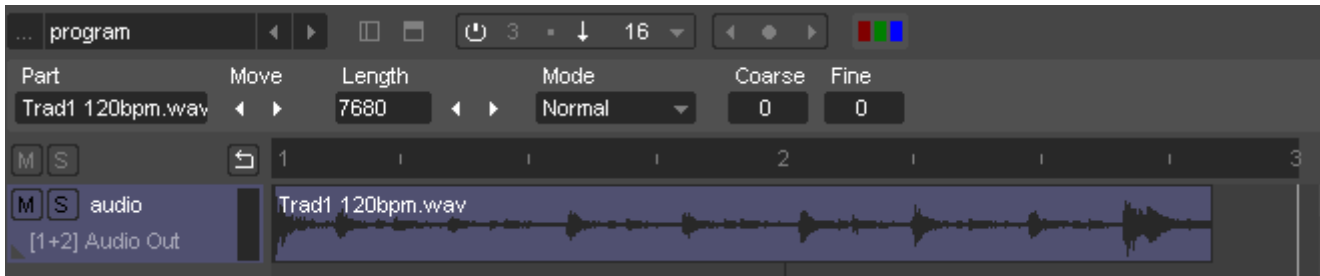


Time-Stretching

Élastique Audio is an algorithm for time-stretching audio from Z-Plane which is sold as an SDK for developers to integrate into their own projects. XT2 has integrated an Élastique Audio algorithm into the XT2 engine to make time and pitch independent in audio files. The power of this functionality is accessible to the user within the audio tracks of the sequencer component.



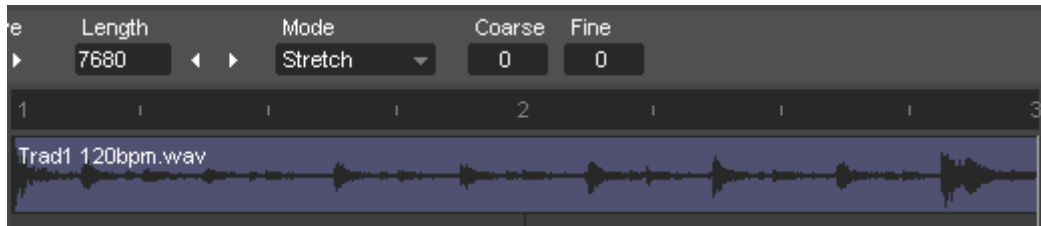
The screen above shows a 2 bar drum loop that was recorded at 120BPM. However, the project tempo is 110BPM. This mismatch makes it difficult to use this loop in the project. There are options, such as using a beatslicer to cut the file into smaller chunks and trigger those chunks by midi notes at the project tempo, but it would be so much simpler if we could drag the clip to the desired length and the loop would play back at the appropriate tempo. This is the control XT2 gives with its implementation of Élastique Audio.



When the audio file is selected the top of the track window has a few familiar properties such as **Part** to store the name and the **Move** and **Length** controls. However, to the right of these is a drop down called **Mode** which has three options.

- **Normal** - this is the default setting of an audio clip in the sequencer and it means that the clip will always play back at the same tempo and same pitch.
- **Re-pitch** - this allows time-stretching of the audio file. However, it does not separate pitch from tempo meaning that if the clip is shortened to become faster, the audio will rise in pitch accordingly. And likewise, lengthening the clip will lower the pitch.
- **Stretch** - this option allows the time-stretching of audio clips independent of pitch. In this way you can speed up or slow down a clip without affecting the pitch of the audio.

To stretch/resample to tempo, select the appropriate mode, **click-drag** the length of the clip or use the **Length** controls at the top of the track window. It's as simple as that.



The above image shows the original 2 bar audio clip "stretched" to match the tempo of the main project. Playback will occur at the project tempo of 110BPM but the pitch will remain the same.

Additional to the timestretching abilities in XT2, there is also the ability to change the pitch of a given audio file dependently or independently of tempo. To the right of the playback **Mode** in the object bar are the fields **Course** which changes pitch by semitone and **Fine** which changes pitch by cents. A single left mouse button **click** will allow the fields to be edited. Alternatively, a vertical **click-drag** will increment or decrement the values in each field.

If the playback mode is **Normal**, altering the pitch will also alter the tempo. However, if the playback mode is **Stretch**, pitch alteration will be independent of tempo. The option to change the pitch of an audio part is not available when the **Re-pitch** mode is active.

Note: The quality of this time-stretching functionality is very good. However, it must be understood that regardless of its quality, time-stretching like this has its limitations. The further you stretch - particularly when slowing down audio - the greater the artifacts introduced making the functionality viable only to a point. This is the same in any time-stretching implementation and is not specific to XT2. On the other hand, the artifacts introduced in stretching as well as the pitch changes when using the **Resample** option could be desirable depending on its application.