DubStation User's Guide
Audio Damage, Inc.
Release 1.5

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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, support for hardware MIDI controllers, 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

To use DubStation, you'll need a Steinberg VST-compatible host application, preferably conforming to the VST 2.0 specifications, and a computer capable of running it. For the AudioUnit version of DubStation, you'll need an application capable of hosting AudioUnit plug-ins, and a computer capable of running it. The following specifications represent minimum requirements.

For use with Microsoft Windows:

- Windows XP or Vista
- 512 MB RAM
- Pentium III 600 MHz CPU
- High Color S-VGA Display

For use with Apple Macintosh:

- Mac OS X version 10.4 or newer
- 512 MB RAM
- Motorola G4/G5 or Intel CPU
- Display capable of "thousands of colors"

New in Version 1.5

Version 1.5 of DubStation includes several enhancements suggested by our customers. Here is a summary of the changes:

- A shiny new appearance, replacing DubStation's original cel-shaded user interface.
- A hi-cut knob which provides control of DubStation's low-pass filter. Leave this knob at its fully anti-clockwise position to obtain the original DubStation sound that you know and love; rotate it clockwise to produce a brighter sound.
- MIDI controller assignments are now stored in a file on your hard drive, rather than in presets. This means that once you assign MIDI controllers to DubStation, those assignments will be available in all instances of DubStation. [VST version only]
- DubStation no longer has separate parameters for the synced and free delay times, which means manipulating automation data in your host DAW should be simpler.

DubStation 1.5 has a different name and internal identifier than previous versions. This means that you can install version 1.5 along side whatever version you are currently using, and continue to use the older version in your existing projects. Since the parameters in version 1.5 are different than previous versions, version 1.5 cannot be directly substituted in existing projects and cannot read preset files created by previous versions.

Installation

Double-click the DubStation Installer icon, and follow the instructions. During the installation process the installer will ask you to enter your registration code. Your registration code uniquely identifies your purchase, and you will need it if you need to reinstall your plug-in (for example, after upgrading to a new computer). Keep a copy of the code in a safe location and please don't share it with your friends. We're delighted if you like our products so much that you want to share them, but please ask your friends to buy their own copy so that we can keep making new products.

Special note for OS X users: you must be logged into an account with administration privileges in order to successfully install and authorize DubStation.

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/`, and your AudioUnits folder, which is located at `/Library/Audio/Plug-Ins/Components/`. To un-install from Windows, simply delete the plug-in from your VST folder, which is usually located at `C:\Program Files\Steinberg\VstPlugins`.

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.

The Controls

1. 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.

2. The **HI-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 **LO-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 Jamaican dub music. Try setting the knob to about 12 o'clock when using DubStation on your next dub remix.

3. The **TIME** knob and the **MULT** switch together control the amount of time that the signal is delayed. If the **MULT** switch is in its x1 position, the **TIME** knob varies the delay time from a minimum of 4 msec to a maximum of 1000 msec (or one second). The x2 position of the **MULT** 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.

4. If you turn on the **SYNC** switch DubStation uses the current tempo reported by your VST host 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 status display at the bottom of DubStation's window as you rotate the knob 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.
   The **MULT** switch doubles the delay interval when the sync switch is on. DubStation displays "x 2" in its status display after the beat fraction if the **MULT** switch is on. For example, "1/16 x 2" indicates an eighth-note delay interval, since there are two sixteenths in an eighth.
   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 VST host must conform to the VST 2.0 specification for DubStation's tempo

synchronization features to work. If your VST host cannot supply tempo information, DubStation assumes that the tempo of your music is 120BPM.

5. The **REGEN** (short for regeneration) 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.)

6. 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 **REGEN** 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 **REGEN** 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 regen knob is disengaged when the loop switch is on, since providing a feedback path at the same time that the delay loops would cause DubStation to rapidly feed back in an uncontrollable manner. (If that sounds like fun to you: trust us, it's not. We tried it.)

7. The **REVERSE** switch causes DubStation to reverse the current contents of its delay memory and the direction in which it records. This means that any audio 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 **REGEN** 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.

8. 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.

9. The **OUTPUT** 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.

10. The status display at the bottom of DubStation's windows displays the current values of DubStation's parameters. If you point at a control with the cursor, the display shows the control's name and value. The display shows the changing value as you manipulate the control, which can be helpful if for example you need to dial in a precise delay time.

MIDI Controllers

The VST version of DubStation responds to MIDI continuous controller messages. You can use hardware MIDI controllers, such as MIDI slider boxes or the knobs found on some MIDI keyboards, to adjust DubStation's parameters. Every control in DubStation's user interface can be manipulated with a MIDI controller.

DubStation has a simple "MIDI Learn" mode for assigning its parameters to MIDI controllers. To assign a parameter to a MIDI controller:

1. Hold down the SHIFT and CTRL keys on your PC's keyboard, or SHIFT and CMD keys if you're using a Mac, and click once on the parameter's control. An orange box will be drawn around the control to indicate that it is ready to learn which MIDI controller it will be assigned to.

2. Move the MIDI controller to send a continuous controller message—turn the knob, press the button, move the slider, whatever is appropriate.

3. The orange square will disappear. Now DubStation's control will move when you manipulate the MIDI controller.

DubStation waits until it has received two consecutive continuous controller messages with the same controller number before it makes an assignment. This filters out extraneous data sent by some MIDI

controllers. If you are assigning a button or switch on a MIDI controller, you may have to press or move the switch twice before DubStation recognizes the controller and assigns it to the desired parameter.

- To assign a different MIDI controller to a control, repeat the same procedure using a different controller.

- To cancel MIDI Learn mode without assigning a controller, hold down the SHIFT and CTRL keys (SHIFT and CMD keys on a Mac) and click in any empty area in DubStation's window (i.e., don't click on another control).

- To remove a MIDI controller assignment from a control, SHIFT and CTRL keys, (SHIFT and CMD keys on a Mac) click on the control once so that the orange box appears, then click again on the same control.

DubStation's MIDI controller assignments apply to all presets and instances of DubStation, in all host applications that you use. The MIDI assignments are stored in a special file on your hard drive. The contents of this file are read when DubStation is loaded by your host. If you have two or more instances of DubStation in use at once, any MIDI assignments you make will not be propagated to the other instances until the next time that your host loads the plug-ins.

The AudioUnit version does not provide the same MIDI assignment features as the VST version. Almost all AudioUnit hosts provide their own mechanism for assigning MIDI controllers to parameters, so it would be redundant for us to implement MIDI controller assignments in the plug-in itself. Consult the documentation for your AudioUnit host to learn how to use its MIDI 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 support@audiodamage.com if you have any questions or comments.