

Verituner for Netbooks



User Guide

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The Verituner for Netbooks User Guide

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Know Your Netbook PC

This user guide describes the features and operation of the Verituner for Netbooks software. It assumes you are a piano technician and have at least basic piano tuning skills and that you are familiar piano tuning terminology. Furthermore, and importantly, *it is assumed that you are familiar with the basic operation of your Netbook PC and its Windows operating system.* For Netbook PC-specific issues, consult the device's documentation or the manufacturer.

A Note to Aural Tuners

A special note to those who have little or no experience using an Electronic Tuning Device (ETD): Be patient! Working with any ETD, including the Verituner, requires the use of *hand-to-eye* coordination while tuning, which is quite different from the *hand-to-ear* coordination that you are accustomed to. In addition, with an ETD you will be sounding only one note at a time instead of two, and *during tuning* the frequent aural checks you rely on in aural tuning are best done infrequently with the Verituner. This will most certainly require an adjustment period. Most first-time ETD users report that they actually tune slower—at first. After an adjustment period, we expect you'll be saving time *and* getting excellent results with greater ease.

Chapter 1

Getting Started

Tuning Preliminaries

Information in this section will be clearer as you work through the tuning procedures that follow. Familiarize yourself with it now, and refer back to it as needed.

Startup

The Startup screen appears when Verituner for Netbooks is started. From the tuning screens, it can be accessed from the menu bar [Standard > Startup]. It offers three options for starting a tuning: (1) start a **New** tuning (for which a new tuning file will be created), (2) **Open** a saved tuning file of a previously tuned piano, and (3) **Resume** the last tuning that was open.

Calibration

Because it is unlikely the manufacturer of your Netbook PC calibrated your Netbook PC, this should be done to ensure accuracy of pitch.¹ When you first install Verituner For Netbooks, or if you have to reinstall the software, you will want to calibrate. Calibrate is also available from the startup screen: from the menu bar select Preferences > Calibrate.

1. In the Calibrate dialog, and using a trusted source for A440, sound A440 as you use the numeric entry buttons (- 1 +) to stop or slow the spinner as much as possible.
2. Click OK.

Entering Numeric Values

¹ For more on calibration, see Robert Scott's informative article, "Calibration of Pitch References" in the August 2001 *Piano Technicians Journal*.

Various *dialogs*² call for entering values in *fields*.³ Entering a value in some numeric fields is done with the *numeric entry buttons* that appear on the button bar. The buttons are a + and – sign and a value by which the number in the field will be changed. Click on the number on the button bar to cycle through the available increments, e.g., 1, .1, .01. Click + or – to add or subtract the selected increment value from the value in the field. These buttons are used in the Calibration dialog described above.

Microphone Settings

Your Netbook PC will have an adjustment for setting the microphone level. This adjustment affects the performance of the Verituner spinner. To optimize this setting:

1. Go to your Netbook PC's microphone level settings. The location of this setting varies from model to model, though usually it can be accessed from the Control Panel.
2. To begin, set the level in the medium area. Be sure you are setting the level for the microphone and not the speaker. Frequently there is a checkbox for a microphone “boost” – usually you will need to check this checkbox to get a sufficient level.
3. Start the Verituner software.
4. Start a new Standard Tuning file and click OK to accept the default settings.
5. Play several notes in various areas of the piano, striking the keys with the force you typically use in tuning. As you do, watch the small signal level bar at the bottom left of the tuning screen. The best microphone level will have the signal level display about $\frac{3}{4}$ green. If it is necessary to achieve this level, repeat steps 1-3, then reopen your test tuning file and repeat this step.

Other Netbook PC Settings

² A *dialog box* is a full screen or a rectangular “window” within the full screen that conveys information to you and/or requires a response from you, e.g., the Tuning Settings dialog.

³ A *field* is a small rectangular area in a dialog containing information which can be manipulated, e.g., entering a pitch offset value.

In using the Netbook PC in a tuning situation, there are other settings to consider:

- Reducing the screen brightness when on battery power will prolong battery runtime.
- Disabling the screen saver will eliminate unwanted interruptions.

Tuning Options

Initially, the default tuning settings for a new standard tuning are A4=0¢ (440 Hz), a stretch style designed for “average” pianos, and equal temperament. Each of these tuning options—pitch, tuning style, and temperament—can be changed for a tuning in the Standard Tuning Settings dialog or via menus. (In general, use the “Clean” style for spinets and very small grands, and use the “Average” style for most other pianos.)

The Spinner

The tuning screens indicate pitch deviation (sharpness and flatness) by

- the rotation of the **spinner blades** (and by a large flat or sharp symbol that appears in the ring when the blades rotate too fast to be read distinctly);
- a speedometer-like **needle**
- the number in the spinner **hub**

In Fine Tuning, the goal is to stop or slow the spinner *as much as possible, and/or get the needle and the number in the hub as close to zero as possible*. When using overpull, the triangular marker on the ring is the target with which to align the needle. If there are pronounced variations in the pitch, from attack through decay, tune the string so the spinner blades are slowest or the zero target is closest, *just following the attack*.

Pitch Correction and Overpull

The Verituner’s Standard Tuning function consists of two modes: Coarse Tuning and Fine Tuning. Coarse Tuning is used for correcting pitch—raising or lowering—in preparation for fine tuning. **Overpull** targets can be calculated with user-specified overpull percentages. The percentages are displayed on the

left side of the screen in Coarse Tuning and can be shown in Fine Tuning by clicking the  icon. (Hide them by clicking **0**.) Use the first percentage number above **0** for wound strings, the second number for plainwire strings in the tenor section, and the top number for treble strings beginning around F5.

The default percentages are merely suggestions, perhaps a starting point. Use the defaults if they work well for you or experiment to determine the values—and where they are used—that give you the best results. These percentages can be changed at any time. In the Overpull Preferences dialog, you can set up multiple overpull configurations and freely switch from one to another. To do this, right-click on the overpull percentages list and click to select from the available configurations on the popup listing.

When an overpull percentage is being used, the straight line on the ring indicates the starting pitch, and the triangular *overpull marker* marks the overpulled tuning target. Occasionally, the *start marker* is clearly not set correctly. When it happens, the markers are easily erased and reset by clicking in the open area inside the spinner ring.

Zoom

In Coarse Tuning, the Zoom button changes the scale (the range) of the cents gauge. Click Zoom on the button bar to cycle between the Medium (–65¢ to +35¢), Wide (–130¢ to +70¢), and Narrow (–32.5¢ to +17.5¢) scales.

AutoNote

The Verituner’s AutoNote feature identifies the pitch it hears within the limits of the current response setting. You choose how you want it to respond. The choices differ in their combination of *direction* (up, down), *distance* (random or step), and/or *sensitivity* (medium, high, low.) Click the AutoNote icon (located above the large “I” inharmonicity icon) to cycle between Random/Medium, up/down by step, and Off. Right-click on the AutoNote icon to open the popup list of all seven AutoNote response choices. Use movement by step for the most consistently accurate response.

 Random movement, medium sensitivity

 Movement up or down by step

Changing the Note and Octave Manually

In addition to AutoNote, note and octave changes can be made manually in two ways:

- Use the Netbook PC's arrow keys on the keyboard: ← & → to change the note name; ↑ & ↓ changes the octave. This is the preferred method to change notes.
- Click on the note name or the octave number you want to change, which selects it; then, click the large up or down arrow below the note name. (When moving from B to C, and vice versa, the octave also changes.)

Inharmonicity

All measuring for inharmonicity is done automatically in the background as you tune. It is important to follow the recommended tuning sequence for New tunings so the Verituner can use this data to optimal advantage.

The inharmonicity icon  serves three functions:

- The animated “sound waves” indicate that inharmonicity is being measured.
- Click the icon to toggle inharmonicity reading off and on. When off, the sound waves do not appear.
- Right-click on the icon to bring up a popup list of commands that pertain to inharmonicity and/or tuning targets.
 - **On/Off**
 - **Retune** – clear inharmonicity data for the current note, and reread its inharmonicity and recalculate its tuning targets
 - **ReCalc** – recalculate all tuning targets using the current inharmonicity data
 - **Alter** – manually alter the tuning target for the current note
 - **Clear Data** – clear all inharmonicity data
 - **Clear All Data** – clear all inharmonicity data *and* restore all tuning settings, except filename and storage location, to the defaults.

In the lower left of the screen is the lock icon, which indicates whether the tuning targets for the current note are locked  or open to additional calculation . Recalculation of targets is continuous in Coarse tuning, and targets are not locked. Targets are locked in Fine tuning.

Commands & Functions

Access to and activation of the Verituner's functions and directories is done via the buttons in *button bar* (at the bottom of the screen), on the menu bar at the top, through popup menus, and in dialogs. Additionally, the Netbook PC's arrow keys are programmed to change the note and octave during tuning and to navigate fields in dialogs and in file and folder lists in directories.

Files

Tuning files are saved automatically as you tune.

Tuning, temperament, and style files are stored and managed in directories. Open a directory. From the menu bar:

[Standard, Style, or Temperament] > Directory.

Select a folder and click Open on the button bar, or double click a folder to select and open it. Directory commands include

- **Delete** – delete the selected file
- **New** - start a new file
- **Copy** – make a copy of the selected file
- **Rename** – rename the selected file or folder
- **Move** – move the file to another folder in the current directory
- **Settings** – show the tuning settings for the selected tuning file
- **Open** – open the selected file
- **Done** – leave the directory

Chapter 2

Standard Tuning Procedures

This chapter presents step-by-step procedures for tuning with a New tuning file and tuning a piano from a Saved tuning file.

Tips

- **Aural Checks** - The Verituner is designed to listen to a single note at a time. It filters out and ignores other notes while reading inharmonicity. During tuning, playing one note at a time is recommended.

Aural checks are important—please do listen to your tuning! But because of how the Verituner works, the frequent playing of intervals during the tuning process can potentially cause some problems. Therefore, we recommended that aural checks be delayed until a substantial section or the entire piano has been tuned.

- **Tuning Unisons** - Tuning unisons as you go is recommended. You can tune each string of a note individually to the tuner, but if you have the skill, tune unisons aurally for greater speed and accuracy.

New Standard Tuning Procedure

1. Turn on the Netbook PC and start Verituner For Netbooks.
2. At the startup screen, click the **New** button to start a new tuning.
3. At the **Standard Tuning Settings** screen, set the tuning options you want for this tuning.
 - a. **Folder** Unless you select a different folder for the file, it will stay in the Temporary folder, where only the 15 most recent files will be saved. To select another folder, click on the change button to the right of the folder field. Click a folder on the folder list, and click the Select button.
 - b. **Filename** To change the Temporary file name, click in the field to select it; then use the keyboard to enter a new name.
 - c. **Pitch** To change the **Pitch** standard from A=440, click in either the Cents or Hertz field and use the keyboard to enter the desired value.
 - d. **Style** To change the tuning style, click on the change button to the right of the Style field. In the Style Directory, select the desired style and click Select. [The **Average** style has a moderate degree of stretch and is probably the best choice for most tunings. The conservative **Clean** style has the least stretch and may be best for spinets and very small grands. The **Expanded** style gives the greatest amount of stretch. Use it on concert grands when wider octaves are desired.]

+/- **Stretch** If you want to modify a built-in style's **Stretch**, enter a stretch "value" (from -2.0 to +2.0).
 - e. To change the **Temperament**, click on the change button to the right of the Temperament field. In the Temperament Directory, select the desired temperament and click Select.

4. When you have finished with the Tuning Settings dialog, click OK to accept the settings and go to the Coarse tuning screen; or click Cancel to cancel the new tuning. (To make changes later, click the Settings button in the Coarse or Fine tuning screens.)
5. **Check the pitch level of the piano** to determine whether pitch raising or lowering is needed. Follow this the procedure:
 - a. **Play A4.** *A4 must be first!* Mute the left and center strings of A4 and play the note's right string while you check its pitch. If the string is off by 50¢ or more, tune it close to 0¢ and continue to play it until the II is as full as possible I .¹
 - b. **Play A3** and check its pitch. Then, play several additional notes in various sections of the piano and check their pitch. If needed, click the Zoom button to change the gauge of the spinner ring.

NOTE: If the pitch is off by more than 50¢ and AutoNote is not consistently displaying the notes you are actually playing, turn AutoNote off and set notes manually.

6. **Decide how you want to proceed.** Choose the best procedure for the situation:
 - Two passes, coarse tuning followed by a fine tuning. If the piano requires a coarse tuning to raise or lower pitch, go to step 7.
 - One pass, fine tuning. If the pitch is close enough, go to Fine Tuning (by clicking the Function popup at the upper left of the screen) and go to step 8.
 - One pass, fine tuning with a small pitch correction. If the pitch is close enough for a single pass but you want overpull to compensate for anticipated settling, switch to Fine Tuning (by clicking the Function popup at the upper left of the screen) and go to step 9.

¹ Why the right string? It is assumed it is the last string you would normally tune for this note. When the note is tuned in a later step, overpull will be correctly calculated since it will be based on the deviation of the center or left string, which was not moved.

Coarse Tuning

7. Raise or lower the pitch in one or more passes.

As you tune, monitor the note name and pitch deviation. Be alert to any discrepancies between the note you are playing and the note Verituner For Netbooks indicates it is hearing.

- a. **Erase All Markers** by clicking inside the ring.
- b. **Set AutoNote.** Set Verituner For Netbooks to the lowest note in the tenor section. Then, for the best response, set AutoNote to move by step.
- c. **Set the overpull** percentage for the lowest tenor note. As you tune, change overpull percentage at the recommended points. (If you need to raise pitch with more than one coarse tuning, consider no overpull for the first pass.)
- d. **Coarse Tuning Sequence**²

Verituner For Netbooks *must* have inharmonicity information from A4 and A3 before beginning this sequence. (See step 5a.)

1. Tune each string of the lowest tenor note.
 2. From there, tune upward by half steps, tuning unisons as you go, until you have tuned C8.
 3. Tune from the top of the bass section down to A0, tuning unisons as you go.
- e. Switch to Fine Tuning (by clicking the Function popup at the upper left of the screen) and go to step 8.

² Other tuning sequences can be used. The sequences for New tunings are designed to work with the Verituner's three built-in styles—Average, Clean, and Expanded. They may or may not work well with custom styles.

Fine Tuning

8. Fine tune the piano.

a. Set AutoNote Set Verituner For Netbooks to A4. Then, for the best response, set AutoNote to move by step.

b. Fine Tuning Sequence

1. Tune each string of A4.
2. Manually set A3, and tune each string of A3.
3. Tune A#3 and continue tuning upward by half steps, tuning unisons as you go, until you have tuned C8.
4. Set the pitch to G#3 and tune each of its strings.
5. Tune downward by half steps, tuning unisons as you go, until you have tuned A0.
6. Set AutoNote to random movement .
7. Check the completed tuning and touch it up if needed. If desired, use the ReTune button to unlock an individual note, reread its inharmonicity, and recalculate its targets.

Fine Tuning with Overpull

9. Fine tune the piano with a small pitch correction.

a. Set AutoNote Set Verituner For Netbooks to the lowest note in the tenor section. Then, for the best response, set AutoNote to move by step.

b. Set the overpull percentage for the lowest tenor note, depending on whether it is wound or plainwire. Click the overpull icon .

to show the percentages. Change the overpull percentage at the recommended points as you tune.

c. Fine Tuning Sequence with Overpull

Verituner For Netbooks *must* have inharmonicity information from A4 and A3 before beginning this sequence. (See step 5a.)

1. Tune each string of the lowest tenor note.
2. From there, tune upward by half steps, tuning unisons as you go, until you have tuned C8.
3. Tune from the top of the bass section down to A0, tuning unisons as you go.
4. Click **0** to hide the overpull percentages.
5. Set AutoNote to random movement .
6. Check the completed tuning and touch it up if needed. If desired, use the ReTune button to unlock an individual note, reread its inharmonicity, and recalculate its targets.

Saved Standard Tuning Procedure

1. **Open the Standard Tuning Directory.** At the startup screen, click the Open button, or open the directory from the menu bar:

Standard > Directory...

2. **Select the file and click the Open button.**
 - a. When asked whether you want to **Recalculate** the tuning, click Yes if you are going to retune the piano. Click No if you are only checking or touching up a tuning, or if you are using this file as a template for a different piano.
 - b. If a deviation from standard pitch was in effect when the file was last used, you'll be asked whether you want to keep the offset. If you click No, A=440 will be reset.
3. **Check Tuning Settings.** Change the current settings for Pitch, Style, and/or Temperament, if you want.
4. **Check the pitch level of the piano.** Check the pitch of selected notes to determine whether pitch raising or lowering is needed. If the pitch is off by more than 50¢ and AutoNote is not consistently displaying the notes you are actually playing, turn AutoNote off and change notes manually.
5. **Decide how you want to proceed.** Choose the best procedure for the situation:
 - Two passes, coarse tuning followed by a fine tuning. If the piano requires a coarse tuning to correct pitch, go to step 6.
 - One pass, fine tuning. If the pitch is close enough, switch to Fine Tuning and go to step 7.
 - One pass, fine tuning with a small pitch raise or lower. If the pitch is close enough for a single pass but you want overpull to compensate for anticipated settling, switch to Fine

Tuning and go to step 8.

Coarse Tuning

6. Raise or lower the pitch in one or more coarse passes.

As you tune, monitor the note name and pitch deviation. Be alert to any discrepancies between the note you are playing and the note Verituner For Netbooks indicates it is hearing.

- a. **Erase All Markers** by clicking inside the ring.
- b. **Set AutoNote.** Set Verituner For Netbooks to the lowest note in the tenor section. Then, for the best response, set AutoNote to move by step.
- c. **Set the overpull** percentage for the lowest tenor note. As you tune, change overpull percentage at the recommended points. (If you need to raise pitch with more than one coarse tuning, consider no overpull for the first pass.)
- d. **Coarse Tuning Sequence**²
 1. Begin with the lowest tenor note and tune upward by half steps to C8, tuning unisons as you go.
 2. Tune from the top of the bass section down to A0, tuning unisons as you go.
- e. Switch to Fine Tuning and go to step 7.

Fine Tuning

7. Fine tune the piano.

a. Set AutoNote Set Verituner For Netbooks to A4. Then, for the best response, set AutoNote to move by step.

b. Fine Tuning Sequence

1. Begin with the lowest tenor note and tune upward by half steps to C8, tuning unisons as you go.
2. Tune from the top of the bass section down to A0, tuning unisons as you go.
3. Set AutoNote to random movement .
4. Check the completed tuning and touch it up if needed. If desired, use the ReTune button to unlock an individual note, reread its inharmonicity, and recalculate its targets.

Fine Tuning with Overpull

8. Fine tune the piano with a small pitch correction.

a. Set AutoNote Set Verituner For Netbooks to the lowest note in the tenor section. Then, for the best response, set AutoNote to move by step.

b. Set the overpull percentage for the lowest tenor note. Click the overpull icon  to show the percentages. Change the overpull percentage at the recommended points as you tune.

c. Fine Tuning Sequence with Overpull

1. Begin with the lowest tenor note and tune upward by half steps to C8, tuning unisons as you go.
2. Tune from the top of the bass section down to A0, tuning unisons as you go.
3. Click **0** to hide the overpull percentages.
4. Set AutoNote to random movement $\lll\ggg$.
5. Check the tuning and touch it up if needed. If desired, use the ReTune button to unlock an individual note, reread its inharmonicity, and recalculate its targets.

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