EigenD System Release Notes

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Release: **2.0.62-stable**
Release Category: Stable
Download location: http://www.eigenlabs.com/downloads/releases

Release Chronology:

• Release 2.0.32	9th December 2011	First Experimental Release.
• Release 2.0.50	25th May 2012	First Testing Release.
• Release 2.0.62	16th August 2012	First Stable Release.

Contents:

1 – Introduction

The 2.0 series of EigenD is the first to include the Workbench, a graphical utility for manipulating and examining setups. Workbench is part of the EigenD Pro distribution.

The official documentation for EigenD 2.0 can be found on the wiki:

http://www.eigenlabs.com/wiki/2.0/The_Official_Documentation/

As with the 1.4 release, the core elements of 2.0 are built from the open source EigenD repository which can be found on github:

https://github.com/Eigenlabs/EigenD

Starting from 2.0, we are dropping support for Mac OSX 10.4 EigenD now requires Leopard or newer. Make sure that you have applied all the Apple updates to Leopard, this is needed for the EigenD installer to work.

Many aspects of EigenD have changed. In the past, quite a few functions depended on the Belcanto interpreter to work. Most of these have been re-architected so that they are more intuitive in a GUI environment, while retaining the ability to configure every aspect of EigenD using Belcanto. As such, existing setups and scripts from EigenD 1 aren't compatible with EigenD 2.

We are now skipping odd release numbers to allow for intermediate test releases.

In the past, when factory setups have changed, we have automatically upgraded saved versions of these setups in line with the changes made to the factory setups. Because of the huge scope for customisation offered by Workbench in 2.0, we will no longer be doing this.

Now that 2.0 is stable, there will be no changes which will invalidate saved setups. If we make any changes to the factory setups (for example, changing the plumbing between Agents) we will provide upgrade scripts which you can run to make the same changes. You can also use Workbench, if available, to make equivalent changes to your own setups.

EigenD 2.0 will now receive bug fixes only, development will continue with 2.1.

2 – New features

Workbench

EigenD setups can now visually be created, modified and inspected using the Workbench tool. It provides a graphical environment in which agents can be easily edited, configured and connected. This makes it very intuitive to create totally customised setups or just to make a quick variation on an existing setup. All changes made in Belcanto are instantly visible in Workbench and vice-versa.

With EigenD being available for public performance, Stage for private performance and Workbench for private rehearsal, all phases of musicianship now have a dedicated, carefully designed, integrated tool for the Eigenharp.

The major features of Workbench are:

- streamlined and friendly graphics with dangling wires that can nicely be arranged through trunks and hooks
- high-level agent view with details of each port when they're expanded
- vector-drawn scalable graphics
- tool-driven workflow with keyboard shortcuts for quick operations
- agents can be encapsulated into rigs with their own panel for clear organization
- general purpose editors to configure agents
- custom-designed editors for configuring options
- smart visualisations to make it very easy to understand what is connect together
- intelligent visual focus to fade-out agents that you're not working with
- built-in documentation of each agent and its ports

You can find a full reference documentation of the Workbench on the wiki, including a series of tutorials that take you step-by-step through the creation of your own setups from scratch with Workbench:

http://www.eigenlabs.com/wiki/2.0/Workbench/

Fingerer

This release introduces a new Fingerer agent which simulates valved or fingered instruments.

It allows groups of keys to be fingered in monophonic fashion, while harnessing the sensitivity of the Eigenharp keys to produce interesting effects. It also provides additions that still allow for polyphonic playing.

Fingering patterns are very flexible, and you can create your own patterns and copy and modify the factory patterns. The Fingerer documentation can be found on the wiki:

http://www.eigenlabs.com/wiki/2.0/Fingerer/

Fingerer ships with a series of factory fingering, which include:

- simple whistle
- tin whistle
- basic clarinet
- saxophone fingerings
- more experimental ones for the adventurous players

Illuminator

The Illuminator agent is also new in this release and provides an easy way to set up lighting patterns on the Eigenharp keyboards.

You can use the keyboard to capture patterns. Patterns can be saved and loaded through Belcanto for instant recall via Talkers.

The Illuminator also provides a web interface allowing you (or someone else, preferably!) to post scrolling messages to your keyboard. There's a network interface available for programmers who are interested in creating custom applications for Illuminator.

Its documentation can also be found on the wiki:

> http://www.eigenlabs.com/wiki/2.0/Illuminator/

Strummer

The Strummer agent is the third major new agent in the release. It allows one set of keys to act as 'strum' keys for another set of keys which act like strings, controlling the note to be played.

Like a guitar, effects such as hammer-on and pulling-off are possible as well as straightforward strumming. Sounding notes can be muted, and there is support for open strings. A breath controller can also be used as the strum input.

Strummer's documentation can be found on the wiki:

> http://www.eigenlabs.com/wiki/2.0/Strummer/

Other improvements

Many improvements have been made throughout the entire EigenD system, these are the highlights:

Audio

- Support for multiple channels, as well as incoming and outgoing audio.
- Improvements on MacOSX to permit very small buffer sizes.
- Clocking has improved, reducing overall latency with certain audio devices and buffer sizes.

AudioUnit/VST

- Multi-timbral support for using host automation parameters to provide expression capabilities that surpass the limitations of MIDI CC.
- Pitch-bend calibration to precisely match up the pitch-bend capabilities of plugins with the frequencies used in EigenD.
- Detailed documentation about how to use these new capabilities: http://www.eigenlabs.com/wiki/2.0/Configuring_AudioUnit_and_VST_plugins/
- Improved handling of tail-time idling, allowing it to be directly turned on or off.
- Clearer plugin lists that now includes type and category.
- Better compatibility with different plugins.
- Stability improvements regarding shutdown for certain plugins.

Belcanto

- Improved number handling, allowing for instance direct setting of scales through Belcanto, without having to define and name them first as user scales.
- New 'identify' verb to gain visibility into which agents Belcanto is addressing.
- Easier configuration of Talker, Scheduler, Arranger by using 'do' verbs
- Support for talker re-do, making it much easier to dynamically change talkers based on variables.

EigenD

- New geometrical and musical layout for keys throughout the entire system. This allows talkers to for instance remain at the same position while the musical position of keys can be freely rearranged.
- Reworked lights throughout the system to work together with the geometrical and musical key information.
- Volume ports in Console Mixer now use dB ranges from -70 to 14.
- Keygroup outputs can be slaved together to automatically enable/disable them at the same time.
- The scaler agent automatically colours the tonics in green and changes them accordingly when new scales are selected.
- Experimental support for OSC output, with bare-bones setups for each instrument.
- The Convolver agent is now more tolerant of different Impulse Response files, making it useful as a general convolution engine.
- Keygroup outputs can now be individually toggled or enabled.
- The 'return' and 'escape' keys now properly confirm/cancel throughout the application.
- Streamlined handling of connection channels, making it more intuitive to select the channels that are being used by a particular connection.
- New Player agent to play notes, extracted from the Recorder agent.
- Better support for international home directories on Windows, allowing EigenD to run for user names with international characters.

Instruments

- More efficient startup behaviour.
- Configurable Alpha and Tau de-bouncing system, allowing keys made out of wood with a higher friction coefficient to behave more precisely.
- Improvements to mode key lights on the Pico.

Memory and performance

- Overall reduced memory usage.
- Windows machines now also have access to 4GB of memory.
- Reworked memory allocation for better stability and performance.
- Much improved incremental setup loading, allowing faster and more stable switching between different setups.

MIDI

- Available MIDI devices are now updated while EigenD is running.
- Improvements to MIDI input, allowing a MIDI foot pedal to for instance trigger talkers.
- Automatic connection of previously selected MIDI devices even when they're turned on after EigenD.

Stage

- Tapered faders and knobs for volume control.
- More reliable widget updates.
- Better default widget increments when they're dragged onto the canvas.
- Easier to use agent browser when creating custom Stage tabs.

Developers

- EigenD includes enough headers and import libraries to build Agents without needing the full source.
- Agents now occupy relocatable directories.
- Agents can be packaged and distributed or sold individually with appropriate stand-alone installers.
- New contributor area on GitHub with build scripts that make it easy to get started when developing your own agents: https://github.com/Eigenlabs/EigenD-Contrib

3 – Bug fixes

- Release 2.0.62-stable (since 1.4.12)
    - EigenD
        - EigenD could sometimes becomes unresponsive at exit, this has been improved. Note that this is often related to AU/VST plugins and in certain cases there's little we can do about this. Closing the plugin GUI before quitting can sometimes help.
        - Certain AudioUnits could crash EigenD when deleted while their GUI window was still open.
        - The delay inputs of the ADHSR agent was not functional.
        - EigenD now works with user home directories on Windows 7 that have international characters in their name.
        - Stability improvements for AudioUnits destroy at close and EigenD shutdown.
        - MIDI note 0 wasn't sending a note off message.
        - Fix to audio device handling where the current buffer size wasn't always determined correctly, especially with ASIO devices.
        - The Pico mode key lights could sometimes be wrong.
        - Loading a new setup while another setup wasn't finished loading could put EigenD into an inconsistent state.
        - The MIDI routing matrix now doesn't use 0 for the return to origin functionality for the pitchwheel mapping, but uses 8192 instead, which is the rest value for pitch bend.
        - Stability improvements to AU/VST host
        - Stability improvements to Midi Converter
        - Tempo ranges from 0 to 500 are now accepted in the metronome, as opposed to 30-240 before
        - Setting delay agent tempo to 0 crashed EigenD
        - Setting ladder filter agent temperature to 100 made it stop working
        - Stability improvements, especially with respect to switching setups
        - Changed installer test to copy better with symlinks and improve Lion compatibility
        - The MIDI input agent wasn't properly handling CC messages.
        - AU/VST and MIDI routing matrix parameter 16 isn't a special 'key number' parameter anymore, functionalities relying on this should use talkers instead.
        - Fixes to bug reporter

4 – Known issues in this release

- EigenD
    - EigenD should prompt user to save setup before quitting
    - Sometimes scaler lights don't change until key press
    - Creating a second interpreter makes EigenD unstable
    - EigenD 2 doesn't launch properly when another user has installed the resources
- Workbench
    - Cannot close tabs other than by deleting rig or restarting Workbench
    - Property editor requires better layout and various improvements
    - Wiring trunks is fiddly
    - Audio buffer size incorrectly shown as zero
    - Drawing for hooks and trunks is wrong when dragging a group of items
    - Trunks should be hidden if only used by hidden wires
    - Can't make a port on a rig gateway a reverse connection
    - Boxes moved automatically do not remember more than 1 level of position
    - Can't shrink a trunk round a corner in a single drag