Dubstation User's Guide
Audio Damage, Inc.
Release 2.0

Credits

Software Design and Construction, Documentation
- Chris Randall
- Adam Schabtach

Field Testing, Version 2.0
- Jens Algren
- Eric Beam
- Simon Claudius
- Steve Hamman
- Jeff Laity
- Christian Puffer
- Joshua Schnable

Field Testing, Prior Versions
- Wade Alin
- Mike Fisher
- Mark McKeever
- Kevin Rose
- Donovan Stringer
- Tom Whitwell

Made Possible By
- Elle
- Tracie

License Agreement

BY INSTALLING THE SOFTWARE, YOU ARE CONSENTING TO BE BOUND BY THIS AGREEMENT. IF YOU DO NOT AGREE TO ALL OF THE TERMS OF THIS AGREEMENT, THEN RETURN THE PRODUCT TO THE PLACE OF PURCHASE FOR A FULL REFUND.

Single User License Grant: Audio Damage, Inc. ("Audio Damage") and its suppliers grant to Customer ("Customer") a nonexclusive and nontransferable license to use the Audio Damage software ("Software") in object code form solely on a single central processing unit owned or leased by Customer.

Customer may make one (1) archival copy of the Software provided Customer affixes to such copy all copyright, confidentiality, and proprietary notices that appear on the original.

EXCEPT AS EXPRESSLY AUTHORIZED ABOVE, CUSTOMER SHALL NOT: COPY, IN WHOLE OR IN PART, SOFTWARE OR DOCUMENTATION; MODIFY THE SOFTWARE; REVERSE COMPILE OR REVERSE ASSEMBLE ALL OR ANY PORTION OF THE SOFTWARE; OR RENT, LEASE, DISTRIBUTE, SELL, OR CREATE DERIVATIVE WORKS OF THE SOFTWARE.

Customer agrees that aspects of the licensed materials, including the specific design and structure of individual programs, constitute trade secrets and/or copyrighted material of Audio Damage. Customer agrees not to disclose, provide, or otherwise make available such trade secrets or copyrighted material in any form to any third party without the prior written consent of Audio Damage. Customer agrees to implement reasonable security measures to protect such trade secrets and copyrighted material. Title to Software and documentation shall remain solely with Audio Damage.

LIMITED WARRANTY. Audio Damage warrants that for a period of ninety (90) days from the date of shipment from Audio Damage: (i) the media on which the Software is furnished will be free of defects in materials and workmanship under normal use; and (ii) the Software substantially conforms to its published specifications. Except for the foregoing, the Software is provided AS IS. This limited warranty extends only to Customer as the original licensee. Customer's exclusive remedy and the entire liability of Audio Damage and its suppliers under this limited warranty will be, at Audio Damage or its service center's option, repair, replacement, or refund of the Software if reported (or, upon request, returned) to the party supplying the Software to Customer. In no event does Audio Damage warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions.

This warranty does not apply if the software (a) has been altered, except by Audio Damage, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Audio Damage, (c) has

been subjected to abnormal physical or electrical stress, misuse, negligence, or accident, or (d) is used in ultrahazardous activities.

DISCLAIMER. EXCEPT AS SPECIFIED IN THIS WARRANTY, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS, AND WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE, ARE HEREBY EXCLUDED TO THE EXTENT ALLOWED BY APPLICABLE LAW.

IN NO EVENT WILL AUDIO DAMAGE OR ITS SUPPLIERS BE LIABLE FOR ANY LOST REVENUE, PROFIT, OR DATA, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL, OR PUNITIVE DAMAGES HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY ARISING OUT OF THE USE OF OR INABILITY TO USE THE SOFTWARE EVEN IF AUDIO DAMAGE OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. In no event shall Audio Damage's or its suppliers' liability to Customer, whether in contract, tort (including negligence), or otherwise, exceed the price paid by Customer. The foregoing limitations shall apply even if the above-stated warranty fails of its essential purpose. SOME STATES DO NOT ALLOW LIMITATION OR EXCLUSION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES.

The above warranty DOES NOT apply to any beta software, any software made available for testing or demonstration purposes, any temporary software modules or any software for which Audio Damage does not receive a license fee. All such software products are provided AS IS without any warranty whatsoever.

This License is effective until terminated. Customer may terminate this License at any time by destroying all copies of Software including any documentation. This License will terminate immediately without notice from Audio Damage if Customer fails to comply with any provision of this License. Upon termination, Customer must destroy all copies of Software.

Software, including technical data, is subject to U.S. export control laws, including the U.S. Export Administration Act and its associated regulations, and may be subject to export or import regulations in other countries. Customer agrees to comply strictly with all such regulations and acknowledges that it has the responsibility to obtain licenses to export, re-export, or import Software.

This License shall be governed by and construed in accordance with the laws of the State of Colorado, United States of America, as if performed wholly within the state and without giving effect to the principles of conflict of law. If any portion hereof is found to be void or unenforceable, the remaining provisions of this License shall remain in full force and effect. This License constitutes the entire License between the parties with respect to the use of the Software.

Introduction

Thank you for purchasing Dubstation, Audio Damage's plug-in for emulating vintage delay effects. Dubstation realistically recreates the sound of old analog delay processors, including their unique pitch-changing properties, idiosyncratic frequency responses, and pleasantly warm distortion when overloaded. Dubstation adds some tricks that analog delays can't manage, such as true stereo processing and loss-free looping with overdubbing and reverse, and all of the features you expect from a contemporary software effects plug-in such as full parameter automation and automatic calculation of delay times based on tempo. Even with all of these features and power, Dubstation is as immediate and fun to use as your favorite old hardware delay—just grab the knobs and go.

System Requirements

Dubstation is provided as 32- and 64-bit VST2 and VST3, and 64-bit AAX plug-ins for Windows. On OSX, Dubstation is provided as Universal Binary Audio Unit, VST2, VST3 and AAX plug-ins.

Dubstation is a plug-in, not a standalone application. To use it, you'll need a host application such as Ableton Live, Steinberg Cubase, Apple Logic, Avid ProTools, etc[1]. Obviously you'll also need a computer capable of running one of these applications.

We support the use of Dubstation under Microsoft Windows 8 or newer, and Apple OS X version 10.8 or newer.

[1] Product names are copyrighted by their respective owners.

New in Version 2.0

Version 2.0 represents a substantial overhaul of Dubstation, but all of the audio processing code that you know and love has not been altered. We've expanded Dubstation's capabilities with two new dual-delay modes, a controllable saturation stage, and a low-frequency oscillator for modulated delay effects. There are also a number of useful enhancements:

- VST 3 and AAX compatibility
- A cross-platform XML-based preset file system
- A new user interface, appropriate to contemporary display technologies
- Built with up-to-date code libraries for better host compatibility and future-proofing

Dubstation 2.0 has a different name and internal identifier than previous versions. This means that you can install version 2.0 alongside whatever version you are currently using, and continue to use the older version in your existing projects. Version 2.0 cannot be directly substituted in existing projects and cannot read preset files created by previous versions.

Also, direct MIDI control assignment has been removed. Host DAWs have progressed considerably since Dubstation's last major revision and it's now appropriate to leave MIDI mapping up to them.

Installation

To install Dubstation, double-click the Dubstation Installer icon, and follow the instructions. You can choose which plug-in formats to install and, for some formats, the plug-in destination folder.

To un-install from OS X, simply delete the plug-in from your VST folder, which is usually located at `/Library/Audio/Plug-Ins/VST/Audio Damage`, and your Audio Units folder, which is located at `/Library/Audio/Plug-Ins/Components/`. To un-install from Windows, delete the file named `Dubstation.dll` from your VST folder(s). The presets are stored in separate files which you can also delete, although they occupy very little space. On OS X, they're in `/Library/Application Support/Audio Damage` . On Windows, they're in the hidden folder `C:/Program Data/Audio Damage/` .

Operation

Dubstation, by design, is fairly simple to use. One of the design goals for Dubstation was to create a plug-in that had the same "fun factor" of old hardware delays. If you're already familiar with either hardware delays or delay-based software effects, you should have no trouble getting started with Dubstation. If you find that you need some explanation about Dubstation's controls, please return to this manual and read on.

We assume that you are familiar with using plug-ins with your particular host. If you have general questions about using plug-ins with your host, please refer to its documentation. Dubstation is a "true stereo" processor that can process either mono or stereo signals, and can be used as an insert effect or on an effects-send channel in your host's mixer. If used in a stereo context (for example, as an insert on a stereo channel in your DAW's mixer), the left and right channels are processed independently with no summing.

On the next page is a screenshot of Dubstation, followed by detailed descriptions of its controls.

Input Drive

The **INPUT DRIVE** knob controls the level of the signal as it enters the plug-in. The range of the knob is -80dB, which effectively turns the input signal off altogether, to +3dB, which provides a small amount of boost. In most circumstances you can leave it at its default setting of 0dB, which passes the signal without amplifying it. Manipulating this knob with either a hardware MIDI controller or your host sequencer's automation features is useful for creating echo effects on only certain hits in a drum part or the last word in a vocal phrase: keep the knob turned all the way counter-clockwise, then quickly turn it up and back down to let just the desired hit or word enter the delay line.

High and Low Cut

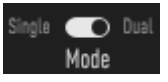
The **HIGH CUT** knob controls a low-pass filter which attenuates the high frequencies of the signal as it passes through the delay. This filter models the extremely limited high-frequency response of analog delay circuits—a limitation which, ironically, creates much of their "warmth" and pleasing character. The range of this knob is 4KHz to 8KHz, but that value represents an upper limit. The actual operating frequency of the filter is also determined by the delay time. Analog delays have less high-frequency response at longer delay times, so Dubstation's low-pass filter's frequency also decrease as the delay time increases.

The **LOW CUT** knob controls a high-pass filter which attenuates the low frequencies of the signal as it passes through the delay. The range of this control is 100Hz to 1.5KHz. This filter emulates the poor bass response of older delays, and is particularly useful for creating the thin-sounding echoes often heard in early Jamaican dub music. Try setting the knob to about 12 o'clock when using Dubstation on your next dub remix.

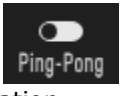
Low-Frequency Oscillator

Dubstation's delay time can be periodically altered with a low-frequency oscillator, or LFO. This modulation produces changes in both the time between delayed signals and their apparent pitch, thanks to Dubstation's emulation of older delay hardware. Hence the LFO is useful for producing doubling and chorusing effects, pitch swoops, and so on. The LFO Rate knob controls the speed of the LFO, and has a range of 0.01 to 5Hz. The LFO Depth knob controls how much the LFO affects the delay times, and has an arbitrary scale expressed as a percentage.

Mode Switches



There are two switches which control Dubstation's overall operation. The **MODE** switch chooses one of two options: **SINGLE** or **DUAL**. In Single mode, Dubstation operates as a single mono or stereo delay. When used in a stereo context, a separate delay line is used for each channel, but their delay times are always the same and Dubstation presents a single delay-time knob. In Dual mode, the times of the two delays can be controlled independently and a second delay-time knob appears.

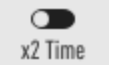


When the **PING-PONG** switch is engaged, the signal routing between the delays is altered. The input signals are added together (if Dubstation is used in a stereo context) and routed to the left delay. The output of this delay is sent out the plug-in's left output, and also fed to the right delay. The output of this delay is sent out the right output, and also fed back to the left delay. This configuration produces a delayed signal which bounces back and forth between the two output channels.

Time Controls

The **TIME** knobs and the **X2 TIME** switch together control the amount of time that the signal is delayed. If the **X2 TIME** switch is in its left position, the **TIME** knob varies the delay time from a minimum of 4 msec to a maximum of 1000 msec (or one second). The right position of the **X2 TIME** switch multiplies the delay time by two, giving the **TIME** knob a range of 8 – 2000 msec.

You'll notice that the delayed signal has less high-frequency content than the original signal. At long delay times, the high frequencies are reduced dramatically. This is an accurate recreation of the frequency-response characteristics of delays built with analog bucket-brigade delay circuits, and a fundamental aspect of their sonic personality.



If you turn on the **TEMPO SYNC** switch Dubstation uses the current tempo reported by your host application to calculate its delay time. When this switch is on, the time knob sets the delay length in metrical units, that is, fractions of a beat. The range of values is 1/32nd to 1/1 (a whole measure), with dotted and triplet times available. Watch the value displayed below the knob as you rotate it to choose a delay interval—or just do it by ear. Triplet values are denoted with a "T" after the beat fraction, and dotted values are denoted with a period. For example, "1/8 ." indicates a delay time with a dotted eighth note feel. Dubstation will track tempo changes, saving you from having to adjust its delay time by hand when you change the tempo of your song.

Note that Dubstation's maximum delay time of two seconds still applies when the sync switch is engaged. If you attempt to use a combination of tempo and beat fraction that exceeds this limit, Dubstation will still only delay the signal by two seconds.

Also note that your host software must provide appropriate information for Dubstation's tempo synchronization features to work. If your host does not supply tempo information, Dubstation assumes that the tempo of your music is 120BPM.

Feedback and Saturation

The **FEEDBACK** knob controls the amount of delayed signal that is fed back into the delay line. If this knob is rotated fully counter-clockwise, almost none of the delayed signal is fed back and you will hear only a single delayed version of the input signal. As you rotate the knob clockwise, more and more of the delayed signal is fed back, and you will hear a series of echoes diminishing in volume. As the knob approaches its full clockwise position, all of the delayed signal is fed back on itself and the echoes will repeat indefinitely, and even grow louder over time, eventually creating a

distorted wash of sound. (Obligatory cautionary note: Be careful to not subject your ears to dangerously loud volume levels when experimenting with runaway feedback.)

The feedback signal in Dubstation's delays passes through an analog-like distortion stage, controlled by the **SATURATION** knob. If you leave the knob at its full anti-clockwise position, the signal won't be altered by this stage. (This reproduces the signal path of previous versions of Dubstation.) Turning the knob up creates an increasing amount of distortion. The distortion processor necessarily boosts the signal somewhat, so you may find it useful to adjust the **FEEDBACK** control along with this control.

Loop and Reverse

The **LOOP** switch, when turned on, causes Dubstation to endlessly play the audio currently in its delay line without alteration. This differs from turning the **FEEDBACK** knob all the way up because the audio is played without being changed by Dubstation's weird and wonderful emulation of analog delay circuitry. If you use the **FEEDBACK** knob to create a looping delay effect, the audio will degrade and change over time as happens in a hardware analog delay. The **LOOP** switch lets you choose between the seamless looping of a digital delay and the murky but warm effects of an analog delay. Note that you can still use the other controls as the audio loops, and you can overdub new audio. However, the **FEEDBACK** knob is disengaged when the loop switch is on, since providing a feedback path at the same time that the delay loops would cause the signal to increase rapidly in an uncontrollable manner. (If that sounds like fun to you: trust us, it's not. We tried it.)

The **REVERSE** switch makes Dubstation reverse the current contents of its delay memory and the direction in which it records. This means that any that was in the delay memory *before* you flip this switch will be played backwards. Any audio that enters the delay *after* you flip the switch will not sound backwards, because it will be recorded in the same direction relative to the playback direction. Of course, if either the **FEEDBACK** knob is turned up or the **LOOP** switch is on, you will hear the backward signal played more than once, since the backward signal is fed back or looped and played again.

Output Controls

The **MIX** knob controls the relative amounts of the delayed and original ("dry") signals in the plug-in's output signal. If the knob is set to its center position, you'll hear equal amounts of the original and delayed signal. This setting, or something close to it, is useful if you're using Dubstation as an insert effect. If you rotate the knob fully clockwise, you'll hear only the delayed signal. This setting

is useful if you're using Dubstation as a send/return effect. If you rotate the knob fully counter-clockwise, you'll hear only the original signal, which isn't terribly useful but is sometimes handy if Dubstation is feeding back wildly and you need a reminder of what started it all.

The **OUTPUT LEVEL** knob sets the loudness of Dubstation's output signal. The range of the knob is -80dB, which effectively turns the plug-in's signal off altogether, to +3dB, which provides a small amount of boost. In most circumstances you can leave it at its default setting of 0dB, which passes the signal without amplifying it. Although this control is certainly not flashy, much fun can be had by using a MIDI hardware controller and/or your VST host's automation features to control it, turning the output level up and down to create echoes that ebb and flow.

Presets

Dubstation comes with a number of presets to get you started. The name of the current preset appears in the top center of Dubstation's window. You can flip through the presets by clicking the arrows on either side of the name.

You can also click the name itself to invoke a popup menu with a number of handy features. The menu lists all of the factory-installed presets. There is a Save As command for saving your settings in individual files. If you place these files in Dubstation's own folder (located at `C:\ProgramData\Audio Damage\Dubstation\Presets\User` on Windows, `/Library/Application Support/Audio Damage/Dubstation/Presets/User` on OS X), your presets will appear on this menu.

There are also commands for copying the current settings to the system clipboard, and pasting settings from the clipboard. The settings are presented in a plain-text XML format so that you can exchange them online in forums, add them as enigmatic footnotes in your next sci-fi novel, etc.

Automation

All of Dubstation's parameters can be automated using your host's automation features. Consult your host's documentation for information on how to use these features.

And Finally...

Thanks again for purchasing Dubstation. We make every effort to ensure your satisfaction with our products, and want you to be happy with your purchase. Please write info@audiodamage.com if you have any questions or comments.