



MixHead

User's Guide

Make Believe Studios MixHead Users Guide

Metric Halo

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1. Introduction

From Rick Carson:

For years and years I've been staring at photos of classic and modern sessions, always trying to learn what I can about my favorite producers, mixers, and engineers. I've probably spent hundreds of hours staring at photos, studying the racks and searching for unique pieces of gear. I eventually stumbled across a quote from Michael Brauer, about about a certain someone being 100% "in the box" except for a single piece of hardware, which led me to the discovery that I am proud to present to you. The MixHead.



There are few who wax nostalgic about the early days of digital recording, but in the transitional years of the late '90s and early '00s, when digital audio processing was still young, there were several hardware devices that crunched the ones and zeros themselves, saving the CPU for the complicated workloads required just to run the DAWs of the time. Some famous examples of these "digital in/digital out" devices include expensive equalizers and limiters that remain in use by professional engineers today. And, with modern computing power being vastly superior, many have been ported to plugins as well. The processor presented here was one of these devices, and it did something that at the time was quite unique: it aimed to add warmth and increased perceived loudness to digital recordings with the characteristic sound of analog tape saturation, but without the harshness associated with digital clipping.

This was done using a dedicated 1U rack unit with internal digital processing and AES inputs and outputs. This "plugin in a box" was designed to give digital recordings the glue that engineers felt they missed, without the hassle, wow and flutter, noise, and maintenance of actual tape machines or the sonic degradation associated in that era with yet another a/d-d/a conversion pass.

With the complex modeling available today and a market flooded with so many digital recreations, emulations, and mutations, looking back on the time of the original device provides an interesting retrospective: It was created with a very specific goal in mind, and this goal was achieved with a lot of theory (and assumptions) about what tape really did. Oddly, the results of all that effort created a processor that may well be even more effective and relevant now than it was in the years it was actually in production.

Make Believe Studios MixHead captures the lightning in a bottle that this unique box offered. Knowing what we do now, and with myriad tape plugins at our disposal, some of the design approaches taken with the original unit may seem backwards or counter-intuitive today, but they are approaches that still work, and are quite fun to experiment with. We even added a few requested features like tenth of a decibel HF Adjust and a new 3.75ips lo-fi mode.

In practice, you may find that the 30ips setting sounds like it has more distortion than the 15ips setting. That's fine. You may hear some interesting phase interplay at in the higher frequencies that you wouldn't normally associate with tape. That's also fine. You will also find that the input and drive controls are highly interactive, and that the HF Adjust is great for adjusting the top end in a way that sounds natural.

MixHead wasn't created to do what your other tape plugins do. It resurrects and modernizes an outboard hardware DSP box previously relegated to the dreaded digital graveyard.

MixHead is an essential plugin that can be used in any stage of the recording process, with an efficiency in the code that allows multiple instances without worrying about overtaxing your CPU.

It was created to sound good, and now, it sounds fantastic.

2. System Requirements

Hosts:

- *Pro Tools™ (Mac)*: Pro Tools 11 or higher running on a Macintosh computer. The v4 software currently supports Native AAX operation only.
- *Pro Tools™ (Windows)*: Pro Tools 10 or higher running on a Windows computer. The v4 software currently supports Native AAX operation only.
- *Native (Mac)*: Any Intel or Apple Silicon-native Mac DAW (64-bit) that supports AU, VST2, VST3 or AAX plug-ins.
- *Native (Windows)*: Any Intel Windows (64-bit) DAW that supports VST2, VST3 or AAX plug-ins.

Operating System:

- *Mac*: Any Apple Silicon (ARM) or Intel-based Mac running Mac OS X 10.9 or newer
- *Windows*: Any Intel-based Windows PC running Windows 10 or newer.

Licensing:

- A PACE iLok.com account. You can authorize your v4 license to your computer, iLok Cloud or any 2nd or 3rd generation iLok USB key.

The first generation blue-green iLok USB keys are no longer supported by PACE for new product authorizations.

Please note that prior v2 and v3 licenses are separate and remain valid: you do not have to trade in your old iLok license. Production Bundle v3 and earlier plug-ins will continue to serve on older systems in addition to the v4 installations on newer platforms, with full preset compatibility between v3 and v4.

- One license authorizes the software on any platform.
- The most recent iLok License Manager installer can be found here: [iLok License Manager application and driver installers](#).

Older operating systems may require a specific version of the iLok driver, which can be found here: [Legacy iLok application and driver installers](#).

3. Installation

For both Mac and Windows, there is a single standard installer for MixHead containing all formats that allows you to decide which formats you would like to use.

Mac

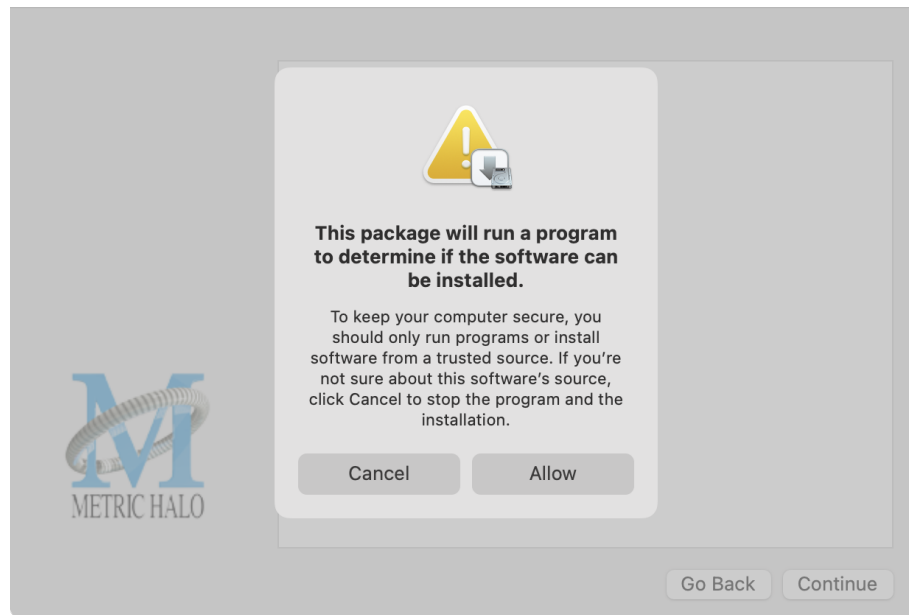
Please note– The following graphics show installation on a macOS 12 system; the process may be slightly different in other versions of the OS, but the basic concepts are the same. Small details such as file sizes shown may vary with subsequent releases.

- Double-click the “MBMixHead.pkg” application



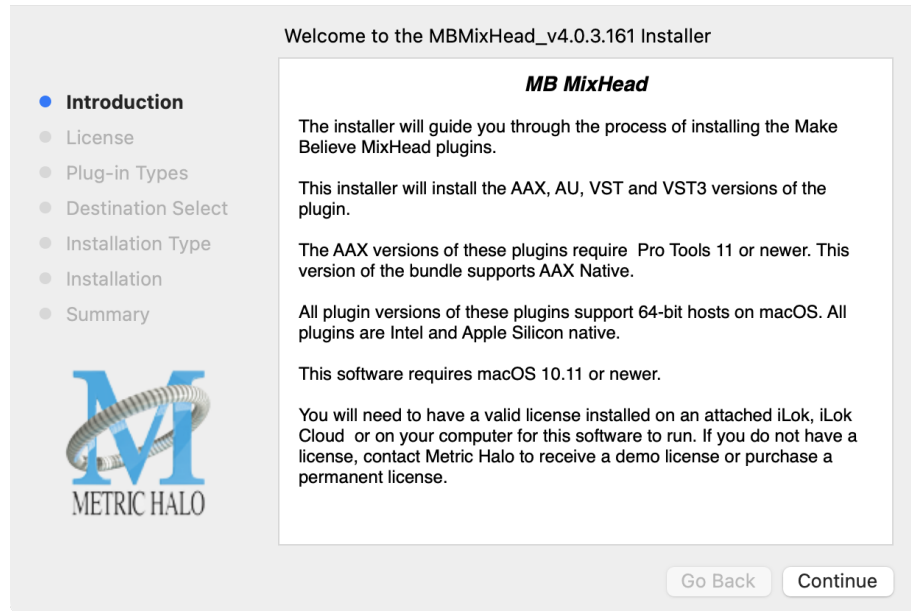
MBMixHead.pkg

- The first window requests permission for the installer program to scan for the presence of earlier versions of Metric Halo plug-ins. Clicking “Cancel” will quit the installer. Click “Allow” to proceed:



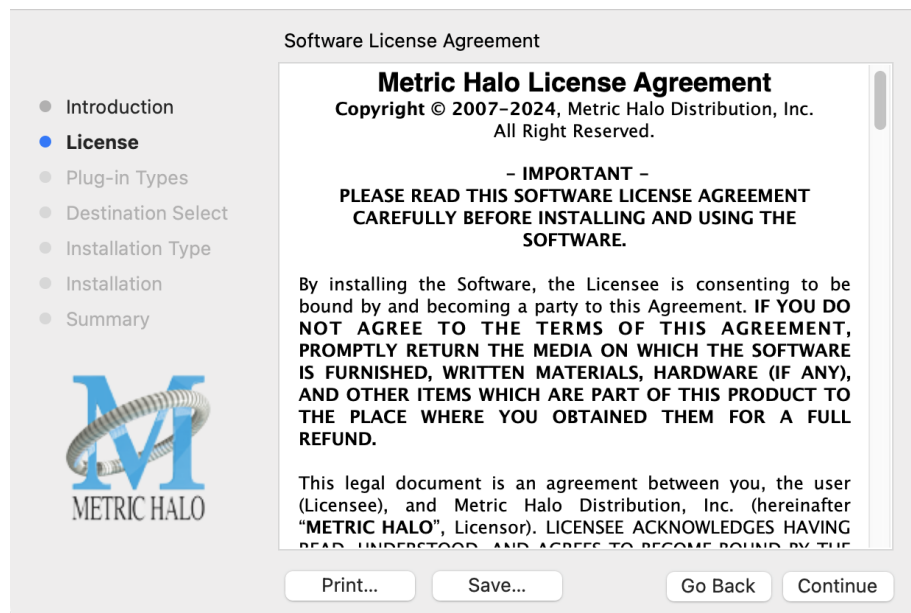
Click “Allow” to proceed...

- The installer dialog will appear:



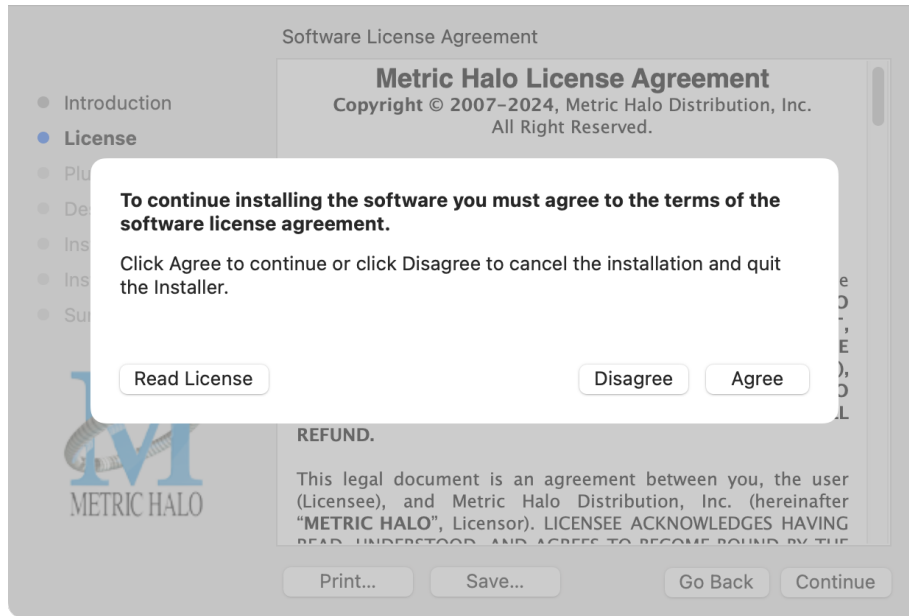
Click "Continue"...

- Now you will see the Metric Halo License Agreement:



After you have read it, click "Continue"...

- Next, click "Agree" to accept the License Agreement:

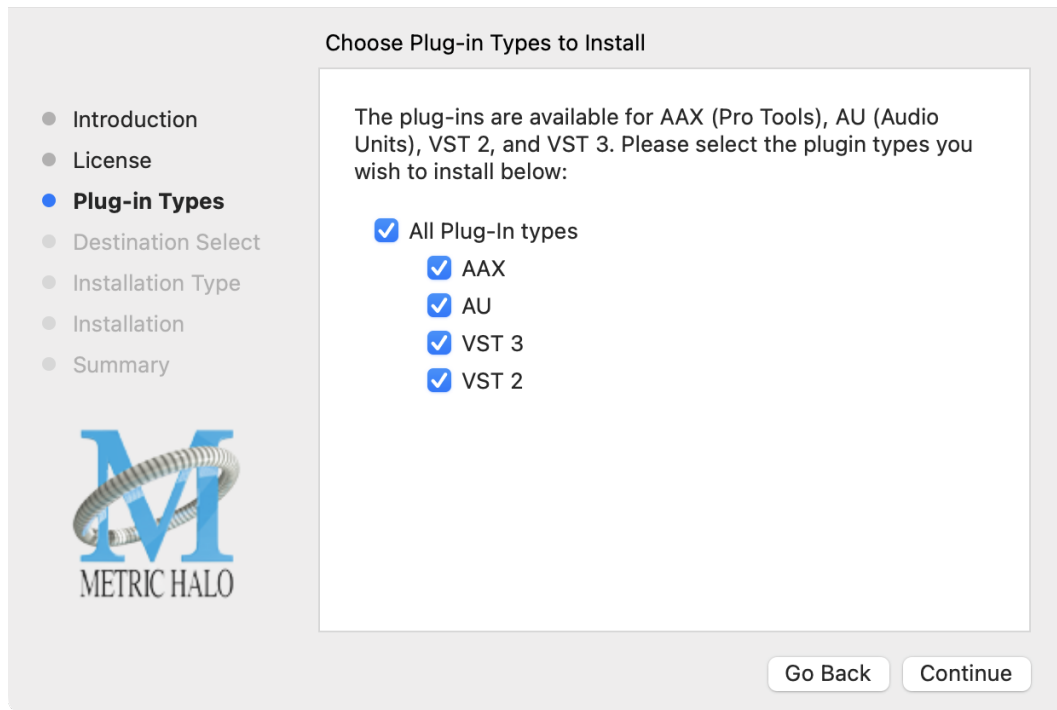


- The default installation will install Audio Unit, VST2, VST3 and AAX plug-ins to their respective folders in the root Library directory:

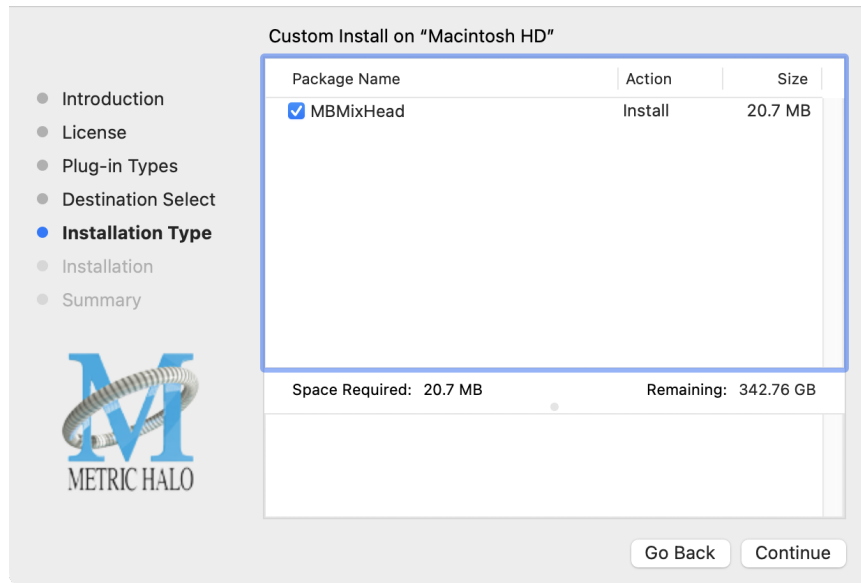
- AU to **/Library/Audio/Plug-Ins/Components**
- VST 2 to **/Library/Audio/Plug-Ins/VST**
- VST3 to **/Library/Audio/Plug-Ins/VST3**
- AAX to **/Library/Application Support/Avid/Audio/Plug-Ins**

Selecting any one or more specific plug-in types will install or upgrade only those formats, leaving older plug-ins in unselected format types untouched.

Your plug-in format selection will be saved as a preference and pre-set automatically for future Metric Halo family plug-in installations on this computer. Of course you may change your selections at that time.

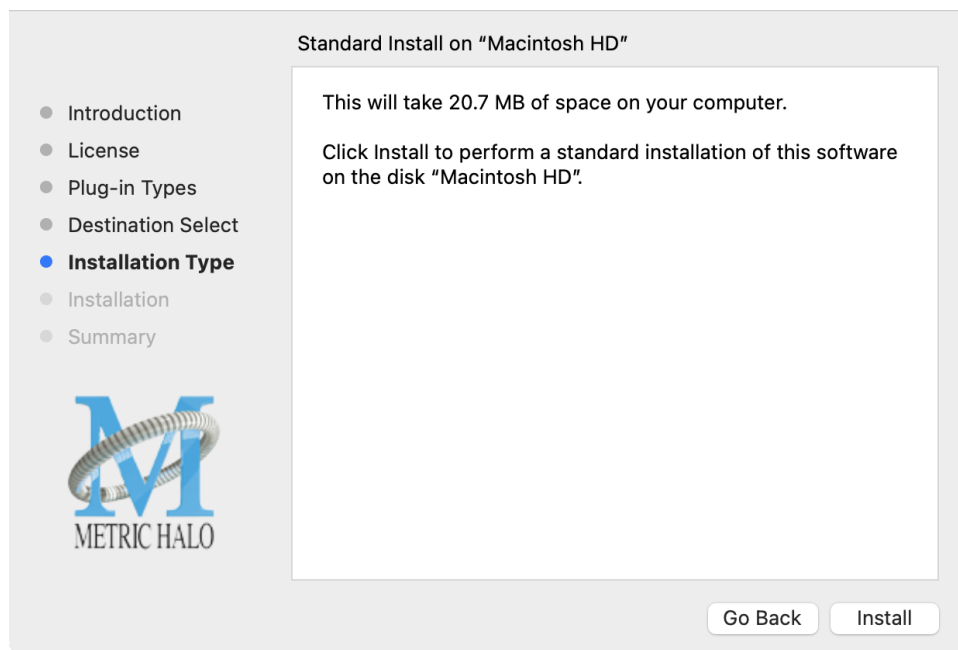


- Since there is only one plug-in to be installed, the “Custom Install” page really only serves to verify whether you are installing or updating Mixhead.



Click “Install” to proceed.

- The final confirmation window displays the total size of the selected installation. Hit “Install” to proceed.

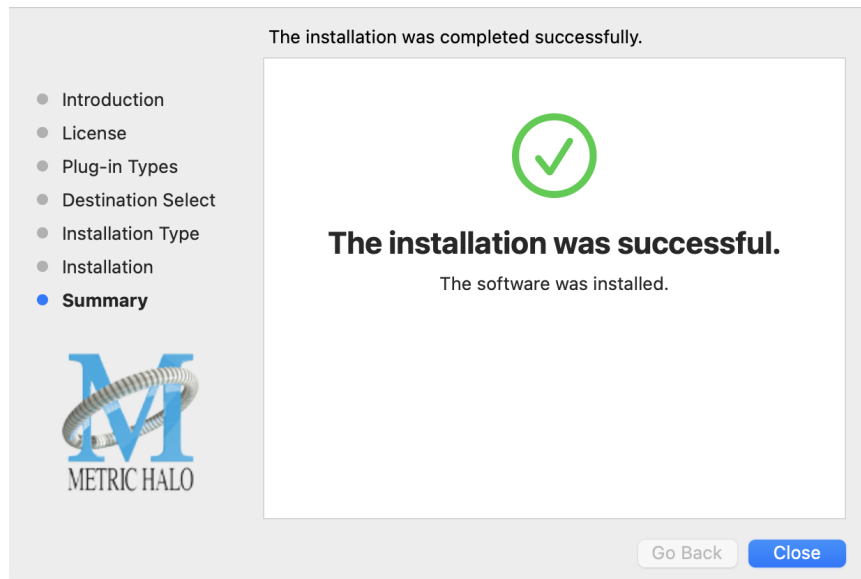


- If present, Touch ID/Face ID will execute the installation once it recognizes your biometrics:



Otherwise, enter your login password as usual and click "Install Software".

- Once the installer has finished, you'll see this dialog:



If you do *not* see the "Installation Successful" message, contact [MH Support](#).

That's it! Enjoy using MixHead!

Windows

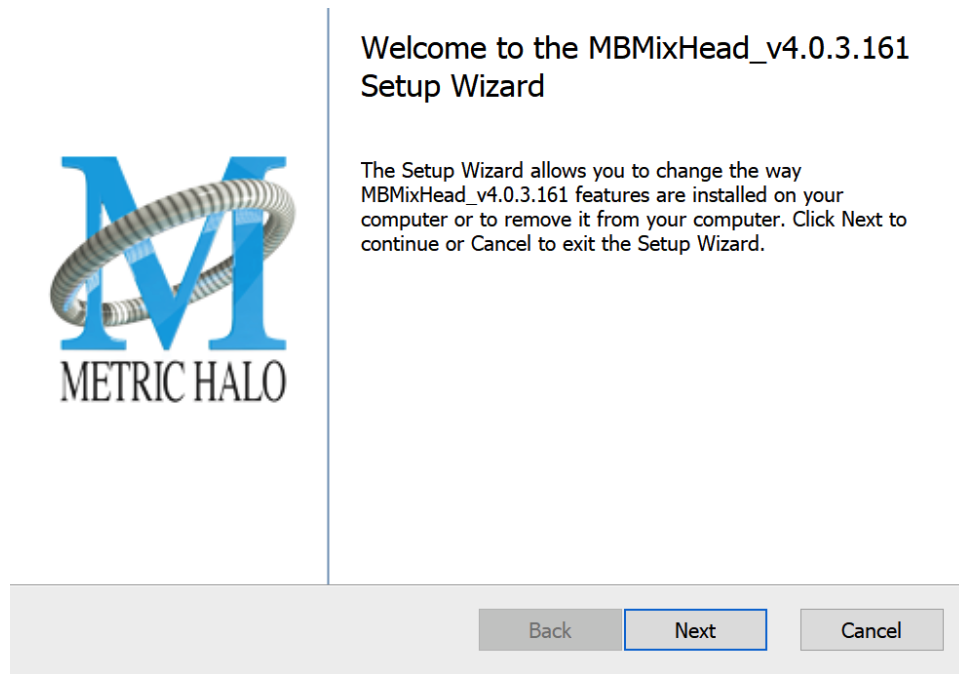
Please note – The following graphics show installation on an Windows 10 system; the process may be slightly different in other versions of the OS, but the basic concepts are the same. Small details such as file sizes shown may vary with subsequent releases.

- Double-click the “MixHead” installer application.



MixHead Installer

- The installer dialog will appear:



Welcome Dialog

Click “Next” to proceed.

- Read the Metric Halo License Agreement:

End-User License Agreement

Please read the following license agreement carefully



Metric Halo License Agreement
Copyright © 2007-2024, Metric Halo Distribution, Inc.
All Right Reserved.

**- IMPORTANT -
PLEASE READ THIS SOFTWARE LICENSE AGREEMENT
CAREFULLY BEFORE INSTALLING AND USING THE
SOFTWARE.**

By installing the Software, the Licensee is consenting to be bound by
and becoming a party to this Agreement. **IF YOU DO NOT AGREE**

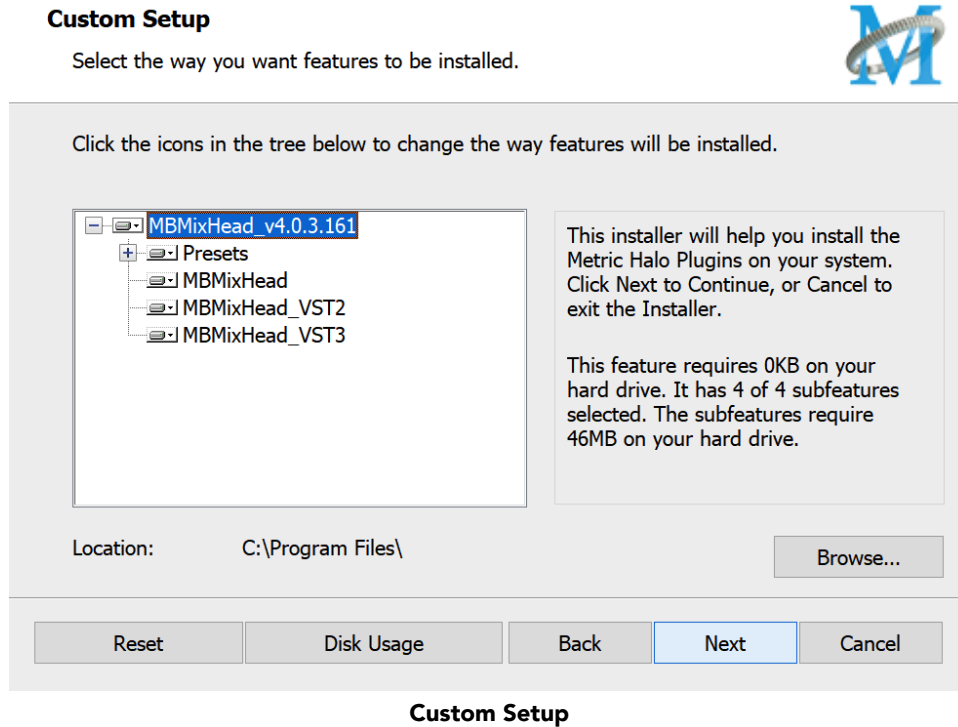
I accept the terms in the License Agreement

Print Back Next Cancel

License Agreement

After you have read it, click next to "I accept the terms of the License Agreement" and click "Next".

- Custom Setup Options



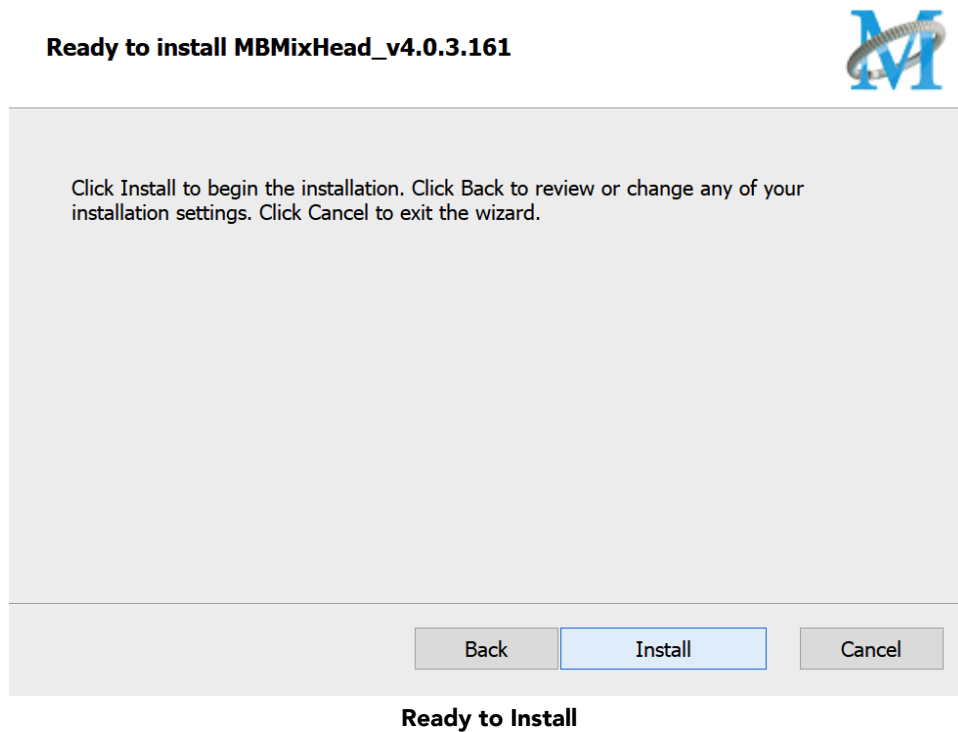
The Windows installer **Custom Setup** page allows you to refine the features to be installed and their location.

By default, VST2, VST3 and AAX will be selected for installation to the C:\Program Files\ folder. Click **Browse** to change the installation target folder.

We recommend that you use the file path that will allow your host software to recognize the plugins. See your host software documentation.

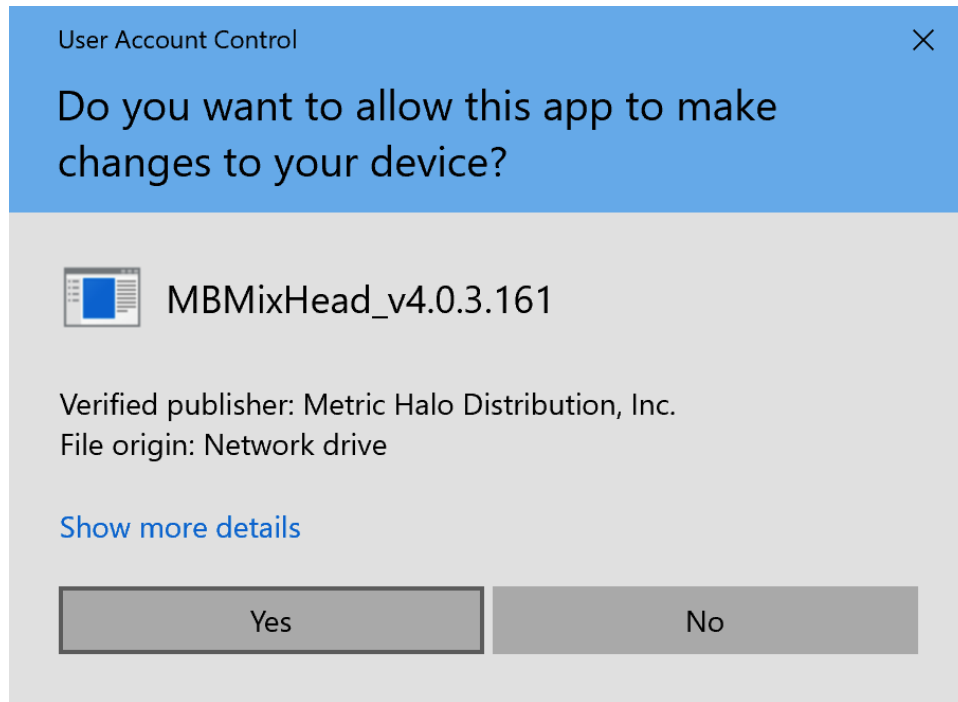
When you have made your selections, click "Next" to continue.

- The next page is a confirmation to continue, offering a last chance to go back and review your selections from the previous window:



Click "Back" to return to the Setup page, "Cancel" to cancel the installation, or click "Next" to continue.

- A final dialog before executing the installation process is a security confirmation, providing a verification of the location of the installer executable and information regarding the publisher of the installer package and its contents:

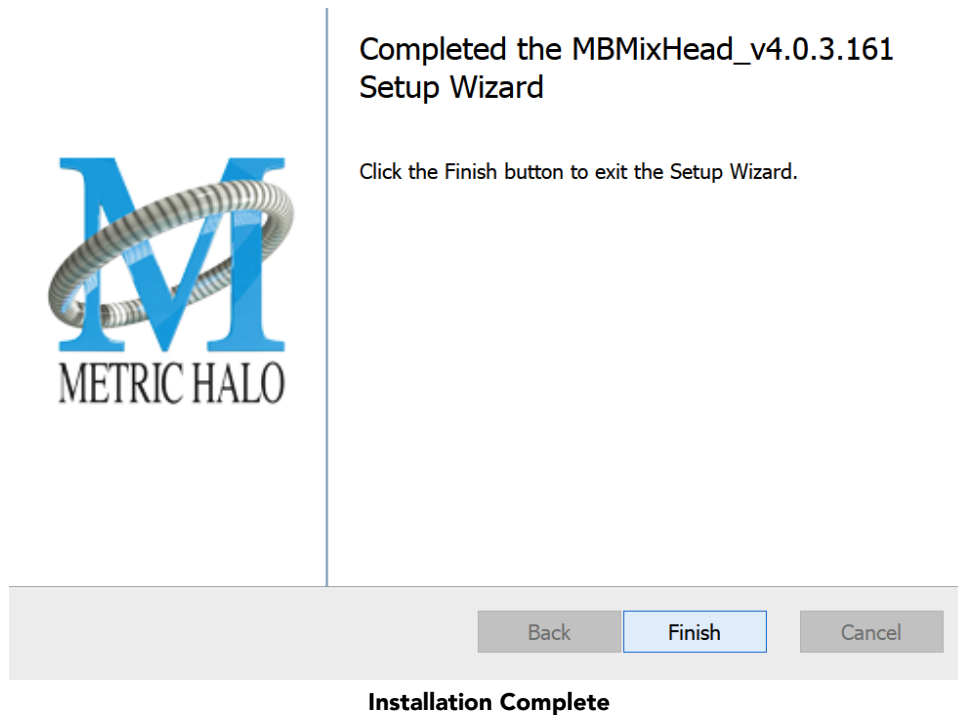


Final installer verification and permission to execute

Clicking "Show Details" and digging through the ensuing submenus will reveal signing credentials and other data for confirming the legitimacy of the installer executable.

Click "Yes" to install and register the files.

- Once the installer has finished, you will see this dialog:



If you do not see this installation “Completed” dialog, contact [MH Support](#).

That’s it! Enjoy using MixHead!

Update Notification (all platforms)

MixHead will automatically check for newer version availability (if your computer is connected to the internet).



Plug-in Update Alert

If a new version is found, the Metric Halo icon in the plug-in header bar will sport a lovely red dot. Click on the dotted icon and check the Update Notification tab for release notes and download instructions.

4. Plug-In Header Bars

All Metric Halo and Make Believe family plug-ins display the MH control bar directly above the processor control UI. This control bar is very helpful for organizing your presets, as it allows you to organize and access all your presets across all supported plug-in formats on Mac, Windows and Metric Halo hardware DSP via MIOConsole3d.

It is especially useful in that, regardless of platform, it provides a straightforward, powerful and consistent processing workflow wherever you might be working.

With the constant evolution of computer capabilities opening the door to new production techniques and music delivery formats, the differences between DAW software workflows have become ever more diverse. Many of the major DAWs provide their own plug-in headers within every plug-in instance window, providing their own feature set catering specifically to their internal workflow.

Conversely, other equally popular DAWs provide no added feature support for plug-ins (such as plug-in parameter Undo/Redo), opting instead to insert plugs as a straight processing block.

The plug-in header bar bridges that gap by offering the most asked for plug-in functions in a simple GUI, making all of our plug-ins functions and their presets available to every user on every platform.

The plug-in header bar has two rows of controls, with the Metric Halo logo icon at the top row left.

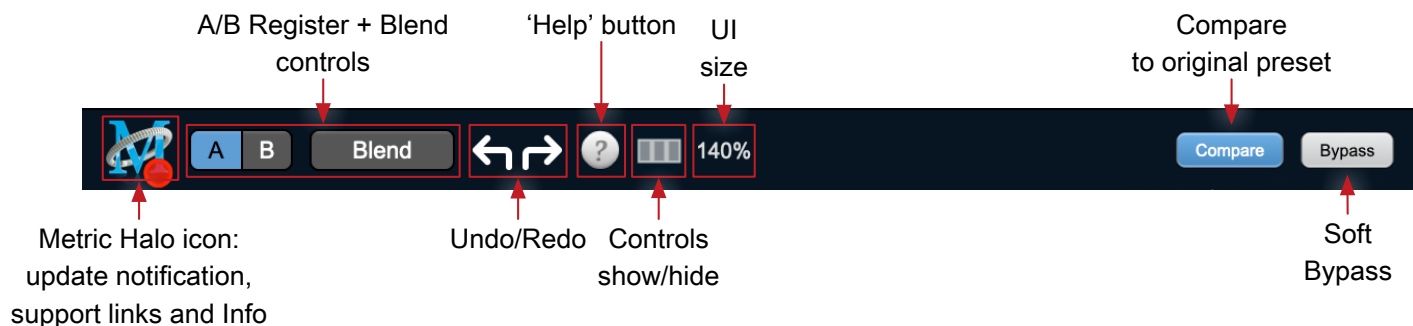
The top row handles plug-in operations, including update notification and download, access to MH online resources, GUI preferences, tooltip help, A/B parameter snapshots, snapshot Blend, plug-in Undo/Redo, Compare and soft Bypass.



MixHead Plug-in header

The lower row (with the 'hamburger' menu icon at the left) is all about preset management.

Plug-In Header: Top Row



Metric Halo Header Icon

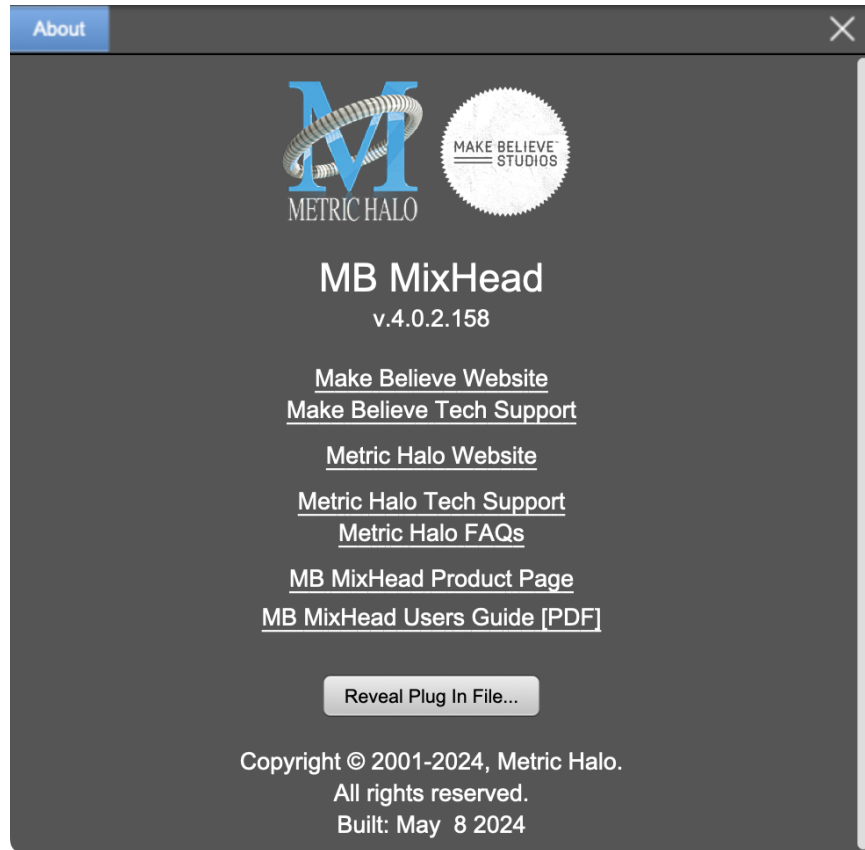
Clicking the MH icon expands the entire plug-in window to the right and opens a multi-function control sidebar with the About tab in focus:



When updates are available for download from Metric Halo, the MH icon will sport a blatant red dot (shown in the header map at the top of this page) and an **Update** tab is added to the sidebar. These tabs are dynamic by design, and additional tabs may appear as new content becomes available.

To close the sidebar, click the MH icon again, or the "X" at the right edge of the tab bar.

About tab



About tab

The **About** tab reveals the current plug-in version information and provides convenient web links to product info, support pages and the current manual on the Metric Halo main website.

Clicking the “MixHead Users Guide [PDF]” link will open and display the latest Mixhead manual in your default web browser.

Reveal Plug-In File... will open the folder containing the current plug-in file, with the plug-in file itself selected. Very handy for troubleshooting on the fly.

Update notification tab



Update tab (only appears when an update is available)

The **Update** tab will contain a link to download the new installer package in the header at the top of the pane.

Below the download link header will be release notes detailing the major changes included in the update, with bugfix revisions for the most recent software releases listed further below. Windows users will see a link to view the release notes using your current default web browser.

Click the Installer link to download, unzip and run the installer manually, preferably when your audio software is inactive so it can properly scan the new versions at launch.

Plug-in Snapshot Registers: A/B



Plug-in Header: Snapshot Registers: A/B

The A and B buttons control the A and B state registers. The A/B registers are used to store modified parameter snapshots in addition to the original saved preset called up by **Compare**.

The Blend function can be used to smoothly morph between the parameters set in the A and B registers, and Blend is a mappable parameter so it can be operated with external MIDI control. Details of the A/B Snapshot Blend feature follow on the next page.

For each of the A and B buttons the visual display tells you the state of the register:

- Light Grey means the register is empty
- Dark Grey means it has settings, but is unselected
- Blue means it has settings and is selected

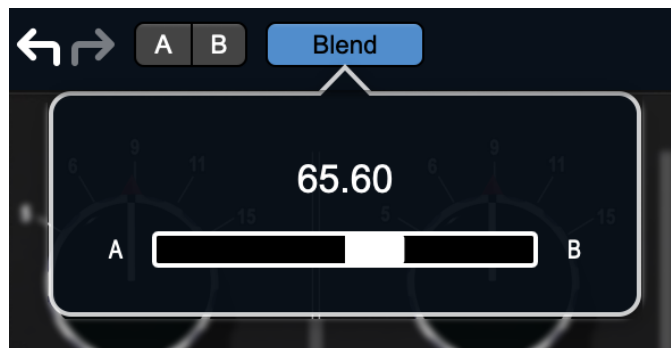
You can perform the following actions:

- Clicking on an empty register takes a snapshot of the current settings and saves them to the register.
- Clicking on an unselected filled register copies the register parameters to the current active plug-in settings.
- Clicking on a **selected** register toggles to the other register; this lets you toggle between the register settings without having to move the mouse
- <Option> - clicking on a register snapshots the current settings and saves them to the register, overwriting the prior contents (if any).
- Changing settings when a register is selected will update the settings in the register to reflect the change.

Snapshot Blend

The Blend button allows you to interpolate (or morph) between the parameter snapshots stored in the A and B registers. It becomes active when both A and B have a parameter set stored.

Blend is a MIDI-mappable parameter so it can be operated in realtime with external MIDI control and/or automated in the DAW. This allows you to automate a transition from the A → B register, the B → A register or any setting between the two.



Plug-in Header: Snapshot Blend

The Blend button's visual display tells you the state of the register:

- Light Grey means it is empty
- Dark Grey means it has settings, but is unselected
- Blue means it has settings and is selected

Click on Blend to popup the blend control. Slide all the way to the left to apply the settings in the A register. Slide all the way to the right to apply the settings in the B register. Intermediate settings for blend will give you intermediate settings for any parameter that is different in register A and B. The blend control does not change the state of Bypass.

Note that the Blend is not a parallel processing mode where two instances of the processor are running the A and B settings and the output is a parallel blend of the two settings. Rather, Blend interpolates the parameter settings of the two registers to one instance of the processor. You can see the parameter controls move between A and B settings as you slide the Blend control.

The A/B and Blend settings are stored and recalled as part of the plug-in state, but are not saved as individual presets in the preset bar.

While you can use the blend with arbitrary A and B settings we find it works best when you craft the settings in the two registers in such a way as they are related to each other. Specifically, if an indexed (stepped) parameter is different between the two settings, the interpolated value will snap to one of the indexes between the two settings, which can be jarring.

It is best if the parameters that you blend are smooth parameters (e.g. gains, frequencies) and make sure the indexed parameters (enables, modes, band types) are set the same for both registers.

The easiest way to do this is to load the same setting into both registers and then tweak the settings of one of the registers.

This works especially well if you make one of the registers be the basic settings with all the gains or thresholds flattened out so that you can smoothly interpolate between a setting and effectively bypassed - we have found that this allows you to zero in a perfect configuration between too much and too little.

Plug-in Undo/Redo

All the plug-ins provide support for undo/redo from the plug-in header bar.



Plug-in Header: Undo/Redo

The left and right curved arrows represent Undo (Left) and Redo (Right). These arrows are grey when there is nothing to Undo or Redo.

The arrows are white when it is possible to Undo (Left) or Redo (Right). Clicking the left arrow when it is white will undo the last action you made in the plug-in. When you undo something that change is placed on the redo stack, and the Redo button will turn white.

Clicking the Redo button (when it is white) will restore the state that the last Undo changed.

If the Redo button is white and you make a change in the plug-in, the Redo button will go grey as the redo buffer will be cleared.

Help Button



Help Button

This button toggles the tooltip display. When enabled, tooltips will be shown when the mouse hovers over a control. When the tooltip display is disabled, you may still see tooltips by holding down the ? key and hovering over a control.

UI Elements Selector



Graphs Closed

This button toggles visibility of various UI graphical elements. This button allows you to maximize screen real-estate. Clicking the button will step through the available views, with elements shown darker in the button graphic.



Right-Click selection menu

Right-clicking this button will open a menu to select your desired view directly.

- Full UI: All elements
- Mini UI: LCD panel, Active bypass switch and Meters
- Micro UI: LCD Panel and Active bypass only

UI Size Selector

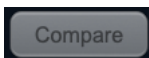
A dark rectangular button with the text "140%" in white.

UI Size Selector

This pull-down menu lets you set the plug-in UI size to taste.

The last selected setting for a plug-in processor will be applied to the next new instance you create of that same plug-in. For example, if you open an instance of MixHead and set it to 80%, the next instance of MixHead you create will also open at 80%.

Compare Button



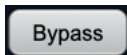
Compare Button (inactive)



Compare Button (active)

To use the compare button, a preset must first be loaded. The compare button will be lit up when the current settings differ from the selected preset. If you click this button while it is lit, the preset settings will be restored, but you can still return to the changes you made by clicking on the button again. It is important to note that any changes you make to activate the compare light are always for comparison to the last loaded preset.

Soft Bypass



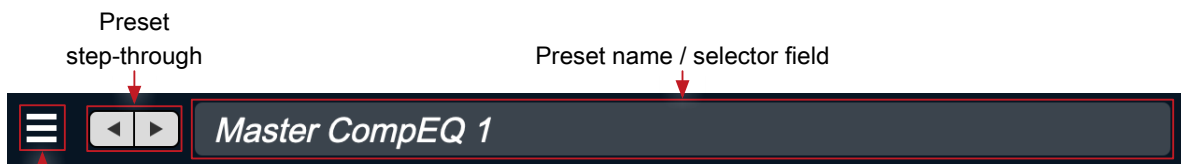
Soft Bypass Button (not bypassed - plug-in is processing)



Soft Bypass Button (bypassed - plug-in is not processing)

When glowing yellow, this button will maintain the time delay through the channel and will continue to show metering, but will cleanly disable the processing.

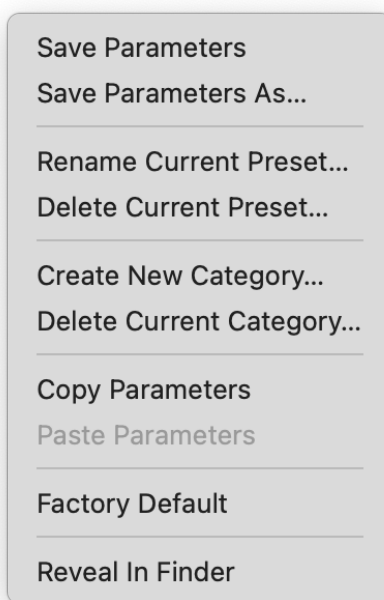
Plug-In Header: Preset Row



“Hamburger” menu:
Preset operations

Plug-in Hamburger menu

The preset and parameter functions within the hamburger menu break down as follows:



- **Save Parameters** saves the current plug-in parameters to the current preset.
- **Save Parameters As...** opens a dialog box where you can name and choose a category to save your current plug-in settings.
- **Rename Current Preset...** lets you rename the current preset.
- **Delete Current Preset...** deletes the current preset.
- **Create New Category...** lets you create a new preset category for the current plug-in type.
- **Delete Current Category...** deletes the current preset category.
- **Copy Parameters** copies the current parameter set so you can paste them to another instance of the same type plug-in.
- **Paste Parameters** pastes the copied parameters. Note that pasting a parameter set over an existing named preset will change the preset name field to: **[No Preset]**.
- **Factory Default** loads the factory default settings for this plug-in.
- **Reveal In Finder** opens the folder in which the current preset is saved.

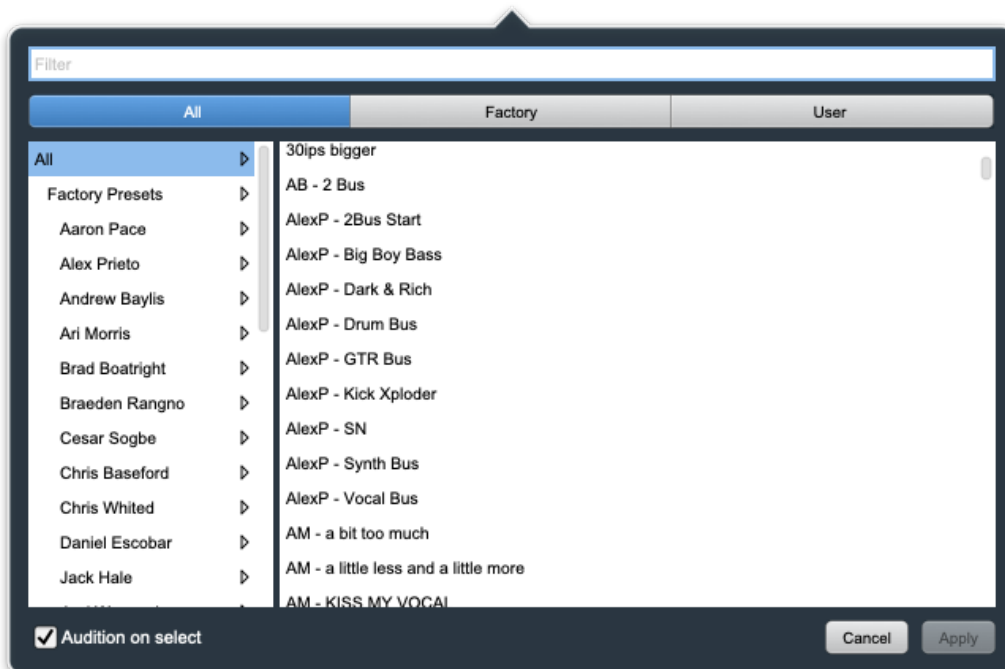
Preset Step-Through Buttons



Preset Step-Through Buttons

These buttons step through Factory and User Presets in succession, as they are listed in the Preset Selector window. The left arrow chooses the previous preset. The right arrow chooses the next preset.

Preset Name/selector menu:



Plug-in Header: Preset selector menu (ChannelStrip shown)

The Preset selector will open to show all the available preset categories, and the presets within those categories.



Preset selector menu: Audition on select

With “**Audition on select**” enabled at the bottom of the window, selecting a preset will temporarily load those parameters so you can hear the effect on the audio you are playing, without actually committing to the preset.

Click **Cancel** to revert to your previous settings and close the selector window.

Hit **Apply** to commit the new preset parameters and close the preset selector window.

5. Operation

The MixHead user interface is straightforward and intuitive with an active LCD-style display, four control knobs, three switches and three sets of stereo meters.



A brief overview of the controls:

- The LCD display at the left shows the current setting of all MixHead parameters.
The individual LCD parameter displays can also be used for parameter entry.
- The four knobs are standard rotary encoders for parameter entry.
- The **Tape Speed** switch toggles through the tape speed saturation algorithms.
- The **Active** switch enables MixHead processing: when lit, MixHead processing is active, when dark processing is bypassed.

The plug-in header bar Bypass button reflects the state of the Active switch, and vice versa.

Please Note: The *Power* button at the far right and the *Presets* segment of the LCD panel are currently inactive. They are placeholder controls for features to be added in a future release.

Tooltip mouse-over pop-ups are available for all UI elements by clicking the circular ? Help icon in the plug-in header bar.

The individual parameters and key commands for each control are detailed in the following pages. All key commands and gestures operate equally for both the parameter knobs and switches and their corresponding LCD readout controls.

UI display options

The MixHead UI operates in three modes, selected by toggling the disclosure icon in the top row of the header bar.



Right-clicking the disclosure icon reveals a menu allowing direct selection of the UI display mode:



Full UI (All control and display elements shown)



Mini UI (LCD control/display, Active bypass and Meters shown)



Micro UI (LCD control/display and Active bypass only)

Primary Controls

There are five primary parameters to control the MixHead processor.

Input Gain

Input Gain adjusts the pre-process input level, not unlike the line in calibration on a tape deck. Input Gain adjusts input level in 0.1dB steps, with values spanning from -12.0dB to +12.0dB.



Input Gain (dB) Knob. Click-Drag to change. Control-Shift-drag to apply inverse change to Output Gain. Alt-click to reset. Control-Alt-click to set to minimum. Control-click (or Right Click) for text entry.

Input Gain interacts greatly with the Drive stage and Output level.

Tip: Control-Shift-drag Input Gain to inverse link with the Output Gain control, to maintain your current gain structure through the processor while shifting the reference point at which the Drive circuit operates.

Drive

Drive adjusts the amount of harmonic distortion and saturation effect. The saturation effect is non-linear with regard to gain, and often requires some degree of Output level compensation.



Drive Gain (dB) Knob. Click-Drag to change. Alt-click to reset. Control-Alt-click to set to minimum. Control-click (or Right Click) for text entry.

The Drive parameter has a range of -7 to +14. The default Drive setting of 0.0 is intended to emulate a record level of +7dB to tape, so the saturation effect is already fairly well engaged at 0.0 Drive. More subtle tape emulation characteristics with higher headroom and less dynamic saturation are available at Drive levels below 0, where the Input and Output levels tend to have more relative effect.

Tip: High Drive settings can result in serious signal breakup, especially with modern day deep low frequency program. That said, MixHead works brilliantly as a high-passed parallel processor even on deeply bass-heavy master tracks, bringing massive saturation crunch to the mids and a silky sheen to the highs without stepping on the bass foundation.

HF-Adjust

HF-Adjust allows you to control the amount of high frequency cut or boost independent of the Drive setting. The control range is -6 (max. cut) to +6 (max boost).



High-Frequency Adjust Gain (dB) Knob. Click-Drag to change. Alt-click to reset. Control-Alt-click to set to minimum. Control-click (or Right Click) for text entry.

With real tape, the higher the saturation the more the high frequency damping takes place. MixHead lets you break that rule by running high frequency energy levels contrary to what you would otherwise expect from tape. The effect can be used to simulate differences in tape formulations or playback electronics or different bias/EQ setups.

Tip: Unlike pretty much anything with a real tape deck, HF-Adjust is automatable. It is especially well suited to pushing instruments back on the mix or bringing them dramatically forward as the song demands. At low saturation levels a bit of HF-Adjust boost acts very much like a vintage exciter.

Output

Output Gain adjusts output level post-processing. Output Gain adjusts output level in 0.1dB steps, with values spanning from -12.0dB to +12.0dB.



Output Gain (dB) Knob. Click-Drag to change. Control-Shift-drag to apply inverse change to Input Gain. Alt-click to reset. Control-Alt-click to set to minimum. Control-click (or Right Click) for text entry.

Generally used as a final compensation for the changes in perceived loudness from the Drive stage saturation effect, and to ensure that the output of MixHead does not clip the input of the next process in the signal chain.

Tape Speed

Tape Speed toggles between MixHeads three tape speed emulation algorithms.



- **15ips** (the default): emulates the general distortion and saturation characteristics associated with tape recording at 15ips, with an unexpected subtle stereo widening effect.

In 15ips mode, the Tape Speed switch light is dark.

- **30ips**: emulates the generally lower distortion and higher saturation headroom curve associated with tape recording at 30ips.

Note that the 40Hz to 70Hz bass reduction induced when recording to analog tape at 30ips is not reproduced.

In 30ips mode, the Tape Speed switch light is lit amber.

- **3.75ips**: A new addition to MixHead not available on the original hardware, 3.75 was inspired by the modeling of a 1950's Webcor tape machine. The main characteristics that were borrowed for the 3.75 machine are its headbump curve and the amount of distortion it can generate. In true MixHead fashion we utilized the Mixheads' unique approach to compression, limiting and hf adjust as the other models.

In 3.75ips mode, the Tape Speed switch light is lit green.

Meters

There are three sets of stereo meters, displaying signal levels after the Input and Output gain stages respectively, and the “virtual tape machine record level” of the Drive stage.



- The **Input PPM** meters show the peak level after the Input Gain control. They are PPM response from -30dBFS to 0dBFS, with a 1 second peak hold.

Important Note: The topmost segment illuminates if the digital signal is too hot causing digital distortion - it does not change color as a warning. The second segment from the top indicates 0dBFS.

The bottom segment was originally lit on the hardware to indicate a clock-synced and legal AES audio input stream, which was a handy feature back in the day and that has been honored in MixHead.

- The **Drive Level** meter indicates the amount of harmonic saturation being applied at the Drive stage - basically how hard it's working. The segments display a range from -10db to +21dB.
- The **Output PPM** meters show the peak level after the Output Gain control. They are PPM response from -30dBFS to 0dBFS with a 1 second peak hold.

Important Note: The topmost segment illuminates if the digital signal is too hot, causing digital distortion at the output - it does not change color as a warning. The second segment from the top indicates 0dBFS, so for safety the top two segments of the Output PPM meter should stay dark.

As with the Input meters, the bottom segment was lit on the hardware to indicate a clock-synced and legal AES audio input stream.

6. Service and Support

Make Believe Studios takes great pride in the reputation for customer service and support that we have built. If you have any problems, questions, or suggestions please get in touch with us at: your_friends@makebelievestudio.com