

EASTWEST / QUANTUM LEAP

FORBIDDEN PLANET

PRODUCED BY DOUG ROGERS AND NICK PHOENIX



A H Y B R I D S Y N T H O D Y S S E Y

USER  MANUAL

INFORMATION

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1.1 FORBIDDEN PLANET OVERVIEW

Journey to the outer reaches of the sonic universe with this vast collection of cinematic and heavy-hitting synths. Freely morph between electronic and acoustic instrument layers, for futuristic sounds that are perfect for soundtracks, EDM, hip hop and more.



Forbidden Planet was produced by Doug Rogers and Nick Phoenix. “Its the result a 20 year journey with analogue synthesizers, and unlike any synth plug-in ever created,” says Phoenix.

Forbidden Planet features a premier collection of sampled analog synthesizers, both modern and vintage, acoustic instruments from rock, orchestral, choir, and world music genres, and other sound design elements.

It offers hundreds of curated instruments that are playable out-of-the-box, as well as a deep level of sound manipulation possibilities.

1.1.1 Main Features

These are the key design points of Forbidden Planet. More in-depth coverage of these features can be found later in the manual.

Orbital Control

Central to the design of Forbidden Planet is to control the ‘X-Fade’ and ‘Filter’ parameters using the dual-axis **ORBITAL CONTROL** found in the center **XY PAD VIEW**.

Click and drag this control around the area surrounding the larger planet to engage it.

Move the **X-FADE (CROSS-FADE) PARAMETER** horizontally along the x-axis to cross-fade between instrument layers to create unique blends, or a sound that transforms from one to another.

Move the **FILTER PARAMETER** vertically along the y-axis to control the filter’s cutoff frequency, opening the filter to allow the entire sound through, or closing it to completely silence it.



MIDI Control

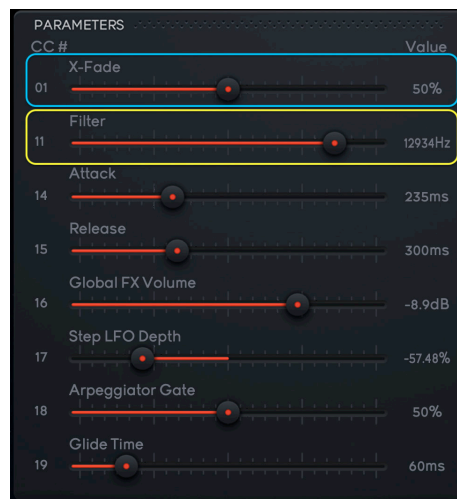
Create dynamic and evolving synth performances with an array of parameters that are assigned to MIDI Continuous Controllers (CCs).

Program a MIDI controller’s knobs or sliders to these MIDI CC #'s to record them live into a DAW, or use the MIDI CC automation lane in a DAW to manually draw them in.

Use the Mod Wheel (MIDI CC 01) to control the **X-FADE (CROSS-FADE) PARAMETER**, which will also move the Orbital control in the XY Pad view horizontally.

Use Expression (MIDI CC 11) to control the **FILTER PARAMETER**, which will move the the Orbital control in the XY Pad view vertically.

Use other MIDI CCs to control the Attack and Release stages of the Amp Envelope, the Global FX Volume (that includes Reverb and Delay), the Step LFO modulation depth, the Arpeggiator Gate Amount, and the Glide Time.



Filter Modulation

Create movement by modulating the filter's cutoff frequency to produce gated rhythms with the Step LFO effect, or a multi-stage sweep using the Mod Envelope effect, or use them both for layers of movement.

For example, try the Step LFO effect on sustained pads to create a gated rhythm, as the filter cutoff is modulated by the step sequencer.

To produce this effect, click on the **STEP LFO DEPTH** knob and drag it up or down to change its value, and then click the **POWER BUTTON** in the Step LFO section to turn it on.

To add an additional layer of movement, dial in some of the Mod Envelope effect, so the filter cutoff follows the envelope shape as well.

To add this effect click on the **MOD ENVELOPE DEPTH** knob and drag it up or down to change its value, and then click the **POWER BUTTON** in the Mod Envelope section to turn it on.



With some settings in place, play some notes and experiment with different Filter Cutoff knob settings. You can use MIDI CC 11 to control it in real-time. As you do, notice how the Step LFO and Mod Envelope effects are influencing the Filter Cutoff at those different settings.

Powerful Effects

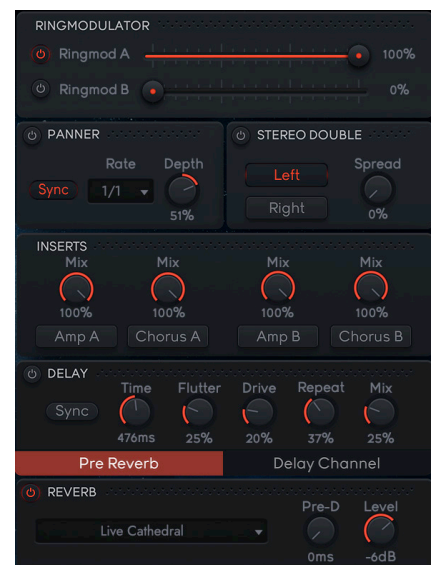
An array of powerful effects are available, which can be applied globally or per instrument layer, depending on the effect.

For instance, Panner is an auto-panner effect that modulates the global pan position. It can be synced to tempo (BPM) with sub-divisions between 32 bars and a 1/32nd note triplet.

The Ring Modulators can be applied separately to each instrument layer (Sources A and B). They produce colorful sounds that are even more extreme when in motion.

Each instrument layer also contains the Amp and Chorus Ensemble effects inserted in series, offering either distortion characteristics, and/or a thicker texture respectively.

Global Delay and Reverb are available as effects sends, allowing just the right amount to be added to the mix.



Dual Arpeggiator

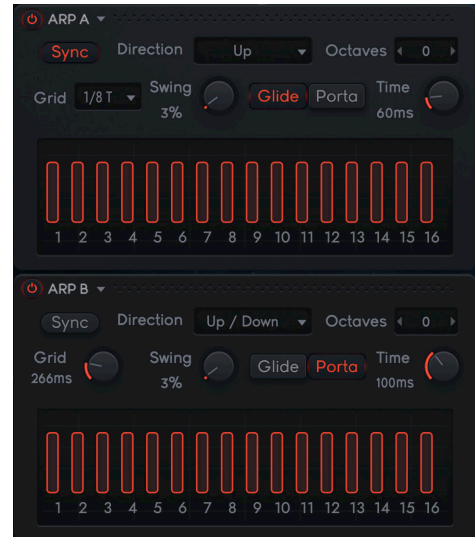
Create beautifully complex and evolving arpeggiator patterns by applying unique settings to each of the instrument layers (Sources A and B).

Get started by trying out some of the fantastic Arpeggiator instrument presets.

Use the Mod Wheel (MIDI CC 01) to cross-fade between instrument layers with the arpeggiator engaged on both to produce beautifully evolving patterns.

Even when there are only subtle differences between the arpeggiator patterns of the 2 layers, the act of cross-fading between them creates a transformation.

For example, even altering a single control like 'Swing', which shifts the downbeat off-axis, can transform an arpeggiator's rhythm from straight to swung as you cross-fade.



CONTINUE READING SECTION 2.2 FORBIDDEN PLANET CONTROLS for more about the controls available to manipulate an instrument's sound.

1.1.2 Walkthrough

This section guides you through the first 10 minutes of using Opus, covering basic tasks like setting up your Audio and MIDI devices, navigating the user interface, and loading an instrument. More in-depth coverage of these topics can be found later in the manual.

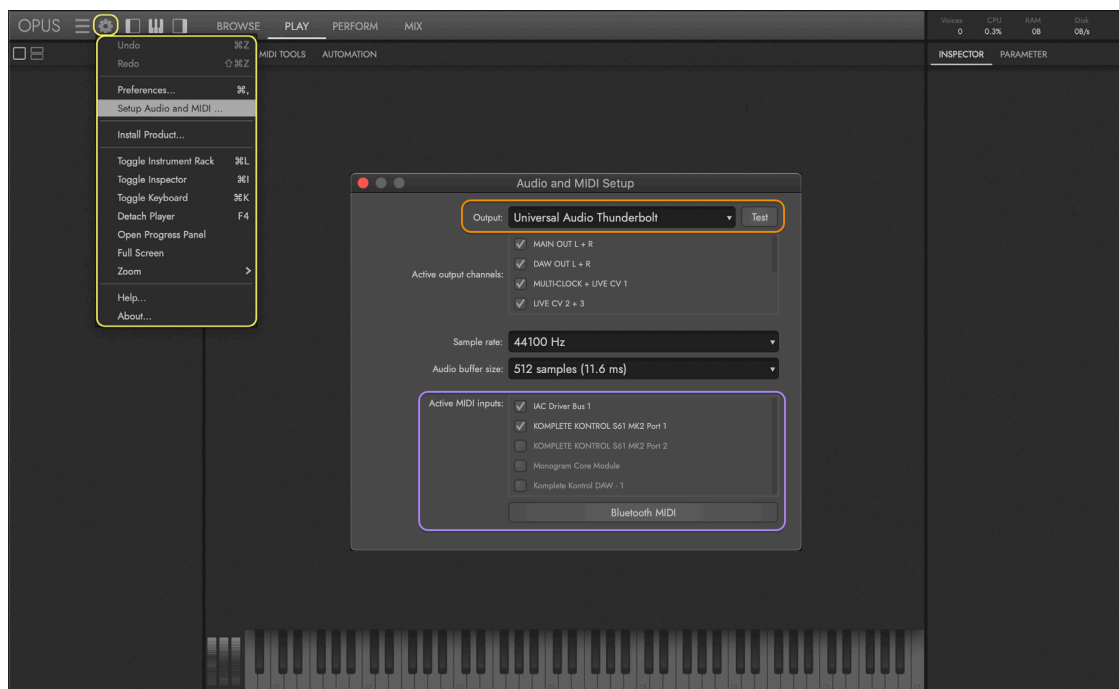
The first time Opus is launched, an initial setup process will begin. It helps to optimize CPU and disk performance based on a number of factors.

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** , and test the connection by clicking the **TEST BUTTON** to send a test tone.

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.



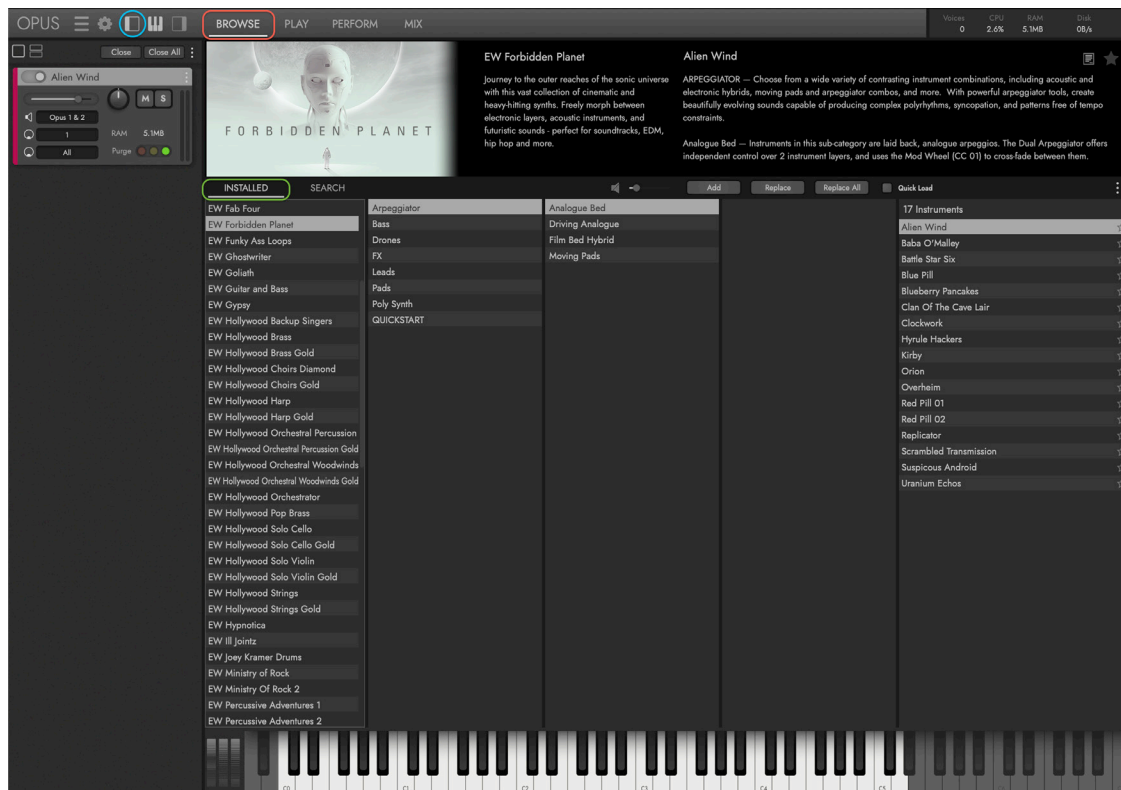
OPUS SOFTWARE MANUAL SECTION 1.1.6 PREFERENCES contains more information about the settings available in the preferences window.

Loading an Instrument

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

Next, click on the **INSTRUMENT RACK BUTTON** in the **NAVIGATION BAR** to open the Instrument Rack that appears on left side of the user interface. It shows all loaded instruments, and a few basic controls like volume, pan, and MIDI channel assignment.

In the **INSTALLED MODE AREA**, select the Forbidden Planet entry in the list of EastWest Libraries that populates the column on the left, and use the middle columns to browse the folder structure of Forbidden Planet.



Forbidden Planet includes 7 main categories (Arpeggiator, Bass, Drones, FX, Leads, Pads, and Poly Synths), each containing several sub-categories. An additional Quickstart category contains a selection of favorite instruments hand picked by the producers.

After selecting a category and sub-category, instruments will populate the Results List in the right column. Double-click an instrument to load it. It will appear in the Instrument Rack.

CONTINUE READING **SECTION 2.1 FORBIDDEN PLANET INSTRUMENTS** for details about the instrument available in Forbidden Planet, and some of the ways to find instruments.

Playing an Instrument

To access Forbidden Planet’s controls, 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**, showing the custom Forbidden Planet user interface (shown below).

The **INSTRUMENT MENU** displays the current instrument selection, with the user interface reflecting its control settings. 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.



Manipulate the sound by changing the control settings on the user interface with your mouse, and continue reading the ‘Automating Parameters’ section that follows for details on manipulating controls in real-time with MIDI Continuous Controllers (CCs).

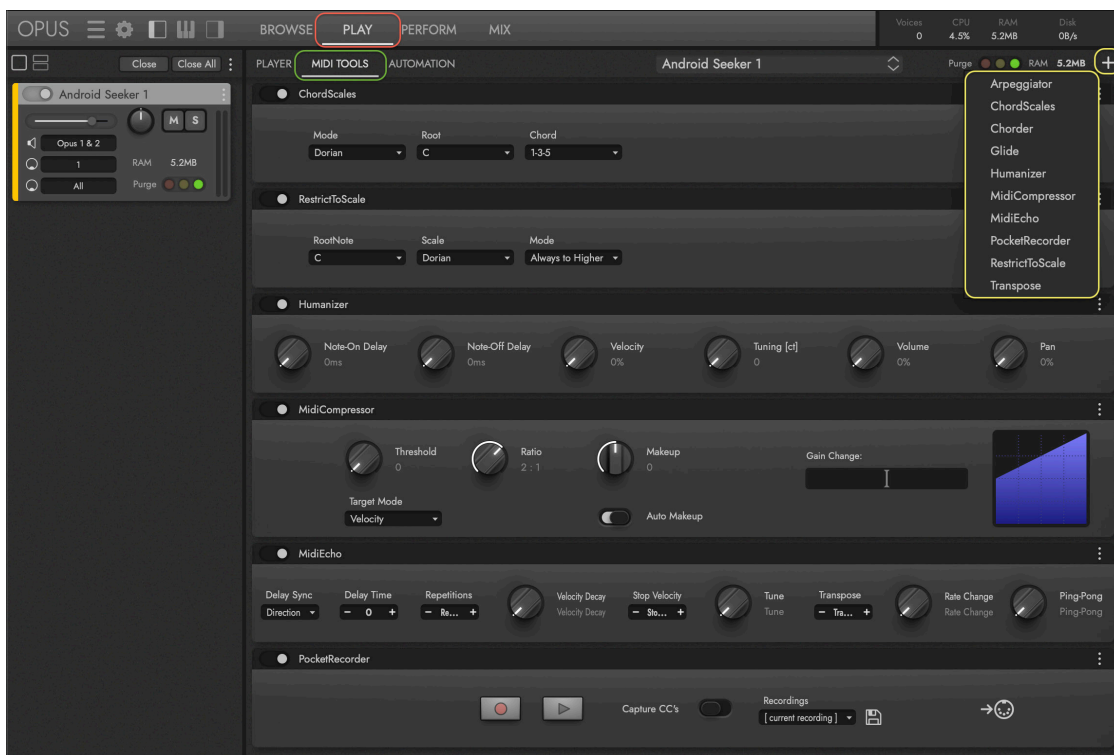
CONTINUE READING SECTION 2.2 FORBIDDEN PLANET CONTROLS for more details about the controls available to manipulate an instrument’s sound.

Using the MIDI Tools

A suite of MIDI Tools are available that offer a range of MIDI processing options.

To enter the MIDI Tools sub-page, click on the **PLAY 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 **ADD MIDI TOOL ELLIPSIS MENU (...)** in the secondary **PALETTE MENU**, then select one from the list.



OPUS SOFTWARE MANUAL SECTION 2.2.2 MIDI TOOLS SUB-PAGE contains more details on all the tools and options available in this area .

Automating Parameters

Add movement to an instrument by automating their parameters in a DAW, or program your MIDI controller to control and record them into a DAW in real-time.

To enter the Automation 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 controls that appear in a DAW's plug-in automation lane. Likewise, the **MACRO PARAMETERS AREA** populates with those same controls that appear in a DAW's MIDI controller lane, which allows real-time control via MIDI CCs.

Below is a list of the Automation and Macro Parameters and their MIDI CC numbers:

- **CC 01** - X-FADE (MOD WHEEL)
- **CC 11** - FILTER
- **CC 14** - ATTACK
- **CC 15** - RELEASE
- **CC 16** - GLOBAL FX VOLUME
- **CC 17** - STEP LFO DEPTH
- **CC 18** - ARP GATE
- **CC 19** - GLIDE TIME
- **CC 20** - RING MOD INTENSITY A
- **CC 21** - RING MOD INTENSITY B

OPUS SOFTWARE MANUAL SECTION 2.2.3 AUTOMATION SUB-PAGE contains more information about the automation tools available.

Mixing an Instrument

To change an instrument's mix and effect settings, click the **MIX PAGE SELECTOR** in the **NAVIGATION BAR** to enter the Mix page.

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 a standard mixer channel setup for Forbidden Planet: a Master channel, 2 Sub Mixer channels, and 2 FX Bus channels, with effects inserted on each.



The 2 Sub Mixer channels provide independent outputs for Sources A and B, enabling unique effects settings per-channel. The Legend Amp and Ensemble Chorus effects are inserted in series, and Effect Send amounts are available to send signal to the Delay and Reverb FX Bus channels.

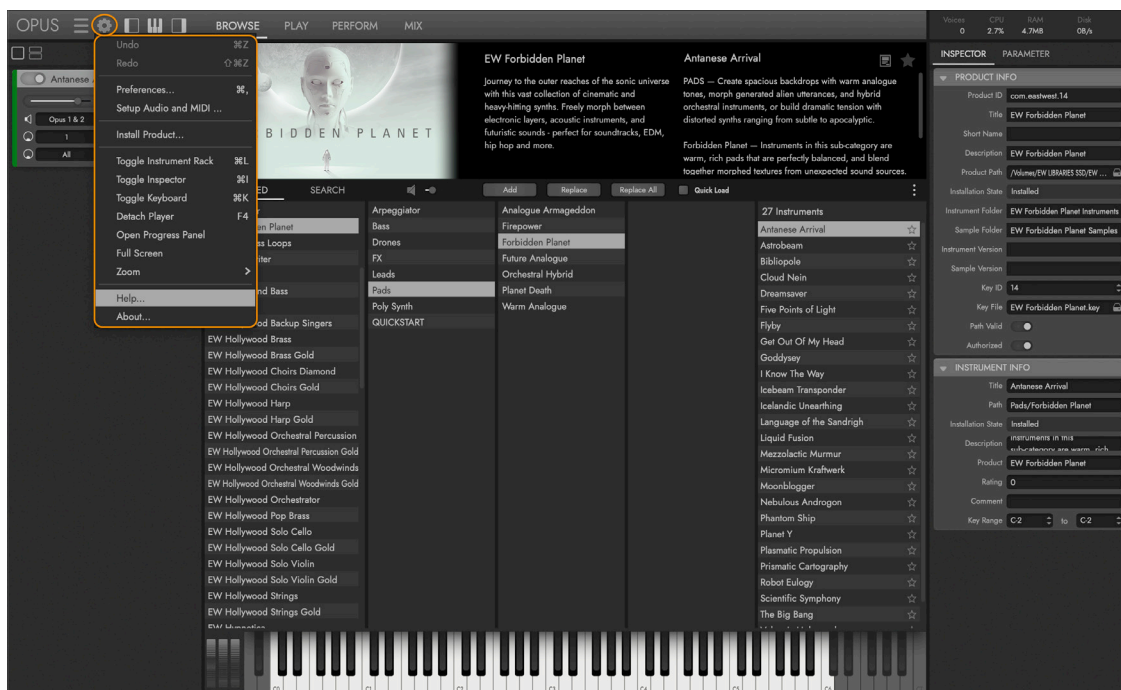
OPUS SOFTWARE MANUAL SECTION 2.4 THE MIX PAGE for details about how to mix and finalize and instrument's output.

1.1.3 Powered By Opus

Opus is the new software engine that powers EastWest virtual instruments. It is faster, more powerful, more flexible, and better looking than the previous generation software engine, and it comes with some incredible new features.

To learn more about the Opus Software, beyond those specifically related to Forbidden Planet, refer to the Opus Software Manual. It covers all aspects of the Opus software's features, controls, and options.

The Opus Software Manual is accessible by clicking on the **SETTINGS MENU BUTTON** in the top-left corner of the Navigation Bar, and selecting the **HELP OPTION** that appears at the bottom of the menu.



When topics can be expanded upon beyond the scope of Forbidden Planet, a message like the one below will direct you to a specific chapter or section of the Opus Software Manual to learn more.

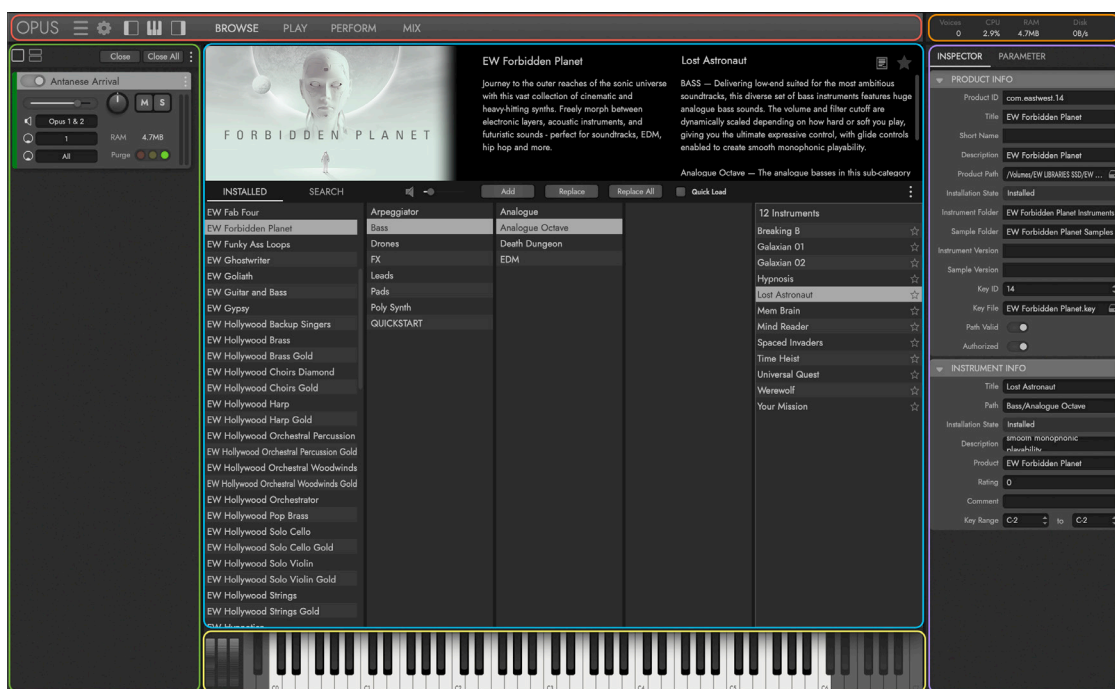
OPUS SOFTWARE MANUAL explores the entire control and feature set of Opus.

Interface Layout

The Opus user interface is divided into 6 main areas (some initially hidden from view).

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 that includes:

- The **OPUS BUTTON** prompts an 'About' window to appear with software information.
- 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. Further details are just below.

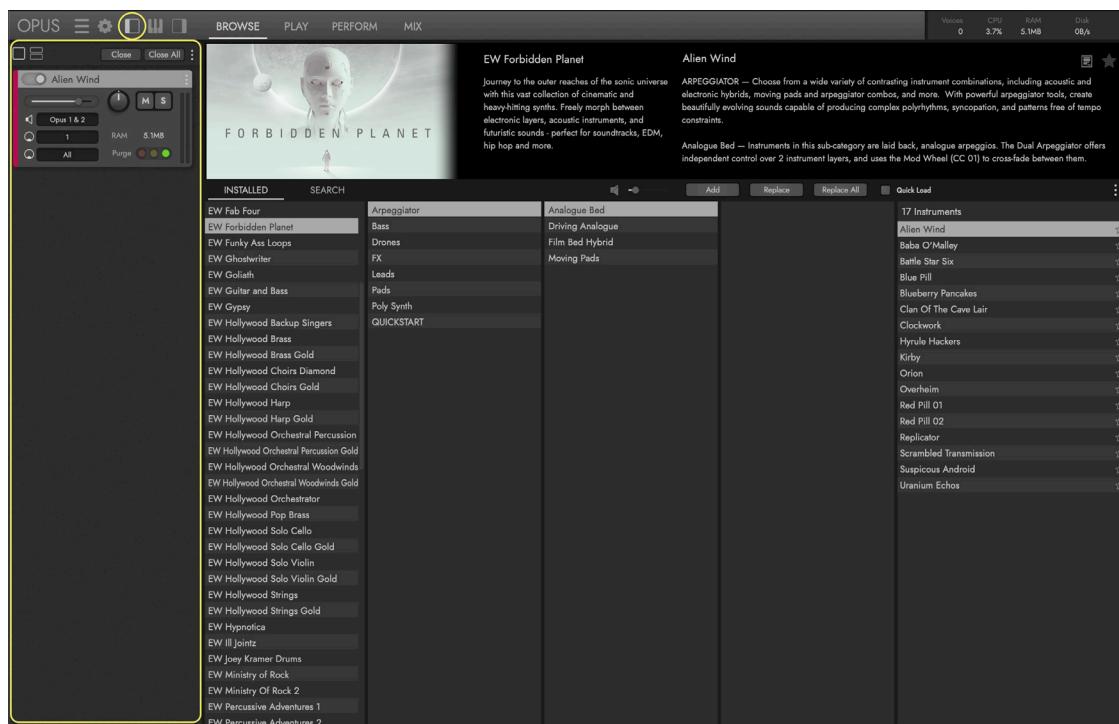
The **VIRTUAL KEYBOARD AREA** shows the selected instrument's sampled key range, pitch wheel, modulation wheel (CC 1), and expression wheel (CC 11).

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 pertaining to the current selection, whether that's an instrument selected in the Browse page, or a channel selected in the Mix page.

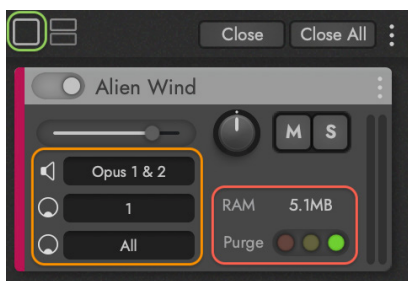
Instrument Rack

Click the **INSTRUMENT RACK TOGGLE** in the **NAVIGATION BAR** to open and close the **INSTRUMENT RACK** that appears on the left side of the Opus user interface. Each loaded instrument appears in the Instrument Rack, with a number of controls and options available.



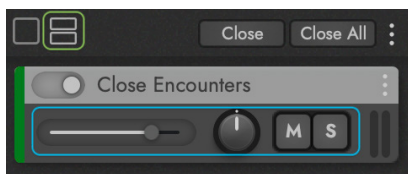
Loaded instruments appear by default in the **FULL RACK VIEW** (shown top), which provides a larger rack space with access to all available controls.

An optional **HALF RACK VIEW** (shown below) provides a smaller rack space that pars back to **ESSENTIAL CONTROLS** that includes volume, pan, mute, and solo.



The **CLOSE / CLOSE ALL BUTTONS** remove the selected instrument, or all loaded instruments, respectively.

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



Use the **PURGE CONTROL** to change the selected instrument's memory footprint. To remove it from memory, click the red 'purge' button on the left. As notes are played, the yellow light in the middle indicates only notes played since last purging are loaded into memory. To load an instrument back into memory, click the green 'load' button on the right.

1.1.4 What's Included

EastWest Forbidden Planet is:

- A collection of 645 instruments in 7 main categories
- Approximately 54 Gigabytes (GB) of 24-bit, 44.1 kHz samples
- EastWest's powerful, new Opus software engine.
- A license that identifies the product you bought.
- A Forbidden Planet User Manual.pdf
- An Opus Software Manual.pdf
- The EW Installation Center to setup the libraries, software, and documentation

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 not longer supported.

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
- 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.

1.1.5 System Requirements

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

Minimum System:

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

Recommended System:

- 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 with ASIO sound drivers
- Drive: SSD (SATA or PCIe)

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

1.1.6 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 THE PRODUCERS

Forbidden Planet was produced by Doug Rogers and Nick Phoenix.

1.2.1 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.

1.2.2 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-live.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 ABOUT EASTWEST

EastWest (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.

1.3.1 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 industry’s 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, Bat-

man 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.

1.3.2 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: eastweststudios.com.



1.4 SUPPORT

Visit the [EastWest Support Center](#) to Live Chat with a Support Agent, download Software and Product Updates, and access FAQs, guides, and manuals.

1.4.1 Installation Guides

Installation instructions are available in our Getting Started guides that are available online by following the links below.

- [ComposerCloud Getting Started](#) (for subscription-based users)
- [Eastwest Libraries Getting Started](#) (for perpetual license users).

1.4.2 Video Tutorials

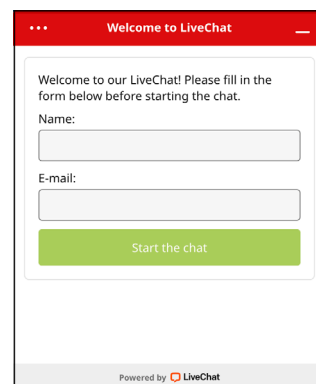
Visit us on YouTube for video walkthroughs, tutorials, and trailers, and join the discussion on Facebook for the latest announcements.

- **YouTube:** <https://www.youtube.com/user/EWQLTutorials>
- **Facebook:** <https://www.facebook.com/eastwestsound>

1.4.3 Live Chat

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.

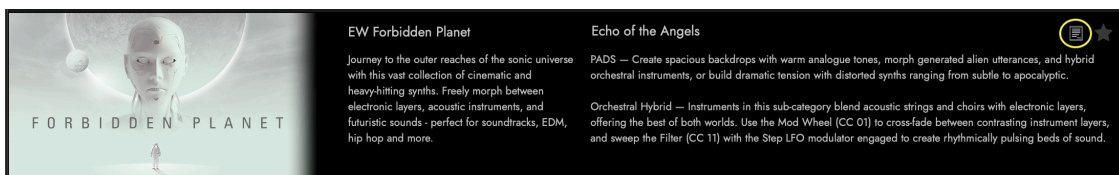


1.4.4 Manuals

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.

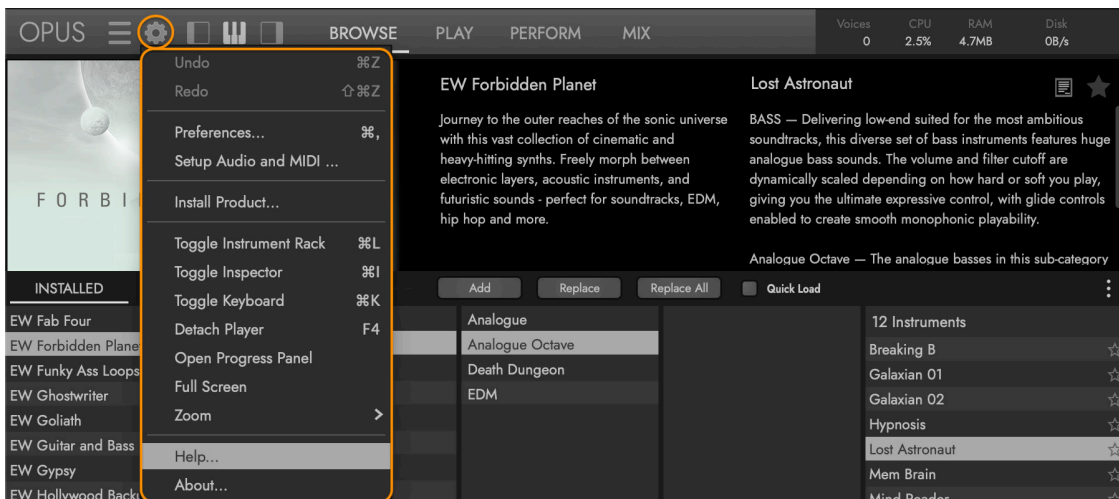
Forbidden Planet User Manual

This Forbidden Planet User Manual is accessible by clicking on the **USER MANUAL BUTTON** located in the top-right corner of the Description Box, found in the Browse page. It focuses on topics that are specific to Forbidden Planet.



Opus Software Manual

The Opus Software Manual is accessible by clicking on the **SETTINGS MENU BUTTON** and 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 more broadly, beyond those specific to Forbidden Planet.



Continued Reading

Throughout this manual there are references to sections in the Opus Software Manual that expand upon the current topic in greater detail. For example:

OPUS SOFTWARE MANUAL **SECTION 1.1.6 PREFERENCES** contains more about the settings available in the preferences window.

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

CONTINUE READING **SECTION 2.2 FORBIDDEN PLANET CONTROLS** of this manual for more in-depth coverage of the controls and features of the Player Window.

Navigating the Manuals

The numbering system identifies the chapter, section, and sub-section to identify the referenced section. For instance, this section is numbered 1.5.3, meaning it's from chapter 1, section 5, sub-section 3.

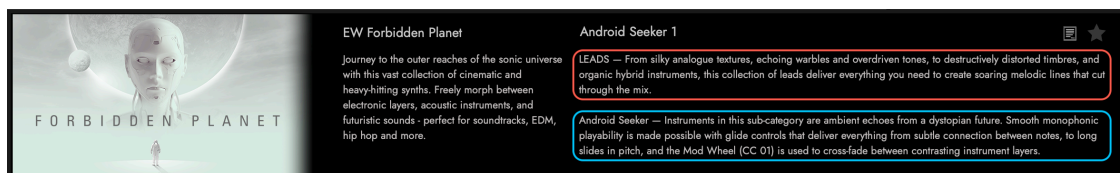
Use either the included chapter links that are a standard in PDF formatted documents, or use the link in the top-left area of the header on each page to reach the Contents (< CONTENTS) of the manual.

2.1 FORBIDDEN PLANET INSTRUMENTS

There are 645 instruments spanning 7 main categories included in Forbidden Planet. An additional ‘Quickstart’ category contains favorite instruments selected by the producers, providing a great way to dive into the library and see what it has to offer.

2.1.1 Instrument Descriptions

In Forbidden Planet, the Description Box contains the **MAIN CATEGORY DESCRIPTION** in the first paragraph (also described below), and the **SUB-CATEGORY DESCRIPTION** in the second paragraph.



Arpeggiator — Choose from a wide variety of contrasting instrument combinations, including acoustic and electronic hybrids, moving pads and arpeggiator combos, and more. With powerful arpeggiator tools, create beautifully evolving sounds capable of producing complex polyrhythms, syncopation, and patterns free of tempo constraints. It includes the following sub-categories:

- Analogue Bed
- Driving Analogue
- Film Bed Hybrid
- Moving Pads

Bass — Delivering low-end suited for the most ambitious soundtracks, this diverse set of bass instruments features huge analogue bass sounds. The volume and filter cutoff are dynamically scaled depending on how hard or soft you play, giving you the ultimate expressive control, with glide controls enabled to create smooth monophonic playability. It includes the following sub-categories:

- Analogue
- Analogue Octave
- Death Dungeon
- EDM

Drones — A huge collection of widely varied atmospheric drones from lush sound beds, to noisy industrial hums, and strange sci-fi effects. Many drones feature harmonic and inharmonic underpinnings around a tonal center that evoke a range of emotions. It includes the following sub-categories:

- Chordal Moods
- Deep Musical
- Deep Noise
- Emotive Control

- Sci-Fi Horror

Effects (FX) — A collection of effects that defy classification, from vocal utterances, and alien soundscapes, to heavily processed acoustic instruments, and synthesized effects, these instruments are ideal for adding tension, noise and chilling accents to any soundscape. It does not include any sub-categories.

- n/a (not available)

Leads — From silky analogue textures, echoing warbles and overdriven tones, to destructively distorted timbres, and organic hybrid instruments, this collection of leads deliver everything you need to create soaring melodic lines that cut through the mix. It includes the following sub-categories:

- Analogue Overdrive
- Android Seeker
- Epic Doom
- Liquid Analogue
- Rap
- World Hybrid

Pad — Create spacious backdrops with warm analogue tones, morph generated alien utterances, and hybrid orchestral instruments, or build dramatic tension with distorted synths ranging from subtle to apocalyptic. It includes the following sub-categories:

- Analogue Armageddon
- Firepower
- Forbidden Planet
- Future Analogue
- Orchestral Hybrid
- Planet Death
- Warm Analogue

Poly Synths — A collection of punchy, warm polyphonic analogue synthesizers, some hybridized with acoustic piano layers, perfect for laying down a magical chordal accompaniment, or doubling a bass line. It includes the following sub-categories:

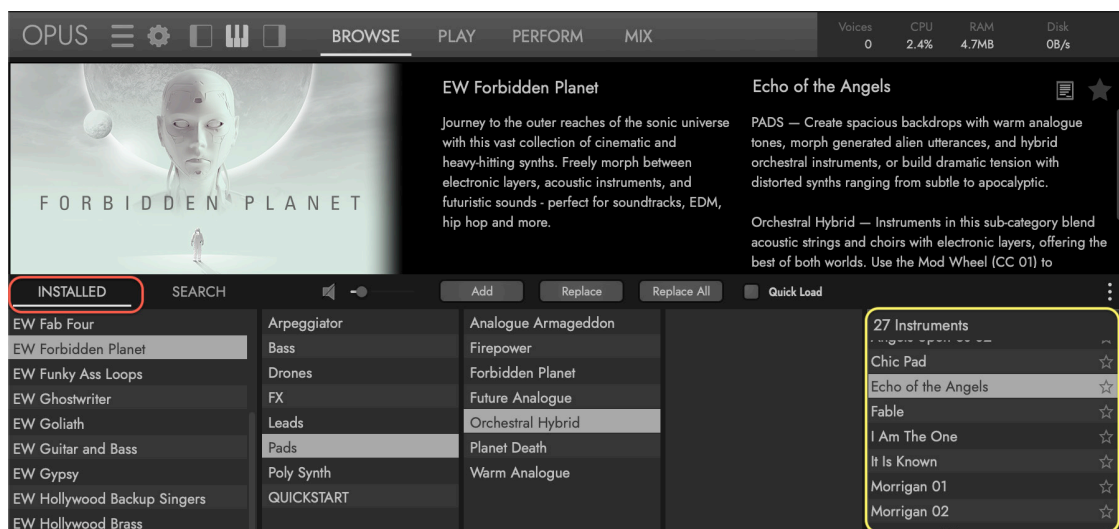
- Driving Analogue
- Songwriter

2.1.2 Ways to Find Instruments

There are several ways to find instruments in the Browse page (shown below), including by browsing the library folders of a given product, narrowing down instrument selections using attribute tags, or by entering key words directly into a search field.

Browsing the Forbidden Planet Library

Click on the **INSTALLED MODE** button to browse for instruments based on the product's instrument folder structure. To begin, click on 'EW Forbidden Planet' in the list of installed EastWest Libraries that populate in the left column (in alphabetical order).



Next, click one of the 7 main categories that appears in the next column to the right, then click on one of its sub-categories in the column to the right of that.

Once the library, category, and sub-category is selected, instruments will populate in the **RESULTS LIST COLUMN**. Double-click on an instrument to load it, which will also overwrite any previously loaded instrument.

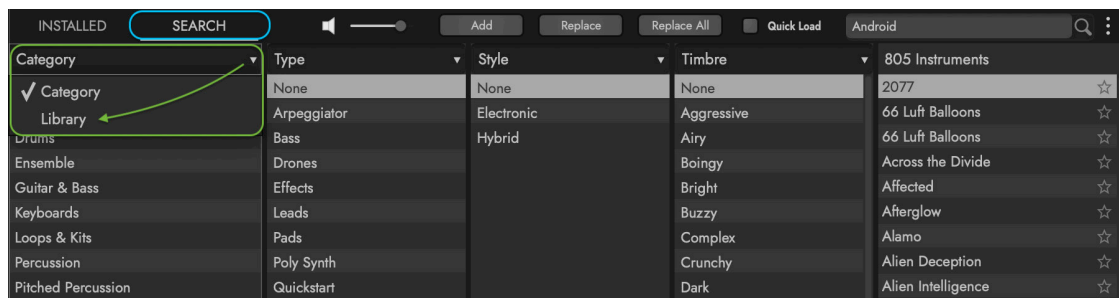
Refer to the table below for a list of all available categories and sub-categories. There is also a 'Quickstart' folder that contains a selection of producer choice instruments from every category, perfect for diving into the library to see what it has to offer.

ARPEGGIATOR	BASS	DRONES	FX	LEADS	PADS	POLY SYNTH
Analogue Bed	Analogue	Chordal Mood	n/a	Analogue Overdrive	Analogue Armageddon	Driving Analogue
Driving Analogue	Analogue Octave	Deep Musical		Android Seeker	Firepower	Songwriter
Film Bed Hybrid	Death Dungeon	Deep Noise		Epic Doom	Forbidden Planet	
Moving Pads	EDM	Emotive Control		Liquid Analogue	Future Analogue	
		Sci-Fi Horror		Rap	Orchestral Hybrid	
				World Hybrid	Planet Death	
					Warm Analogue	

Searching the Forbidden Planet Categories

Click on the **SEARCH MODE** button to quickly narrow down the instruments by selecting attributes across a range of categories like Type, Style, Timbre, and more.

To begin, first click in the **ATTRIBUTES HEADER** and select **LIBRARY ATTRIBUTES** from the drop-down menu (shown below) to narrow the search to instruments within Forbidden Planet.

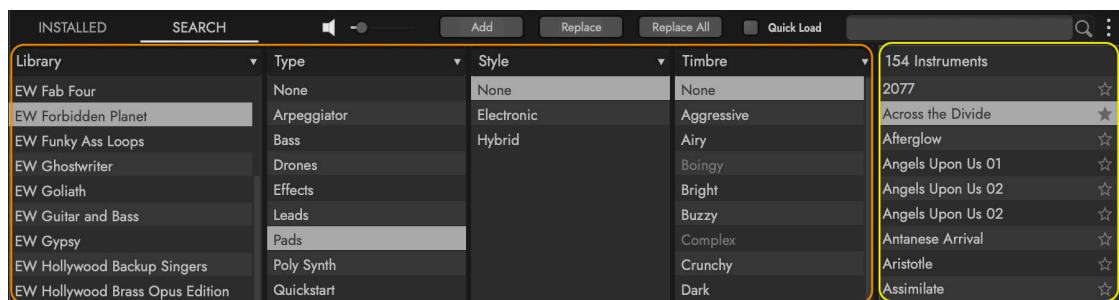


Use **LIBRARY ATTRIBUTES** to find the 'EW Forbidden Planet' entry that appears in alphabetical order in the list of installed products (shown below).

Use **TYPE ATTRIBUTES** to select one of Forbidden Planet's 7 main instrument types: Arpeggiator, Bass, Drones, Effects, Leads, Pads, Poly Synths.

Use **STYLE ATTRIBUTES** to select instruments in Forbidden Planet that are either comprised purely of electronic sources (by selecting the 'Electronic' tag), or instruments that are comprised of both electronic and acoustic sources (by selecting the 'Hybrid' tag).

Use **TIMBRE ATTRIBUTES** to narrow down instruments by how they sound or feel, using descriptive words like 'Warm', 'Buzzy', and 'Distorted'.



Instruments will populate the **RESULTS LIST COLUMN** based on the attribute tags selected. Double-click on an instrument to load it, which will also overwrite any previously loaded instrument.

OPUS SOFTWARE MANUAL **SECTION 2.1 THE BROWSE PAGE** contains more details on all the ways to find, preview, and load instruments.

2.2 FORBIDDEN PLANET CONTROLS

A deep level of sound manipulation is possible in Forbidden Planet. Whether dialing in effect settings with the onboard user interface controls, using MIDI Continuous Controllers (CCs) to control parameters in real-time, or programming Automation Parameters in a DAW, it can be customized to your project.



Control Scheme

Central to the control scheme of Forbidden Planet is that a majority of instruments are comprised of 2 layers, differentiated as Source A, and Source B.

These Sources can be cross-faded between using the Mod Wheel (CC 01), enabling a blend of sounds, or the transformation from one sound to another.

Following along with this instrument design that contains 2 layers, controls in Forbidden Planet are either Global Controls, that affect an entire instrument, or Source Controls, that can be applied independently to Sources A / B.

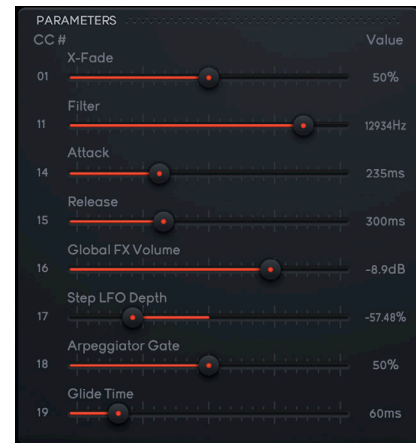
2.2.1 MIDI Controls

There are a few ways MIDI is implemented in Forbidden Planet.

- **MIDI CCs** are assigned to a slew of Global and Source Controls, enabling control over the Parameters listed below.

Program the knobs and sliders of a MIDI controller to these MIDI CCs for real-time control over these Parameters, and record them live into a DAWs MIDI automation lane to create expressive performances.

- **CC 01** - X-FADE [MOD WHEEL]
- **CC 11** - FILTER
- **CC 14** - ATTACK
- **CC 15** - RELEASE
- **CC 16** - GLOBAL FX VOLUME
- **CC 17** - STEP LFO DEPTH
- **CC 18** - ARPEGGIATOR GATE
- **CC 19** - GLIDE TIME
- **CC 20** - RING MODULATOR A
- **CC 21** - RING MODULATOR B



- **MIDI Velocity** is the speed at which a key is struck, and it controls global volume and filter cutoff for bass instruments.
- **MIDI Aftertouch** is the pressure applied after a key is struck, and is used to blend between Sources across all instruments.

PLEASE NOTE! Not all MIDI controllers support MIDI Aftertouch. Please check the controller's documentation for more information.

- **Pitch Wheel** bends the pitch of an instrument plus or minus (+ / -) 2 semitones in either direction. 2 semitones is equivalent to a whole step.

Automation Controls

The Parameters controlled by MIDI CCs listed above also appear in the Automation sub-page, and in addition to being available to automate in the MIDI controller lane, are also available to automate in a DAW's plug-in automation lane.

CONTINUE READING **SECTION 1.1.2 WALKTHROUGH** for a brief on Automation Parameters.

OPUS SOFTWARE MANUAL **SECTION 2.2.3 AUTOMATION SUB-PAGE** contains full details on the automation parameters, macro parameters, and additional options.

2.2.2 Global Controls

These controls apply to both layers of the instrument (Source A, and Source B).

- **XY Pad View** is the default view in the Center Display, and features a dual-axis Orbital Control that simultaneously cross-fades between Sources A and B when moved horizontally along the x-axis [CC 01], and controls the filter cutoff when moved vertically along the y-axis [CC 11].

CONTINUE READING SECTION 2.2.5 XY PAD VIEW for more information.

- **Filter View** features a multi-mode filter, with an option to modulate the filter’s cutoff frequency [CC 11] using the Step LFO and Mod Envelope effects, creating gated and/or multi-stage envelope movements respectively.

Use the ‘Step LFO Depth’ [CC 17] Parameter control to change the amount of modulation affecting the filter’s cutoff frequency.

CONTINUE READING SECTION 2.2.6 FILTER VIEW for more information.

- **Parameters** section features controls over an array of parameters using MIDI CCs, handling everything from cross-fading instrument layers, to adjusting the amount of Step LFO modulation applied to the filter cutoff.

See the ‘MIDI Controls’ section above for the complete list of Parameters and their MIDI CC assignments [CCs].

CONTINUE READING SECTION 2.2.8 PARAMETERS for more information.

- **Amp Envelope** is used to control an instrument’s global volume over time. It contains a standard 5-stage envelope, with the addition of a **CURVE KNOB** to change the attack stage from its default linear setting to either concave (left), or convex (right).



Use the ‘Attack’ [CC 14] and ‘Release’ [CC 15] Parameter controls to adjust the Attack and Release stages of the envelope respectively.

- **Transpose** contains both coarse and fine tuning controls. Use the **+/- TRANSPOSE BUTTONS** to adjust global tuning in semitone (half-step) increments, up to +/- 24 semitones (2 octaves) in either direction. Use the **FINE TUNE KNOB** to change global tuning up to 100 cents in either direction (100 cents = 1 semitone).

- **Panner** is an effect that automates the pan position with a sine LFO modulator. The effect can be synced to tempo using sub-divisions between 1/32nd triplet note and 32 bars, or run free of tempo constraints at an audio rate up to 65 Hz. Use the **DEPTH KNOB** to adjust the width of the pan position.
- **Stereo Double** widens the stereo image, by adding in a source from either the right or left side of the stereo image.

PLEASE NOTE! The Stereo Double effect will only work when the **CHANNEL SOURCE** is set to 'Stereo' in the Master section, which is the default setting.

- **Delay** is a send effect featuring the EP-1 Delay that is modeled after the Echoplex Delay designed in 1959. It operates in 2 configurations. The 'Pre-Reverb' configuration features the EP-1 Delay in series with the Reverb, creating washed out delay sound. The 'Delay Channel' configuration features the EP-1 Delay on independent channel in parallel with the Reverb, for more separation between the delay and reverb effects.

Use the 'Global FX Volume' [CC 16] Parameter control to adjust the volume of the Delay and Reverb send effect channels simultaneously.

OPUS SOFTWARE MANUAL SECTION 2.4.3 EFFECTS LIST contains more details.

- **Reverb** is a send effect that features the celebrated Convolution Reverb, which uses impulse responses (IRs) containing the characteristics of a particular space, and applies (convolves) it with the input signal to simulate that sound of playing that instrument in the given space.

Use the 'Global FX Volume' [CC 16] Parameter control to adjust the volume of the Delay and Reverb send effect channels simultaneously.

OPUS SOFTWARE MANUAL SECTION 2.4.3 EFFECTS LIST contains more details.

- **Master** section controls the final audio output, allowing the volume, pan, mute, and solo controls to be dialed-in, and the Output Selection and Channel Routing to be defined.

2.2.3 Source Controls

These controls apply to either layers of the instrument (Source A, and Source B).

- **MIDI View** features a Dual Arpeggiator with settings that can be applied independently to each Source to create complex patterns that can evolve from one layer to the next when cross-fading between them using the Mod Wheel [CC 01].

Use the ‘Arpeggiator Gate’ [CC 18] Parameter control to adjust the length of the arpeggiator gate, creating a shorter duration of each step, or the full length of each step.

It also contains Glide and Portamento controls that can be used with or without the Dual Arpeggiator engaged.

Use the ‘Glide Time’ [CC 19] Parameter control to change the length of the pitch slide from subtle connection between notes, to dramatic slides in pitch.

CONTINUE READING SECTION 2.2.7 MIDI VIEW for more information.

- **Arpeggiator** section provides “quick access” to enable and disable the Dual Arpeggiator, Glide, and Portamento effects for either Source A or B. These controls are also available in the MIDI View.

- **Ring Modulators** produces a colorful, harmonically rich effect that can be applied independently to either Source A or B.

Use the ‘Ringmod A’ [CC 20] and ‘Ringmod B’ [CC 21] Parameter controls to adjust the amount of Ring Modulation applied to the respective Sources.

- **Insert Effects** include the Legend Amp and Ensemble effects that can be applied independently to either Source A or B using the Mix knob.

Legend Amp provides distortion and re-amping characteristics, with custom Tonestack and Cabinet combinations.

Ensemble is a multi-mode chorus effect that adds thickness and shimmer to sounds by producing multiple voices based on the input signal, and slightly varies their pitch and timing qualities so they are perceived as a single voice.

OPUS SOFTWARE MANUAL SECTION 2.4.3 EFFECTS LIST contains more details.

- **Waveform** displays the audio waveform output for the selected Source. Use the ‘Source A’, and ‘Source B’ buttons to switch the display between Sources.

2.2.4 Control Layout

Forbidden Planet's user interface is shown below, featuring an array of custom controls.

Navigate here by clicking on the **PLAY PAGE SELECTOR** in the **NAVIGATION BAR** to enter the Play page, where the **PLAYER SUB-PAGE** is selected by default.

OPUS SOFTWARE MANUAL SECTION 2.2.2 MIDI TOOLS SUB-PAGE and **SECTION 2.2.3 AUTOMATION SUB-PAGE** contain more details about the other sub-pages.



The Forbidden Planet interface is divided into 4 main areas:

- **CENTER AREA** features 3 selectable views that each contain distinct control arrays: XY Pad view (shown), the Filter view, and the MIDI view.
- **LEFT AREA** (from top) features the Parameters, Amp Envelope, and Waveform sections.
- **RIGHT AREA** (from top) features the Transpose, Arpeggiator, Ring Modulator, Panner, Stereo Double, Inserts, Delay, Reverb, and Master sections.
- **VIRTUAL KEYBOARD AREA** shows the sampled range of an instrument in white keys.

2.2.5 XY Pad View

Click on the **XY PAD VIEW SELECTOR** button to enter the **XY PAD VIEW** (shown). This area depicts a small, reddish-brown 'Orbital Control', which you can click and drag around the area surrounding the larger planet. The dual-axis control simultaneously engages the 'X-Fade' **[CC 01]** Parameter control when moving horizontally along the x-axis, and the 'Filter' **[CC 11]** Parameter control when moving vertically along the y-axis.

- **X-Fade [CC 01]** is engaged by moving the Orbital Control left and right along the x-axis. It controls the cross-fade between 2 instrument layers, allowing each to be played in near isolation, or a varying blend of the two together.

While many instruments follow the standard 2 instrument layer configuration, there are exceptions. For example, the Drones in the Emotive Control category cross-fade between 6 instrument layers, with increasing level of intensity, and some hybrid instruments blend additional acoustic layers into the standard 2 instrument layer configuration.

- **Filter [CC 11]** is engaged by moving the Orbital Control up and down along the y-axis. It controls the filter's cutoff frequency, from fully open to fully closed (on most instruments).

Depending on the Step LFO and Mod Envelope amounts set in the Filter section of the Center Display area, you may hear the modulators acting on the filter cutoff. For instance, you may hear the gated effect of the Step LFO modulator as you bring down the filter cutoff value. Or, you may hear the movement of the filter cutoff as it follows the stages of the Mod Envelope.



Using the XY Pad

The most simple way to use the XY Pad is to click and hold on the Orbital Control and move it around the area surrounding the Forbidden Planet. This can be done with a standard mouse, but is more intuitive with a track pad. These movements create MIDI data that can be recorded into a DAW's MIDI automation lane.

To use the 'Orbital Control' in conjunction with an XY Pad MIDI controller, assign the x-axis control to **[CC 01]**, and the y-axis control to **[CC 11]** to provide dual-axis control with visual feedback from the on-screen XY Pad.

PLEASE NOTE! The MIDI CC assignments for the X-Fade and Filter Parameter controls can also be assigned to individual knobs and/or sliders of a MIDI controller, however, this will not provide simultaneous control.



2.2.6 Filter View

Click on the **FILTER VIEW SELECTOR** button to enter the **FILTER VIEW** (shown). This area features a multi-mode **FILTER SECTION** along the top, with a **STEP LFO SECTION** and a **MOD ENVELOPE SECTION** that can be used to modulate the filter's cutoff frequency.

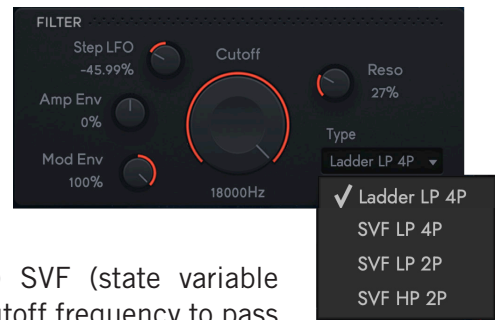
Filter Section

In the **FILTER SECTION**, the **CUTOFF KNOB** is used to change the filter's cutoff frequency. When a low pass (LP) filter type is selected, all frequencies below the cutoff frequency will pass through, and when a high pass (HP) filter type is selected, all frequencies above the cutoff frequency will pass through. The filter's cutoff frequency is also connected to the **FILTER** parameter, which is assigned to MIDI CC 11, which in turn is also connected to the y-axis of the XY Pad's Orbital Control's y-axis. Any of these input methods will control the filter's cutoff frequency.

The **RESO (RESONANCE) KNOB** is used to define how broad or narrow the range of frequencies around the cutoff frequency are. To create a narrow band that results in sharper, more resonant frequencies, use higher values. For more rounded, less resonant tones that cover a wider range of frequencies, use lower values.

The **FILTER TYPE MENU** includes 4 selectable types. Click inside the drop-down menu, then click on a filter type to select it.

- **Ladder LP 4P (default)** is a 4-pole LP (Low Pass) Ladder filter that emulates those found on classic analog synths. It allows frequencies below the cutoff frequency to pass through, and the 4-pole design produces smooth filter sweeps with a gentle 24db per octave slope.
- **4-Pole SVF LP** is a 4-Pole LP (Low Pass) SVF (state variable filter) type. It allows frequencies below the cutoff frequency to pass through, and the 4-pole design produces smooth filter sweeps with a gentle 24db per octave slope.
- **2-Pole SVF LP** is a 2-Pole LP (Low Pass) SVF (state variable filter) type. It allows frequencies below the cutoff frequency to pass through, and the 2-pole design produces sharp filter sweeps with a steeper 12db per octave slope.
- **2-Pole SVF HP** is a 2-Pole HP (High Pass) SVF (state variable filter) type. It allows frequencies above the cutoff frequency to pass through, and the 2-pole design produces a sharp filter sweep with a steep 12db per octave slope.



Modulating the Filter Cutoff

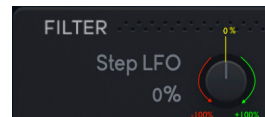
The Filter section’s cutoff frequency can be modulated (controlled) by the Step LFO, for a gated rhythm effect, and/or the Mod Envelope for a multi-stage envelope movement.

To begin, first dial in the amount of modulation you wish to affect the cutoff frequency by adjusting either the **STEP LFO DEPTH** and/or the **MOD ENVELOPE DEPTH** knobs in the Filter section.



Each of these knobs are bi-polar, meaning they can affect the cutoff frequency with positive and negative values. The center position results in no modulation (0%), while turning the knob

all the way to the right results in +100% modulation amount, and turning it all the way to the left results in -100% modulation amount.



all the way to the right results in +100% modulation amount, and turning it all the way to the left results in -100% modulation amount.

For example, if the Filter’s cutoff frequency is set near the middle of the knob position (approximately 4.5 khz), and a negative value of the **STEP LFO DEPTH** is applied, it will affect the Filter’s cutoff in a negative direction, relative to its current position, toward the lower value range of the filter. This will create a gated effect as the filter cutoff is modulated by the shape of the pattern sequencer in the **STEP LFO SECTION**, rapidly closing and reopening the filter cutoff. The Step LFO Depth control can also be controlled via MIDI CC.



In another example, if the Filter’s cutoff frequency is set near the middle of the knob position (approximately 4.5 khz), and a positive value of the **MOD ENVELOPE DEPTH** is applied, it will affect the Filter’s cutoff in a positive direction, relative to its current position, toward the higher value range of the filter. This will create filter movement that reflects the shape of the envelope in the **MOD ENVELOPE SECTION**, increasing the filter cutoff frequency during the envelope’s attack stage, maintaining it during the hold stage, then decreasing over the course of the decay stage, where it remains during the sustain stage until the note is released, at which point the filter cutoff returns to its base value at the end of the release stage.

PLEASE NOTE! If the filter cutoff is all the way open (~18 khz) positive modulation values will have no affect, because no values beyond the maximum value exist. Likewise, if the filter cutoff is all the way closed (~26 hz), negative modulation values will have no affect, because no values below the lowest value exist. In other words, the modulation must have “headroom” between its existing value and the minimum and maximum values in order for the filter cutoff to be acted upon by its modulators.

Step LFO Section

The previous section, ‘Modulating the Filter Cutoff’, explains how to setup the Step LFO to modulate the filter cutoff over time to create a gated rhythm effect. This section covers how to change the Step LFO settings to customize this effect.

Before beginning, click on the power button to enable the **STEP LFO SECTION**.

If you wish to synchronize the gated rhythm to tempo (BPM), ensure the **SYNC** button is enabled, and use the **RATE MENU** to select the desired sub-division, between a 32nd-note triplet and 32 bars. Or, disable the **SYNC** button and use the **RATE KNOB** to run to dial-in a value between .01 Hz and 65 Hz, which runs at audio rate not synced to tempo.



The **STEP SEQUENCER GRAPH** contains 8 steps that are either on or off. Click inside this graph to turn steps on and off as you wish, or use the **FILL KNOB** to dial-in the number of steps, between 1 and 8.

Use the **GATE KNOB** to adjust the length of time the gate is open as a percentage. At 100%, the gate is wide open and the full value of the step passes through, and as the value is reduced, the gate length becomes less and less. The **SLEW KNOB** can be used to smooth out the gated rhythm to a certain degree.

Mod Envelope Section

The ‘Modulating the Filter Cutoff’ section above, explains how to setup the Mod Envelope to modulate the filter cutoff over time to create movement. This section covers how to change the Mod Envelope settings to customize this effect.

To begin, click on the power button to enable the **MOD ENVELOPE SECTION**. It contains a 5-stage envelope (attack, hold, decay, sustain, release), with an additional **CURVE CONTROL** to alter the attack stage. The settings on each of the 5 stages of the envelope determine the movement of the filter cutoff as it goes through each stage.



The **CURVE CONTROL** adjusts the slope of the Attack stage, making the ascent to the Hold stage faster (convex), default (linear), or slower (concave). When the curve control is in the center position (12 o’clock) it is at 0%, having no affect on the default linear position of the attack stage. Turning the knob all the way to the right (+100%) results in a convex curve that makes the Attack stage steeper, producing a faster ascent. Turning the knob all the way to the left (-100%) results in a concave curve that makes the Attack stage dip, creating a slower ascent.

2.2.7 MIDI View

Click on the **MIDI VIEW SELECTOR** button to enter the **MIDI VIEW** (shown). At the top is the **GLOBAL CONTROLS SECTION** that contains settings that apply to both the Arp A and B sections.

The **DUAL ARPEGGIATOR** is made up of the **ARP A SECTION** and the **ARP B SECTION**. They can be applied independently to each instrument layer (Source A and B). This enables complex patterns to evolve by using the Mod Wheel (CC 01) to cross-fade between instrument layers where unique arpeggiator (arp) patterns are running.

Arpeggiator controls like Direction, Octave, Swing and Glide / Portamento Time offer a range of performance customization, and extensive editing options are available to quickly create dynamic and evolving patterns.

Global Options

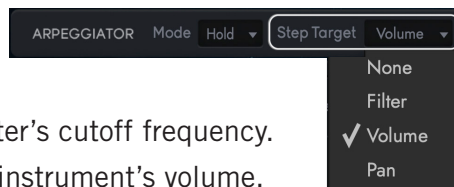
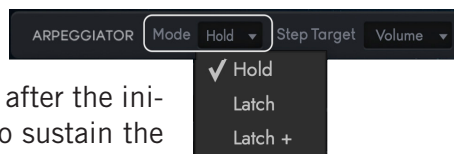
The **GLOBAL OPTIONS SECTION** contains the **MODE SELECTOR** and **STEP TARGET SELECTOR** option menus that apply settings to both of the Arp A and B sections.

Use the **MODE SELECTOR** to control how the arpeggiator responds to MIDI Note input, using 1 of 3 options: Hold, Latch, and Latch +.

- **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.

Use the **STEP TARGET SELECTOR** to choose the parameter which is to be controlled by the Step Height value. This is covered in the Step Sequencer Editor section below, in the Step Height bullet point.

- **None** results in the Step Height affecting nothing beyond MIDI note on / off messages.
- **Filter** results in the Step Height affecting the filter's cutoff frequency.
- **Volume** results in the Step Height affecting the instrument's volume.
- **Pan** results in the Step Height affecting the instrument's pan position.



Dual Arpeggiator Controls

To begin, click on the power button in the top left area of either the **ARP A SECTION** or the **ARP B SECTION** to enable it.

To synchronize an arpeggiator to the tempo (BPM), click the **SYNC BUTTON** to enable it, and use the **GRID MENU** to select the desired sub-division, between a 32nd-note triplet and 32 bars in length. Arp A shows sync enabled.

Click the **SYNC BUTTON** again to disable it, and dial-in a value between .01 Hz and 65 Hz on the **GRID KNOB**, which runs freely at audio rate, not synced to tempo. Arp B shows sync disabled.

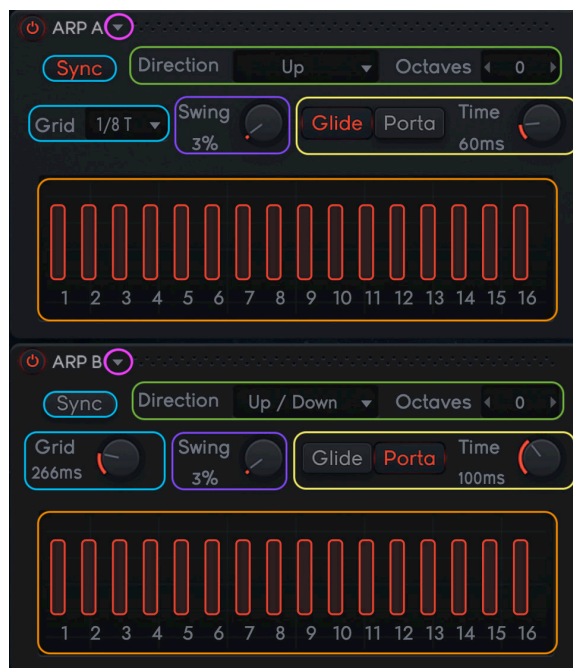
The **DIRECTION MENU** determines the note order of an arpeggiated chord, with 4 unique options: Up, Down, Up/Down, and Input Order.

- **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.

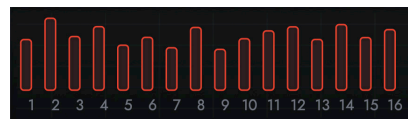
OCTAVES SELECT sets the octave range of the arpeggiator. With a value of 0, only the notes of a chord actually played will be arpeggiated. With a value of 1, the notes of a chord actually played will be arpeggiated, and then that pattern will continue an octave above. Values of 2 or 3 will play the notes of the chord within a 2 and 3 octave range respectively.

The **STEP SEQUENCER EDITOR** is made up of 16 steps that can be edited by clicking and holding on an individual step, and dragging it around to resize its Step Height and Step Width to create a pattern with control over multiple parameter values.

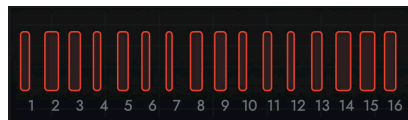
- **MIDI Note On** messages are produced with each step of the sequence, except those with a value of 0. To create steps that do not send a note on message, click and hold on an individual step, and drag it down until it appears as a small horizontal line.



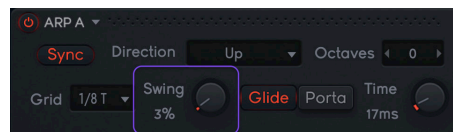
- **Step Height** controls the target selected in the **STEP TARGET SELECTOR**, described in the Global Controls section above. Step Targets include None, Volume, Filter, and Pan. To adjust the Step Height, click and hold on an individual step, and drag it vertically upward to increase the value, or downward to decrease the value. Note the difference in Step Heights in the example to the right.



- **Step Width** controls the length of the arpeggiator gate. It can be adjusted by clicking and holding on an individual step, and dragging it horizontally to the left to make the gate time shorter, and to the right to make the gate time longer. Note the difference in Step Width in the example to the right.



SWING AMOUNT controls 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.

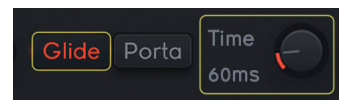


Glide and Portamento Controls

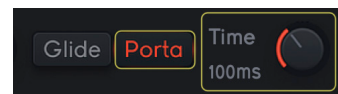
The Glide and Portamento controls can be used with or without the arpeggiator engaged. When used in conjunction with the arpeggiator, the pitch slide occurs between each note of the arpeggiator pattern, and when the arpeggiator is off, notes played in a connected fashion (legato) contain a slide in pitch between them.

In either case, the controls in Arp A will affect the first instrument layer (Source A), and the controls in Arp B will affect the second instrument layer (Source B). Either Glide or Portamento can be applied per instrument layer, but not both.

When the **GLIDE BUTTON** is enabled, a **GLIDE TIME KNOB** appears to the right, and the speed (time) of glide in pitch can be dialed-in between the values of 5 milliseconds (ms) and 2.5 seconds (s). The Glide control is better suited for use with the arpeggiator, and for creating dramatic slides in pitch. It creates a slide in pitch between notes using a pitch stretch algorithm, without cross-fading into other sampled notes.



When the **PORTAMENTO BUTTON** is enabled, a **PORTAMENTO TIME KNOB** appears to the right, where the speed of the portamento pitch slide can be dialed-in between the values of 5 milliseconds (ms) and 750 milliseconds (ms). The Portamento control is better suited for scenarios that do not use the arpeggiator, and/or if the interval between notes is quite large. This is because Portamento creates a slide in pitch between notes, but cross-fades into the sampled destination note.

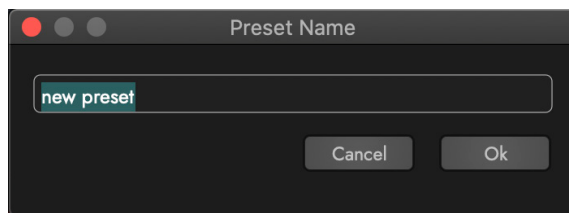
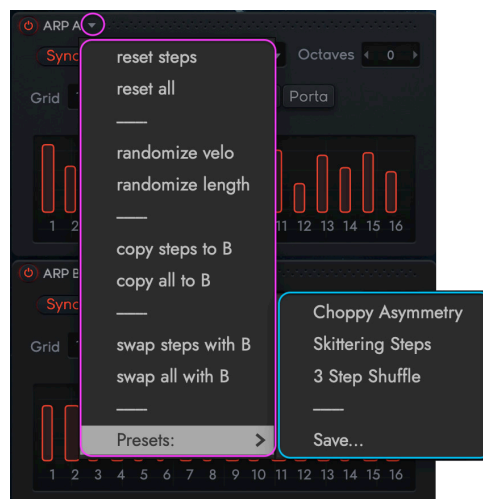


Dialing in a small amount of either Glide or Portamento will create a subtle connected feel between notes, while larger amounts result in a longer, more continuous pitch slide.

Arpeggiator Options

The **ARP A OPTIONS MENU** and the **ARP B OPTIONS MENU** are available via a drop-down menus, and contain a variety of options for modifying the given step sequencer pattern. This includes the ability to reset and randomize it, as well as copy and swap patterns between the Arp A and B sections.

- **Reset Steps** will reset the step sequencer pattern to its default values.
- **Reset All** will reset all arpeggiator controls and the step sequencer pattern to their default values.
- **Randomize Velocity** will randomize the vertical height of the steps within the sequencer pattern, which controls the parameter selected as the Step Target (see previous sections for details).
- **Randomize Length** will randomize the horizontal width of the steps within the sequencer pattern, which controls the length of the gate time.
- **Copy Steps to A / B** will copy the pattern of the step sequencer from Arp A to Arp B, or vice versa.
- **Copy All to A / B** will copy all control settings (including step sequencer pattern) from Arp A to Arp B, or vice versa.
- **Swap Steps to A / B** will swap the pattern of the step sequencer from Arp A to Arp B, or vice versa.
- **Swap All to A / B** will swap all control settings (including the pattern of the step sequencer) from Arp A to Arp B, or vice versa.
- **Presets** will open the **ARP PRESET SUB-MENU** where you can save the existing arpeggiator preset (that includes all control settings and sequencer pattern steps) by clicking on the ‘Save...’ option. This will open a ‘Preset Name’ window, where the preset can be named and saved for later recall. The presets populate above the ‘Save...’ option, in this same sub-menu they were saved in.

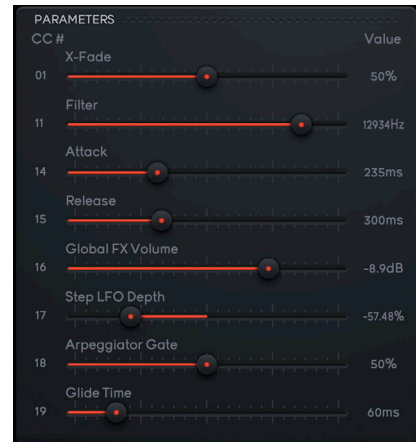


2.2.8 Parameters

This section populates with Parameters assigned to MIDI CCs that control an array of Global and Source Controls.

Program the knobs and sliders of a MIDI controller to these MIDI CCs for real-time control over these Parameters, enabling you to create expressive performances by recording them live into a DAWs MIDI automation lane.

- **CC 01** - X-FADE [MOD WHEEL]
- **CC 11** - FILTER
- **CC 14** - ATTACK
- **CC 15** - RELEASE
- **CC 16** - GLOBAL FX VOLUME
- **CC 17** - STEP LFO DEPTH
- **CC 18** - ARPEGGIATOR GATE
- **CC 19** - GLIDE TIME
- **CC 20** - RING MODULATOR A
- **CC 21** - RING MODULATOR B



PLEASE NOTE! It is normal for the Global and Source Controls assigned to Parameter controls to move when their respective MIDI CCs are engaged. For instance, engaging the 'X-Fade' [**CC 01**] Parameter control will move the XY Pad's Orbital Control along the x-axis, and engaging the 'Filter' [**CC 11**] Parameter control will move the XY Pad's Orbital Control along the y-axis. The same is true for all the Parameter controls.



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