

PARAGON WORKSHOP

GETTING STARTED

OWNER'S MANUAL

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Getting started

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Every figure in this manual was measured on synthetic test signals by the plug-in's own tests. Nothing in it says how the plug-in will sound on your session. Questions: mark@paragondesign.co.nz.

Formats

LEVEL, WEDGE, GAUGE, SQUARE, CHISEL, VENEER, CLAMP, BEVEL, RIDGE, LATHE, PLANE, TAP, CASK, CHAR, CHEST, LATCH and SCRAPER are effects, and each comes in two formats.

An Audio Unit is Apple's plug-in format for macOS. These are the kind Apple calls Audio Units plug-ins, also known as AUv2, and each is a .component bundle. Logic Pro supports third-party Audio Units plug-ins. Apple's aual tool reports each of the seventeen as a version 2 implementation.

A VST3 plug-in is a .vst3 bundle in the format Steinberg defines, for hosts that load VST3. The VST3 versions are built from the same code. No test in the repository loads a VST3 in a host, so how they behave in any host is not verified.

Each plug-in works on a mono or a stereo channel, with the same number of channels in and out, except LATHE, TAP, CASK and CHEST, which each also take one channel in and give two out. The bundles declare macOS 11.0 as the minimum. The release script builds every plug-in as a universal binary, Intel and Apple silicon, and stops if either is missing. No release has been run natively on Apple silicon yet, so how it behaves there is not verified, and the development builds contain x86_64 code only.

Where the plug-ins live

Audio Units are components in the Library folders on a Mac. The folders are /Library/Audio/Plug-Ins/Components and, in your home folder, ~/Library/Audio/Plug-Ins/Components. To open one in the Finder, choose Go > Go to Folder and enter the path.

For VST3, Steinberg lists ~/Library/Audio/Plug-ins/VST3/ as the user location and /Library/Audio/Plug-ins/VST3/ as the global one. Steinberg spells the folder Plug-ins and Apple spells the Audio Units folder Plug-Ins. Use the spelling of the folder that is already on your Mac.

The bundles are named Level, Wedge, Gauge, Square, Chisel, Veneer, Clamp, Bevel, Ridge, Lathe, Plane, Tap, Cask, Char, Chest, Latch and Scraper, with the extension .component or .vst3.

What each plug-in is called in the list

A plug-in is listed by its short name followed by what it does, so that it can be found in a long list of plug-ins: Lathe Vocal Channel Strip, Clamp Compressor, Plane Resonance Reducer. This starts with version 0.1.1 of Level, Wedge, Gauge, Square, Chisel, Veneer, Clamp, Ridge and Lathe, with Bevel 0.5.1 and with Plane 2.0.1; the earlier builds were listed by the short name alone. The files, the manuals and the panels keep the short name.

LISTED AS	SHORT NAME, AS IN THE FILES
Level Blind Listening Test	Level

LISTED AS	SHORT NAME, AS IN THE FILES
Wedge Sidechain Carver	Wedge
Gauge Mix Check and Reference	Gauge
Square Time and Phase Aligner	Square
Chisel Transient Shaper	Chisel
Veneer Channel Strip	Veneer
Clamp Compressor	Clamp
Bevel Equaliser	Bevel
Ridge Limiter	Ridge
Lathe Vocal Channel Strip	Lathe
Plane Resonance Reducer	Plane
Tap Delay	Tap
Cask Reverb	Cask
Char Saturator	Char
Chest Effects Rack	Chest
Latch Gate and Expander	Latch
Scraper De-Esser	Scraper

Each Audio Unit registers this name, and Apple's auval tool prints it (see Checking an Audio Unit). If Logic Pro still lists an older name after an update, select the plug-in in the Plug-in Manager and click Reset & Rescan Selection, the button Apple's page names for a plug-in that failed validation. Not verified: that this refreshes a name, and how Logic Pro shortens a long name in a narrow plug-in slot.

Inserting a plug-in

1. In Logic Pro, click an Audio Effect slot in a channel strip, then choose a plug-in from the pop-up menu. Audio Units plug-ins appear in the Audio Units submenu.
2. Logic Pro lists a plug-in's available formats, such as Mono or Stereo, in a submenu when you choose it. Match the format to the channel strip.

3. The plug-in window opens when you insert a plug-in. To open it again, click the centre area of the plug-in slot.
4. The View pop-up menu in the plug-in window switches between Editor, the plug-in's own panel, and Controls, which lists every parameter.

The panel of each plug-in keeps its proportions when you drag a corner of the window. It can be 70 to 170 percent of its base size, and the width is saved with the project.

In another host, use that host's own way of inserting an effect. Other hosts are not verified.

The side chain

A side chain input is a second input that the plug-in listens to without passing it on. WEDGE, SQUARE, VENEER, CLAMP, RIDGE, LATHE and BEVEL have one. LEVEL, GAUGE, CHISEL, PLANE, TAP, CASK, CHAR, CHEST, LATCH and SCRAPER do not. WEDGE and SQUARE have a LISTEN control that plays it so you can hear it, and CLAMP's LISTEN plays what its detector hears, which is the side chain while its EXT key is on. VENEER, CLAMP and RIDGE listen to it only when their own key setting says so, BEVEL's dynamic bands read it only for a band whose EXT KEY is on, and LATHE reads it only for the music reference of its rider, which is off while MUSIC is at 0. The input starts switched off, and the host has to connect a source to it.

To tell whether a plug-in has a side chain input, look in the plug-in window header in Logic Pro. A plug-in with a side chain input has a Side Chain pop-up menu there. Each manual also says so in Setting it up.

1. Click the Side Chain pop-up menu in the plug-in header area and choose an audio or software instrument track, a hardware input or a bus.
2. The side chain signal controls the plug-in and is not processed by it.
3. An indicator with a left-pointing arrow then appears after the plug-in name in the slot. Hold the pointer over the slot for a help tag with the name of the source.

Not verified: whether Logic Pro shows a Side Chain pop-up menu for these six plug-ins, whether it lists Internal or None, and how Logic Pro delivers the side chain relative to its plug-in latency compensation. Apple's page says that compensation also applies to side-chain routing.

Sample rates, latency and delay compensation

Logic Pro processes and bounces at the project's sample rate, and converts in real time for an audio device that does not support it. Set the project sample rate with File > Project Settings > Audio, then the Sample Rate pop-up menu. A latency counted in samples is a different time at a different rate. The latency figures in the manuals are at 48 kHz.

Each plug-in reports its latency to the host. At 48 kHz:

- LEVEL and GAUGE have none.
- WEDGE has one analysis frame plus the look-ahead: 1312, 2336 or 4384 samples at FAST, NORMAL or FINE with the default 6 ms of look-ahead.
- SQUARE has 16 samples plus its RANGE: 256, 976 or 2416 samples at 5 MS, 20 MS or 50 MS.
- CHISEL has 256, 512 or 1024 samples at FAST, NORMAL or FINE.
- VENEER has 0, 25 or 29 samples at OFF, 2X or 4X oversampling.
- CLAMP has 0, 48, 96 or 240 samples at look-ahead OFF, 1 ms, 2 ms or 5 ms.
- BEVEL has none in MINIMUM and MATCHED phase and, in LINEAR phase, 1280, 2560, 5120 or 10240 samples at 48 kHz for its four LATENCY keys; a SPECTRAL band adds 2048 samples. Its manual has the table for every rate.
- RIDGE has 144 samples with oversampling off and 216 with 2X, 4X or 8X at the default 3 ms look-ahead in the CLEAN style. The look-ahead and the style move it, up to 840 samples; its manual has the table.
- LATHE has 25 samples at 48 kHz at its defaults, 0 in LIVE and 2117 with every look-ahead and oversampling set longest; its manual has the table for every rate.
- PLANE has 1024, 2048 or 4096 samples at 48 kHz at FAST, NORMAL or FINE, twice that above 64 kHz, and the same at every DEPTH; its manual has the table for every rate.
- TAP has none at any setting.
- CASK has none at any setting.
- CHAR has 0 samples with OVERSAMPLING OFF, 25 with 2X and 29 with 4X.
- CHEST has the sum of its eight modules' own delays, 241 samples at 48 kHz at the defaults, whether the modules are on or not.
- LATCH has none with LOOK-AHEAD OFF, and 1, 2, 5 or 10 ms of delay (240 samples at 5 ms and 48 kHz) with a look-ahead.
- SCRAPER has none at any setting.

Logic Pro finds the channel strip with the most latency and delays the others so that they play back in sync. To turn this on, choose Audio and Software Instrument Tracks or All from the Compensation pop-up menu in Logic Pro > Settings > Audio > General. To read a plug-in's latency, hold the pointer over its slot.

Presets and saved state

WEDGE has 41 presets, VENEER 34, CLAMP 37, BEVEL 80, RIDGE 46, LATHE 53, PLANE 41, TAP 26, CASK 26, CHAR 20, CHEST 22, LATCH 18 and SCRAPER 20, each in a preset bar on its own panel. LEVEL, GAUGE, SQUARE and CHISEL have none. To the host, every plug-in has a single unnamed program.

Logic Pro stores plug-in settings with the project file and recalls them when the project is opened. The Settings pop-up menu in the plug-in window loads, saves and deletes settings, and Apple says Audio Units are used the same way as the built-in plug-ins. What each plug-in saves is listed in the Presets chapter of its manual.

Automation

A control that is a host parameter can be automated. LEVEL offers 4 parameters, WEDGE 16, GAUGE 9, SQUARE 7, CHISEL 11, VENEER 66, CLAMP 16, BEVEL 418, RIDGE 20, LATHE 170, PLANE 38, TAP 20, CASK 25, CHAR 8, CHEST 123, LATCH 13 and SCRAPER 10, counting bypass. Buttons that run a task, such as loading a file or ALIGN NOW, and the preset bars are not parameters.

1. In Logic Pro, choose Mix > Show Automation, or press A.
2. Choose the parameter from the Automation Parameter pop-up menu in the track header. It holds a submenu for each plug-in on the track, named for its slot position and the plug-in.
3. Choose Touch, Latch or Write from the Automation Mode pop-up menu, then adjust the parameter's numerical display in the track header while the project plays or records.

Bypass

All seventeen expose a bypass parameter to the host, and VENEER, CLAMP, BEVEL, RIDGE, LATHE, PLANE, TAP, CASK, CHAR, CHEST, LATCH and SCRAPER also have a BYPASS key on their panels. In Logic Pro, place the pointer over the slot and click the Bypass button that appears to the left, or Option-click the slot, or click the Bypass button at the left of the plug-in window header.

WEDGE, SQUARE, CHISEL, VENEER, CLAMP, BEVEL, RIDGE, LATHE, PLANE, TAP, CASK, CHAR, CHEST, LATCH and SCRAPER keep their delay in bypass, so switching it never moves a track in time. LEVEL and GAUGE have no delay and pass the input straight through. Not verified: whether Logic Pro's bypass uses the plug-in's own bypass parameter.

Licences and the trial

WEDGE, CHISEL, VENEER, SQUARE, GAUGE, LEVEL, RIDGE, LATHE, TAP, CASK, CHAR, CHEST, LATCH and SCRAPER are premium: each works for 14 days and then needs a licence. CLAMP, BEVEL and PLANE are free. They have no licence, no trial and no LICENCE key in their top bars.

The trial is counted for each plug-in on its own. It starts the first time the plug-in's window is opened, or after five minutes of audio have gone through one copy of it, whichever comes first. A host that only creates the plug-in to read what it is, as hosts do when they scan, does not start it. In the top bar of a premium plug-in there is a small wooden key marked LICENCE and, beside it in pencil, TRIAL: 9 DAYS LEFT. The last day reads 1 DAY LEFT. After it the line reads TRIAL OVER: ENTER A LICENCE, in orange. Putting the computer's clock back does not give days back.

When the trial is over the plug-in passes the audio it is given through unchanged, delayed by the delay it reports so that tracks stay in time, and its own processing is switched off. GAUGE stops measuring, and LEVEL stops playing and testing. Nothing saved in a session is changed or lost, and the plug-in works again the moment a licence is added.

Adding a licence

After a purchase the order page gives one licence file, with a name ending in .pwlicense, that holds a key for every plug-in in the order. Any of the plug-ins can take it.

1. Open the plug-in and press LICENCE in its top bar. A panel opens over the plug-in.
2. Press CHOOSE FILE and pick the licence file. Or drop the file anywhere on the plug-in's window. Or paste the text of the file into the panel's field and press ACTIVATE.
3. The panel then reads LICENSED TO and the address the licence was made out to, the order number, and how many plug-ins the file covers.

The file is copied to the folder ~/Library/Application Support/Paragon Design/Licences, which every Paragon plug-in reads. So one file unlocks every plug-in it covers, in every host on that Mac, and a plug-in that is already open notices within a second or so. You can also put the file in that folder yourself. Pasting with the keyboard may not work in a VST3 host, because such a host does not pass key presses to a plug-in's window: use CHOOSE FILE or drop the file.

What the plug-in checks

Each key is one line of text, starting PWL1, that carries a digital signature. The plug-in checks the signature on your own Mac with a public key built into it. It never connects to anything, needs no account and does not count how many computers use a licence. If the panel says THAT IS NOT A PARAGON LICENCE, the text is not a key. THIS LICENCE IS FOR CHISEL, NOT WEDGE means the key is for another plug-in: a file for the whole order holds one for each. NOTHING IN THAT FILE IS A LICENCE, THAT LICENCE HAS BEEN SWITCHED OFF and THAT LICENCE NEEDS A NEWER VERSION OF THIS PLUG-IN say what they say. A licence that has been switched off stops counting only when a plug-in update that knows of it is installed.

REMOVE LICENCE, pressed twice, takes this plug-in's key out of the licence files and leaves the keys of the other plug-ins. To get a licence file again, press GET YOUR LICENCE AGAIN in the panel: it opens the downloads page of this website, where the address you bought with is sent a link.

Not verified: dropping a file onto a plug-in's window in a real host (a host may not pass drops through; CHOOSE FILE does not depend on it), any of this inside a sandboxed host (if a plug-in cannot write the folder, its trial runs for as long as that copy is loaded and it is never shut early), the trial across a real restart of a host, and a licence signed with the production key: the plug-ins' tests use a test key, and the licence made for the developer's own Mac is the first real one.

Checking an Audio Unit

Apple's `auval` tool loads an Audio Unit as a host does and tests it for API and behavioural conformance. Run it in Terminal with the type, sub-type and manufacturer codes. The type is `afx`, an effect. The manufacturer is `Prgn`. The sub-type is the plug-in's own code. In this order the commands are for LEVEL, WEDGE, GAUGE, SQUARE, CHISEL, VENEER, CLAMP, BEVEL, RIDGE, LATHE, PLANE, TAP, CASK, CHAR, CHEST, LATCH and SCRAPER:

```
auval -v afx LevL Prgn
auval -v afx Wdge Prgn
auval -v afx Gage Prgn
auval -v afx Sqre Prgn
auval -v afx Chsl Prgn
auval -v afx Vnee Prgn
auval -v afx Clmp Prgn
auval -v afx Bevl Prgn
auval -v afx Rdge Prgn
auval -v afx Lthe Prgn
auval -v afx Plne Prgn
auval -v afx Tapp Prgn
auval -v afx Cask Prgn
auval -v afx Char Prgn
auval -v afx Chst Prgn
auval -v afx Ltch Prgn
auval -v afx Scrp Prgn
```

A pass ends with the line `AU VALIDATION SUCCEEDED`. The command returns 0 for OK, 1 for malformed execution and -1 when the unit is not conformant. To list every Audio Unit, or only the effects, run:

```
auval -a
auval -s afx
```

When this guide was written, the development builds installed on the development Mac each ended with `AU VALIDATION SUCCEEDED`. A release build was not tested.

If a plug-in does not appear

1. In Logic Pro, choose Logic Pro > Settings > Plug-in Manager.

2. Find the plug-in. If the Compatibility column says failed validation, select the plug-in and click Reset & Rescan Selection.
3. If it is not listed, click Full Audio Unit Reset, then close Logic Pro and reopen it. Logic Pro rescans all installed Audio Units plug-ins.

Removing a plug-in

To take a plug-in out of a channel strip in Logic Pro, place the pointer over the slot, click the arrows that appear to the right, then choose No Plug-in.

To remove a plug-in from the Mac, quit the host and move its bundles out of the folders above: Veneer.component and Veneer.vst3, for example. With the Plug-in Manager open, Logic Pro can rescan after components are moved in the Finder. What Logic Pro does with a project that uses a plug-in you have removed is not verified.