Axe-Fx III Firmware Release Notes

33.00

NOTE: This firmware requires installation of Dyna-Cabs version 1.10 (included in the .zip file). Refer to the Dyna-Cab Installation Guide for details. Although not necessary it is recommended to install the firmware before the Dyna-Cabs.

IMPORTANT — Axe-Fx III Mark I owners: back up User Cab Bank 2 before updating!

This firmware adds the NAM (Neural Amp Modeler) block (full details below). On Axe-Fx III Mark I models, NAM storage replaces User Cab Bank 2. Any IRs in this bank will be permanently erased, and the bank will no longer be available for IRs. Before updating, back up User Cab Bank 2 with Fractal-Bot, or save individual IRs with Manage Cabs.

Axe-Fx III Mark II models have separate memory for NAM, so User Cab Bank 2 is not affected.

Added NAM Player (Neural Amp Modeler) block. This block plays NAM A2 captures of amps, overdrives, fuzzes, compressors, DI boxes, preamps, etc. NAM A2 is the newest NAM model architecture; captures made with earlier NAM architectures are not supported. NAM has rapidly established itself as the best capture technology available.

The NAM block runs on the same core as the Amp block. There are two versions of the NAM algorithm: Full and Lite. The Full algorithm uses about six times the CPU of the Lite version. This limits the maximum number of blocks per preset to one of the following:

- (2) Amp blocks.
- (2) NAM blocks. In this configuration both NAM blocks run in 'Full' mode.
- (1) Amp block and (2) NAM blocks. In this configuration the second NAM block runs in 'Lite' mode on non-Turbo units. On units equipped with a Turbo DSP both NAM blocks run in 'Full' mode.

On Mark I models there are 128 storage locations. Mark II models have 256 slots.

The NAM block features about a dozen Tone Stacks. The Active type is based on a generic active EQ. The other types are based on tone stacks found in various tube amps and interact like these passive networks do. These "quasi" tone stacks are unique, however, in that when the controls are all at noon the response is flat whereas in a tube amp there is usually a pronounced midrange dip. The midrange dip has been removed (because the amp is already providing that) but the tone stacks otherwise behave like passive tone stacks.

The position of the tone controls can be placed before or after the model. For the most authentic behavior the tone controls should be placed in the PRE position for Fender-style amps (i.e. Deluxe Reverb, Twin Reverb, etc.) and in the POST position for Marshall-style amps (Marshall, Friedman, Rectos, 5150, etc.).

The NAM block also features a “Bright” control and a “Bright Cap” control. Together these allow the user to alter the input spectrum in a fashion similar to the way an amp’s volume control with a bright capacitor work and allows you to brighten or darken the input to the NAM block. Positive values make the input brighter; negative values make it darker. The “Bright Cap” alters the frequency range the control effects. Large values increase the range towards the midrange.

TONE3000 integration - The TONE3000 library of NAM A2 captures is now built into Axe-Edit III. Open TONE3000 from the Tools menu and sign in with your TONE3000 account. You can search for tones, filter by type, or browse popular tones in the Discover tab. Captures install directly to the Axe-Fx III, with no files to download or unzip. If you already use TONE3000, your downloads and favorites appear under Your Tones. New captures are available as soon as they’re shared. Requires Axe-Edit III version 1.15.03 or later. Thanks to the TONE3000 team for partnering with us on this integration, and to the community of capture creators whose work makes it possible. TONE3000 is the largest online library of NAM captures, with thousands of captures of amps, pedals, and complete rigs.
https://www.tone3000.com

You can also manually install NAM A2 captures downloaded from tone3000.com or other sites. Unzip the downloaded file if needed, then drag-and-drop the .nam file into the “Manage NAM” window in Axe-Edit, or directly onto the “Type” field in the NAM Player block’s editor panel.

Thanks to Amalgam Audio, a free bank of NAM captures is also available to help you get started with the new block. Download the bank and send it using Fractal-Bot in the new version of Axe-Edit:
https://www.fractalaudio.com/downloads/firmware-presets/axe-fx-3/33p0/Amalgam_NAM_Models.zip

Amalgam Audio is a leading producer of premium, studio-grade captures of sought-after vintage, boutique, and modern guitar amplifiers. You can find more of their captures at https://www.tone3000.com/amalgamaudio or https://amalgamcaptures.com.

Added the following Dyna-Cabs (and their accompanying impedance curves):

- 1x12 Blankenship V30
- 1x12 Brit JM T652
- 1x12 Citrus CV30
- 1x12 Class-A 15W Blue
- 1x12 Suhr ACE50
- 2x12 Citrus JR CV30
- 2x12 Class-A 30W Pre-Rola
- 2x12 Matchbox D-30 25W
- 2x12 Matchbox D-30 30W

- 4x12 1960B T1221 Pre-Rola
- 4x12 1960B T75
- 4x12 1960B Creamback
- 4x12 Citrus 1970s

New “Cygnus X-4” amp modeling:

- Improved preamp-to-power amp interaction in Amp block. The Hi Cut Freq parameter under the PREAMP section has been deprecated.
- Improved triode modeling.
- Improved cathode follower modeling. This makes models that use cathode followers have a tighter response and little more “hair”.
- Improved power amp modeling.
- Improved preamp voltage sag accuracy.
- Improved Speaker Impedance Curve accuracy with new fitting tools.

The above improvements make the amp models sound more “open” and dynamic.

New Drive block modeling algorithms using “virtual analog” modeling. This makes the models sound warmer and more organic. Most of the pedal types have been remastered as a result. Some “composite” diode types have been added, i.e., “FET+BAT41” which model different combinations of diodes in series (in this case a MOSFET and a BAT41 Schottky diode in series). NOTE: Some models now have different default values. These models are NOT automatically updated in existing presets so that your presets are not changed.

Improved Flanger, Reverb, Plex and Megatap blocks.

New statistical pitch detector improves Pitch block resulting in better/faster tracking and less errors.

Improved Pitch block. Latency is reduced. Fewer artifacts. New Formant Correct and Formant Shift controls. Turning Formant Correct to ON makes pitch shifting sound more natural, especially for more shift. Formant Shift allows altering the formants of the tone and is usable with or without pitch shifting. With no pitch shifting Formant Shift can make your guitar sound like a baritone guitar or a mandolin.

Improved CPU usage.

Improved GUI responsiveness.

The Speaker Impedance Curve parameter in the Amp block now sorts selections alphabetically.

Added “Ladder Filter” type to Filter block. This is a very accurate emulation of the classic Moog Ladder Filter with its unique overdrive characteristics. It will self-oscillate, if desired, by turning the Resonance control near the maximum (USE WITH CAUTION!). Modulation of the cutoff frequency is also supported. The Mode switch selects between the classic low-pass filter type and a band-pass (the band-pass mode can be used to create a unique wah effect). The Order parameter selects between a 2-pole

or 4-pole design. The Bass Comp parameter allows the user to compensate for the decrease in bass response as the Resonance is increased.

Added “Touch-Ladder” type to Filter block. This is based on the Ladder Filter type but the frequency is controlled by an envelope detector. This is similar to the Touch-Wah type but uses a Moog Ladder Filter with its unique characteristics and sound.

Added DELETE ALL BLOCKS and CREATE LAYOUT TEMPLATE functions to Layout->Tools.

Fixed wrong grid stopper resistor value in Friedman BE/HBE models.

Fixed issue with amps with cathode followers that drive multiple tone stacks (Brit JVM, JS410, Dizzy V4). This makes these amp models sound more “open”.

Fixed Optical and JFET types in Compressor block can potentially generate a NaN causing the output to mute.

Fixed only first Program Change works when a MIDI controller is using running status.

Fixed bit crusher rounding bug in Drive and Delay blocks. This resulted in excessive even-order distortion at high bit-reduction settings.

Fixed Vocoder not working properly when using one of the grid rows as the Analysis Source.

Fixed Level in Gate block being applied twice. Existing presets should be auditioned as the level out of the block may be changed.

Fixed issue with Tuner when Tuning Offsets are on an playing low notes (basses and lowest string on 7-string guitars).

Fixed using MIDI Bank Select to select a bank other than 0 along with PC Mapping ON could result in a corrupted patch recall.

Various other fixes and improvements.

32.06

Added Brit JVM Crunch Green, Orange and Red models based off the Crunch channel of a Marshall JVM410.

Changed behavior of Plex block so that Master Pitch only controls pitch and not detune. Master Detune still only controls detune.

32.05

Added PVH 6160 Block Clean amp model.

Added Deluxe Tweed Normal amp model. Existing Deluxe Tweed model renamed to Deluxe Tweed Bright.

Fixed wrong capacitor value in 5153 100W Red amp model (probably not audible).

32.04

Improved power amp modeling.

Updated many amp models based on new analysis methods. Existing presets are automatically updated with new default values for some advanced parameters.

Fixed some Chorus models (Analog Mono, Analog Stereo, etc.) have less depth than earlier firmware if Auto-Depth is ON.

Fixed Multiplexer block not selecting USB audio inputs correctly.

32.03

Improved Chorus block. Remastered the Japan CE-2 model. Added EQ controls to some models. Added the following models:

- Japan CE-1 Chorus. Based on a Boss CE-1 in chorus mode.
- Japan CE-1 Vibrato. Based on a Boss CE-1 in vibrato mode.
- Japan CH-1. Based on a Boss CH-1.
- MX234. Based on an MXR M234 Analog Chorus.
- Small Copy. Based on an EXH Small Clone.
- Japan CE-2 Bass. Based on a Boss CE-2B.
- Vibrato. A generic vibrato effect.
- Rockguy: Based on the Rockman X-100 chorus.
- MX134 Stereo: Based on an MXR M134 Stereo Chorus.

Updated various default values (and hidden parameters) in Amp block based on new analysis methods. For many amps this improves the feel and makes the amp sound more “open”. Existing presets are automatically updated.

Fixed Input EQ in Amp block not working if Definition is 0.0.

Fixed excessive blocking distortion in Supertweed model.

Fixed switching between channels in Delay block can cause a background whine if the previous channel was using Dry Diffusion.

32.02

Improved Amp block preamp modeling.

Added “Oversampling” parameter to Drive block. When set to HIGH the oversampling rate is doubled which results in less aliasing. NOTE: This will increase CPU usage considerably.

Reduced CPU usage in some blocks.

Fixed an issue where overdriving the input of the Amp block, whether with an external Drive block or using the internal Input Boost (or both), causes excessive aliasing for some amp models.

Fixed wrong Overdrive Volume taper in Fox ODS models. Audition presets and adjust as necessary.

Fixed an issue with the Euro Uber model where certain combinations of Presence and Depth can cause a crash.

32.01

Added Dry Diffusion control to Delay block. This allows adjusting the dry diffusion separate from the wet diffusion.

Added Delay controls to Mixer block. This allows adding up to 64 samples of delay to each signal. This can be used to compensate for latency when routing things in parallel.

Fixed turning Gain up to 10 in some amp models can cause Amp block to crash.

Fixed an issue with the Euro Uber model where certain values of Depth combined with certain speaker impedance curves can cause a crash.

Added checking for invalid/duplicate modifiers (which can be caused by 3rd-party apps) during preset recall and removes them.

32.00

Improved power tube grid modeling in Amp block.

Improved frequency response accuracy for amp models.

Improved diffusion in Delay block. The dry signal is now diffused along with the delayed signal. This makes the effect more musical.

Increased pitch tracking range in Pitch block to ~2500 Hz. This allows tracking pinch harmonics better.

Improved pitch shifting for low frequencies, e.g. bass guitars.

Grouped types in Reverb block to aid in selection.

Increased range of Attack Time in Input block. Attack Time can now be set to a minimum of 0.1 ms. Existing presets are automatically updated.

Increased range of Attack Time in Gate block. Attack Time can now be set to a minimum of 0.1 ms. Existing presets are automatically updated.

Added Swedish Metal model to Drive block based on a Boss HM-2.

Added 1S2473 diode type to Drive block (to support Swedish Metal model).

Added “Transistor” Power Tube Type. This is now the default type for the Jazz 120 amp model and models a transistor output stage. Existing presets using this model are automatically updated.

Fixed wrong gain pot taper on all Double Verb, Vibrato Verb and Super Verb models. Taper was previously 20A, now “2-35”. Remastered models. Audition presets and adjust as necessary.

Fixed an issue with PVH 6160, PVH 6160+ Lead and 5153 Red amp models. These models have been remastered accordingly. It is recommended to do a soft reset to load the new default values.

Fixed wrong resistor value in 5153 100W Green amp model. Audition presets and adjust as necessary.

Fixed wrong resistor value in 5153 100W Stealth Blue model. Audition presets and adjust as necessary.

Fixed wrong B+ voltage in Friedman BE/HBE models (due to wrong dropping resistor value). These models have been remastered accordingly. The default Negative Feedback has been changed to being commensurate with being taken from the 4-ohm tap. Note that the first-generation BE-100 had the feedback off the speaker jack. This was then changed to the 4-ohm tap. The latest version has a three-way switch to select between 4/8/16-ohm taps. Audition presets and adjust as necessary.

Fixed wrong Master Volume taper in Solo 100 amp models. Remastered the models. Audition presets and adjust as necessary.

Fixed wrong bass taper in Band-Commander amp model. Audition presets and adjust as necessary.

Fixed wrong master volume taper in Mr Z MZ-38 amp model. Audition presets and adjust as necessary.

Changed default values of Dual Tape type in Delay block to be a bit more musical.

Fixed preset updater not correctly setting Preamp Hardness if Amp block using EF86 tube type.

Various other fixes and improvements.

31.03

Improved Auto-Swell type in Volume block. The new algorithm features a dynamic threshold which tracks the average level of the input signal. The Hysteresis control determines how much the short-term level must drop below the average level to reset the gate. The Threshold control determines the absolute threshold at which the gate will close.

Improved Envelope Follower in Megatap, Multitap and Plex blocks.

Increased range of High Cut control in Pitch block. The High Cut can now be reduced to as low as 200 Hz.

Added Triggering to Arpeggiator type in Pitch block. When Threshold is set other than "OFF" the arpeggiator will trigger when the input signal exceeds the threshold.

Changed behavior of Arpeggiator so that when the sequence is finished the sequence resets to the first step (rather than stopping at the last step).

Improved pitch tracking in Pitch block.

Fixed Amp block first stage bias point can get corrupted and produce unwanted distortion.

Various other fixes and improvements.

31.02

Fixed wrong Preamp Hardness being loaded for amp models with pentode preamps (i.e., AC-20 EF86).

Fixed crash in Div/13 CJ11 models.

Fixed inadvertent error introduced into AC-20 models.

31.01

Added "Deluxe 6G3" amp model based on the bright channel of a 6G3 "Brownface" Deluxe.

Added "Citrus Juicer" Compressor model based on a Dan Armstrong Orange Squeezer. Unlike the Orange Squeezer the model allows you to adjust the compression ratio and threshold independently and also features Emphasis, Drive and Tone controls. The ratio and threshold of the actual pedal vary with the particular JFET used and the internal bias trim. Set the Threshold to -26.0 dB and Compression to 8.0 as a starting point and adjust to taste.

Added “Half-Wave” Detector Type to Compressor block. This is similar to the Peak type except the rectifier is half-wave as opposed to full-wave. This alters the attack and release ballistics and can add a bit more grit to the sound.

Added warning if system clock frequency is incorrect (e.g. when using AES/SPDIF as the clock source and the clock is at 44.1 kHz instead of 48 kHz).

Improved Amp block preamp modeling (again). This yields more accurate behavior when the amp input is pushed (e.g., when using an internal or external overdrive/boost).

Improved Amp block phase inverter modeling.

Went through every model with a fine-toothed comb and adjusted power amp and phase inverter parameters as needed to reflect new modeling.

Improved dwell algorithm for spring types in Reverb block.

Fixed wrong output transformer impedance ratio in Deluxe Tweed models (only slightly off).

Fixed wrong bias point in Band-Commander model.

Fixed instability in Pi Fuzz model for certain values of Sustain.

Fixed wrong time constant in Herbie models (probably not audible).

Various other fixes and improvements.

31.00

Improved preamp modeling in Amp block. This yields more accurate harmonic response and better feel. NOTE: The Preamp Tube Hardness parameter functions differently now. Existing presets are automatically updated to the default value for the amp model.

Improved power amp modeling in Amp. This yields a more controlled low end, especially for non-MV amps.

Added “Surround Delay” type to Delay block. This type produces “rotating” echoes that appear to move around the listener. The Rotation parameter determines how rapidly the echoes rotates. With Rotation at 100% the echoes will rotate 180 degrees each time (front, back, front, etc). At 50% the echoes will rotate 90 degrees (front, right, back, left, front, etc.). Negative values will cause the echoes to rotate in the opposite direction.

Added “Auto Align” switch to Cabinet block. When OFF the IR is delayed by the appropriate amount based on the Distance parameter (automatic time alignment is turned on). The user can add additional delay using the Align tab. Note that the actual delay can be less than the displayed delay as all IR delays

are normalized to the shortest delay (so as to minimize overall latency). The Align tab has been changed to display the delay in ms rather than distance to reduce confusion with the Distance parameter. NOTE: Existing presets will have Auto Align set to ON as this was the prior behavior.

Added On/Off switch for Metronome. This can be controlled remotely as well by setting the desired control source in the MIDI/Remote -> Other menu.

Added Suhr Reactive Load Speaker Impedance Curve.

Various other fixes and improvements.

30.01

Fixed loss of gain in Wah block if Drive is nonzero.

30.00

NOTE: This firmware requires installation of Dyna-Cabs version 1.09 (included in the .zip file). Refer to the DynaCab Installation Guide for details. Be sure to install the firmware before installing the Dyna-Cabs.

Added Tracking Mode parameter to Synth and Ring Mod blocks. When set to "BASS" the pitch tracking range is shifted down one octave with the lowest detectable note being approximately F#0.

Increased upper range of pitch detectors to approximately F#6. This prevents loss of tracking if playing at the 24th fret on the high E string and bending up a whole step.

Added "PI Fuzz – Bass" model based on a Deluxe Bass Big Muff Pi.

Added "NoAmp Bass DI" based on a SansAmp BassDriver DI.

Added "NoAmp Bass Pre" based on a SansAmp BassDriver DI with the speaker emulation bypassed. This can be used into a Cabinet block or as a boost into an Amp block.

Added "Royal Bass DI" based on a Noble Bass Preamp DI. The model has been modified with more gain so that it can be overdriven. With the Drive knob at 5.00 the gain is the same as the actual preamp. Also, instead of a Low Cut switch, the model uses an adjustable Low Cut control.

Added "7 Band Pedal" Graphic EQ type based on a Boss GE-7.

Added "7 Band Bass Pedal" Graphic EQ type based on a Boss GE-7B.

Added "1x8 Princetone" Dyna-Cabs captured from a 5F2 Tweed Princeton w/ a very nice sounding 8" Jupiter speaker. Added corresponding Speaker Impedance Curve.

Added “1x12 Black Majik” Dyna-Cabs captured from a Supro Black Majik with a Jensen P12Q speaker. Added corresponding Speaker Impedance Curve.

Added “8x10 SV Bass” Dyna-Cabs captured from an Ampeg SVT. Added corresponding Speaker Impedance Curve. Thanks to Mike "Dr. Bonkers" Santasiero for the files from his DynaCab Pack, "Dr. Bonkers 8x10 SBB Bass". If you like this selection of mics, you can purchase the entire pack for Cab Lab at https://shop.fractalaudio.com

Improved accuracy of Sustain control vs. position in PI Fuzz models.

Fixed wrong resistor value in Blackglass 7K model. Remastered model as a result.

Fixed incorrect gain in Colortone Booster and Colortone OD models.

Fixed wrong capacitor value in all Blackface Vibrato models (Deluxe Verb, Double Verb, Super Verb, Vibroverb), Div/13 FT37 models and the Double Verb Silverface model. Change probably isn’t very noticeable.

Fixed wrong resistor value in Deluxe Verb Normal model. Remastered model as a result.

Fixed Modern Gate type can get stuck closed if input above threshold during boot.

Various other fixes and improvements.

29.01

Improved intelligent pitch shifting in Pitch block.

Notes:

- The Pitch Tracking parameter selects between Off, Chords and Notes. In Chords mode the tracking is optimized for playing multiple notes simultaneously and trades latency for stability. In Notes mode latency is reduced at the expense of stability. In Notes mode simple chords can be tracked but complex chords may present difficulty for the pitch tracker. The Tracking Adjust parameter allows for fine adjustment of the stability vs. latency trade-off.
- The Pitch Tracking parameter is only available for chromatic shifting types (this includes whammy types). Diatonic shifting necessarily requires playing single notes and the algorithm is automatically set to Notes mode for these types.

Improved CPU usage for some types in Compressor block.

Reduced filtering of rear panel pedal inputs. This allows faster response to rapid pedal movements.

Fixed pop/thump when switching to/from certain Drive types.

Various other fixes and improvements.

29.00

Improved Amp block preamp modeling. Most amp models have been updated as a result. Audition presets and adjust as necessary.

Changed name of Supro 1695T to Supro Black Magick at Supro's request.

Fixed switching from Supro Black Magick model to certain models using the editor can cause a crash.

Fixed wrong plate resistor value in PVH 6160 Block Lead and PVH 6160+ Lead models.

Fixed Gain knob not working in USA MK V Green model.

Fixed compander in Delay block not working correctly due to stack/hold changes.

Various other fixes and improvements.

28.08

Added Supro 1695T amp model based on a Supro Black Magick.

Fixed Presence knob taper in PVH 6160 models.

Fixed wrong UI for USA MK V Green amp model.

Fixed Amp block Soft-Reset function does not set Edited LED.

Added global parameter to notify editor when a refresh is necessary.

Various other fixes and improvements.

28.07

Improved Drive block by modeling output buffer distortion (where applicable).

Added "Angry Chuck" Drive pedal model based on a JHS Angry Charlie.

Added "Guardian Photon Speed" Drive pedal model based on a Greer Lightspeed.

Recaptured the 1x15 Vibratoverb Dyna-Cab using a new speaker as the old one sounded tired. The corresponding speaker impedance curve has also been updated.

Corrected a minor mistake in the effects loop recovery for the PVH amp models.

Renamed all “Prince Tone” models to “Princetone” because some customers thought this meant the amp was used by His Royal Purpleness.

Various other fixes, tweaks and improvements.

28.06

Added “Soft-Reset” function to Amp block. This can be accessed from the Type page. Executing a soft-reset retains the values for the gain, tone controls, EQ, MV, etc. but resets advanced parameters to their default values.

Remastered all Solo 100 amp models. If using these models, it is recommended to do a soft-reset.

Remastered all Solo 99 Lead amp models. If using these models, it is recommended to do a soft-reset.

Fixed wrong resistor value in Cameron CCV and Atomica models (effect is likely negligible).

Corrected a minor parameter error in the Deluxe Verb Vibrato, Double Verb Vibrato, Double Verb Silverface, Super Verb Vibrato, Vibrato Verb and Div/13 FT37 models.

28.05

Improved Amp block output transformer modeling.

Tweaked parameters for amps with cold clipping stages slightly to better reflect new insights and measurements.

Remastered all Brit JVM and JS410 amp models. If using these models, it is recommended to do a soft-reset of the model by deselecting and reselecting the type.

Remastered Solo 88 Rhythm and Lead models. If using these models, it is recommended to do a soft-reset of the model by deselecting and reselecting the type.

Remastered all Recto2 amp models. If using these models, it is recommended to do a soft-reset of the model by deselecting and reselecting the type.

Remastered all USA MK IV Lead amp models. If using these models, it is recommended to do a soft-reset of the model by deselecting and reselecting the type. NOTE: The taper of the Overdrive control has changed. Audition and adjust presets as necessary.

Remastered all USA MK IIC+ amp models. If using these models, it is recommended to do a soft-reset of the model by deselecting and reselecting the type. NOTE: The taper of the Overdrive control has changed. Audition and adjust presets as necessary.

Remastered all USA Pre LD2 amp models. If using these models, it is recommended to do a soft-reset of the model by deselecting and reselecting the type. NOTE: The taper of the Gain control has changed. Audition and adjust presets as necessary.

Corrected an error in calculating the bias point of an early gain stage in amp models with five or more gain stages (likely not audible).

28.04

Fixed display bug for Send MIDI Clock.

28.03

Added “1x12 Scholz” Dyna-Cab. This is a subset of the 1x12 West Coast Classic Dyna-Cab available in our store and is based on a MojoTone™ West Coast cabinet with a 12” Scholz SugarCone™ Classic speaker.

Added “77 Custom OD” based on an MXR M77 Custom Badass Modified OD.

Added modifier capability to Sensitivity parameter in Filter block (for Envelope Filter and Touch-Wah types).

Remastered all “PVH” amp models. A soft reset is recommended to load the new default values.

Fixed wrong capacitor value in OD 250 and OD 250 Gray models.

Fixed rare crash in Compressor block that can occur when switching presets/scenes/channels.

Fixed Tremolo block graph not working if Rate is set to LFO1 SYNC.

Fixed Send MIDI Clock allowed for incompatible USB firmware versions. MIDI Clock send is only supported for USB firmware versions greater than 1.14. To send MIDI Clock over USB requires USB firmware version 1.17 or greater.

28.02

Added adjustable Q to Low Cut and High Cut in Reverb block. Note: The Q only affects the response if the Slope is set to 12 dB/oct.

Updated spring models in Reverb block. A soft reset is recommended if you use these types to load the new default values.

Added Vibrato-King Custom Spring type.

Changed name of “Spring Drive” to “Dwell” as this is what is commonly used on spring reverb units. Note that the Dwell control is automatically compensated. Therefore, changing the Dwell will not affect the mix unlike a hardware spring reverb, it will just make the sound more “splashy”.

Rearranged Spring Reverb menu so that most commonly used controls are on the same line.

Added Negative Feedback control to UI for Friedman BE/HBE models since this is now a control on the actual amp.

Improved Amp block phase inverter grid clipping model accuracy.

28.01

Improved Spring Reverb algorithms.

Added “Plexi Brown” tone stack. This is the tone stack from EVH’s amp with a 50K mid pot.

Fixed rare crash when switching Compressor type from Axe-Edit.

Fixed global settings not recalled after using a song in a setlist and then rebooting.

Tweaked some power tube parameters slightly.

28.00

New Vibe algorithm in Phaser block. The default values have changed for the Vibe models and existing presets are automatically updated to the new defaults. If you have edited the default values you may wish to audition your presets accordingly.

Added “LFO Mode” to the Phaser block. When set to UNIVIBE the amplitude of the LFO is roughly proportional to the LFO Rate. When set to NORMAL the amplitude is constant. NORMAL allows deeper phasing at slow rates than would be possible with an actual Univibe.

Added Low Cut and High Cut controls to Phaser block for the wet path.

Added “Modern Vibe” model to Phaser block. This is based on a classic UniVibe but with modern input buffer and LFO.

Changed “Exponent” to “VCR Shape” in Phaser block as this more accurately describes the control function.

Complete overhaul of the Compressor block:

- New Dynami-Comp algorithm:

    - New algorithm accurately models various nonlinearities for faithful reproduction.
    - Added Knee Type to allow varying the knee shape.
    - Added Tone control (like in various clones).
    - Added Drive control. The Drive control allows overdriving the OTA which can be used to add saturation. The control is preset when selecting one of the Dynami-Comp types but can be altered by the user.
    - Added Input/Output graph.
    - A low-CPU version of this algorithm is available with the Econo-Dyno-Comp.
- New "VCA Bus Compressor" algorithm:
    - Based on a VCA feedback design (e.g., SSL Bus Compressor).
    - Dynamic time constants. Extremely fast attack times are achievable as the actual attack time is always less than the programmed time (decreases dynamically).
    - This algorithm replaces the Studio FB Compressor.
    - Auto Att/Rel has been removed as it is no longer applicable.
- New JFET Compressor algorithm:
    - Based on classic JFET rackmount compressors.
    - Dynamic time constants.
    - The Attack and Release times are the "native" times of the detector. The actual Attack and Release times will be much shorter (about 5 times). The native range of Attack Time for an 1176 is 0.1 ms to 5.5 ms. The Release Time range is 59 ms to 1.1 s.
    - Due to the design of these compressors the minimum compression ratio is 4:1. Any settings below 4.0 will be clamped at 4:1.
    - Unlike the actual hardware the algorithm's threshold is variable so instead of varying the input and output gains we give you a more convenient method (and Automatic Makeup Gain).
    - Due to the very fast attack times these types of compressors will distort. This is often used for effect. Low frequencies are distorted more.
    - The "Drive" control allows overdriving the output stage for added distortion.
    - Perfect for fattening up your sound and adding grit. Works well as a "finishing" compressor at the end of a chain (usually before time-based effects). Also great for vocals, bass and drums.
- New Optical Compressor Algorithm:
    - Based on classic optical rackmount compressors.
    - Times are "doubly dynamic". The times are dynamic due to the feedback topology of the compressor and the attack and release times of the photocell are also dynamic. The Attack and Release Time controls set the nominal times of the photocell. However, the times will vary with the program level.
    - Due to the design of these compressors the minimum compression ratio is 4:1. Any settings below 4.0 will be clamped at 4:1.

    - Whereas hardware optical compressors typically have a fixed compression ratio (usually about 4:1) and a limiting option this algorithm allows adjusting the ratio from 4:1 to (nearly) infinite.
    - Rather than input/output gain controls the algorithm allows adjusting the threshold instead which requires less fiddling with the makeup gain.
    - The Emphasis control replicates the internal "Limiter Response" adjustment. This control may be on the front panel of some clones and the operation may be reversed depending upon the manufacturer. The Emphasis Frequency control allows shifting the frequency range of the curve.
    - The "Drive" control allows overdriving the output stage for added distortion.
    - The smooth attack and release characteristics of this type make it ideal for vocals and acoustic instrument sources.
- New JFET Pedal Algorithm:
    - Based on pedals with a JFET as the shunt resistor in a non-inverting op-amp configuration.
    - Replaces the JFET Sustainer type.
- Added Rockguy Compressor Type:
    - Similar to the JFET Pedal algorithm mentioned above but with dynamic release time and several other enhancements.
- New Tube Compressor Algorithm (now called "Vari-Mu Tube Compressor"):
    - Based on a tube compressor using "remote-cutoff" tubes for gain control.
    - Dynamic attack times.
    - The actual compression ratio is somewhat nebulous due to the nature of the circuit but, in general, the minimum ratio is about 2:1 and the maximum ratio is about 20:1. The Threshold and Compression controls interact. The graph assists with adjusting the controls.
    - This compressor has big, swoopy compression curves and a warm tone making it useful for adding "glue" to a track or mix.
    - The "Drive" control allows overdriving the output stage for added distortion.
- NOTE: These changes may affect the sound of your presets. If you use the Compressor block in your presets you should audition your presets accordingly.

Improved Reverb block. Reverbs based on real spaces have more natural sounding reflections and are more immersive.

Improved behavior of Plex and Multitap Delay blocks when changing channels or presets. If the type has changed the delay lines are cleared. If the type has not changed the delay lines are not cleared allowing for spillover between channels. If Spillover is on, the delay lines are not cleared between preset changes if the type has not changed.

Improved Room modeling in Cabinet block. Mic Spacing is also changed to distance in cm. Default is ORTF standard of 17 cm. This may change the sound of your presets if you use this. Audition your presets accordingly.

Added Filter page and graph to Plexi GUI to assist with editing filter parameters.

Added “Ducking” control to Tremolo block. This reduces the intensity of the effect as you play louder.

Added Tube Drive 5-Knob model.

Added “Brit 800 Studio 20” amp model based on a Marshall SC20H.

Renamed Brit Studio 20 to “Plexi Studio 20”.

Updated default Negative Feedback value for Friedman BE/HBE models. On the actual amp the negative feedback comes off the speaker jack (for some weird reason). Previously the amp models assumed an 8-ohm cabinet which would make the feedback effectively off the 8-ohm tap. However, the matching cabinet is 16 ohms and using a 16-ohm cabinet results in more negative feedback and a “tighter” tone so we’re now using that as a default value as people seem to prefer that. The models were also “remastered” as a result.

Improved triode modeling algorithms.

Various other fixes and improvements.

27.03

Improved Drive block.

Improved PI Fuzz model. The new model also allows changing the type and quantity of diodes used in the transistor feedback paths, adds a “Wicker” switch which removes the feedback capacitors and adds a “Tone” switch which allows bypassing the tone circuitry.

Added “PI Fuzz – Triangle” model. This is based on a 1971 “Triangle” Big Muff PI. Thie model also includes the Tone Wicker mods.

Added “PI Fuzz – Ram’s Head” model. This is based on mid-70’s “Ram’s Head” Big Muff PI. The model also includes the Tone Wicker mods.

Added “PI Fuzz – Russian” model. This is based on a Sovtek produced “Civil War” Big Muff PI. The model also includes the Tone Wicker mods.

Added “Colortone Booster” model based on a Colorsound Power Booster (with added Master control).

Added “Colortone OD” model based on a Colorsound Overdriver (with added Master control).

Added “MOSFET Distortion” model based on an Ibanez MT10 Mostortion.

Added “Super Fuzz” model based on a Univox Superfuzz. The model also features a tone control which allows varying the frequency of the notch. Use the Bias control to simulate the “Octave” control found on some clones.

Updated DS1 Distortion model to Second Edition specs.

Improved Tube Drive 4-Knob model. If you are using this model in a preset a soft reset of the block is recommended to load the new default values.

Reworked Blackglass 7K model.

Added 1N5819 Schottky and Yellow LED diode models to Drive block.

Fixed resistor mistakenly attached across drive pot on Plexi 2204 model.

Fixed Phaser block LFO Reset not working properly for some types.

Fixed wrong Miller capacitance value in Brit 800 models (probably not audible).

Various other fixes and improvements.

27.02

Added Integral Pre type to Drive block. This is based on a TC Electronics Integrated Preamp.

Improved Filter block Touch-Wah detector behavior.

Improved Sweep Delay algorithm in Delay block. Added selectable filter type.

Improved Quad Diffusor algorithm in Multitap Delay block. New algorithm now has stereo output with adjustable spread and LFO controlled filters.

Exposed “Algorithm” type in Multitap Delay block. This allows changing the underlying algorithm without changing the various parameters. This can be used to experiment with different algorithms without losing parameter settings as occurs when changing the Type.

Fixed MIDI Clock not changing when switching to a new preset and Tempo To Use is set to “Preset”.

Fixed Controllers may stop working if unit is left on for more than a few days.

27.01

Added “Touch Wah” type to Filter block. This is similar to the Envelope Filter but uses a different type of detector and voltage-to-frequency converter. This type can be used to create interesting touch-sensitive filter sounds. It can also be used to replicate the Korg A3 Touch Wah sound as follows:

- Set Mode to MIX
- Set Start Freq to maximum. Set Stop Frequency to minimum.
- Start with a fairly high Attack Time, around 500ms.
- Set Release Time to around 200ms.
- Adjust Sensitivity to taste.

Improved Auto-Swell type in Volume block. Added Release time and Hysteresis controls to allow fine-tuning to playing style. Hysteresis controls how much extra the signal must fall below the threshold before the detector releases.

Changed the Envelope Follower in the Megatap, Multitap and Plex blocks to use the same algorithm as the improved Auto-Swell algorithm in the Volume block as the purpose of the Envelope Follower is to generate volume swells.

Added MIDI Clock transmit. This can be configured to send MIDI clock messages to MIDI, USB or both (or off). Default is MIDI only. NOTE: USB Firmware 1.17 or greater is required to send MIDI Clock over USB. If you require MIDI Clock to a USB host then you need to install USB Firmware version 1.17 or greater.

Added selectable MIDI Clock receive source. This can be configured to receive MIDI clock messages from MIDI or USB (or off). Default is MIDI.

Added activity sensing to internal pedals, FC pedals and external controllers. This stops Auto-Engage from engaging an effect if the pedal/controller is not connected. This prevents, for example, a Wah being engaged if Auto-Engage is on but no pedal is connected (i.e., you left your expression pedal at home).

Added selectable Tuner color theme.

Fixed LFO Phase not working for Vibe modes in Phaser block.

Reduced boot time.

Various other fixes and improvements.

27.00

Improved Amp block preamp algorithms, especially for amps with multiple gain stages. Tones are “gutsier” and have a more dynamic response with more “pop”. Also improves accuracy when input of Amp block is driven by a Drive pedal (whether real or virtual).

Improved cathode follower algorithm improves accuracy near onset of clipping. This results in warmer tones at edge-of-breakup and better cleanup when rolling off the volume knob (for amps that use a cathode follower). Due to the new algorithm the Grid Clipping parameter has been removed.

New power amp algorithm. New algorithm more accurately models bias excursion and duty cycle modulation. The results in more complex tone with better, punchier feel.

Added "Envelope Filter" to Filter block. This is based on the classic Mutron effect with some modern touches:

- The start and stop frequencies are freely assignable. Start can be lower or higher than stop. Simply set Start Freq higher than Stop Freq to sweep down.
- The Sweep Shape knob controls the mapping of the detector to the filter frequency. A value of 0.0 is a linear mapping. Higher values become progressively more nonlinear and make the response more "quacky". The default value is commensurate with a typical consumer Vactrol.
- The detector attack and release times are programmable. Default values match the original pedal.
- The Emphasis control allows emphasizing the higher frequencies into the detector to even out the response when playing higher notes.
- The detector source is selectable between the block input or any of the hardware inputs. This allows placing the filter after an Amp or Drive block but using the instrument input as the source.
- A detector meter facilitates easy adjustment of the detector sensitivity to match your guitar and playing dynamics.

Added "Auto-Wah" to Filter block. This is based on the same "circuit" as the Envelope Filter but replaces the detector with an LFO.

Added LFO Tempo control to Filter block.

Improved tuner. New algorithm is faster and more accurate.

Added Crossfade Time control to Crystal Echoes type in Pitch Block.

Improved pitch shifting.

Reduced CPU usage of Wah block slightly.

Remastered Vibrato Lux model.

Added date and time to version information returned to Axe-Edit. This obviates the need to "Refresh After New Firmware" if updating from beta releases (requires updated Axe-Edit).

Fixed wrong capacitor value in Band-Commander model.

Fixed missing PI grid stopper resistor in Comet 60 and Comet Concourse models.

Various other fixes and improvements.

26.01

Improved Drive block. Remastered most models as a result.

Updated Timothy models to V4 spec.

Updated Fat Rat model.

Added Kill Dry to Megatap block.

Fixed Rat model can generate NaNs under very rare circumstances.

Fixed pops/clicks can occur when changing Preamp Type or Saturation control in Cab block and Preamp Mode is set to “High Quality”.

26.00

Improved phase inverter modeling in Amp block. This yields more “weight” and a more open tone when driving the virtual power amp hard (i.e. non-MV amps or MV turned up high).

Updated phase inverter parameters for most models based on new analysis tools.

Added “2x12 5153 Stealth” and “4x12 5153 Stealth” DynaCabs.

Fixed stand-in switch Tap functions not working in some cases.

Fixed pops/clicks can occur when changing Preamp Type in Cabinet block.

25.04

Improved cathode follower algorithm. This results in a more open and dynamic response for models that use a cathode follower.

Updated Plexi 100W and 1959SLP models. A soft reset of the Amp block is required to load the new default values.

Updated phase inverter parameters for many amp models.

Fixed Per-preset switches with "Preset" functions now correctly trigger Layout Links in all cases: tap/hold, normal/stand-in.

25.03

Fixed per-preset footswitch preset operations not triggering their layout link function.

Fixed inability to reorder songs from the front panel in set 2, 3, or 4.

Fixed pops/clicks when using Stack/Hold in Plex Delay.

25.02

Added “1x12 Friedman” speaker impedance curve.

Fixed clicks and pops can occur when adjusting drive level of Rat Distortion.

Fixed wrong value in phase inverter in Deluxe Verb Vibrato model.

25.01

Improved optical types in Tremolo block. Additionally, the LFO Type, Duty Cycle and Shape are now set to the most appropriate values when selecting the Tremolo Type but may be overridden by the user.

Fixed modifier accidentally removed from Chorus block Bypass control.

Fixed low frequency thump when switching Amp channels.

25.00

New “Cygnus X-3” amp modeling:

- Improved preamp algorithms.
- Improved power amp algorithms.
- Improved output transformer loss modeling.
- Improved preamp supply voltage modeling.
- Nearly all amp models have been “remastered” as a result of new measurement techniques and analytical methods.

As a consequence of the new modeling many default parameter values have been changed. Existing presets are automatically updated to the new parameter values upon recall. The updated parameters are:

- Preamp Low Cut Freq
- Preamp Hi Cut Freq
- Triode1/2 Plate Frequency
- All Cathode Follower parameters
- Preamp Bias
- Preamp Bias Excursion
- PI Bias Excursion
- Power Tube Bias Excursion
- Transformer LF/HF
- Transformer Drive
- Power Tube Grid Bias
- Cathode Resistance
- Cathode Time Constant
- Negative Feedback
- Supply Sag

Added “Sunrise Splendor” Drive model. Existing model renamed “Sunrise Splendor Hi-Cut” to denote that the Hi-Cut switch is engaged.

Added “Class-A 30W Brilliant” Amp model.

Added “Kill Dry” control to Delay, Multitap Delay, Pitch, Plex and Reverb blocks. When set to ON the dry signal is muted. This simplifies routing these blocks in parallel. When using these blocks in parallel the user can turn Kill Dry on and set the wet level using the Mix control, leaving the Level control at 0dB. This also has the advantage that the wet level is controlled by the global Reverb/Effects Mix, if desired.

Improved Input block Noise Gate.

Improved Classic Expander and Modern Expander types in Gate block.

Fixed wrong Miller capacitance value in Deluxe Verb Vibrato, Double Verb Vibrato, Super Verb Vibrato and all Vibrato Verb models.

Fixed wrong FX loop recovery gain in Suhr Badger models.

Fixed global settings not recalled if MIDI data is present on the MIDI In jack during bootup.

Fixed wrong Overdrive Volume taper in ODS-100 HRM, ODS-100 Ford and Bludojai Lead amp models. Existing presets should be auditioned and adjusted as necessary.

Various other fixes and improvements.

24.04

Changed Tuner mute logic so that only selected source is muted when Mute is set to INPUT.

Updated Fryette D60 models.

Updated Citrus RV50 model.

Updated CA3+ Rhythm and Lead models.

Updated Friedman BE/HBE models.

Updated Recto1 and Recto2 models.

Fixed Bit Reduction not working in Delay block.

Various other fixes and improvements.

24.03

Fixed Mr Z MZ models crashing.

Fixed spurious tone in input when Noise Gate is disabled.

24.02

Improved Stack/Hold behavior in Delay block for Tape types. While the echoes will still degrade over time if Stack/Hold is on the degradation is improved and only due to the losses of the virtual tape.

Improved Intelligent and Noise Reducer gate types in Input block. This eliminates the slight squeaking sound as the gate releases when using aggressive settings.

Improved Brit Silver model.

Fixed Ping-Pong types in Delay block not working properly.

Fixed popping when switching scenes.

Various other fixes and improvements.

24.01

Fixed right channel volume reduced in Cabinet block when Preamp is active.

Fixed Delay block distorting when presented with very high-level signals.

24.00

Improved speaker compression and amp interaction modeling.

Changed Master Volume taper for Recto1 models to agree with actual amp. This will slightly reduce the volume into the virtual power amp. Audition presets accordingly.

Added Global MV control to JS410 amp models. Master Volume has been renamed Channel MV. These two master volume controls can be used to balance the tone into the power amp (as in the real amp). The Channel MV decreases the high frequencies as it is turned down whereas the Global MV is transparent.

Added USA MK V Red amp models.

Improved accuracy of USA JP IIC+ models.

Improved accuracy of TX Star models. Global MV controls have been added as the Channel MV in these amps affect the tone (and interacts with the Presence control).

Improved Stack/Hold behavior in Delay block:

- In Hold mode repeats are now infinite (or nearly, may degrade over many minutes/hours)*.
- Added Stack Feedback and Hold Feedback parameters. This allows adjusting the decay time independently for the stack and hold modes.
- Improved transition between Stack/Hold states.

*Note that if the Compander is enabled and/or Bit Reduction is greater than zero that the echoes will degrade over time. If you want infinite repeats then Compander must be OFF and Bit Reduction set to zero. Infinite repeats are also not available in the Tape types as the tape algorithm is inherently lossy (like a real tape).

Improved handling of external word clock. If no clock is present unit will fall back to internal clock until a clock is detected.

Extended range of Preset Increment/Decrement sources to include rear pedal jacks.

Fixed attack behavior of Dynamicomp model to strong input signals. Default attack time also adjusted to match reference pedal.

Fixed wrong PI bias point in Class-A 30W models.

Fixed several mistakes in Div/13 CJ amp models.

Fixed several mistakes in Two Stone J35 models.

Fixed wrong phase inverter bias excursion parameters in Car Ambler model.

Fixed VU meter in Cabinet block Preamp section only showing left channel. Meter now shows the sum of left and right.

Various other fixes and improvements.

23.05

Changed Presence control taper on all 6160 and 5153 amp models to replicate the actual amp. It is advised to audition any presets that use these models and adjust accordingly.

Due to the improved triode algorithm introduced in 23.00 many amps have had their preamp bias points updated. Existing presets are automatically updated upon recall.

Improved Gapless Switching performance.

Fixed Output 1 Configuration being overwritten by Output 2-4 configuration.

Fixed several mistakes in 5153 Stealth models. If using these models it is recommended to do a soft-reset of the model by deselecting and reselecting the type.

Fixed Sene MIDI GUI not updating correctly when changing scenes via front panel.

Various other fixes and improvements.

23.04

Fixed wrong Negative Feedback value for Brit 800 2203 models.

Fixed Bright switch off by default on 5153 100W Stealth Blue model.

23.03

Improved CPU usage.

Added "Nobelium OVD-1" Drive model based on a Nobels ODR-1. The BC (Bass Cut) switch is modeled via the Bass Response control. Set the Bass Response to 1.0 to duplicate the response of the pedal with the Bass Cut switch engaged. Set Bass Response to 5.0 to duplicate response with BC switch disengaged.

Added Sunrise Splendor model based on a JHS Morning Glory.

Added Gauss Drive model based on a Mesa Flux Drive.

Added Brit 800 2203 models.

Renamed Brit 800 to Brit 800 2204 High.

Added Brit 800 2204 Low model.

Added 5153 100W Stealth amp models.

Added USA MKV Green amp model.

Changed default values of Speaker Drive and Speaker Thump to better align with measurements of typical speakers.

Added NFB Compensation switch in Amp block. This defaults to On. Turning it off disables the negative feedback volume compensation at the output of the Amp block.

Fixed LFO2 not working in Chorus block.

Fixed wrong Distortion pot taper in DS1 Distortion models.

Fixed wrong Gain pot taper in Angle Severe models.

Fixed wrong output pad in USA JP IIC+ Green model.

Fixed wrong default tonestack in 1959SLP and Plexi 100W 1970 models.

Fixed EQ graphs in some blocks not updating when resetting the channel.

Fixed Output Configuration being overridden by Copy parameter. I.e., if Output 2 Configuration is set to Copy L->R but Copy Output 1 is ON then the output would have the same configuration as Output 1 (e.g., Stereo).

Various other fixes and improvements.

23.02

Fixed Rotary block LFO stuck.

23.01

Improved CPU usage.

Fixed audio artifacts can occur when switching Reverb block channels if there are different types between channels, i.e., switching between a plate reverb and a room reverb.

Fixed LFO quantization generating wrong number of steps.

23.00

Improved Amp block triode algorithm.

Improved Spring Reverb algorithm:

- New algorithm is based on a digital waveguide with scattering nodes. This algorithm achieves accurate spring reproduction recreating the iconic “drip” and flutter of classic spring tanks.
- There are two internal Spring Reverb types. The type can be selected using the Tank Type parameter. This parameter defaults to the appropriate type based on the model.
- The first type has all the springs in parallel. This is used by the British Spring and Studio Spring models. This is equivalent to an Accutronics Type 8 reverb tank.
- The second type has a pair of springs in series in parallel with one or more pairs of springs in series. This is equivalent to an Accutronics Type 4 (four springs) or Type 9 (six springs).
- For the second Spring Reverb type the reflection off the junction between the coupled springs is controlled by the Scattering parameter. Vintage Accutronics reverb tanks exhibit more reflection off the junction than modern, Asian-made reverb tanks.
- The “Drip” parameter controls the dispersion of the springs.
- The various models have different tone controls.
- Several new models have been added. The Tube Spring model is based on a 6G15 Tube Reverb and has an authentic tone control. Studio Spring is a hypothetical spring reverb with six long springs in parallel.
- Note that the Modulation parameters have been removed as they are not compatible with the new algorithm.
- Existing presets using Spring Reverb types are reset to default values. Audition as necessary.

Improved Reverb block early reflections. As a result, the default values of Early Level and Late Level for the models have been updated. Existing presets are automatically updated to the new values. Audition as necessary. The Early and Late Level parameters have also been removed from the Basic page of the Reverb block.

Added “Pre-Delay Tap” parameter to Reverb block. This selects the input to the reverb engine. When set to OUTPUT the behavior is as before. When set to INPUT the initial delay is absent. This allows more natural “Echo-Verb” sounds. This is now the default for these types of models and existing presets are automatically updated.

New Plate Reverb algorithm. This new algorithm captures the dispersion (Star Wars™ Laser “pew, pew” sound) and unique stereo imaging of classic plate reverbs. Dispersion is adjustable via the Dispersion

parameter. Typical plates are around 25-50%. Set to higher values to exaggerate the effect. Stereo imaging is adjustable via the Pickup Spacing parameter.

Updated many of the Reverb models. Existing presets are not affected. Reselecting the model will load the new default values.

Improved Tremolo block:

- The optical tremolo algorithm has been completely rewritten.
- There are now three types of optical tremolo: Optical Trem 1: This type is based on optical pedal tremolos where depth controls the intensity of the LED. Optical Trem 2: This type is based on optical pedal tremolos where depth controls a “mixer” pot. This type has more “throb” than Optical Trem 1. Neon Trem: This type is based on the optical tremolo in classic “Blackface” amps which used a neon bulb to illuminate the LDR.
- The Tremolo type has been renamed “VCA Trem” and is based on a voltage-controlled amplifier topology.
- An LFO waveform monitor has been added for appropriate types.

Improved Tape Delay algorithm. The LFO1 Target and LFO2 Target parameters have also been removed from the Modulation tab as they are not applicable.

Improved Tape Chorus algorithm. The Number Voices parameter has also been removed from the GUI as it is not applicable to this type.

Updated Controller LFOs. The “Astable Beta” parameter for the LFOs has been renamed “Shape” and now controls the shape of the LFO for all types except Square and Random.

Updated all JS410 Lead models based on a current production JVM410HJS. The Crunch models were tested and did not require updating.

Added JS410 Lead Green amp model.

Added "2x12 USA C90 Open Back" speaker impedance curve.

Added Pitch High Cut parameter to Reverb block. This can be used to darken/brighten the pitch-shifted component of the reverb.

Added Modifier capability to High Cut parameter in Delay block.

Added Smoothing parameter to Cabinet block in Dyna-Cab mode.

Improved channel switching speed. Amp and Cabinet block channel switching times, in particular, are much improved. This, in turn, improves preset and scene switching times.

Preset, scene and channel changes are now gapless, if desired. A global parameter (Setup->Global Settings->Gapless Changes) allow turning this feature on or off.

Fixed NaN could occur in Euro Uber model at certain combinations of Presence and Speaker Impedance.

Various other fixes and improvements.

22.01

Added Revv Gen Green amp models.

22.00

Version 22 Introduces Dyna-Cab™ cabinet modeling.

The Cabinet block now has two modes of operation: Legacy and Dyna-Cab. Legacy is the previous style of operation.

Dyna-Cab cabinet modeling allows freely positioning the microphone. We took an approach of quality-over-quantity:

- Dyna-Cab IRs are a full 2048 samples.
- Mic positions are sampled at a fine spatial resolution.
- Four mic choices are available: Condenser, Ribbon, Dynamic 1 and Dynamic 2.
- All IRs are time-aligned with each other. They have been processed using a new algorithm that ensures alignment without destroying phase information. You can mix-and-match IRs from different cabs/mics and they'll always be perfectly aligned.

The Amp block now features “Auto Dyna-Cab Impedance”. When set to ON the speaker impedance curve of the Amp block will follow the Cabinet Type in the first mixer slot of the associated Cabinet block. I.e., if the Cab Type in the first mixer slot of Cabinet 1 is, say, 4x12 5153 and the Mode is Dyna-Cab then Amp 1’s speaker impedance will automatically be set to 4x12 5153.

Added “Treble Shift” control to Tone page of USA IIC+ models. This is an alias of the “Fat” control found on the Preamp page and performs the same function.

Added clip warning if Input 1 clips. This is indicated on the Mini-Tuner.

Added meters to Input page of I/O menu. Input 1 meter will turn red if clipping occurs.

Added Speaker Impedance Curves for “2x12 Class-A 30W Silver”, “2x10 Heart Key” and “4x12 1960BV”.

Added “4 Band JMPRE-1” type to Graphic EQ block. Note that the upper two bands of this type have more boost/cut range than the version in the Amp block.

Added “Revv Gen” amp models based on a Revv Generator 120. There are three models for each of the Purple and Red channels corresponding to the three levels of the “Aggression” switch.

Improved Amp block channel switching speed.

Fixed side-chain filters not working in Gate block.

Fixed a filter in the Wah block not being initialized.

Various other fixes and improvements.

21.04

Fixed Tuner not working if Offsets are on.

21.03

Improved dynamic speaker modeling in Amp block.

Reverted bypass speed of Drive block to fast.

Fixed channel changes on blocks with “Slow Bypass” are not smooth.

Fixed IR(s) not loading in Cabinet block when switching channels if previous channel had a slot Soloed.

Fixed presets with lots of modifiers (>20) and moderately high CPU usage can cause starvation of graphics thread.

Improved Tuner.

21.02

Added "59 Bassguy RI Jumped" amp model based on a ’59 Bassman LTD Reissue.

Added “JP IIC+ Shred” Input Boost type to Amp block. This replicates the “Shred” switch on the Mesa/Boogie JP2C.

Added “Bosom Boost” Drive model based on a Friedman Buxom Boost.

Added “OD-One Overdrive” Drive model based on a Boss OD-1.

Improved Compressor block:

- Improved Studio FF Compressor 1 type. New algorithm yields smoother release and “fatter” compression. This type is suitable for a wide range of uses now including bus and mastering. Type has been renamed Studio FF Compressor.
- Improved Optical Compressor types. New algorithm features improved ballistics and inherent soft knee for vintage optical compression sounds.
- Improved Dynamics Processor type. New algorithm also supports various detector types.
- Improved JFET Compressor type.
- Added Optical Sustainer type based on optocoupler-based pedal compressors..
- Added Analog Sustainer type. This is an upwards compressor using the same “analog” gain computer as the Analog Compressor type yielding a natural soft-knee response.
- Added JFET Sustainer type. This is based on a rare JFET-based pedal compressor where the JFET is in the op-amp’s feedback network.
- The range of the Release Time has been increased to 2ms to 2s.
- Added graph for Analog Compressor and Sustainer types.
- New Auto-Makeup Gain algorithms for most types provides better output level tracking vs. Threshold and Ratio. Note: As a result, the output level of the compressor block may be slightly
- different compared to previous firmware. Auditioning presets that use the Compressor block is recommended.
- Selectable Auto-Makeup Gain has been added to Optical, Tube and Analog Compressor types.
- Studio FF Compressor 2 has been renamed Studio FF Sustainer.
- Studio FB Compressor 1 has been renamed Studio FB Compressor and Studio FB Compressor 2 has been renamed Studio FB Sustainer.
- Types have been alphabetized.

Improved Gate block:

- Improved Downward Expander type. The “Hold Time” parameter has been removed as it is not compatible and no longer needed with the new algorithm. This type has been renamed “Classic Expander” as it based off classic analog downward expanders.
- Added “Modern Expander” type. This type uses a novel approach to the envelope detector resulting in improved ballistics compared to traditional analog expanders. A “Knee Type” parameter has been added which allows selecting between hard-knee expansion and varying degrees of soft-knee expansion.

Improved Noise Gate in Input block:

- Improved performance based on new algorithm developed for Gate block.
- A Mode selection has been added allowing the user to select between “Easy” and “Advanced”. In Easy mode the number of parameters is reduced simplifying the adjustment procedure for those who are unfamiliar with the finer details of gates/expanders for guitar noise reduction applications.

Changed bypass/engage speed for the following blocks: Drive, Filter, Graphic EQ, Parametric EQ, Tremolo and Wah. These blocks now bypass/engage with a gentle fade as rapid bypass/engage with these types of blocks can sound abrupt.

Updated PVH 6160 Block and PVH 6160+ models. New models have more accurate Gain knob response.

Reduced default Power Tube Grid Bias for PVH 6160 and Recto models as previous default was hotter than these amps are typically run due to the non-adjustable bias.

Improved Speaker Thump algorithm in Amp block.

Added “Oxbow Loadbox” and “Double Notes Loadbox” speaker impedance curves based on a Universal Audio Ox and Two Notes Torpedo, respectively.

Fixed Transformer and Vintage preamp types in Cabinet block not ported correctly during a previous firmware update. This manifested as the distortion not being frequency dependent.

Various other fixes and improvements.

21.01

Added “Paragon” type to Wah block based on a Tycobrahe Parapedal.

Fixed Hi Treble not working in Amp block.

21.00

New “Cygnus X-2” amp modeling:

- Improved Amp block output transformer algorithm. New algorithm more accurately models B-H curve resulting in a clearer low end. New algorithm now also accounts for effect of speaker impedance on transformer response.
- Improved power tube modeling. This yields better dynamics, improved low frequency accuracy and more accurate interaction with output transformer.
- Improved cathode follower algorithm. Provides more accurate “cleanup” when volume is rolled off.
- Improved triode algorithm more accurately models plate bypass capacitors.
- Improved dynamic frequency response accuracy. This yields more “crunch” and less “fizz” with high gain tones, especially for detuned styles.
- Various other improvements.
- All amp models have been updated as a result of the aforementioned improvements.

The default values of various parameters have been updated. Existing presets are automatically updated to the new values upon load.

Improved Drive block modeling to more accurately model effects of op-amp finite open-loop gain and GBW product.

Added “Griddle Cake” Drive model based on a Crowther Hot Cake. The “XLF” switch on the pedal can be replicated by turning the Bass Response knob fully CW.

Added “Overdrive Volume” parameter to Dumble-type amp models (ODS-100, Two Stone, etc.). This is sometimes labeled “Ratio” or “Lead Master”. As the Master Volume on these amps often has a bright capacitor the Overdrive Volume control allows setting the Master Volume higher to counteract the bright cap and then lowering the power amp drive with the Volume.

Added “Plate Suppressor Diodes” parameter. This value is set automatically when the amp model is chosen but the user can override the default setting. Most amps do not have suppressor diodes but some do (e.g., Trainwreck Express). These diodes (also called “snubber” or “flyback” diodes) prevent undershoot on the power tube plates due to inductive kick and reduce upper harmonics thereby reducing “fizz”.

The Ideal amp controls have been updated.

Added Brit Studio 20 Amp model based on a Marshall SV20H.

Added Plexi 50W 6CA7 Jumped Amp model. This is simply the jumped version of the Plexi 50W 6CA7.

Added features to the IR Capture Utility. The manual will be updated with the relevant information.

Renamed USA Clean to USA Rhythm 1 to be more in line with actual amp.

Reduced CPU usage in some cases.

Changed tone stack tapers for Class-A 30W TB to vintage specs.

Fixed wrong capacitor value in USA JP IIC+ models when Presence Shift is off.

Fixed wrong coupling capacitor value in 1959SLP Treble, 1959SLP Jumped and 1987x Treble amp models.

Fixed wrong resistor value in tone stack of Solo 88 Rhythm and Lead models. Probably not audible though.

Fixed low frequency behavior of Recto2 models due to loss of precision.

Fixed wrong treble pot taper in CA3+ models.

Fixed wrong capacitor value in Friedman HBE V1 Fat model.

Fixed wrong resistor value in AC-20 12AX7 models.

Fixed wrong Depth knob taper in Archean models.

Fixed wrong capacitor value and wrong feedback network connection in Energyball model.

Fixed missing resistor in Euro Uber tone stack.

Fixed High Mid control in Drive block set to minimum when importing presets created prior to 19.01.

Various other fixes and improvements.

20.04

More Drive block improvements. Drive block now incorporates the “Chase Transform Technique” for converting analog networks to equivalent digital filters. This improves accuracy in the high frequency region.

Added Esoteric Bass RCB and BB Pre AT Drive models.

Update BB Pre Drive model to match latest circuit (version 1.5).

Increased the range of the Level parameters in Multitap Delay to -100% to +100%.

Added cross feedback parameters to Quad Parallel type in Multitap Delay block. Added “Aurora Delay” preset to demonstrate capability.

Added PVH 6160 Crunch model.

Fixed Klone Chiron optional EQ not working.

FC: Fix Layout: Inc/Dec mini-display labels to show the correct destionation layout when in Destination # or Destination Name.

Various other fixes and improvements.

20.03

Improved Drive block.

Fixed Amp block Transformer HF being incorrectly set when using two Amp blocks.

Fixed Amp block Bypass state not being set correctly when using Scene Manager in Axe-Edit.

Removed USB Buffer Level meters as they are no longer applicable.

Various other fixes and improvements.

20.02

Improved speaker impedance curve fitting algorithm. This results in more accurate and more “colorful” modeling as the previous algorithm tended to damp box resonances somewhat. All the speaker impedance curves have been updated using the new routine. Existing presets are automatically updated to use the updated curves if “Update Pre-20.02 Presets Spkr Imp Upon Load" is set to YES in the Setup menu.

Added 4x12 Lerxst Omega speaker impedance curve.

Added 1x12 Deluxe Oxford speaker impedance curve.

Added 4x12 Hipower Pete T speaker impedance curve.

Added 4x12 Hipower Lindsey B speaker impedance curve.

Added 4x12 USA Semi-Open speaker impedance curve.

Added 2x12 Dizzy RV speaker impedance curve.

Added 4x12 London Town Tall speaker impedance curve.

Fixed Tap Times lost during patch/channel changes in Rhythm Tap Delay mode of Ten-Tap Delay block.

The A-Z knob will work correctly in both directions when editing the name of a Setlist.

Changes will now be immediately reflected for all slots when editing a Setlist songs.

Removed USB Buffer Size from Setup->Audio when USB Firmware is detected as being >= v1.14 as it is not applicable.

Various other fixes and improvements.

20.01

Added Speaker Thump control to Amp block. Speaker Thump models the dynamic, nonlinear behavior of a guitar speaker. A value of 5.0 roughly corresponds to an amplifier running into a speaker rated at the same power as the amplifier, i.e., a 100W amplifier running into a 100W speaker. The reset value is a conservative 2.5 which represents, i.e., a 50W amp running into a 100W speaker. Note that the majority of the response is in the subsonic region and the effect is primarily tactile. Existing presets are not affected and the value will be zero.

Improved Amp block output transformer modeling. This requires updated Transformer LF/HF values for the amp models. Existing presets are automatically updated to the new values upon recall.

Decreased minimum diffuser time in Delay block to 1%.

Added G12T-75 speaker impedance curve.

Added 2x12 Class-A Greenback speaker impedance curve.

Added 2x12 Two Stone 1265 speaker impedance curve.

Added Depth control to Authentic page for Brit Super, Brit 800 Mod and JMP-1 amp models.

Added Diamante Fire amp model based on a Diamond Del Fuego.

Changed “Drive” to “Gain” for Amp block preamp gain control as this is more consistent with naming in real amps.

Fixed switching channels on Drive block can cause pop.

Fixed switching channels on bypassed blocks can cause an audio gap.

Fixed wrong drive taper in Mr. Z Highway 66 model.

Fixed wrong capacitor value in Friedman Smallbox model.

FC: Fixed Factory Default layouts so FX Bypass and Channel switches use the correct blocks.

FC: Fixed an issue that prevented the Hold function from working correctly for some Stand-in Switches.

FC: Fixed UI to refresh when performing "Reset" on a Setlist or a Song from the front panel.

FC: Fixed Setlist functions to not load a song when "Song Load" is set to "None"

FC: Layout Link will no longer unduly trigger when exiting the Tuner.

FC: Preset: Select in Bank switches now stop flashing when the preset is changed by any means other than an FC footswitch (editor, front panel, etc.)

FC: Preset: Select in Bank switches now flash consistently when used with Bank: Select switches.

FC: Preset: Toggle in Bank now consistently and correctly loads the "Primary" preset after changing the bank.

FC: Removed "PREVIOUS" from Bank: Select function as it was replaced by "2nd Press = Previous Bank".

Various other fixes and improvements.

20.00

New “Block Mixer” algorithm results in faster/quieter scene and channel changes. This new algorithm allows placing Amp blocks in series without the concomitant sound bursts that would normally occur when switching scenes.

New Speaker Drive algorithm in Amp block. This new algorithm more accurately models the frequency dependent distortion of guitar loudspeakers. The default value (upon resetting the block) is 2.0 which gives roughly 1 dB of compression. Setting the value to 0.0 defeats the speaker drive modeling. Higher values give a smoother and more focused sound, rounding off the “sharp edges” and yielding greater compression.

Added new “Dynamic Distortion” block. This effect distorts the input signal dynamically, applying more distortion to different frequency ranges depending upon the shape of the filter. When the signal level is low the output will be the same as the input. As the signal level increases more distortion will occur in those bands boosted by the filter shape. This is a powerful tool for final shaping/mastering of your tone. The block contains a handful of presets which demonstrate the basic technique.

Added ability to use Pre-Delay in Reverb block as a simple echo. Pre-Delay now features Tempo, Feedback and Mix parameters. The pre-delay time has also been increased to 1s. Several types have been added demonstrating the capabilities.

Fixed Amp block Scene Ignore not being recalled correctly in some cases.

Fixed USB buffer level setting not sticking between power cycles.

Layout Link configured on a tap function for a footswitch will no longer incorrectly execute when activating the switch exits the Tuner.

Various other fixes and improvements.

NOTE: THIS FIRMWARE IS NOT COMPATIBLE WITH PREVIOUS VERSIONS OF AXE-EDIT. A NEW VERSION OF AXE-EDIT IS REQUIRED FOR USE WITH THIS VERSION.

NOTE: If you installed firmware 20.00 beta 4, you may find that some FC effect switches are now mapped to the wrong effects. For example, a switch that was set to bypass REVERB 1 may now bypass AMP 1 instead. This release prevents this problem from occurring you are upgrading from 19.x or older.

If you installed 20.00 beta 4, however, this will have already modified your layouts, so you will need to either restore them from a backup, or adjust the individual switches manually. Layouts can be restored using a "System" backup from Fractal-Bot, or a "Layouts" file from Axe-Edit. If you'd rather reset to the factory default FC layouts, find this under SETUP> FC Controllers> Reset.

19.08

Fixed error in Amp block low frequency resonance behavior.

19.07

Fixed bypass state can load wrong when switching from a preset with Scene Ignore on.

Changed Compressor block so that times display actual value for the various pedal types.

Various other fixes and improvements.

19.06

Added new Setlists/Songs feature, which can be used with an FC Controller to access presets and scenes in custom order during live performance. A new Setup menu area provides full access from the front panel, with a corresponding new area of Axe-Edit which offering import/export and more. For additional details, please see the Setlists & Songs Mini-Manual, located at: https://www.fractalaudio.com/sss-manual

Added Scene Ignore to Multiplexer block.

Improved Amp block transformer/speaker interaction modeling. The “Voice Coil Resistance” parameter has been repurposed/renamed “Speaker Impedance”. The various parameters work as follows:

Transformer Matching: Sets the impedance ratio (square of the turns ratio) of the output transformer. Speaker Impedance: Sets the relative nominal impedance of the speaker. To simulate connecting, e.g., a 4-ohm speaker to an 8-ohm output you would set Speaker Impedance to 0.5. Conversely to simulate connecting a 16-ohm speaker you would set it to 2.0.

Update PI Bias Excursion parameters for many Amp models based on new measurement technique.

Fixed Parametric EQ and Megatap blocks can cause GUI hang if modifier attached to parameter and update rate is set to FAST.

19.05

Added “Scene Ignore” to most blocks. When set to ON, Scene Ignore instructs the block to ignore scene changes. Scene Ignore is a per-channel parameter. This allows turning Scene Ignore to OFF on one or more channels which will then allow a scene change to set the block to a desired state if the block is on that channel.

Improved CNFB algorithms in Amp block resulting in smoother distortion and improved clarity.

Improved preset/scene switching when input impedance changes between presets/scenes.

FC: Switch Ring Color settings of "Off" will now work correctly.

FC: Effect: Chan Select LED ring will properly be dim when an effect is bypassed.

Various other fixes and improvements.

19.04

Fixed some Amp models can NaN due to index out-of-bounds.

19.03

Added Dual Detune Delay type to Pitch block. This type is comprised of two detuners with delay up to 2.0 seconds. Each detuner can feed back to itself and/or the other detuner.

Renamed Oversampling Mode “BEST PERFORMANCE” to “BEST QUALITY” for clarity.

Fixed Amp block instability when Output Mode is set to FRFR and Voice Coil Resistance is set very high.

Fixed Bludojai Lead model missing resistor between last preamp stage and power amp.

FC: Fixed Stand-In Switches not displaying correctly for certain switches.

FC: When the Effects: Chan Select function is used with SMART BYPASS selected as 2nd Press, the main LCD will now display ENABLED/BYPASSED along with the configured channel.

FC: Corrected a bug which caused some per-preset switches to not show the desired mini-display text or LED ring color.

Various other fixes and improvements.

19.02

Updated 59 Bassguy and 5F8 Tweed models to include both Drive controls.

Added 59 Bassguy Normal, 5F8 Tweed Normal and 5F8 Tweed Jumped amp models.

Added JMPRE-1 Output EQ type to Amp block. This type replicates the active EQ used in the JMP-1 preamp (see below).

Added JMPre-1 Clean1/2 models. Note: The real amp has a fixed, passive tone stack with an active 4-band EQ. Therefore, the Bass/Mid/Treble controls when using Authentic Tone Controls are mapped to the Graphic EQ. The passive tone stack itself, however, is adjustable. With all controls at noon the tone stack is equivalent to the real amp's fixed tone stack. You can access these controls using the Ideal Tone Controls or via Axe-Edit.

Updated JMPre-1 OD1/2 models. As with the Clean1/2 models the Bass/Mid/Treble controls now are mapped to the Graphic EQ when using Authentic Tone Controls.

Updated default cathode follower values for Matchbox D-30 model.

Added Spread control to Dual Delay and Tape types in Delay block. Spread acts as master pan in this case and is modifiable.

Added assignable third LFO to Delay block. This LFO can be assigned to Level, Pan or Spread and multiplies the corresponding value by the LFO value.

Added "Oversampling Mode" to Global menu. This parameter allows selecting between BEST PERFORMANCE and MIN. LATENCY.

Improved Input block gate performance.

Fixed Drive block can crash under rare circumstances when switching between certain models (from Blackglass 7K to diode-based model).

Fixed Amp block Transformer Match control not working properly.

Renamed Speaker Impedance to Voice Coil Resistance to more accurately describe the function of the control. Note that this includes all other "parasitic" resistances, i.e., speaker cable resistance, output transformer winding resistance, etc.

Rearranged order of pages in Amp block so that Input EQ and Output EQ are after Tone page.

Fixed Flanger block can cause loud transient at startup in rare circumstances.

The following FC enhancements/fixes are implemented:

- Added "Scene Level + Save" to the "Utility" functions.
- Added "Invert Mini-Displays" under the APPEARANCE section of the FC Controllers' Config page.
- Added a "STARTUP VIEW" to the FC Controllers: Device page.
- Added an option for "2nd Press = Previous Bank" to Bank: Select function.
- Added an option for "2nd Press = Previous Preset" to Preset: Select and Preset: Select in Bank functions.
- Added the option "2nd Press" to Effect: Select Channel function. The two choices are "Smart Bypass" which is a pre-existing feature, and "Previous Channel" which toggles to the previously selected channel instead.

- Added a “Current Channel” Mini-Display Label option to Effect: Chan Inc/Dec.
- Added a 1.5 second delay to functions that trigger a save of the preset to allow multiple actions before a single save.
- Fixed Bank limit calculations in some circumstances.
- Updated the switch ring LED to be dim instead of off for Function Effect: Select Channel when Smart Bypass is ON and the effect is in the preset but the effect is bypassed.
- Fixed stand-in switches not executing the tap function correctly when a hold function is assigned.
- Added "Current" option to the display functions for Bank: Inc/Dec function.
- Added "Current Name" and "Current #" options to the display functions or Preset: Inc/Dec and Scene: Inc/Dec functions.
- Fixed an issue when changing function to "Bypass" when the currently selected effect does not have a Bypass function (e.g., Mixer, Multiplex).
- Fixed an issue when changing FC effect type from "MultiPlex" to an effect containing fewer channels.

Various other fixes and improvements.

19.01

Added Damping control to Modifiers. The default, EXPONENTIAL, is the classic damping style where the modifier value has an exponential attack/decay. LINEAR selects a linear attack/decay.

Added Type control to ADSRs. The default, EXPONENTIAL, is an analog style where the ADSR has an exponential attack/decay. LINEAR selects a linear attack/decay.

Improved Phase Inverter Bias Excursion accuracy for some amp models (mostly non-MV types). Note: The improved PI Bias Excursion accuracy results in an increase in bias excursion in most cases. Bias excursion primarily manifests as intermodulation distortion, particularly subharmonic distortion. This produces a chunkier tone with more growl and also yields a thicker tone when rolling off the volume or playing lightly. The amount of bias excursion can be adjusted using the PI Bias Excursion control in the Advanced menu.

Renamed Timothy and Suhr Riot Drive models to clarify switch position.

Added Hi Mid control to Drive block.

Fixed Blackglass 7K model as reference pedal was defective. Added “Grunt” and “Attack” knobs to GUI (Grunt switch on pedal is a selectable low cut so knob duplicates Low Cut control).

Changed response of Horizon Precision Drive “Attack” control to match pedal (was reversed previously). Any presets using this model should be adjusted accordingly.

Improved accuracy of “G-taper” used for tone control in some Drive models, i.e., T808, VS9, Super OD, etc. Impact on existing presets is likely negligible but any presets using Tube Screamer models and their variants should be auditioned.

Fixed selecting Gibtone Scout tone stack causes NaN in certain amp models.

Fixed Amp block headroom meter monitoring wrong circuit node.

Fixed GUI not being redrawn when switching between a knob menu and a list menu.

Various other fixes and improvements.

19.00

Version 19.00 firmware represents the first use of the Chase Nonlinear Feedback (CNFB) technique for the solution of nonlinear ODEs. The power amp algorithm has been completely rewritten using the CNFB method. This provides improved accuracy, especially in the clipping and power supply sag behavior vs. frequency.

Added y-axis labels to RTA.

Added Time Shape parameter to Megatap Delay. The EXP/LOG setting is the default and behaves as before allowing time shapes between exponential and logarithmic (including linear). The SIGMOID setting is a four-quadrant shape that allows time shapes between sigmoid and inverse sigmoid. The COSINE and SINE settings select sine wave shapes with the Time Alpha parameter controlling the number of periods from 1 to 8.

Added 11 power tube types from various manufacturers.

Improved Amp block bypass/engage behavior to prevent level surges.

FC: Amp Level Save now has an option for 0 dB to allow saving a preset via a footswitch.

Fixed signal level into power amp a bit too high in 6160 models.

Fixed High Cut control not working in Mr. Z MZ-38 model.

Fixed Compressor block Auto Makeup Gain not being updated when changing types.

Fixed wrong op-amp clip threshold for DS1 models in Drive block.

Various other fixes and improvements.

18.03

Fixed Angle Severe and Energyball amp models hanging on certain combinations of Presence and Depth.

Fixed USB Output summed to mono if Global Output Mode set to MUTE.

Various other fixes and improvements.

18.02

Fixed cathode follower algorithm not working correctly for some models.

18.01

Fixed error in Amp block low frequency dynamic speaker impedance calculation.

18.00

Overhauled the Compressor block:

- Improved Auto-Makeup gain behavior.
- Added Input Level switch. When set to INSTRUMENT the detector is optimized for guitar-level signals, i.e., before an amp block. When set to LINE the detector is optimized for post-amp level signals.
- The Pedal, Optical, Tube, Analog, JFET and Dynamicomp types have been completely redone resulting in improved performance. These types now inherently perform automatic makeup gain.
- Auto Attack/Release has been removed from the Pedal and Dynamicomp types as it is no longer applicable.
- NOTE: Due to all these changes the behavior and output volume of the Compressor block may be different. It is recommended to audition any presets using the Compressor block and adjust as required.

Improved Stack/Hold implementation in Delay block so that “texture” is applied to audio when Stack/Hold is on.

Improved Amp block cathode follower algorithm. Algorithm now uses higher order solution of nonlinear ODE for more accurate low frequency response.

Improved Amp block power amp algorithm. New algorithm more accurately models dynamic changes in speaker impedance resulting in more “complexity”.

Improved Tape preamp types in Cabinet block.

Added check to prevent excessive message queuing, i.e., when selecting amp model using Value knob.

Added MUTE option to Output 1/2 Configuration. This allows muting the analog outputs while still passing data via USB. This can be used when using the Axe-Fx III in conjunction with computer plug-ins.

Added global Speaker Impedance Curve. When set to DEFAULT the speaker impedance curve used when selecting an amp model is the default curve for that amp model, otherwise it is the selected curve. NOTE: this does not affect existing presets. The selected curve is used only when selecting a new amp model.

Added several new Impedance Curves to Amp block. Thank you to Dr. Bonkers Soundlab for these.

Added Modifier capability to LFO Enable and Mod Frequency in Filter block.

Added RCB Boost to Amp block Boost types.

Reduced CPU usage for background GUI tasks.

Fixed DS-1 Drive types have no gain when Drive is at 0.0.

Fixed Reverb pitch buffers not being cleared if Pitch Mix is zero.

Fixed Turbo version aborting processing at CPU usage lower than limit.

Fixed Angle Severe models becoming unstable with certain speaker impedance curves. Note: the presence network for these models has been updated. Presets using these amp models should be auditioned as the tone may have changed.

Various other fixes and improvements.

17.03

Improved Stack/Hold implementation in Delay block so that “texture” is applied to audio when Stack/Hold is on.

Added check to prevent excessive message queuing, i.e., when selecting amp model using Value knob.

Added MUTE option to Output 1/2 Configuration. This allows muting the analog outputs while still passing data via USB. This can be used when using the Axe-Fx III in conjunction with computer plug-ins.

Added global Speaker Impedance Curve. When set to DEFAULT the speaker impedance curve used when selecting an amp model is the default curve for that amp model, otherwise it is the selected curve. NOTE: this does not affect existing presets. The selected curve is used only when selecting a new amp model.

Improved Pedal, Optical, Tube, Analog, JFET and Dynamicomp types in Compressor block. Auto Attack/Release has been removed from Pedal and Dynamicomp types as it is no longer applicable. NOTE: These types now inherently perform automatic makeup gain. You should audition any presets using these types and adjust the Output Level accordingly.

Added Input Level switch to Compressor block. This allows tailoring the compressor's response for instrument level or line level signals.

Added several new Impedance Curves to Amp block. Thank you to Dr. Bonkers Soundlab for these.

Fixed DS-1 Drive types have no gain when Drive is at 0.0.

Fixed Reverb pitch buffers not being cleared if Pitch Mix is zero.

Fixed Turbo version aborting processing at CPU usage lower than limit.

Various other fixes and improvements.

17.02

Added "ALL" as an option to Spillover in Global Settings. When Spillover is set to ALL the Delay, Reverb, Plex, Multi-Delay, Megatap and Ten-Tap blocks will not clear their buffers when switching presets.

Fixed Amp block Master Volume not working properly for JS410 and Texas Star models (introduced in 17.01).

Improved IR Player block so that volume is consistent if Mode is set to Parallel and only one IR is being used.

Fixed Plex and Multi-Delay Blocks displaying wrong type when recalling preset.

17.01

Added 10 FullRes IRs to the Legacy bank provided by Valhallir and York Audio. These are at the end of the bank. These can be loaded into the IR Player blocks or into Slots 3 and 4 of the Cabinet blocks. Note that Slots 1 and 2 of the Cabinet blocks do not support FullRes.

Adjusted Looper behavior so that when reaching the maximum recording time the behavior switches to that defined by Record 2nd Press ONLY on the first pass of a new recording.

Added dedicated Pitch Shifting to the Reverb block. This can be used to create "Shimmer Reverbs" easier than using separate Pitch and Reverb blocks (and with less CPU usage). Several new types are included to demonstrate the capability.

The Pitch Direction parameter controls the direction of the pitch shifters. FORWARD runs both shifters forward. REVERSE runs both in reverse. FOR/REV runs Voice 1 forward and Voice 2 in reverse. REV/FOR runs Voice 1 in reverse and Voice 2 forward.

The Pitch Position parameter controls the location of the pitch shifters. INPUT locates the shifters at the input of the block. MATRIX locates the shifters inside the reverb matrix. FEEDBACK locates the shifters in the matrix feedback loop. MATRIX and FEEDBACK can yield more intense effects and also helps the reverb "stick" to the notes better. FEEDBACK builds slightly slower than MATRIX. CAUTION: The MATRIX and FEEDBACK positions can cause instability at high values of Pitch Mix and Pitch Feedback. In general Pitch Feedback should be low or zero when using MATRIX or FEEDBACK.

Overhauled the Megatap block. See the updated Blocks Guide for details.

Added modulation to Diffusers in the Delay, Multitap and Megatap blocks.

Improved Auto-Swell type in Volume block. Added S-Taper to taper selections.

Added Modern Gate type to Gate block. This type is similar to the Classic Gate except the gate opens in a constant linear-in-dB manner. This naturally makes the attack slower as the gate first opens and can be used for both traditional gating and for special effects like audio swells.

Increased maximum sustain for the applicable types in the Compressor block. Existing presets are automatically updated.

Added new types to the Multitap Delay block.

Added new types to the Plex Delay block.

Added LFO for filter in Plex Delay block.

Added new types to Flanger block.

Improved accuracy of Master Volume in Amp block for low settings.

Improved accuracy of Drive block Drive control for low settings.

Fixed wrong resistor value in Solo 88 Lead input circuit. Impact is probably negligible.

Fixed wrong resistor value in USA Pre LD2 overdrive circuit. This increases gain slightly. You may need to audition any presets using these models and adjust gain accordingly.

Fixed Multitap block bandpass filters not being disabled if Master Q set to minimum.

Fixed block input not muting in bypass if Bypass Mode is Thru.

Fixed Chorus block left delay line getting unsynchronized when switching between types.

Fixed pressing Tuner button in Axe-Edit brings up Reverb UI.

Fixed Amp block power tube "k_{vb}" not being set correctly in rare circumstances. This caused the output level of the amp block to change depending upon the previous preset used.

Fixed wrong B+ voltage for Temolo Lux amp model.

Fixed IR Capture not saving correctly if IR Type set to UltraRes.

Improved CPU usage.

Various other fixes and improvements.

Special thanks to Leon Todd, Simeon Harris and Cooper Carter for new effect type contributions.

17.00

Version 17 introduces FullRes™ Impulse Response processing. FullRes processes IRs up to 64K points with zero latency using a novel technique. This provides up to 1.37 seconds of response time. Seasoned producers and engineers often mix in "Room Mics" during recording to increase the depth and liveliness of recordings. However, the typical live room has a reverb time of 500-700 milliseconds, well beyond the 20-40 ms afforded by typical IR processing. FullRes allows capturing the full response of a typical live room and even the response of small-to-medium halls and clubs. FullRes can also be used for convolution reverb applications for reverb times less than 1.37 seconds.

The IR Player block and the Cabinet block both support FullRes IRs. The last two slots of the Cabinet block support FullRes. This is sufficient to provide two room mics, a left and a right, along with two direct mics within a single Cabinet block.

The new FullRes User IR bank supports up to 64 FullRes IRs. When capturing an IR selecting the USER FR bank will automatically set the IR Type to FullRes. Likewise, when setting the IR Type to FullRes the bank will automatically be set to USER FR. FullRes IRs can be processed with minimum-phase or auto-trim, if desired. However, minimum-phase is not recommended as this will tend to destroy the reflection information.

The Scratchpad bank has been updated to support FullRes IRs.

NOTE: The FullRes User IR bank is only available on the Axe-Fx III Mark II. The original Axe-Fx III has less non-volatile memory and therefore does not have the necessary resources to store the IRs. The Scratchpad bank supports FullRes IRs but the data will be lost when the unit is powered off.

IR management has been completely rewritten providing smoother performance and better integration with Axe-Edit.

The IR Player block now supports two IRs with individual level and pan controls for each IR. Setting the IR Length to OFF defeats the IR. A Mix control is also provided so the block can be used as a convolution

reverb. A Mode control allows the two IRs to be in parallel or series. When in series the individual level and pan controls are defeated and removed from the UI.

Increased Mic Distance range in Cabinet block to 3.4m (~11 feet). This allows delaying room mic IRs that have been trimmed to remove the leading silence. The alignment graph now features a Zoom control that changes the abscissa between 3ms and 12ms.

Improved Pitch Detection performance.

The UI has been improved to support double-tap of certain keys as follows:

- Double-tapping EDIT edits the previous block.
- Double-tapping HOME enters the layout grid.
- Double-tapping STORE prompts immediately.
- When on the Home or Layout pages double-tapping the Quick Entry knobs does the following:
    - A: Enters the Amp 1 menu.
    - B: Enters the Drive 1 menu.
    - C: Enters the Cab 1 menu.
    - D: Enters the Delay 1 menu.
    - E: Enters the Reverb 1 menu.

The buttons in the effects GUI have been simplified to a single page.

Fixed names of Dizzy V4 2 and Dizzy V4 3 swapped.

Added FAS Buttery amp model.

Added 1S1588T diode SPICE model to Drive block. This is the Toshiba version of the 1S1588 and is reportedly the diode used in the “best sounding” TS-808s. The T808 OD models have been updated to use this diode. Existing presets are unchanged.

Added “Valve Screamer VS9” and "Maxoff 808" Drive models.

Improved scene switching to prevent signal “leaking” into bypassed blocks.

Added Max Loop Time parameter to Looper. This sets the maximum recording time. This allows a loop to be automatically created once the loop time exceeds this value.

Changed Looper behavior so that if recording and time reaches the maximum recording time the mode changes to that specified by Record 2nd Press.

Added support for Axe-Fx III Mark II “Turbo”.

Various fixes and improvements.

16.05

Improved behavior of Synth block Shift control when attached to a modifier.

Fixed Compressor block GUI not displaying properly in some cases.

Fixed FAS Brootalz model inadvertently changed since it was referencing the Angle Severe presence network which was changed.

Fixed Master Time not working in Plex block for Plex Detune and Plex Shift types.

Fixed Tone Match block IR Slot number in Export page not displaying correctly in some circumstances.

16.04

Added “Indicate Edited on Scene Change” to Global Settings.

Improved Sequencer functionality. The Run control has now been expanded to STOP | PAUSE | RUN. When set to PAUSE the sequencer will halt but not reset the sequence count. The Step control allows manually stepping the sequencer when the sequencer is paused or running.

Improved Rotary block drive algorithm.

Fixed using two Amp blocks in certain combinations of models causing high frequency whine.

16.03

Updated Amp block default Excursion Time and Release Time values as some were entered incorrectly. Existing presets are automatically updated to the new default values upon recall.

Improved Delay block algorithms and models. Improved menus by adding a basic Config page with the essential controls and an Advanced page with all the controls for that model. Added a Master Time control.

Added Compander type to Compressor block. The Transients control adjusts the transient modification. Values less than zero soften the attack, value greater than zero emphasize the attack.

Improved Amp block power amp transient response accuracy.

Fixed wrong attenuation between preamp and power amp in Class-A 30W Bright model.

Fixed Headroom meter stuck in certain circumstances when using two Amp blocks.

Fixed Amp block displaying wrong channel number when setting channel via Scene Manager in Axe-Edit.

Fixed pop when switching channels on Input block when using different gate types.

16.02

Improved Amp block power tube grid bias excursion algorithm. The default Excursion Time and Release Time values have been updated as a result. Existing presets are automatically updated to the new default values upon recall.

Improved Delay block so repeats do not degrade when Hold is activated.

Added Rows 1-6 as Reference Sources for Tone Match block.

Added Power Amp Modeling ON|OFF control to Amp block and removed that functionality from the Supply Sag control. Existing presets are automatically updated upon recall.

Fixed Master Comb Time not working in Multitap Delay block when using Quad Series type.

Fixed Reverb High Cut Slope not working.

16.01

Improved output transformer / speaker impedance interaction modeling. This yields more accurate low frequency response. Note that the Transformer LF parameter effectively adjusts the transformer's inductance. Increase this value to simulate a smaller transformer, decrease to simulate a larger transformer.

Improved power amp cathode current calculation accuracy for cathode biased models.

Updated default Power Tube Grid Bias and Negative Feedback on many models based on new measurement technique. NOTE: As a result of this existing presets will update the aforementioned parameters to the new default values upon recall.

Added frequency cursor to Parametric EQ graph.

Updated Blackglass 7K Drive block model. Previous model was incorrect due to defective reference unit.

Increased gain range of Filter and Parametric EQ blocks to +/-20 dB. Also increased gain range of input EQ in Amp block. Existing presets are automatically updated.

Improved Reverb algorithms. Added a couple new types.

Fixed incorrect channel indication in Amp block when changing scenes if Scene Revert is true.

Fixed incorrect Drive control taper in Jr. Blues amp models.

Fixed incorrect default P.I. Bias Excursion in Princetone Reverb and Div/13 CJ Boost models.

Fixed missing UI for several Friedman amp models.

Fixed missing pad between preamp and power amp in USA Pre Lead models.

Fixed pop when changing Amp block channels between models with disparate gains.

Fixed switching to a preset with a Reverse Delay from certain other presets causes noise burst at switchover.

Fixed NaN in Stereo Tri-Chorus if Delay Time and Rate are set to minimum.

Various optimizations and improvements.

16.00

New “Cygnus” amp modeling algorithms.

Added “Sonic Dist” Drive type.

Fixed popping when switching channels in Drive block in rare cases.

Fixed Studio FF Compressor 2 type not working properly if Knee is set to “Hard”.

Fixed Delay block maximum time limited to 8s regardless of entered time.

Fixed Amp block not updating properly when changing scenes if Scene Revert is on.

Various other fixes and enhancements.

15.01

Improved output transformer modeling in Amp block. For typical values of Transformer Drive the difference is subtle but mathematically more accurate adding a pleasing low-end growl and improving “tightness” in high-gain sounds. For high values of Transformer Drive the difference is more pronounced. If you have increased Transformer Drive on your presets above the default value then you should audition your presets.

Fixed Depth control not working on some amp models.

15.00

Improved Amp block power amp modeling. Improved algorithm yields accurate dynamic frequency response which results in clearer bass and extended highs. More “chug”, “thump” and “chime”. NOTE: Existing presets should be auditioned. While the overall tone isn’t significantly changed, the transient frequency response is enhanced which may alter the tonal perception.

Added ability to route AES/SPDIF or USB 5/6 to any input. This has been achieved by changing “SPDIF/AES Select” to “Digital Input Source” which allows choosing between AES, SPDIF or USB 5/6. Each input now has an “Input Source” selectable between Analog or Digital.

Increased maximum delay time for Delay blocks to 16 seconds.

Added “DS1 Distortion” Drive type.

Added “DS1 Distortion Mod” Drive type based on a DS1 w/ popular mods.

Added “59 Bassguy Jump” amp model.

Many of the Fender® amps have been “modified” with authentic presence and depth networks even if the real amp doesn’t have them (this was required for the new power amp algorithm). When the Tone Control Display is set to IDEAL the Presence and Depth controls can be used to shape the power amp response just as if the real amp had been modified. Setting the Presence and Depth controls to zero effectively removes the modifications. WARNING!!! If your presets use non-zero values of Presence and/or Depth for amp models whose real counterparts do not have presence and/or depth circuits your presets may sound different and should be adjusted accordingly. I.e., if you have turned Presence up for the Deluxe Verb model your preset’s tone will have changed as a real Deluxe Reverb does not have a presence network (and Presence defaults to zero for that model).

Fixed GUI bug for TS9DX Hot model.

Fixed Scales menu in Global Settings.

Fixed clicking in Amp block if large number of modifiers are connected to controls.

Fixed modifiers connected to Amp block can cause unwanted change if modifier is only active for one channel.

Fixed erroneous values can be displayed when changing channels on a block and the GUI configuration between channels is different, i.e. different number of EQ sliders or different authentic amp parameters.

Fixed second pot of ganged dual pot in Citrus Terrier amp model applied at wrong point in circuit.

Fixed Ratio at maximum in Compressor block should display “INFINITE” but doesn’t when first entering page.

14.06

Fixed bypass state not changing in Layout menu when zoomed out.

Fixed Metronome Level controls in Tempo menu not updating.

Fixed LFO Phase parameter doesn't work when LFO Type is set to ASTABLE.

Fixed 0.2 dB loss in some blocks (i.e. the Return block).

Reduced audio gap when switching channels in Amp block.

Added “TS9DX Hot” Drive model.

14.05

Improved client-server protocol to reduce message traffic. This results in snappier GUI performance especially for presets with high CPU usage. The new protocol is backwards compatible with Axe-Edit, however the latest version of Axe-Edit is required to take full advantage of the improvements.

Improved Amp block power tube grid clipping algorithm.

Fixed error in Studio FB compressor type that could result in distortion under certain circumstances.

Fixed wrong gain constant in Tube Drive 4-Knob model.

Fixed feedback network not fully initialized in Recto and Triple Crest models. In most cases this is inaudible but in rare cases when switching between Amp block channels the tone and gain of the power amp could be incorrect.

Fixed LFO Phase not working when LFO type is set to Astable.

Fixed incorrect extra feedback path in Pitch block for Quad Chromatic Delay and Quad Diatonic Delay types.

14.04

Fixed NaN when setting a tone control to zero in certain amp models (introduced in 14.02).

14.03

Fixed Cabinet block LF/HF damping applied to only left/right respectively.

Fixed setting a tone control to maximum in Amp block can cause NaN in certain models (introduced in 14.02).

14.02

Fixed Euro Uber model gain dropping if Input Drive set to maximum.

Fixed Fat Switch changing wrong capacitor value on Archean model.

14.01

Added semi-parametric EQ to Multitap Delay block. The EQ is similar to the Filter block with the addition of selectable low cut and high cut filter slopes. Note that the overall gain of the EQ automatically adjusts to unity when using any filter types that boost frequencies so as to prevent instability.

Added second source to Modifiers. A Modifier can now have two sources: Source 1 and Source 2. Each modifier has an individual Scale parameter from 0 to 100%. The operation between the two sources is selected via the Operation parameter and allows addition, subtraction or multiplication of the two sources.

Changed behavior of Random LFO so that value changes when switching from Stop to Run.

Improved boot time.

Updated Euro Uber amp model. It is recommended to do a soft reset of the model by deselecting and then reselecting the Amp type.

Added several new amp models.

Fixed wrong capacitor value in Brit JVM OD1 Orange and Red models.

14.00

Improved Amp block cathode follower accuracy. The Hardness parameter has been removed and the default values have been changed. Existing presets are automatically updated. If you have edited the cathode follower parameters you should audition your presets as these parameters will automatically be reset to default values when the preset is loaded.

Because of the cathode follower change the following amp models have been updated:
Friedman Small Box
Dizzy V4 Blue (all models)
Herbie (all models)
Recto 1/2 (all models)

Due to the discovery of a measurement error the JMPre-1 models have been completely reworked. If you are using any of these models it is recommended to reset the block and audition your preset(s).

The Tube Pre model has been changed so that the power amp is off by default.

Added a couple new amp models.

Fixed turning Diffusion Time all the way up in Delay block causes noise.

Fixed ADSR graph goes funky if Attack time is set very low and other times are relatively large.

Fixed knob labels for sliders not centered under sliders if number of sliders is less than 5.

Added support for Axe-Fx III Mark II.

13.03

Added modifier capability to Multitap Delay block Level parameters.

Added modifier capability to Synth block Attack parameters.

Fixed Amp block generating NaN at startup in rare cases due to uninitialized data.

Fixed output level knob value not applied to Output 1/2 if Global EQ type set to NONE.

Fixed first preset may be temporarily erased if corrupted data in User Cab Bank.

FC: Tuner will now automatically display whenever tuner is displayed on Axe-Fx III.

13.02

Added “Compulsion Distortion HP” Drive type. Existing type name changed to “Compulsion Distortion LP”.

Added “Tuner on Heel Down” to MIDI/Remote. The corresponding controller will automatically display the tuner when the value is less than 5%. Typically the user would set this to the same CC# (or internal/external pedal) that they use for their primary volume control, whether that is assigned to a global volume control or to a modifier in a Volume block. For example, if you use CC #23 as External Control 1 and connect that to the Volume 1 block in all your presets then set this to 23. Likewise if you use FC 1 Pedal 1 as a global Input 1 Volume control then set this to FC 1 Pedal 1. Now when you set your expression pedal to the heel down position the tuner will automatically display.

Added marker to ADSR graphs. Also changed ADSR graphs to show curves in linear units (rather than log).

Added Master Chorus Rate and Master Chorus Depth parameters to Multitap Delay block. The Master Rate and Master Depth have been renamed Master LFO Rate and Master LFO Depth. Master LFO Depth no longer controls the chorus depth.

Improved layout of Multitap Delay GUI.

Improved Drive block CPU usage for diode-based models.

Improved CPU usage for Reverb block in high-quality modes.

Fixed filter modulation not working in Multitap Delay block.

Fixed Graphic EQ not working for Output 1 and 2.

Fixed USB/Digital Metronome Level controlling wrong output.

13.01

Fixed global Input Gain loading wrong value.

Changed global Input Gain and Amp block Input Trim to read in linear units due to confusion over the meaning of dB.

13.00

Improved Drive block modeling. New algorithm uses a novel solution to solve the nonlinear ODE of a diode clipper with memory (i.e. a capacitor). The accuracy of the diode I-V curve is also greatly improved. This new algorithm has the accuracy of implicit iterative solutions with speed rivaling explicit solutions. CPU usage is only slightly increased vs. the previous algorithm. Note that many of the Drive models will now behave differently and presets should be auditioned. The behavior of the tone controls in some models has also changed. Of note are the Timmy models where the tone controls are now faithful to the actual pedal and decrease bass/treble when turned clockwise.

The Drive block now features a “Bass Response” control for types based on the Rat, Tube Screamer and various derivates. In some models this is duplicated on the Basic page as it is the Bass/Voice/etc. control (and renamed accordingly). This function was previously provided by the Low Cut control. The Low Cut control is now a separate control that allows adjusting the input highpass frequency. Existing presets will automatically be updated with the new default value for the Low Cut control.

Added Bias control to GUI of all Drive block models.

Added “Headroom” monitoring meter to Amp block. The most common reason for “muddy” tones with high-gain amps is incorrect setting of the Master Volume control. The Headroom meter displays the voltage at the virtual power tubes in dB. If the Master Volume is too high the meter will be near 0 dB most of the time. Note that this only applies to amps where the power amp is intended to run “clean”

like the 6160, Recto, etc. Non-Master Volume amps get their distortion from the power amp distorting so this recommendation does not apply.

12.14

Improved Amp block Speaker Compression modeling. New algorithm is more accurate and sounds smoother with more “growl”.

Fixed incorrect default Negative Feedback for Deluxe Verb models (correct value is 2.00 if you want to update existing presets).

Fixed NaN when changing Drive block type if modifier is attached to Drive or Tone.

12.13

Changed Amp block Input Trim to read in dB.

Fixed Setup->MIDI/Remote menu corrupted.

12.12

Added Modifier capability to:
- Controller block LFO Output B Phase
- Input block Output Level
- Amp block Variac
- Amp block Input EQ Frequency
- Amp block Graphic EQ
- Parametric EQ block Freq, Q and Gain
- Graphic EQ block sliders

Added Input 1 Gain parameter to Setup->I/O->Input menu. This allows trimming the Input 1 gain to adjust for variations in guitar output level without having to adjust each preset.

Changed Home page behavior so that selected page doesn’t change after recalling a preset from the Preset page.

FC: FC #4 will now reflect the appropriate layout

FC: Disable FC-6/FC-12 compatibility mode when loading FC-6 factory defaults

12.11

Added LFO High Cut to Controllers.

Fixed Flanger block Rate not updating correctly.

Fixed missing PHV 6160+ CLEAN tone stack string.

NOTE: This firmware is NOT compatible with Axe-Edit versions prior to 1.06.00. You MUST install 1.06.00 or later BEFORE using Axe-Edit with this firmware.

12.10

Changed External Controller Initial Values to be continuously adjustable from 0 to 100%.

Fixed Amp block crackling in rare cases.

Fixed Amp block Variac has no effect when Supply Type is set to DC.

Fixed NaN if Reverb block Crossover Freq is set very high and Low Freq Time is set very low.

NOTE: This firmware is NOT compatible with Axe-Edit versions prior to 1.06.00. You MUST install 1.06.00 or later BEFORE using Axe-Edit with this firmware.

12.09

Improved power tube modeling yields smoother overdrive especially for semi-clean and edge-of-distortion tones.

Increased Amp block B+ monitor range as Variac settings can cause B+ voltage to fluctuate beyond visible limits.

Added 6CA7 power tube type. While the 6CA7 is generally regarded as a substitute for the EL34 it is actually a different tube with the 6CA7 being a beam tetrode. This particular tube type is modeled after the original Sylvania “Fat Bottle” 6CA7.

Increased tuner sensitivity.

Fixed clicking when changing MUTE/SOLO switches in Cabinet block while playing.

Fixed click/pop in Pitch block when going from negative (or no) shift to positive shift.

Fixed Pitch block Custom Scale number not displaying correctly.

12.08

Improved Reverb algorithms.

Added ECONOMY mode to Reverb block. This can be used to reduce CPU usage when building elaborate presets.

Decreased minimum Attack Time of Compressor block to 0.1 ms. Existing presets are automatically updated.

Added JFET Compressor type.

Added three new Studio Compressor types. Studio FF Compressor 2 is similar to Studio FF Compressor 1 (formerly called Studio Compressor) except that it is an "upwards compressor" as opposed to a downwards compressor. Studio FB Compressor 1 and 2 are feedback compressors with downwards and upwards compression respectively. As these are feedback compressors, they yield a different sound than a feedforward compressor commonly referred to as "fat" with smoother dynamics. Note that nature of feedback compressors can result in distortion at extreme control settings (fast attack/release, high ratio, etc.). It is therefore recommended to set Auto Att/Rel to ON in these instances.

Improved Intelligent Pitch Shifter algorithm. This applies to all Pitch types except Dual and Quad Detune or when the Tracking Mode is set to OFF. The pitch detection algorithms have also been improved. The Tracking Mode parameter has been renamed "Pitch Tracking" and is selectable between OFF, FAST and SMOOTH.

Improved pitch detection for Synthesizer and Ring Modulator blocks.

Improved Crystal Echoes algorithm. The Crossfade Time and Crossfade Type parameters have been removed as they are no longer applicable.

Added Diffusion to Crystals type in Pitch block. This can be used to "smear" transients for a softer sound.

Improved Plex Shift and Plex Shimmer types in the Plex block. The Cross-fade parameter has been removed. For the Plex Detune type the Cross-fade parameter has been renamed Granule Length as that is a more accurate description.

Improved Envelope Followers in Megatap, Multitap and Plex Delay blocks.

Added PVH 6160+ Clean Bright and PVH 6160+ Crunch Bright amp models based on a Peavey 6505+ Rhythm channel with the Bright switch engaged. Note that the bright switch on this channel does not engage a capacitor on the drive potentiometer as is typical but instead disengages a treble cut circuit.

Renamed PVH 6160+ Rhythm and PVH Rhythm B models PHV 6160+ Clean and PVH 6160+ Crunch respectively for clarity.

Improved Downward Expander in Gate block when Detector Type is PEAK.

Removed the Frequency Range parameters from the Multiband Compression block and extended the range of the Crossover Frequency parameters to cover the entire range previously available. Existing presets are automatically updated. Note that when adjusting a Crossover Frequency that the unit will automatically adjust the complementary frequency to ensure the mid band is at least one octave wide.

Fixed Tremolo block trigger turning off even when threshold is set to OFF.

Fixed wrong resistor value in Brit JVM models causing excessive blocking distortion.

Fixed using Astable LFO type in some effects causes noise.

Fixed switching between types in Chorus block can causes clicks.

Fixed wrong default Depth value for 5153 Red model (real amp has fixed depth resistor). Removed Depth controls from all 5153 Authentic GUI pages (except 5153 50W Blue for which the real amp does have a Depth control).

Fixed Drive block clicking when changing channels when bypassed.

FC: Views for Layout Link will now be restored properly after reboot.

FC: When entering the Master Layout menu via the switch-combo, the FC-6 will now always go to View 1.

FC: Per-Preset labels will no longer be displayed for unassigned switches.

12.07

Improved Compressor block. The RMS detector type has been improved resulting in smoother decay. The Auto Attack/Release algorithm has been improved resulting in less “chatter” when using low attack and/or release times. The Tube Compressor and Analog Compressor types now support RMS+Peak detector mode. A new knee shape algorithm in the Studio Compressor has been implemented resulting in a more musical tangential response like that of classic analog compressors.

Improved Downward Expander in Gate block. The RMS detector type has been improved resulting in smoother decay. Added Detector Type parameter which allows selecting between RMS (default) and Peak types.

Improved Multiband Compressor based on improvements to Compressor block. Added Auto Attack/Release mode.

Improved Astable LFO type so that adjustments to Beta, which can occur when changing channels, do not cause “baseline wander”.

FC: When navigating the editor or front panel, certain screens will no longer reset the value used by external modifiers for FC Pedals.

12.06

Improved performance of noise gate in Input block. Both the Classic and Intelligent types have been improved. The new Noise Reducer type reduces noise while preserving the attack of the note. It does this by using intelligent filtering to remove line noise and high frequency hiss will leaving the rest of the spectrum intact. Be sure to set the global Line Frequency to a value commensurate with the AC frequency in your country. Note that the Classic and Intelligent types can achieve complete silence while the Noise Reducer type can let some sound through as it is designed to be as transparent and unobtrusive as possible.

Improved Downward Expander type in the Gate block.

Fixed zipper noise when using an FC pedal to control input volume.

Fixed Delay Time not sticking for Ten Tap Delay.

Removed Bass, Mid and Treble controls from Capt Hook 1B amp model as this mode models the channel with the EQ Bypass engaged.

Fixed incorrect Dry Level in following Drive block models (was 100%, should be 0%):

- Shred Distortion
- M-Zone Distortion
- Ruckus (all versions)

Fixed High Slope controls in Cabinet block non-functional.

Added graphs to Setup -> I/O -> Pedal menu for pre/post-calibration visualization.

FC: Fix Tap Tempo function setting incorrect tempo when assigned to a stand-in switch.

FC: Fix Tuner not exiting when tapping a Stand-In Switch whose Hold function is Tuner.

FC: Fix UI of Stand-In Switches page not showing text representations of settings.

FC: Fix View Inc/Dec when accessing MLM on an FC-6 via Master Layout "Switch-Combo".

FC: Fix View Inc/Dec mini-LCD display when set to "Destination #".

FC: The main LCD will now display the correct first preset in the bank if the Global Setting for "Display Offset" is set to '1.'

FC: Stand-in switches will now perform their hold function based on the Hold Function Mode specified on the Config page of FC Controllers.

12.05

Rolled back FC changes temporarily until bugs are fixed.

Added modifier capability to ADSR Sustain Level.

12.04

Updated the default value of P.A. Cathode Bias Resistor for some models. Existing presets are NOT changed. The new default values are listed here if you want to apply them to your presets:

AC-20 DLX: 61%
Boutique 1,2: 48%
Blankenship Leeds: 58%
Car Roamer: 56%
Class-A 15W TB: 56%
Class-A 30W: 46%
Citrus A30: 56%
Citrus Terrier: 60%
Deluxe Tweed: 49%
Div/13 CJ: 56%
Div/13 FT37: 56%
FAS Class-A: 56%
Gibtone Scout: 76%
Hot Kitty: 50%
Matchbox D30: 59%
Nuclear Tone: 78%
Wrecker Liverpool: 59%

Improved pedal calibration.

Changed parameter value display to update if control is attached to modifier.

Added Triple Crest amp models based on a Mesa Triple Crown TC-100. Note that the actual amp's "Tight" switch engages a built-in Tube Screamer circuit which can be replicated using a Drive block or the Amp block's internal Boost feature.

Fixed a couple mistakes in Citrus Terrier amp model.

Fixed clicking when engaging/bypassing effects which change input impedance.

Fixed some parameters that should be modifiable (i.e. Chorus Rate, Rotary Rate, etc.) are not displayed as such.

FC: Add FC Views to allow access to all 12 switches from the FC-6.

FC: Add 'Current' display options for the toggle functions.

FC: Mini-LCD text for Per-Preset Placeholders with no functions assigned to them.

FC: Exit Tuner when a switch is tapped if that switch has Tuner as a Hold function.

12.03

Improved Amp modeling.

Added Low Cut to Dual Chorus type.

Improved Delay block Stack/Hold operation when using short delay times.

Added DynamiComp type to Compressor block. This is a pedal-style compressor with a faster attack behavior.

Fixed Input block UI.

Fixed Modifier graph when changing scenes remotely.

Fixed audio glitch when switching between two presets using Spring reverb.

Fixed fuzzy tone from some amp models if Sat Switch is engaged.

12.02

Fixed UI unresponsive if modifier attached to Filter block Frequency control.

Fixed Filter block graph does not update if type changed from Axe-Edit.

12.01

Added Stack/Hold to Reverse, Dual and Sweep Delay types. All delay types now support Stack/Hold.

Added ALLPASS type to Filter block. This is a multi-stage “Phase Rotator” with feedback. With feedback set to zero it can be used to change the shape of transients. Using feedback causes constructive and destructive interference and can be used to create interesting tonalities. The Order can be set from 1 to

12 with progressively more phase rotation occurring. Attaching a modifier to the Frequency parameter can result in interesting chorus or wah effects. The red trace in the GUI is the phase response.

Improved preset/scene switching.

Fixed artifacts in Wah block when Control knob is attached to a high-speed source, i.e. LFO with high rate.

Fixed some values not displaying correctly (i.e. High Crossover Freq. in Multiband Compressor).

Fixed some parameters being unintentionally reset when editing a block.

12.00

Added “2x12 Godzilla” Speaker Impedance Curve based on a Zilla Fatboy.

Complete overhaul of the Flanger block. See the included flanger.pdf document for details.

Complete overhaul of the Phaser block. See the included phaser.pdf document for details.

Added separate Filter Slope controls for the Cabinet block. The range of the slopes has been extended to include 18 and 24 dB/octave. Existing presets will be automatically updated to the correct values based on the previous Filter Slope value.

Added separate Low Cut Slope control for Delay block. Updated models accordingly.

Added “FAS Express” amp model based on hypothetical modifications to a Trainwreck Express.

Improved messaging system so that changing presets while Axe-Edit is running does not cause audio dropout (requires Axe-Edit version 1.4.00 or later).

Improved Scene switching speed.

Added LFO Quantize to Filter, Flanger and Phaser blocks.

Added Triggering to Tremolo block. When the Tremolo is triggered the Tremolo will engage and the LFO phase will start at the Start Phase value. This allows easily synchronizing the Tremolo to your playing. Set to “OFF” to defeat the trigger.

Added Optical Tremolo type to Tremolo block.

Addded “Astable” type to LFOs. This simulates an astable Op-amp Multivibrator as is commonly found in effect pedals. “Beta” controls the shape of the LFO. High values approach a square wave while low values approach a triangle wave.

Added Stack/Hold parameter to Plex Delay and Plex Verb types in the Plex block. When set to STACK incoming audio is stacked on existing audio and held. When set to HOLD existing audio is held.

Changed Hold parameter in Delay block to Stack/Hold (see above).

Changed Hold parameter in Reverb block to Stack/Hold (see above).

Added “OD 250” Drive model based on a DOD Overdrive 250 (gray version).

Added adjustable slope to Parametric EQ block for outer bands when type is set to BLOCKING.

Added LFO monitors to Control block.

Drive block EQ now supports placement pre- or post-distortion.

Added “Stereo Mind Guy” delay type.

Added ULTRA-HIGH quality mode to Reverb block. This mode increases the modulation at the expense of a slight increase in CPU usage.

Improved Gate block. New algorithm has less chatter and tighter gating. This is now called the Downward Expander type.

Added Classic Gate type to Gate block. This type is based on the classic noise gate where the gate opens when the Threshold value is exceeded and decays to the Attenuation value when below the Threshold value and the Hold timer has expired. This type offers harder gating and is useful for aggressive styles.

Improved Spring Reverb algorithm. Also added “Boiiinnng!” parameter which controls the “springiness” of the reverb.

Fixed loss of precision in certain amp models (i.e. Plexi 50W Normal) when Input Drive is set very low.

Fixed Align tab in Cabinet block not displaying traces properly after changing channels/scenes from Axe-Edit.

11.01

Updated Speaker Impedance Curves for 2x12 Jazz 120, 4x10 Brit JM45 and 4x12 Hipower. Also added the following new curves:
2x12 Bassbuster (based on a Fender Bass Breaker)
1x12 Tweed Alnico Blue (based on a Fender Deluxe with Celestion Blue)
4x12 PVH 6160 (based on a Peavey 5150 w/ Sheffields)
4x12 Euro (based on a Bogner standard)
2x12 Recto (based on a Mesa Rectifier)

Added “Matchbox D-30 EF86” amp model. While the real amp has a six-position Tone switch, the model has a continuously variable tone control. Note that the Tone control is mapped to the Bass control in Ideal mode as the Tone switch is essentially a bass cut control.

11.00

Amp block now uses new high-order speaker impedance modeling. 52 speaker impedance models (and two LB-2 models) are included and can be selected using the Speaker Impedance Curve parameter (on the Advanced page). Selecting an amp model will load an appropriate default Speaker Impedance Curve for that amp model. The Cabinet Resonance parameter can be used to adjust the amount of cabinet resonance in the impedance curve. NOTE: The 2x12 Bassguy, 2x12 Jazz 120, 4x10 Brit JM45 and 4x12 Hipower data is incomplete and will be updated in a future release.

Setting Global “Update Pre-11.x Presets Spkr Imp Upon Load" parameter to YES will automatically update the Speaker Impedance Curve for the Amp blocks upon preset recall to use an appropriate Speaker Impedance Curve for that amp model. Setting the parameter to NO will leave existing presets unaffected. NOTE: Setting this to YES will also cause the EDITED LED to light indicating the preset has been modified.

Fixed Recto1/2 models default Negative Feedback and Power Tube Bias values slightly too low.

Fixed loss of precision in Drive block Tone control for some models (Rat, Timothy, et. al.) causing low frequency build-up over time.

10.02

Fixed popping noise can occur when switching between certain amp models. This also results in faster, smoother preset, scene and channel changes.

Fixed wrong Basic tab of Drive block when Ruckus LED/Si type selected.

Added Wrecker Liverpool Bright amp model. This models the amp with the three-position Bright switch in the brightest position.

10.01

Fixed divide-by-zero can happen in Drive block when using certain combinations of different diode types and a very strong input signal or when switching between different types.

Fixed can’t access Drive block Advanced GUI page for Ruckus LED/Si type.

Changed Drive block Slew Limit to Slew Rate and updated default value of the models. Existing presets will be updated to the new default value upon recall. Note that the parameter now controls the slew rate and lower values equal less high frequency response at high amplitudes and vice-versa (the action is reversed from the previous firmware versions).

Added Wrecker Express Bright amp model. This models the amp with the three-position Bright switch in the brightest position.

10.00

Added Downtune control to Tuner. The Downtune control allows for simplified tuning when tuning down one to four semitones. The Tuner display will read the "natural" name of the note, i.e. if tuning down one semitone an Eb will read E. In addition any blocks that utilize pitch information will also be transposed accordingly.

Added Display Mode control to Tuner. This control allows selecting between all flats, all sharps or a mixture of sharps/flats for the displayed note name.

New power amp modeling algorithm. This algorithm improves the plate impedance accuracy substantially. This yields tighter bass, crunchier midrange and "chimier" highs.

Due to the changes in the power amp modeling algorithm the Power Tube Hardness parameter now behaves differently. Selecting a Power Tube Type loads the "knee voltage" for the power tubes and this voltage can be adjusted up or down using Power Tube Hardness. Higher values yield a lower knee voltage and more abrupt clipping and vice-versa. Existing presets will have Power Tube Hardness reset to 5.0 upon recall.

The range of the Transformer Match control has been reduced to 0.5 to 2.0. Existing presets will have this value reset to 1.0.

The Ideal Tetrode and Ideal Pentode power tube models are no longer applicable and have been replaced with 5881 and 6L6GB models, respectively.

The PI Bias Excursion values have been updated for some amp models. Existing presets will automatically be updated to the new default values. If you typically alter this parameter you should audition your presets.

The Amp block Dynamic Impedance parameter is no longer applicable and has been removed.

Added KT77 power tube type.

Improved Drive block. New diode modeling algorithm improves clipping accuracy especially for diodes with higher saturation currents, i.e. 1N270 and other germanium types.

Added D9E and D18 diode models to Drive block. These are Soviet germanium diodes valued for their smooth distortion characteristics.

Added “Ruckus LED/Si” type to Drive block. This model is based on a Suhr Riot with the toggle switch set to select the hybrid LED/Silicon Diode position.

Added “5 Band Mark” type to Graphic EQ block.

Fixed exported Tone Matches may, in rare cases, not sound the same as the Tone Match.

Fixed long delay times (over 1.5 seconds) in Plex Shift can cause artifacts.

9.01

Fixed Amp block input drive network instability in rare cases when switching between certain presets.

Fixed some amp models can become unstable for certain combinations of Negative Feedback and high values of Speaker Impedance and/or Transformer Match.

Added “Gain Enhancer” mode to Amp block Output Compressor. This mode can be used to simulate the acoustic reinforcement of a loud amp coupling into the guitar and enhancing the output signal.

9.00

New power amp modeling algorithm. This new algorithm now also separates the transformer matching from the speaker impedance. A new parameter, Speaker Impedance, allows adjusting the relative impedance of the virtual speaker. For example, to simulate connecting a 16-ohm speaker to an 8-ohm output set Speaker Impedance to 2.0. Transformer Matching, on the other hand, changes the impedance ratio of the virtual output transformer.

To support the new power amp algorithm the internal transformer matching values and negative feedback values have been updated. The new negative feedback values will load when selecting an existing preset. If you typically adjust Negative Feedback when creating a preset be sure to audition your presets as the parameter value will be reset to the default value upon preset load.

Fixed Amp block Output EQ wrong frequencies if EQ Location set to “Input”.

Fixed Amp block “Hi-Cut” calculation for amps without negative feedback. This affects the following models:
All AC-20 models
All Class-A 15W and 30W models
Citrus Terrier
Boutique 1 and 2

FAS Class A
Hot Kitty
Matchbox D-30
Mr. Z MZ-8 and MZ-38
Ruby Rocket and Ruby Rocket Bright
Supremo Trem
Wrecker Rocket

Fixed incorrect default P.A. Cathode Resistance value for Citrus Terrier model (correct value is 96%) and Class-A 15W model (correct value is 83%).

8.00

Improved amp modeling.

Added Swap Scene function to Layout->Tools.

Fixed Plex block Shimmer Verb causing NaN if Reverb Size set to 0%.

Fixed Tone Match block erroneous results on preset recall due to uninitialized data.

Fixed sluggish Axe-Edit behavior after boot on high CPU presets.

Fixed Rotary block Input Select not working correctly.

Fixed Compressor block sidechain filter not working if gain set to 0.0 dB.

7.01

Firmware image now uses compressed initialization. This results in a smaller file size and faster firmware updates.

Added Input Select to Megatap Delay, Multitap Delay, Plex Delay, Reverb and Rotary blocks.

Fixed Input Impedance not set correctly if an active effect is in a different row and prior column than the effect that should be controlling the impedance.

FC: Fixed stand-in switches not activating the down half of their assigned function.

7.00

Improved power amp modeling. New algorithm accounts for variation in load voltage as a function of transformer turns ratio. I.e. reducing the Transformer Matching will reduce the output level and vice-versa.

Fixed low output level for Shred Distortion Drive model.

FC: Fixed tap function executing on hold when "Hold Execute" is set to "Switch Up".

FC: Fixed switch executing from wrong layout after a stand-in switch is used.

FC: Fixed MLM functionality when cloning mixed units (FC-12's and FC-6's).

FC: Added FC-6/FC-12 compatibility mode. When enabled, FC-6(s) will use buttons 1, 2, 3 for the bottom row and buttons 7, 8, 9 for the top row. Accessible from HOME->SETUP->FC Controllers->Config Page, FC-6/FC-12 Compatibility Mode. It is disabled by default.

FC: When "Reveal Holds" is active the hold function states will be displayed (with default ring colors only) and button presses will execute the hold functions.

FC: Fixed hold functions firing on the MLM hold switch (switch 3 on FC-6 and switch 6 on FC-12) preventing MLM mode from executing.

6.04

Reduced background task priority on high CPU presets to improve client (i.e. Axe-Edit) performance.

Added “CC Boost” type to Amp block.

Improved CPU usage.

Optimized LCD graphics for better response.

Changed FC tuner note names to match main tuner (i.e. Eb instead of D#).

Added Solo feature to Parametric EQ block. When a band is soloed the frequency range for that band is isolated allowing the user to fine-tune the band.

Fixed output level of PI Fuzz model too low.

Fixed Modifier auto-engage not working when Auto-Engage is set to SLOW POSITION and the Update Rate is set to FAST.

Fixed Supremo Trem model missing Tone control in Authentic mode. Note: the Tone control is mapped to High Cut in Ideal mode.

Fixed FC and Axe-Edit not displaying tempo correctly if preset using global tempo.

FC: Fixed Layout Link not executing if no function is assigned to the switch.

FC: Added Mode parameter to Utility/Reveal Hold for Momentary/Toggle.

FC: Added Hold Function Execute Mode: TIMEOUT or SWITCH UP. "TIMEOUT" is same as the previous behavior. When set to "SWITCH UP", the hold function executes when you release the held footswitch, allowing precise musical timing.

FC: Fixed Per-Preset/Placeholder #24 not working.

6.03

Fixed long preset load time if preset using Filter block with Frequency parameter connected to modifier.

6.02

Added LFO to Filter block. When enabled, the LFO will modulate the frequency of the filter between the Frequency and the Mod. Frequency. The local LFO simplifies modulated filtering and frees up the global LFOs for other tasks.

Added adjustable filter to Plex block wet signal. Filter can be any of the standard types (all types except comb filter types). Frequency, Q and Gain are modifiable.

Added Shimmer Verb type to Plex block.

The Mode parameter in the IR Player block has been replaced by a Length parameter.

Changed Home page behavior so that menu stays on selected tab when returning. Pressing HOME while on the Home page resets to first tab.

FC: Improved communication reliability when using very long cables (requires FC firmware version 1.08).

FC: Fix preset tempo being used when global is selected .

FC: Add Layout Inc/Dec function.

6.01

Fixed memory allocation error causing boot irregularities.

6.00

Firmware 6.00 introduces the PERFORM tabs found on the HOME screen of the Axe-Fx III. There are two PERFORM tabs: Per-Preset and Global. The PERFORM tabs can be configured with up to 10 user-selected controls from any of the blocks found in the current preset (including CONTROLLERS and GLOBAL). Configuration of the PERFORM tabs is done via Axe-Edit III. Allowable controls include rotary knobs, push-buttons, drop-downs, and toggle controls (e.g., on/off controls).

> *The "Perform-PP" controls are stored per-preset. Adding or removing a control from "Perform-PP" will change the EDIT state of the preset.*
>
> *The "Perform-Gbl" controls are stored in the Global Settings. Adding or removing a control from "Perform-Gbl" is automatically saved to the Global Settings.*
>
> *Performance controls are added via the editor from a block's parameter view. The editor's selected parameter control is assigned to the desired Performance tab through a popup menu or a hot-key combination. [Please note the "Edit Modifier..." popup menu item for modifiable parameters. Modifiable parameters can quickly jump to the "Edit Modifier" dialog by pressing the hotkey 'M'.]*
>
> *Hotkey assignments for Perform controls:*
> - *Per-Preset Add: SHIFT + '1' through '0', where '0' is the tenth control on the tab.*
> - *Per-Preset Remove: SHIFT + ALT + '1' through '0', where '0' is the tenth control on the tab.*
> - *Global Add:*
>   - *Mac: COMMAND + F1 through F10.*
>   - *Windows: CTRL + F1 through F10.*
> - *Global Remove:*
>   - *Mac: COMMAND + SHFIT + F1 through F10.*
>   - *Windows: CTRL + SHIFT + F1 through F10.*
>
> *The editor's Perform view is accessed via the "Perform" button or the Tools / Performance menu. From this view, Per-Preset Performance controls can be imported and/or exported using the "Block Library" control. Additionally, the view's "Per-Preset" and "Global" tabs allow label editing for controls already assigned to the "Perfrom-PP" and "Perform-Gbl" tabs.*

Changed Cabinet, IR Player and Tone Match block IR windowing so that window length is proportional to IR length (rather than a constant window length).

Doubled length of IR Capture Utility sweep. This improves SNR in challenging environments, i.e. a large, noisy room when capturing “far-field” IRs. The time between sweeps has also been increased to allow the room reverberation to decay sufficiently before starting the next sweep.

Improved Amp block power amp modeling.

Added five “Manual” controllers to Controllers menu. These can be used as modifiers for real-time manipulation of parameters from the front panel.

Combined LFO 1 and LFO 2 menus into a single menu.

Fixed Ring Mod block left/right slightly unbalanced.

Fixed Looper allows playback even if no loop exists causing noise.

FC: Further fixes for startup timing issues.

FC: Fixed Inc/Dec functions' upper limits defaulting to zero.

FC: Fixed learning of FC external pedals and switches in MIDI/Remote.

FC: Fixed external switch polarity not showing correctly on the FC Controllers Remote page.

5.08

Added Low Cut and High Cut to individual IRs in Cabinet block. Filter slopes are also selectable from 6 to 24 dB/oct.

Added IR Length parameter to individual IRs in Cabinet block. Shorter lengths can be used to remove room reflections and/or decrease CPU usage.

Changed Pitch block so that pitch detection is performed even when block is bypassed. This allows using the Learn function while the block is in bypass.

Fixed sometimes unit will hang at boot if an FC-12 running firmware version 1.06 or later is connected.

Fixed pop when switching from Hipower amp models to certain other amp models.

FC: Fix Layout Link not working when in MLM mode.

FC: Fix EZ Page changing values of Switch 1 even if no switch has been selected .

FC: Fix inc/dec wrap operation.

5.07

Improved Preset/Scene/Channel switching time.

Fixed wrong default Cathode Follower Compression values for Brit JVM and JS410 amp models.

Fixed AES/SPDIF input shifted by one bit causing clipping at -6 dBFS.

FC: Added support for stand-in switches (assign external switches to perform a function assigned to an FC switch).

FC: Support for FC firmware 1.06 (switch behavior and polarity)

FC: Added shortcut keys to/from Per-Preset and Global

FC: Added warning on switch page if the switch is overridden in the current preset

FC: Fix per-preset overrides not working on MLM page 2 for the FC-6

FC: Fix layout link and MLM interaction (switch 3 for the FC-6 and switch 6 for the FC-12)

FC: Fix layout link for per-preset switches

5.06

Added USA JP IIC+ Green amp model (channel 1).

Fixed wrong internal transformer matching value for Friedman Small Box model.

Fixed popping when switching between channels/scenes/patches with very different block levels.

Fixed incorrect error message when updating USB firmware via Fractal-Bot.

Fixed Upper Limit on functions in the Bank category reverting to '51' on restart (regardless of bank size).

Fixed FC layout names getting clobbered if knob A is used to Nav while editing.

Fixed loading defaults squashing the version (and other dummy params) on the devices page.

Display Effect name for Effect functions on the Overrides page of Per-Preset FC Settings.

Configurable timeout for the notifications on the FC main LCD.

Updated FC function Effect->Channel Select to turn off the LED ring if the effect is bypased and Smart Bypass is enabled.

Added TEST ON and TEST OFF to CS MIDI for the FC.

5.05

Fixed missing menu for USA JP IIC+ Yellow amp model when using authentic controls.

5.04

Added USA JP IIC+ Yellow amp model (channel 2). . NOTE: To emulate the “Shred” mode turn the High Treble control to approximately 3-4 dB (or adjust to taste, you are not limited by a single switch).

Fixed corruption in FC Remote menu.

5.03

Added USA JP IIC+ Red amp model (channel 3). NOTE: To emulate the “Shred” mode turn the High Treble control to approximately 3-4 dB (or adjust to taste, you are not limited by a single switch).

Fixed hold functions on page two of the Master Layout Menu for the FC-6.

Fixed FC Bank -> Inc/Dec function's upper limit from resetting to the maximum bank number on reboot or bank size change.

Fixed copy/paste of FC Layouts not setting Layout Link.

Fixed FC Layout Link for hold functions not surviving a reboot.

Fixed wet data muting during channel change in Multitap block.

5.02

Fixed presets created with firmware prior to 3.00 defaulting Amp block EQ Off/On parameter to Off instead of On.

5.01

Fixed presets created with firmware prior to 3.00 not loading various parameters correctly. These parameters are primarily the Spread parameters in the Chorus, Flanger, Rotary and Reverb blocks, among others.

5.00

Completely new Amp block cathode follower algorithm yielding more accurate results. The “Ideal” cathode follower type is no longer supported as it is incompatible and has been removed from the GUI. The Cathode Follower Time and Ratio parameters have also been removed as they are no longer applicable. A “Grid Clipping” parameter has been added which allows the user to adjust the grid clipping in the cathode follower. Lower values reflect the softer response of classic British and American tubes like Mullard, Sylvania and RCA. Higher values simulate the response of modern Chinese and Russian tubes with more abrupt clipping.

Updated various Amp block parameters related to new cathode follower algorithm. Existing presets are automatically updated to the new values.

Added AES/SPDIF Input Level control. This is located in the I/O->USB/AES menu. NOTE: this parameter will default to -40 dB after installation of the firmware. Be sure to adjust to the desired level if using the AES or SPDIF inputs.

Added Treble Booster and Mid Booster boost types to Amp block.

Improved Scene/Channel change logic. Only the wet data is muted when changing scenes and channels now leaving the dry data intact which results in smoother transitions.

Changed Control block Envelope Follower behavior so that when the signal exceeds the threshold the control value starts at zero rather than jumping to the threshold value.

Fixed wrong bass pot taper in Friedman Small Box model.

Fix FC per-preset corruption with some presets.

NOTE: Due to the new algorithms several amp block parameters are reset to default values when loading old presets. Included in these parameters is Preamp Bias Excursion. If you had altered this parameter in a preset note that it will be reset and you may want to readjust it.

4.03

Fixed Div/13 CJ 11 amp model muted when two Amp blocks used.

4.02

Fixed issue with certain amp models, i.e. Legato 100, exhibiting excessive blocking distortion.

Fixed loss of communications with FC-X foot controllers after being left on for very long periods of time, i.e. overnight.

Various fixes and improvement for FC-X controllers.

4.01

Fixed triode modeling algorithm for amp models with “cold clipping” stages, i.e. Recto, SLO, etc.

4.00

Improved Amp block preamp tube modeling.

Improved Amp block cathode follower grid modeling.

Improved power amp modeling for “Class-A” type amp models.

Added modifier capability to Decay Time, Level 1-8 and Pan 1-8 controls in Plex Delay block.

Added Presence Shift control to Amp block Tone page for the appropriate models when using Authentic controls.

Added SV Bass 1 amp model. This is the original SV Bass model prior to the change in 2.05. The new SV Bass model added at 2.05 has been renamed SV Bass 2.

Added FAS Skull Crusher amp model. The nastiest, most brutal amp model to ever escape from the seventh circle.

Reworked PI Fuzz model based on older “Triangle” version reference. A soft-reset of the model is required to load the new parameter values. Note that duplicating the behavior of a fuzz pedal requires that the pedal be the first non-bypassed block following the Input 1 block and the input block impedance must be set to Auto since fuzz pedals load down the guitar’s pickups.

Added “Unlink All Blocks From Global” function to Layout->Tools menu. This unlinks all blocks from any global blocks to which they may be linked.

Expanded the names of the “USA” models to more clearly indicate the switch settings.

Fixed Tone page for Plexi 100W 1970 not showing Normal Drive control.

Fixed incorrect capacitor value and wrong default Low Cut value in BB Pre Drive model.

Fixed wrong default Low Cut value in Eternal Love and Esoteric ACB Drive models.

Fixed Output EQ in Amp block not being redrawn when changing channels and number of bands is different.

Fixed wrong triode plate frequency in Herbie CH3 model.

Fixed wrong mid and treble tapers in all Herbie models. Existing presets should be auditioned.

3.02

Improved Drive block. WARNING!!! The sound of some of the drive models may have changed significantly.

- Drive models based on op-amp and diode clipping topologies have been completely overhauled.

- For many types there is now a “Dry Gain” control. This parameter controls the amount of “dry” signal mixed with the “wet” (distorted) signal. For a Tube Screamer-based model this will default to 100% due to the topology. For other types this will default to 0. Values up to 200% are allowed. Note that the dry data is added before any tone controls and therefore is not exactly equivalent to a mix but rather replicates the behavior of analog circuits.
- Drive types based on op-amp and diode clipping circuits now allow control over the type and quantity of diodes in the positive and negative polarity. For example, the user can select (2) 1N34A diodes for positive signal polarity and (1) red LED for negative. Experiment with the various diode types and quantities to obtain new and unique sounds.
- The Basic GUI page now reflects only the controls found on the actual pedal. In cases where the actual pedal does not have any tone controls a simple Tone control is included for convenience.
- Added several new types.

Added “All” to Tuner Input Source selection. This sums all inputs.

Added Global "Tone Control Display" parameter. When set to Authentic (default) only those controls present on the actual amp are displayed. When set to Ideal all tone controls are displayed. Also, when set to Authentic the Bass, Mid and Treble controls are reset to default values when changing models to ensure accuracy for models that may not have these controls.

Fixed Tone Match block not updating correctly between preset changes if different Mode used.

Fixed loss of low frequency resolution for Tone Match block when set to Off-Line mode.

3.01

Fixed Graphic EQ pages not responding to navigation buttons.

Fixed FC load defaults correctly sets bank size before configuring switches.

Fixed FC use "Scene X" on main LCD if scene name is blank.

Fixed load FC-12 defaults won't switch first FC to layout 7.

Fixed FC scene name not updating if character(s) removed from end.

3.00

Improved amp modeling.

Improved speaker compliance algorithm.

Improved algorithms for modulation effects.

Improved Tone Match block graphs.

Improved Reverb block.

Added “EQ Off / On” control to Amp block. This modifiable parameter turns the graphic EQ on and off.

Added Plex Verb type to Plex block. While the Reverb block is designed for authentic, natural-sounding reverbs, the Plex Verb type is designed for large, ethereal reverb sounds. This type is also simple to use with no time, tempo, level or pan parameters required. For best results turn the Diffusion Mix up when using this type.

Added Spread and Pre-Delay controls to Plex block.

Increased the range of the Low Freq Time and High Freq Time in the Reverb block. This allows for creative reverb sounds. Several new reverb types have been added to illustrate these effects.

The Chorus, Flanger, Plex, Reverb and Rotary blocks now supports Spread values from -200% to 200%. Values beyond +/-100% increase the apparent image beyond the stereo field. The action of the spread control has also been improved so that the apparent volume remains constant vs. spread value.

Fixed IR Capture utility sometimes not working in Cab+DI mode.

Fixed slow response in IR Capture configuration menu when changing bank/slot.

Fixed Cabinet block graphs not showing traces for non-UltraRes IRs.

Fixed Input Source for Pitch Follower not exposed.

Fixed FC-X custom Mini-Display Label for Effect, Chan Select.

2.05

Added Threshold parameter for all types in Compressor block.

Change Drive block behavior so that when changing the Drive Type the graphic EQ is reset.

Reworked SV Bass amp model. Model is now based on a 1970 Ampeg SVT with 6550 power tubes and the midrange switch in position 3.

Cabinet block now automatically corrects the polarity of IRs that are inverted, i.e. captured from the back of a cabinet.

Added floor reflection modeling to Cabinet block. The intensity of the floor reflections can be adjusted with the new “Floor Reflections” parameter. Floor reflections play a large role in “amp in the room” sound. If the amp is on a carpet the floor reflections are minimal. If the amp is on a wood or other hard surface the floor reflections are significant. Existing presets will initialize this value to 0% so as to not

change the sound. The default value is 50%. Note that negative values, while not realistic, are supported which inverts the reflection.

Added Diffusion to the Cabinet block room modeling.

Improved IR Capture Utility. User can now select between conventional deconvolution and reverse filter processing. In a high-noise environment the reverse filter technique can provide better results. In low-noise environments the conventional technique can provide slightly better bandwidth and magnitude accuracy. Note that the prior firmware used the reverse filter technique.

Added Processing parameter to IR Capture Utility. This selects between "Minimum-Phase" which transforms the IR into a minimum-phase version, "Auto-Trim" which removes the leading silence, and "None" which applies no processing at all. Note: prior firmware always used minimum-phase processing.

Added Delay Compensation to IR Capture Utility. This allows compensating for time-of-flight delay when capturing IRs. For example when capturing far-field IRs there may be significant time delay due to the distance of the mic from the speaker. This can reduce the precision of the measurement if the delay is excessive. To use the compensation configure the graph to the Time display. Do a test sweep and note the waveform delay. Dial in the desired amount of compensation delay and repeat as necessary. Note that the speed of sound is roughly 1 ft/ms so a mic that is 10 ft from the speaker would incur roughly 10 ms of delay. Note that IR Capture Utility will automatically compensate for delays up to approximately 20 ms (1K samples). Correction is only required for delays greater than 20 ms.

Added alignment graph to Cabinet block showing a zoomed time series of the IRs allowing visual adjustment of the mic distance. When using IRs that have not been minimum-phase processed this facilitates aligning the IRs.

Added Volume Increment/Decrement CCs for Output 2.

Added "Analog Compressor" to Compressor block. This compressor has a natural soft-knee response and captures the vibe of the classic compressors of the 70's and 80's.

Added Mix control to Multiband Compressor block.

Added Knee Type control to Multiband Compressor block.

Corrected the VU meters in the Output block to compensate for the "unity gain" nature of Outputs 3 and 4. Note that the Output block meters are BEFORE the Level controls (pre-fader) on the front panel and are therefore unaffected by the Level controls. The meters indicate the internal signal level relative to full-scale (dBFS).

Renamed Dumble-style amp models with PAB on accordingly.

Changed Volume Inc/Dec behavior so that muting is not performed.

Various changes and fixes for FC-6/12 foot controllers. Note: this firmware, or a later version, should be installed for proper operation of the foot controllers.

Fixed clicking noise in Pitch block at certain values of shift and tracking.

Fixed Cabinet block LF Damping and HF Damping parameters sometimes not working.

Fixed output gain of Compressor block when using either of the Pedal types dependent upon the Ratio control of the Studio type.

Fixed crash when adjusting Amp block Screen Q rapidly.

2.04

Added “Tube Compressor” type to Compressor block. This type is based on classic tube compressors like the Altec Lansing 436C. Since this type uses “variable mu” processing it may add subtle, and possibly desirable, distortion to the audio.

Added “FF Comb” and “FB Comb” types to Filter block. FF Comb is a feed-forward comb filter and FB Comb is a feedback comb filter. Delay Time controls the order of the comb filters, higher values result in more closely spaced notches and vice-versa. Depth controls the intensity of the filter, higher values result in deeper notches/peaks and vice-versa.

Added Comb Filter Type parameter to Multidelay block. The names of the parameters in the block have been changed from “Resonator” to “Comb Filter”.

Added clock sync checking in I/O menu. If the user selects one of the digital input sources (SPDIF or AES) as the clock source and there is no valid input the menu will indicate no clock source.

Changed Cabinet block Room Size display to meters for clarity.

Fixed Cabinet block does not update if a newly captured IR is saved to an IR location in use.

Fixed Cabinet block “AIR” mixing is done before level normalization.

Fixed USB 5/6 Input Level affects SPDIF/AES input level.

Fixed setting size very low on room types in Reverb block can cause crash.

2.03

Changed Looper behavior so that Play indicator only lights during recording when overdubbing.

Added Looper Crossfade parameter. When set to ON the loop fades out/in at the end/start of the loop.

Improved Cabinet block room emulation. New algorithm provides denser and more immersive reflections.

Added Room Shape parameter to Cabinet block which selects between and hall and room shape.

Added “Bias Trem” type to Tremolo block. This uses a tube emulation algorithm to replicate the bias tremolo used in vintage tube amps.

Added “Harmonic Trem” type to Tremolo block. This recreates the famous sound of the tremolo circuit in the old “Brownface” amplifiers. This effect splits the spectrum and applies modulation to the two frequency bands. The Crossover Slope parameter selects the filter order for the crossover. The original circuit used a 6 dB/octave crossover. Higher slopes can give a more intense effect. The crossover frequency can be changed with the Crossover Frequency parameter. Note: unlike most implementations the Axe-Fx III version is full stereo and can be used before or after the Amp block without losing stereo separation. Additionally the effect supports LFO phase for the left/right which can be used to achieve unique sounds. Furthermore the effect supports LFO types other than Sine for even more unique sounds.

Note: both the Bias Trem and Harmonic Trem use nonlinear processing techniques and, as such, may add distortion to the audio signal just as their tube-based counterparts would.

Added “Grinder” boost type based on a Fortin Grind to the Amp block.

Added USB Input Level controls. These are located in Setup->I/O->USB. **Note that these values will default to -40 dB after the firmware upgrade.**

Changed background tasks to run dynamically based on available processing time. This prevents sluggish behavior of Axe-Edit and MIDI controllers immediately after startup.

Fixed IR capture export not working consistently causing issues with Cab-Lab 3.

Fixed incompatibility with Live mode in Cab-Lab 3 when using Axe-Fx III as the audio interface.

Fixed Reverb block NaN if setting size extremely low and turning modulation depth way up.

2.02

Fixed issue in phase inverter modeling causing excessive bias excursion in some amp models.

Fixed Reverb block causing crash if setting size to less than 6.0 for certain types.

Fixed FC GUI corruption when changing presets via foot controller.

Various other fixes and enhancements for FC-X controllers.

2.01

Added “Filter Type” to Compressor Side-chain.

Added “Auto-Swell” type to Volume block. This simulates “pinky swells” using the guitar volume knob. Threshold sets the input power to start the volume swell. When the input power drops below the threshold the swell circuit is reset and the volume drops to zero. Attack sets the rate at which the volume increases.

Increased size of VU meters and added gain readout in Layout GUI.

Added ability to select the source of USB Outputs 7,8 (to computer). Inputs 2-4 can be assigned to USB 7,8.

Improved Amp block phase inverter modeling.

Fixed minor error in Amp block voltage to speaker displacement transfer function causing more parameter shift than expected for a given Speaker Compliance setting.

2.00

Improved Amp block speaker dynamic parameter modeling. The new Speaker Compliance parameter controls the nonlinear behavior of the virtual speaker. Existing presets will load with this parameter at 0.0 and will be unchanged tonally from the previous firmware (IOW your presets will not be altered). Selecting a new amp model or resetting the block will set the value to 50% which is a typical value for guitar speakers.

Improved Amp block cathode follower modeling.

Improved Looper cross-fade at start/end of loop.

Improved stability and latency of Pitch block.

Improved anti-aliasing performance of Pitch block.

Added Temperament parameter to Pitch block. When set to “Just”, pitch shifting uses just temperament with ratios defined by the harmonic overtone series. When set to the default value of “Equal”, equal temperament tuning is used. Just temperament can be used to give a “sweeter” harmony, especially when followed by distortion.

Added “Virtual Capo” type to Pitch block. This is a simple one-voice pitch shift that is intended for drop-tuning and virtual capo use and is easy to configure and use.

Changed Pitch block behavior so that when selecting Whammy or Virtual Capo types the Mix is automatically set to 100%, otherwise 50%.

Improved algorithms in Multitap block.

Added two options to the Filter Order in the Cabinet block. “L: 6, H: 12” sets the filter slope to 6 dB/octave for the low cut and 12 dB/octave for the high cut. “L: 12, H: 6” sets the filter slope to 12 dB/octave for the low cut and 6 dB/octave for the high cut.

Changed Looper meter, CPU meter and Layout VU meter colors to cyan so that thresholds are visible to those with red-green colorblindness.

Fixed Looper not playing when pressing Once if Trim Start is nonzero.

Fixed MIDI running status ignored if active sense messages received between status messages.

Fixed Master Resonator Time not working in Multitap Delay.

Fixed diffusion not working on delay lines 2-4 in certain types in Multitap Delay.

Various changes and fixes for FC-X controllers.

Minor tweaks and improvements to the GUI.

1.18

Fixed meters on Home->Meters sometimes getting stuck.

Fixed MIDI-Over-USB hanging when receiving certain SysEx messages intended for other products. This occurs with some DAW software (i.e. Logic) at startup causing subsequent SysEx commands to be ignored rendering Axe-Edit non-responsive.

Fixed certain 3rd-party MIDI SysEx messages not processed properly when SysEx messages are also being received via USB (i.e. changing a block bypass state or channel via a MIDI foot controller while also using Axe-Edit).

Fixed adjustments to global Noisegate Offset do not take effect until editing Input block.

Fixed booting to preset with two amp blocks does not correctly initialize.

Fixed block channel change so that muting does not occur if block is bypassed.

Fixed IR Player block allows linking to Global Blocks.

Changed range of Attack and Release parameters in Input block gate to more suitable values.

1.17

Fixed NaN when selecting “USA” amp types.

1.16

Improved Multiband Compressor block so that mid-band gain is automatically compensated for crossover response.

Added Frequency Range parameters to Multiband Compressor block. This selects between Low and High frequency ranges yielding more flexible crossover frequencies.

Added Crossover Slope parameter to Multiband Compressor block. Choices are 12 and 24 dB/octave.

Added FAS Boost to Amp block input boost types.

Added Output Mode to Amp block. The default value, FRFR, is the classic mode and designed for use with monitors or recording. The SS PA + Cab mode is intended for use with a solid-state power amp and conventional guitar cab. In this mode speaker compression modeling behaves differently relying on the speaker for compression while still simulating the interaction with the power amp. NOTE: this mode is not intended for use with current drive power amps, i.e. tube power amps, Class-D current feedback amps (Quilter Tone Block), etc. NOTE: this mode CAN be used with FRFR monitors in high volume applications where the monitor’s speakers are compressing thereby achieving a more dynamic response.

Added 10-band, 2/3 octave types to Graphic EQ block. These types center the filter frequencies on a narrower range best suited to finely sculpting guitar tones.

Added 10-band, 2/3 octave graphic equalizer to Drive block. The EQ can be enabled/disabled via the Graphic EQ parameter which is also modifiable.

Added 8-band, 2/3 octave graphic equalizer to Wah block. The EQ can be enabled/disabled via the EQ parameter which is also modifiable.

Fixed moving cabs with Axe-Edit causes corrupted empty slots.

Fixed Looper status not reported correctly via MIDI.

Fixed Looper doesn’t always start if threshold is off.

Fixed metronome turning on when executing Reset System Parameters.

Various fixes and changes for FC series foot controllers.

1.15

Added (2) IR Player blocks. These are simple versions of the Cabinet block that can be used to process IRs for various purposes such as applying Tone Matches separate from the Tone Match block. For example, an IR Player block can be used to apply a Tone Match of a guitar at the beginning of a chain leaving the Tone Match block available for amp matching.

Added Output 1 Volume Increment and Output 1 Volume Decrement CC assignments. When the CC assigned to Volume Increment/Decrement is received the scene volume for Output 1 is incremented or decremented by 1 dB and the preset automatically saved.

Added Metronome function. To enable the metronome press the Tempo button and adjust the level for the desired output(s). Note: the metronome levels persist across presets and are reset to OFF at power on.

Improved Looper block:

1. Added Record Threshold parameter. When set to a value greater than -80 dB recording will not start until the input signal exceeds the set value. The Record icon will blink when the Looper is armed for recording and will turn solid when recording starts. The meter at the bottom of the page can be used to help set the Threshold. Use the soft knob or main Value knob to adjust the threshold value (or use the Record Threshold parameter on the Config page).
2. Added Trim Start and Trim End parameters to the Looper block. These parameters can be used to adjust the start and end points of the loop. The graph on the Control page provides visualization of the loop and the start/end points.
3. Added Quantize parameter. When set to ON the loop length is quantized to the nearest beat.
4. Added Record 2nd Press parameter. Choices are Overdub – existing behavior, second press of Record ends loop and enters overdub; Play – second press of Record ends loop and enters play; Stop – second press of Record ends loop.
5. Added Speed parameter. When Speed is set to HALF the virtual tape runs at half the normal speed. The speed can be also be toggled via a MIDI CC message.
6. Improved cross-fading at the start and end of the loop.

Added Mode parameter to Tone Match block. When set to OFF-LINE the processing is adjusted to better suit matching recorded sources such as guitar stems. When set to LIVE the processing is as before and better suited to matching a real-time source such as the output of a guitar amp.

Added Damping Time to Sequencer. This controls the time it takes to slew from the one value to the next.

Improved CPU usage for Synthesizer block when oscillator type is white or pink noise.

Improved Tuner.

Various GUI tweaks and improvements.

Changes/improvements to 3rd-Party MIDI device support (see AXE-FX III MIDI FOR THIRD-PARTY DEVICES document for details).

Fixed ADSR graphs not initializing properly on preset recall.

Fixed some parameter displays dependent on Tempo, i.e. Delay Time, not updating when new Tempo is entered.

Fixed Mixer and Multiplexer blocks shouldn't be bypassable.

Fixed Tremolo block bug when LFO Type set to SAW DOWN.

1.14

Added MIDI CC for Looper Stop. This allows stopping recording or playback of the Looper via MIDI automation.

Added Friedman HBE 2018 C45 amp model.

Added gain monitoring for Input Dynamics control in Amp block.

Fixed MIDI status dump not working correctly.

Fixed divide-by-zero fault if turning Master Volume to zero on JS410 amp models.

1.13

Added "Dual Chorus" type to Chorus block. This type has independent LFOs for the left and right delay lines. Delay lines are BBD emulations.

Added "SSB Upper" and "SSB Lower" types to Ring Modulator block. These select the upper and lower sidebands of the modulation, respectively.

Added single-sideband ring modulators to Multidelay block. These can be used to create strange and interesting echo sounds. To defeat the modulators turn Master Ring Mod Mix to 0.

Added chorusing to individual delay lines in Multidelay block. There are four LFOs, one for each delay line. The rate and depth of each LFO is individually adjustable. These add to the main LFOs which modulate each delay line at the same frequency but different phases. By using short delay times the Multidelay block can now act as four parallel choruses, each with independent rate and depth.

Added Quad-Tap Band Delay type to Multidelay block. This type has the same configuration as the Quad-Tap delay except the filters are outside the feedback paths.

Added band highlighting to RTA block. Turn Value knob to select desired band. The frequency of the selected band is displayed in the upper left corner.

Increased number of channels in Multiplexer block to six, one for each row.

Changed preset recall behavior if Ignore Redundant PC is on. If Ignore Redundant PC is on and the desired scene (set via PC mapping) is different than the current scene the preset is not loaded but the scene IS changed.

Added MIDI support for 3rd-party devices to set/get scene, channel, bypass, scene names and preset names, control the Looper, tap tempo, etc. via System Exclusive messages. See the Axe-Fx III MIDI for Third-Party Devices document for implementation details.

Added Preset Increment/Decrement controllers. These can be used to increment/decrement the current preset. The Preset Start and Preset End parameters control the range of presets selected and selection wraps at the limits. Preset mapping and offsets are ignored.

Improved Tempo accuracy for MIDI clock.

Fixed Barberpole type in Phaser block broken.

Fixed no preset loading on startup if Ignore Redundant PC is on.

Fixed Scratchpad Cab #1 not loading automatically when doing an IR capture.

Various changes and fixes for FC controllers.

1.12

Added Global Block support for Input 1 block.

Added Scene Volumes to Output block.

Improved Multidelay block. The Band Delay type has been replaced by a more flexible Quad Parallel Delay. The Quad Parallel Delay and the Quad Series Delay now feature four delay lines in a parallel or series configuration, respectively, as before, with the output of each delay line feeding a series combination of a bandpass filter and a resonator. Added drive, low-cut and hi-cut filters allow further tone sculpting. To defeat the bandpass filters set Master Q to minimum. To defeat the resonators set Master Resonator Feedback to 0.

Improved Spring Reverb algorithm. New algorithm features improved dispersion modeling and adjustable low and high frequency decay time ratios.

Improved knob response for fine adjustments.

Fixed Reverb GUI so that only valid parameters show on All page for selected type.

Fixed system backup hanging if on preset containing certain types of foot controller data.

Fixed engaging Tuner causes reset of External Controller values.

Fixed Ignore Redundant PC not working.

Fixed Tremolo block not updating rate when entering tempo.

1.11

Fixed Multiband Compressor and Output GUI.

Fixed Looper block Dry Level not working.

1.10

Improved Scene/Channel switching.

Added “Stereoizer” type to Enhancer block. While the Classic and Modern types rely on micro-delays and inversions to create artificial stereo, the new Stereoizer uses multiple high-order filters to create a realistic stereo image.

Fixed Phaser block level dropping 3 dB when effect is engaged.

1.09

Added “Effect Bypass Mode” to MIDI menu. When set to “Value” the bypass state of an effect assigned to a CC is controlled by the CC value. When set to “Toggle” the bypass state toggles whenever the CC message is received, regardless of the value.

Added “Default Scene” parameter to Global menu. When set to “As Saved” the scene selected when recalling a preset is the scene that was active when the preset was saved. When set to a particular scene value that scene will always be selected when a preset is recalled.

Added Channel parameter to modifiers. This allows applying the modifier to all channels or only a selected channel of an effect block.

Added Tilt EQ to Amp block Input EQ types.

Added Boost Type and Boost Level to Amp block. There are seven boost types: Neutral, T808, T808 Mod, Super OD, Full OD, AC Boost and Shimmer. All boosts act as “clean boosts” replicating the oft-used “Drive on 0, adjust Level as desired” boost technique. The boost allows boosting the amp block without requiring a separate Drive block. The Boost Level parameter controls the amount of boost.

Added Modifier ability to Formant block Resonance parameter.

Added “Prompt on Edited Preset Change” parameter to Global Settings. When set to ON the unit will prompt before changing presets if the current preset has been edited (and prevent you from losing your edits). NOTE: Be sure to change this value to OFF before performing!

Added Global Blocks. There are 8 Global Blocks per effect instance. Not all effects support Global Blocks (i.e. Mixer, RTA, etc.). There are four operations associated with a Global Block:

1. Link To Global Block: This operation links the selected effect with a Global Block. The Global Block data is NOT loaded. Upon saving the preset the Global Block is saved. Any other presets linked to this Global Block will load the Global Block data upon recall.
2. Load From Global Block: This operation loads data from a selected Global Block but does NOT link the block.
3. Link To and Load From Global Block: This operation links an effect to a Global Block AND loads data from the Global Block. Upon saving the preset the Global Block is saved. Any other presets linked to this Global Block will load the Global Block data upon recall.
4. Unlink From Global Block. This operation disassociates the effect from any Global Blocks.

Global Block operations are accessible from the Tools page in the Layout menu.

Improved scene switching algorithm resulting in much faster, smoother scene changes.

Improved Reverb algorithms.

Changed Looper behavior:

1. Pressing Undo while recording undoes the last recorded layer, as before. Pressing Undo when the loop is stopped now erases the loop data. Pressing Undo during playback undoes the last recorded layer. Pressing Undo again (during playback) restores the undone layer. Subsequent presses toggle the layer on and off.
2. Pressing Record now always starts a new layer (previously pressing Record during the first layer stopped recording and entered playback).
3. Pressing Once while recording stops the loop.

Added Dry Level parameter to Looper Block.

Improved Input block noise gate. When the Type is set to Intelligent (default) the noise gate now provides smart EMI filtering which reduces hum and buzz. NOTE: For best results the AC Line Frequency parameter in the Global Settings menu should be set to match the power line frequency of your country (i.e. 60 Hz for North America, 50 Hz for EU, etc.).

Improved Amp block output transformer modeling.

Various changes to support Axe-Edit.

Various changes to support FC-6/12 controllers.

Changed default value for Setup -> MIDI -> Program Change to ON.

Fixed Scene MIDI block not sending correct data on preset change.

Fixed cabinet names not showing up in cab picker until background tasks are finished.

Fixed wrong Preamp Bias value in Plexi 2204 model.

Fixed Pitch block LFO Tempo not being updated on tempo changes.

Fixed RTA block not updating on preset change.

Fixed noise in Looper block when pressing Undo.

Fixed Modifier Auto-Engage working erratically if Update Rate set to Slow or Medium.

Fixed MIDI PC Offset not being applied.

Fixed crash if flooding unit with MIDI data during boot.

Fixed hang if MIDI Send PC is set to OMNI.

1.08

Various changes to support Axe-Edit.

Fixed Channels not copying correctly when using Scene copy utility function.

Fixed Global data not being saved after import (restore).

Fixed Reverb hold not working for Spring types.

1.07

Fixed Pitch block not setting number of voices correctly, i.e. Whammy modes should have one voice but two voices were audible.

Fixed Input 1 Level Meters not scaled properly when input source is USB.

Fixed minor bug in Rotary GUI.

Fixed wrong default Output Level value in Return block.

Fixed garbage data in SPDIF output buffer if no Output 1 block in layout.

Added “Update Rate” parameter to Modifiers. Values are Slow | Medium | Fast. The Update Rate selects the rate at which the modifier updates the target parameter. For most applications a slow rate is sufficient. Under some circumstances a slow rate may cause “zipper noise”. Increasing the rate will reduce the noise at the expense of increased CPU usage.

1.06

Added “Solo” ability to Cab block.

Added “Plexi 2204” Amp model based on a 1981 JMP 50W Master Volume head.

Added modifier capability to Resonator block Chord and Frequency parameters.

Fixed Output block buffer stuck when bypassed causing high pitched tone.

Fixed Pitch block not initializing correctly on patch change.

Fixed Pitch block sometimes getting “stuck” on negative harmony shifts.

Fixed distortion on Crystal Echoes pitch type if Direction is set to Reverse and Shift is set to +4.

Fixed MIDI message(s) immediately following a PC message being ignored, i.e. Scene Select CC.

Fixed some minor GUI bugs.

1.05

Added ability to route block when Layout is zoomed out.

Added Input Source select to ADSR and Envelope in Control block.

Fixed MIDI bank select.

Fixed Scene Copy function not copying Amp block bypass states.

Fixed can’t select Amp type when creating a new preset if the previous preset had the Amp block channel as anything other than ‘A’.

Fixed External Controller initial values not being applied and garbage values in any of these controllers that are not assigned.

1.04

Fixed low-cut and high-cut filters not working in Multitap Delay block.

Fixed Amp blocks bypass states not being preserved across preset changes.

Fixed Tone Match block Smoothing parameter not working.

Fixed Quad Tape Delay missing modifier for Motor Speed (formerly labeled Tape Speed).

Fixed MIDI CC Channel changes not responding above values of 3.

Various GUI enhancements and improvements.

1.03

First public firmware release.