NetTunes 1.1 Documentation

Table of Contents

Software License Agreement

PLEASE READ THIS SOFTWARE LICENSE AGREEMENT CAREFULLY BEFORE INSTALLING OR USING THE SOFTWARE.

BY OPENING THE PACKAGE, DOWNLOADING THE PRODUCT, OR USING THE EQUIPMENT THAT CONTAINS THIS PRODUCT, YOU ARE CONSENTING TO BE BOUND BY THIS AGREEMENT. IF YOU DO NOT AGREE TO ALL OF THE TERMS OF THIS AGREEMENT, RETURN THE PRODUCT TO THE PLACE OF PURCHASE FOR A FULL REFUND, OR DO NOT DOWNLOAD THE PRODUCT.

Single User License Grant: Benjamin Elbirt ("Owner") grants to Customer ("Customer") a nonexclusive and nontransferable license to use **NetTunes 1.1** © ("Software") in object code form solely on a single central processing unit owned or leased by Customer.

Multiple-Users License Grant: Benjamin Elbirt ("Owner") grants to Customer ("Customer") a nonexclusive and nontransferable license to use **NetTunes 1.1 ©** ("Software") in object code form: (i) installed in a single location on a hard disk or other storage device of up to the number of computers owned or leased by Customer for which Customer has paid a license fee ("Permitted Number of Computers"); or (ii) provided the Software is configured for network use, installed on a single file server for use on a single local area network for either (but not both) of the following purposes: (a) permanent installation onto a hard disk or other storage device of up to the Permitted Number of Computers; or (b) use of the Software over such network, provided the number of computers connected to the server does not exceed the Permitted Number of Computers. Customer may only use the programs contained in the Software (i) for which Customer has paid a license fee (or in the case of an evaluation copy, those programs Customer is authorized to evaluate. Customer grants to Owner or its independent accountants the right to examine its books, records and accounts during Customer's normal business hours to verify compliance with the above provisions. In the event such audit discloses that the Permitted Number of Computers is exceeded, Customer shall promptly pay to Owner the appropriate licensee fee for the additional computers or users. At Owner option, Owner may terminate this license for failure to pay the required license fee.

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 Owner. 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 Owner. Customer agrees to implement reasonable security measures to protect such trade secrets and copyrighted material. Title to Software and documentation shall remain solely with Owner.

LIMITED WARRANTY. Owner warrants that for a period of ninety (90) days from the date of shipment from Owner: (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 Owner under this limited warranty will be, at Owner 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 Owner 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 Owner, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Owner, (c) has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident, or (d) is used in ultra-hazardous 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 Owner 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 Owner HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. In no event shall Owner 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 Owner 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 Owner 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 New York, 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.

I   NetTunes Product Specification

1.   Product Overview

NETTUNES 1.1© is the first generation of intonation software for data review and time series analysis. The software allows for the specification of midi variables including velocity, bend, note, instrument and channel. Outputs include direct audio intonation with graphical representations of note and instrument usage.

2.   Software Installation

NETTUNES 1.1© requires the installation of the latest Java environment which is available at http://www.java.com/en/download/index.jsp. The **NETTUNES 1.1**© software installation file unzips to the directory

c:\Program Files\ElbirtSoftware\

You are not obligated to use this directory structure; however the default instrument list will be the only available midi instruments vs. the extended list provided with the software (which requires a file from the directory).

3.   Memory Expansion and Consumption

NETTUNES 1.1© uses as much memory as made available through the Java environment and the command line execution. To increase the memory, use:

*java –Xms**1M** –Xmx**2M** –jar nettunes.jar*

where **1M** is the amount of memory to use for the initial heap size and **2M** is the amount of memory to use for the maximum heap size. The **M** is used to represent megabytes.

java –Xms1000M –Xmx2000M –jar nettunes.jar

will launch the application with an initial heap of 1 GB and a maximum heap of 2 GB.

4.   Bug Collection & Reporting

Use the "java –jar nettunes.jar" command from a prompt (DOS) to obtain error messages from the executable. Please report any bugs / problems to the author, Benjamin Elbirt, at sarq_6669@yahoo.com.
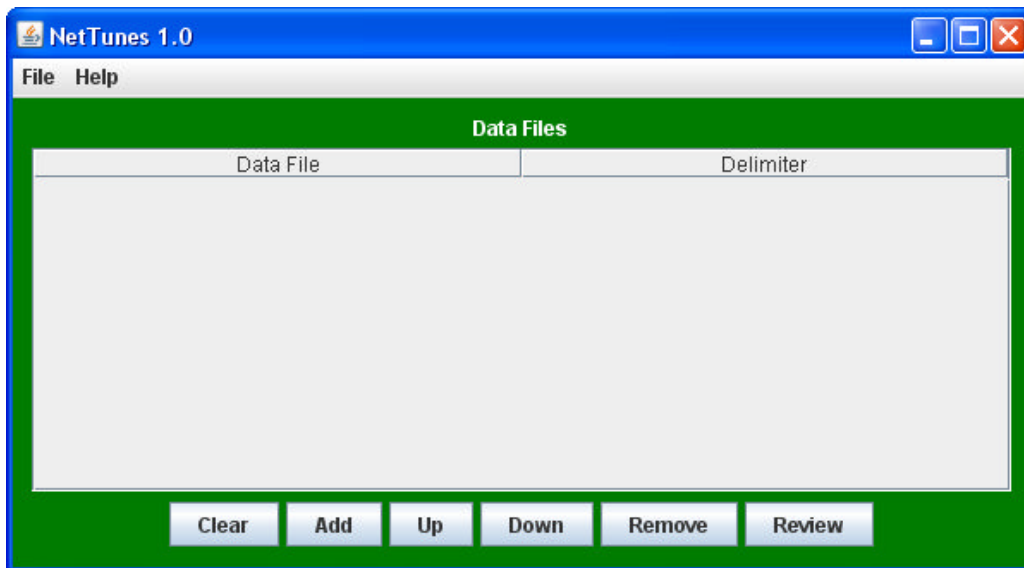
5.   Change History

- Version 1.1
  - Added MIDI File output
  - Disabled BEND option
  - Documentation Changes (Channel Usage)

6.   *Future Enhancements*

1.   Social Network Specific Data Conversion to Sound
2.   Time Point Information Display (Where are we in the intonation?)
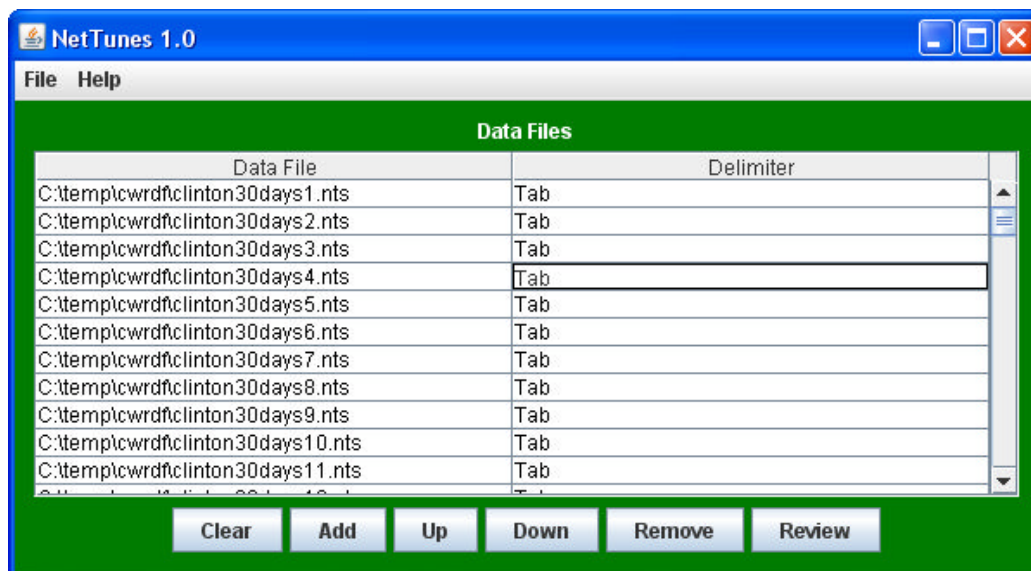3.   Improved Graphing Functionality

II. NetTunes Initialization Interface

NetTunes Initialization Interface

The initialization interface provides controls for loading data, ordering it and saving the definitions for later use.

1. NetTunes Data

Initialization Interface with Data

Input files are text/Unicode files delimited with tab, comma, pipe or space. Each input file is listed in the interface as shown above and will be treated as a time-series event in the order provided for all files. Rows within the file will be played on the same time

point. Select the Delimiter column in the interface to change the delimiter. Delimiter *must* be one of *Pipe*, *Comma*, *Space* or *Tab*.

The first line in the file *must* be the header containing the labels for each column:

- **Label** – This column contains the textual description for each node and is the only required column.
- **Bend** – This is the bend, 0 to 13683 (with 8192 = no bend, 0..8191 bend down, 8193..13683 bend up) and must be an integer value. The default is 8192.
  - This feature is disabled as of version 1.1 as it has no apparent effect on outputs.
- **Note** – This is the note, 0 to 127 (with 60 being middle C on a piano) and must be an integer value. The default is 60.
- **Instrument** – This is the instrument ID which must be an integer value within the range of instruments available to the application. The default is 0 (piano).
- **Channel** – This is the channel to use for the audio. Channels are limited based on the hardware of the computer running the application and will automatically be reset to channel 1 if the defined channel does not exist. The default channel is 1.

  Channels are only used for intonation through the Intonation Interface. They are ignored when Creating MIDI Files.

Any additional columns of data can be provided as they will be ignored by the application if they do not match one of the header labels provided above.

2. *File Menu*
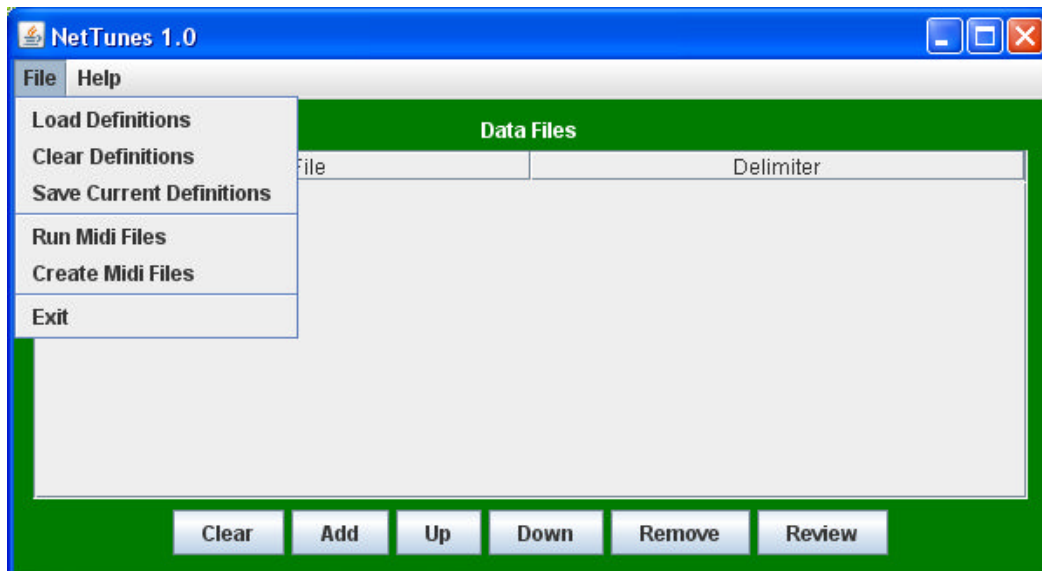
NetTunes File Menu

The File Menu provides controls for loading, clearing and saving definitions; running the final data file list, creating MIDI files and exiting the application. You can also use the red [X] provided at the top right corner of the window to terminate the application.

Use the "Run Midi Files" option to access the Intonation Interface once all data files are loaded.

Use the "Create Midi Files" option to create a MIDI output file.

III. NetTunes Intonation Interface
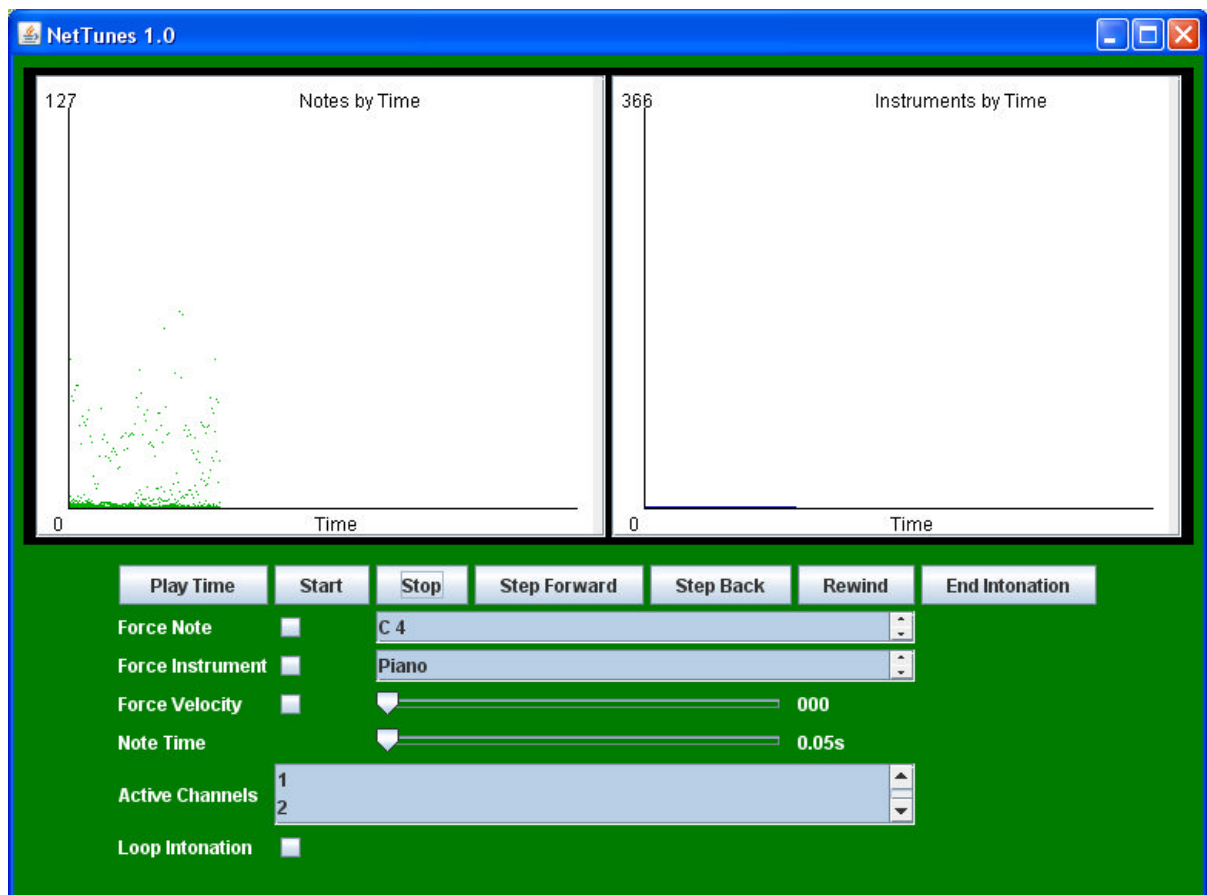
Intonation Interface with Example Graphical Output

The intonation interface provides controls for the intonation and graphical displays for tracking the data over time.

1. Step Intonation vs. Full Intonation

Step intonation requires the use of the Step Forward, Step Back and Play Time buttons.

Full Intonation requires the use of the Start, Stop and Rewind buttons.

2. Graphical Displays

The display on the left shows, for each point in time, the various notes played by note ID.

The display on the right shows, for each point in time, the various instruments used.

3. Intonation Parameters

The following parameters allow for control of the outputs as the intonation is run:
- **Force Note** – This option allows for the forcing of a specific note for all sounds played. Use the note list provided to select the note to play.

- **Force Instrument** – This option allows for the forcing of a specific instrument for all sounds played. Use the instrument list provided to select the instrument to play.
- **Force Velocity** – This option allows for the forcing of a specific velocity for all sounds played. Use the velocity slider provided to select the velocity to use.
- **Note Time** – This is the length of time between notes (time events). *You must STOP the intonation and START again to reset the Note Time*.
- **Active Channels** – This is the list of channels to play sounds on. Disabling any channel will prevent the sounds on that channel from being played.
- **Loop Intonation** – This option will cause the intonation to restart over and over vs. stopping after the last time point.

4. Intonation Controls

The buttons provided allow for the control of intonation as follows:

- **Play Time** – This button will play the current time point in the series (when using step intonation). *You should always play the initial time on first load to initialize the synthesizer. Otherwise you will have a 23ms delay before the playing of the first note.*
- **Start** – This will start the automated playing sequence from the current time point.
- **Stop** – This will stop the automated playing sequence at the current time point. It will also stop the playing of any sound.
- **Step Forward** – This will move the sequence one time point forward (for use with step intonation).
- **Step Back** – This will move the sequence one time point backward (for use with step intonation).
- **Rewind** – This will reset the current time point to zero (0).
- **End Intonation** – This will end the intonation window and load the Initialization Interface for editing. *You must use this button to close window; the red [X] at the top right corner of the window does not work.*

IV.   Creating MIDI Files

This option will generate a midi file based on the data provided. Each "track" in the file will be assigned based on the total number of elements in the largest data set. The intonation of a note on a track only occurs when the data set has a note for that track. Tracks are assigned *0..N* by row of data where *N* is the number of data objects.

Options to specify the output file name and intonation tempo/timing will be provided prior to file generation.

Please be aware that the output file is a MIDI instruction file and does not generate any sound when run through an audio/video player. It must be run through a MIDI instruction interpretation device.

1.   *Output File Name*

A file I/O dialogue will be presented to specify the directory and filename for generation.

2.   *Intonation Delay*

This option specifies the rate at which the music plays. Values are broken down with 1 second = 1000 "ticks." To do a half second, use 500; quarter second 250, two seconds 2000, etc.

V. Example Data File

The following example shows the use of all NetTunes data concepts and provides the original frequency information for the nodes as an example of additional data inclusion in the input files.

For the purpose of this document, the information is spaced out to look readable. In reality each data element would be delimited (Pipe, Space, Tab or Comma) and would not look as clean.

Label	Frequency	Note	Channel	Instrument	Bend
al_gore	0000000477	7	5	0	8192
alice_rivlin	0000000025	0	1	0	8192
andrew_cuomo	0000000014	0	1	0	8192
bill_clinton	0000006405	96	6	0	8192
bill_richardson	0000000002	0	1	0	8192
bruce_babbitt	0000000093	1	2	0	8192
carol_browner	0000000017	0	1	0	8192
donna_shalala	0000000048	0	1	0	8192
frederico_pena	0000000004	0	1	0	8192
henry_cisneros	0000000038	0	1	0	8192
janet_reno	0000000100	1	2	0	8192
jesse_brown	0000000066	0	1	0	8192
lawrence_summers	0000000007	0	1	0	8192
lee_brown	0000000021	0	1	0	8192
leon_panetta	0000000022	0	1	0	8192
les_aspin	0000000253	3	4	0	8192
lloyd_bentsen	0000000255	3	4	0	8192
madeleine_albright	0000000018	0	1	0	8192
mickey_kantor	0000000116	1	2	0	8192
mike_espy	0000000095	1	2	0	8192
richard_riley	0000000014	0	1	0	8192
robert_reich	0000000028	0	1	0	8192
robert_rubin	0000000014	0	1	0	8192
ron_brown	0000000043	0	1	0	8192
togo_west	0000000018	0	1	0	8192
warren_christopher	0000000147	2	3	0	8192