

# AUTO-TUNE™

INTONATION CORRECTING PLUG-IN



The Auto-Tune is a VST plugin that corrects intonation problems of vocals and other solo recordings in real time. The quality of the output is spectacular: Even audiophiles cannot tell a sound has been processed, except that it is perfectly in-tune.

The **Automatic Mode** instantaneously detects the pitch of the input, identifies the closest pitch in a user specified scale and corrects the input pitch to match the scale pitch. Major, minor, chromatic and 26 historical and microtonal scales provide unprecedented control of the output tonality.

The **Graphical Mode** displays the detected pitch and allows you to draw in the desired pitch on graph. This mode gives complete control over adding or repairing scooping pitches and large vibratos.

Auto-Tune for VST is \$399 US Suggested Retail Price.

## Features & Specifications:

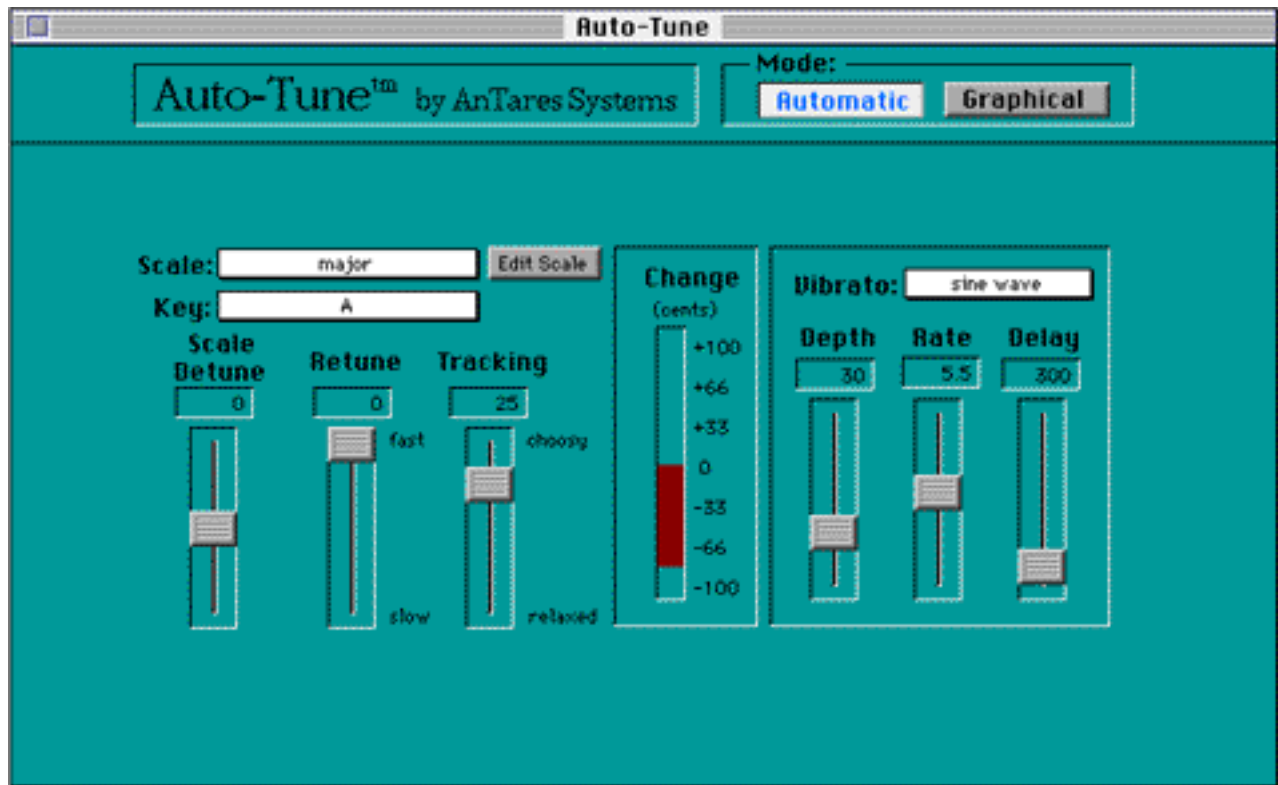
The precision by which Auto-Tune detects pitch is extraordinary. At a frequency of 400 Hz and a sample rate of 44100, the Auto-Tune DSP algorithm computes the pitch to an accuracy of .0001 samples per cycle, or .0004 Hz. At this resolution, the very question "What is pitch?" becomes relevant. That is, as the pitch of typical performances continuously change, the amount of variation in pitch, even over the time of a few cycles, changes greatly in comparison to the accuracy by which Auto-Tune computes pitch. The pitch computed by Auto-Tune is a mathematical estimate of the cycle period repetition rate over the last two (or sometimes the last four) cycles.

Auto-Tune was designed to detect and correct pitches up to C6. In reality, if a pitch goes higher than C6, Auto-Tune will often

interpret the pitch an octave lower. This is because it interprets a two cycle repetition as a one cycle repetition. These pitches can be corrected by the usual means. On the low end, Auto-Tune will detect pitches as low as A0 (55Hz). This range of pitches allows intonation correction to be performed on all vocals and almost all instruments.

The accuracy of pitch correction in Auto-Tune is exceptional. In the worst case, a continuously varying tone can be corrected (at the discretion of the user) to within an error of at most one cycle in 80 seconds (assuming the Retune slider is set to zero). These accuracies are equivalent to the .01 cent accuracies by which the various scales of the Automatic Mode are internally specified. These accuracies are also equivalent to the accuracies of the clocks which control music studio functions.

# Automatic Mode



The Automatic Mode works by continuously tracking the pitch of the input sound and comparing it to a scale. The scale tone having pitch closest to the input is continuously identified. An output pitch is generated which is closer to the scale tone than the input pitch. You have control of the scale. Major, minor, chromatic and 26 historical, ethnic and microtonal scales provide unprecedented control of the output tonality. Scale pitches can be disabled causing no pitch correction. Scale pitches can also be removed allowing a wider range of pitch correction for neighboring pitches. The scale can be de-tuned, allowing pitch correction to any pitch center. You also choose the key of the scale.

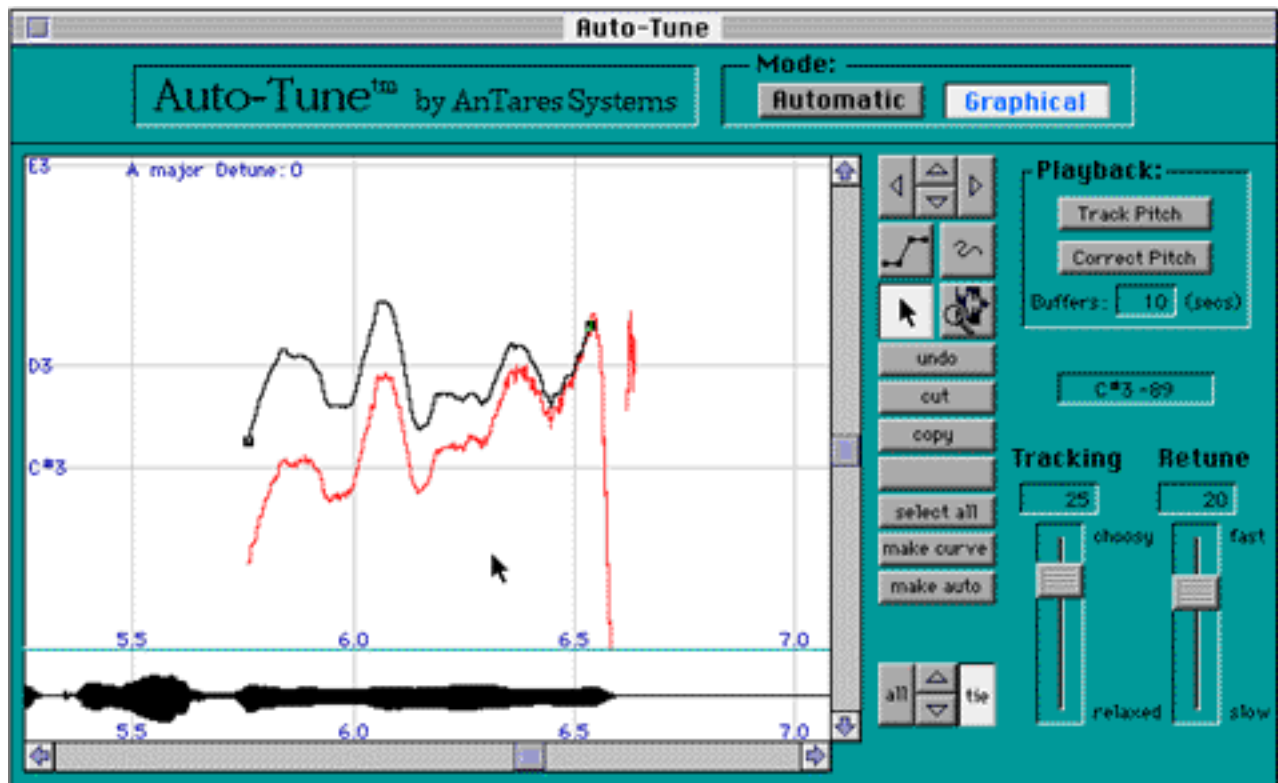
You have control over how rapidly, in time, the pitch adjustment to the scale tone is made. This is done with the Retune slider (fast to slow settings). Fast Retune settings are more appropriate for short duration

tones and for mechanical instruments, like an oboe or clarinet. A fast setting will remove a vibrato. Slow Retune settings are appropriate for longer tones where you want expressive pitch gestures (like vibrato) to come through to the output. A slower setting can leave a vibrato unmodified but accurately adjust the pitch center to be in-tune.

The Automatic Mode can also introduce a vibrato into the sound. The Vibrato Section lets you control the depth, rate and delay of the vibrato. You can also choose the style of pitch variation in the vibrato (sine, ramp or square). You would use the Vibrato Section when you have a vocalist who has not learned to use his (or her) own vibrato. It can also be used for special sound design effects.

A fast pitch adjustment to remove an existing vibrato can be used in conjunction with the Vibrato Section to replace a vibrato with a new one.

# Graphical Mode



The Graphical Mode is similar to the Automatic Mode in that it also continuously tracks the pitch of the incoming sound and modifies the output pitch to be closer to a desired pitch. But in the Graphical Mode, the desired pitch is not a scale tone, rather it is given graphically by you and is called the "target pitch function". As in Automatic Mode, the rate of change towards the desired pitch (the target pitch function) is controlled by the Retune slider.

The Graphical Mode uses the Pitch Graph. In this graph, higher pitches are upwards and increasing time is to the right.

The lighter (red) curve is the input sound pitch and the darker line is a target pitch function. The Graphical Mode also uses the Envelope Graph. This graph shows the envelope of the sound whose pitch is shown in the Pitch Graph.

In Graphical Mode, the user draws the target pitch function using line and curve drawing tools. Complete image sizing and scrolling controls are provided. Target pitch function objects can be selected and dragged. A graphical editor allows easy editing, including cut, copy and paste functions.



AnTares' products are delivered on diskette with a printed manual and two hard disk installation keys. Our products are sold in most MI/Pro-Audio stores. Chances are if your favorite store has a Digidesign or Steinberg demonstration capability, then they will also be able to demonstrate AnTares' products.

The sole distributor for AnTares' products is Richarde & Company. They can help you locate a store in your area, and otherwise answer questions about AnTares' products. Their contact information is:

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