Pyramix 5

DIGITAL AUDIO WORKSTATION

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**MPEX
Quick Start Guide**

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Prosoniq MPEX3 Quickstart Guide

Introduction

The **MPEX3** algorithm for **Pyramix Virtual Studio 4.1** has been developed together with the German based company **Prosoniq**, who are known for their high quality digital audio algorithms. MPEX stands for **M**inimum **P**erceived Loss Time Compression/**Ex**pansion. Incorporating this technology into Pyramix Virtual Studio gives users the opportunity to adjust timing and pitch of their existing material with outstanding results and ease of use.

MPEX3 Time Scaling Algorithm

Time Scaling (also known as 'Time Stretching', 'Time Compression/Expansion' and 'Time Correction') is the process of changing a sound's length without changing its pitch. When transposing a sound by playing it back at a different speed, like when slowing down the playback speed of a tape recorder, it will play back at a different tempo but also at a different pitch. While this may be fine when tuning drum loops to match the speed of a recording it will make pitched sounds - like vocals - sound totally out of tune. Thus it is desirable to provide a process that enables you to change duration and pitch of a recording independently from each other.

MPEX changes duration using a novel Timebase Compression/Expansion algorithm leaving the tonal information untouched. This is a very useful feature if you plan to synchronize spoken text to a movie or if you need to adapt the tempo of a vocal track to a song (e.g. for remixing purposes).

The algorithm does not alter the timing structure of the audio material in any way thus providing an accurate time compression/expansion tool for applications where the relative timing of instruments or acoustic cues is critical (such as in drum loops). MPEX also includes high quality pitch conversion for changing pitch without affecting sample length. This can be invoked by simply setting the pitchScale parameter to an appropriate value.

Formant Preservation

An important feature of MPEX is its ability to preserve the harmonic structure of a sound, making transposition artifacts such as the munchkinization effect history. MPEX is capable of transposing a sound over a wide range of semitones without altering its timbre. This makes MPEX an ideal tool for doubling vocal passages in a song, or altering the timbre or gender of a voice

Long Term Stability and Precision

Unlike many other time and pitch change algorithms, MPEX has been fully tested for long-term stability. This is important when time stretching extremely long musical pieces, for example an entire film score. Even small factor conversions (such as 30/29 fps PAL/NTSC) are guaranteed not to cause loss of sync.

Multi-channel processing

Phase Coherent Processing

Maintaining phase coherence between all channels in a multi-channel recording is essential in some circumstances but unnecessary in others. In a stereo recording, the relative timing (or phase relationship) between the left and the right channels provide important localization cues to the listener. If time-stretching software changes the relative timing of the two channels by even a minimal amount, stereo imaging will be degraded or even lost. Mono compatibility will no longer be guaranteed, since when the Left and Right channels are mixed down to a single mono channel (just as occurs in some domestic reproduction equipment) there will be audible artifacts perceived as phasing or cancellations.

When to use Phase-Locked

If relative phase between channels matters, it is imperative to use the **Phase Locked** multi-channel processing mode of MPEX (all channels are being processed at the same time). As a rule of thumb, this is always the case with stereo recordings, or recordings of the same sound source through different microphones. It is almost always the case with the channels in a surround mix. In these cases, you should use MPEX in multi-channel mode, by processing a single multi-channel file.

Relative phase is usually unimportant in a multi-track environment where different instruments reside on different tracks. In such cases, phase-locked processing can be detrimental with regard to the sonic quality of the time or pitch change operation and should be avoided.

> **Important!** The Prosoniq algorithm is able the preserve the phase between up to 128 channels. To ensure phase preservation, the audio media file to be Stretched, Compressed and/or Pitch changed must be a single file. I.e. all the channels must reside in the same file and not spread into multiple mono files as would be the case when **One file per track** is selected for recording.

Existing multi-channel source material

If the multi-track material you wish to process is not in a single file simply select the material and choose **Project > Render** to open the Render Window. Make sure **<None>** is selected in the Rendering Process box and that the **One file per track** box is **NOT** checked. If required, make other settings suitable for your needs and click the **Render** button.

Accessing MPEX3

Pyramix Virtual Studio gives you the opportunity to access MPEX3 from several strategic locations.
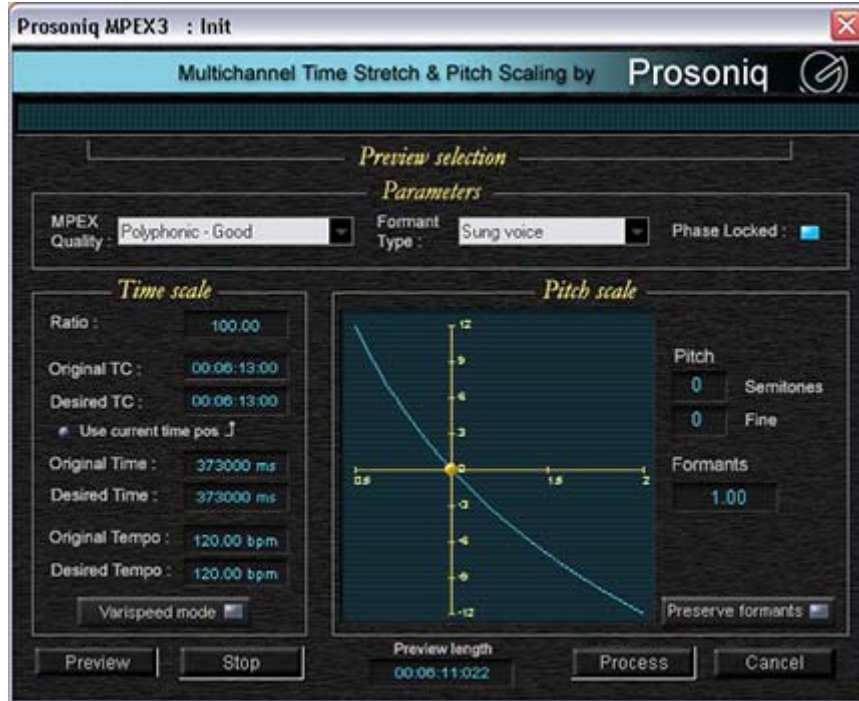
Main Prosoniq window

You can adjust the timing for sound-to-picture format matching, either during post-processing or for your entire project. You also have the choice of adjusting the length of clips in a very handy and accurate manner in the **Timeline**, directly in the **Media Management** Tab window using **Quick Convert** or applying pitch and time modifications to selected clips with the **Rendering** function. Check the **Phase Locked** box if the tracks to be stretched are correlated.

Tuning the Algorithm

The two combo boxes **MPEX Quality** and **Formant Type** offer a choice of algorithms:

MPEX Quality

Single Instrument Fast	Fast algorithm for processing single instruments (musically monophonic material) and voice.
Single Instrument Best	Higher quality algorithm for processing single instruments (musically monophonic material) and voice.
Polyphonic Fast	General multi-purpose algorithm for processing musically monophonic and polyphonic material. This is the fastest setting that gives still very good results. Should be used for anything beyond single instruments, e.g. For drum loops, mixes, chords…
Polyphonic Good	General multi-purpose algorithm for processing musically monophonic and polyphonic material. **This is the recommended MPEX default quality setting**. Should be used for anything beyond single instruments, e.g. For drum loops, mixes, chords…
Polyphonic Best	This is the best setting of all. It is quite processor intensive and should be used only when processing difficult material or if a very large (>1.3) stretch factor is desired.

Formant Type

Sung Voice

Spoken Voice

Note: When **Preview**ing a render, MPEX uses a special Preview quality which is faster than the user choices above.

Project Menu

Stretch/Pitch

**Project > Stretch / Pitch** opens this dialog:.

Stretch / Pitch dialog

Stretch adjusts the duration of your entire project from 25 fps to 24 fps, or from 24 fps to 25 fps. Alternatively, **Pitch** can be changed by the same percentages. This can be useful where material has already been stretched without pitch correction. **MPEX3 Settings** offer the same choices shown on the previous page.

Render

Project > Render opens the **Render** window. Double clicking on **Prosoniq MPEX3** in the list opens this dialog:
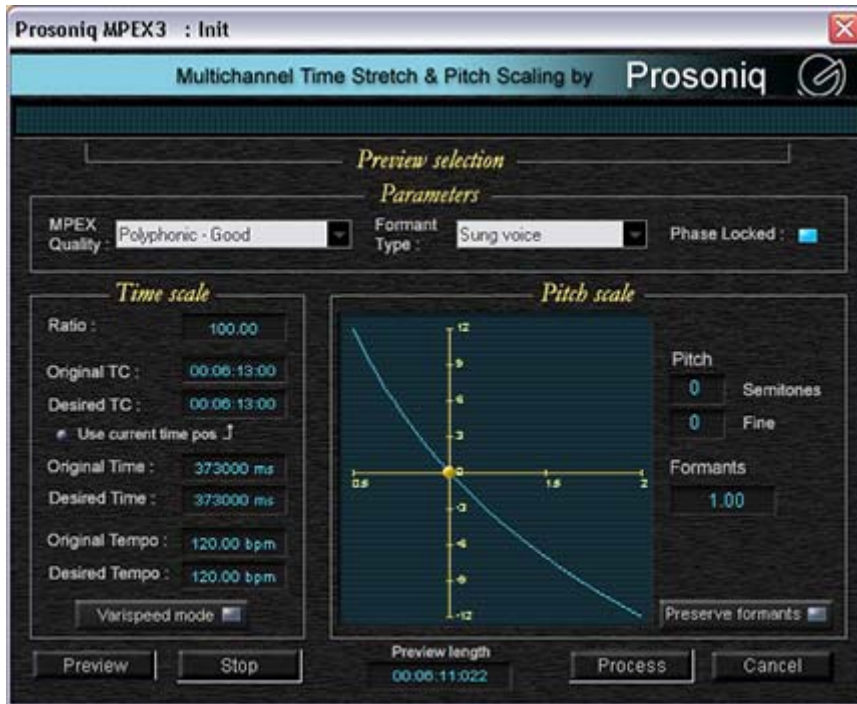
Main Prosoniq window

Time And Pitch Parameters

Time scale and Pitch scale can be manipulated in a number of ways.

- •   By entering a ratio
- •   By altering TimeCode values
- •   By altering tempo values
- •   By altering Pitch and Formant values
- •   By clicking and dragging the golden ball in the graphic display

When the **Preserve Formants** button is lit, movement of the golden ball is constrained to the blue curve.

Processing is limited to 128 channels in one operation

Edit Menu

Stretch
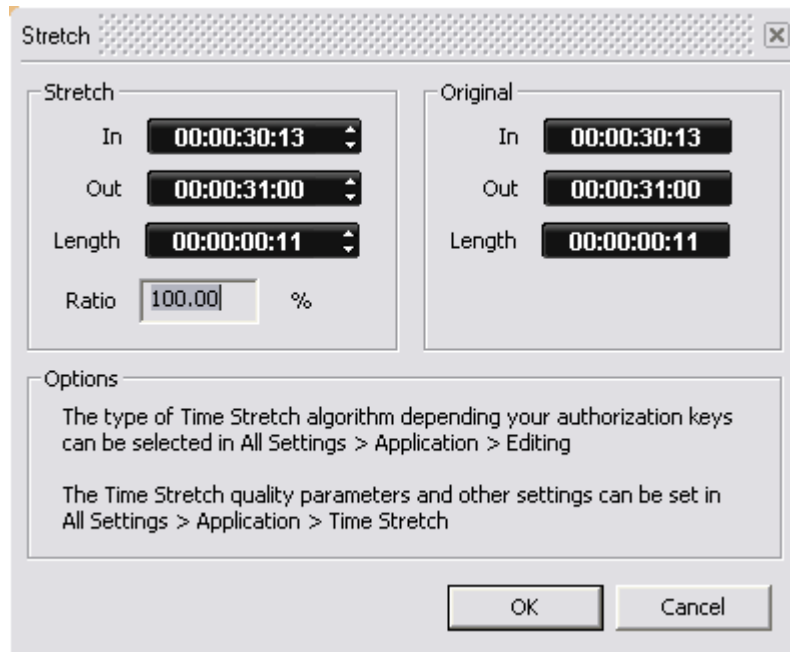
Stretch dialog

When a **Clip** or portion of a **Clip** is selected in the **Timeline**, choosing **Edit > Stretch** opens this dialog. Here, you can make choices about duration expansion / reduction. You may also indicate the desired stretched size by placing the play head at the intended position and the numbers will adjust accordingly in the pop-up dialog.
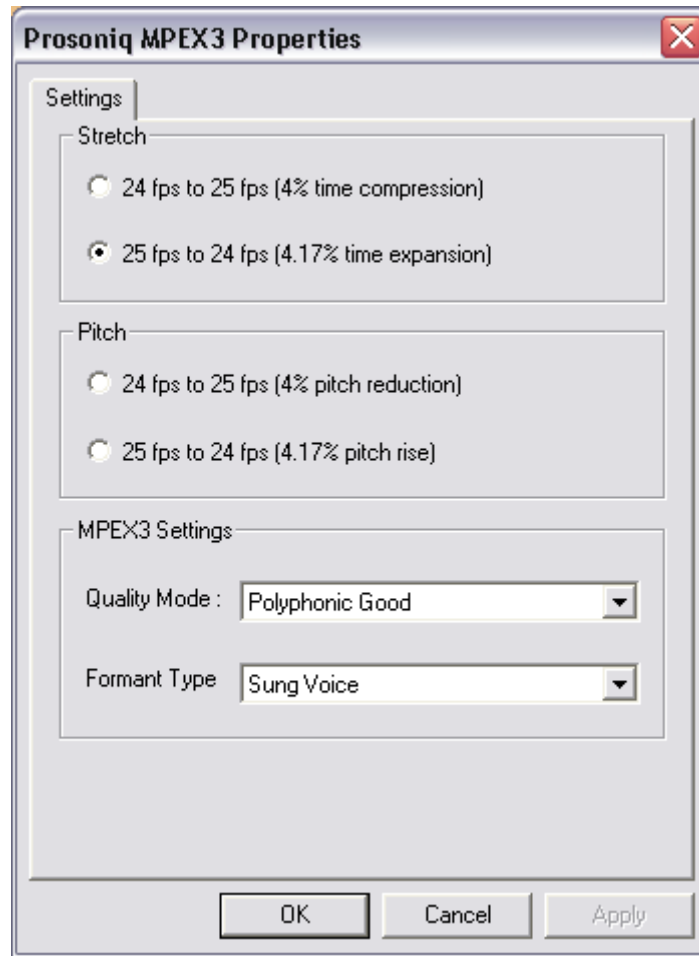
Media Management

Quick Convert

If a **Master Clip** is selected and **Convert > Quick Convert > Prosoniq MPEX2** is chosen, this dialog opens:
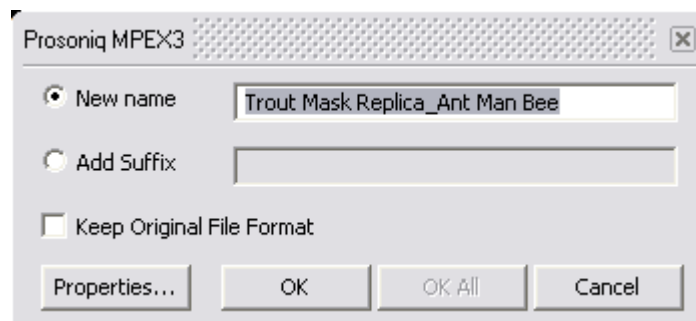
MPEX2 Quick Convert dialog

Clicking on the **Properties** button opens this dialog:

MPEX2 Quick Convert Properties dialog

offering time or pitch scaling of plus or minus **4%**, for time adjustments of **24 to 25 fps** or **25 to 24 fps** for sound-to-picture matching.
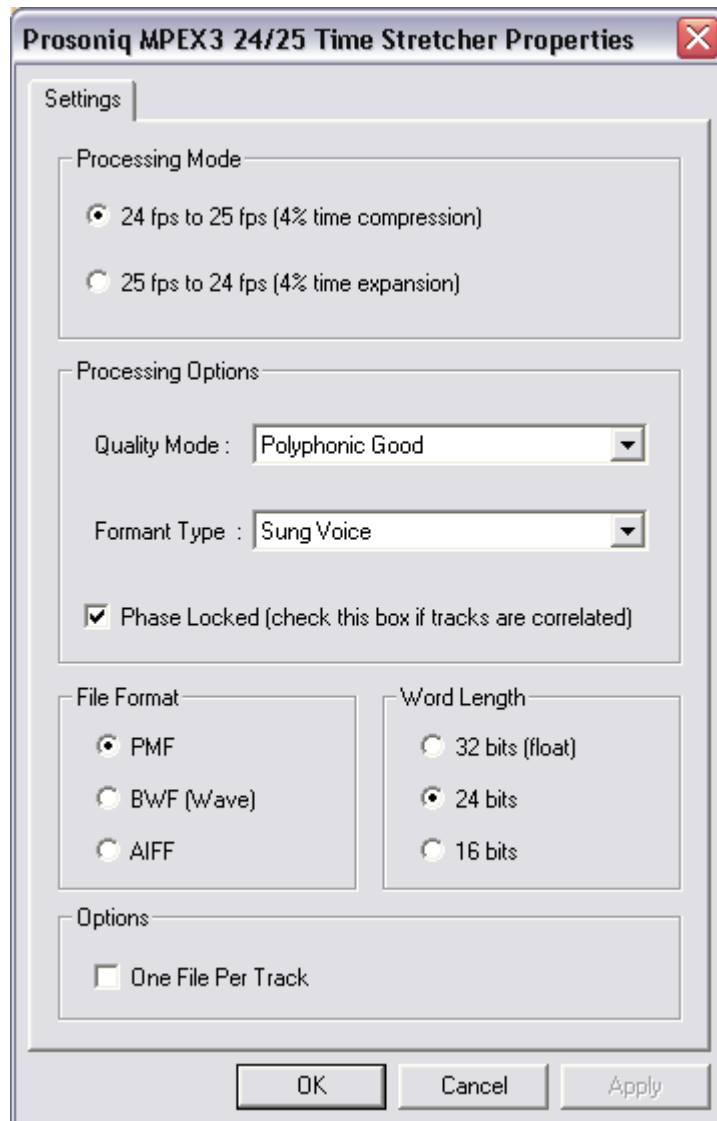
Surround Post-processing

Project > Surround Post-processing opens the **Surround Post-processing** window. Click on **Prosoniq MPEX3 24/25 Time Stretcher** in the list to select it. Makes **Target Settings** as required and choose a **Source Stem** from the list..
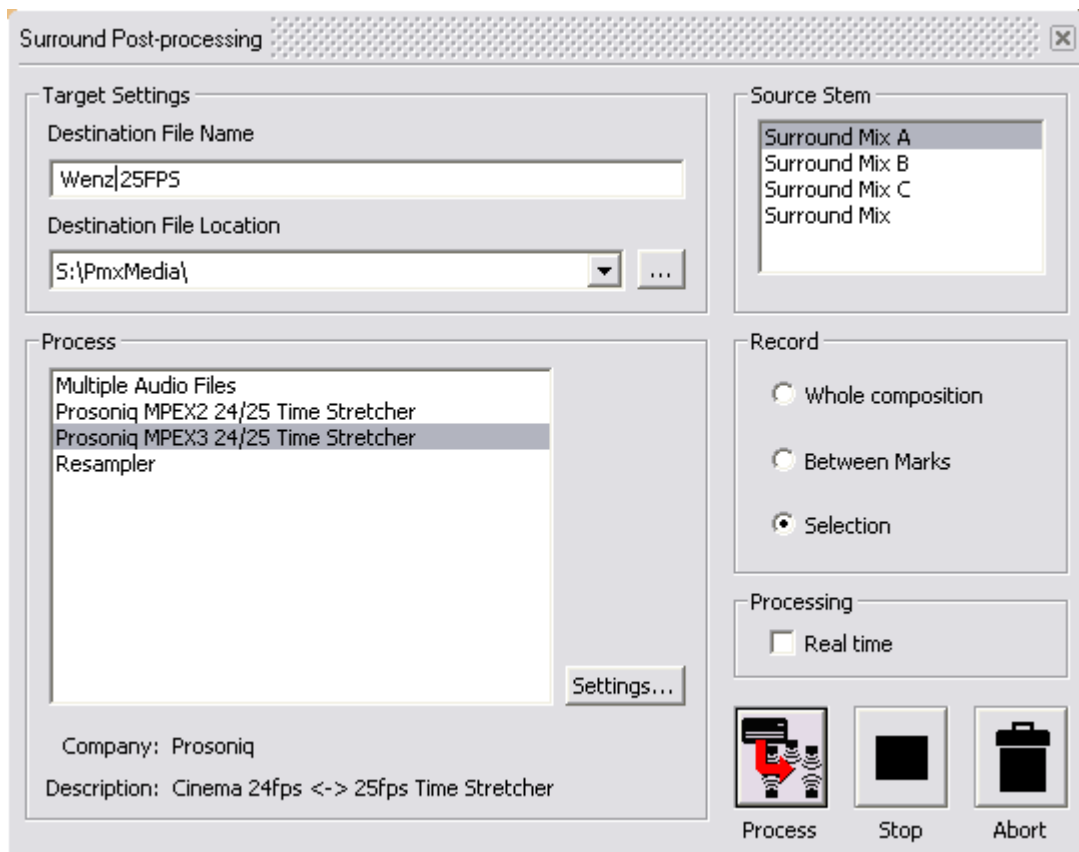
Surround Post-processing dialog

Then click on **Settings...** to open the **Properties** dialog:

Choose the required time-stretch option in the **Processing Mode** section. Make appropriate **Quality Mode** and **Formant Type** selections and check the **Phase Locked** box if the tracks to be stretched are corre-lated. Choose the required output pile options and click **OK** to initiate the process.

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