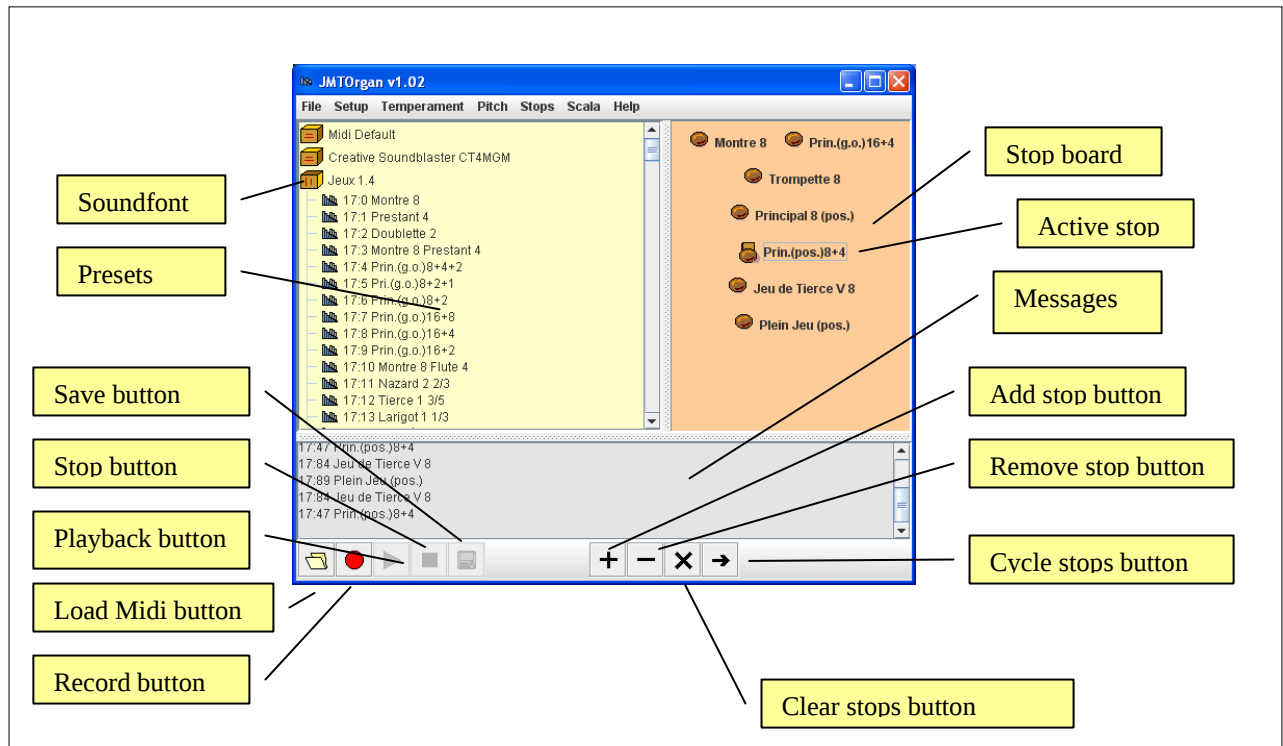


Java MicroTuning Organ – JMTOrgan v1.02

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This easy-to-use program provides musicians the experience of playing keyboard instruments in historical temperaments and at historical pitches.



A screenshot from JMTOrgan showing the presets of the Jeux 1.4 Soundfont and seven stops on the stop board. The Plein Jeu stop is currently selected.

This program is *donationware*. You can freely use and spread the program as long as you do not change the contents of the package. You can register the program by donating a small amount via PayPal at <http://www.jedosoftware.info>. You will receive a version of the program that does not mention “UNREGISTERED” and you will be informed of future developments.

Features

- JMTOrgan relays input from your MIDI keyboard (or a MIDI file) to your soundcard, meanwhile applying a (historical) temperament and retuning to a (historical) pitch – even beyond the pitch-bend limit of a semitone (e.g. to A=309 Hz).
- JMTOrgan supports/imports Scala scale and keyboard mapping files.
- JMTOrgan allows easy preset selection of soundfonts that are loaded on your soundcard.
- JMTOrgan reads Soundfont 2.0 files and displays the names of the defined presets. It also reads the bank and patch number of each preset.
- JMTOrgan provides a stop board to which you can drag presets.
- JMTOrgan allows cycling through the stops on the stop board by using the spacebar – which is very convenient during rehearsal or performance.

- JMTOrgan can record what you play. You can playback it immediately or save to a midi file. Using a soft-synthesizer such as Synthfont these midi-files can be transformed into mp3 or wav format and put on a standard audio-cd.
- JMTOrgan can open MIDI files and can play them using any preset, pitch and temperament. Preset, pitch and temperament can be switched *during playback!*
- JMTOrgan is configurable: you can add your own Soundfont files, scales, and pitches.
- JMTOrgan provides four different look-and-feels.

Requirements

- JMTOrgan is a Java application; it runs on any platform that supports Java.
- JMTOrgan needs Java 1 runtime JRE 1.5 or higher to be installed.
- If you want to use a Midi keyboard, you need a MIDI connection from your keyboard to your computer, for instance, a MIDI-to-USB connector.
- If you want to use soundfonts, you need a soundcard that can deal with Soundfonts, for instance, the Creative Sound Blaster Audigy.
- You need to download the Soundfonts, upload them to your soundcard, and add them to the configuration of JMTOrgan.

Installation

Installation is available in two modes.

Windows XP:

A setup program is available:

- download JMTOrganv102Setup.zip, unpack and run the installer.

Manual installation (all platforms):

- Download JMTOrganv102.zip.
- Create a folder in which you want to install JMTOrgan.
- Unpack the contents to that directory.
- To run JMTOrgan: doubleclick on JMTOrgan.jar or type
`"java -jar JMTOrgan"`.

User Guide

First connect your keyboard to the computer and switch it on. Make sure the MIDI connector is running properly. Switch on your PC speakers.

Connecting MIDI input and output

After starting the program, you must connect MIDI input and MIDI output. Select menu item "Setup", then "MIDI Input". Click on the MIDI device that belongs to your MIDI Keyboard connection (e.g., "1:EDIROL UM-1 MIDI"). Now select "Setup" and "MIDI Output" and select the MIDI device for your soundcard (e.g., "Creative Soundfont Synth").

The message screen (the grey panel at the bottom) repeats the names of these devices and should display "connected..." (this can take some seconds).

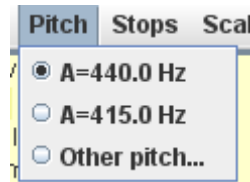
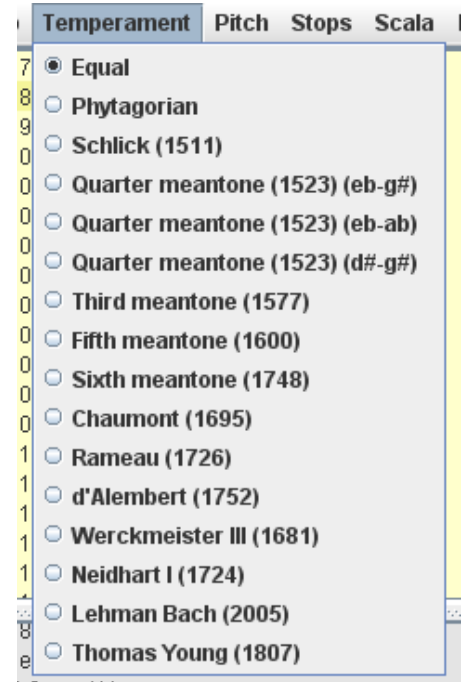
You can specify the default MIDI input and output devices in the configuration setup (see below). The devices will then be connected automatically during startup of the program.

Selecting presets

In the preset screen (yellow panel) doubleclick on the box that represents the soundfont that you want to use. The top box contains the default midi instrument presets. If you click on one of the presets, it is immediately selected and you can play using that presets. The name of the preset is repeated in the message screen. (If you switched on the keyboard after you selected a preset, you will have to repeat the selection.)

Selecting a temperament

To select a (historical) temperament, choose menu item “temperament” and click on the desired item. The default temperament is the 12-tone equal temperament.

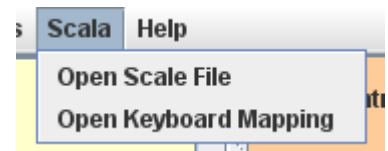


Selecting a pitch

To select a (historical) pitch, choose menu item “pitches” and click on the desired item. The default pitch is “A=440 Hz”. You can also enter a pitch manually by selecting “Other pitch...”. You can add more pitches to this list in the configuration setup (see below).

Loading Scala scale files

Select “Open scale file” in the Scala menu to load a scale file into JMTOrgan. In principle, any scala .scl file can be opened, but for scales with another amount of degrees than 12, you need to load an appropriate keyboard mapping.



Selecting a Keyboard mapping

When you load a 12-tone scale, it is mapped automatically to the 12 normal keys on the keyboard. The reference tone for the pitch is 9 (= the A key).

When you load a 5-tone scale: the scale is mapped to the black keys. A 7-tone scale is mapped to the white keys, automatically. Reference tone is then set to 0.

You can load Scala keyboard mapping files into JMTOrgan. The two restrictions are however: the mapping should contain no more than 12 keys. The octave is fixed to the common value of 2/1.

Setting up a stop board

You can add presets to the stop board (orange panel) by dragging the preset to it. A second way is to select the preset and press on the “+” button at the bottom. The third way is to select “Add Stop” in the menu “Stops”.

Using the spacebar to activate stops

Stops are activated by clicking on them. The active stop is “pulled out”. Use the “→” button to cycle through the stops. Once you have clicked on “→”, you can use the spacebar to cycle through the stops during rehearsal or performance.

Removing stops

The active stop is removed by pressing on the “–” button. All stops are removed at once by pressing the “X” button. You can also use the menu “Stops”.

Recording and playback

Start recording your performance by clicking on the button with the red circle. JMTOrgan waits with recording until you press the first key on the keyboard. Click on the button with the black square to stop recording. After recording, the button for immediate playback (triangle) is activated.

Saving

The recorded music can be saved to disk by clicking on the save button (the diskette). Select a directory and filename for the midi file. This midi file can be played as any midi file, but since the soundfonts on the soundcard are used, it can only be played properly on a computer that has the same soundfont installed at the same banks. Using a soft synthesizer such as SynthFont the midi file can be transformed into an mp3 file that can be played on any computer or mp3-player.

Loading midi files into JMTOrgan

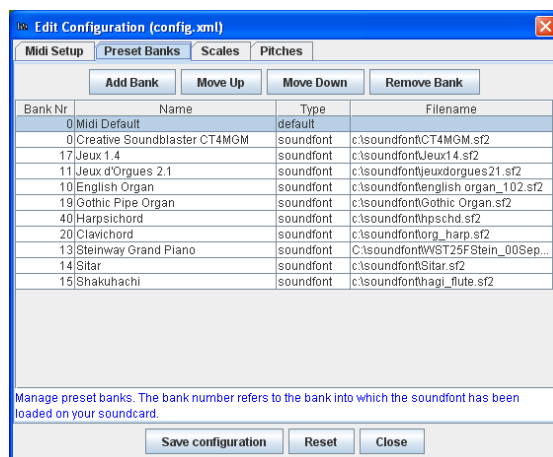
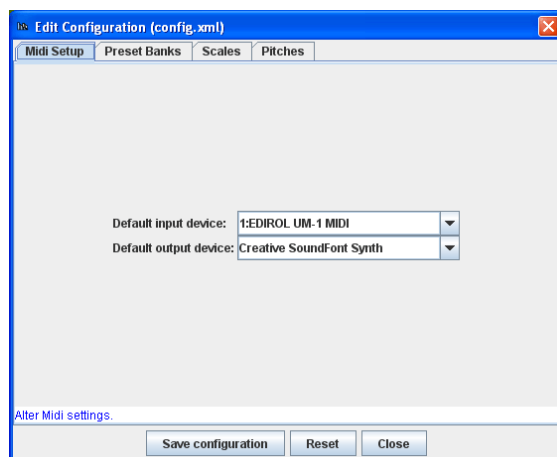
Standard midi files can be loaded by clicking on the Load button. When loaded, the file can be played while changing the instrument, pitch and tuning. The retuned midi file can be saved by clicking on “save”. JMTOrgan neglects all pitch-bend and instrument/bank-select commands that may be present in the original midi file. Files that have been saved by JMTOrgan **should not be loaded again** into JMTOrgan, since they are retuned and key-commands have been altered. Therefore, always save midi files using an additional suffix such as “myname.jmt.mid”.

Configuring JMTOrgan

JMTOrgan v1.02 configuration is stored in config.xml. From version 1.02 on, you do not have to change this file by hand anymore. Select “edit configuration” in the setup menu. In the configuration dialog, four tabs indicate the four parts of JMTOrgan’s configuration: midi setup, preset banks, scales, and pitches.

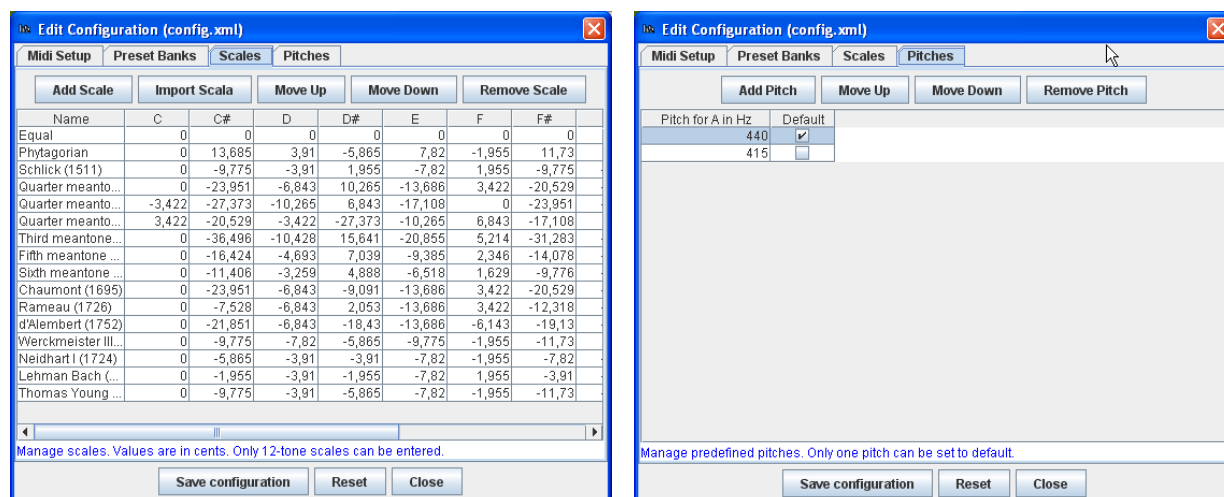
Midi setup

In the first tab, indicate the midi device for input and output that have to be connected at startup. Select “none” if you do not want for a device to be connected at startup.



Setting-up preset banks (soundfonts)

In the second tab of the configuration screen, you can edit the list of soundfonts that you have loaded on your soundcard. Unfortunately, JMTOrgan cannot load soundfonts to your card, nor can it detect which soundfonts are loaded. You have to specify in this list to which bank number (first column) you have loaded which soundfont (fourth column). You can provide a convenient name for each soundfont in the second column. JMTOrgan reads all soundfonts at startup and detects the presets defined in them.



Setting up predefined temperaments

In the third tab you can edit the predefined temperaments (scales). At the moment, JMTOrgan only supports predefined scales with 12 degrees. For each scale, you enter per degree the difference *in cents* from 12-tones equal temperament. Using the “Import Scala” button you can add the contents of a scala .scl file to this list.

Setting up predefined pitches

The last tab lets you edit the list of predefined pitches. You can enter decimal values for pitches, if needed.

Saving the configuration

The changes to the configuration are only saved when you press the “Save configuration” button. This action overwrites “config.xml” but the changes are not directly visible in the program. You must restart JMTOrgan to see the changes. The “Reset” button resets the current configuration and undoes all changes (even in case you saved the configuration).

Some Technical Details

JMTOrgan applies microtuning by sending MIDI pitch-bend commands to the MIDI output device. To enable microtuning for several tones at the same time, the incoming MIDI commands are split into twelve channels, one for each pitch (we use channel 1 to 13, except channel 10). Each channel receives only one pitch-bend command when a temperament or pitch change is selected. Incoming pitch-bend commands are not sent to the output.

Microtuning is achieved in three steps. First, the global pitch-change is added to the temperament changes. Then the amount of whole semitones (i.e., 100 cents) is subtracted from the amount to change. This number of semi-tones is translated into a change in MIDI pitch number. The remainder is translated into a MIDI pitch-bend command.

Program changes and bank selection are sent to all twelve channels simultaneously. (Also sustain on and off commands are treated in this way.)

Midi files saved by JMTOrgan use twelve channels in a single track. It uses the PPQ format with 5000 time points per second. When saving retuned midi files that have been loaded into JMTOrgan, the original midi time resolution is applied to the saved file.

Midi devices are detected automatically at startup of the program. So, devices have to be present at the time the program starts.

Links

JMTOrgan can be downloaded for free at: <http://www.jedosoftware.info>.

Some links to programs and websites mentioned in this documentation:

Many free soundfonts can be downloaded at: <http://www.hammersound.net> and at <http://www.sf2midi.com/>

The Jeux 1.4 organ soundfont is available at: <http://members.aol.com/realmac/jeux1.htm>

A harpsichord font is available at: <http://members.aol.com/realmac/hpschd.htm>

You find SynthFont at <http://www.synthfont.com/>

Scala is available at: <http://www.xs4all.nl/~huygensf/scala>