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SERATO PITCH'N TIME PRO 3.0 SOFTWARE MANUAL

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Introduction

Thank you for purchasing Pitch 'n Time Pro, a professional quality time stretching and pitch shifting plug-in designed for use with Digidesign Pro Tools.

We trust you will find this manual useful in setting up and getting the best from your Serato product. If you require any assistance beyond the scope of this manual, including up-to-date information on troubleshooting, frequently asked questions, and tips & tricks for Pitch 'n Time Pro, please visit our website at serato.com.

Download and Installation

To get up and running with Pitch 'n Time Pro, first visit serato.com/pitchntime-pro/downloads and download version 3.0. Once you have successfully downloaded the installer, double-click on the .dmg file to open and then run the package. Follow the installation instructions on-screen.

Note: Pitch n' Time Pro requires an active license. You can trial the Plugin by activating a trial license. If you have an existing Pitch 'n Time license, please read this FAQ about how to upgrade your license. Alternatively, a new full license can be purchased from store.serato.com/software.

Basics

What Pitch 'n Time Pro does

Pitch 'n Time Pro is a high quality time stretching and pitch shifting plug-in for use with Digidesign's AudioSuite architecture. It offers time compression and expansion from a ratio of 1/8 through to 8 x speed, independent of pitch. Together with pitch shifting of up to 36 semitones independent of tempo.

The time-stretching and pitch-shifting functions each have three interchangeable panels, ranging from simple fixed ratios / rate changes to complex tempo and pitch alterations that vary over time. You can even warp the timing of your samples just by placing markers and moving them around.

The tempo and pitch panels can be mixed and matched to suit your application, and with a sufficiently powerful processor previewing may be done in real time.

## Why is Pitch 'n Time Pro an AudioSuite Plug-In?

One of the fundamental aspects of real-time processing is that it requires a plug-in to have a 1:1 input to output ratio, so the number of samples coming out of a plug- in must equal the number of samples being sent in. This behavior is similar to having an external box with audio inputs, outputs and controls. In principle such a box cannot time stretch, since time stretching implies a non 1:1 input to output sample ratio.

Being file-based, AudioSuite plug-ins have complete random access to the source data and also have no restriction on input to output ratios. This gives a plug-in the freedom to implement such processes as sample-rate conversion, time stretching, and time reversal. AudioSuite is the only Pro Tools plug-in architecture under which Pitch 'n Time Pro can operate effectively.

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Getting Started

How to launch Pich 'n Time Pro

1. Bring up the Pitch 'n Time Pro window by selecting it from the AudioSuite menu.
Note: This menu is not accessible until you have a session open.
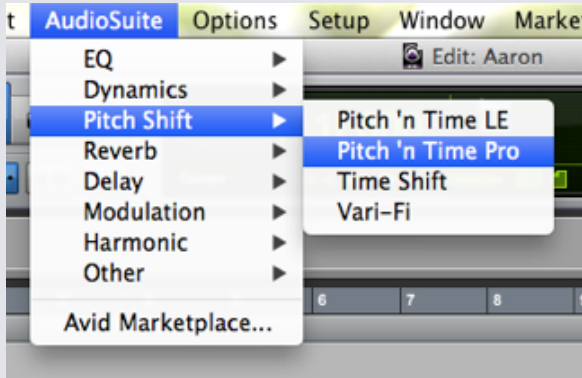
2. The Pitch 'n Time Pro window should appear with the standard Pro Tools plug-in controls at the top and bottom of the window.

Providing that you have some audio in your session Pitch 'n Time Pro is ready to use.

The Interface

Tempo

The time-stretch modes are Fixed, Variable and Morphing

Length

Shows the start, end and output length of your selection

Pitch

The pitch-shift modes are Fixed, Variable and Varispeed

General Controls

Scale

The Lin / Log controls select the vertical scale for all automation graphs. The interpolation between handles is not affected by this setting on the variable time-stretch panel, so in log mode lines will appear bent. The variable pitch-shift panel alters its interpolation to match this setting, so lines are always straight.
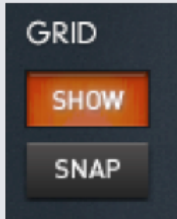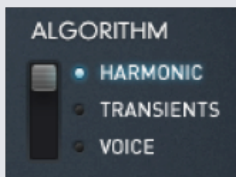
Grid

Show turns grid lines display on and off for all graphical views. When editing handles,
Snap makes them snap them to grid lines.

Range

At the top of the plug-in, three buttons 2x, 4x and 8x let you control the editable range of Pitch 'n Time Pro. Note that in vocal algorithm mode, the range is limited to 2x.

Algorithm

The algorithm buttons toggle between modes biased to improve results on different types of program material; Harmonic towards harmonic sounds (e.g. organ), Transients towards transient sounds (e.g. drums), and Voice towards vocals.

Tone

At the top of the fixed pitch-shift panel you can select and play a reference tone along with the preview, to facilitate tuning by ear. The note to play and detuning can be also be entered here, or the frequency can by entered in Hertz.
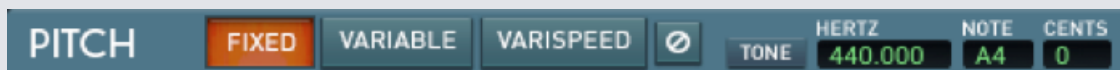
Output Gain

At the bottom of the panel is the Output Gain knob which controls the volume level of the output or process gain. Any gain change of the process gain control is applied when you press Process.
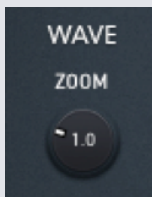
Waveform Zoom

The Waveform Zoom knob allows you to zoom the waveform vertically in graphical modes. It is especially useful for seeing the features in the clip better if the gain is low.

Fixed Time-stretch Panel

The simplest way to control tempo, the fixed time-stretch panel, lets you accurately slow down or speed up your selection by a single stretch factor.

The amount of time stretch is displayed below the slider in terms of the output BPM (an input BPM must be specified for these units to make sense), or as a percentage of the original tempo. Moving the slider changes the ratio or the new value may be entered directly into either the BPM or Percent field.

The ratio fields let you specify the time stretch factor by entering source and target rates. An ideal use for this feature is time-stretching to convert between two frame rates; Just enter the source and destination frame rates, and press process.

This panel also includes fields to assist with BPM calculations. These are:

Source BPM

This field shows the original tempo of the current selection in Beats Per Minute. If the tempo of the selection is defined within Pro Tools then this field is filled in automatically (if no value has been entered manually). When the input BPM is entered, the Bars & Beats field is calculated automatically.

Bars & Beats

This field shows the length of the current selection in Bars and Beats, if known. Entering this length will cause the plug-in to calculate the BPM of the selection.

Meter

Entering the current time signature assists the plug-in with interpreting the Bars & Beats field, by nominating how many beats each bar contains.

Variable Time-stretch Panel

This panel offers a more sophisticated interface to the time-stretching function of Pitch 'n Time Pro, by providing an editable tempo automation graph. This panel is accessed by clicking the triangular Mode arrows.
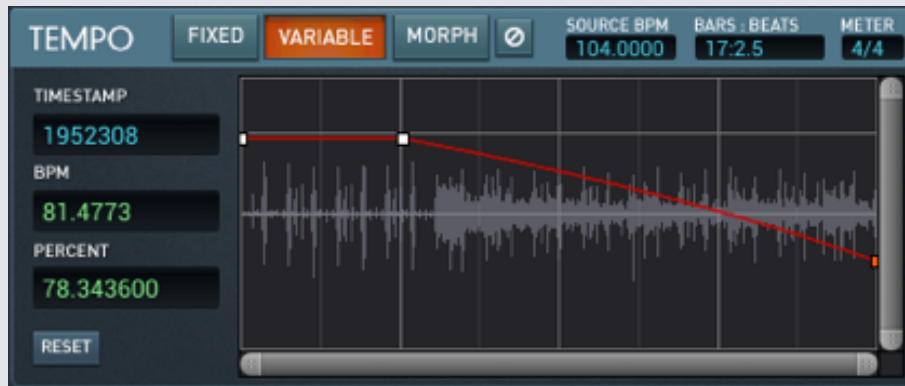
Adding a ritardando to a constant tempo recording.

The most important part of this view is the coloured line. This shows how the speed of playback will vary over time. The small boxes on top of the line are handles, and these let you specify the tempo you want at a particular time. Most handles are white, but the currently selected handle is shown in orange. The (input) time, BPM and percentage change of the selected handle is shown in the three fields below the graph.

To select or move a handle, click within its box. To create a new handle, click anywhere on the line where there isn't already a handle. To delete a handle option-click it, drag it outside the graph, or move it on top of one of the handles to either side. The line always shows how the tempo will vary smoothly between the handles you have set. Clicking Reset will remove all changes.

The scroll bars at the right side and the bottom of this view are a combined zoom/scroll. There are handles at the ends of the bars which can be 'grabbed' and moved to change the zoom level of the graph.

By pressing the Analyze button (at the bottom of the plug-in) you can have Pitch 'n Time Pro display a waveform overview as a visual aid behind the automation graph.

Note: for large selections this can take a while to create.

Tempo automation can be as simple as a ramp from 120 to 130 bpm or as complex as you wish. To help with detailed editing of automation data, the graphical editing modes of Pitch 'n Time Pro include both horizontal and vertical zoom. These zoom sliders can be found to the left of the graph, and always zoom in on the currently selected handle. The size of the scroll bars vary to reflect how much of the entire graph is visible.

Morphing Time-stretch Panel

This is the third time-stretching panel (again accessed by clicking the Mode arrows), and provides a time-varying time- stretch facility. This panel is useful if you need to control when things happen, rather than how quickly. Just drop markers on the audio and move them where you want them to go. Pitch 'n Time Pro stretches and squashes the audio to fit! There are two graphs on the morphing panel, the lower of these (After) shows the selection and markers before processing. The upper graph (Before) shows where the markers will go after processing. The output graph also has a Before waveform overview. The before waveform is available as a visual reference and appears beneath the output waveform, which is shown as a dark outline. You will need to click Analyze at the bottom of the plug-in to import a waveform as a before.

Lengthening a note without altering the surrounding notes.

Pressing the Analyze button will load the waveform to be morphed (After), whereas pressing the Load Guide button will load the guide waveform which sits in the after window as a reference. It is recommended that you load your before waveform first, to avoid any confusion.

NOTE: In ProTools 10, users will need to press the Analyze button after pressing the Load Guide button in order to load a Before waveform.

Markers are shown as vertical lines with handles at the top and bottom. The selected marker's handles are shown on both graphs in orange, and the corresponding input and output times are displayed at the bottom of the panel. Markers can be selected and moved in either graph by clicking anywhere on the line. Option-clicking a marker deletes it, as does dragging it outside the graph. New markers can be created by clicking anywhere except on an existing one. Clicking Reset will remove all markers.

Length Panel

No matter which time-stretching mode you are in, the length panel is always visible. It shows the start, end and length of your selection both before and after processing. You can change the output values at any time by typing into the appropriate field. When you do, the current time stretch panel is altered to match.
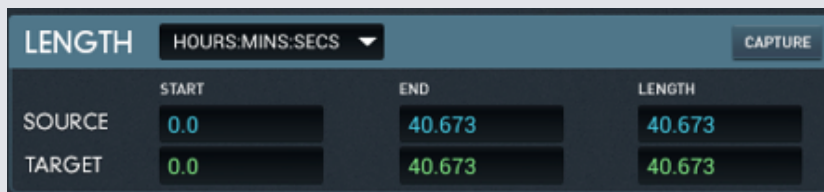
Length / Position units

Select from the pop-up menu at the top of the length panel between the following display options:

Samples are the smallest units of audio that Digital Audio Workstations work with. The largest value allowed in these fields is 231-1 = 2,147,483,647 samples, or approximately 13½ hours of audio at a sample rate of 44,100 samples per second.

Hours:Mins:Secs display lengths in hours, minutes and seconds, in the format HH:MM:SS. Hours and minutes will not be displayed if the length is less than one hour or one minute respectively. The default units are seconds when entering values, but colons can be used to quickly enter larger values. For instance, typing "1:" enters 1 minute, and typing "2::" enters 2 hours.

Time code uses SMPTE time code.

Feet+Frames refers to lengths of film in feet and frames, where 1 foot = 16 frames, and there are 24 frames in 1 second of audio. This relationship is independent of the SMPTE frame rate for the session.

Capture

This panel also features the **Capture** button, which can be used to easily match sample lengths. When pressed, the capture button memorizes the length of the current selection. As soon as a second region is selected, the current time-stretch panel is automatically adjusted to create the output length that was memorized. (See the Production Examples section for further explanation).
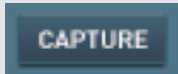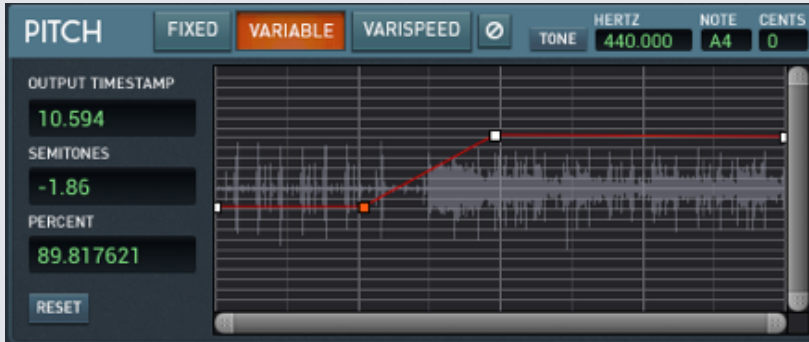

Fixed Pitch-shift

This pitch-shift panel works similarly to the fixed time-stretch panel, applying a simple, single pitch shift factor, displayed beneath the slider in both semitones & cents and percentage frequency change.

The two fields above the pitch slider provide a simple way to transpose your selection. Just enter the key of the source (by typing the key and optionally typing a '#' for a sharp or a 'b' for a flat) and the new key you would like; the plug-in calculates the required pitch shift.

Variable Pitch-shift Panel

This panel offers a similar interface to the variable time-stretching panel, by providing an editable pitch automation graph. The functionality is the same as the time-stretching panel except it controls the pitch change over the course of a waveform. The (output) time, semitone and percentage change of the selected handle is shown in the three fields below the graph.

Adding an upwards glissando to a recording.

Varispeed Pitch-shift Panel

This panel has no controls, and forces the pitch shift to precisely match the time-stretch at any point in time. This recreates a classic varispeed effect, allowing you to make great sounding record/tape speed-up and slow-down effects. To go really slow, use the variable time-stretch panel on a linear vertical scale.

Production Examples

Example 1: Making a finished ad fit the available space.

1. Fully mixed advertisement, must fit 30 second slot, but is 32.673 seconds long.
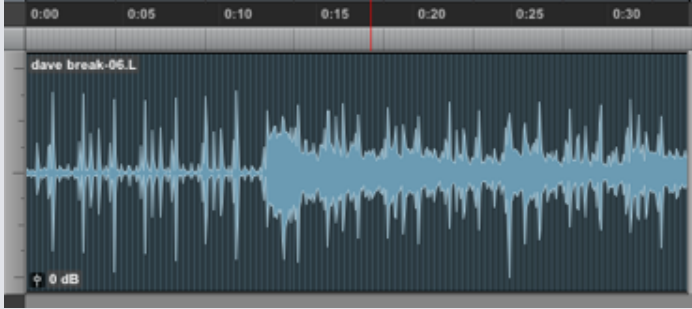
2. Set length units to seconds.
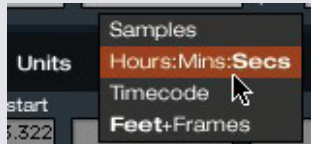
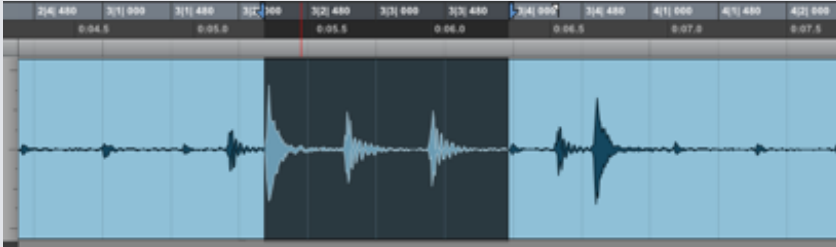3. Type "30" into output length field.

4. Press Render.

Example 2: Lengthening a note

In this example we're going to extend the sustain of a note that was played too short.

1. Make a selection around the note you wish to lengthen.

2. Scroll over to the Time-Morphing panel by clicking the right arrow then press the Analyze button.

3. Click on the waveform to drop markers: **A** just after the start of the note **B** just before the end of the note and **C** before the start of the next note.

4. Click on marker B in the top (output) waveform, and drag it to where you want the note to end.
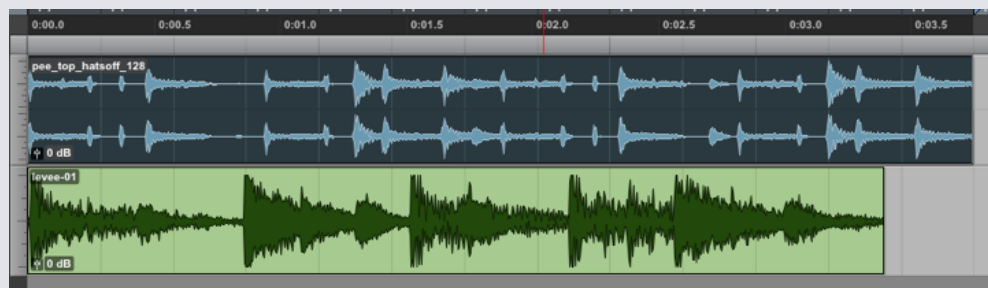

5. Press Render.

Example 3: Matching loop tempos

Here we will show how to use the Capture button to match loops to the same tempo.
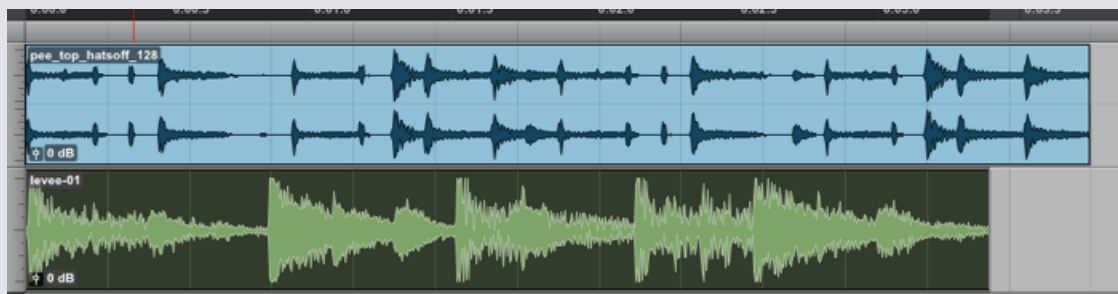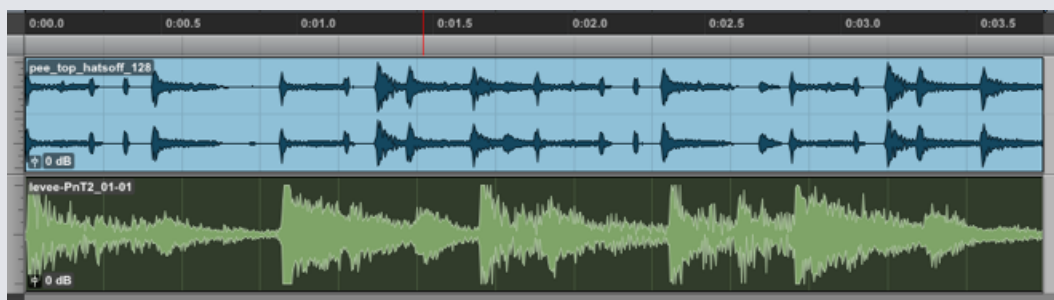1. Some loops with differing tempos.
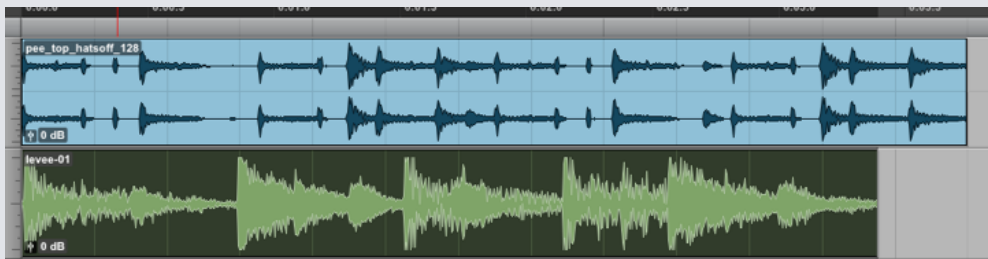
2. Select the loop with the correct tempo.

3. Press Capture.

4. Select the loop with the incorrect tempo.

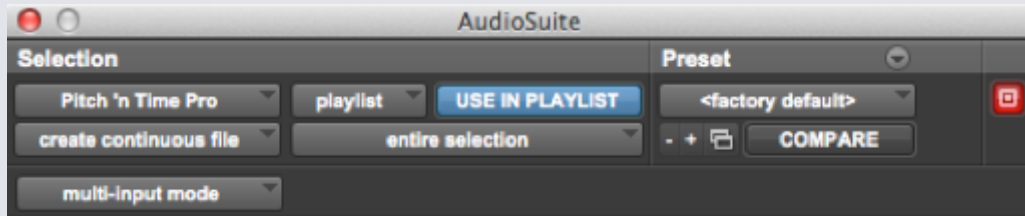5. Notice that the controls auto update to show time stretch needed.
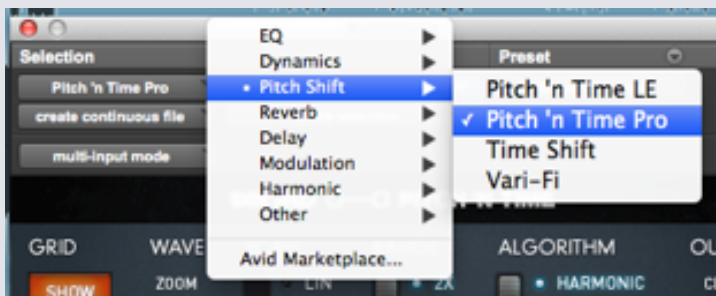

6. Press Process.

Pro Tools Plug-In Controls

The top of the plug-in window contains several options that control the behavior of AudioSuite plug-ins.

This pop-up menu displays the current AudioSuite plug-in and is used to switch between installed plug-ins.


There are two different ways of selecting the source of the audio to be processed by an AudioSuite plug-in, depending on what you wish to achieve. With playlist selected as the source, whatever audio is selected within the Pro Tools Edit Window is fed into the plug-in. This could include several regions, and/or several copies of the same region, but cannot include regions that do not appear in the Edit Window. If a region appears more than once, it is fed through the plug-in more than once. When region list is the source, the regions selected in the Pro Tools region list are fed through the plug-in. This can include regions that do not appear in the Edit Window.
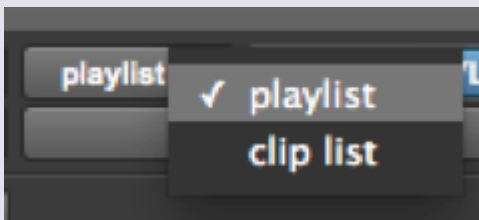
Pitch 'n Time Pro always works non-destructively. That is, it always creates a new region file and never overwrites the source. The use in playlist button USE IN PLAYLIST controls whether the processed

audio should automatically be used in the Edit Window in place of the source. With this option selected with playlist as the source, only the audio selected in the Edit Window is replaced. However if use in playlist is selected with region list as the source, every occurrence of the source region in the Edit Window is replaced - potentially a dangerous operation.
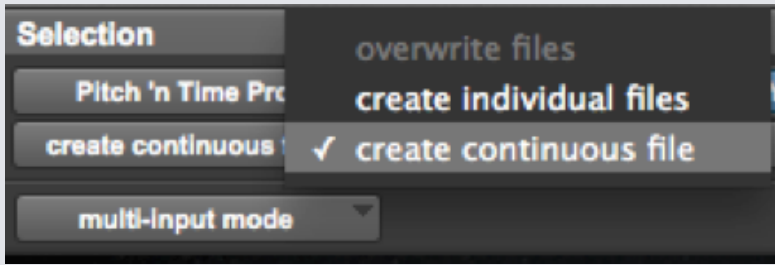
The create continuous file option is only available when playlist is selected as the source. In this mode the entire selection within the Edit Window is treated as a single region. All of the audio - including the silent gaps between regions - is fed into the plug-in, and a single audio region created to hold the output from the plug-in.

Conversely the create individual files option causes each selected region to be processed in turn, and corresponding regions are created from the output. When create individual files is used with playlist selected as the source, Pitch 'n Time Pro re-spots the new regions to new locations to match the selected time stretch.
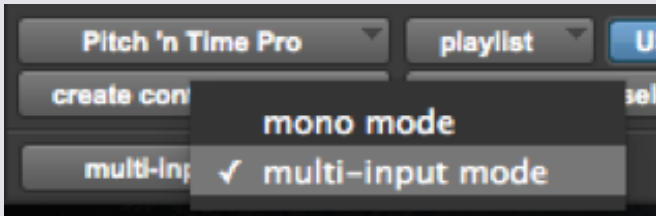
Multi-channel mode enforces phase coherency between all the selected tracks, up to the AudioSuite limit of 48 channels. Use this feature only when absolutely necessary, as enforcing phase coherency unnecessarily can be detrimental to the sound quality.
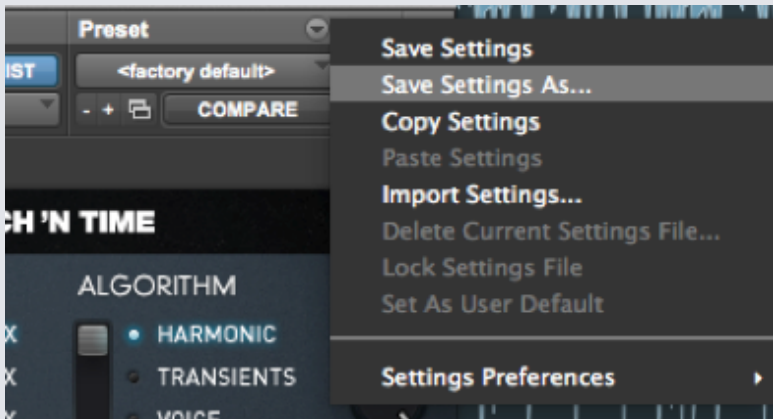
Pro Tools allows you to save your favourite plug-in settings for later retrieval. This button contains both a menu for saving your favorite settings, and a pop-up of any you have saved previously. At any time when you would like the current settings remembered, pull down the menu and choose Save Settings As... Type in a descriptive name and choose save.
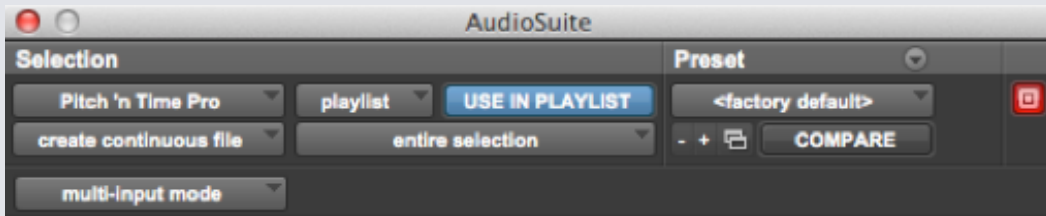
If the current settings do not match the most recently selected preset, the compare button will illuminate and the preset name will be italicized.

Appendix A - Pro Tools Shortcuts

Mac Shortcut	Windows Shortcut (if different)	Action
Option-clicking a slider or knob	Alt-clicking a slider or knob	Resets the control to its default value.
Command-dragging a slider or knob	Control-dragging a slider or knob	Moves the control in 'fine' increments.
Pressing tab or shift-tab		When a control value editor is selected, tab will advance from one text entry field to the next, and shift tab moves backwards through the text fields. If the contents of the field have been altered the new value will be accepted by the plug-in.
Pressing return in a text field		Enters the new value into the plug-in and deselects the editor.
Pressing enter in a text field		Enters the new value into the plug-in and leaves the editor active to allow continued editing from the keyboard.
Ctrl-up and Ctrl-down arrow keys		Alters the pitch shift by plus and minus one semitone, respectively.
Ctrl-left and Ctrl-right arrow keys		Nudges the tempo up or down by a small amount.