

Audio in Pictures to Exe

Introduction

In the past the conventional wisdom was that you needed a separate audio editing program to produce the soundtrack for an AV sequence. However I believe that PTE (Pictures to Exe) is now capable of managing this, even for a reasonably advanced sequence.

Audio features have been around in PTE since the very early stages. Looking over previous versions I have installed on my computer, even version 4.47 allowed a sound track made up of multiple audio files back-to-back and had the ability to add audio clips linked to individual slides. Most of the multi-track features I am going to talk about were present in version 6.5, but adjustment was by numerical settings which was not easy. Version 7 added recording capabilities and the ability to drag audio files onto the timeline. However adjustments were still numerical. Finally version 8.0 introduced easy graphical manipulation of audio.

My intention is to encourage readers to explore the audio features in Pictures to Exe version 8. To this end the article is written like a tutorial and to get the most out of it you need to try things for yourself.

The article is divided into four sections. 'Introduction' covers what the article is about and why I have written it. 'Basic features' describes the use of the principal features in some detail. 'Applications' explains how you might use these features in a sequence. 'Advanced features' covers some other aspects very briefly and leaves the reader to investigate further, once they are familiar with the basics.

I am assuming that the reader has a copy of PTE version 8 and has some experience with using it and has some familiarity with audio files and multi-track mixing. There are now two versions of PTE, Essentials and Deluxe. The Essentials version has all the features I am going to talk about apart from volume envelopes. For this you need the Deluxe version.

I strongly recommend you experiment for yourself. To do this you will need three or four short audio files of maybe a minute or two, one of which should be some commentary. Although it is possible to record audio using PTE, the current article will not cover this.

I have tried to use the same terminology as in PTE and be consistent throughout the article. The meaning of the following terms is particularly important.

An audio file is a computer file containing sound.

An audio clip is part or all of an audio file that has been added to the timeline in PTE.

A waveform is the depiction of an audio clip on the timeline consisting of a darker green representation of the amplitude enclosed in a light green rectangle.

Descriptions such as Project Options | Audio are shorthand for the full instruction 'select Project Options then in the resulting menu select Audio'.

Many of the things mentioned in the text are also highlighted in the various figures, so do have a look at these if you get stuck.

Basic features

Adding audio files and tracks

To start with let's add some sound to a project.

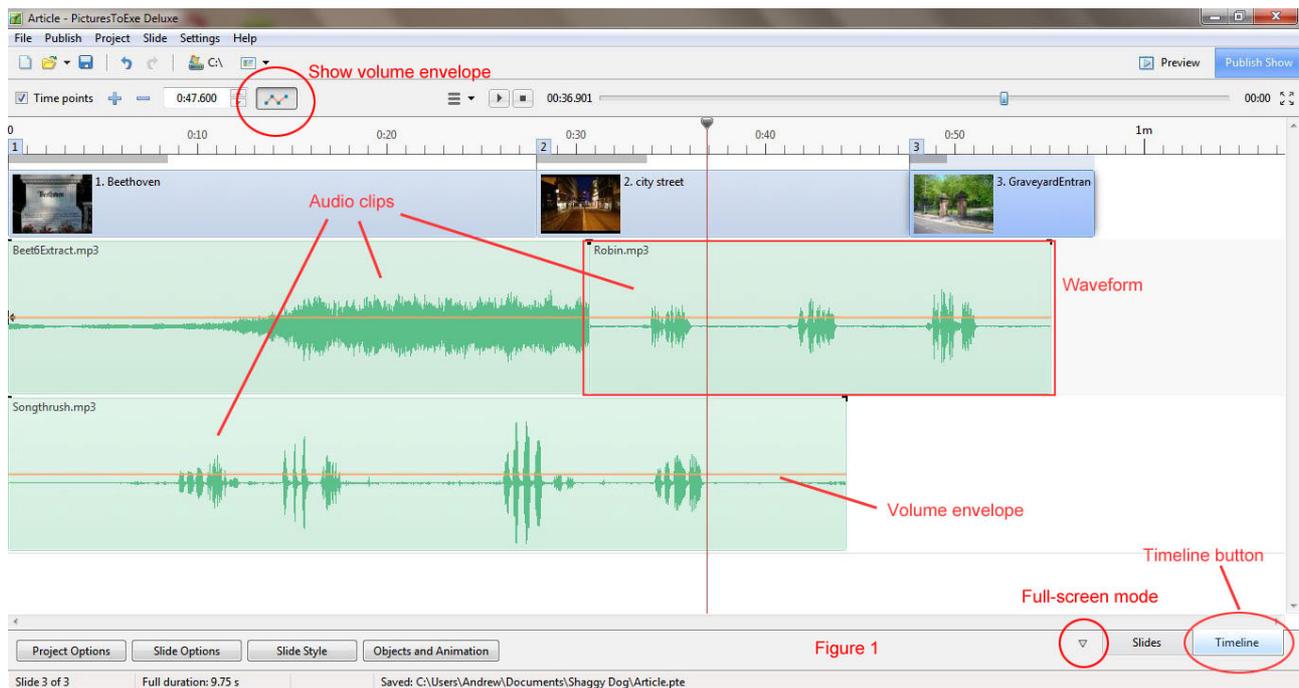
Create a new project, then select Project Options | Audio and click the 'Add audio file' button. Find and select a file and click Open. A track called Track 1 is created and the name of the audio file appears below. Click OK to close Project Options.

On the timeline you should see a waveform representing the audio clip. If not, make sure the timeline button at the bottom right is selected.

Double-click the waveform to return to the Audio tab in Project Options. Add another audio file. This will appear in the same track as the first one.

Click the 'Add track' button and an additional track, Track 2, should appear. Leave Track 2 highlighted and add an audio file. This time it should be added to Track 2. Audio files are always added to the track that is selected.

Click OK to return to timeline view and see the result. There should be two audio clips back to back in Track 1 and one in Track 2 as shown in Figure 1. To view these more clearly, use the techniques described in the next section.



Viewing

To enlarge the timeline window, position the mouse cursor above the timeline itself (see Figure 5) until it changes to a double-headed arrow, then drag upwards. This makes more space to see the audio clips but there is a limit to how far it can be enlarged and the size of the other windows is reduced. A better option is to click the vertical arrow to the left of the Slides button or use the shortcut key F4. This changes the timeline to full-screen mode where it is enlarged fully. This is the mode shown in Figure 1. To change back click the arrow again.

To zoom in and out horizontally, hold the Ctrl key down and press F11 to zoom in and F12 to zoom out. Alternatively roll the mouse wheel while holding down the Ctrl key. There is a subtle but important difference between these two methods. Using the keyboard, the zoom expands and contracts about the time that is currently at the centre of the window. Using the mouse, the zoom is centred on the current position of the mouse cursor (not the red timeline cursor). The mouse method is therefore easier when trying to zoom in to a particular point in the waveform.

If you want to increase the height of the waveforms, roll the mouse wheel while holding down the Ctrl and Shift keys.

These techniques, together with the horizontal and possibly vertical scroll bars should allow you to see any part of the audio in sufficient detail.

Listening

Even more important than viewing is listening. Although you have added some audio files, you will not be able to play them until there are also some slides in the project. Therefore add two slides, one at the beginning and one at the end of, or beyond, the rightmost audio clip. You will not be able to do this if the timeline is in full-screen mode.

Once this has been done, click in the timeline to position the redline cursor to a particular time, then press the space bar to start playing. Press it again to stop.

Multi-track mixing

After adding slides as described above, play from roughly the beginning of the timeline. If you have followed the instructions above regarding adding files you should have two audio clips one above the other in different tracks. When you play in this area you should hear a mix of both tracks, as you expect from a multi-track mixer.

When making adjustments this mixing can make it difficult to hear the track you are working on. To overcome this, other tracks can be muted by right-clicking them and selecting 'Mute Track'. An icon appears at the top right of the corresponding track area to indicate this.

Moving audio clips

Change to full screen timeline view (F4) then zoom out and use the scroll bar until you can see the whole of the audio clip in Track 2.

Position the mouse in the waveform and drag to the right and you will adjust the position of the audio clip within the track. Dragging up or down moves the audio clip to a different track. Note you cannot have an empty track so, for instance, you cannot drag a clip down from Track 2 to Track 3 if this would leave Track 2 empty.

Rather than going through Project Options as we did, you can also use dragging to add audio files. Simply make sure you are in normal timeline view and the file window is showing the audio files as shown in Figure 5. Then drag a file down into the track area which is initially identified by the caption 'Add audio files from a file list above'. Tracks will be created automatically to contain the files.

Removing clips and tracks

When viewing the timeline, remove an audio clip by right clicking a waveform and selecting the option 'Remove Audio Clip'. The audio file itself is unaffected. Another option 'Remove Track' removes the track and all audio clips in it. If you accidentally do this, use Undo to recover the track.

From the Audio Tab of Project Options you can remove clips and tracks by selecting either an audio file name or track name and clicking the red-cross icon followed by the OK button to close Project Options.

Trimming audio clips

To adjust the length of an audio clip, drag one or both ends. The original audio file is unaffected. PTE simply ignores the sections that are not included in the waveform.

Doing things numerically

Double-click one of the waveforms to open the Audio tab. In the track list on the left, the audio file corresponding to the audio clip is highlighted. On the right of the tab are a series of numerical settings for this clip. The ones we are interested in at the moment are labelled Offset, Start time and Duration and are in minutes, seconds and decimal of seconds as shown in Figure 2.

Offset is the time between the beginning of the audio clip and either the start of the track or the end of the previous audio clip in this track. If the audio clip is linked to a slide (see later) the offset is the time between the beginning of the slide and the beginning of the clip.

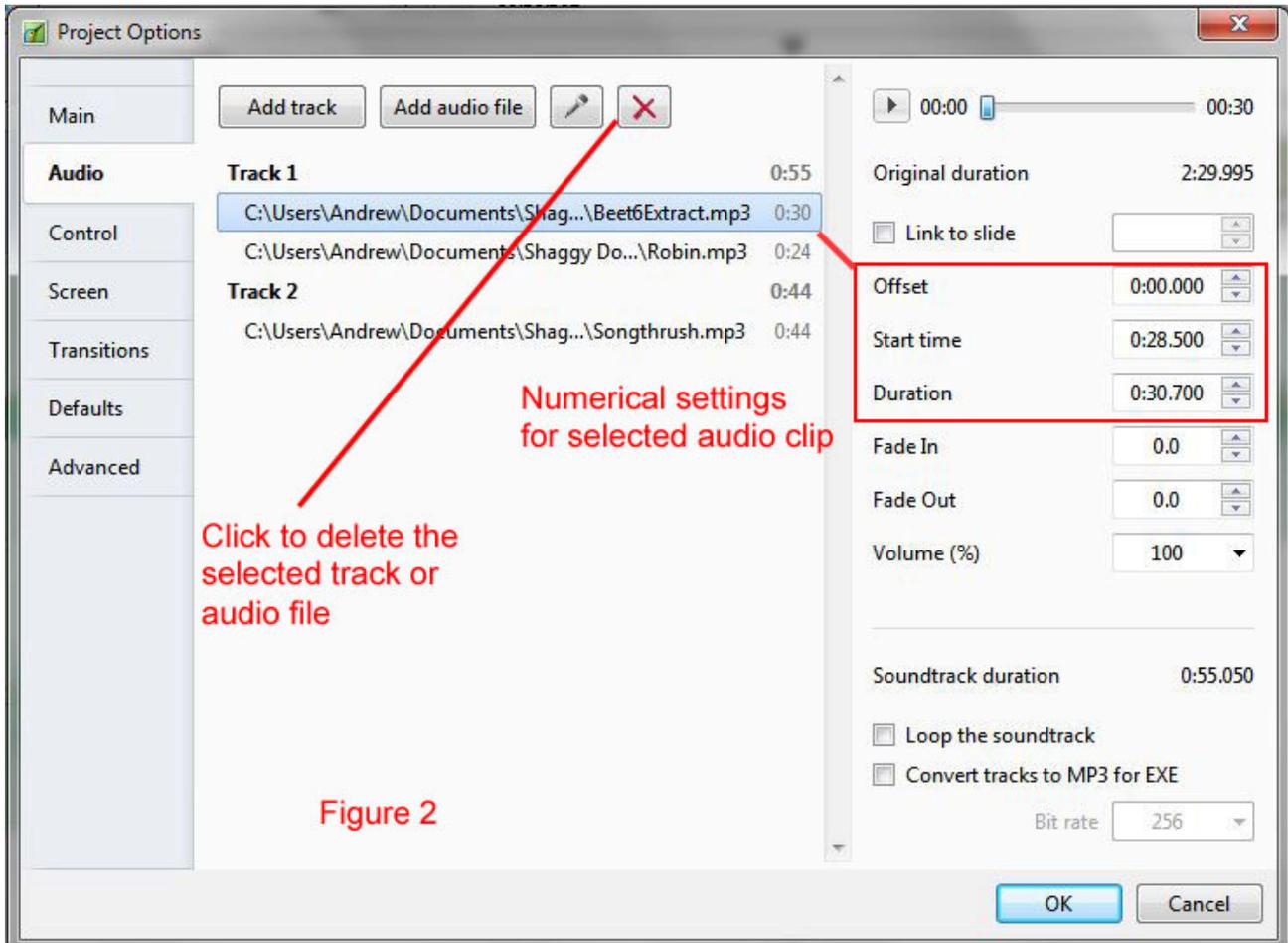
Start time is measured from the beginning of the original audio file and determines when to start playing the audio.

Duration is the length of the audio clip, the section of the file we want to hear. For reference the length of the complete audio file is shown as Original duration.

When you drag the audio clip the offset value is adjusted automatically. Adjusting the left end of the clip changes both start time and duration whilst the adjusting the right end changes duration only.

Conversely it is possible to set these values directly by typing a value in the box. This can be useful to accurately align two audio clips. However don't worry too much about these settings as the big advantage of PTE version 8 over previous versions is that they can be adjusted graphically.

To see the settings for another audio clip, just select its file name in the list on the left.



Fade in and out

On the timeline look closely at the top corners of the waveform and you should see two 'angle' markers. By dragging these into the body of the waveform you can create a fade in or out. Try this and listen to the result. As you drag the marker, the length of the fade in seconds is displayed. In Figure 3, a fade out is highlighted.

Add two audio files in different tracks. By dragging the angle markers, create a fade out on one and a fade in on the other. Then position the audio clips in different tracks so the fades overlap, and listen to the resulting cross-fade.

Cross fade

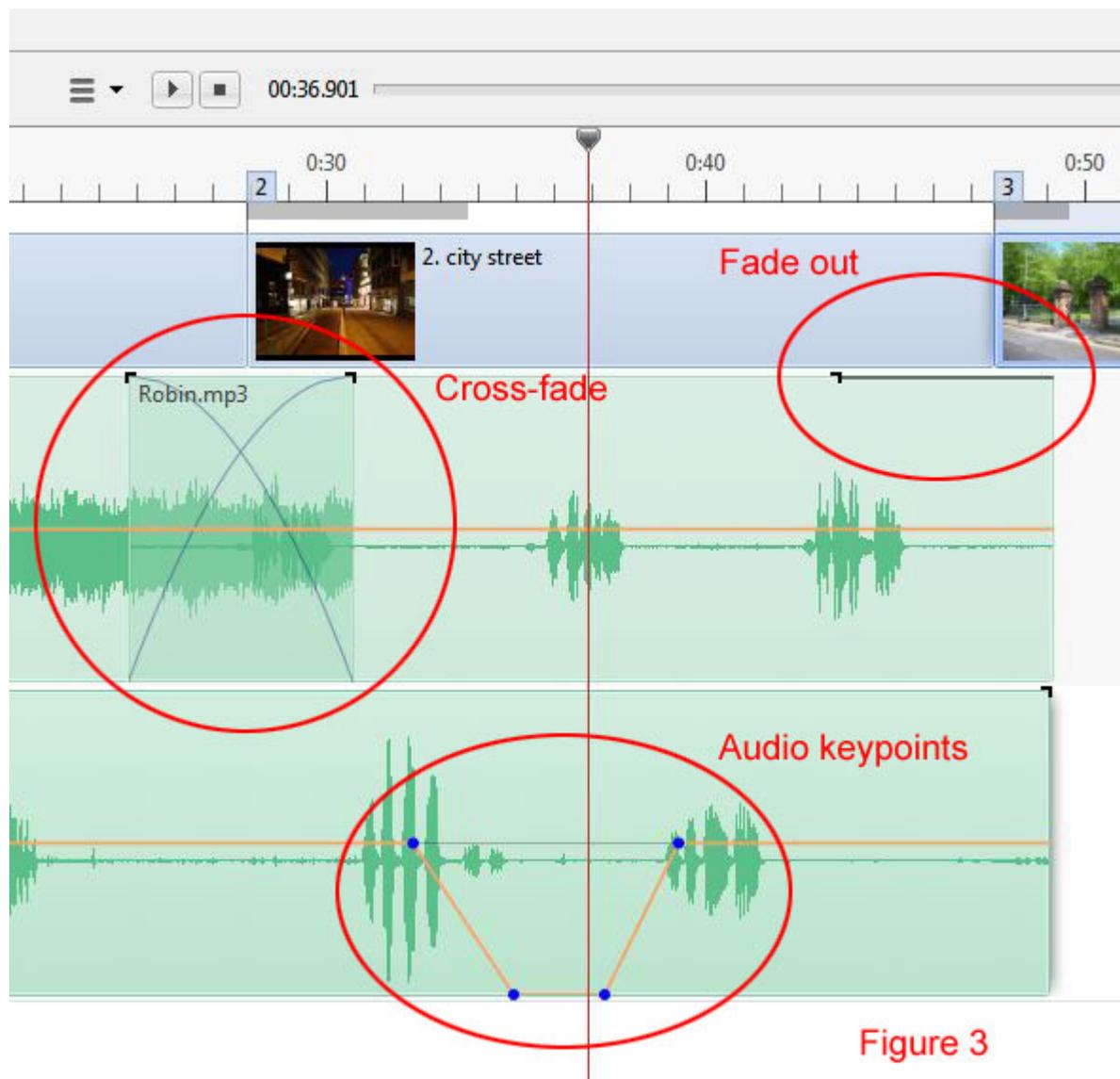
There is an even simpler way to create a cross-fade.

First remove the fade in and fade out. You can do this by dragging the markers back to the corners of the waveform.

Alternatively, as an exercise in using the numerical settings, double click one of the waveforms. Look at the settings on the right hand side and you should see two boxes labelled Fade In and Fade Out. The values in the boxes are simply the length of the fade in or out in seconds. To remove the fade, change the setting to 0. As with virtually all the settings in PTE, an even quicker way to do this is to click the description 'Fade In' or 'Fade Out'

Once you have removed the fade in and fade out, drag the audio clips so they are in the same track one after the other. Now drag the right-hand clip to the left so that it overlaps the left-hand one. In the overlapping region two curved lines appear representing the fading out of one clip and the fading in of the other as can be seen in Figure 3. Play from just before the overlap and listen to the result.

The effect can be quite successful, particularly if you also adjust the ends of the two clips. However for critical cross-fades it is better to use volume envelopes.



Volume envelope

The volume envelope allows the volume of an audio clip to be varied as it plays. It is represented by a line across the middle of the green waveform outline. By default the line is orange. If you can't see the line, click the Show/hide Envelope button that has an orange zig-zag on it.

Point to the envelope line until a circle appears at the tip of the cursor arrow, then click to create an 'Audio keypoint'. Create three more fairly close together then drag the inner two down to the bottom of the waveform outline as shown in the lower part of Figure 3. Play this section to hear the result.

The keypoints set the volume at that particular time. If the keypoint is at the centre of the waveform outline, the volume is 100% of the clip volume, if at the bottom, 0% and at the top, 200%. The volume in between is adjusted linearly as shown by the orange line.

To remove a keypoint, right click it. Right click the waveform and select Clear Audio Keypoints to remove all keypoints.

I prefer to see both halves of the audio waveform when adjusting volume envelopes. To change this go to Settings | Preferences and click the Timeline tab. Then change the Waveform setting to 'Mixed channels'.

Audio clip volume

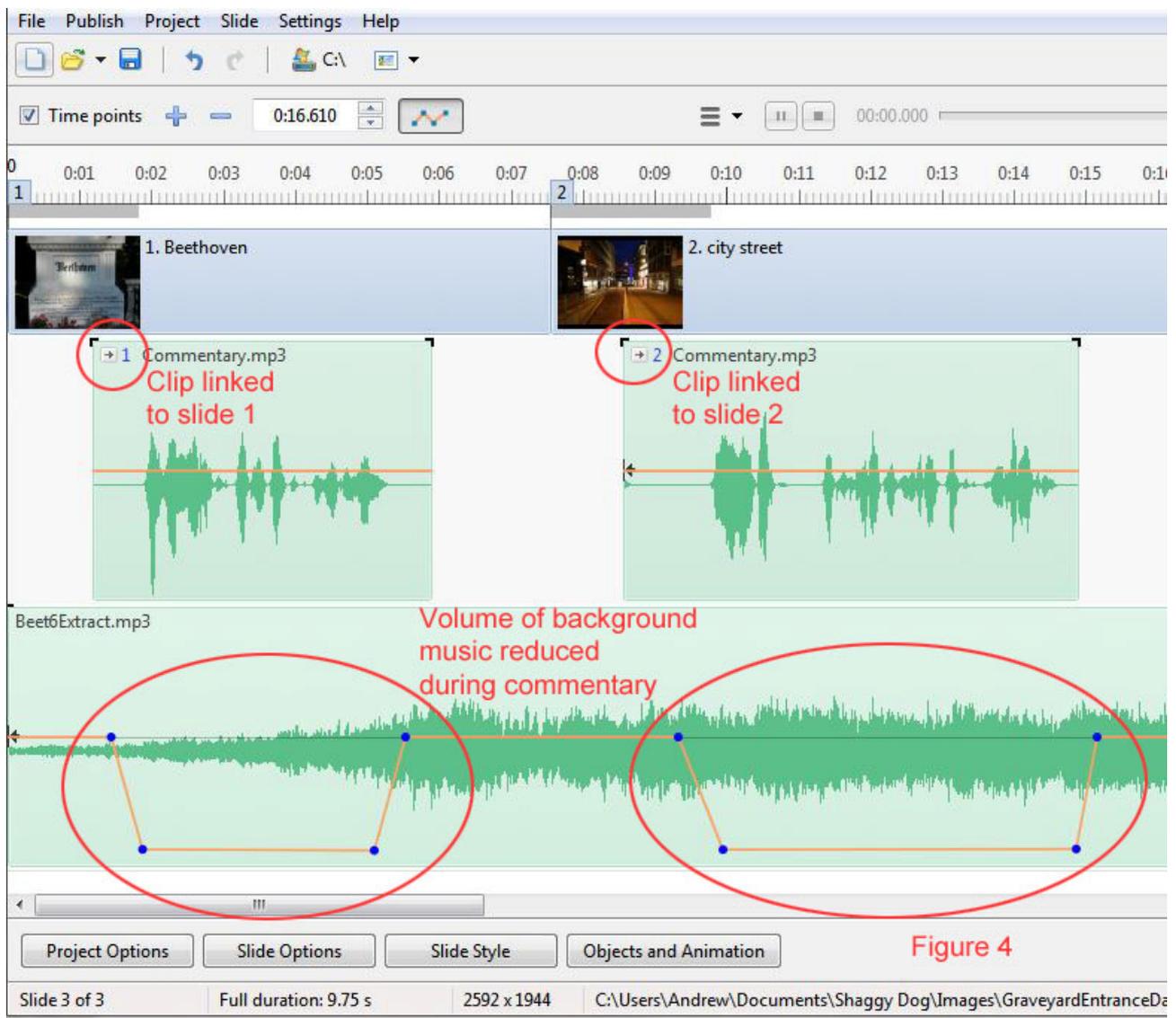
The volume of each audio clip can be individually adjusted. Double-click on the waveform to go to audio settings and then adjust the Volume setting on the right. Either type a value into the box or click the little arrow at the right and drag the slider. Note that this volume setting applies in addition to any volume adjustment by the envelope.

Linking

An audio clip can be linked to a slide so that when the slide is moved on the timeline, the audio clip also moves. However the audio clip can be moved relative to the slide without the slide moving. The best way to understand this is to try it.

Make sure you have three slides and an audio clip on the time line. Shorten the audio clip by dragging its ends until it is about five seconds long. Position it roughly underneath the second slide.

Select the second slide by left clicking. Right click the audio clip and then left click on the option 'Link Audio Clip To Slide 2'. The clip is now linked to slide 2 and an arrow and the number 2 appears in the waveform to denote this, as shown in Figure 4. Experiment by moving the slide and then moving the audio clip and listening to the result.



Another way of linking a clip to a slide is from the Audio tab. Double-click on a waveform to open the Audio tab with the corresponding wave file already selected. Check the 'Link to slide' checkbox in the settings on the right and then select or enter the slide to link to. A slide can have more than one audio clip linked to it, but not vice versa.

Bear in mind that when a linked audio clip moves due to the associated slide being moved then any **unlinked** audio clips to the right in the same track also move. If this is a problem then reserve one audio track for linked audio clips and make sure all audio clips in this track are linked.

Note also that if you delete a slide with linked audio clips, the audio clips are also deleted.

Applications

Starting on time

Synchronising the start of the music with the appearance of the first slide in a sequence creates a good first impression and is very easy to do. To adjust the point at which the music starts, drag the whole audio file right to increase the delay or left to decrease it. If the delay can't be reduced sufficiently because the left edge of the audio file hits the edge of the window first, drag the edge of the audio file to the right before dragging the whole file.

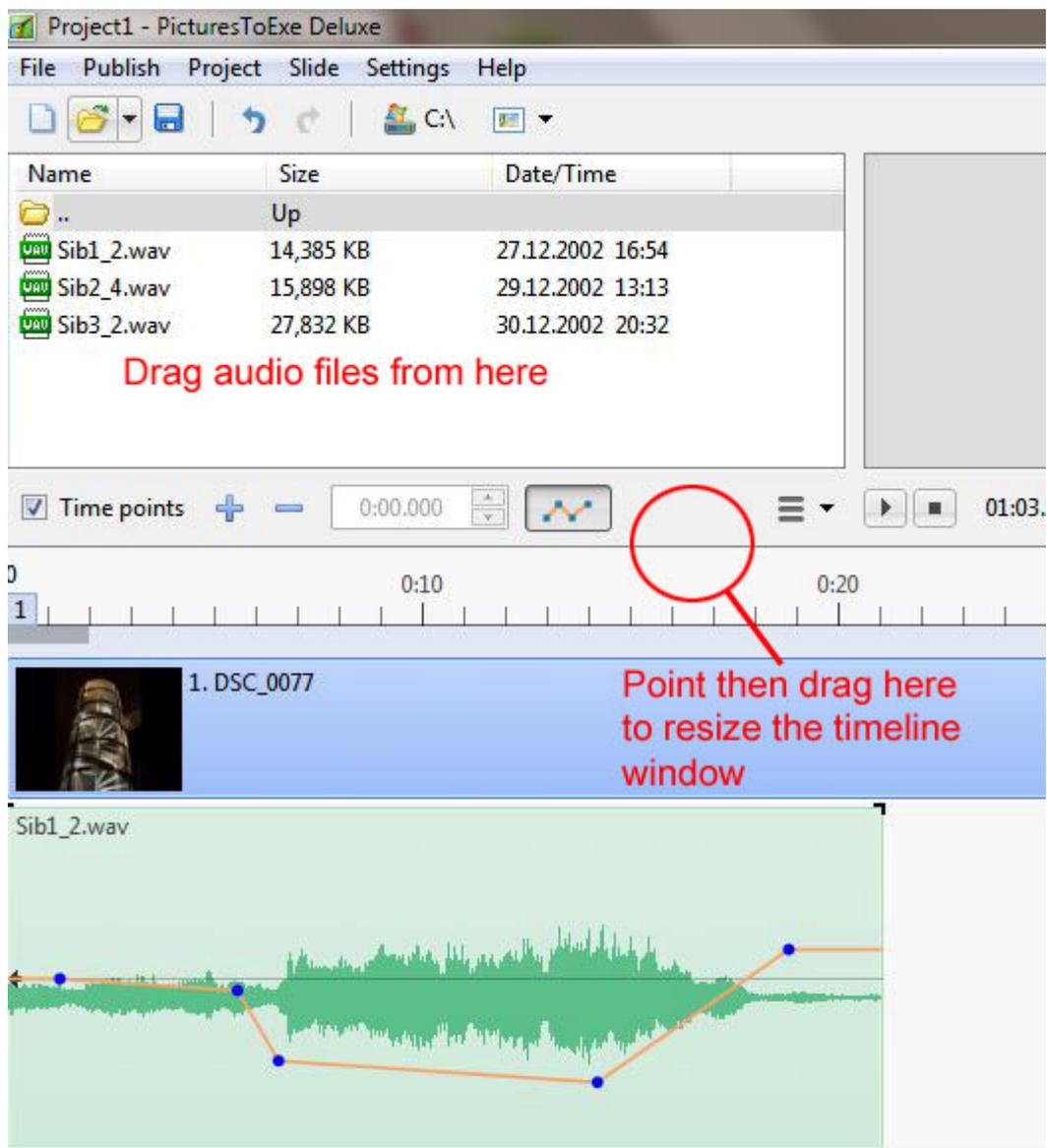
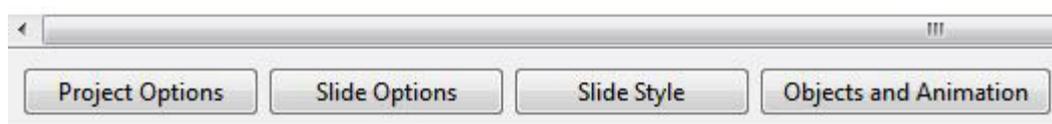


Figure 5



Adding sound effects

An example of this might be adding an appropriate bird call to a particular slide. Find a suitable recording containing the call. Don't worry if there are extra sounds in the file. Add the audio file to the timeline and then adjust one or both ends of the clip until just the section you are interested in remains. Adjust the volume of the whole clip or use the volume envelope if some parts need to be adjusted more than others. Then link the clip to the relevant slide so that if you move the slide the sound effect stays with it.

Dynamic range reduction

Finding the correct level for background music so that it doesn't drown out a commentary can be surprisingly tricky.

If the volume is fairly consistent throughout the piece of music, then the overall level of the audio clip can be reduced. Even this is not straightforward, as what sounds acceptable on home speakers can seem too loud when played to an audience.

However if the volume varies widely, as in most classical music, then you need to resort to a volume envelope as well. The idea is to create an envelope that reduces the louder parts of the music while maintaining the volume of the quieter parts. The envelope should end up looking roughly the same shape as the lower half of the dark green part of the waveform representing the original amplitude. Figure 5 should make this clear. When the music alone is played, there should be little discernible difference throughout the piece. The overall level of the audio clip can then be adjusted as necessary.

Adding a commentary

The method I use to add a commentary to a sequence is as follows. It may seem long-winded, but once set up, it does allow easy adjustment of the timing of the slide transitions.

Record the commentary with pauses between the comment for each slide. If you make an error, pause, then repeat the whole of the comment for that slide.

Save the commentary as an audio file. If it is a long commentary, record it in a number of shorter sections about 4 minutes long.

Open the PTE project. The slides should already have been added but no audio. In Project Options add two tracks.

In normal view make sure you can see the commentary audio files in the file list window (top left). Also make sure the timeline window is big enough to see the first two tracks and the slides.

From the menu bar select Settings | Preferences and then the Timeline section. Select 'Mixed channels' for the waveform view.

1. Drag the commentary file into Track 2 and reduce its size at either end so that it includes just the comment relevant to the first slide. Look at the waveform to see roughly where the pauses are, and then play to confirm.

2. Drag this clip to Track 1 and position under the relevant slide. Left click the slide, then right click the audio clip. There should be an entry in the menu that says 'Link Audio Clip to Slide n'. Select it.

Repeat steps 1 and 2 for the remainder of the slides. The procedure is a lot quicker if you adjust the time span of the time line so that the whole length of the commentary file can be seen at once.

As the comments are linked to the slides, you can adjust the position of the slides and the comments will move with them. Remember that any **unlinked** audio clips to the right of the one that moves will also move. The position of the comment with respect to the slide can be adjusted by dragging the audio clip.

When you are happy with timing, add the background music to Track 2.

Either use volume envelope to lower the background music during the comments or lower the volume of the whole track so it does not overpower the commentary as described in 'dynamic range reduction'

Figure 4 shows the final result for the first two slides.

Advanced features

A few of the more advanced audio features of PTE are covered briefly below. You will probably discover others for yourself.

Miscellaneous

The colours used for the graphical display of audio clips on the timeline can be customised. Select Preferences and then the Timeline tab and look at the section called 'Color of audio clip'. One useful change is to make the colour of a selected wave a slightly darker shade of green.

Tracks can be locked by right-clicking the track in the timeline view and selecting 'Lock Track'. Audio clips in locked tracks cannot be moved by dragging them. However if they are linked to a slide they will move if the slide is moved. They can also be moved by changing the Offset time for the audio clip on the Audio tab of Project Options.

When dragging audio keypoints on the timeline, the volume indication can be shown in dB rather than %. The choice is made in the 'Sound volume' combo box on the Timeline tab of Preferences.

Convert tracks

On the Audio tab of Project Options at the bottom right is an option 'Convert tracks to MP3 for EXE'. If this is checked, then when the final exe file is created the program first performs a mixdown of all the tracks into a single mp3 format file. This is then incorporated in the exe file. The quality of the mp3 file is determined by the 'Bit rate' selected in the nearby combo box.

More details of the effect of this option are as follows.

If this option **is not selected**:

1. Even if only a short clip from a sound file is used, the whole sound file will be incorporated in the exe file.
2. Using multiple trimmed clips of the **same** sound file will only result in a single copy of the whole sound file in the final exe file.
3. Silent parts of the sound track do not take up any space in the exe file.

If this option **is selected**:

1. Only the selected clips of the sound files are incorporated in the mp3 file in the exe file.
2. Silent parts of the sound track are also converted and take up space.

Therefore a commentary recorded as one file and clipped into multiple sections in Pictures to Exe (as described in the Adding a commentary section) will not take up any more space than the whole commentary inserted as one file whether or not "Convert tracks to MP3 for EXE" is checked.

If the commentary was an mp3 file originally and there are significant silent gaps between the clips then selecting "Convert tracks to MP3 for EXE" may increase the size of the exe file slightly!

If only a short clip of a sound file is used in the sequence then selecting "Convert tracks to MP3 for EXE" will probably reduce the size of the exe file as only that section will be incorporated in the mp3 file, but bear in mind the comment about encoding silence.

If any wav files are used, selecting "Convert tracks to MP3 for EXE" will certainly reduce the size of the exe file due to the compression on converting to MP3.

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Check <http://www.ypicc.uk/resources.html> for the latest version of this article.

I would welcome any comments or corrections. Contact me at ajc@neweng.freemove.co.uk

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