Axe-Fx II Quantum Firmware Release Notes

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9.01

Improved Speaker Compression algorithm so that the change in the speaker impedance is accounted for.

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9.00

Removed the "Motor Drive" and "Transformer Grind" algorithms and associated parameters from the Amp block. These have been replaced by the new "Speaker Compression" algorithm. This algorithm models the interaction of the power amp with the power compression of the virtual speaker. The "Spkr Comp" parameter controls the amount of virtual speaker compression. This value defaults to 3.0 when the Amp block is reset. It does not get reset when changing the model. If using the Axe-Fx II with a tube power amp and conventional guitar cab you may want to reduce this value to 0.0. The gain reduction meter shows the amount of virtual power compression (select the Spkr Comp knob to monitor the gain reduction). Typical guitar speakers compress between 3 and 6 dB depending upon construction, age, volume, etc. The default value is conservative and yields about 3 dB of compression.

Note that the Master Volume control will interact considerably with the Speaker Compression algorithm as will the Presence and Depth controls. Higher values of Master Volume will cause more virtual speaker compression.

Improved Delay block. Also reworked the Deluxe Mind Guy, Mono BBD and Stereo BBD delay models based on the improvements.

Added "Blackglass 7K" Drive model based on a Darkglass B7K. The model was obtained with the Attack and Grunt switches in the middle positions. The Grunt switch changes the low-cut frequency therefore the Low Cut control can be used to replicate this switch. The Attack switch controls a shelving filter on the input and can be replicated using the Tone control.

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8.02

Added (at Kirk Hammett's request) modifier capability to the output compression parameter ("COMP") in the Amp block (previously named "OUTPUT COMP").

Added five new factory cabs (XL and XL+ only). These custom mixes represent a small sample of the world-class IRs now available from Celestion. The full IR packages can be purchased at their new website: www.celestionplus.com

Fixed bug where presets that use a User Cab(s) and were saved under earlier firmware versions might have the incorrect User Cab(s) assigned when recalled on later firmware.

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8.01

All types in the Compressor block now support both Filter and Emph parameters. These parameters control the detector filtering. Filter is a low-cut filter and Emph is a high-frequency emphasis. These parameters can be used to tailor the response of the various compressor types to different material.

Fixed minor bug in Amp block output transformer modeling which caused slight attenuation of upper treble frequencies. This results in clearer, more chimey tones.

Fixed mistake in "Citrus RV50" amp model.

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8.00

Improved amp modeling. Improves clarity and sounds more "open" especially for non-MV amp models or when the MV is turned up.

The bias excursion values for most amp models have been updated based on new measurement techniques. Existing presets will automatically be updated to the new values.

Based on user feedback the Amp block Speaker Drive now defaults to zero.

Cab block Delay parameters now have 0.001 ms resolution.

Increased gain of "Brit Brown" model by 12 dB.

Added "5F1 Tweed EC" based on a Fender Eric Clapton Vibro-Champ.

Fixed "quantization" noise when Amp block Transformer Drive parameter is set to its minimum value and a lot of gain is applied after the block. This specifically addresses the "Tube Pre" model as the default Transformer Drive is at the minimum.

Fixed Amp block Preamp Hardness parameter not "sticking".

Fixed incorrect Modifier mapping in Advanced page of Amp block.

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7.02

Improved Motor Drive algorithm. New algorithm more accurately models the compression of guitar loudspeakers by factoring in the reactive aspects of the compression.

The Motor Drive simulation is available in both the Amp block and Cab block now. It is recommended to use the simulation in the Amp block when using an FRFR configuration as the Amp block simulation uses the speaker resonance information in the calculations whereas the Cabinet block uses fixed values. When using a conventional guitar cab, or a hybrid configuration with monitoring via a conventional guitar cab and speaker emulation to FOH, the Motor Drive in the Cabinet block can be used instead. The simulation in the Amp block also has the advantage of being independent of the block's output Level control.

Gain monitoring of the Motor Drive is available on the MIX page of the Cabinet Block and the PWR DYN page of the Amp block. In the case of the Amp block the monitoring is available when the Motor Drive parameter is selected. Note that typical guitar speakers have around 3-6 dB of compression when driven hard with American speakers being on the low end of that range and British speakers being on the high end. Some speakers can exhibit even more compression than this with compression amounts of 8 dB or more depending upon the magnetic materials used and the construction of the speaker motor.

The thermal time constant of the virtual voice coil is adjustable using the "Motor Time Const" parameter. Typical guitar speakers are anywhere from 0.05 to 1.0 seconds depending upon the mass of the voice coil and the materials used.

Improved Amp block output compressor. New algorithm is more musical and reacts faster to transients. If you are using this in your presets it is recommended to audition your presets and readjust as necessary. The Gain Reduction meter now shows the total gain including the makeup gain.

Added Input Diffusion to Multitap block Band Delay, Quad Series, Plex Delay, Plex Detune and Plex Shift types.

Fixed Optical and Pedal compressors output level dependent upon Ratio parameter of Studio type. If using these types in existing presets the presets should be auditioned to ensure the volume is correct.

Fixed switching between Optical compressor types can cause brief level drop.

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7.01

Added two new "Optical" types to Compressor block. The Optical 1 type is based on classic optical tube compressors famed for their smooth sound. Use before the Amp block to smooth out your licks and increase sustain. Use after the Amp block for instant "Hit Record" sound. The Optical 2 type is similar to Optical 1 but uses a true RMS detector.

Added Input Level switch to Pedal and Optical types in Compressor block. Use "Instrument" when compressor is placed before Amp block. Use "Line" when compressor is placed after.

Added "Shimmer Drive" type to Drive block.

Reduced output level of "Brit AFS100" amp models.

Fixed Amp block "Crunch" value not saving.

Fixed bug where certain Amp parameters not loading properly when using Global Blocks.

Fixed bug where older presets may cause the Amp block to initialize with invalid parameter values potentially causing lockups.

NOTE: Due to the overwhelmingly positive response to Quantum 7.00 support for previous modeling versions has been eliminated. This frees up memory for new features (like the new compressor types), new amps, new cabs and more.

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7.00

Improved phase inverter modeling in Amp block. This provides thicker power amp distortion. New algorithm also includes bias shifting which results in more harmonic spectrum variation with input amplitude. This improves feel, "knock" and creates sweeter single note soloing. The new "PI Bias Shift" parameter controls the amount of phase inverter bias shift. Note that some real amps are "spitty" in nature due to PI bias shifting, i.e. Trainwrecks, and the new algorithm is designed to replicate that behavior accurately. If you find the behavior undesirable reduce the PI Bias Shift value as desired although this will reduce authenticity.

Improved output transformer modeling. This results in tighter, less boomy and smoother bass when the virtual power amp is driven hard. Note that this change may be significant and initially alarming with certain amp models. While the new algorithms are much more accurate they may be disconcerting to those who are accustomed to the old algorithms. In these cases the user may want to decrease the Transformer Drive and/or Low Res parameters in the amp block at the expense of accuracy. It is recommended instead, however, to readjust other parameters in the preset (i.e. Drive, BMT, etc.) which will achieve more authentic results.

Improved Amp block cathode follower modeling (again). This results in tighter bass and "chunkier" tones. As a result nearly all amp models that use cathode followers have been reworked with updated parameters. It is recommended that the model be reloaded by deselecting and reselecting the desired model which will load the pertinent default values. Models that have benefited the most from this include:
  - Bogfish
  - Brit 800
  - CA3+
  - Cameron CCV
  - Corncob
  - Dizzy V4 Blue
  - Dizzy V4 Silver
  - Herbie
  - Recto1 and Recto2
  - Solo 88, 99 and 100

Changed default value of Speaker Drive to 0.5. When selecting an amp model the Speaker Drive parameter will now default to a value of 0.5 which is commensurate with a small amount of speaker breakup. Adjust this value to taste, if desired. If using the Axe-Fx II with a power amp and conventional guitar speakers you may

want to reduce this value as the guitar speakers will impart their own distortion.

Fixed mistake in preamp compression algorithm.

Added "Dirty Shirley 2" amp model based on an earlier version of this amp with some different component values. This model is a little more aggressive than the regular model.

Changed "Bludojai Clean" amp model so that "Pre-Amp Bypass" is off (Pre-Amp Bypass actually bypasses the tone stack and increases the gain so it should be more correctly referred to as "Tone Stack Bypass").

Added "Brit 800 #34" amp model based on the "Santiago #34" modifications.

Changed taper of Overdrive control in "USA Lead" amp models so that control is not so abrupt.

Replaced following OwnHammer factory cabs with new IRs (see Note 2):
   - Cab #57 with "4x12 MAR PR-H55 FULL"
   - Cab #142 with "1x12 DLX P12R Fat"
   - Cab #146 with "4x10 SUPER VERB CTS FAT"
   - Cab #148 with "4x12 MAR PR-M20B FULL"
   - Cab #149 with "4x12 TRAD V60 FULL"

Added five new cabs comprised of our favorite mixes from several of our latest cab packs (only available for XL and XL+):
   - 1x12 Class-A 15W Mix
   - 1x15 Vibrato Verb Mix
   - 2x12 Class-A 30W Mix
   - 4x10 SuperVerb Mix
   - 4x12 Greenback Mix

Fixed missing feedback network capacitor in all "Recto" models. This results in extended bass response.

Fixed mistakes in "Euro" amp models.

Fixed mistakes in "Cameron" amp models.

Fixed several mistakes in "Shiver" amp models.

Fixed mistakes in "Hot Kitty" amp model.

Fixed wrong transformer match value in "Citrus Terrier" model.

Fixed "Ruby Rocket" and "Ruby Rocket Brt" model names swapped. The amp's bright switch is logically backwards (bright on is switch down).

Fixed input gain slightly too high in "Solo 88 Cln" model.

Fixed wrong phase inverter tail resistor and snubber capacitor values in "Brit AFS100" models.

Fixed wrong screen resistor value in all "PVH" models.

Fixed can't cancel controller "Learn Mode" in I/O->CTRL menu.

Fixed Custom Shift menu error in Pitch block.

NOTES:
1. This firmware has significant changes to the core algorithms. While every attempt has been made to ensure compatibility with existing presets it is recommended that the amp block be reset by deselecting and reselecting the desired amp model to load the new default values and the preset then auditioned and readjusted as necessary.
2. Fractal Audio Systems is pleased to announce that our online store will be carrying a new series of OwnHammer Cab Packs containing high-quality IRs for use with the Axe-Fx II, AX8, or Cab-Lab. In addition, OwnHammer has provided five new IRs to replace some of the factory cabs they provided previously, including one free sample from the new, "OwnHammer 412 Mar Green Vintage" available now at http://shop.fractalaudio.com. This pack contains some of the best IRs we've ever heard and is simply a "must have" for vintage 4x12 "Brit Green" tones.

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6.03

Fixed Pitch block Learn function not working if focus is removed from block. Also fixed Learn function not visible in Custom Shift mode.

Fixed divide-by-zero in Drive block init causing crashing under certain conditions.

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6.02

Improved speaker overdrive modeling in Amp block. New algorithm captures the "throaty" sound of an overdriven speaker along with the gentle compression. The "Spkr Drv" (Speaker Drive) parameter has been moved to the Spkr tab on the Amp menu. NOTE: If you are using Speaker Drive in existing presets you should audition these presets and adjust the parameter as necessary as the sound and behavior of the algorithm is considerably different than before. NOTE: This change affects all modeling versions as the algorithm is outside the archived modeling functions. I.e. if you change the Modeling Version parameter you will NOT get the old speaker overdrive algorithm.

Improved Drive model frequency response accuracy for models based on op-amp architectures. Models now behave with near-perfect accuracy even when Drive control is set to extreme values.

Added "Timothy" Drive model based on a Paul Cochrane "Timmy".

Updated "BB PRE" Drive model.

Fixed "PI FUZZ" output level too low. The Drive and Level tapers have also been changed so any presets using this model should be auditioned and adjusted accordingly.

Fixed wrong capacitor value in "Esoteric ACB" Drive model. Any presets using this model should be auditioned and the model deselected and reselected to reset the internal parameters.

Fixed wrong value in "Hipower Jumped" amp model.

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6.01

Updated all models to use an appropriate Preamp Tube Type when selected. I.e. British models will now use the ECC83 when selected.

Fixed wrong Preamp Bias default value for Wrecker Express model.

Fixed wrong Power Amp Bias default value for several models.

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6.00

Greatly improved Wah block. Two new parameters have also been added: "Coil Bias" parameter allows the user to adjust the DC offset of the virtual inductor. "Low Cut Freq" sets the highpass filter due to the input coupling capacitor. It is recommended that existing presets be auditioned and, in most cases, deselecting and reselecting the desired model to reset dependent parameters.

Improved Amp block output transformer to power tube interaction modeling. This results in less "smear" in the overtones when the virtual power tubes are driven into clipping.

Improved Amp block plate clipping modeling. New algorithms more accurately replicate the gradual onset of clipping and never fully hard clip resulting in a more dynamic and "open" tone. Note that the increased dynamics may result in some amp models having higher peak volumes which can result in clipping with existing presets. To remedy this simply turn down the Level control in the Amp block.

Recalculated Amp block preamp tube parameters. The "12AX7A SYL" (Sylvania 12AX7A) is now the default type as we think it sounds the best.

Improved background calculation accuracy for cathode follower parameters.

Added Solo 88 tone stack type (the Solo 88 Rhy and Lead models previously used the Solo 100 tone stack which has a different treble taper and load resistance). The Solo 88 Rhy and Lead models now default to that tone stack type.

Added Monitor tab to Tone Match block. This tab allows the user to monitor the difference in frequency response in real time. This can be used when matching real amps to identify differences in tone stack response due to manufacturing tolerances, etc.

Fixed wrong snubber cap value in Recto 2 amp models. This changes the default High Cut value to 10 kHz.

Fixed wrong phase inverter component value in all "Plexi 50W" amp models.
Probably not audible though.

Fixed bug that could possibly cause crashes/lockups.

NOTE:
This update will NOT change the sound of existing presets as the amp modeling
version will automatically be set to the version when the preset was created.
To use the new amp modeling set the Modeling Version parameter in the Amp block
to "Latest". When selecting new amp models the Modeling Version will be set
according to the Default Modeling Version in the Global menu.

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5.03

Increased maximum amount of virtual power amp sag in Amp block. The maximum
amount of sag is now twice what was previously available. Existing presets will
automatically be adjusted to compensate for the increased range of the Supply
Sag control, i.e. if the Supply Sag was set to 8.00 it will be adjusted down to
4.00 so as to yield the same amount of sag. High values of Supply Sag can be
used to make the feel "easier" and/or replicate the behavior of other products
that intentionally exaggerate compression.

Fixed duplicate Modifiers (left over from a bug in the original Axe-Edit)
possibly not being deleted properly.

Fixed volume of "Brit Silver" amp model lower on Latest and Q2.01 modeling
versions.

Fixed Preamp Bias not retained when Force Default Version is On.

Fixed wrong firmware version reported to Axe-Edit.

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5.02

Fixed Force Default Version parameter not working properly.

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5.01

Fixed offset cancellation mistake in amp modeling.

Added "Force Default Version" parameter to Global menu. When set to On this
forces a preset to use the selected Default Modeling Version upon recall.

Rematched PI Fuzz model.

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5.00

Improved preamp tube modeling for tubes driving cathode followers. In models
that use cathode followers this results in warmer distortion with smoother
decay. The shape of the cathode follower distortion can be adjusted with the
new "CF Hardness" parameter found on the Advanced tab in the Amp block.

Added "Legato 100" amp model based on a certain famous Carvin Legacy 100.

Added "Capt Hook" amp models based on a Hook Captain Classic 34. This amp uses
a mu follower which yields a complex distortion with smooth decay. There are
six models:
   1. Capt Hook 1A: Channel 1 w/ EQ and Boost switches off.
   2. Capt Hook 1B: Channel 1 w/ EQ and Boost switches on.
   3. Capt Hook 2A: Channel 2 with Edge switch off.
   4. Capt Hook 2B: Channel 2 with Edge switch on.
   5. Capt Hook 3A: Channel 3 with Edge switch off.
   6. Capt Hook 3B: Channel 3 with Edge switch on.

Improved diode clipping algorithms in Drive block. As a result the following
Drive models have been rematched:
   o Rat Dist
   o Super OD
   o T808 OD
   o T808 MOD
   o Plus Dist
   o Esoteric ACB
   o Esoteric RCB
   o Zen Master
   o Ruckus

Fixed tone stack error in Recto 2 amp models.

Changed Presence knob taper in Recto1 Norm and Recto2 Vntg models to match
actual amps.

Changed behavior of Amp block's Preamp Comp when set to "Ideal" so that
compression amount is roughly the same as when set to "Authentic". If you are
using the Ideal setting on a preset you may need to increase the Preamp Comp
parameter value.

NOTES:
   1. This update will NOT change the sound of existing presets as the amp
      modeling version will automatically be set to the version when the preset
      was created. To use the new amp modeling set the Modeling Version
      parameter in the Amp block to "Latest". When selecting new amp models the
      Modeling Version will be set according to the Default Modeling Version in
      the Global menu.
   2. Due to space limitations in the Mark I/II BOOTROM this firmware is not
      backwards compatible with presets saved prior to firmware version 15.08.
      This limitation only exists for the Mark I/II. XL and XL+ still maintain
      backward compatibility.

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4.00

Improved power tube plate current vs. grid voltage accuracy. New models more accurately reflect how the response is higher order at lower grid voltages and "relaxes" into a lower order response at higher grid voltages. This improves feel when the virtual power amp is overdriven and improves harmonic content accuracy.

Note that existing presets will NOT be affected. Any existing preset will have its local Modeling Version (under the Adv tab of the Amp block) adjusted to its previous value. To use the new modeling you will need to set the Modeling Version parameter to "Latest". Any new presets that are created will use the Modeling Version selected in the Global menu. For example, if an existing preset was using Q3.xx modeling it will still use Q3.xx. To use Q4.00 you would need to set the Amp block Modeling Version to "Latest". If you create a new preset and the Global menu Modeling Version is "Latest" the new preset will use Q4.00 modeling.

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3.03

Fixed fuzzy Sat Switch behavior on 65 Bassguy and Dweezil's B-man models.

Fixed Supremo Trem model instability if Bright switch turned off.

Added "Metallica's USA IIC++" amp model.

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3.02

Fixed Dynamic Presence affecting wrong frequencies.

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3.01

Fixed incompatibility with Axe-Edit.

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3.00

Improved Amp block output transformer modeling. New model more accurately simulates dynamic core losses and leakage inductance. The "Xfrmr Grind" knob controls the intensity of the effect. Higher values result in more high frequency response and a more "open" sound. Very high values can yield a raspy, spitty tone common in vintage and/or low wattage amps. Modern "big iron" amps tend to have low values. Note that the audibility is dependent upon how hard the virtual power amp is driven and is more noticeable as the MV is increased. Also note that the effect in real amps is highly dependent on the speaker. Some speaker/transformer combinations exhibit significant high frequency dynamic

boost while other combinations yield almost none. As always use your ears as the final determinant.*

Improved triode plate modeling for cases when plate load is complex.

Improved Ruby Rocket models frequency response accuracy vs. Drive knob. Existing presets should be reset by either deselecting and reselecting the amp model or by turning the Low Cut Freq parameter to 10.0.

Extended the range of the Amp block Hi Cut Freq parameter to 400 Hz to 40 kHz. As this changes the preset storage format, existing presets will be automatically updated to use default values.

Added "Dweezil's B-man" amp model based on a modified Fender Bassman as used by Dweezil Zappa.

Added "Friedman BE/HBE" models based on an original Friedman "Marsha". These are the original BE/HBE models from firmware prior to 2.03.

Fixed wrong default Tube Bias value in Recto1 and Recto2 amp models.

Fixed importing Cab blocks from Axe-Edit library not working properly.

*Note: The Transformer Grind parameter will be set to a default value and the Dynamic Presence parameter will be reset to 0.0 for any presets created with previous firmware.

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2.04

Fixed Tuner configuration menu.

Fixed Deluxe Verb Nrm model incorrect gain for Q2.01 modeling.

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2.03

This version firmware allows switching between three firmware versions: Quantum 2.00, 2.01 and 2.02. In the Global menu the "Default Modeling Version" selects which version of modeling to use when choosing a new amp model and when recalling presets made with previous firmware versions. Choices are "Latest" "Q2.01" and "Q2.00". In the Amp block the "Modeling Version" selects the version to use which can be used to override the default value. Note that changing the Modeling Version in the Amp block will load appropriate default values for the Preamp Hardness, Preamp Bias and Harmonics parameters thereby overriding any changes that may have been made to those parameters. In simple terms: if you want the sound of 2.02 set the Modeling Version to Latest, for 2.01 use Q2.01 and for 2.00 use Q2.00. Note that changing the Default Modeling Version in the Global menu does NOT change the modeling version the amp block is using. It only selects which version the amp block will use when selecting a new amp model or recalling old presets. Otherwise the version will remain unchanged.

Re-matched Friedman BE and HBE amp models using a newer reference amp as the original reference amp is an early model and has questionable QC.

Added new Friedman BE/HBE models based on a newer Friedman BE/HBE. V1 corresponds to the Voice switch toggled right, V2 toggled left. The original models have been renamed Friedman BE/HBE Old.

Reduced popping when changing Amp block Preamp Bias.

Fixed popping when X/Y switching the Cabinet block and one state has a non-zero Sat value for the mic preamp simulator.

Fixed Drive block "Plus Dist" type defaulting to wrong clipping type.

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2.02

Fixed some parameters not being recalled correctly when using Global Blocks.

Refined preamp modeling. Harmonics value now defaults to zero. Increasing this value softens preamp distortion, if desired.

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2.01

Further improvement of preamp tube models based on measurements. The existing theoretical models, i.e. "Modern", "Vintage", etc., have been removed. There are now six extremely accurate preamp tube types: 12AX7A, ECC83, 7025, 12AX7B, ECC803 and EF86. Note that the EF86 type has been normalized to have roughly the same gain as the triode types.

Improved power tube saturation modeling. This yields warmer, "tubier" distortion. The PA Hardness parameter is automatically set for each power tube type but may be overridden if desired.

Improved tube interaction modeling. A new parameter, "Harmonics", controls the amount of interaction. Higher values yield softer distortion. The default value is set for each amp model but may be overridden.

Improved virtual output transformer saturation modeling.

Change "Thru" bypass mode so that effect input is muted. This prevents, for example, delays from creating echoes when engaged.

Added "Invert" mic type to Cabinet block. This inverts the signal allowing for interesting effects in conjunction with the delay parameter.

Fixed Reverse Delay being modulated slightly for long delay times.

Fixed Mr Z MZ-8 amp model sounding "off".

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2.00

Improved tube modeling. New algorithms uses more accurate plate current
formulas based on actual measurements rather than theoretical values. This
results in smoother, thicker distortion and better dynamic response.

Improved power supply modeling. New algorithms improve sag and feel. For
convenience the virtual power supply voltage (B+) can now be monitored on the
PWR DYN tab of the amp block. When the Supply Sag control is selected the gain
reduction meter will display the supply voltage in dB relative to the idle
voltage.

Improved cathode bias algorithm for "Class-A" amp models (i.e. Class-A 30W, AC-
20 Dlx, etc). In conjunction with this the Cathode Squish parameter has been
repurposed as "Cathode Bias" and controls the value of a virtual cathode
resistor. A value of 50% is "optimum" and biases the power tubes at true Class
A operation (neglecting any bias shifting due to supply sag, screen droop,
etc.). Values greater than 50% increase the resistance and therefore bias the
power tubes "colder". Values less than 50% bias the tubes beyond Class A. In a
real amp this would probably destroy the tubes but that limitation does not
exist in our virtual amp. Most real amps of this type actually operate far
below Class A and the default values for the models will reflect this. Note
that the Power Tube Bias value should be set to 1.00 for these amp types (since
that parameter controls the grid voltage and the grid voltage is at a maximum in
these types of amps). Existing presets will be automatically updated with new
default Cathode Bias and Power Tube Bias values.

Improved Phaser block CPU usage.

Added "Filter Slope" parameter to Cabinet block. This can be used to select
between first-order (6 dB/octave) or second-order (12 dB/octave) filters for the
Low Cut and High Cut filters.

Improved Plexi "Jump" models to account for interaction between Drive controls.

Renamed Plexi 50W High amp model to "Plexi 50W Hi 1" (see below).

Added "Plexi Hi 2" amp model which is similar to Plexi 50W Hi 1 except the
second triode stage has a 0.68uF cathode bypass capacitor. The second bypass
capacitor was added in the early 70's and gives a slightly brighter tone.

Added "Plexi 100W 1970" based on a 1970 Marshall 1959SLP 100. This particular
amp has a darker, smoother sound than earlier Plexis.

Added "Ruby Rocket" amp model based on a Paul Ruby Rocket with the Bright switch
in the down position. The existing model has been renamed "Ruby Rocket Brt" to
reflect the state of the Bright switch being in the up position.

Added "AC-20 12AX7 B" amp model based on an AC-20 Deluxe with the rear switch
set to 12AX7 and the Bass/Treble switch set to Bass. The existing models have
been renamed AC-20 EF86 B, AC-20 EF86 T, and AC-20 12AX7 T.

Added "Spawn Nitrous 1" amp model based on the OD-1 mode of a Splawn Nitro with
KT-88 power tubes.

Fixed Spawn Nitrous model broken by earlier firmware update. If you are using this model in your presets you should reset the model by deselecting and reselecting the amp type. This model has been renamed "Spawn Nitrous 2" to indicate that it is the OD-2 mode (see above).

Fixed wrong default Negative Feedback value in all "Dizzy" models. Note that the Presence control in these models has more range than the actual amp as the amps have a limiting resistor that the models do not have. Turning the Presence all the way up on the real amps is equivalent to around 7-8 on the models.

Fixed wrong Bass taper in Recto2 amp models. Previous taper was Log30A. Taper is now Log10A. Existing presets should be auditioned as the amount of bass will be less.

NOTE: This firmware represents a significant update in the amp modeling and the amp models themselves. Many models have been redone. Although care was taken to ensure as much compatibility with existing presets as possible, your presets may be altered.

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1.06

Improved screen grid modeling accuracy.

Added "Class-A 30W Brt" amp model based on the Bright channel of a non-Top Boost Vox AC30.

Added Scene indicator to Output and FX Loop GUI. The 'A' Quick Control knob can be used to select the desired scene while in the menu. This facilitates setting output levels in each scene.

Fixed wrong cathode follower default values in Class-A 15W TB, Class-A 30W TB, Hot Kitty and Matchbox D-30 amp models. Existing presets will be automatically updated with the new default values.*

*The range of the CF Ratio parameter has been expanded and all existing presets will have the parameter reset to default values. If you have changed the CF Ratio value in your presets you will need to re-enter the value.

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1.05

Fixed default Preamp Hardness being set to wrong value. Existing presets will be automatically updated to the new default value.

Fixed Backup System (XL and XL+ only feature) writing to wrong memory area and overwriting presets.

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1.04

Added "Solo 88 Clean" amp model based on the clean channel of a Soldano X-88.
All channels are now represented.

Added "PVH 6160+ Rhy" amp model based on Channel 1 of a Peavey 6505+ with the
Crunch switch depressed and Bright switch out. The existing PVH 6160 II Rhy
model has been renamed "PVH 6160+ Rhy B". Likewise the existing PVH 6160 II Ld
model has been renamed "PVH 6160+ Ld".

Improved triode saturation modeling based on new measurements. The new modeling
results in more accurate saturation behavior which, in turn, results in smoother
overall distortion characteristics and more accurate harmonic content. Due to
the new algorithm the default Preamp Hardness value is now 6.0. Existing
presets are automatically updated upon recall.

Fixed thumping when switching between certain amp models.

Fixed Mixer block parameters not being recalled properly from Global Blocks.

Fixed wrong cathode cap value in CA3+ Clean amp model.

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1.03

Improved triode grid conduction model. This improves edge-of-breakup tones as
it keeps the distortion on the edge of breakup more and improves high-gain tones
as it tightens up the bass. Also improves feel and dynamic response.

Improved cathode follower model. This improves harmonic accuracy yielding less
"glare", more detailed treble (more "chime") and more bite. The previous
cathode follower model can be selected from the Global menu by choosing a
Modeling Version other than 1.03.

Added "PVH 6160 II Rhy" amp model based on Channel 1 of a Peavey 6505+ with the
Crunch and Bright switches depressed.

Fixed Dizzy and Herbie models tone stack topology. This doesn't result in a
significant change in response unless the tone controls are set to extremes
(i.e. bass to zero).

Fixed wrong default Preamp Bias value in CA3+ Lead amp model.

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1.02

Added "Deluxe Verb Nrm" amp model based on the Normal channel of a Fender Deluxe
Reverb. The existing Deluxe Verb model has been renamed "Deluxe Verb Vib" to
distinguish that it is modeled on the Vibrato channel.

Added "Double Verb Nrm" amp model based on the Normal channel of a Fender Twin
Reverb. The existing Double Verb model has been renamed "Double Verb Vib" to
distinguish that it is modeled on the Vibrato channel.

Added "Super Verb Nrm" amp model based on the Normal channel of a Fender Super Reverb. The existing Super Verb model has been renamed "Super Verb Vib" to distinguish that it is modeled on the Vibrato channel.

Added "Bludojai Ld 2" amp model based on a Bludotone Ojai with PAB off. The existing Bludojai Lead amp model has been renamed "Bludojai Ld 1" and is based on the Ojai with the PAB on.

Added "Double Verb SF" based on the Vibrato channel of a 1971 "Silverface" Fender Twin Reverb.

Added "Plexi 50W 6550" based on the High input of a 1972 50W Marshall "Plexi" with 6550 power tubes.

Added "FAS Hot Rod" amp model.

Replaced factory cabinets 54-56 with selected UltraRes™ IRs from ML Sound Lab's "ML Brit 4x12" collection. If you enjoy these IRs you may purchase the entire collection from our online store.

Added "FAS Boost" Drive type. This is a cleanish boost great for boosting vintage amps like Plexis.

Added "Deluxe Mind Guy", "Mono BBD", "Stereo BBD" and "Lo-Fi Tape" types to Delay block.

Fixed unable to select Mixer X/Y state from Page 2 of edit menu.

Fixed wrong Drive pot wiring and default Preamp Bias value in Dizzy V4 Blue 3 and 4 amp models.*

Fixed wrong default Preamp Comp value in all Dizzy V4 models.*

Fixed wrong default power tube bias value in Mr Z MZ-8 model.*

Fixed several errors in the Bogfish models.*

Fixed wrong Drive pot value in Shiver Lead model.

Fixed System backup/restore not working correctly on Mark I/II models.

Fixed Fetch Backup Preset and Fetch Factory Preset not working properly on Mark I/II models.

Fixed Bit Reduction parameter not listed for Sweep Delay type.

*Note: Existing presets using these amp models should be reset by deselecting and reselecting the desired amp model.

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1.01

Fixed sending IR to a scratchpad location does not update if using Cabinet 2.

Fixed several mistakes in Herbie models.

Fixed timeout when backing up system data if preset has high CPU usage.

Improved CPU usage.

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1.00

This is the initial release of our "Quantum" firmware. Quantum represents a milestone in amplifier modeling technology. Our new Real-Time SPICE (RTS) algorithms offer a degree of accuracy not found in any other product. Below are the significant changes/additions from the previous non-Quantum firmware.

Added "Dephase" control to Cabinet block. This parameter controls a sophisticated process that removes the "phasiness" from IRs and can yield a more "in the room" experience.

New RTS triode models. There are three new triode models based on our new algorithms: 12AX7A (default), ECC83 and 7025. The previous models are still available and may be selected with the Pre Tube Type parameter. Note that the models have all shifted and if you were using a model other than default previously you will need to adjust your preset to the desired model.

The "CF Comp" parameter has been renamed "Preamp Comp" to better explain its function.

Added new Preamp Compressor Type "Comp Type" parameter to amp block. There is a new menu page that contains Preamp Comp, Comp Type, Dynamics, Preamp Bias and Output Level (the last repeated from other menus for convenience). Preamp Comp Type selects between "Authentic", which accurately models the compression in a tube amp, and "Ideal" which is an idealized distorting compressor. The idealized type is more focused and has tighter bass whereas the authentic type is bolder and looser. High gain players may prefer the ideal type due to its tight character.

Added a new mode to the "Character" controls in the Amp block. A Char Type of "Dynamic" engages an exciting new mode of tone control. This can be used to fatten or scoop the tone as a function of picking strength. For example, set the Type to Dynamic, Char Freq to 450.0, Char Q to 0.7 and Char Amt to 4.0. This will cause the tone to get fatter and thicker as you play hard but without getting honky when playing soft.

Added four "JMPre-1" models based on a Marshall JMP-1 rack preamp. The existing "Brit Pre" model was not changed as it is used by several prominent "A-list" artists. Instead, four new models were added. The models with "BS" in the name indicate that the Bass Shift function is engaged. Note that the model defaults to the power amp simulation active. The power amp model is based on a typical Marshall 100W power amp of that era.

Added 512 more User Cab slots to XL and XL+ models.

Added 20 new Cabinet models (XL and XL+ versions only) from our Universal Noise Studios 4x12 cabinet pack. These IRs are specifically intended to be used in mixes "in the box". Mix two IRs from each cab for a myriad of sonic textures.

Fixed Dry Delay Shift parameter not working in Flanger block. The parameter has been renamed to Dry Delay and works differently (and more intuitively). The parameter now sets the delay time of the dry signal as a percentage of the maximum delay time of the wet signal. For classic thru-zero flanging this parameter should be set to 50%. For interesting new sounds experiment with lower or higher values. Note that this parameter has no effect if Through Zero is set to Off.

Fixed smallest LCD font having a smiley face for left bracket character.