product, want to know more about a product's features, or are interested in composing tips.

1.3.1 ONLINE RESOURCES

The EastWest Support Center allows you to:

- Live Chat with a Support Agent
- Download Software and Product Updates
- View and download manuals, guides, and FAQs

LIVE CHAT WITH A SUPPORT REP



EastWest's Support Center offers Live Chat, the fastest way to reach a Support Team Member to help resolve any technical issues you may be having.

Click on the red "Chat Now" box that appears in the lower-right corner. Fill in your name and email address, then click "Start the Chat", or if an agent is not available click "Leave a Message" by explaining your issue, and a Support Agent will respond as soon as they're available.

INSTALLATION GUIDES

Click a link below to view the Getting Started guides to help you install your product.

- Download: ComposerCloud+ Getting Started (for subscription-based users)
- Download: Eastwest Libraries Getting Started (for perpetual license users).

1.3.2 WATCH OUR VIDEOS

Visit EastWest Sounds on YouTube for the latest:

- Installation and setup tutorials
- Product trailers and walkthroughs
- Software walkthroughs
- Composing tips and more!

1.3.3 COMMUNITY

Visit EastWest on Facebook to get the latest announcements, and to join the discussion with other community members!

1.3.4 MANUALS

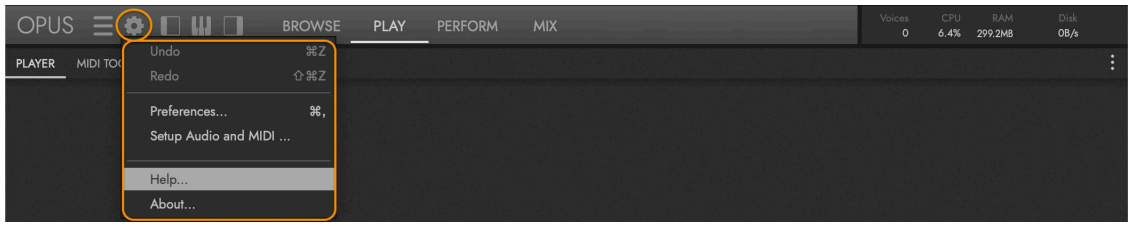
In addition to being available at the EastWest Support Center, the latest User Manuals for each product, and the Opus Software Manual are accessible directly inside the Opus Software itself.

USER MANUALS

User Manuals focus on topics that are specific to a given product, and are accessible in the Browse page by clicking on the **USER MANUAL** BUTTON that is located in the top-right corner of a product's Description Box.

OPUS SOFTWARE MANUAL

The Opus Software Manual is accessible by clicking on the **SETTINGS MENU** BUTTON in the Navigation Bar, and selecting the **HELP** OPTION at the bottom of the menu. It provides a comprehensive dive into all the features and controls available in Opus, beyond those specific to a particular product.



SECTION REFERENCES

Throughout this manual there are references that direct you to continue reading in other parts of the manual to expand upon the current topic. For example:

> **CONTINUE READING** | **SECTION 1.1.3** PREFERENCES for more information about the available preferences.

The numbering system identifies the chapter, section, and sub-section to identify the referenced section. For instance, the example above is numbered 1.1.3, meaning it's from chapter 1, section 1, sub-section 3.

Use either the included chapter links that are a standard in PDF formatted documents, or use the link in the top-left area of the header on each page to reach the Contents (< CONTENTS) of the manual.

2. DIVING DEEPER

A comprehensive look at each of the 4 main pages in Opus, where you can preview and load instruments, access parameter controls, manage multi-instrument setups, and the mix the final output.

2.1 THE BROWSE PAGE

Search for instruments in a variety of ways, audition them with audio previews, loaded as single instrument or into multi-timbral setups, and downloaded at the speed of your internet connection.

2.2 THE PLAY PAGE

A custom user interface puts an array of controls at your fingertips, giving you the power to shape important aspects of an instrument.

2.3 THE PERFORM PAGE

Create multi-instrument setups by defining a variety of parameters that control how the individual instruments interact with each other.

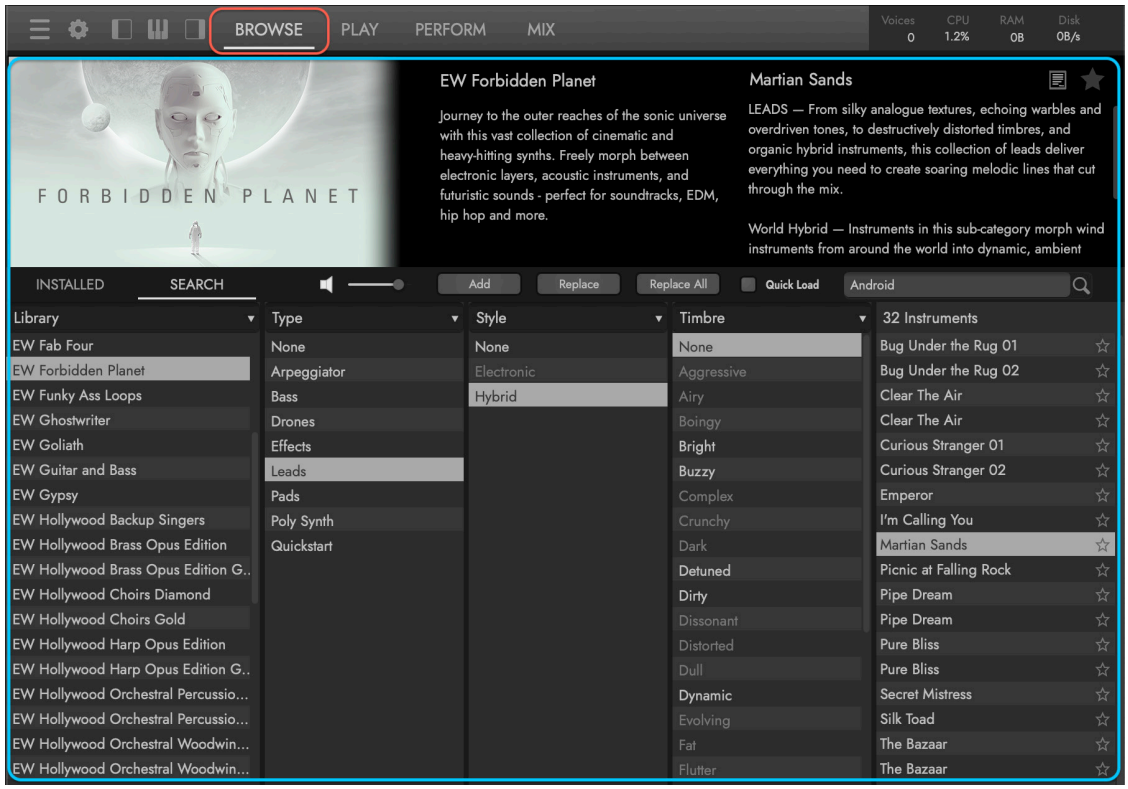
2.4 THE MIX PAGE

Craft the final sound of an instrument's output using mix controls and a suite of powerful effects processors.

2.1 THE BROWSE PAGE

This page allows you to find instruments in different ways, hear an audio preview of the selected instrument, and load instruments with ease and speed. With on-demand downloads that prioritize samples as you play in real-time, you can begin to play an instrument as soon as it starts to download.

To begin, click the **BROWSE PAGE** SELECTOR in the **NAVIGATION** BAR to switch the **BROWSE PAGE**.



2.1.1 DESCRIPTION BOX

Below the Navigation Bar is the **DESCRIPTION BOX**, which provides information about the currently selected library and instrument. Artwork for the selected library appears on the left, with the **LIBRARY DESCRIPTION** in the middle, and the **INSTRUMENT DESCRIPTION** on the right. Use the **USER MANUAL** BUTTON to access a product's manual within the Opus software at anytime. If you wish to save an instrument as a "favorite" for later recall, click on the star-shaped **FAVORITES** TAG.

2.1.2 BROWSER MODES

There are several ways to find instruments in the Browse page, including by browsing the folder structure of a given library (Installed mode), narrowing down instrument selections using attribute tags (Search mode), or typing words into a search field (Keyword Search).

INSTALLED MODE

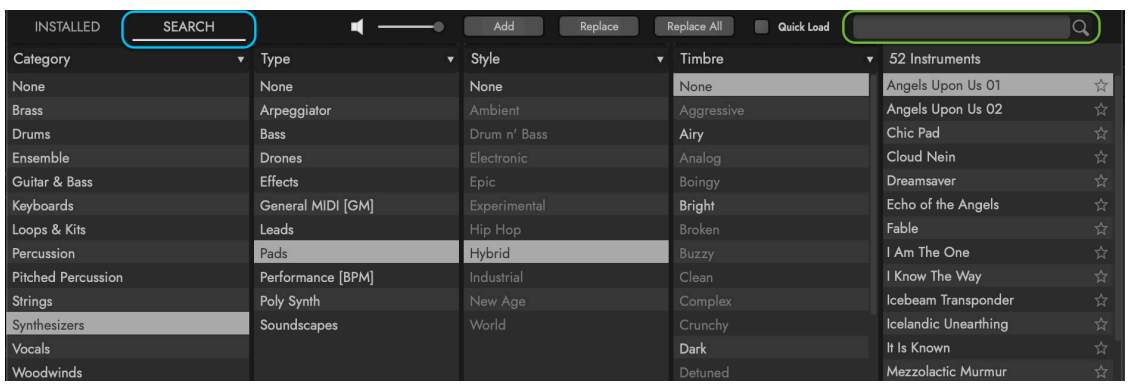
Click on the **INSTALLED** MODE button to search for instruments according to the library or collection they were originally released in. The currently installed libraries populate the left column, where the contents can be browsed through based on the product's original folder structure.

> **CONTINUE READING** | **SECTION 2.1.1** INSTRUMENT BROWSER in the User Manuals that cover specific products. They contain details of the instruments included in the libraries or collections they were originally released in.

SEARCH MODE

Click on the **SEARCH** MODE button to find instruments by selecting attribute tags across a range of categories, like 'Type', 'Style', and 'Timbre'. As shown below, select Synthesizers (Category), Pads (Type), and Hybrid (Style) to find all instruments that match that criteria. The next section covers this in more detail.

Click in the **KEYWORD** SEARCH field located near the top-right area to search for instruments by typing in key words like 'flute', 'bongo', or 'sitar'. Once ready, click the return or enter keys to query the results.



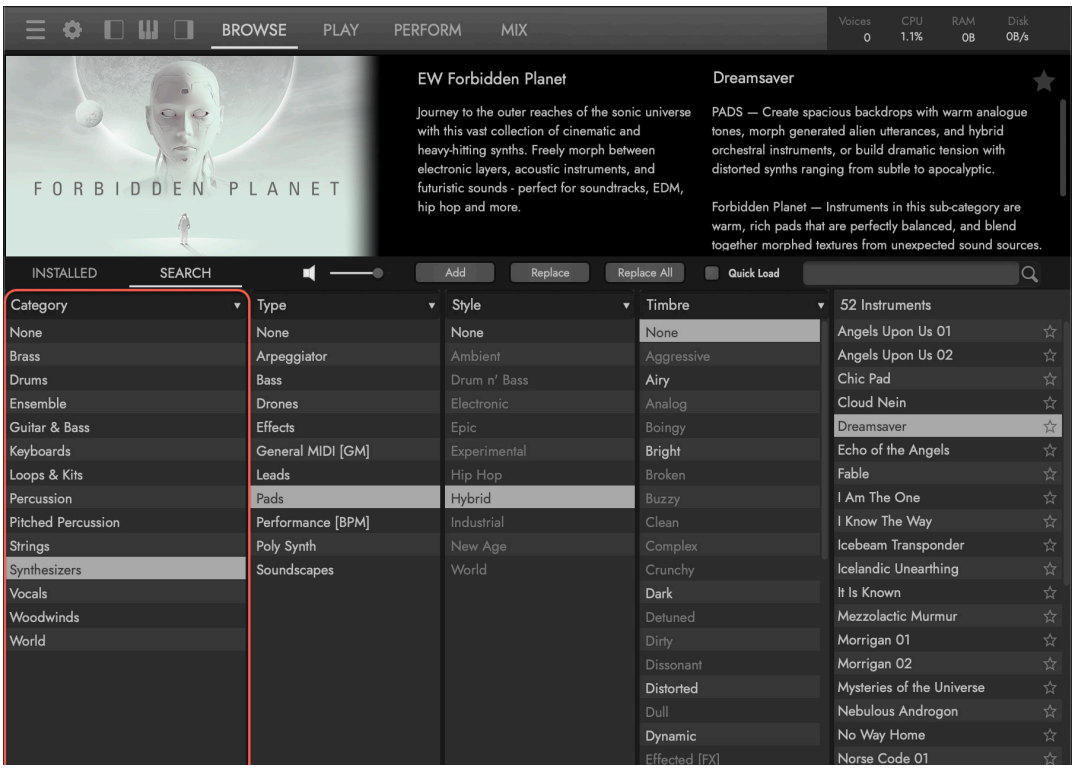
2.1.3 CATEGORIES

As mentioned in the previous section, the **SEARCH** MODE can be used to find instruments by selecting tags across a range of attribute categories.

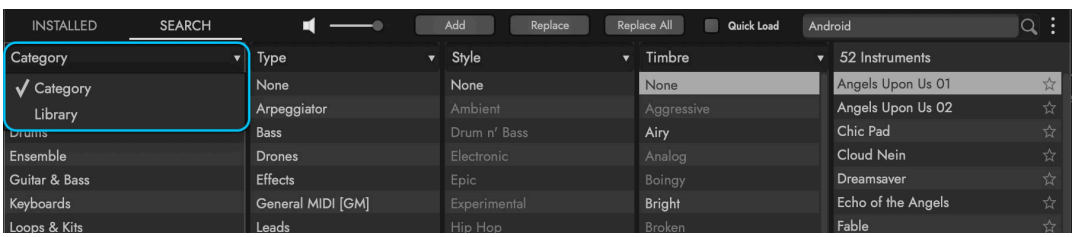
MAIN CATEGORIES

The **MAIN CATEGORIES** COLUMN is located in the left column, and is the highest level of hierarchy in the Search Mode. Only a single selection can be made, and it affects all other categories, removing the visible results from each.

- The **CATEGORY** ATTRIBUTES are the default selection (shown below), allowing you to narrow the search to broad categories like 'Bass', 'Drums', 'Strings', 'Vocals', and 'Synthesizers'.



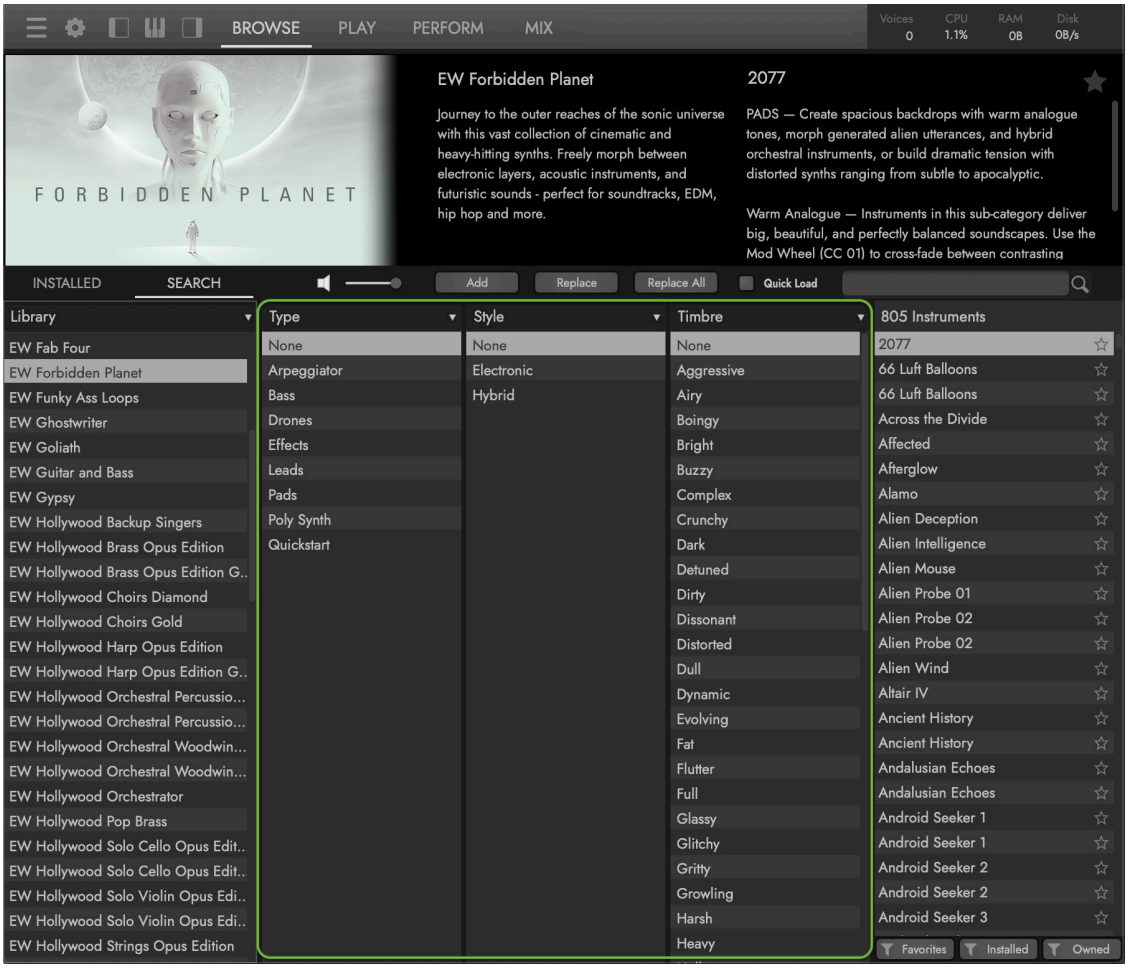
- The **LIBRARY** ATTRIBUTES can be selected instead from the drop-down menu that appears when clicking in the **COLUMN** HEADER area. Here, results can be narrowed to a selected library, like Forbidden Planet, instead of a category (described in the next section).



SUB-CATEGORIES

Use the **SUB CATEGORIES** COLUMNS that appear in the middle to further narrow down the instrument selection when used with the Category or Library attributes.

- The **TYPE** ATTRIBUTES are a subset of the Main Categories, and is the secondary level of hierarchy in the Search Mode. Only a single attribute at a time can be selected in this column, and it affects all other Sub Categories, graying out the results that do not contain instruments with the selected tags (and will thus show an empty Results List if selected).

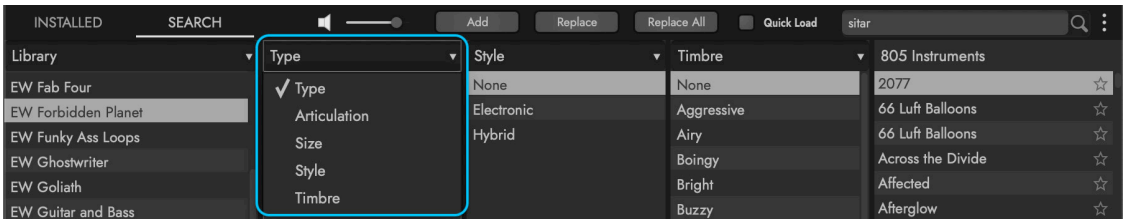


The remaining Sub Categories are the third level of hierarchy in the Search Mode, where multiple attribute tags can be selected simultaneously, which affect all the other Sub Categories (except Type), graying out the results that do not contain instruments with the selected tags (and will thus show an empty Results List if selected).

- The **STYLE** ATTRIBUTES pertains to musical style or genre (Pop, Electronic, Jazz), or region of the world (Persian Empire, African).
- The **TIMBRE** ATTRIBUTES describes the quality, or tone of a sound. This includes a wide range of descriptive terms like ‘Bright’, ‘Distorted’, ‘Smooth’, and ‘Warm’.

- The **ARTICULATION** ATTRIBUTES describe the performance techniques employed on an instrument. This attribute category is heavily featured in libraries that feature a large articulation sets, like the Hollywood Orchestra.
- The **SIZE** ATTRIBUTES is related to the number of samples an instrument contains, and thus the amount of memory (RAM) it uses.

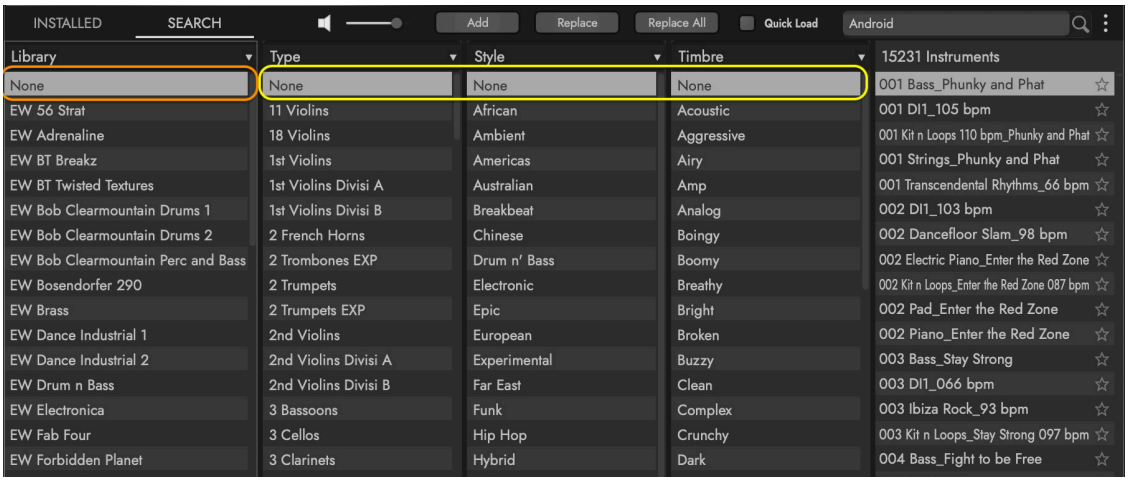
Anywhere between 3 to 5 middle columns are available depending on the size (scaling) of the interface. Click in the **COLUMN** HEADER in any of the columns to select between the different Sub Categories, organizing them anyway you like.



RESET SELECTIONS

Click the **NONE** TAG at the top of the **MAIN CATEGORIES** COLUMN to reset tag selections across all columns in the Search Mode.

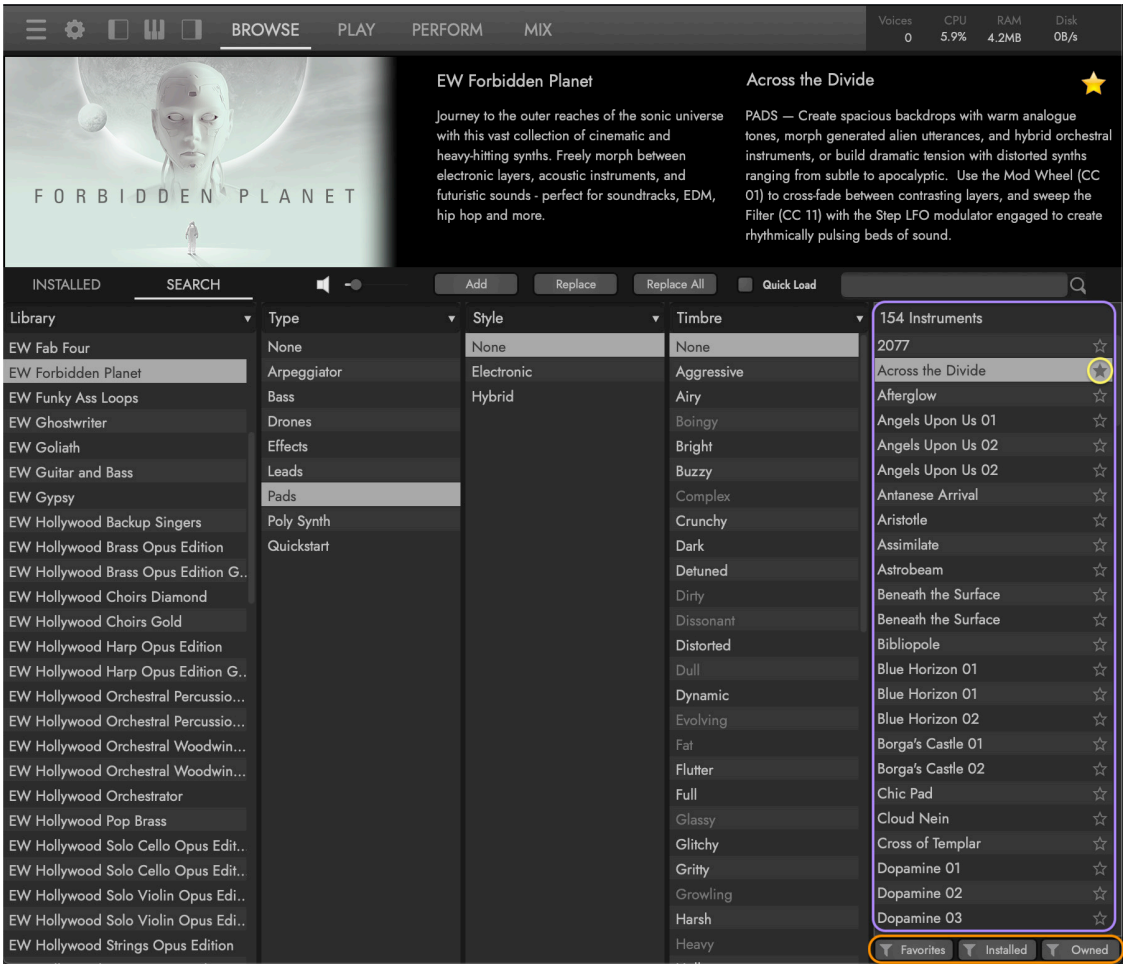
Click the **NONE** TAG at the top of any of the **SUB CATEGORIES** COLUMNS to reset tag selections in that particular Sub Category.



2.1.4 RESULTS LIST

The **RESULTS LIST** COLUMN populates with the instruments that match the selected criteria chosen in the Installed or Search modes. The number of instruments is displayed at the top of the column.

Click on a **FAVORITE** TAG to designate an instrument as a Favorite. Click on either the star icon in the Results List, which will fill-in solid, or the star icon that appears in the Description Box, which will fill-in yellow, indicating it has been tagged as a Favorite.



Once an instrument is tagged as a Favorite, find it later by clicking on the **FAVORITES** FILTER found in the **FILTER OPTIONS** AREA that appears at the bottom of the Results List column. Use the **INSTALLED** FILTER to only show instruments that are currently installed on your computer, and use the **OWNED** FILTER to only show instruments that are currently licensed and activated for use on your computer.

PLEASE NOTE: When using Filter Options, keep in mind its filtering the Results List, which is already a narrowed list based on the selected attribute tags.

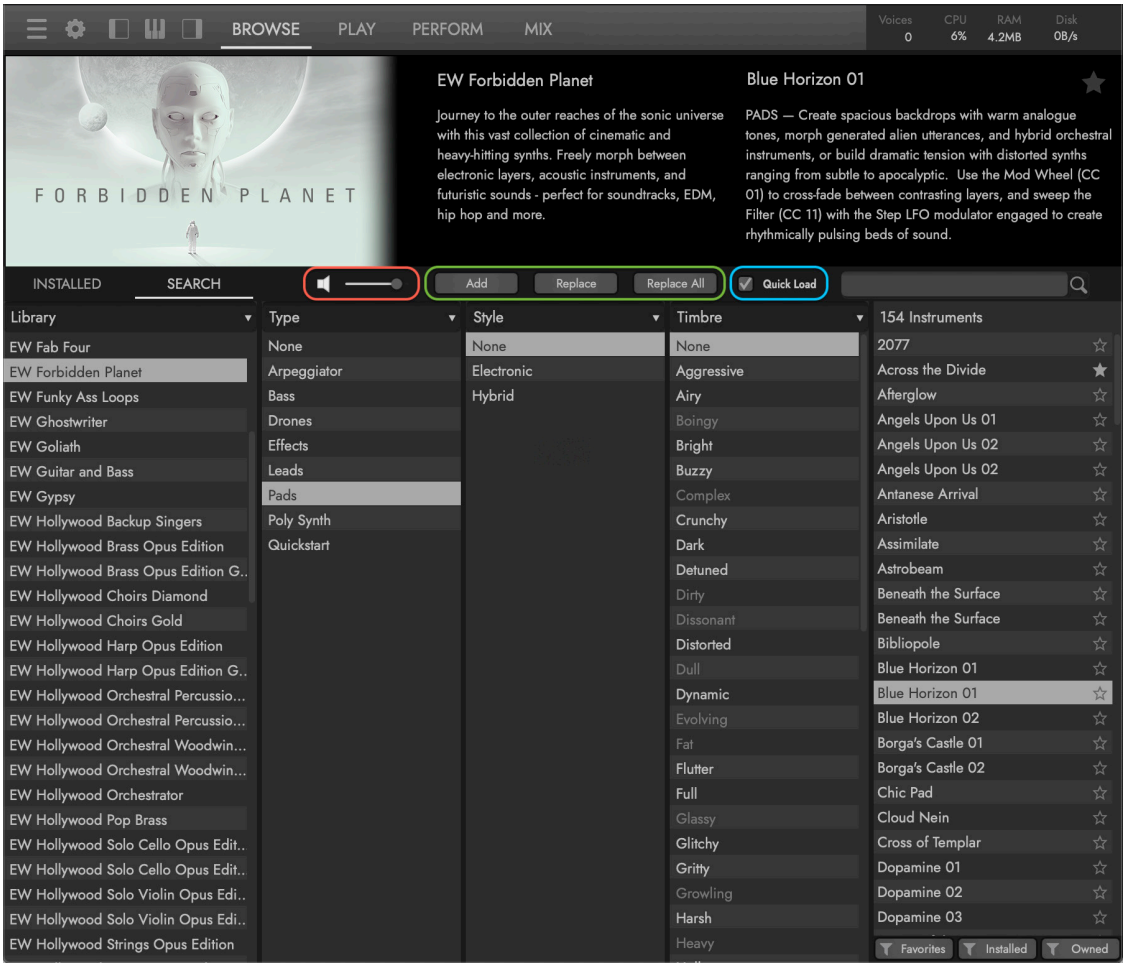
2.1.5 LOADING INSTRUMENTS

These controls help aid in the instrument selection and loading process.

PREVIEW AND LOAD OPTIONS

Use the **SOUND PREVIEW** OPTION to hear a quick, single note audio preview when an instrument is selected in the Results List. Click on the speaker icon to turn this feature on and off, and use the volume slider to set the desired level.

Click on the check-box to enabled the **QUICK LOAD** OPTION. This loads an instrument in a purged state (nothing loaded into memory). As you play notes, samples are streamed in real-time and loaded into memory. This option is disabled when Opus is closed, but this load state can be set as a preference in the Settings Menu by clicking on Preferences. In the window that appears, go to the Audio Engine tab, and click the 'Never Preload' switch in the Streaming section.



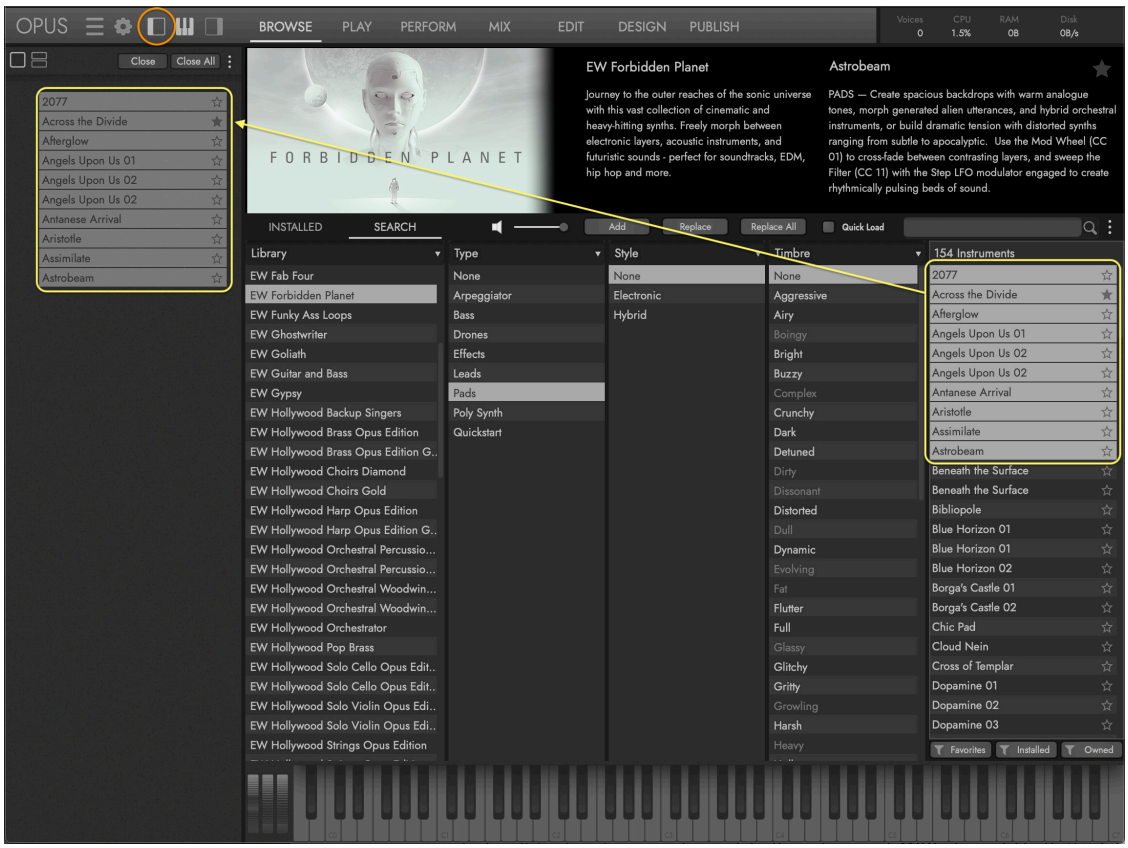
Select an instrument in the Results List, then click the **ADD INSTRUMENT** BUTTON to load it. Alternatively, hold the 'Option' (MacOS) / 'Alt' (Win) key while you double-click an instrument in the Results List to load it. Continue using either of these methods to continue loading multiple instruments.

Click the **REPLACE INSTRUMENT** BUTTON to overwrite the current instrument selection with a new one selected in the Results List. Alternatively, simply double-click on an instrument to replace the current selection. Repeat this process to continue replacing the current selection until you find the right instrument.

Click the **REPLACE ALL INSTRUMENTS** BUTTON to replace all loaded instruments with the new one selected in the Results List. Alternatively, hold the 'Command' (MacOS) / 'Control' (Win) key while you double-click an instrument in the Results List to replace all loaded instruments.

LOADING MULTIPLE INSTRUMENTS

Click on the **INSTRUMENT RACK** TOGGLE to open the Instrument Rack, where all currently loaded instruments appear, and several basic settings can be modified. Not only is it useful to have open when using the different load options, it is essential in order to load a multi-instrument selection using a drag and drop method.



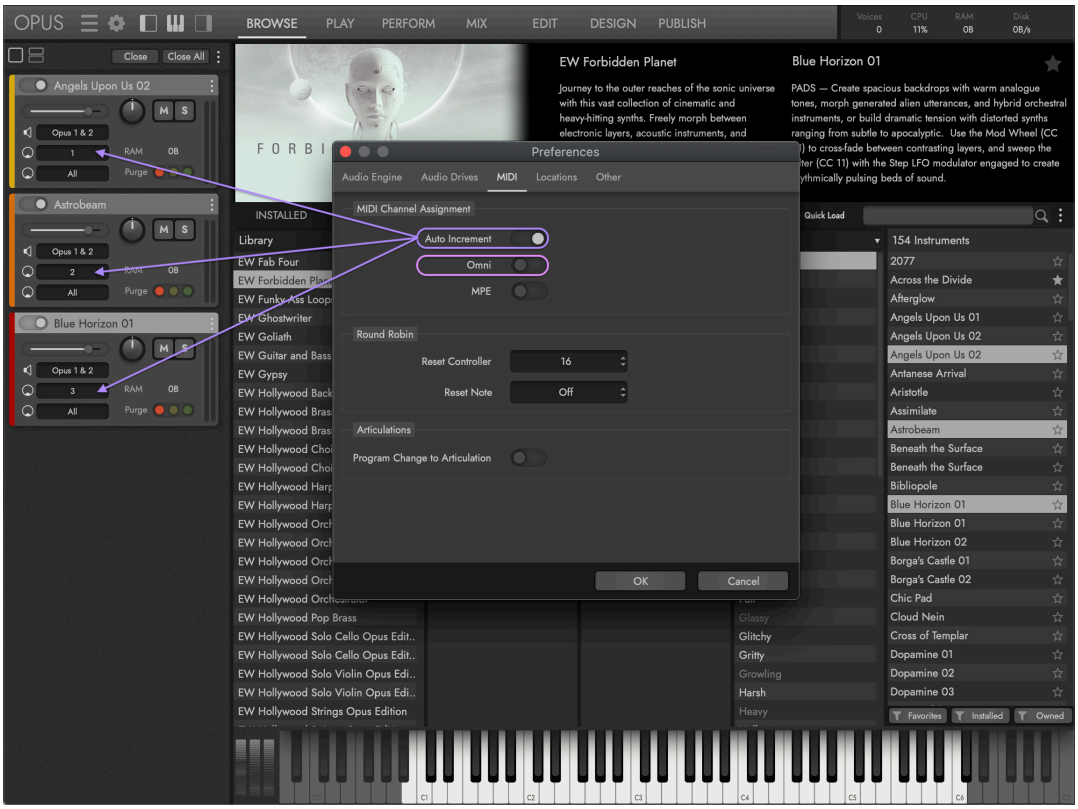
To load multiple instruments that appear consecutively in the Results List, click on the first instrument selection, hold the 'Shift' key, then click on the last instrument selection, making a multi-instrument selection. Release the modifier key, and use the **MULTI-INSTRUMENT** LOAD function to drag them from the Results List and drop them into the Instrument Rack.

To load multiple instruments that do not appear consecutively in the Results List, click on an instrument selection, and hold the 'Command' (MacOS) / 'Control' (Win) key while clicking on more instruments to add them to the multi-instrument selection. Release the modifier key, and use the **MULTI-INSTRUMENT** LOAD function to drag them from the Results List and drop them into the Instrument Rack.

MIDI CHANNEL ASSIGNMENTS

To change the way Opus assigns instruments to MIDI channels upon loading them, click in the Settings Menu, then click on Preferences. In the 'Preferences' window, click the MIDI tab, and find the **MIDI CHANNEL ASSIGNMENT** PREFERENCE at the top.

- Enable the **AUTO INCREMENT MODE** SWITCH to load each instrument on the subsequent MIDI channel (1, 2, 3, etc). This is useful when using Opus as multi-timbral instrument in a DAW.
- Enable the **OMNI MODE** SWITCH to load each instrument to receive MIDI on all channels (1-16). This is useful when using Opus to stack multiple instruments together as single instrument.



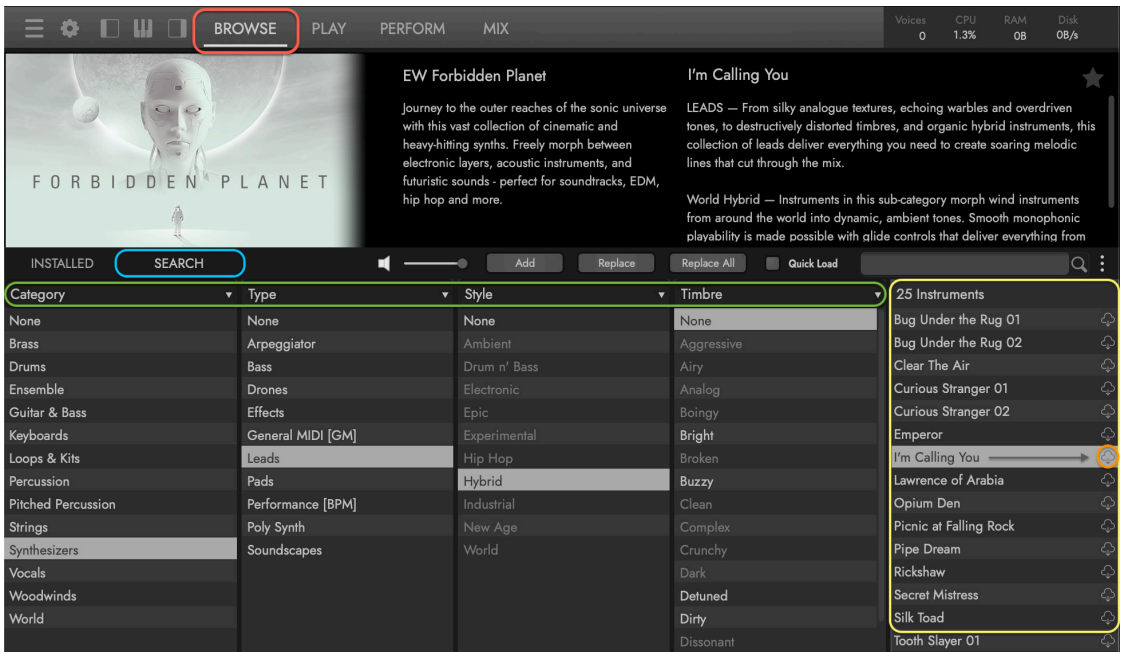
2.1.6 DOWNLOADING INSTRUMENTS

Individual instruments within EastWest Libraries are available on-demand by direct download. There is no need to wait for an entire library to finish downloading before playing your first note, and you can even begin to play an instrument before it's finished downloading.

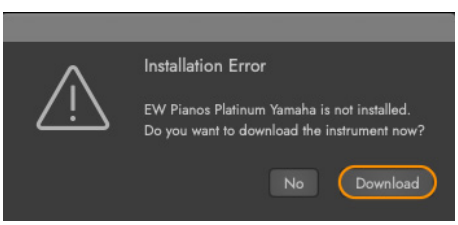
ON-DEMAND DOWNLOADS

Click on the **BROWSE PAGE** SELECTOR, then click on the **SEARCH MODE** BUTTON and select the desired tags that populate the **ATTRIBUTE TAG** COLUMNS.

For example, click on the 'Synthesizers' tag in the Category column, the 'Leads' tag under Type, and the 'Hybrid' tag in the Style column to populate the **RESULTS LIST** COLUMN on the right with instruments that meet the chosen criteria, and are available for download.

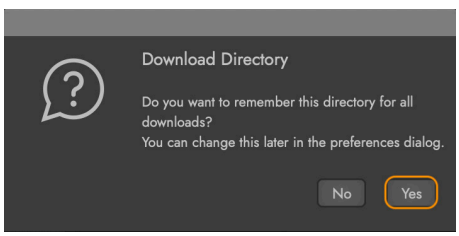


Click on the **ON-DEMAND DOWNLOAD** BUTTON that appears to the right of each instrument in the list to download the instrument, or simply double-click on it.



Click 'download' in the dialog window that opens, and if a directory path has not been created, use the 'locate directory for downloads' window to navigate to the location you wish to store the downloads, and click 'Open'.

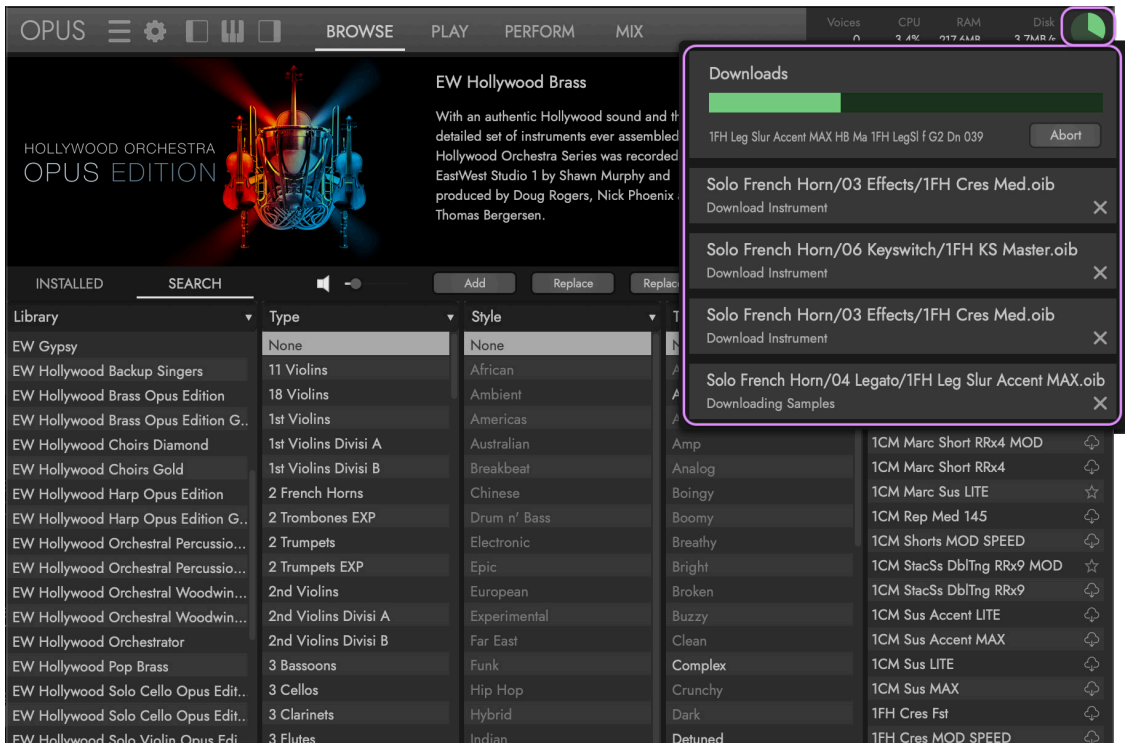
Now a dialog box will ask if you wish to remember this location for future downloads. In most cases, the answer is 'Yes'.



DOWNLOADS IN PROGRESS

Opus will begin downloading the instruments and samples into the 'On Demand Download Directory' set above. You can track the download progress in the top-right corner of the Opus user interface, where the **DOWNLOAD PROGRESS** INDICATOR will fill in the circle with green when the download has completed. You can immediately begin playing the instrument as it's being downloaded.

When downloading multiple instruments, click on the 'Progress Indicator' to open up the **DOWNLOAD PROGRESS** WINDOW, where all instruments that are currently being downloaded will appear. Here, you can use the 'Abort' command to stop all downloads, or use the 'X' icon next to the individual instruments to stop them from downloading.



AUTOMATIC DOWNLOADS

Opus will automatically download instruments that are missing from a previously saved DAW project file. This can be helpful when drives are unavailable or removed, or when you're working in collaborations with other Opus users.

This feature is also helpful when loading presets for the Orchestrator scoring engine, which are available for both the Hollywood Orchestra and Hollywood Fantasy Orchestra collections. Orchestrator presets are made up of instruments from a number of different individual libraries within each collection, so if any are missing they will be automatically downloaded.

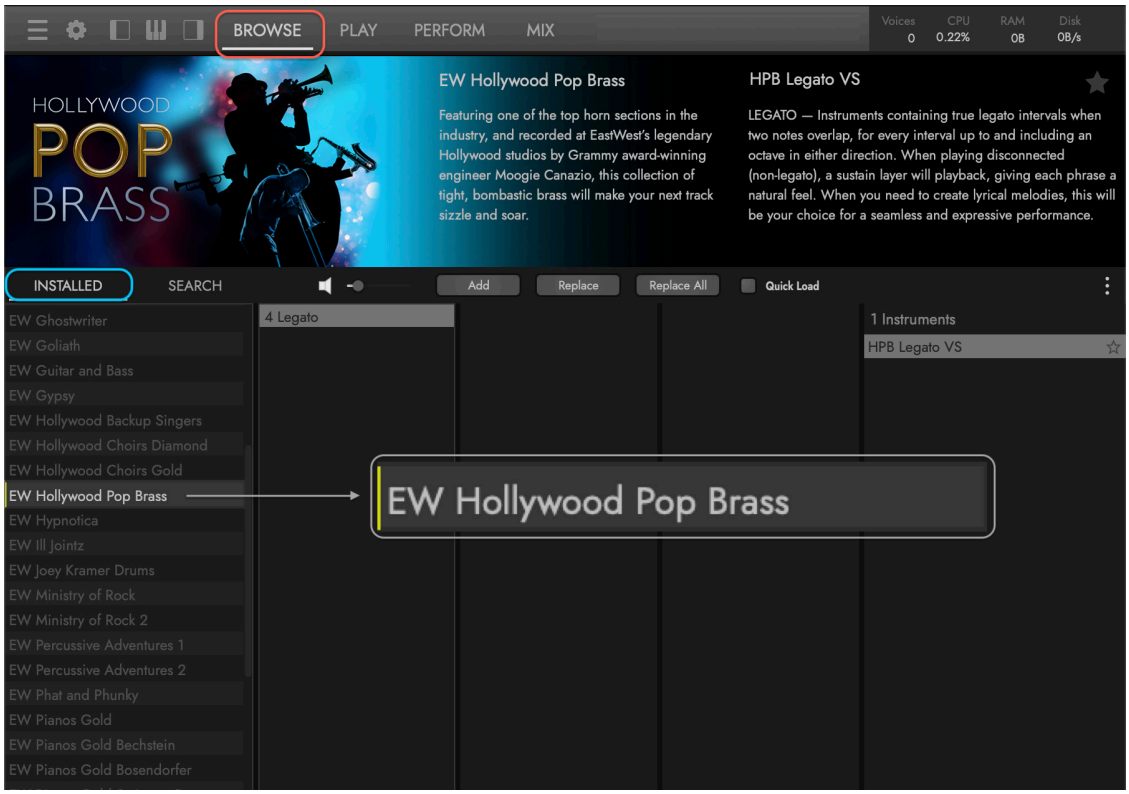
PLEASE NOTE: This feature requires a perpetual license for the product(s) in question, or an active ComposerCloud subscription.

PARTIAL DOWNLOADS

Instruments are released by EastWest as apart of larger collections, called libraries.

When downloading individual instrument(s) in Opus, the product they originate from will appear in the **INSTALLED MODE** of the **BROWSE PAGE** with a yellow **PARTIAL DOWNLOAD INDICATOR** to the left of the product name, indicating it is a partially downloaded library.

When an entire library has been downloaded in the Installation Center, the library appears in white text, indicating the entire library has been downloaded. When a library is fully installed, but the drive its installed to is not connected, the entry appears in gray.



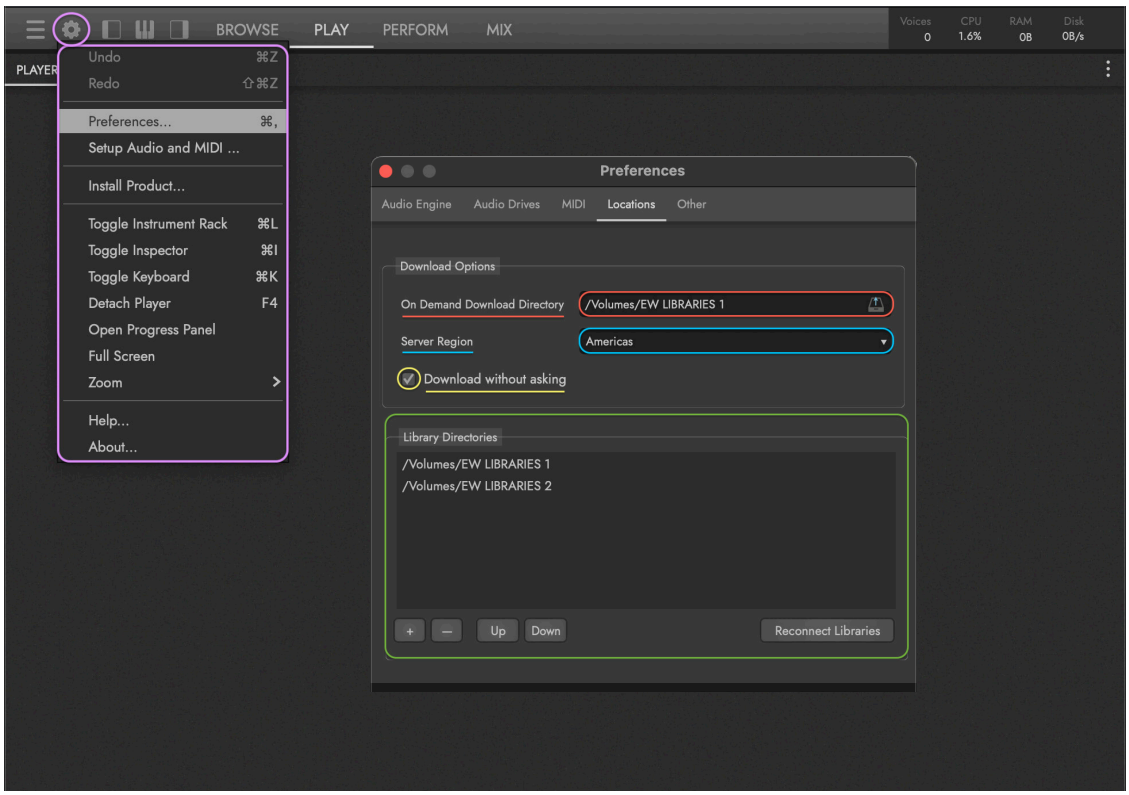
Opus works in a seamless fashion with products whose entire library has been fully downloaded, with libraries whose individual instrument(s) have been downloaded (partial download), or a combination of both.

For example, if a library has been fully downloaded from the Installation Center, but the drive they're installed to is left behind, individual instruments from that library can be downloaded while working remotely.

When the drive containing the fully installed libraries is reconnected again, the full libraries becomes available. Likewise, when disconnecting that drive, the individually installed instruments become available.

DOWNLOAD PREFERENCES

To change the 'On-Demand Download Directory' at anytime, click on the **SETTINGS MENU BUTTON**, then click 'Preferences'. In the Preferences window that appears, click on the 'Locations' tab to show all the Preferences available for on-demand downloads.



To set the location you wish to download instruments to, click in the **ON DEMAND DOWNLOAD DIRECTORY** field to open a search window. Once open, navigate to the desired location, then click 'Open'.

To choose the server region closest to you, click in the **SERVER REGION** OPTIONS and select between Americas, Europe, or Asia Pacific areas.

If you wish to automatically download instruments without a dialog window popping up to confirm, check the **DOWNLOAD WITHOUT ASKING** BOX.

The **LIBRARY DIRECTORIES** AREA populates with the directory paths where installed libraries are located. In the example above, libraries are split between 2 drives. Use the +/- buttons to add (+) a new directory path, or remove (-) an existing one, and change the order using the 'Up' and 'Down' buttons. Use the 'Reconnect Libraries' option to scans the locations(s) set in the Library Directories area, re-establishing the directory path for all installed libraries.

2.2 THE PLAY PAGE

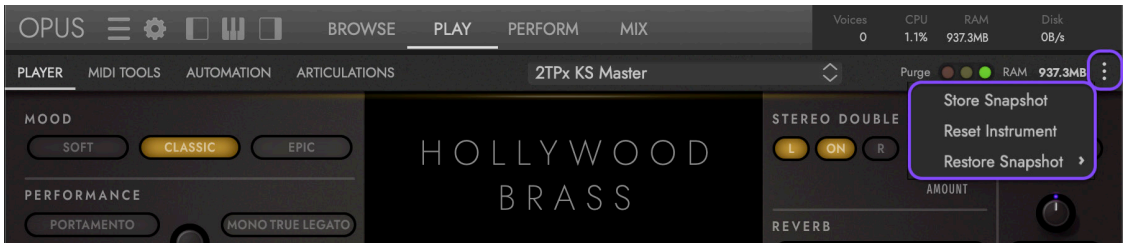
The Play page includes instrument-level controls that are unique to each library or collection, and other instrument-level controls that are available to all libraries.

To begin, click the **PLAY PAGE** SELECTOR in the **NAVIGATION** BAR, and use the **SUB-PAGE** SELECTORS in the **PALETTE** MENU to switch the **PLAY PAGE** between the Player (shown), MIDI Tools, Automation, and Articulations sub-pages.

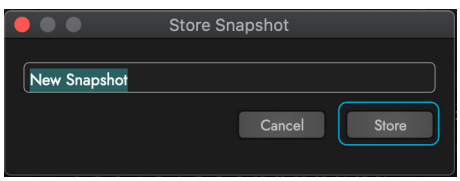
The **INSTRUMENT** MENU displays the currently selected instrument. If multiple instruments are loaded, click on the drop-down menu and select an instrument to make it the new currently selected instrument (which will update the settings in the user interface). Use the up and down **INSTRUMENT** SELECTOR ARROWS (or the up/down arrows on a computer keyboard) to load the previous, or next instrument.

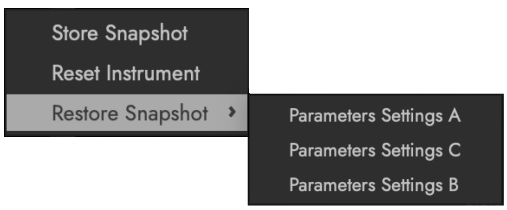
Use the **PURGE** CONTROL to adjust the currently selected instrument's memory allocation. To remove an instrument from memory, click the red purge button on the left. The yellow indicator will light up as samples are loaded into memory by playing an instrument's notes in real-time. To load an instrument back into memory, click the green load button on the right. The RAM Status Display will show an instrument's current memory footprint.

The **SNAPSHOT MENU** contains options for saving and recalling snapshots, which are files that save parameter settings for the current instrument. Multiple snapshots per instrument can be stored and restored in this way.



Once changes are made to instrument settings that you wish to store, choose the 'Store Snapshot' option from the Snapshot menu, enter a name into the field in the 'Store Snapshot' window that appears, then click the **STORE** BUTTON.





To reset an instrument to its original settings, use the 'Reset Instrument' option, or simply reload the instrument.

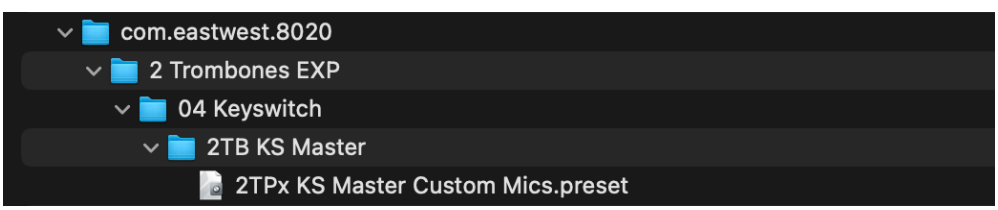
To restore a previously saved snapshot for the current instrument, hover over the 'Restore Snapshot' option from the Snapshot menu, then click on one of the Snapshots from the sub-menu to load it.

PLEASE NOTE: The 'Restore Snapshot' option will be grayed out for any instruments that have no previously stored snapshots.

Snapshot files are stored in the following directory path:

- **MacOS** Mac HD/Users/Username/Documents/East West/Presets
- **Windows** C:\Users\Username\Documents\East West\Presets

When saving the first snapshot file for a given library, a folder will be created in the Presets directory for that particular library, with the preset file nested inside its respective sub-directories.



2.2.1 PLAYER SUB-PAGE

This sub-page is home to a product's main user interface (Forbidden Planet shown). For details on product-specific controls and features, see that product's User Manual.

To access the Player sub-page, click on the **PLAY PAGE** SELECTOR in the **NAVIGATION** BAR, then click on the **PLAYER SUB-PAGE** SELECTOR in the secondary **PALETTE** MENU. This sub-page is the default selection, so it may already be selected.

The user interface displayed in the Player sub-page reflects the instrument shown in the **INSTRUMENT SELECTOR** MENU.

CONTROL TYPES

Some controls are unique specifically to a given EastWest Library, while others are common to all (like master volume and amplitude envelope), even if the exact appearance of the control knobs vary.

PLEASE NOTE: Controls unique to a specific library or collection are covered in that product's user manual. This includes things like Moods in the Hollywood Orchestra, or the Dual Arpeggiator in Forbidden Planet.

There are a few types of controls in the Player sub-page. Some controls can accept input from both the keyboard and mouse, while others only accept input from a mouse.

- The **ON / OFF** BUTTONS have an On and Off state. The only way to toggle a button between its On and Off states is by clicking the button with the mouse cursor. The On position is indicated when its light is illuminated. Some knobs and other controls are inactive unless their button is turned on (like the Reverb effect pictured to the right).

- The **ACTION** BUTTONS performs an action when clicked with the mouse. For example, moving between the Browse, Play, Perform and Mix pages, or enabling the 'Master' reverb control.
- The **KNOB / SLIDER** CONTROLS are used to modify a value over a range of values. To modify the value of a knob or slider, click and hold on it with the left mouse button, and drag the cursor upward to increase the value, and downward to decrease the value. To allow for finer adjustment, hold down command (MacOS) or control (Windows) while dragging with the mouse.

- The **DROP-DOWN** MENUS can select from a selection of text strings. Click on the control to display the list of options, and with the mouse, scroll through the list (if necessary) and then click on the choice.
- The **SPINNER** CONTROLS allow the user to change a value incrementally by clicking on the little arrows, or by clicking on the number itself to highlight it, then typing a new value.

2.2.2 MIDI TOOLS SUB-PAGE

This sub-page contains a suite of MIDI processing tools for instruments.

To access the MIDI Tools sub-page, click on the **PLAY PAGE** SELECTOR in the **NAVIGATION** BAR, then click on the **MIDI TOOLS SUB-PAGE** SELECTOR in the **PALETTE** MENU.

To load a MIDI Tool, click in the **MIDI TOOLS** MENU in the secondary **PALETTE** MENU, then select one from the list.

MIDI TOOLS OPTIONS

Each MIDI Tools module features a header area that contains an **ON / OFF** SWITCH, where the module can be enabled or disabled, a **MIDI TOOL** NAME, and a **MIDI TOOL OPTIONS** MENU, where options are available for removing the selected MIDI Tool, removing all MIDI Tools, editing its script, and storing the current settings as a preset, and restoring those saved preset settings.

ARPEGGIATOR

Turn chords into a sequence of notes (arpeggios) that can be synced to tempo (BPM).

CONTROLS	
Rate	Control how many beats will play within a bar of music. Standard sub-divisions (Whole, Half, 1/4, 1/8, 1/16, 1/32, and 1/64), and triplet sub-divisions (1/4 triplet, 1/8 triplet and 1/16 triplet), are available
Time	Divide the sub-division set in the 'Rate' drop-down menu by half with each incremental value added in this spinner box.
Mode	Control how the arpeggiator responds to MIDI Note input using 1 of 3 options: • **Hold** is the default mode that only plays the arpeggiator if you continue to hold notes after the initial MIDI note on messages are received. • **Latch** mode will continue to play the arpeggiator after the initial MIDI note on messages, without the need to sustain the notes. New MIDI note on messages will reset the arpeggiator pattern based on the new input. • **Latch** + mode will continue to play the arpeggiator after the initial MIDI note on messages, without the need to hold them down. New MIDI note on messages will be added to the initial arpeggiator pattern, as opposed to resetting it.
Direction	Define the note order of an arpeggiated chord with 4 unique options: • **Up** goes in the specified direction from the lowest note to the highest note. So, if you play the 3-note C major chord, the arpeggiator will play notes C, E, and G, and then repeat the pattern. • **Down** goes in the specified direction from the highest note to the lowest note. So, if you play the 3-note C major chord, the arpeggiator will play notes G, E, and C, and then repeat the pattern. • **Up/Down** goes in order of the specified direction (first up, then down). So, if you play the 3-note C major chord, the arpeggiator will play notes C, E, G, E, and then repeat the pattern. • **Input Order** goes in order of the MIDI note input. So, if you play and hold notes C, then E, then G, it will play C, E, G repeatedly in an upward direction. If you play and hold notes G, then E, then C, it will play notes G, E, C repeatedly in a downward fashion.
Length	Determine the length of note played at each sub-division within an arpeggio. With a value of 0, no sound will come through, and with a setting of 1, the full length of a note at its current sub-division (and tempo) will playback. Values in between scale the length from fully open to fully closed.
Swing	Control the rhythmic feel of the arpeggiator, adding an element of human feel to a sequence. Without adding any Swing Amount (0%), the steps of the sequence fall strictly on the beat sub-divisions. As the Swing Amount is increased (up to 100%), notes are shifted forward (later) off the beat sub-division, creating everything from a subtle shuffled feel, to more dramatic syncopated rhythms.
Detection	Define the time window between 0 and 500 ms within which a MIDI note on message is received and added to the arpeggiator pattern.
Octave	Set the octave range of the arpeggiator. With a value of 0, only the notes of a chord actually played will be arpeggiated. With a value of 1, the notes of a chord actually played will be arpeggiated, and then that pattern will continue an octave above. Values of 2, 3, or 4 will play the notes of the chord within a 2 to 4 octave range respectively.

Velocity Mode	Define the way note velocity is handled with 3 modes: • **As Played** will playback the arpeggiator at note velocities based on how hard or soft you play on a velocity-sensitive MIDI device. • **Fixed** locks the arpeggiator at note velocities based on the value set in the 'Fixed Velocity' knob (located to the right). • **Steps** will playback the arpeggiator at note velocities based on the values set in the 'Velocity Steps' sequencer (located to the right).
Fixed Velocity	When the 'Velocity Mode' is set to 'Fixed', use this knob to lock the arpeggiator to the specified note velocity value.
Velocity Steps	When the 'Velocity Mode' is set to 'Steps', use this sequencer to define the set of note velocity values that are applied to each step of the arpeggiator.
Use Stop Key	Enable this switch when using Latch and Latch+ modes to use a MIDI note to stop the playback of the arpeggiator.
Stop Key	Enter the MIDI note you wish to use as the 'Stop Key' in the spinner box, or use the + and - buttons to incrementally cycle through the MIDI notes.
Learn Stop Key	Click this button then play a MIDI note to assign it as the 'Stop Key'.
Stop	Click on this button to stop the playback of the arpeggiator.

CHORDER

Use a single note to trigger chords based on the options selected in the Mode, Root and Chord menus.

CONTROLS	
Mode	Restricts the notes of a scale to the selected mode. Each mode can be determined with a series of whole-steps (2 semitones) and half-steps (1 semitone) starting on the root note • Ionian: W, W, H, W, W, W, H • Dorian: W, H, W, W, W, H, W • Phrygian: H, W, W, W, H, W, W • Lydian: W, W, W, H, W, W, H • Mixolydian: W, W, H, W, W, H, W • Aeolian: W, H, W, W, H, W, W • Locrian: H, W, W, H, W, W, W
Root	Determine the notes included in the selected mode by choosing the root note of that mode. For example, with a Mode of Dorian selected, and a Root of D, the scale formed with the series of half and whole steps are all natural (white) keys: D, E, F, G, A, B, C, and so on.
Chord	Select the chord type based on the scale degree: 1-3-5 (triad), 1-3-5-7 (seventh chord), 1-3-5-7-9 (ninth chord), and 1-3-4-6 (sus chord). The specific chord type (for example, Major triad or Minor triad) is determined by the selected Mode and Root.

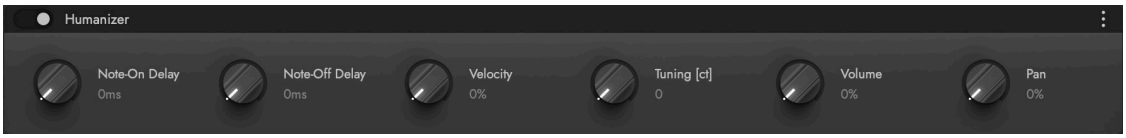
GLIDE

Create a continuous glide in pitch between notes that are played in a connected fashion (legato).

CONTROLS	
Time	Set the time it takes to glide between the two notes, between 5 ms and 2.5 seconds.
Speed	Define how the 'Time' control behaves with 2 different modes: • **Absolute** applies the Time control across the entire note interval, regardless of distance. • **Per Octave** applies the Time control value across each octave. For example, if you set the Time control to 1 second and selected Absolute from the Speed menu, playing 2 octaves will take 1 second to glide between, but with Per-Octave selected, playing 2 octaves will take 2 seconds (1 second per octave).
Detune	Set the minimum and maximum interval range in semitones

HUMANIZER

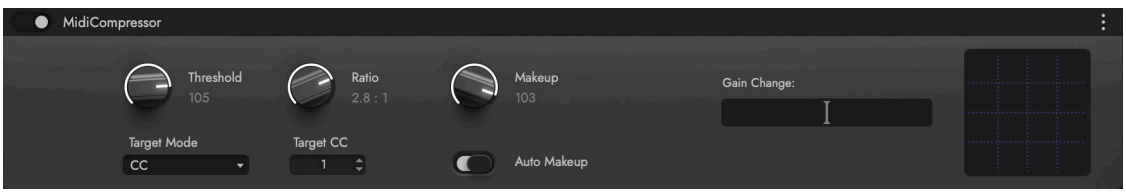
Add a human feel by randomizing a selection of parameters values in terms of time, and percentage.



CONTROLS	
Note On Delay	Delay the onset of a MIDI note on message between 0 and 100 ms.
Note Off Delay	Delay the release of a MIDI note off message between 0 and 100 ms.
Velocity	Randomize note velocity as a percentage between 0% (no change) and 50% (of input value).
Tuning	Randomize tuning within a range between 0 and 100 cents (1 semitone).
Volume	Randomize volume as a percentage between 0% (no change) and 100% (silence).
Pan	Randomize pan as a percentage between 0% (no change) and 100% (hard left and right).

MIDI COMPRESSOR

This MIDI Tool modifies the range of MIDI values, for either Note Velocity or MIDI CCs, in a similar way that a compressor modifies the dynamic range of audio.

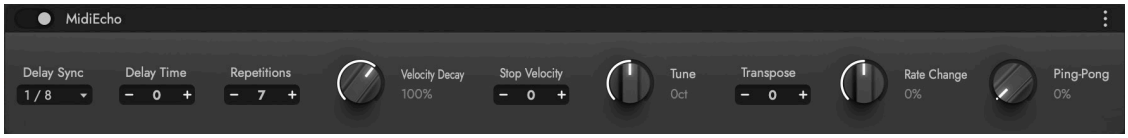


CONTROLS	
Threshold	Set the Note Velocity or MIDI CC values above which a note is processed, between values of 0 and 127. Notes below the selected threshold will not be played.
Ratio	Set the resulting Note Velocity or MIDI CC values for those that passed through the Threshold control.
Makeup	Increase or decrease the Note Velocity or MIDI CC values relative to their original values, between values of -127 and 127.
Auto Makeup	Automatically adjust the Note Velocity or MIDI CC values relative to their original values.

Target Mode	Set the MIDI Compressor to target either Note Velocity (default) or a MIDI Continuous Controller (CC). When MIDI CC is selected, a 'Target CC' menu will appear (described below).
Target CC	Once 'CC' is selected in the Target Mode menu, select which MIDI CC number you wish to be affected by the MIDI Compressor.

MIDI ECHO

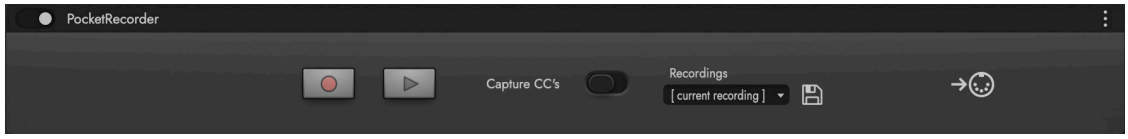
Create a delay line of MIDI data, with the ability to change velocity, tuning and panning over the course of that delay line.



CONTROLS	
Delay Sync	Select a note sub-division: standard sub-divisions (Whole, Half, 1/4, 1/8, 1/16, 1/32, and 1/64), and triplet sub-divisions (1/4 triplet, 1/8 triplet and 1/16 triplet) are available.
Delay Time	Relate to the Delay Sync control, essentially changes the sub-division. For instance, a 1/4 Delay Sync value with a Delay Time of 1 equals a 1/8 Delay Sync value with a Delay Time of 2.
Repetitions	Determine how many repeats of the delay lines will play. With 3 repetitions selected, you will hear the original note, plus 3 repeats (for a total of 4 beats).
Velocity Decay	Change Note Velocity as a percent of its original value over the course of the delay line. Use positive values between 100-150% to produce a crescendo effect, or values between 10-100% to produce decrescendo effect.
Stop Velocity	Pertain to the Velocity Decay control, stopping the output of velocities below a certain threshold at higher values.
Tune	Change fine tuning over the course of the delay line. With positive values between 0 and 100 cents, the pitch will bend upward, and with negative values between -100 and 0 cents, the pitch will bend downward.
Transpose	Incrementally increase or decrease over the course of the delay line according to the transposition value, that ranges from -12 to +12 semitones. With a value of 1, each delay line repetition will rise by 1 semitone (chromatically). Please be aware, if the transposition exceeds the sampled range of the instrument, nothing will play.
Rate Change	Elongate or compress the delay line over time as a percentage (between -25% and 25%).
Ping Pong	Pan the delay line from right to left. At 0% there is no effect, and at 100% it alternates between hard-right and hard-left.

POCKET RECORDER

Record, store, and playback MIDI performances.



CONTROLS	
Record	Click this button to begin recording MIDI Note (and MIDI CC) data. Click the Record button again to finish the recording.

Play	Click this button to begin playback of the [current recording], or previously saved recordings.
Capture CCs	Enable this switch to capture MIDI CC data in addition to MIDI note data.
Recordings	Click in this menu to display saved recordings, then click on a file name to load it.
Save Recording	If you wish to save the [current recording], click on the Disk Iconand enter a name in the 'Save Recording' dialog window, and click 'Ok'. It will now appear in the 'Recordings' menu.
Save As MIDI File	Select a previously saved recording from the 'Recordings' menu, then click on the arrow pointing to the MIDI Din icon to call up a dialog window where you can name and export it as a MIDI file.

RESTRICT TO SCALE

Play notes based on the selected Root Note, Scale, and Mode selection.

CONTROLS	
Root Note	Determine the notes to be included in the selected mode by choosing the root note of that mode. For example, with a Mode of Dorian selected, and a Root of D, the scale formed with the series of half and whole steps are all natural (white)keys: D, E, F, G, A, B, C, and so on.
Scale	Restrict the notes of a scale to the selected mode. Each mode can be determined with a series of whole-steps (2 semitones) and half-steps (1 semitone) starting on the root note • Ionian: W, W, H, W, W, W, H • Dorian: W, H, W, W, W, H, W • Phrygian: H, W, W, W, H, W, W • Lydian: W, W, W, H, W, W, H • Mixolydian: W, W, H, W, W, H, W • Aeolian: W, H, W, W, H, W, W • Locrian: H, W, W, H, W, W, W
Mode	Select a mode to determine how notes played outside of the selected Scale are re-mapped to remain within the Scale. The modes are: Always to Upper, Always to Lower, Auto to Upper, Auto to Lower, and Ignore. Essentially, notes not in the Scale are re-mapped to next higher or lower notes, or ignored altogether (no note is played).

SUSTAIN PEDAL

Add sustain pedal functionality with active key range per MIDI channel options. This MIDI Tool is loaded automatically to add sustain pedal functionality to the Orchestrator scoring engine.

CONTROLS	
Channel	Displays MIDI channels (1-16).

Sustain	An indicator that lights up when receiving sustain pedal on messages on MIDI channels 1-16. The indicator is also a toggle switch that turns the sustain pedal on and off.
Activate Range	Sets the range of keys affected by the sustain pedal by defining the minimum (min) and maximum (max) MIDI note range.

TRANSPOSE

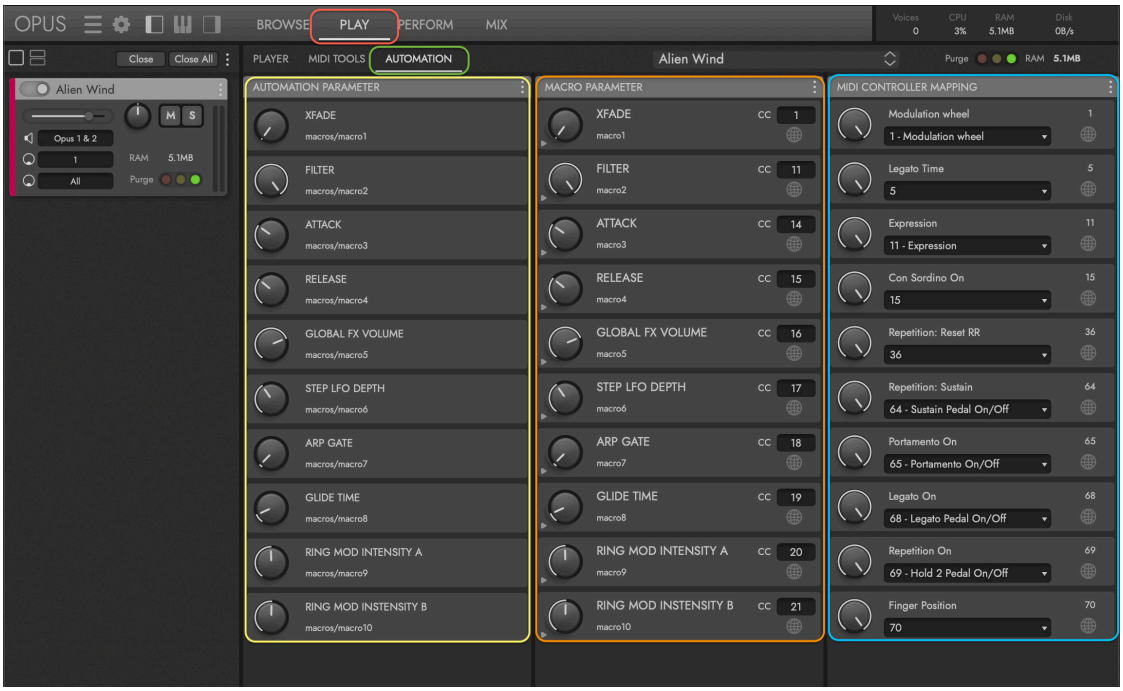
Transpose incoming MIDI notes by up to 48 semitones in either direction.

CONTROLS	
Transpose	Transpose incoming MIDI notes by up to 48 semitones (4 octaves) in either direction by entering a value directly into the spinner box, or by using the left and right arrows to increment the value by (+/-) 1 semitone. Use the -12 and +12 buttons to change the transposition up or down by an octave.

2.2.3 AUTOMATION SUB-PAGE

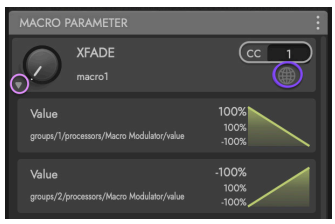
This sub-page is divided into 3 columns related to automation: Automation Parameters, Macro Parameters, and MIDI Controller Mapping.

To access this sub-page, click on the **PLAY PAGE** SELECTOR in the **NAVIGATION** BAR, then click on the **AUTOMATION SUB-PAGE** SELECTOR in the **PALETTE** MENU.



The **AUTOMATION PARAMETERS** AREA populates with up to 16 automation parameters that appear in a DAW's plug-in automation lanes.

The **MACRO PARAMETERS** AREA populates with macro parameters controlled by MIDI CCs. They can be recorded live into a DAW's MIDI automation lanes, along with the rest of your MIDI performance. For real-time control, program the parameter's MIDI CC numbers into a MIDI controller.



- The **TARGET PARAMETER** TOGGLE in the lower-left corner will open a tray to reveal the target parameters being controlled by a Macro Parameter.
- The **MIDI CC GLOBAL** BUTTON controls where the parameter is stored, which is either with a project file, by leaving the control off, or globally, by turning it on.
- The **MIDI CC ASSIGNMENT** BOX allows you to assign a Macro Parameter to a MIDI CC.

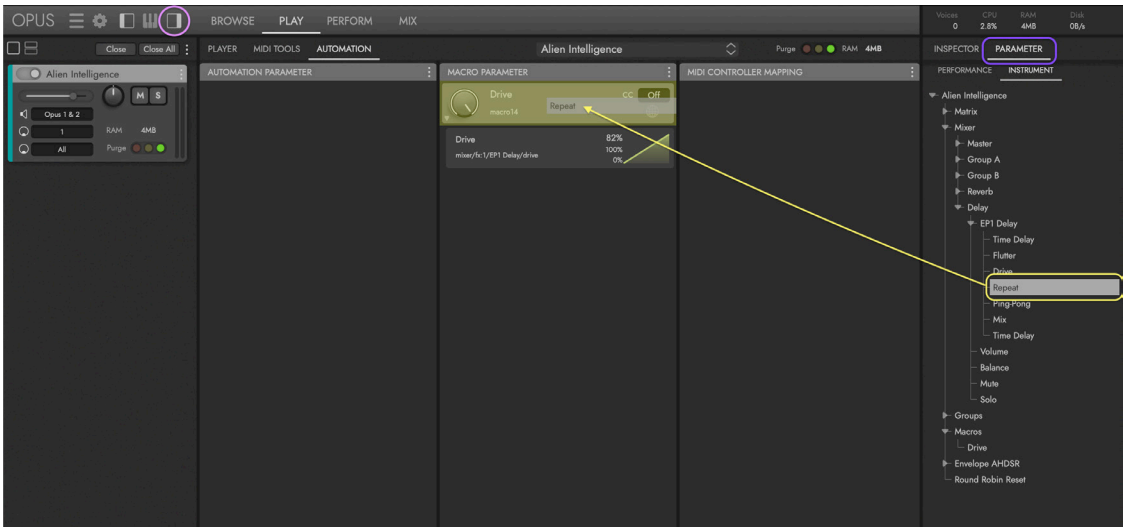
The **MIDI CONTROLLER MAPPING** AREA populates with MIDI CCs used in the currently selected instrument. In the same way as Macro Parameters, these can be automated in a DAW or controlled in real-time with a MIDI controller. Click inside the drop-down menu to "remap" existing MIDI CC assignments to any MIDI CC you like.

ADDING PARAMETERS

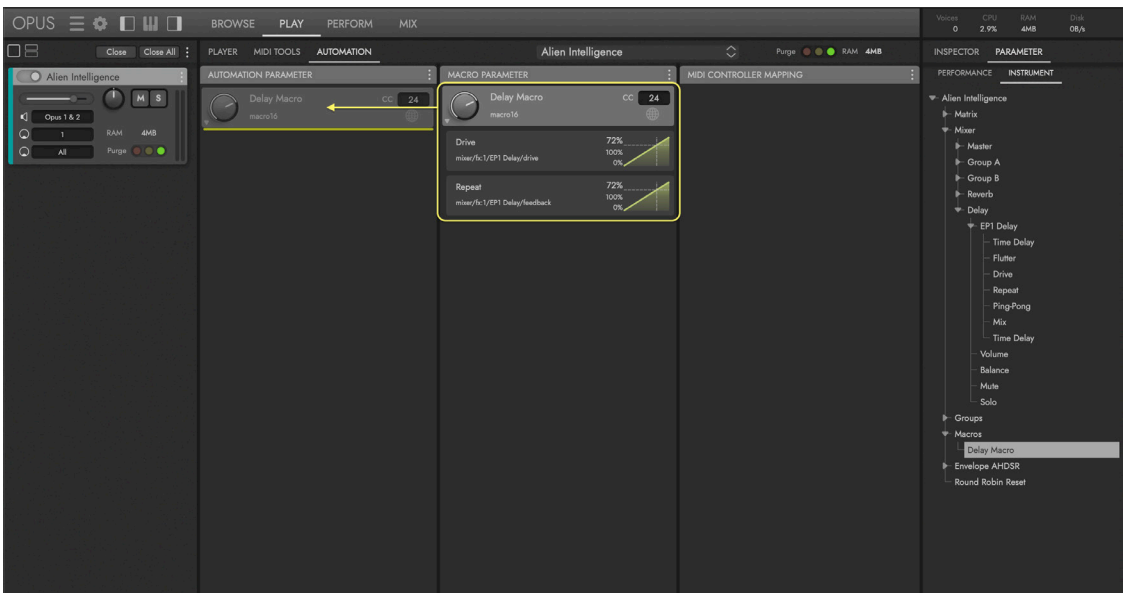
To add your own parameters, click on the **INSPECTOR** TOGGLE in the **NAVIGATION** BAR to open the Inspector panel on the right side of the Opus user interface.

Next, click on the **PARAMETER** AREA to view the Parameter Tree, which is a schematic of an instrument's parameter control set.

Once you find a parameter in the Parameter Tree that you wish to add, click on the parameter, and drag it into the Macro Parameters area to create a Macro Parameter. To add multiple parameters to the macro, click and drag them from the Parameter Tree and drop them onto the Macro Parameter's header (shown below).

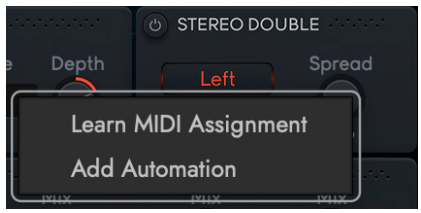


Next, click the Macro Parameter's header and drag it into the Automation Parameter area so you can also automate it in a DAW's plug-in automation lane.



Alternatively, parameters can be added directly from the Player sub-page, where a product's custom user interface appears. To begin, right-click on a control to open a sub-menu with 2 options (this menu only appears if the parameter can be mapped).

Select the **ADD AUTOMATION** OPTION to add it to the Automation Parameters area, so it can be automated in a DAW's plug-in automation lane.



Select the **LEARN MIDI ASSIGNMENT** OPTION to open a pop-up window indicating Opus is ready to learn. Now move a knob or slider on a MIDI controller to auto-map this control to the incoming MIDI CC, and add it to the Macro Parameters area.

Any control that has been added to automation can be removed by right-clicking and choosing 'Remove Automation'.

PARAMETER OPTIONS

Use the Option Menus in each of the Automation sub-page areas to perform basic functions like adding or removing (all) parameters, and storing and restoring presets.

Use the **AUTOMATION PARAMETER OPTIONS** MENU to perform the following actions:

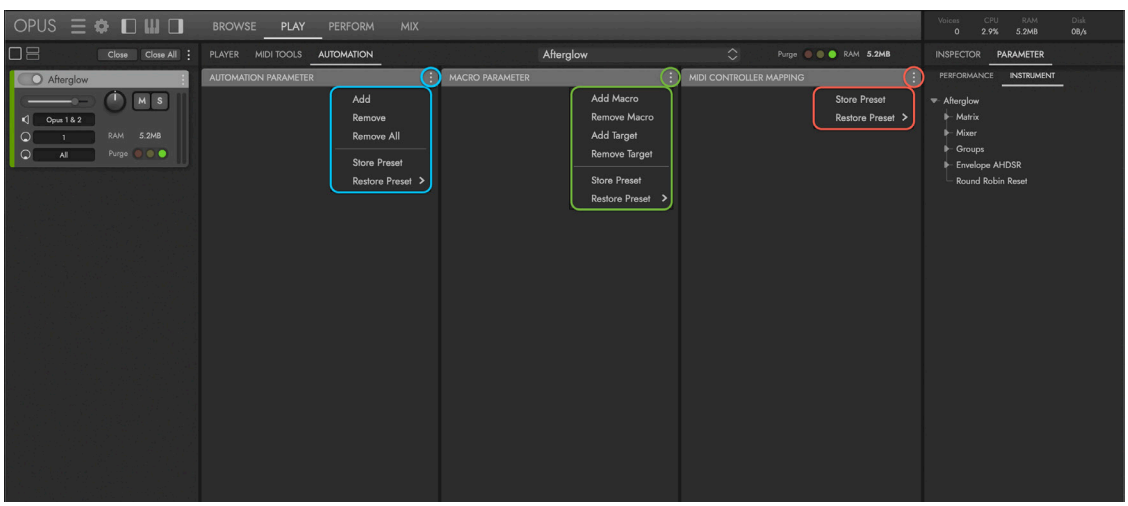
- **ADD** / **REMOVE (ALL)** parameter(s) from the Automation Parameters area.
- **STORE** / **RESTORE PRESET** to save and recall Automation Parameter settings.

Use the **MACRO PARAMETER OPTIONS** MENU to perform the following actions:

- **ADD** / **REMOVE** macro(s) from the Macro Parameters area.
- **ADD** / **REMOVE TARGET** parameter from a Macro Parameter.
- **STORE** / **RESTORE PRESET** to save and recall Macro Parameter settings.

Use the **MIDI CONTROLLER MAPPING OPTIONS** MENU to perform the following actions:

- **STORE** / **RESTORE PRESET** to save and recall MIDI Controller Mapping settings.



MACRO PARAMETER CONTROLS

The **MACRO PARAMETER** AREA encompasses all the controls needed to customize a single Macro Parameter, which controls 1 or more Target Parameters.

The **MACRO PARAMETER** KNOB, its name, and macro number appear on the left side.

The **MIDI CC ASSIGNMENT** BOX appears on the right, assigned to a number between 1 and 127. To reassign this, click inside the value field and enter a new number between those values.

The **MIDI CC GLOBAL** BUTTON controls where the parameter is stored, which is either with a project file, by leaving the control off, or globally, by turning it on.

The **TARGET PARAMETER** TOGGLE opens a tray to reveal all the individual Target Parameters being controlled by the Macro Parameter.

The **TARGET PARAMETER** AREA contains 1 or more Target Parameters controlled by the Macro Parameter.

In the example above, the 'XFADE' Macro Parameter controls 2 Target Parameters, which are designed to cross-fade between 2 instrument layers. Below that, the 'FILTER' Macro Parameter controls 1 Target Parameter, the filter's cutoff frequency.

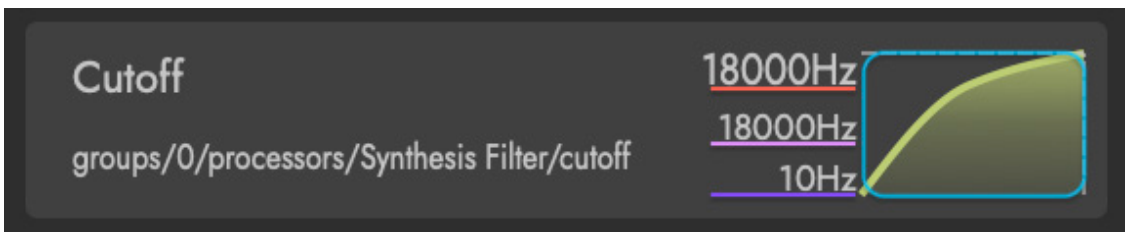
TARGET PARAMETER EDITING

The **CURRENT TARGET** VALUE of a Macro Parameter Target appears at the top.

Below that are the **MAXIMUM TARGET** VALUE and **MINIMUM TARGET** VALUE, which can used to limit the value range of the Target Parameter. To modify the minimum and maximum value ranges, click inside their respective value fields and enter a new value.

For example, entering a value of 1000 (Hz) into the Minimum Target Value field will limit lower range of the filter's cutoff frequency so that it does not filter the sound out completely to silence.

Click on the **TARGET PARAMETER** MAP to modify the shape of a Target Parameter's value mapping, changing its responsiveness to Macro Parameter knob movements.



TARGET PARAMETER MAPPING

Click in the **CURVE TYPE** MENU to select the type of curve you wish to use to modify the shape of theTarget Parameter Map.

- **TABLE** curve type allows the most free-form editing of the map. Click and drag in the map area to draw in values, and/or hold the 'Alt' key while you click and drag to draw a linear line.
- **CURVE (SEGMENTS)** curve type allows editing a map with handles, with an additional curve control between each of the two handles. Click and drag a handle (or curve control) to change its value. Add or remove a handle using 'Alt' + click.
- **CURVE FIT** curve type allows editing a map with handles. Click to add a new handle, and drag to change its value. Remove a handle with 'Alt' + click.

- **BILINEAR** curve type allows map editing with handles that are fixed to the x-axis (horizontal). Click and drag the Minimum, Center, and Maximum handles along the y-axis (vertical) to change their values.

Click the **RESET** BUTTON to reset the map to a linear value.

Click the **INVERSE** BUTTON to flip the map orientation along the x-axis (horizontally).

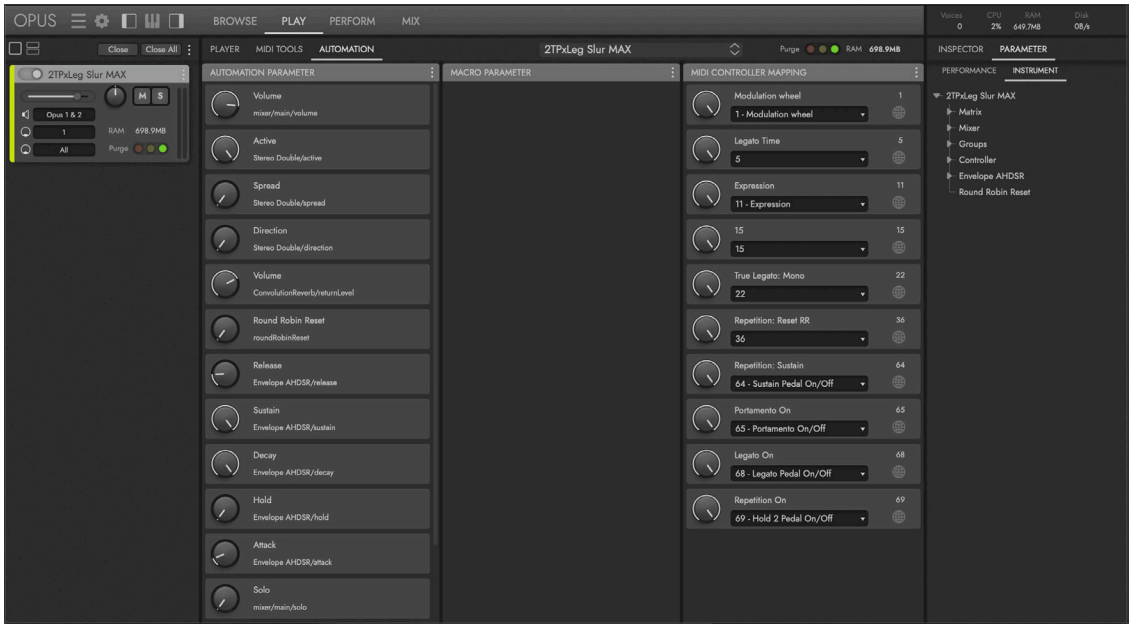
Click the **REFERENCE** BUTTON to show and hide an overlay to be used as a reference point while editing the Target Parameter Map with the different Curve Types. Use in conjunction with the 'Load Reference from Preset' option explained below to use any saved Target Parameter Map as the reference, in place of the default linear value.

Use the **TARGET PARAMETER** OPTIONS to perform basic functions with the Target Parameter Map, like copy and pasting a map from one Target Parameter to another.

- **COPY** the current Target Parameter Map settings.
- **PASTE** the copied map to the current Target Parameter Map.
- **RESET** the Target Parameter Map to its default linear value setting.
- **STORE** the current Target Parameter Map for later recall.
- **RESTORE** the selected Target Parameter Map.
- **LOAD REFERENCE FROM PRESET** displays the selected Target Parameter Map as the reference point when the **REFERENCE** BUTTON is engaged.

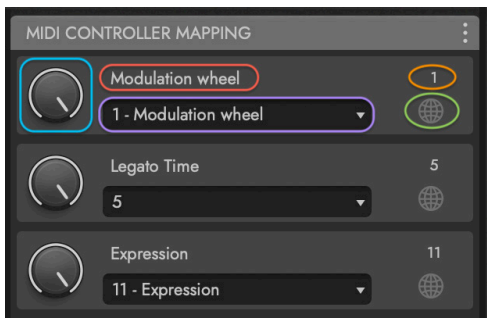
MIDI CONTROLLER MAPPING

The MIDI Controller Mapping column allows you to re-map existing MIDI Continuous Controller (CC) assignments to new ones. It automatically populates with MIDI CCs that are available for the selected instrument, appearing in numerical order according to their default MIDI CC assignment.



Each **MIDI CC PARAMETER** NAME is accompanied by a **MIDI CC PARAMETER** KNOB on the left, whose value ranges between 0 to 127.

To re-map the current MIDI CC number to a new one, click on the **MIDI CC MAPPING** MENU and select a new MIDI CC number from this list.



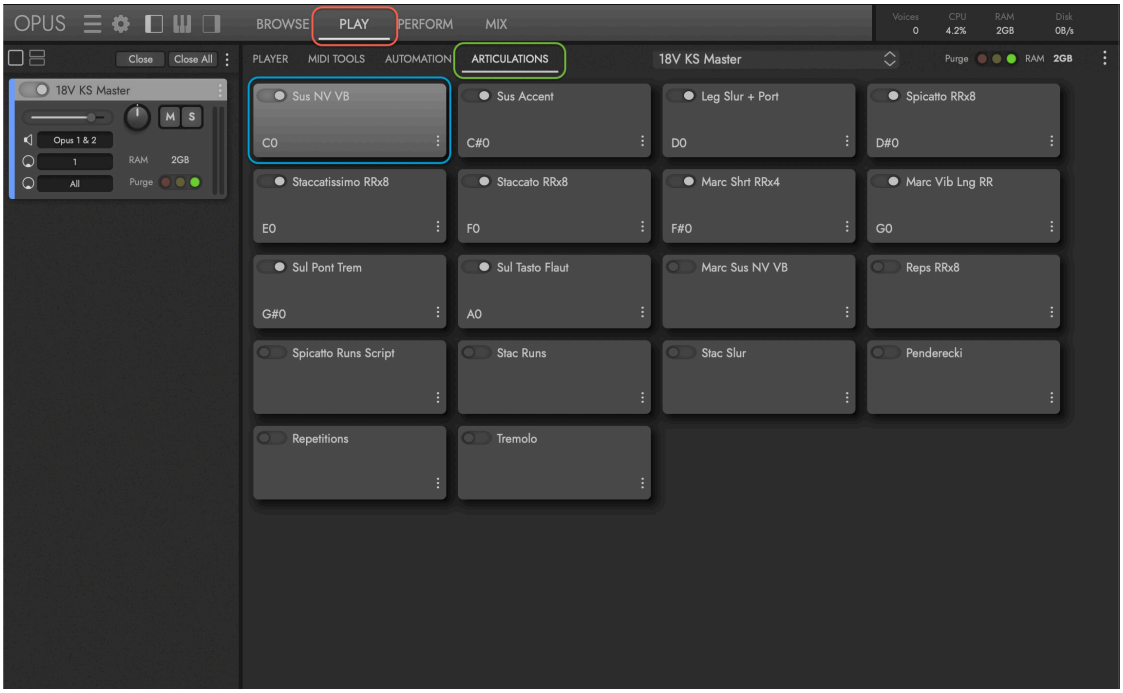
The original **MIDI CC** ASSIGNEMENT appears in the top-right of the panel.

The **MIDI CC GLOBAL** BUTTON controls where the parameter is stored, which is either with a project file, by leaving the control off, or globally, by turning it on.

2.2.4 ARTICULATIONS SUB-PAGE

When an instrument that contains multiple articulations is loaded, the Articulation sub-page will become available. Keyswitch (abbreviated 'KS') instruments are an example of instruments that contain multiple articulations, like the 18 Violin KS Master from the Hollywood Strings Opus Edition, shown below.

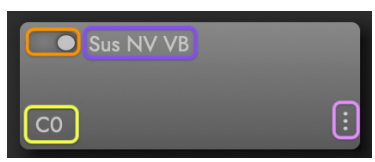
Access the Articulations sub-page by clicking on the **PLAY PAGE** SELECTOR in the **NAVIGATION** BAR, then clicking the **ARTICULATIONS SUB-PAGE** SELECTOR in the **PALETTE** MENU.



ARTICULATION CELLS

In the Articulation sub-page, each articulation appears within an **ARTICULATION** CELL containing a few essential controls.

The **ARTICULATION** NAME appears at the top of the cell. To the left of this is the **ON/OFF** SWITCH that determines whether an articulation is loaded or unloaded from memory (RAM). When the switch is oriented to the right an articulation is loaded, and when oriented to the left, the articulation is unloaded.

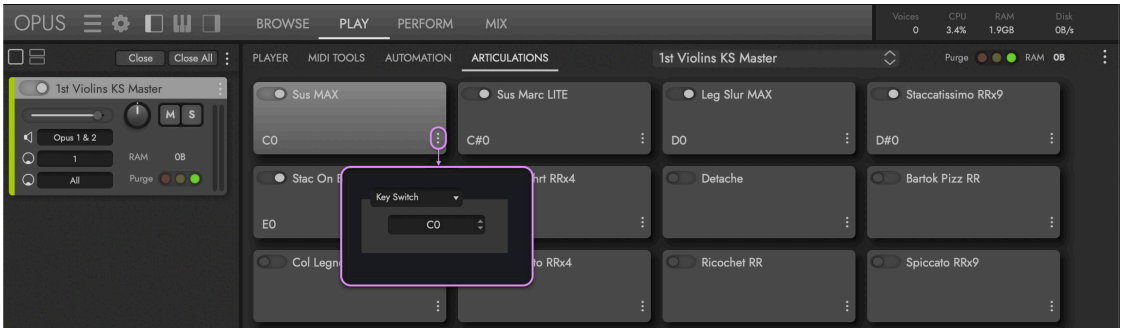


The **ARTICULATION TRIGGER OPTION** DISPLAY in the lower-left of a cell shows which note(s), program change number, or controller value range will activate the articulation for use.

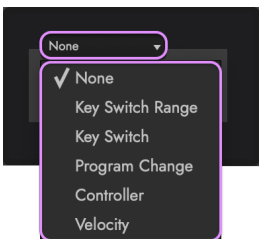
The **ARTICULATION TRIGGER OPTION** BUTTON in the lower-right corner of a cell to open a dialog box where Trigger Options can be defined. The various options are covered in detail the following section.

ARTICULATION TRIGGER OPTIONS

Clicking the button in the lower-right corner of an Articulation Cell will open the **ARTICULATION TRIGGER OPTION** DIALOG, where Trigger Options for an articulation are defined.

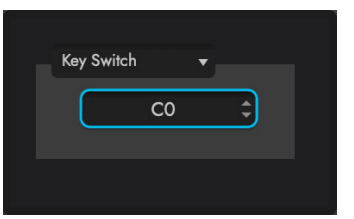


Click on the **ARTICULATION TRIGGER OPTION** SELECTOR in the dialog box to reveal a drop-down menu of available Trigger Options.



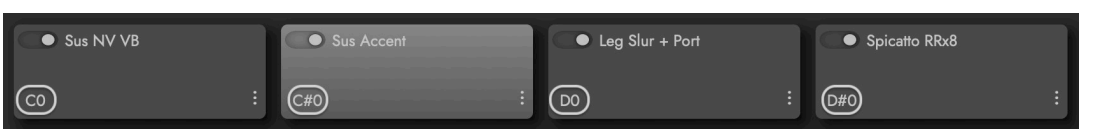
Select a Trigger Option to change the dialog box, allowing the input of values that define which note(s), program change number, or controller value range will activate the articulation for use.

- **KEYSWITCH** (abbreviated 'KS') assigns articulations a unique MIDI note, that when played will activate them for use. This allows an instrument with multiple articulations the ability to switch between them in real-time.

  Keyswitch instruments like the 18 Violins KS Master load with the 'Keyswitch' trigger option already setup, but this can be modified by typing different values into the **MIDI NOTE ASSIGNMENT** FIELD, or by using the up or down arrows to incrementally cycle through the value range.

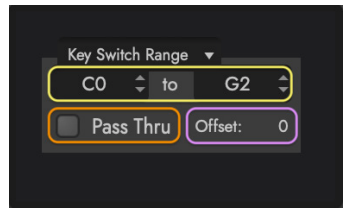
  Once assigned, the **MIDI NOTE ASSIGNMENTS** appear in the lower-left corner of each of the Articulation Cells.

  Keyswitches also appear on the Virtual Keyboard in Opus highlighted in Blue, or Yellow if they are the currently active keyswitch.

- **KEYSWITCH RANGE** enables the use of a range of MIDI notes to activate an articulation for use by setting them in the **MIDI NOTE RANGE** FIELDS.

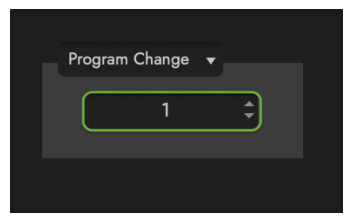


The **PASS THRU** OPTION ensures that the keyswitch in the underlying articulation is activated.

The **OFFSET** VALUE allows the MIDI Note Range to be shifted, in case its different from what the the underlying articulation uses.

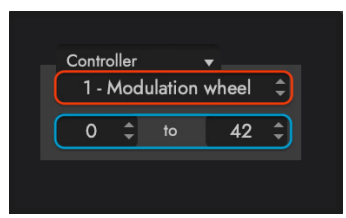
- **PROGRAM CHANGE** messages can be used to activate instruments by assigning each of them to a unique MIDI Program Change number, then sending program change messages from a DAW or MIDI controller to be received by Opus.

Sending Program Change messages differs between DAWs and MIDI Devices, so please refer to their respective documentation to determine how exactly to send them. However, as long as instruments in Opus are setup to receive Program Change messages on their respective numbered assignments, the instrument to receive the last Program Change message will be active.



To define a program change number, enter a value between 1 and 128 into the **PROGRAM CHANGE NUMBER** FIELD, or use the up and down arrows to increment through the value range. Refer to the documentation for your preferred DAW (sequencer) for instructions on how to send program changes messages, as each handles this differently.

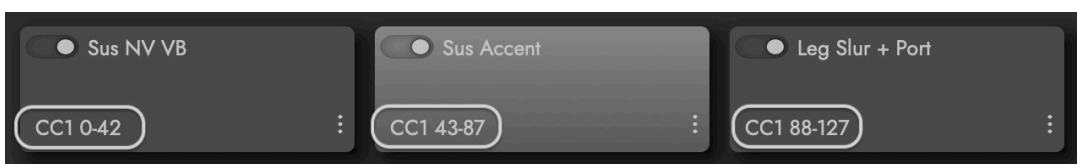
- **CONTROLLER** enables MIDI Continuous Controller (CC) messages to be used to make instruments within a defined value range (between 0 and 127) selected for use.



Click in the **MIDI CC ASSIGNMENT** FIELD and enter a number between 0 and 127, or use the up and down arrows, to select the MIDI CC you wish to use. In this example, the Mod Wheel (CC 01) is selected.

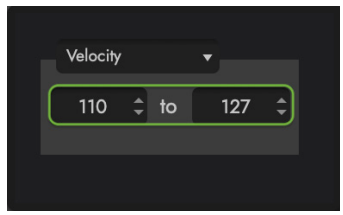
Next, define the minimum and maximum value range that the controller will respond to by entering them into the **CONTROLLER VALUE** FIELDS.

In this scenario, multiple articulations are assigned unique value ranges (like 0-42, 43-87, and 88-127, for instance) and the Mod Wheel (CC 01) is used to activate them for use depending on its position (shown below).



- **VELOCITY** allows MIDI Velocity values to be used to make instruments within a defined velocity range (between 1 and 127) selected for use. MIDI Velocity is the measure of how hard or soft you play the keys or pads on a velocity-sensitive MIDI controller, with lower velocities produced by playing softly, and higher velocities produced by playing harder. Restricting the Velocity Range of an instrument means you could have different instruments (articulations) playing based on how hard or soft you're playing.

  For example, a long sustained articulation could be left to playback across the entire velocity range between 1 and 127, while a short accented articulation's **TRIGGER OPTION VALUE** FIELDS could be set to playback between the velocities of 110 to 127.

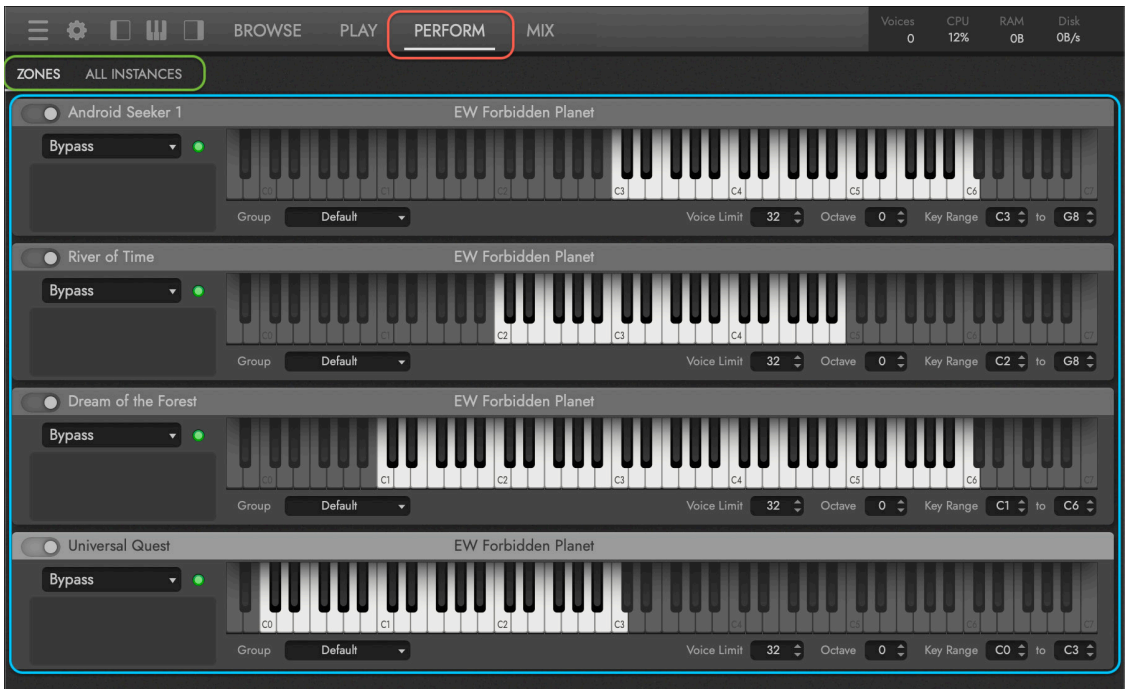
  This creates behavior where a sustained string sound always plays, but is combined with a short accented note when played at higher velocities.

2.3 THE PERFORM PAGE

The Perform page allows you to manage the properties of multiple instruments, controlling how they interact with each other, and enabling you to create multi-timbral or multi-articulation setups quickly.

Click the **PERFORM PAGE** SELECTOR in the **NAVIGATION** BAR, and the **SUB-PAGE** SELECTORS in the secondary **PALETTE** MENU to switch the **PERFORM PAGE** between the Zones sub-page, the All Instances sub-page, and the MIDI Tools sub-page.

Other specialized sub-pages will appear when special instruments for products like Hollywood Choirs (the WordBuilder sub-page) and Hollywood Orchestra (the Orchestrator sub-page) are loaded.



The **ZONES SUB-PAGE** is available for all loaded instruments, allowing you to set instrument properties like key range, octave transposition, and trigger actions to shape how multiple instruments interact together.

The **ALL INSTANCES SUB-PAGE** provides an overview of all loaded instruments and articulations, across all instances of Opus.

The **WORDBUILDER SUB-PAGE** appears when WordBuilder multi-instruments are loaded in Hollywood Choirs, Symphonic Choirs, and Hollywood Backup Singers products. It includes an array of controls that allow you to type words that can be sung.

The **ORCHESTRATOR SUB-PAGE** appears when the Orchestrator instrument is loaded from the Hollywood Orchestra Opus Edition. It allows you to create full-scale orchestral music with complex arrangements by playing a few simple chords.

2.3.1 ZONES SUB-PAGE

Create both multi-timbral and multi-articulation instruments by modifying instrument properties, including key range and octave, and using Trigger Options to select ("trigger") instruments with keyswitches, controllers (like the Mod Wheel), and more.

Click the **PERFORM PAGE** SELECTOR in the **NAVIGATION** BAR, then click the **ZONES SUB-PAGE** SELECTOR in the **PALETTE** MENU to switch to the Zones sub-page.

INSTRUMENT ZONE OPTIONS

Use **INSTRUMENT ZONE** OPTIONS to modify an instrument's properties, including its group, voice limit, octave , and key range. Combine instruments in different ways, and quickly build complex instruments with multiple layers.

- **GROUP** enables you to have multiple groups of instruments that can be switched in tandem between each other. Within each group, only the instrument that is selected for ("triggered") will play.
- **VOICE LIMIT** sets a limit on the number of simultaneous voices an instrument can playback before voice stealing occurs. Please note that a single note can have multiple microphone positions and/or articulations that can quickly add up to many voices, which in turn is resource intensive. Voice Limits are set per instrument, so if you are experiencing dropped voices (from reaching the voice limit), raise the Voice Limit. If your computer resources are being pushed, lower it.
- **OCTAVE** changes the octave transposition of an instrument up or down an octave. This is useful to create an instrument stack with instruments at different octave ranges playing together simultaneously, or when used in conjunction with Key Range to create keyboard splits.

- **KEY RANGE** specifies the range of notes to which the instrument will respond, effectively muting notes you don't want to hear, or giving you the ability to split the keyboard between multiple instruments on a single MIDI channel. Input a MIDI note number in the value box on the left to set the lower key range, and likewise in the value box on the right to set the upper range. You can also use the small up and down arrows to incrementally define the range.

INSTRUMENT TRIGGER OPTIONS

Use **INSTRUMENT TRIGGER** OPTIONS to create multi-timbral and multi-articulation instrument setups that behave in various ways using options like keyswitches, and controllers to make individual instruments within multi-instrument setups active.

The **ACTIVE ARTICULATION** INDICATOR will light up green to indicate which instrument is currently active.

- **KEYSWITCH** uses MIDI notes outside an instrument's sampled range to switch between multiple instruments (articulations). Keyswitches are colored Blue, with the currently selected keyswitch colored Yellow.

  In the example below, the 18 Violins instruments 'Sus Max', 'Reps', and 'Tremolo' are using the Keyswitch trigger option, and are assigned to the MIDI note numbers C0, C#0, and D0 respectively. Now, each of the instruments (articulations) will only playback when its respective MIDI note keyswitch has been played, making it activated for use.

- **KEYSWITCH RANGE** enables the use of existing keyswitch instruments together with non-keyswitch instruments to form a larger, unified keyswitch instrument that encompasses them both.

  In the example below, the 'Keyswitch Range' trigger option is applied to the Bawu KS Master instrument, with its keyswitch range assigned from C0 to E0, and the 'Keyswitch' trigger option is applied to the Bawu Exp instrument, with its keyswitch assigned to F0. Together, they form a unified keyswitch instrument with a range of C0-FO.

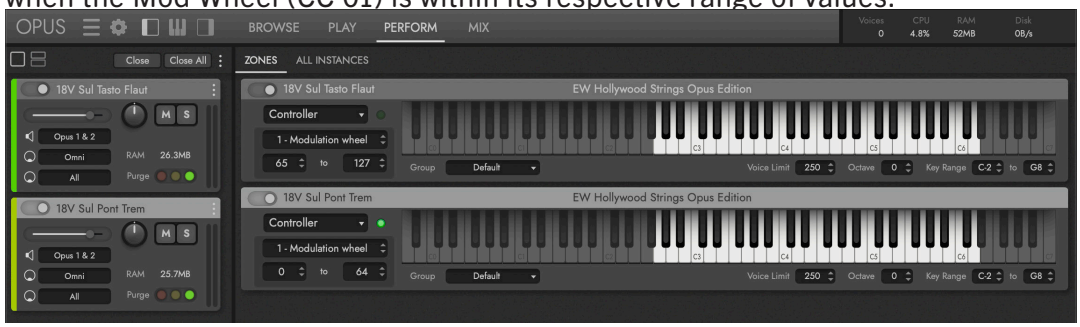
  When using the 'Keyswitch Range' trigger option, enable the 'Pass Thru' option to ensure the keyswitch range in the underlying instrument is activated, and use the offset parameter if a different keyswitch range then what the underlying instrument uses is required.

- **PROGRAM CHANGE** messages can be used to activate instruments by assigning each of them to a unique MIDI Program Change number, then sending program change messages from a DAW or other MIDI device to be received by Opus.

  Sending Program Change messages differs between DAWs and MIDI Devices, so please refer to their respective documentation to determine how exactly to send them. However, as long as instruments in Opus are setup to receive Program Change messages on their respective numbered assignments, the instrument to receive the last Program Change message will be active.

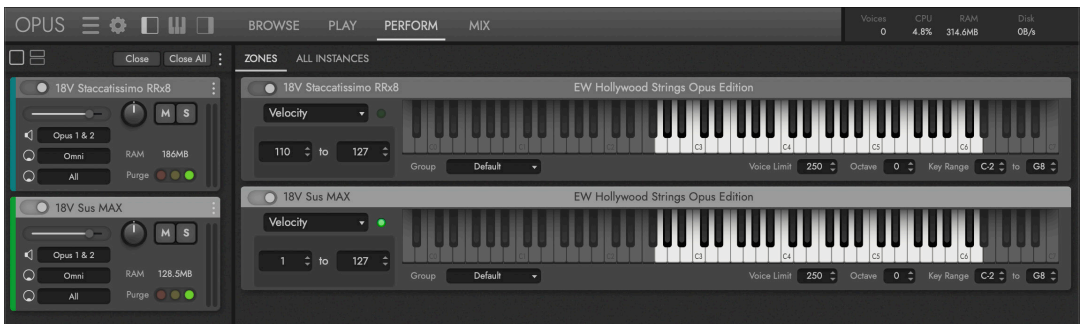
- **CONTROLLER** enables MIDI Continuous Controller (CC) messages to be used to make instruments within a defined value range (between 0 and 127) selected for use.

  In the example below, the Mod Wheel (CC 01) is used to select between 2 instruments (articulations). The '18 Violins Sul Pont Trem' instrument is assigned to '1-Modulation Wheel' with a value range between 0 and 64, and the '18 Violins Sul Tasto Flautando' instrument is also assigned to '1-Modulation Wheel' but with a value range between 65 and 127. Each instrument will only playback when the Mod Wheel (CC 01) is within its respective range of values.



- **VELOCITY** allows MIDI Velocity values to be used to make instruments within a defined velocity range (between 1 and 127) selected for use. MIDI Velocity is the measure of how hard or soft you play the keys or pads on a velocity-sensitive MIDI device, with lower velocities produced by playing softly, and higher velocities produced by playing harder. Restricting the Velocity Range of an instrument means you could have different instruments (articulations) playing based on how hard or soft you're playing.

  In the example below, the '18 Violins Sustained Max' instrument is set to playback across the entire velocity range (1 to 127), and the '18 Violins Staccatissimo' instrument is set to playback between the velocities of 110 to 127. This creates behavior where a sustained string sound always plays, but is combined with a short accented note when played at higher velocities.

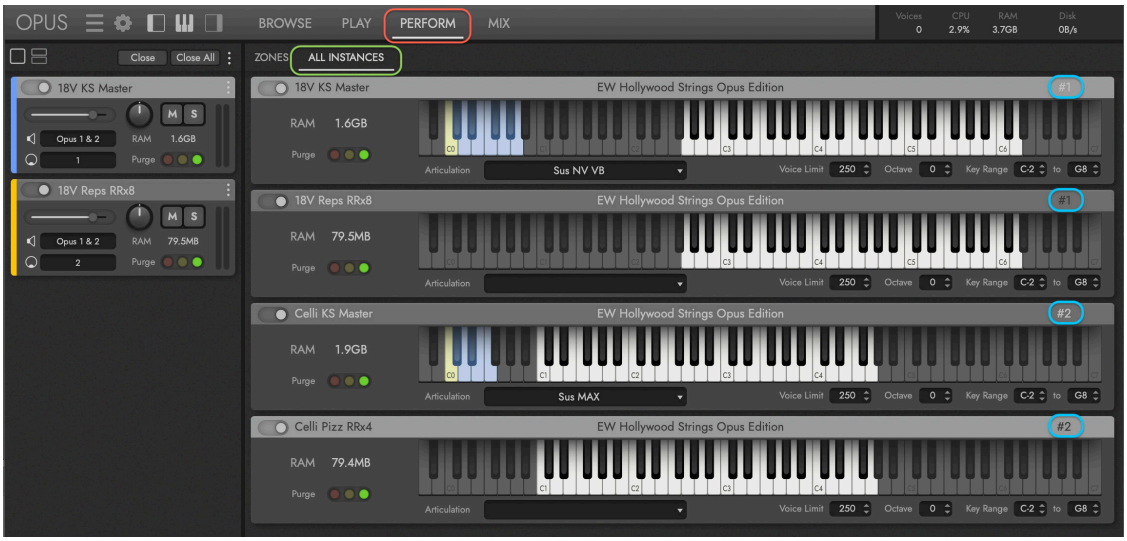


2.3.2 ALL INSTANCES SUB-PAGE

Access an overview of instruments loaded across all instances of Opus when using it as a plugin within a DAW (sequencer).

Access the All Instances sub-page by clicking the **PERFORM PAGE** SELECTOR in the **NAVIGATION** BAR, then clicking on the **ALL INSTANCES SUB-PAGE** SELECTOR in the **PALETTE** MENU.

The number listed in the **INSTANCE** IDENTIFIER indicates which instance of Opus an instrument belongs to.



ALL INSTANCES ZONE OPTIONS

Use **ALL INSTANCES ZONE** OPTIONS to modify an instrument's properties, including its active articulation, voice limit, octave, andkey range. Combine instruments in different ways, and quickly build complex instruments with multiple layers across all instances of Opus loaded in a DAW.

PLEASE NOTE: The voice limit, octave, and key range options are the same that exist in the Instrument Zone options in the Zones sub-page, except that they can be accessed across all instances of Opus when loaded as a plug-in within a DAW.

- **ARTICULATIONS** allows the selection of an articulation populates its menu with articulations for instruments that contain multiple articulations, such as Keyswitch instruments, click in the **ARTICULATIONS SELECTOR MENU** and choose the instrument or articulation.

- **VOICE LIMIT** sets a limit on the number of simultaneous voices an instrument can playback before voice stealing occurs. Please note that a single note can have multiple microphone positions and/or articulations that can quickly add up to many voices, which in turn is resource intensive. Voice Limits are set per instrument, so if you are experiencing dropped voices (from reaching the voice limit), raise the Voice Limit. If your computer resources are being pushed, lower it.

- **OCTAVE** changes the octave transposition of an instrument up or down an octave. This is useful to create instrument stacks with instruments at different octave ranges playing together simultaneously, or when used in conjunction with Key Range to create keyboard splits.

- **KEY RANGE** specifies the range of notes to which the instrument will respond, effectively muting notes you don't want to hear, or giving you the ability to split the keyboard between multiple instruments on a single MIDI channel. Input a MIDI note number in the value box on the left to set the lower key range, and likewise in the value box on the right to set the upper range. You can also use the small up and down arrows to incrementally define the range.

  An example of this in practice is a keyboard split where 2 instruments that have overlapping note ranges are restricted so each only plays within their defined key range. That way, the 2 instruments can play in different ranges of the keyboard on the same MIDI Channel.

ALL INSTANCES PURGE OPTIONS

Use the **ALL INSTANCES PURGE** OPTIONS to manage an instrument's memory (RAM) allocation, regardless of which instance of Opus that instrument is loaded into.

The **RAM STATUS** DISPLAY shows how much memory an instrument is currently using, which will change depending on the instrument's purge state.

The **PURGE** CONTROL provides both buttons that change the purge state itself, as well as visual feedback to indicate which purge state an instrument is currently in by highlighting 1 of 3 colors:

- **RED INDICATOR (BUTTON):** Completely purge an instrument from memory (RAM) by clicking on the Red purge button in the left portion of the Purge Control. The Red indicator light will be highlighted to indicate the instrument has been completely purged from memory, and the RAM Status Display will show 0 Bytes.
- **YELLOW INDICATOR:** From a completely purged state, samples are loaded into memory (RAM) in real-time as notes of an instrument are played. The Yellow indicator light will be highlighted to indicate an instrument is partially loaded, and the RAM Status Display will show the amount of memory (RAM) it is using in terms of KB (kilobytes), MB (megabytes), or GB (gigabytes).
- **GREEN INDICATOR (BUTTON):** Fully load an instrument into memory (RAM) from a fully or partially purged state by clicking on the Green load button in the right portion of the Purge Control. The Green indicator light will be highlighted to indicate the instrument is completely loaded into memory (RAM) based on the 'Default Preload Size' option set in the Settings Menu / Preferences / Streaming tab, and the RAM Status Display will show the amount of memory (RAM) it is using in terms of KB (kilobytes), MB (megabytes), or GB (gigabytes).

2.3.3 MIDI TOOLS SUB-PAGE

This sub-page contains a suite of MIDI processing tools that can be used in conjunction with performances (multi-instruments).

To access the MIDI Tools sub-page, click on the **PERFORM PAGE** SELECTOR in the **NAVIGATION** BAR, then clicking on the **MIDI TOOLS SUB-PAGE** SELECTOR in the **PALETTE** MENU.

To load a MIDI Tool, click in the **MIDI TOOLS** MENU in the PALETTE MENU, then click on one from the list to load it.

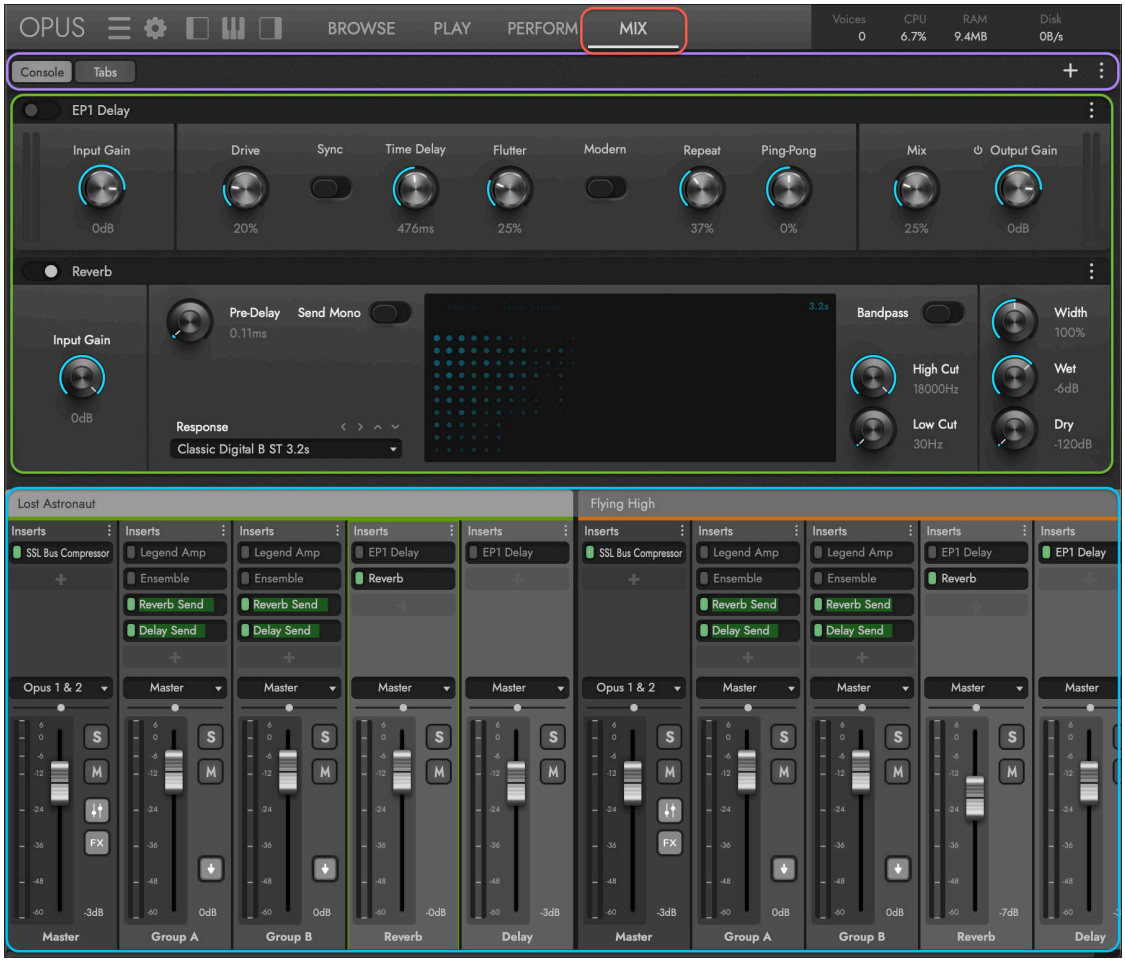
PLEASE NOTE: The MIDI Tools available in the Play and Perform pages are the same, only they are applied to instruments or performances (multi-instruments) respectively.

CONTINUE READING | SECTION 2.2.2 MIDI TOOLS SUB-PAGE for details on the controls and features available in this suite of MIDI processors.

2.4 THE MIX PAGE

Craft the final sound of an instrument's output using mix controls and a suite of powerful effects processors.

Click the **MIX PAGE** SELECTOR in the **NAVIGATION** BAR to enter the **MIX PAGE**, which is divided into 3 areas, described below.



The **PALETTE** MENU contains controls for the Mixer and Effects Areas, which are described in the following sections.

The **EFFECTS** AREA occupies the top half of the Mix page, and displays the insert effects loaded on the selected channel (by default, the Master channel).

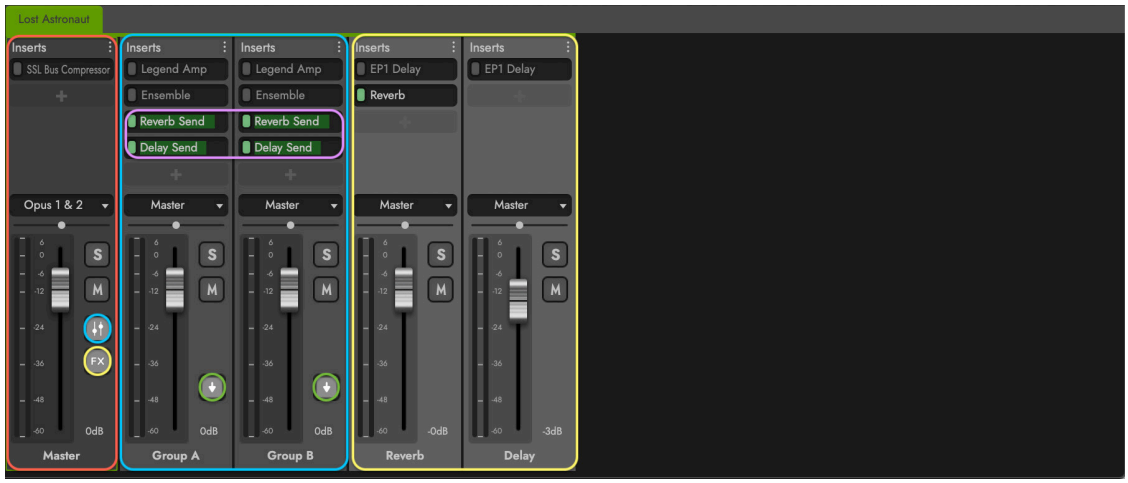
The **MIXER** AREA is located in the bottom-half of the Mix page, and populates with different types of mixer channels for each loaded instrument, including the Master channel, Sub Mixer channels, and FX Bus channels.

2.4.1 MIXER AREA

The **MIXER** AREA appears in the bottom half of the Mix page. Each instrument contains basic controls for volume, panning, mute, and solo, as well as output configuration options, and insert effect slots. Features unique to each channel type are described in the following sections.

MASTER CHANNEL

The **MASTER** CHANNEL is the final output for an instrument, summing together the Sub Mixer and FX Bus channels. In addition to the basic controls described above, the **SUB MIXER** TOGGLE and **FX BUS** TOGGLE are used to show and hide the Sub Mixer channels, and FX Bus channels respectively.



SUB MIXER CHANNELS

The **SUB MIXER** CHANNELS are often used for instruments with multiple microphone positions, enabling custom microphone mixes. In Forbidden Planet (shown above), instruments contain multiple instrument layers, which are output to their own Sub Mixer channels, giving independent mixer controls over layers that makes up an instrument.

The **FX BUS** SENDS in each Sub Mixer channel is used to dial in the amount of signal sent to the FX Bus channels. In Forbidden Planet, for example, each Sub Mixer channel has a ‘Reverb Send’, and a ‘Delay Send’, allowing custom effect send settings on a per layer basis.

The **LOAD** BUTTON on each Sub Mixer channel can be used to load and unload individual instrument layers.

FX BUS CHANNELS

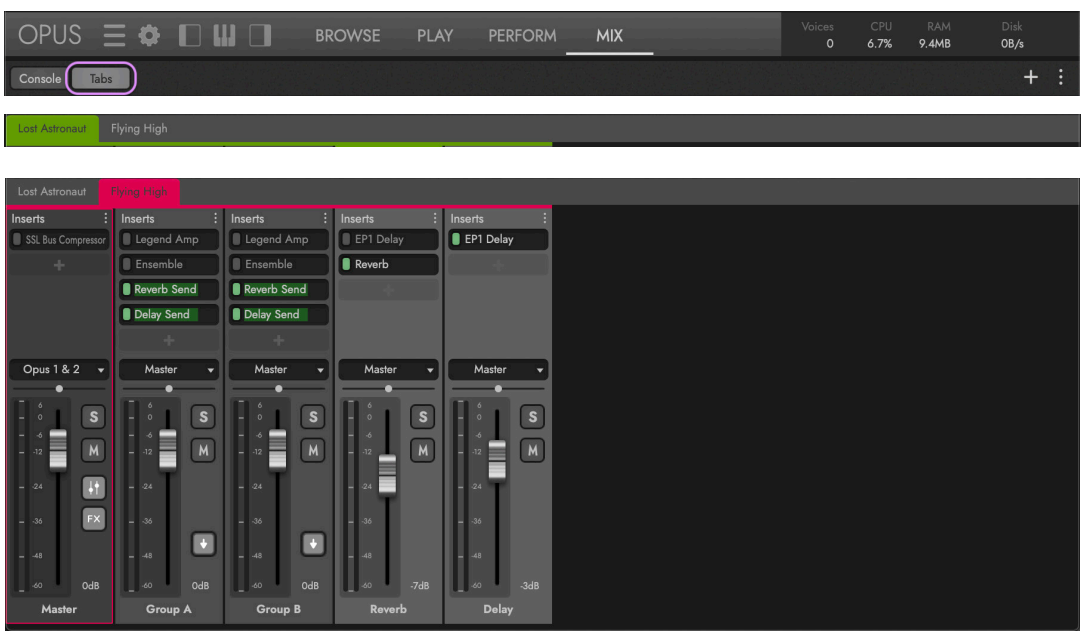
The **FX BUS** CHANNELS run parallel to, and are summed together with the Sub Mixer channels at the Master channel. This enables the source (dry) signal sent from the Sub Mixer channels, and effected (wet) signal produced on the FX Bus channels to be independently processed, and balanced. In Forbidden Planet, for example, there is a Reverb FX Bus channel, and a Delay FX Bus channel.

MIXER VIEWS

In the **PALETTE** MENU, use the Console and Tabs buttons to arrange the layout of the mixer channels like a mix console, or in folder tabs.

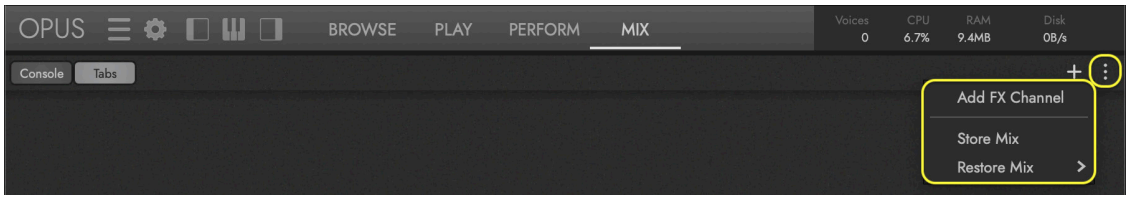
- **CONSOLE** BUTTON (default) will orientate the mixer channels in a horizontal fashion, like a mix console, with a scroll bar along the bottom to navigate.

- **TABS** BUTTON will collapse each instrument's mixer channels into separate folders. Click on the tabs to switch between them.



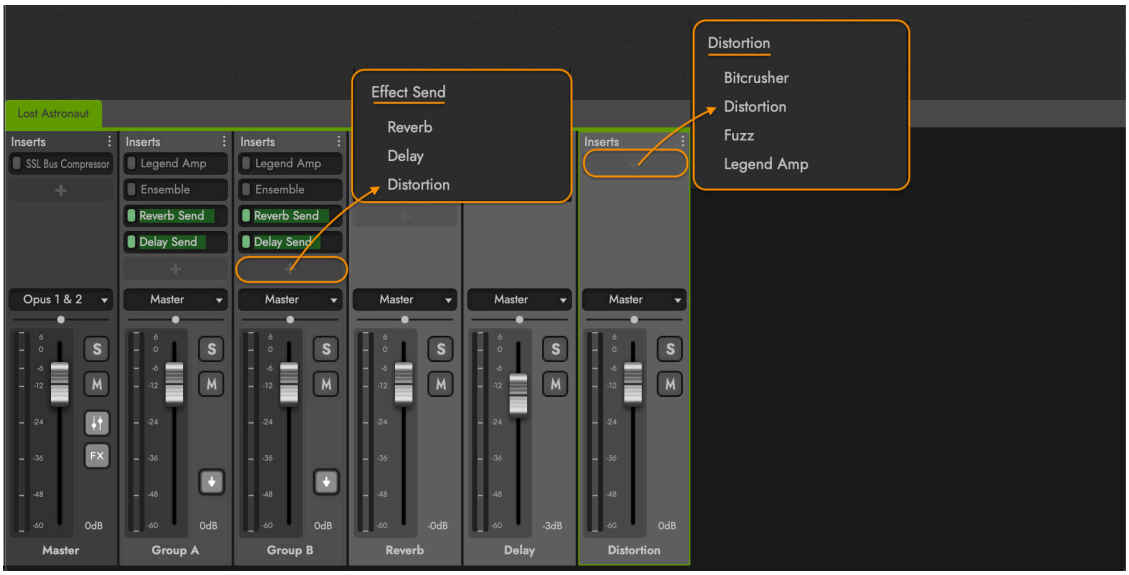
MIXER OPTIONS

Click the **MIXER OPTIONS** MENU that appears in the top-right corner of the **PALETTE** MENU in the Mix page to reveal a list of options.



Click the **ADD FX CHANNEL** OPTION to add an FX Bus channel to the currently selected mixer configuration. Double-click in the **CHANNEL NAME** FIELD at the bottom of the channel to enter a name, then hit the return or enter keys to save it.

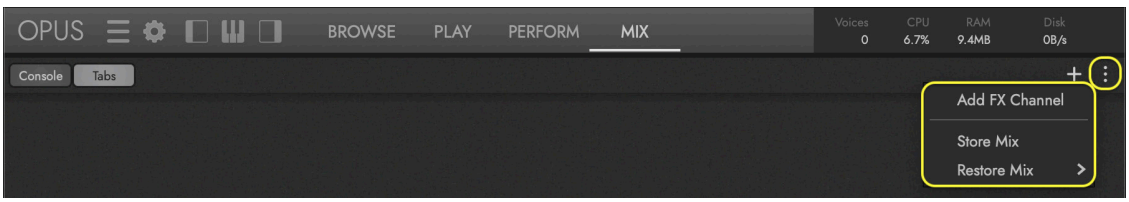
Click the **ADD INSERT EFFECT** BUTTON on the FX Bus channel to add the 'Distortion' effect from the effects menu, then do the same on the Sub Mixer channel, only add the 'Distortion' Effect Send from the effects menu.



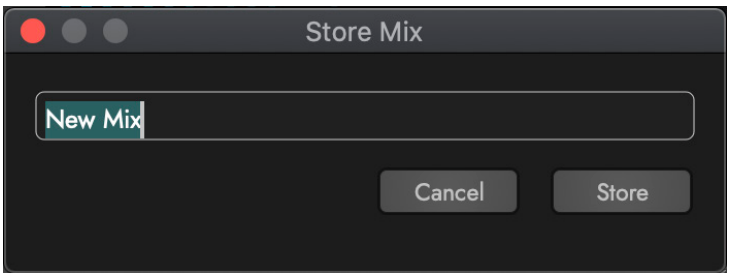
Play a note to ensure the FX Bus setup has been properly configured. Shown below, the source (dry) signal from the Sub Mixer channel is being sent to the FX Bus channel, where an effected (wet) signal is produced.

The Sub Mixer and FX Bus channels are then summed together at the Master channel for final balancing and processing.

Click the **STORE MIX** OPTION in the **MIXER OPTIONS** MENU to create a save file for the current instrument's mixer channel settings (which includes the Master channel, Sub Mixer channels, and FX Bus channels).



In the 'Store Mix' dialog box that appears, enter a name, and click 'Store'.



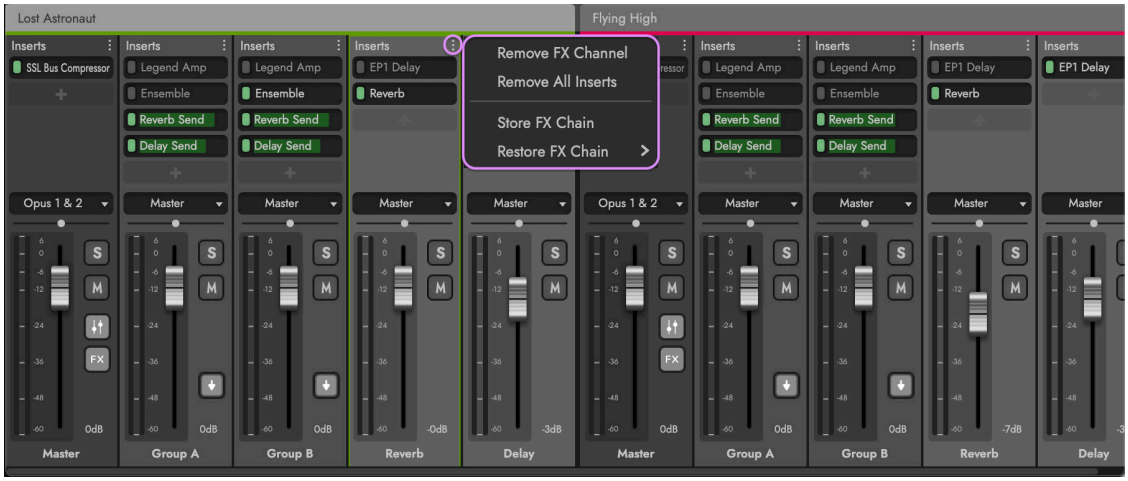
When you wish to recall this later, navigate to the **RESTORE MIX** OPTION to open a submenu stored mixes. Click on one of them to restore its mix settings.

CHANNEL OPTIONS

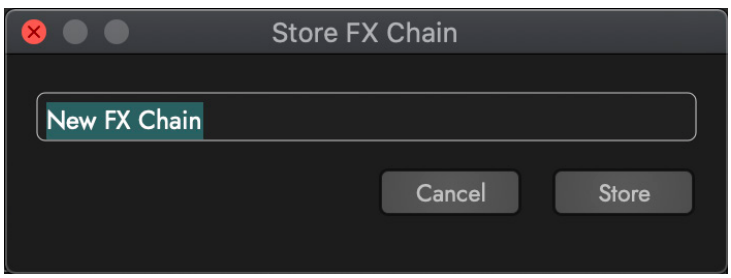
Click the **MIXER CHANNEL OPTIONS** MENU that appears in the top-right corner of each channel to reveal a list of options.

Click the **REMOVE FX CHANNEL** OPTION to remove the selected FX Bus channel. This option only appears on FX Bus channels.

Click the **REMOVE ALL INSERTS** OPTION to remove all effects inserted on the selected channel.



Click the **STORE FX CHAIN** OPTION to create a save file for the current channel's effects chain settings. In the 'Store FX Chain' dialog box that appears, enter a name, and click 'Store'.



When you wish to recall this later, navigate to the **RESTORE FX CHAIN** OPTION to open a sub-menu stored FX chains. Click on one of them to restore its mix settings.

2.4.2 EFFECTS AREA

The **EFFECTS** AREA appears in the top-half of the Mix page, and contains a entire suite of powerful effects across 7 main categories: EQ, Dynamics, Distortion, Modulation, Harmonics, Delay, and Reverb.

Click the **ADD INSERT EFFECT** BUTTON in the **PALETTE** MENU to select an effect from the menu that appears. This will add it to the next available insert effect slot on the currently selected channel (by default that's the Master channel).

You can also click the **ADD INSERT EFFECT** BUTTON directly on any channel in the **MIXER** AREA, and in the same way as the above method, select an effect from the menu that appears.

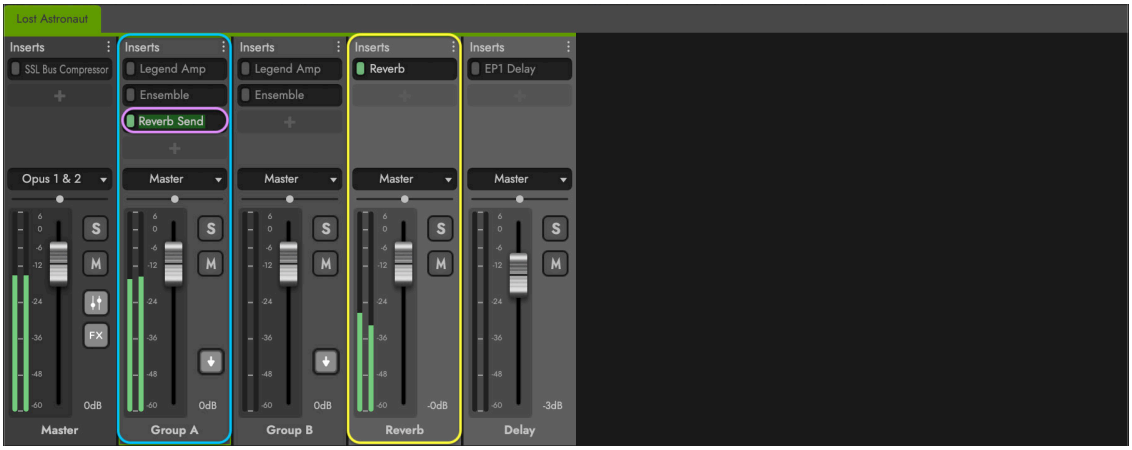
EFFECTS SENDS

FX Bus channels that have been added to the mixer channel setup using the 'Mixer Options menu' (described in an earlier section) will appear in the effects menu under the 'Effect Send' category according to their channel names: 'Reverb', and 'Delay'.

Click the **ADD INSERT EFFECT** BUTTON on the 'Group A' Sub Mixer channel, and under the 'Effect Send' category, select the 'Reverb' from the effects menu.

Once an FX Bus channel has been setup, play a note on the currently loaded instrument to produce a signal. Notice the signal appears on the Sub Mixer channel, where the source originates, and is being sent to the FX Bus channel via the 'Effect Send', where an effected signal is produced (shown below). These channels can be independently processed and balanced before they are summed together at the Master channel for final processing.

To illustrate this, a **REVERB SEND** INSERT has been added to the insert effect slot of the **SUB MIXER** CHANNEL ('Group A'), and its signal is sent to the **FX BUS** CHANNEL ('Reverb').

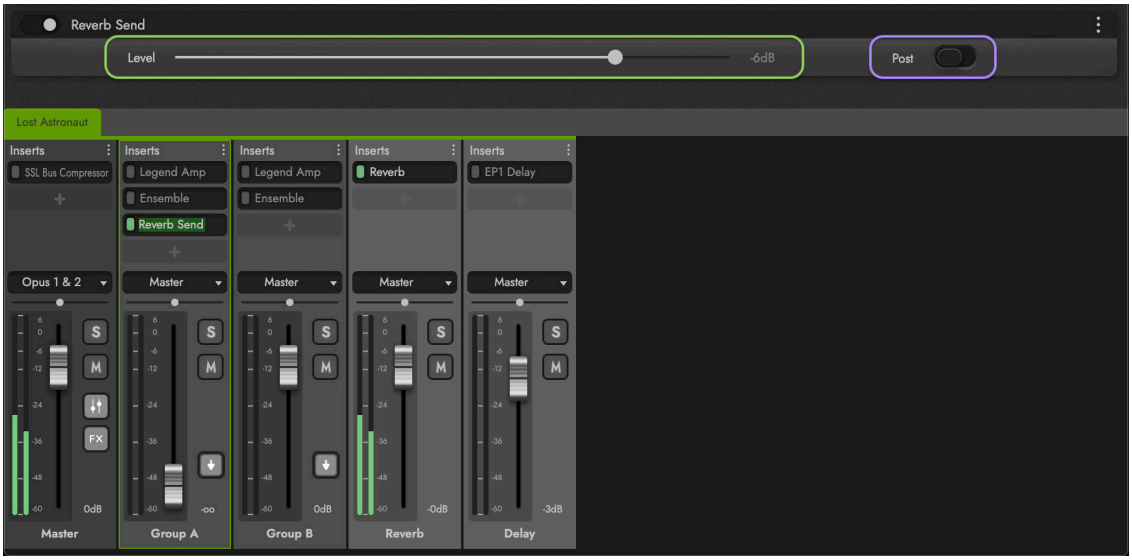


PRE AND POST FADER

Effect Sends can be routed to the FX Bus channel in different ways, depending on what the situation calls for. These two routing options are called 'Pre-Fader', and 'Post-Fader'.

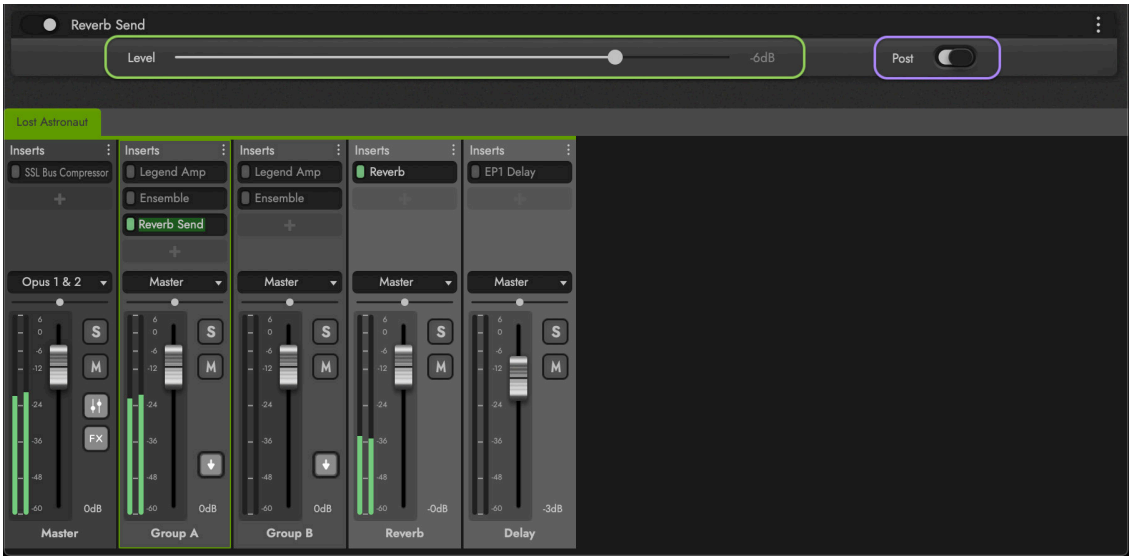
By default, the **POST** SWITCH is set to the 'off' position (shown below). This sends a copy of the signal to the FX Bus channel 'Pre-Fader', which means the **SEND LEVEL** SLIDER operates independent of the Sub Mixer channel fader, allowing you to adjust the volume of the source signal without affecting the signal sent to the FX Bus channel.

Notice in the example below, the 'Group A' Sub Mixer channel fader is pulled all the way down, but the signal is still reaching the 'Reverb' FX Bus channel being sent across the 'Reverb Send'.

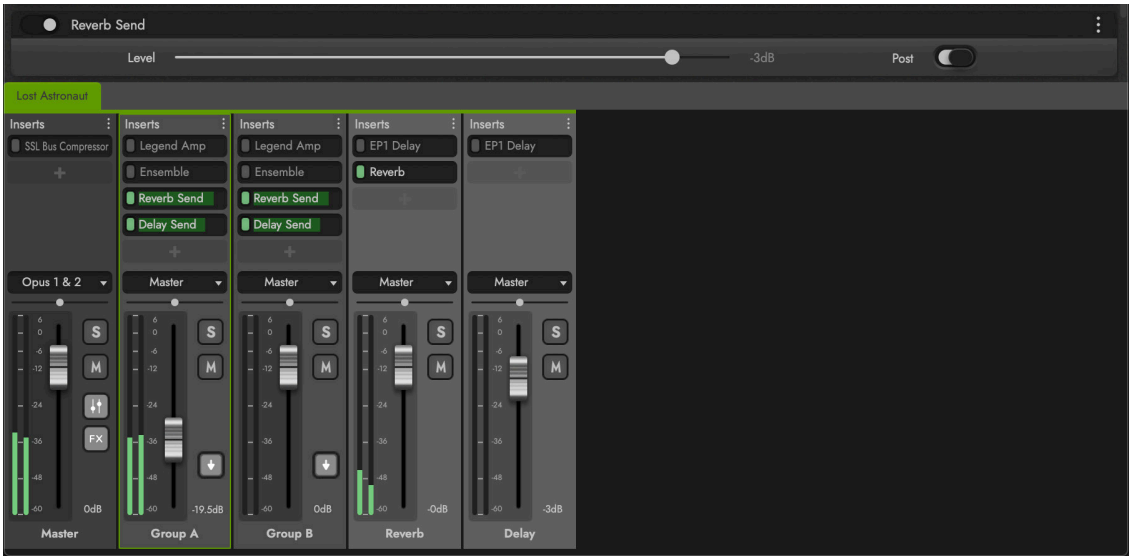


With the **POST** SWITCH set to the 'on' position (shown below), the **SEND LEVEL** SLIDER is 'Post-Fader', meaning the Sub Mixer channel's fader volume controls the amount of signal sent across the 'Reverb Send' to the FX Bus channel.

As shown below, the Sub Mixer channel volume is quite hot, reflected in the relative amount of signal ending up at the FX Bus channel.

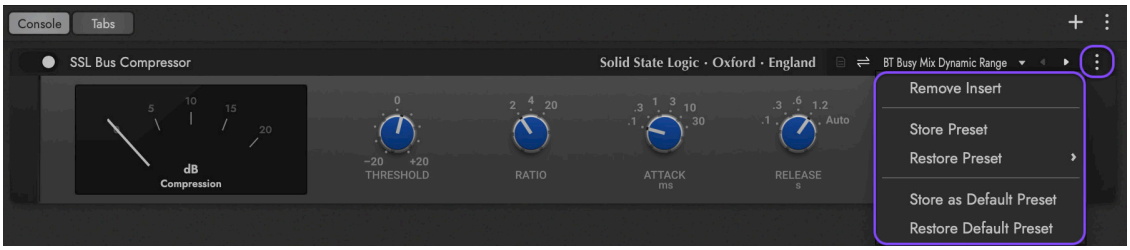


By contrast, shown below, the Sub Mixer channel volume is quite low, reflected in the relative amount of signal ending up at the FX Bus channel.



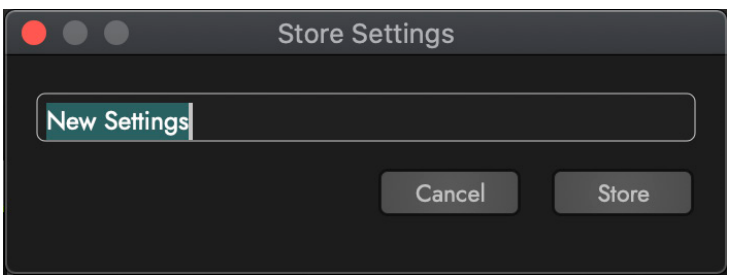
INSERT EFFECT OPTIONS

Click the **INSERT EFFECT OPTIONS** MENU that appears in top-right corner of each insert effect to reveal a list of options.



Click the **REMOVE INSERT** OPTION to remove the selected insert effect.

Click the **STORE SETTINGS** OPTION to create a save file for the current effect's settings. In the 'Store Settings' dialog box that appears, enter a name, and click 'Store'.



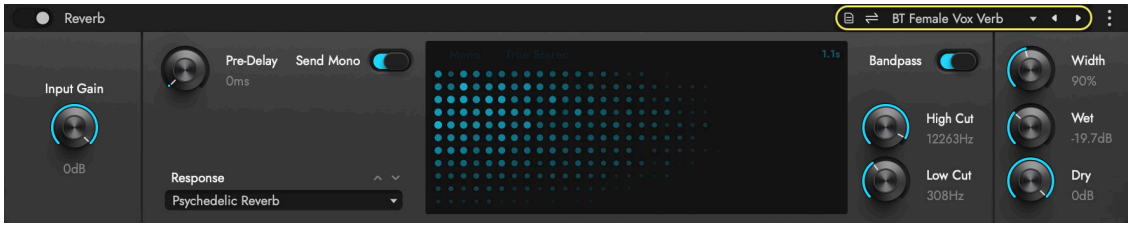
When you wish to recall these settings later, navigate to the **RESTORE SETTINGS** OPTION to open a sub-menu stored effect's settings. Click on one of them to restore to recall its settings.

To save an insert effect's settings as the default setting the next time its loaded, click the **STORE AS DEFAULT PRESET** OPTION.

To load the default setting of an insert effect, click the **RESTORE DEFAULT PRESET** OPTION.

INSERT EFFECT PRESETS

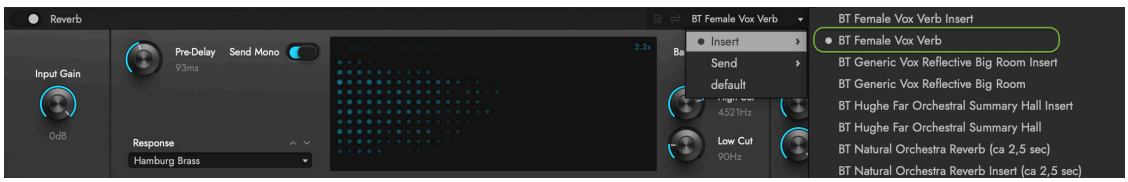
The **INSERT EFFECT PRESET** CONTROLS appear in top-right corner of each insert effect. Use the controls described below to save, load, compare, and browse an effect's presets.



Click the **STORE SETTINGS** BUTTON to create a new save file for the current effect's settings. In the 'Store Settings' dialog box that appears, enter a name, and click 'Store'.

When the settings of a effect preset are changed, the **COMPARE SETTINGS** BUTTON can be used to toggle back and forth between the original preset settings and any new changes that have been made to it.

The **EFFECTS PRESET** MENU displays the name of the currently loaded effects preset (if one is loaded), and reveals a menu of available presets by clicking on either the preset name area, or the downward arrow button.



In the 'Effects Preset Menu', a small dot will appear to the left of a preset name (and the sub-category its apart of) to indicate its currently loaded.

Depending on the effect, there may be separate sub-categories for 'Insert' and 'Send' effect presets (like those of Reverb, shown above). A 'User' sub-category will also appear if you have previously saved presets.

Use the **PREVIOUS / NEXT PRESET** BUTTONS to browse through different effect preset settings within a particular sub-category. For effects with multiple sub-categories, a preset must be selected in the 'Effects Preset Menu' before browsing with the previous and next button arrows.

PLEASE NOTE: Some controls in the 'Insert Effect Presets' area are also contained in the 'Insert Effect Options' area (described in the previous section). This redundancy is included for those that prefer the legacy menu option controls.

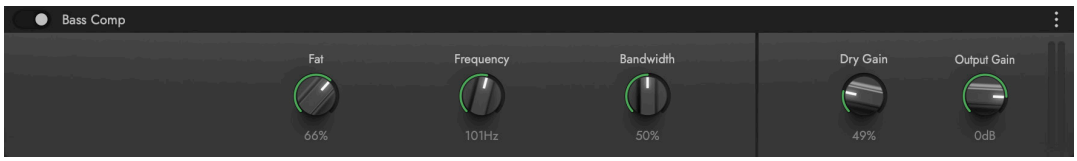
2.4.3 EFFECTS LIST

The section takes a detailed look at each of the effects categories and processors.

EQUALIZERS

Equalizers use filters that allow you to boost or attenuate frequencies to change the tonal balance of the source for corrective purposes like reducing problematic frequencies, or enhancements like adding presence. They can also be used for creative purposes.

- **BASS COMP** enhances the low end by using the Frequency control to define the center frequency between 32 Hz and 256 Hz, and the Fat control to boost it. Use the Bandwidth control to make the slope around the frequency to be narrow or broad.

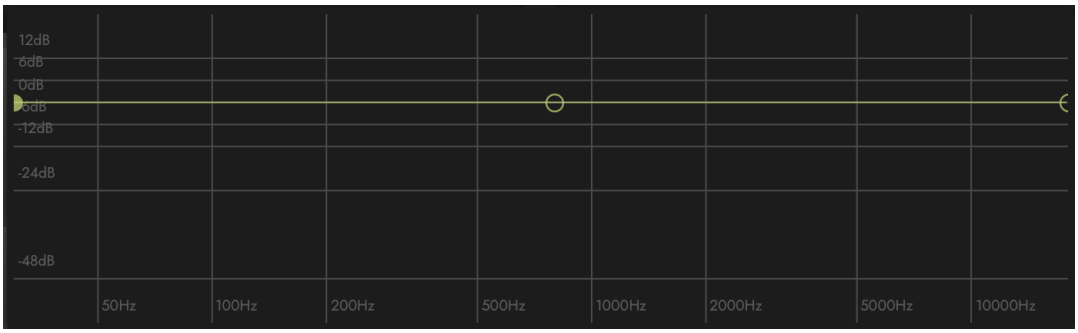


CONTROLS	
Fat	Boost the Frequency control with a value ranging from 0 - 100%.
Frequency	Select a center frequency between 32 Hz and 256 Hz, and use the Fat control to boost it.
Bandwidth	Define a narrow (0%) or broad (100%) slope around the specified frequency.
Dry Gain	Set the gain of the dry signal from none at all (0%) to full (100%)
Output Gain	Boost (+24 dB) or attenuate (-60 dB) the audio output gain.

- **CHANNEL EQUALIZER** is a 3-band equalizer comprised of a high and low shelf filters on either end, that boosts or attenuates frequencies above or below the specified frequency, with a peaking filter that boosts or attenuates frequencies around the center frequency.

CONTROLS	
On / Off	Each band (Low Shelf, Peaking, and High Shelf) can be turned on and off by clicking on their respective ‘power’ buttons.
Frequency	Sets the frequency between 30 Hz to 18 kHz.
Gain	Boost (+24 dB) or attenuate (-60 dB) the specified frequency.
Slope	Define a broad (0.1) or narrow (1) slope around the specified frequency.
Graphic EQ Display	Click anywhere on the Graphic EQ Display to bring up the the Graphic EQ Window.
Output Gain	Boost (+24 dB) or attenuate (-60 dB) the audio output gain.

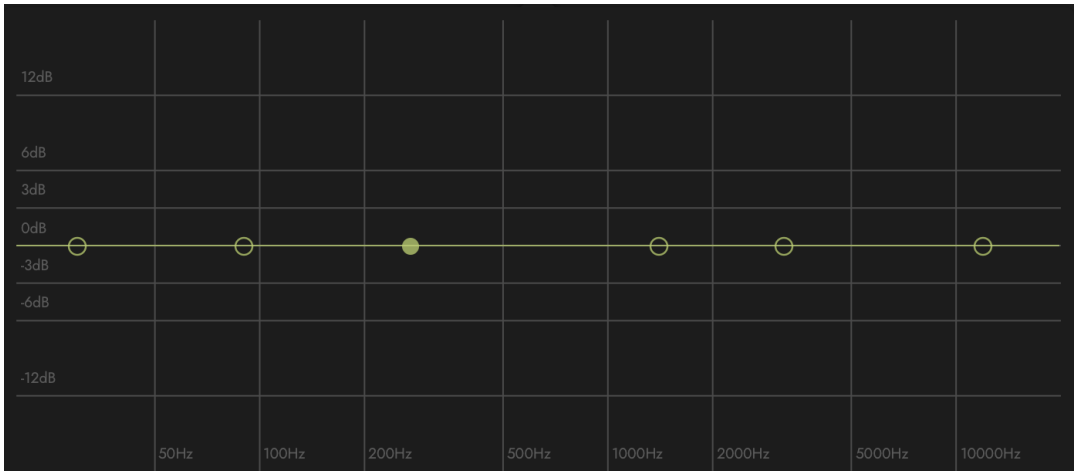
Click in the **GRAPHIC EQ** DISPLAY to edit EQ parameters in the **GRAPHIC EQ EDIT** WINDOW. Each node represents 1 of the 3 frequency bands. Click on the nodes to turn them on and off, move them horizontally to change the frequency, and move them vertically to adjust the gain.



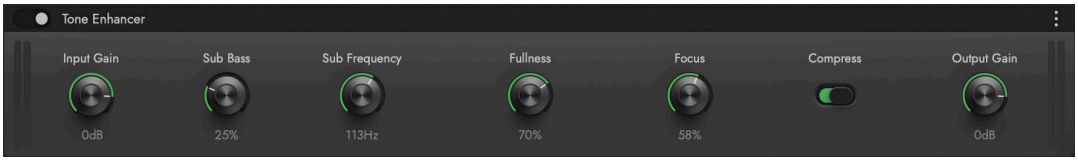
- **EQUALIZER** is a 6-band equalizer with selectable filter types for each band: high pass, low pass, peaking, high shelf, and low shelf. The first and last bands contain Frequency and Q controls, with bands 2-5 containing Frequency, Q and Gain controls.

CONTROLS	
On / Off	Each of the 6 bands can be turned on / off by clicking on their respective 'power' buttons.
Filter Type	Select from low pass, high pass, peaking, low shelf, and high shelf filter types.
Frequency	Sets the frequency between 30 Hz to 18 kHz.
Gain (Bands 2-5)	Boost (+24 dB) or attenuate (-60 dB) the specified frequency.
Q	Define a broad (0%) or narrow (100%) slope around the specified frequency.
Graphic EQ Display	Click anywhere on the Graphic EQ Display to bring up the the Graphic EQ Window.
Output Gain	Boost (+24 dB) or attenuate (-60 dB) the audio output gain.

Click in the **GRAPHIC EQ** DISPLAY to edit EQ parameters in the **GRAPHIC EQ EDIT** WINDOW. Each node represents 1 of the 6 frequency bands. Click on the nodes to turn them on and off, move them horizontally to change the frequency, and move them vertically to adjust the gain.



- **TONE ENHANCER** boosts the low, middle and top end of the frequency spectrum. Use the Focus control to boost frequencies above 1 kHz, and the Fullness control boost lower mids below 1 kHz. Use the Sub Frequency control to define the center frequency between 32 Hz and 256 Hz, and the Sub Bass control to enhance it.



CONTROLS	
Input Gain	Boost (+24 dB) or attenuate (-60 dB) the audio input gain.
Sub Bass	Boost sub frequencies with a control ranging from 0 - 100%.
Sub Frequency	Select a center frequency between 32 Hz and 256 Hz, that the Sub Bass control will boost.
Fullness	Boost lower mid frequencies below 1 kHz with a control ranging from 0 - 100%.
Focus	Boost frequencies above 1 kHz with a control ranging from 0 - 100%.
Compress	Apply compression before the final output gain stage.
Output Gain	Boost (+24 dB) or attenuate (-60 dB) the audio output gain.

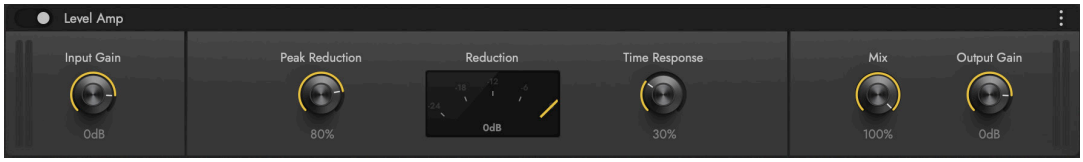
DYNAMICS

Dynamics processors include a variety of types, including compressors, limiters, leveling amplifiers, transient designers, and de-essers. Each one differs in unique ways, but each affects the dynamic range of the source over its duration.

- **DE-ESSER** controls sibilants, which are hissing sounds produced by non pitched consonant sounds at high amplitudes and frequencies, by setting the Threshold at which those frequencies (between 3 kHz and 12 kHz) will be attenuated (reduced).

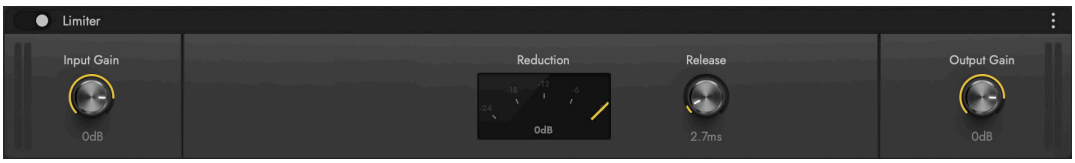
CONTROLS	
Frequency	Specify the frequency to attenuate between 3000 Hz and 12 kHz.
Listen	Enable this switch to hear only what is being attenuated (reduced).
Threshold	Specify the gain threshold (between -50 dB and 0 dB) at which signal will be attenuated.
Reduction	A VU-meter that displays the amount of gain reduction in decibels (dB).
Amount	Set the amount of attenuation (reduction) between 0% and 100%.

- **LEVEL AMP** reduces dynamic range similar to a compressor, only with fixed threshold and ratio controls, and with automatic gain makeup.



CONTROLS	
Input Gain	Boost (+24 dB) or attenuate (-60 dB) the audio input gain.
Peak Reduction	Set the minimum (0%) and maximum (100%) peak reduction.
Reduction	A VU-meter that displays the amount of gain reduction in decibels (dB).
Time Response	Set the onset of attenuation to respond slower (0%) or faster (100%).
Mix	Control the amount of the affected signal relative to the original (dry) signal.
Output Gain	Boost (+24 dB) or attenuate (-60 dB) the audio output gain.

- **LIMITER** controls the dynamic range by setting a hard limit that a signal cannot pass through. See the amount of gain reduction in the Reduction meter.



CONTROLS	
Input Gain	Boost (+24 dB) or attenuate (-60 dB) the audio input gain.
Reduction	A VU-meter that displays the amount of gain reduction in decibels (dB).
Release	Specify the release time of attenuation (between 1 ms and 400 ms) after the threshold is crossed.
Output Gain	Boost (+24 dB) or attenuate (-60 dB) the audio output gain.

- **LIMITING AMP** controls the upper limit of the dynamic range, with automatic gain makeup lost in the limiting process.

CONTROLS	
Input Gain	Boost (+24 dB) or attenuate (-60 dB) the audio input gain.
Threshold	Specify the gain threshold (between -50 dB and 0 dB) at which a signal will be attenuated.
Reduction	A VU-meter that displays the amount of gain reduction in decibels (dB).
Attack	Specify the response time of attenuation (between 0.1 and 10 milliseconds) after the threshold is crossed.
Release	Specify the release time of attenuation (between 100 milliseconds and 1 second) after the threshold is crossed.
Soft Clip	Enable this switch to enable soft clipping distortion.
Mix	The signal is completely dry at 0%, and wet at 100%.
Output Gain	Boost (+24 dB) or attenuate (-60 dB) the audio output gain.

- **SSL BUS COMPRESSOR** became legendary in the music industry for its unique sound, so you may want to see how it can improve the sound of your mix. This is a stereo version of the center section stereo bus compressor found on the XL 9000 K Series console. It provides high quality stereo compression, giving you critical control over the dynamic range of audio signals.

CONTROLS	
Compression	A VU-meter that displays the amount of gain reduction in decibels (dB).
Threshold	Specify the gain threshold (between -20 dB and 20 dB) at which signal will be attenuated.
Ratio	Control the degree of compression by choose a ratio: 2:1 (soft), 4:1 (medium), 20:1 (hard).
Attack	Specify the response time of attenuation (0.1, 0.3, 1, 3, 10, 30 milliseconds) after the threshold is crossed.
Release	Specify the release time of attenuation (0.1, 0.3, 0.6, and 1.2 seconds, or Auto) after the threshold is crossed. The release time of Auto is dependent on the duration of the peak signal.

Make Up	Boost (+15 dB) or attenuate (-5 dB) the output gain.
Comp In	Quickly A/B (compare) the compressed and un-compressed signals by turning this control on and off.

- **SSL CHANNEL STRIP** can be used on both the Instrument (Main) and Microphone (Sub) channel strips. The signal is passed through 5 separate sections, as described below.

INPUT AND OUTPUT SECTIONS: Turn the Gain knob in the Input Section to control the level of the incoming audio signal. The post-gain signal level is shown in lights to its left. As a rough guide, the '-6' yellow indicator should only occasionally turn on, but the red '0' indicator should remain off.

Press the Ø button to invert the phase of the input signal.

The Output Section is the last step in the processing. The Gain knob controls the audio level of the output signal. Adjust this level last to achieve the loudness of the signal that you want. The same rules for the yellow and red indicator lights apply here as in the Input Section. The S/C (side chain) Listen button directs the Dynamics Side Chain to the channel output.

FILTER SECTION: The Filter controls provide access to two separate kinds of filters. The black knob controls an 18 dB/Octave high-pass filter (20Hz to 500Hz). Use it to remove lower frequencies from the audio. The purple knob controls a 12 dB/Octave low-pass filter (3kHz to 22kHz). Use it to remove higher frequencies.

Turn either knob fully left (marked OUT) to turn that filter off. Turn either one (or both) clockwise to move the filter frequency in from its extremity.

You have a choice where to insert the Filters in the audio stream. To place the Filters immediately following the Input control, press the Input button. To switch the Filters into the Dynamics Side Chain, press the Dyn SC button. Note that when the Syn SC button is engaged the Input button has no effect.

EQ SECTION: To use the EQ, switch it into circuit by pressing the EQ In button, which is near the top in the center of the interface for this section.

The EQ section has four bands, each with its own knob color. All bands have gain and frequency control. The low (LF) and high (HF) bands are shelved by default but can be switched to a bell shape (parametric) by pressing the Bell button; the Bell option gives you more control over the exact shape of the EQ curve. The low-mid (LMF) and high-mid (HMF) bands have Q controls (to adjust the sharpness of the modified curve) in addition to what the others have.

Listed in the table below are the ranges for the knobs in each section.

BAND	LF (low frequency)	LMF (low-mid freq)	HMF (high-mid freq)	HF (high frequency)
Frequency range	40Hz – 600Hz	200Hz – 2kHz	600Hz – 7kHz	1.5kHz – 22kHz
Gain range	±16.5 dB	±20 dB	±20 dB	±20 dB
Q range	–	0.5 – 2.5	0.5 – 2.5	–

The E button in the center toggles the EQ emulation between the G Series and E Series consoles. The difference between them is described in the following table.

G SERIES	E SERIES
The bell curve has a more rounded shape at low gains, and the shelf curve overshoots zero slightly at the base of the curve.	The bell curve is slightly more pointed, and there is no overshoot on the shelf curve.
G Series EQ is more subtle and is generally more suited to instruments and vocals.	E Series EQ is more aggressive and is therefore better for removing problem frequencies. It is generally more suited to drums.
Note: At full boost or full cut, the E and G Series curves are identical.	

To switch the EQ into the Dynamics Side Chain, press Dyn SC.

DYNAMICS SECTION: This section consists of both Compressor controls and Noise Gate/Expander controls. Both sections work independently but can be operational at the same time, providing sophisticated control of signal levels. The example image of the interface is shown below, after the description of the Compressor.

There are two buttons at the top. The Dyn In button turns on the whole section. The Pre EQ button moves this section before the Equalizer; otherwise, this processing is performed after the Equalizer.

The **Compressor** is controlled by 3 blue knobs: Threshold, Release, and Ratio. To activate the Compressor/Limiter, turn the Ratio knob so that its ratio is no longer set at 1:1.

To turn the compressor into a ∞:1 limiter, turn the knob fully to the right.

There is no gain makeup control because the T/HOLD (threshold) knob controls both the level at which gain reduction is introduced and the gain make-up, thus keeping the output level steady regardless of the compression.

The Release knob controls how quickly the level returns to normal after the input level has dropped below the threshold (measured in seconds). The attack time is adjusted automatically to match the audio. To choose a consistently fast attack time, press the Fast Att button.

Turn on the PK button to switch from RMS to Peak signal detection. In normal RMS mode, the compressor reacts to the average signal level and has a soft knee characteristic. When switched to Peak mode, it responds to peak signal level and introduces a hard knee characteristic, resulting in more dramatic compression.

The level of compression being introduced is shown in the left-hand of the two meters in the centre of the Dynamics section.

To activate the **Noise Gate/Expander**, turn the Range knob so that its range is no longer zero. The green indicators in the right-hand of the two meters in the centre of the Dynamics section show the amount of gain reduction being introduced.

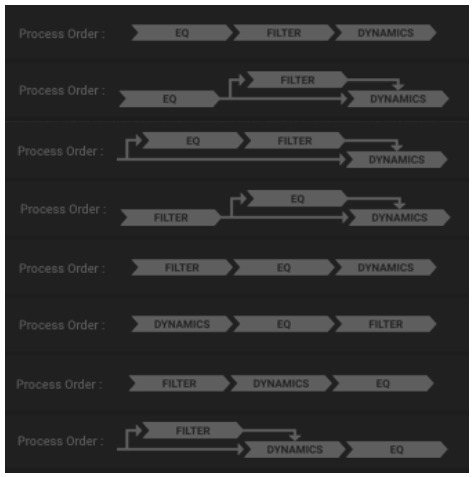
By default, the Noise Gate/Expander section functions as a Gate. To switch to the Expander, press the Exp switch.

The Threshold function uses different levels to open the gate to audio and to close it again: the level at which the expander opens is higher than the level at which it closes again. In other words, when the expander is opened, it stays open until the signal level crosses the quieter Close threshold. This is known as hysteresis and is very useful as it allows instruments to decay more naturally. The word “Threshold” normally refers to the Open threshold.

The Hold knob controls the delay before the signal level starts reducing again. The Release knob controls how quickly the level then reduces. Note that the Release knob interacts with the Range knob, which determines the depth of gain reduction.

The Attack Time (the time taken for the Expander/Gate to 'recover' once the signal level is above the 'deactivate' threshold) is normally set to 1.5ms per 40 dB. Press the Fast Att button to introduce a faster attack time of 100µs per 40 dB. This is useful when gating signals with a steep rising edge, such as drums.

PROCESSING ORDER: The 8 possible orders for the 3 processing stages are shown below, with and without a Side Chain. The original audio signal starts at the left and the processed signal exits at the right of each diagram. The lower (straight) line is the standard audio path. When the EQ and/or Filter is in the upper path, it is in the Side Chain (as described below). These 8 diagrams currently in effect appear in the top row of the drawer.



The default order is Filter > EQ > Dynamics, with nothing in the Side Chain, as shown in the 5th diagram in the image.

To place the Filter section after the EQ section, deactivate the Input button in the Filter section so that its light is off.

To place the Dynamics before the EQ, press the Pre EQ button in the Dynamics section, so that its light is on.

When the Input and Pre EQ switch are active simultaneously, the processing order becomes Filter > Dynamics > EQ.

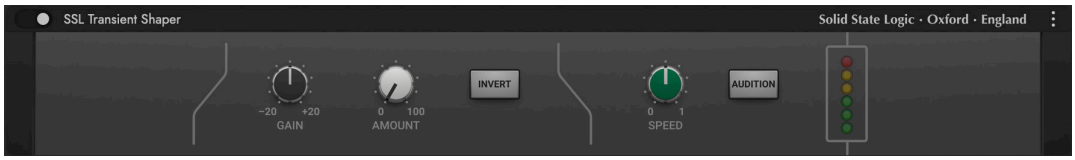
Side Chain is a path for the audio signal that is used to control the Dynamics section when it acts on the main audio signal. The Side Chain is not normally audible, but can highlight aspects of the audible signal that need processing.

The EQ and Filter sections can be assigned to the Dynamics Side Chain, allowing for advanced processes like de-essing, as described below. This is done using the Dyn S/C switches in the respective sections. Both EQ and Filter sections can be assigned to the Side Chain together, in which case the EQ precedes the Filter.

Here's an example of using the Side Chain to remove the hissing sound of the letter S when it's too prominent. First, the audio is split into 2 signals. EQ is applied to the signal in the Side Chain to make the hisses louder, so that the compressor can use the louder S sounds as a clue that the main signal needs to be compressed (made softer) at those moments more than at other moments. In the main signal, the S sounds are made softer.

To listen to the signal feeding the Side Chain, press the S/C Listen button in the Output section to route the Side Chain signal to the channel output. It is important to remember to cancel the S/C Listen button once you have finished auditioning the Side Chain!

- **SSL TRANSIENT SHAPER** can be used on both the Instrument (Main) and Microphone (Sub) channel strips. It allows you to augment the attack at the start of a note (e.g. a drum hit) by increasing the amplitude of the attack portion of the signal while leaving the decay and held note unchanged. The lights at the right give visual feedback on how much attack is being added using the Gain and Amount controls. If the top red light illuminates, reduce the effect.



CONTROLS	
Gain	Specify the level at which transients are detected (between -20 dB and 20 dB). A setting of 0 db is a good starting place (if set too low, nothing will happen, and if set too high transients will be exaggerated, with attacks sounding too long).
Amount	Control the amount of processed signal added to the unprocessed signal. Be careful and watch the output meter, as it can increase the peak level of a signal significantly.
Invert	Soften the attack by inverting the signal so its subtracted from the unprocessed signal. Good for getting body (sustain) from a drum sound.
Speed	Control the length of time the added attack takes to all back down to the normal signal level once it has reached the top of the attack phase. Turn the knob clockwise for a slower speed, with longer transients, and counter-clockwise for faster speed, with shorter transients.
Audition	Enable this option to listen to the processed signal. Please note, when the Invert and Audition buttons are both enabled, the signal is not inverted.

- **TAPE SATURATOR** adds presence and warmth by emulating the sound of passing signal through tape machine, which produces musical harmonic distortion, especially when the signal is over driven to create pleasing ‘soft-clipping’.

CONTROLS	
Input Gain	Boost (+24 dB) or attenuate (-60 dB) the audio input gain.
Saturation	Drive the amount of saturation, producing pleasant harmonic distortion.
Color	Change the tone color from dull (0%) to bright (100%).
Compress	Specify the amount of compression (between 0% and 100%) to attenuate the signal.
Reduction	A VU-meter that displays the amount of gain reduction in decibels (dB).
Attack	Specify the response time of attenuation (between 0.1 and 10 milliseconds) after the threshold is crossed.
Release	Specify the release time of attenuation (between 100 milliseconds and 1 second) after the threshold is crossed.
Soft-Clip	Enable soft clipping to occur.
Mix	The signal is completely dry at 0%, and wet at 100%.
Output Gain	Boost (+24 dB) or attenuate (-60 dB) the audio output gain.

DISTORTION

Distortion is a broad category encompassing a range of types, but is generally achieved by clipping the signal to produce both harmonic and inharmonic overtones to produce everything from added warmth and texture, to extremely aggressive noise.

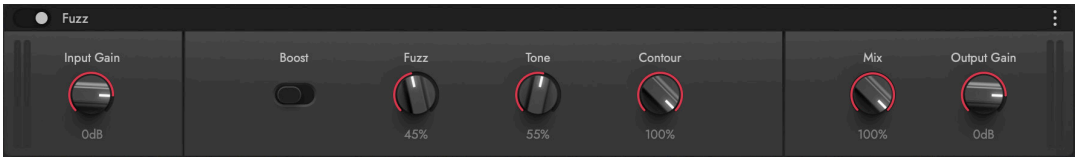
- **BIT CRUSHER** produces everything from mild warmth, to harsh, aggressive distortion by reducing the resolution of audio.

CONTROLS	
Input Gain	Boost (+24 db) or attenuate (-60 db) the audio input gain.
Crush	Reduce the sample rate of the audio signal between 0% (none) to 100% (full).
Crush Mix	The signal is unaffected at 0%, and fully processed with Crush at 100%.
Noise	Add broad band noise between 0% (none) and 100% (full).
Decimate	Reduce the resolution of bits of the audio signal between 0% (none) to 100% (full).
Decimate Mix	The signal is unaffected at 0%, and fully processed with Decimate at 100%.
Stereo	Increase the stereo width between 0% (narrow) and 100% (wide).
Mix	The signal is completely dry at 0%, and wet at 100%.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

- **DISTORTION** drives your signal through 1 of 3 classic distortion types (Classic, Tube 1, Tube 2) with additional low and high boost.

CONTROLS	
Input Gain	Boost (+24 db) or attenuate (-60 db) the audio input gain.
Type	Change color of distortion by selecting between 3 distortion types: Classic, Tube 1, and Tube 2.
Drive	Set the amount of drive applied to the signal from 0% (none) and 100% (full).
Lows	Boost low frequency between 0% (none) and 100% (full).
Highs	Boost high frequency between 0% (none) and 100% (full).
Mix	The signal is completely dry at 0%, and wet at 100%.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

- **FUZZ** adds an aggressive style of distortion to your signal, by pushing it into clipping territory.



CONTROLS	
Input Gain	Boost (+24 db) or attenuate (-60 db) the audio input gain.
Boost	Boost the signal level to increase the effect.
Fuzz	Overdrive your signal to clipping between 0% (none) and 100% (full).
Tone	Change the tone color from dull (0%) to bright (100%).
Mix	The signal is completely dry at 0%, and wet at 100%.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

- **LEGEND AMP** provides distortion and re-amping characteristics, with custom Tonestack and Cabinet combinations.

  Select between **TONESTACK** PRESETS (6) by clicking in the drop-down menu. These presets alter the frequency response of the tone controls (bass, mid, treble) based on the model they emulate.

  Select between **CABINET** PRESETS (79) by clicking in the drop-down menu. To select an item, click on its name in the list, which display the name of an amp followed by the name of a microphone it's paired with.

  Once selected, use the other controls to customize the audio output.

CONTROLS	
Input Gain	Boost (+24 db) or attenuate (-60 db) the audio input gain.
Amp On	Turn the Amp section on and off.
Drive	Control how much signal is sent to the circuit, to create more or less intensity of effect.
Bass	Boost (100%) or attenuate (-100%) the lower frequency range of the signal.
Middle	Boost (100%) or attenuate (-100%) the middle frequency range of the signal.
Treble	Boost (100%) or attenuate (-100%) the high frequency range of the signal.
Tonestack	Turn Tonestack on and off, and use the preset menu to select between 6 stacks.
Cabinet	Turn Cabinet on and off, and use the preset menu to select between 79 cabinet presets.
Mix	The signal is completely dry at 0%, and wet at 100%.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

MODULATION

Modulation effects include those that copy the original signal, modulate it in some way, and mix back in with the original source, or directly modulates a signal in terms of amplitude, and/or pan position.

- **ARTIFICIAL DOUBLE TRACKING (ADT)** emulates the technique made famous by the Beatles when recording at Abbey Road Studios, which was achieved by combining an audio signal on one tape machine, with an identical, delayed copy of that same audio signal on another tape machine.

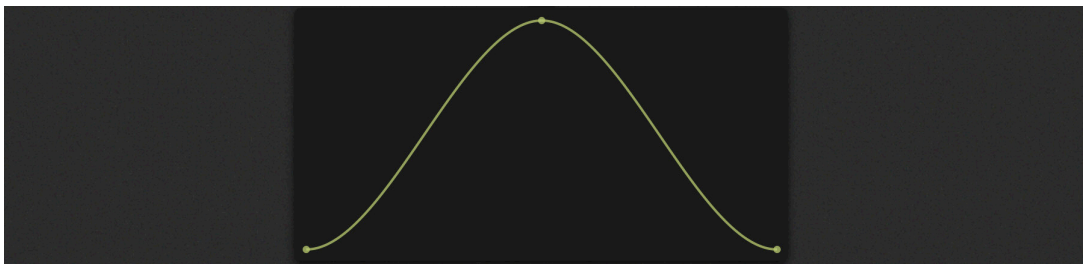
CONTROLS	
Delay	Controls the delay time between the original and secondary audio signal, between a range of 0.1 milliseconds and 50 milliseconds.
Depth	Controls the amount of modulation that is affecting the delay time.
Speed	Controls the rate at which the modulation is affecting the delay time between 0 Hz and 1 Hz.
Random	Add a percentage of randomness to the delay modulation between 0% and 100%.
Direction	Enable this switch to change the direction of the stereo image.
Send Effect	Enable this switch to use as a send effect, setting the Mix control at 100%.
Mix	Controls the loudness of the affected signal relative to the original (dry) signal.

- **AUTO FILTER** is a multi-mode filter that offers envelope and LFO modulation.

CONTROLS	
Input Gain	Boost (+24 db) or attenuate (-60 db) the audio input gain.
Sync	Enable this switch to synchronize the LFO Rate control to the tempo (BPM). When this option is enabled, the phase of the Waveform shape can be adjusted.
Rate	Control the rate of LFO modulation between 0.1 and 10 Hz, or between 1/32nd note triplet and 32 bars when sync is enabled.
Waveform	Choose the shape of LFO modulation by clicking in the drop-down menu to select between a variety of waveforms. Create your own shapes by clicking in the Waveform display to call up the Waveform editor (see below for details).
Attack	Modify the Attack time of the filter's envelope modulation between 0.01 and 120 ms.
Release	Modify the Release time of the filter's envelope modulation between 0.1 and 400 ms.
LFO	Determine the depth of LFO modulation applied to the filter with a unipolar control between 0-100%.

Envelope	Determine the depth of envelope modulation applied to the filter with a bipolar control between -100% and 100%.
Cutoff	Control the filter cutoff frequency between 10 Hz and 18 KHz.
Filter Type	Select between 6 filter types, including low pass, band pass, and high pass filters, each with 2-pole and 4-pole varieties.
Resonance	Define how broad or narrow the range of frequencies around the cutoff frequency are between a range of 0-100%.
Drive	Control the intensity of feedback through the filter circuit to create warm harmonic distortion.
Mix	Control the loudness of the affected signal relative to the original (dry) signal.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

Click on the **WAVEFORM** DISPLAY to call up the **WAVEFORM EDIT** WINDOW (shown below) which allows you to create your own custom waveform shapes. In the edit window, click to create a nodes, and drag them anywhere within the XY coordinates create a custom shape. Hold option (alt) while clicking on an existing node to delete it. When LFO modulation is synced to tempo (BPM) the waveform's phase can be adjusted.



- **CHORUS** duplicates the input signal, and delays it to create a difference in phase, modulates the delay time, and mixes it back in with the original signal, creating an output that varies in both pitch and time.

CONTROLS	
Rate	Control the rate (speed) of modulation between .05 Hz and 20 Hz.
Depth	Set the depth (amount) of modulation between 0% (none) and 100% (full).
Delay	Change the time of the delayed signal to create different phase relationship.
Curve	Adjust the curve of the waveform shape between 5% (concave) and 95% (convex).
Spread	Widen the stereo image from 0% (minimum) to 100% (maximum).
Mix	Controls the loudness of the affected signal relative to the original (dry) signal.

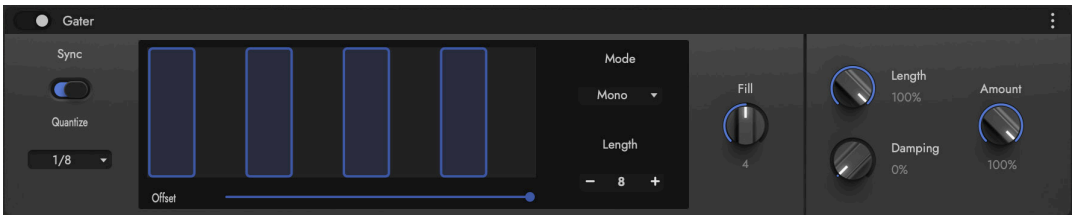
- **ENSEMBLE** includes 3 modes that emulate the sound of 2 highly-prized chorus units found on the vintage Solina String Ensemble and Roland Vocoder Plus synthesizers, and includes an additional 'Modern' mode.

CONTROLS	
Mode	Select between 3 modes: Solina, VP-330, and Modern. The Solina mode emulates the chorus effect included in the Solina String Ensemble synthesizer, known for its unique vibrato sound created by controlling the bucket-brigade chips with dual LFO modulators. The VP-330 mode emulates the chorus effect included in the Roland Vocoder Plus synthesizer, which featured a special chorus circuit that had the effect of turning a single voice into an ensemble (group). The Modern mode is an alternative to the vintage emulation sounds, which has a higher signal-to-noise ratio resulting in a cleaner sound.
Delay	Controls the delay time between the original signal and secondary signal, between 0% (none) and 100% (full).
Chorus Rate	Controls the rate (speed) of delay's chorus time modulation up to 5 Hz.
Vibrato Rate	Controls the rate (speed) of delay's pitch modulation up to 10 Hz.
Depth	Set the depth (amount) of modulation between 0% (none) and 100% (full).
Spread	Widen the stereo image from 0% (minimum) to 100% (maximum).
Mix	Control the loudness of the affected signal relative to the original (dry) signal.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

- **FLANGER** duplicates the input signal, and delays it slightly to create a difference in phase (delay times are shorter than Chorus), modulates the delay time, and mixes it back in with the original signal. Shorter delay times produce a comb filtering effect in higher frequencies, which when modulated will sweep through the frequencies to create the characteristic flanger sound.

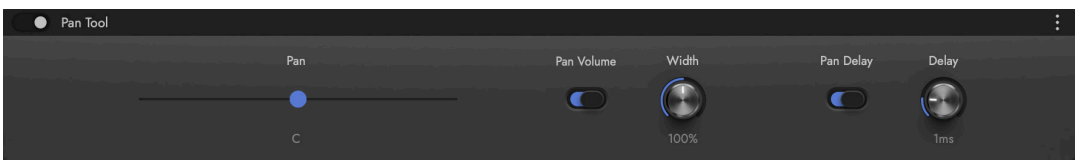
CONTROLS	
Manual	Adjust the level of delay offset between 0% and 100%.
Speed	Control the speed (rate) of modulation between 0 Hz and 10 Hz.
Width	Control the width (spread) of modulation between 0% and 100%.
Regen	Adjust this control to change the amount of regeneration (feedback) in a bipolar fashion between -100% and +100%.
Detune	Change the amount of additional delay time between delay 'taps' and 'heads'.
Mix	Control the loudness of the affected signal relative to the original (dry) signal.

- **GATER** is an amplitude modulator that creates a gated effect, where the rate of modulation that can be synced to tempo, or free.



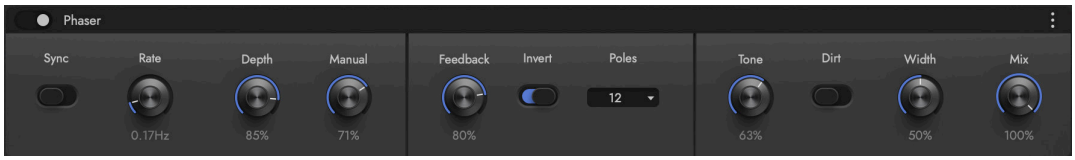
CONTROLS	
Sync	When Sync is enabled, the Quantize menu is made available. When Sync is disabled, the Rate (free) knob is made available.
Quantize (sync)	When Sync is enabled, the Quantize menu can be used to select a sub-division to which the gate will be synced to.
Rate (free)	When Sync is disabled, the Rate knob can be used to set the rate of change between values of .01 Hz and 32 Hz.
Mode	Select between 3 Modes. Mono applies the same modulation to the signal, Pan alternates the modulation between left and right stereo image, and Dual allows each side of the stereo image to be offset independently.
Length	Define the length (number of steps) from 2 to 32.
Offset	Change the timing offset of the modulation using the slider.
Fill	Adjust the number of steps in the modulation, from none to completely filled.
Length	Change the length of each modulation step.
Damping	Smooth out the edges of the square wave, for a softer modulation.
Amount	Controls the loudness of the affected signal relative to the original (dry) signal.

- **PAN TOOL** changes the pan position of the incoming audio signal, with the ability to collapse it to mono, or increase the stereo imaging.



CONTROLS	
Pan	Set the pan position between 100% left and 100% right.
Pan Volume	Enable this switch to control the Width of the stereo image.
Width	Defaults to 100%, raise to 200% to increase the stereo image, and decrease to 0% to collapse the stereo image to mono.
Pan Delay	Enable this switch to control Delay offset.
Delay	Offset the left and right stereo image between values of 0 ms and 30 ms.

- **PHASER** duplicates the input signal, and instead of delaying it like Chorus and Flangers, it uses a series of filters to create notch filters that are created by a phase shift around a specific frequency. These series of notch filters can be modulated to sweep through the frequency spectrum.

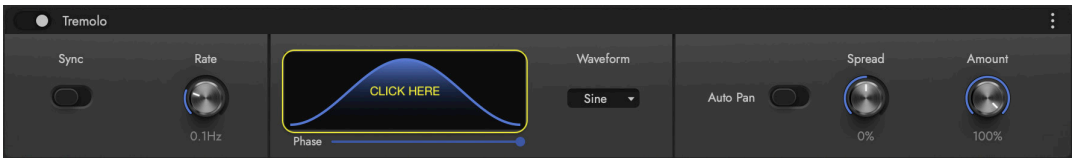


CONTROLS	
Sync	When Sync is enabled, the Quantize menu is made available. When Sync is disabled, the Rate (free) knob is made available.
Quantize (sync)	When Sync is enabled, the Quantize menu can be used to select a sub-division to which the phaser will be synced to.
Rate (free)	When Sync is disabled, the Rate knob can be used to set the rate of change between values of .01 Hz and 15 Hz.
Depth	Set the depth (amount) of modulation between 0% (none) and 100% (full).
Feedback	Sends the signal back through the effect chain to create feedback.
Invert	Reverse the phase relationship.
Poles	Change the slope of poles (db / octave): 4, 6, 8, 12.
Tone	Change the tone color from dull (0%) to bright (100%).
Dirt	Enable this switch to add harmonic distortion.
Width	Defaults to 50%, raise to 100% to increase the stereo image, and decrease to 0% to reduce it.
Mix	Controls the loudness of the affected signal relative to the original (dry) signal.

- **PHASER STONE** emulates the coveted sound of vintage multi-stage phaser pedals, including an extra stage for adding feedback.

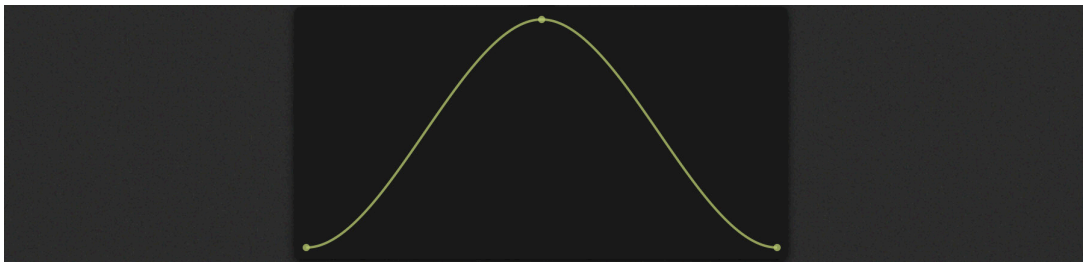
CONTROLS	
Center	Dial in the center frequency around which the phaser's notch filters surround.
Range	Control the range (depth) of modulation that acts on the center frequency, creating subtle to extreme modulation of the frequency range.
Feedback	A biploar control that increases the depth of feedback applied to the phaser between -100% and +100%.
Rate	Change the rate of phaser modulation between 0 and 10 Hz.
Spread	Widen the stereo spread of the effect between to 0% and 100%.
Mix	Controls the loudness of the affected signal relative to the original (dry) signal.

- **TREMOLO** uses a variety of waveshapes to modulate the amplitude, creating a trembling effect. The rate of modulation that can be synced to tempo, or free.



CONTROLS	
Sync	When Sync is enabled, the Quantize menu is made available. When Sync is disabled, the Rate (free) knob is made available.
Quantized (sync)	When Sync is enabled, the Quantize menu can be used to select a sub-division to which the tremolo will be synced to.
Rate (free)	When Sync is disabled, the Rate knob can be used to set the rate of change between values of .01 Hz and 32 Hz.
Phase	Change the phase offset of the LFO modulation.
Waveform	Select from a variety of LFO waveshapes in which to modulate the signal: sine, triangle, saw up, saw down, pulse, and custom. With custom selected, click on the waveform display to edit your own shape. Click in edit waveform display to create new nodes, and control + click to delete them.
Auto Pan	Enable this switch to pan the signal to alternate left and right according to the selected Rate (free) or Quantize (sync) setting.
Spread	Available when the Auto-Pan switch is turned off. Defaults to 0%, raise to 100% to increase the stereo image, and decrease to 0% to reduce it.
Amount	Controls the amount of the affected signal relative to the original (dry) signal.

Click on the **WAVEFORM** DISPLAY to call up the **WAVEFORM EDIT** WINDOW (shown below) which allows you to create your own custom waveform shapes. In the edit window, click to create a nodes, and drag them anywhere within the XY coordinates create a custom shape. Hold option (alt) while clicking on an existing node to delete it.



HARMONICS

Harmonics effects add new frequency content to the original signal, whether that's by creating resonant frequencies at specific bands, or by exciting harmonics.

- **BOOSTER** is both a loudness maximizer and a saturator, producing rich upper harmonics that add presence, and warmth.

CONTROLS	
Input Gain	Boost (+24 db) or attenuate (-60 db) the audio input gain.
Boost	Increase (100%) or decrease (0%) the upper harmonics.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

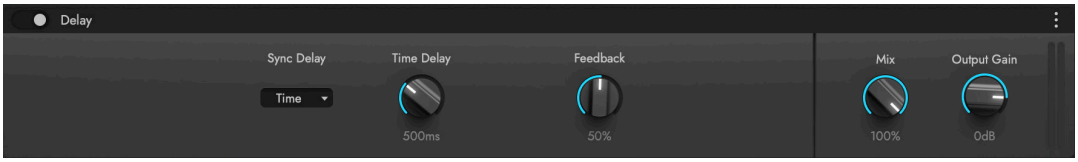
- **CHORD RESONATOR** produces independently controllable resonant frequencies created by feeding delay lines back into themselves until the being to self-oscillate. Running in parallel, they can create harmonically rich sounds, with a metallic flavor.

CONTROLS	
Root (I)	Turn on and off the root pitch, and define the Octave (0-5), and Root Note (C, C#, D, D#, E, F, F#, G, G#, A, A#, B), and Gain (negative infinity - 0 db).
Tune	Adjust the fine tuning of the Root between -100 cents and 100 cents.
Harmony (II-V)	Turn each of the 4 additional resonators on and off, define their pitch interval relative to the root (between -24 and +24), set individual de-tune values (between -50 cents and +50 cents), and adjust their gain (between negative infinity - 0 db).
Decay	Adjust the length of decay between 0% (shorter) and 100% (longer).
Color	Change the tone color by adjusting the resonator feedback between 0% (min) and 100% (max).
Mix	Controls the loudness of the affected signal relative to the original (dry) signal.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

DELAY

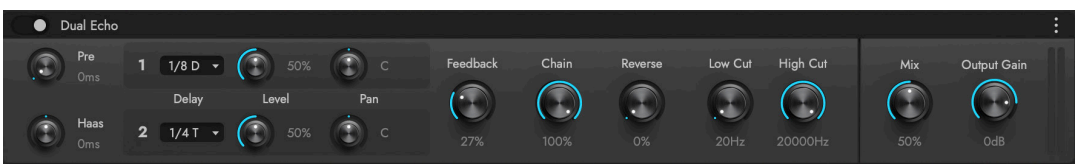
Delay effects repeat the input signal at distinctly separate intervals that fade out, or decay, over time.

- **DELAY** is a simple delay unit that can be synced to tempo, or operate in free time.



CONTROLS	
Sync Delay / Time Delay	Select between Time (free time) or Sub-Division (sync to tempo). When a sub-division is selected, the Time Delay disappears and the tempo is synced to the selected sub-division. When Time is selected in this menu, the Time Delay knob becomes available with values ranging between 1 millisecond and 5 seconds.
Feedback	Control the decay time (amount of delay repeats) from minimum (0%) to maximum (100%).
Mix	Controls the amount of the affected signal relative to the original (dry) signal.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

- **DUAL ECHO** features 2 delay lines with independent control over their volume and pan position, and a variety of controls to craft the overall delay line.



CONTROLS	
Pre	Delays the onset of the delay lines between 0 and 500 ms.
Haas	Offset the timing and spread of the delay lines to create a wider image.
Echo 1 / 2	Determine the delay quantization, volume level, and pan position of echo 1 and 2.
Feedback	Adjust how much time it takes for the delay lines to decay in terms of percentage.
Chain	Adjust the timing of the delay line between 0% (offset) and 100% (not offset).
Reverse	Use this control to reverse the direction of the delay line.
Low Cut	Remove the low end of the delay line with a cutoff frequency between 20 Hz to 4000 Hz.
High Cut	Remove the high end of the delay line with a cutoff frequency between 20 Hz to 20000 Hz.
Mix	Controls the amount of the affected signal relative to the original (dry) signal.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

- **EP-1 DELAY** models the Echoplex Delay designed in 1959, which uses magnetic tape to create it's highly prized vacuum tube delay sound.

CONTROLS	
Input Gain	Boost (+24 db) or attenuate (-60 db) the audio input gain.
Drive	Control the intensity of harmonic distortion added to the delay line between 0% and 100%.
Sync	When Sync is enabled, the Quantize menu is made available. When Sync is disabled, the Rate (free) knob is made available.
Delay (sync)	When Sync is enabled, the Quantize menu can be used to select a sub-division to which the delay will be synced to.
Delay (time)	When Sync is disabled, the Rate knob can be used to set the rate of change between values of 20 milliseconds to 2 seconds.
Flutter	Control the intensity of flutter, which is the pitch wobble created between tape speed variations on the original Echoplex unit, between 0% and 100%
Modern	Click this switch to produce a lower signal-to-noise ratio, resulting in a "cleaner" delay line.
Repeat	Set the decay time of the delay line between 0% (fast decay) and 100% (longer decay).
Ping Pong	Use this control to set the amount (stereo width) of ping pong delay, which bounces the delay line back and forth between the left and right stereo channel based on the Time Delay.
Mix	Controls the amount of the affected signal relative to the original (dry) signal.
Output Gain	Boost (+24 db) or attenuate (-60 db) the audio output gain.

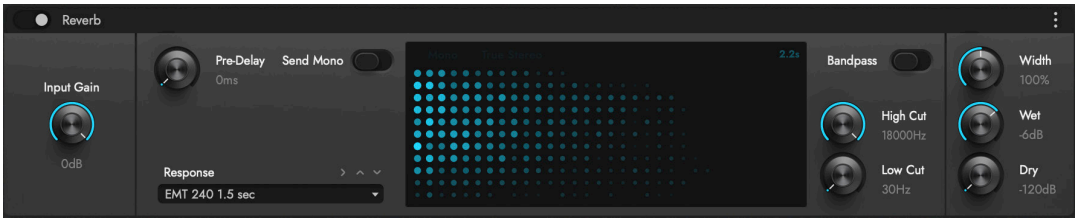
REVERB

Reverbs simulate the effect of a sound reflecting off surfaces, and blending back in with itself to form a continuous sound that takes on the characteristics of the space.

- **ALGOVERB** is a stereo reverb that offers flexible controls, without an overly complicated structure. It also contains a secondary row of stereo "psychoacoustic" tone-shaping controls.

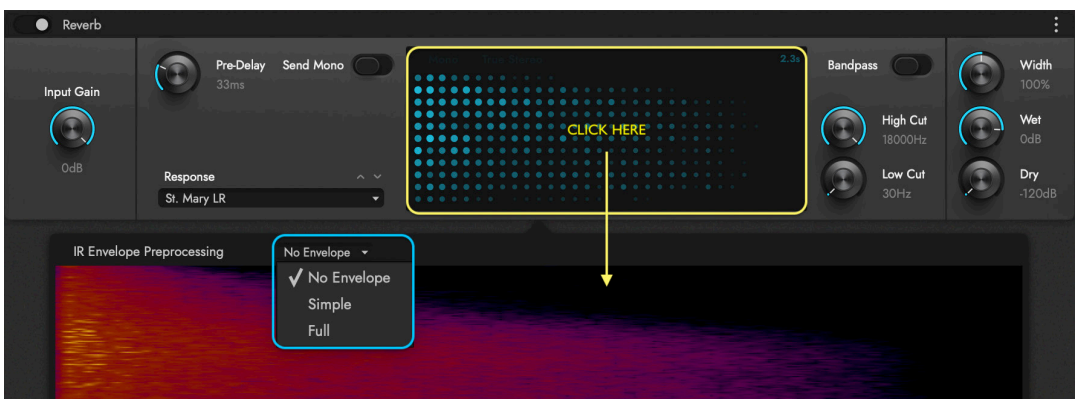
CONTROLS	
Pre-Delay	Control the amount of time (if any) that the reverb effect is delayed after the initial signal reaches the unit, allowing the attack of a sound to be heard without processing.
Size	Increase (100%) or decrease (0%) the size of the space being emulated.
Decay	Increase (100%) or decrease (0%) the decay time of the reverb.
Damping	Change the lowpass filter's cutoff frequency of the delay network between 1000 Hz (more dampening) and 18,400 Hz (less dampening).
Density	Increase (100%) or decrease (0%) the density, also called diffusion. At higher densities, the reflections are broken up and dispersed more readily.
Early / Late	Control the ratio of early and late reflections between 0% and 100%.
Bandwidth	Set the frequency bandwidth between 1 kHz and 18 kHz.
Low	Boost the low frequencies between values of 0% (min) and 100% (max).
High	Boost the high frequencies between values of 0% (min) and 100% (max).
Center	Set the center frequency between 400 Hz and 1200 Hz.
Stereo	Defaults to 50%, raise to 100% to increase the stereo image, and decrease to 0% to reduce it.
Mix	Controls the amount of the affected signal relative to the original (dry) signal.

- **REVERB** processes the input signal with an impulse response (IR), which is an audio file that captures the characteristics of a space by exciting the room with a short, broadband frequency sound, and captures the resulting reflections. This is an extension of the reverb available in the Player sub-page, but adds the ability to load true stereo reverbs, shape IR Envelope Preprocessing, and more.



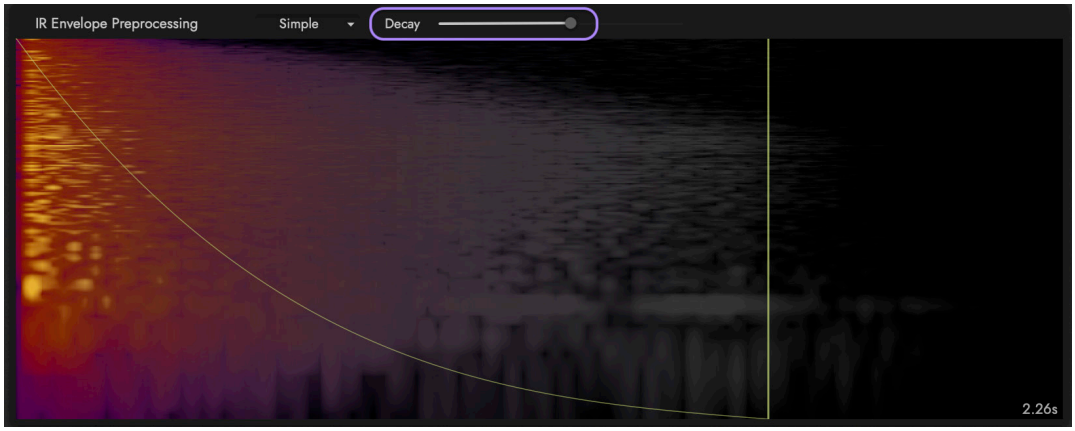
CONTROLS	
Input Gain	Boost (+24 db) or attenuate (-60 db) the audio input gain.
Pre-Delay	Control the amount of time (if any) that the reverb effect is delayed after the initial signal reaches the unit, allowing the attack of a sound to be heard without processing.
Send Mono	Collapse the separate left and right channels of the impulse response into mono.
Response	Click in this menu to select an impulse response preset or category (containing multiple presets) from the list. Small arrows populate just above the menu selector. Use the small left/right arrows to cycle through presets, and the up/down arrows to cycle through categories.
IR Envelope Preprocessing	Click anywhere on the center Impulse Response display to edit the envelope shape with simple or full envelope controls (described below).
Bandpass	Switch the Bandpass control on and off, enabling the use of the High Cut and Low Cut filters. Please note: Bandpass is automatically turned on when the High and Low Cut filters are engaged.
High Cut	Set the cutoff frequency for the high cut filter between 30 Hz and 18 kHz.
Low Cut	Set the cutoff frequency for the low cut filter between 30 Hz and 18 kHz.
Width	Defaults to 100%, raise to 200% to increase the stereo image, and decrease to 0% to reduce it.
Wet	Set the level of the processed (wet) signal between -120 db and 6 db.
Dry	Set the level of the unprocessed (dry) signal between -120 db and 0 db.

Click in the **IMPULSE RESPONSE** DISPLAY to access the **IR ENVELOPE PREPROCESSING** WINDOW, where an envelope can be used to shape the loaded impulse response.



Click in the **IR ENVELOPE** SELECTOR to choose between the following options: No Envelope, Simple, and Full.

SIMPLE ENVELOPE CONTROL provides a single **DECAY** SLIDER that simultaneously controls the End value (length) and Fade Out value (curve) controls as a percentage between 0% and 100%. It seamlessly transitions the Fade Out value between convex, linear, and concave curves as the length is shortened.



FULL ENVELOPE CONTROL provides independent control over 6 parameters. Hovering your mouse over these controls will change the **ARROW** TOOL to a **PLUS (EDIT)** TOOL, from which you can click and drag to set a new value. For all except the curve controls, the Plus (Edit) tool appears at the node itself and all along the vertical line axis.

Use the **START TIME** CONTROL and **END TIME** CONTROL to define the time at which the impulse response begins and ends. Please note, these controls also affect the Fade In Time and Fade Out Time.

Use the **FADE IN TIME** CONTROL and **FADE IN CURVE** CONTROL to shape how the envelope behaves at the onset portion of the impulse, and the **FADE OUT TIME** CONTROL and **FADE OUT CURVE** CONTROL to shape the decay of the impulse.

PLEASE NOTE: The exact values of each of these controls (except curve controls) are located along the top of the IR Envelope Preprocessing display.

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