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Introduction

Tune!It is an innovative program designed to tune musical instruments on a PC using a microphone or directly connecting the instrument (with a pickup) to the PC's soundcard. Tune!It automatically detects the pitch of the input signal, highlights the corresponding note and shows its deviation from standard tuning. Optionally the spectrum of the input signal can be displayed from which the harmonics of the signal can be identified.

Menu Command Summary

Exit :
Closes Tune!It and saves your current settings.

Settings :
Tune!It's settings can be changed or adjusted in the following areas :

General Settings
Reference tone Settings
Spectrum Settings
Customised Tuning settings

Options :
Allows you to switch on/off the following special options :

Customised Tuning
Tuner+Spectrum : Chromatic Tuner and the Spectrum together

Help :
- How to register : Displays registration information
- Register : Displays registration dialog
- About : Shows inforamtion about Tune!It

General Settings

Frequency of A
Calibration
Sampling Rate
Resolution
Lower frequency
Upper frequency
Tuner Sensitivity
Sampling Period

Chromatic Tuner

This is the default mode which is used for fine tuning . The chromatic tuner can be activated by clicking on the Tuner button.
The chromatic tuner detects the pitch of the input signal and displays the corresponding note and it's deviation from standard tuning (based on A = 440 Hz and using the equal temperment). The note will be highlighted in red and its deviation is shown in the cent display box in form of a floating red rectangle. The note is exactly in tune if the red rectangle shrinks to a line over the 0 percent mark.

Note : Make sure to play only one note at a time otherwise incorrect readings may occur (e.g. on a guitar plug only one string and mute remaining strings).

Spectrum

This mode can be used to explore the harmonics of the input signal. The spectrum can be activated by clicking on the Spectrum button.
The spectrum is a graph showing the amplitude of the frequencies contained in the input signal. The peaks in the graph represent the harmonics of the signal. The spectrum can be displayed in 2 or 3 dimensions with time as the third dimension (3D Spectrum). The frequency scale also shows the corresponding note scale so that the harmonics can be easily identified.
The spectrum display can be interrupted at any time by using the Freeze button.

Note : This mode requires a lot of computation and needs a 486 or higher PC to achieve reasonable real time updates of the graph.

Freeze

Click on the Freeze button to stop Tune!It updating the spectrum. To contine click the spectrum button.

Tuner+Spectrum

This option will display the Chromatic Tuner and the Spectrum in one Window and update both displays at the same time.

Note : This mode requires a lot of computation and needs a 486 or higher PC to achieve reasonable real time updates of the graph.

Sampling Rate

Tune!It defaults to sampling rate 11025 and resolution 8 which is sufficient for most applications.
Higher sampling rates (22050 or 44100) extend the upper frequency range to 10000 Hz or 20000 Hz and may improve the accuracy in fine tuning.

Resolution

The default is 8 bit resolution. However 16 bit resolution can improve response and accuracy in cases where the input signal is very weak.

Sampling period

This parameter specifies the time (in milliseconds) and therefore the amount of samples to be processed between consecutive updates of the chromatic tuner or spectrum display. Short sampling periods mean less accuracy but faster display update, higher sampling periods improved accuracy and slower display update.
The default and recommended setting is 200ms.

Tuner Sensitivity

This paramater sets the threshold for the signal amplitude in dB. 0 dB corresponds to a amplitude of 8 for 8 bit resolution or 2048 for 16 bit. High sensitivity settings (e.g. -18db) cause the tuner to detect and process very weak signals, however this may cause some false readings during signal pauses.

Note : Settings of this parameter affect only the Chromatic Tuner.

Frequency of A

The frequency of A defaults to 440 Hz which is the standard. This can be changed to values between 400 and 500 Hz .

Calibration

Calibration can be specified in percent of a semitone, but should be zero for most soundcards. However some soundcards (especially cheaper clones) do not sample sample exactly at the specified sampling rate, which can result in pitch readings with a variation of up to +/-15 percent of a semitone.
The calibration can be checked with a tuning fork and adjusted accordingly (e.g. if Tune!It's reading shows -10 percent, set the calibration factor to +10 percent).

Spectrum Settings

Lower Threshold dB
3D Spectrum
Spectrum Grid

Frequency range

Tune!It can detect frequencies between 20 Hz and 20000 Hz depending on the selected sampling rate (up to 5000 Hz for 11025, 10000 Hz for 22050) . The frequency range can be limited in order to avoid excessive processing and guarantee correct readings. The upper frequency should only be set as high as needed (e.g. for tuning the open strings of a guitar 600 Hz as an upper frequency limit is fully sufficient). Settings of the lower frequency have no impact on processing and affect only the frequency display of the spectrum.

Note :
When showing the spectrum, settings of the upper frequency has an impact on the amount of processing and will therefore affect the update frequency of the spectrum display. Low settings of the upper frequency range means less processing and will update the graph faster.

Lower threshold dB

This parameter allows you to set the lower limit for spectrum dB scale in order to exclude/include amplitudes values below 0 dB (0dB corresponds to a spectrum amplitude of 8 for 8 bit resolution or 2048 for 16 bit).

Spectrum Grid

Uncheck this box to remove the spectrum grid. This may be necessary to avoid strong screen flickering when the spectrum is updated very fast.

3D Spectrum

This feature shows a three dimensional view of the Spectrum (with time as a third dimension) which resembles a 'musical landscape' building up over time. The drawing will be completely refreshed once the spectrum window has been filled up.

Reference Tone

A reference tone can be produced by clicking on any of the green note boxes using the left mouse button. To switch off the tone click the left mouse button again.

Sine
Midi
Midi patch
Volume
Octave
Repeate Rate

Sine

If Sine is selected, Tune!It will produce a sine reference tone using the wave component of your soundcard.

However, you cannot tune at the same time. During a Sine reference tone Tune!It's stops recording.

Midi

When Midi is selected, Tune!It will produce a Midi reference tones. You can select different instruments in the Midi patch combo box.

Volume

Sets the volume (Midi velocity) of the reference tone to a value between 0 and 127.

Octave

Sets the octave of the reference tone to a value between 1 and 8. Octave 4 starts with the middle C on the piano.

Midi Patch

Specifies the the instrument/sound to be used for the Midi reference tone (has no effect when Sine is selected).

Repeat Rate

This parameter determines how quickly the reference tone will be repeated which is useful for midi patches with decaying signals. The repeate rate is specified in repeats per minute (e.g. 60 means a repeat every second, 0 no repeats at all).

How to use Tune!It

Make sure your microphone or instrument lead is properly
connected to the soundcard.

Start up Tune!It by clicking on Tune!It's icon . Tune!It's
Chromatic Tuner panel will be displayed. A red status indicator in the left hand corner
indicates that Tune!It is ready for tuning.

Play a note on your instrument or sing a note and you should see the note highlighted and
it's accuracy displayed in percent in form of a floating red rectangle.

Play a Reference tone by clicking on any of the green note boxes.

If you want to see the Spectrum simply click on the spectrum button.

Customised Tuning

Customised tuning is a feature where Tune!It steps you through a predefined set of notes which can represent a particular tuning or tuning sequence for an instrument (e.g. open G tuning for guitar). Individual tunings can be created under Customised tuning setting .
When customised tuning is activated, three additional controls will be displayed :

- tunning name
  name of the currently selected tuning
- tuning step selection box
  selects any step within the current tuning
- 'next' button
  used to advance to the next tuning step

The notebox display will only show the currently selected note and pitch detection will be focusing on that note only.
Additionally a reference tone will be played for the selected note.

Customised tuning settings

This feature enables you to create tunings for individual instruments. A tuning consists of a predefined set of notes which represents a particular tuning or tuning sequence for an instrument (e.g. open G tuning for guitar). When Customised tuning is activated, Tune!It will step you through the notes of a tuning.
Each tuning can have up to 128 steps where each step defines a particular note. Any number of tunings can be created.
To select, change or add tunings, the following controls are available :

- Tuning Selection
- Tuning Name Midi Instrument
- Tuning Step
- Step Name
- Note
- Octave
- New
- OK

Tuning selection

Selects a tuning from a list of existing tunings.
The selected tuning can be changed (steps added or changed) and then saved by using the OK button.

Tuning name

Name of the currently selected tuning. Use this field to change the name of the current tuning or enter a new tuning name (after pressing 'new').

Midi Instrument

Determines the reference tone to be played during customised tuning. The reference tone can be disabled by selecting 'none' as midi instrument.

Tuning Step

Used to proceed to any step within current tuning.

Tuning Step Name

Description of the current tuning step (e.g. 6th string A).

Note

Defines the note for selected tuning step. Selecting '**' indicates the end the current tuning sequence, which means the previous step was the last step.

Octave

Octave of the current note (Octave 4 starts with the middle C on the piano)

New

Creates a new tuning.
Enter new tuning name, tunings steps and then press OK to save tuning.

OK
Exits out of settings panel after checking whether settings for current tuning have been changed. If yes, a prompt to save the changes will displayed.

Trouble shooting

If Tune!It does not respond to your input signals, check the following:

- Is microphone level of your soundcard (usually adjustable in mixer) up high ?

- If the input signal is very weak (e.g acoustic guitar), increase Tune!It's sensitivity (low dB setting) until you get a response and/or select 16 bit resolution.

- Can you record with any other standard Windows Wave recording program (e.g. WaveEdit) ?

How to register

By registering this program you will receive a registration number which will turn your shareware version into a fully functional registered version. The registration number will also enable you to download and use any future minor releases of Tune!It. Furthermore you will get support and notice of any future major upgrades.

Registering Tune!It is A$20.00 (Australian dollars)
plus A$5.00 if a disk has to be mailed.

Methods of payment :

- by Credit Card
  I accept Visa, MasterCard and BankCard (BankCard only in Australia and New Zealand).
  Credit Card details can be sent by Mail or eMail .

- by cheque or (international) money order

- via CompuServe's Shareware Registration forum (GO SWREG)
  Author : D Volkmer
  Compuserve ID : 100231,2234
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  Registration ID : 5445
  Registration Fee : US$ 18.00

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Note : Your mail address name will be used to generate the registration number. If you would like to have your registered copy in a different name, please let me know.