

# ***ProSound manual***

Hard Disc Recording  
sound editing and Audio Processing  
Oregon



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# 1. Specification Overview

- ProSound is a fully integrated hard disc recording, sound editing and audio processing suite, The extendable modular design of ProSound allows it to be tailored to the users own application.
- ProSound utilises a fast virtual memory system making it possible to edit enough audio to fill a typical audio CD, using just a 4Mb machine.
- ProSound offers an eight track mixing desk. Each track may be assigned somewhere between the left and right stereo positions, at varying volume levels. The tracks are then mixed in real-time when the project is played.
- ProSound is able to import and export most industry standard audio file formats, as well as the familiar Acorn native formats. thus solving any platform portability problems.
- ProSound offers a comprehensive portfolio of audie effects and processing options, permitting flexible manipulation of audio samples, Tools such ax bandpass filters, and frequency unulynis diagrams may be used to improve sample quality, whilst special effects may be utilised for the production of a synthesized sample.
- ProSound supports multiple projects, to allow editing to take place on several different projects simultaneously, just us you would expect a desktop publisher to allow you to edit multiple documents and move data around between them.
- ProSound enables many of the currently available audiv capture cards to record directly to disc, and so recording duration may be virtually unlimited.

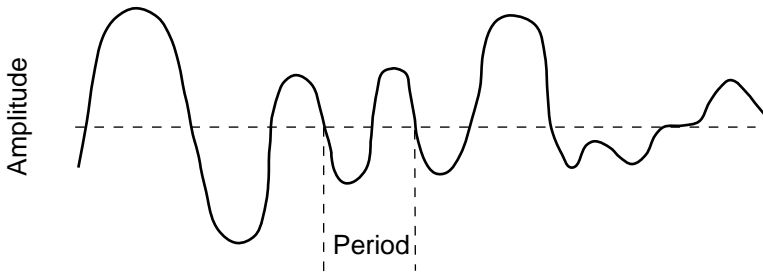
## 2. Basic Principles

For the novice user, we will begin with a description of some of the basic terminology and principles behind digital audio samples, and digital audio in general.

### Digital Audio Samples

A digital audio sample is a file containing digital audio data which is suitable for storage and playback by a computer. An audio sample is normally captured using a piece of hardware called an audio sampler,

An analogue audio waveform is generated by musical instruments, human speech, etc. This waveform is continuously changing, in terms of its amplitude, and its period.



Analogue audio Waveform.

The amplitude of the waveform affects the volume of the sample, the larger the swing between the positive and negative amplitude, the louder the sound will be.

The period of the waveform affects the pitch of the sound, the smaller the period the higher the pitch.

Computers are unable to directly manipulate analogue information so an Analogue to Digital Converter (ADC) is used to convert the waveform to a digital format which can be understood. Audio sampler hardware contains an ADC which takes snapshots of the analogue waveform at specified intervals, and stores a digital value for the amplitude of the waveform at each sample point.



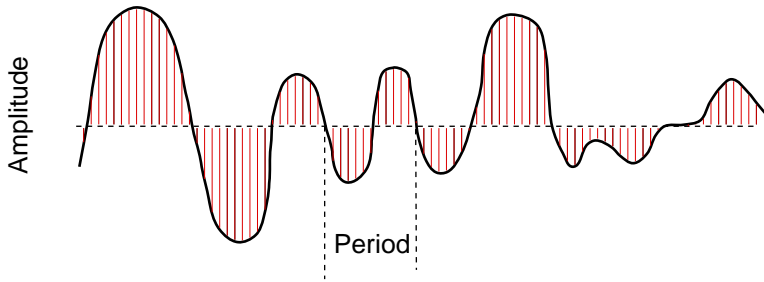


Illustration of audio sampling

## Audio Sampling Frequency

It therefore becomes apparent that the more frequently a snapshot is taken, the closer the sampled data will represent the original analogue waveform. The frequency of the snapshots is measured in Hertz (Hz), digital audio CD's are recorded at a sampling frequency of 44.100 Hz which means the analogue audio waveform has been sampled 44.100 times per second.

However, the down side of a high sampling frequency is that more memory is required for storage, and so the sampling frequency should be chosen carefully depending on the application.

## Audio Sample Formats

There have been many file formats defined by software producers for the storage of digital audio samples, common examples on the RISC OS platform are Armadeus and AudioWorks, However on other hardware platforms the list is more exhaustive, popular choices being Microsoft Wave (WAV), and Creative Voice (VOC).

However, many of these different formats generally just offer a slight rearrangement of the data, although some of the more advanced formats offer compression capabilities. The actual audio data will still take the form of one of the following formats.

### Linear Signed

Each digital sample snapshot is given a value between 0 and 127 for positive waveform amplitudes, and 0 and -128 for negative waveform amplitudes. Therefore there are 256 possible sample values.

## Linear Unsigned

Each digital sample snapshot is given a value between 128 and 255 for positive waveform amplitudes, and 128 and 0 for negative waveform amplitudes. Therefore there are 256 possible sample values, (For any 8 bit sample)

## Logarithmic

This has in the past been the native Acorn format, all sample values are allocated on a logarithmic scale, which is closer to the natural response curve of the human ear, For an 8 bit sample this subjectively results in a better quality sound.

## uLaw Logarithmic

This is very similar to the Acom format, and is common place for Sun workstations. The data is presented using a 2's complement system,

## Bits Per Sample

For linear signed, and linear unsigned data, we said that the sample data may be assigned any of 256 different values. In fact this is only true if the format is 8 bit, if the format is 16 bit the data will be assigned any of 65,536 values. This means that the sample data will be more precise, but again at the expense of additional storage space.

16 bit samples are now becoming the standard, but there is no real advantage in using 16 bit formats if your hardware is not able to playback these formats to full effect,

## ADPCM

The ADPCM sample format is a special case, permitting 16 bit samples to be compressed to 4 bits and decompressed in real-time. This format is commonly used for digital audio visual purposes to minimise the audio sample file size.

## Mono and Stereo

To achieve stereo sound, two recordings are made of the same sound source. one from the left and one from the right of the source. These recordings are then played through the left and right stereo channels to retain the stereo effect.

## Oversampling

This is a technique where samples are played at two or more times the intended sample rate, but each sample is repeated enough times to give the actual sample rate required. This has the effect of improving the playback quality of audio sampled at low frequency.

This technique is used by the 16 bit sound card software of a Rise PC. Samples of frequency less than 25kHz are oversampled, and a technique called fractional interpolation is used to smooth over the jumps in the repeated data, removing noise introduced by the oversampling.

## Introducing the dB

The bel is named after Alexander Graham Bell, and is defined as the common logarithm of the ratio of two power levels  $P_1$ , and  $P_2$

The Ratio X Bel ( $B$ ) is thus given by: 
$$X_B = \text{Log} \left( \frac{P_2}{P_1} \right)$$

A positive value of  $B$  represents a power gain, whilst negative value represents a power loss, with zero for no change.

The bel is quite a large unit in terms of electronic quantities, and so a smaller, more convenient unit called the decibel is used, having magnitude of  $\frac{1}{10}$  B.

The decibel ( $dB$ ) is thus given by: 
$$X_{dB} = 10 \text{Log} \left( \frac{P_2}{P_1} \right)$$

## 3. Getting Started

### Requirements

ProSound will run on any Acorn machine equipped with « hard disc, 2Mb of memory, RISC OS 3. and ARM 3 or better. ProSound will make use of dynamic memory allocation of Risc PC machines, whilst using RMA on older machines.

### Installation

Please follow the separate installation guide supplied with this package, carefully, to install ProSound on your hard disc.

### Registration

Please be sure to return the registration card supplied with the package. this qualifies you for upgrades and free technical support.

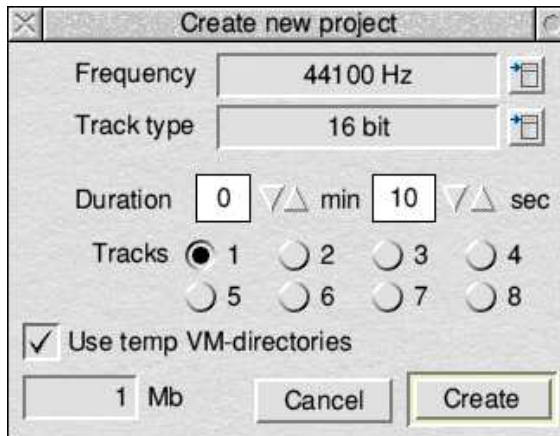
### Simple Tutorial



Once ProSound has been installed on your hard disc as described in the separate installation guide, double click on !ProSound, to run the application. The ProSound icon will appear on the iconbar.

### Creating a new Project

To create a new project, click the ProSound iconbar icon with Select, The Create new project window will open. This allows the playback frequency and duration of the project, as well as the number of tracks to be used within the project to be selected.



Create now project window

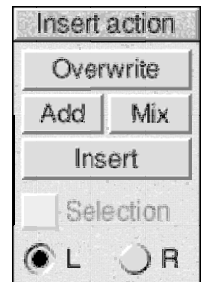
At any time after creation, the playback frequency, duration, and the number of tracks in the project may be altered, so if your needs change there will be few restrictions later on.

Select one track. leave the other settings unaltered und click Create, The new project will be created on disc and the main Prosound Project edit window is opened.

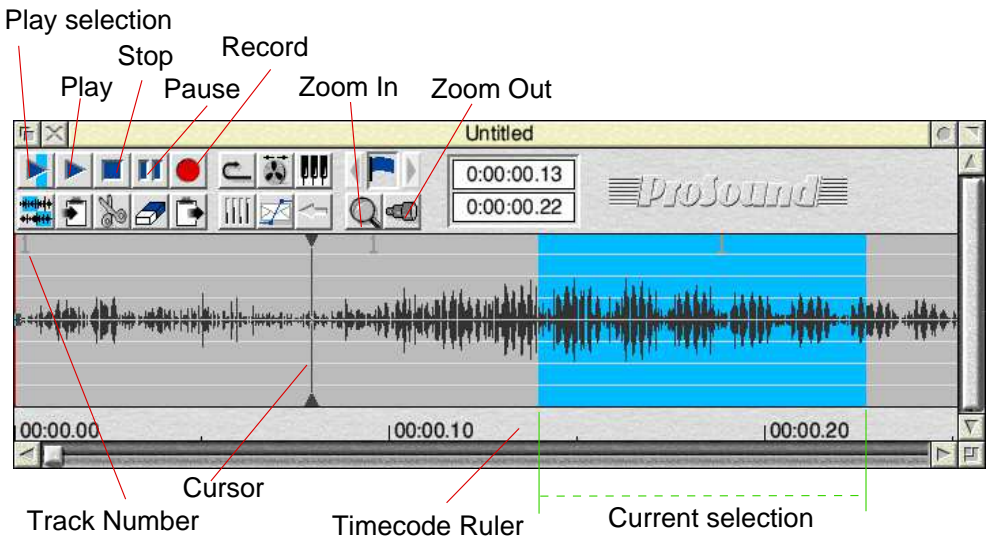
## The ProSound Edit Window

The Project edit window does not contain any waveforms at the moment, so drag an audio sample file to the window to insert it onto the track. We suggest you use one of the audio samples provide on the resource disc supplied with the package.

A small Insert action window will be opened, this allows samples on the same track to be mixed and overlayed, but for now choose the Overwrite action, this will normally replace any audio data that is currently on the track.



The waveform of the audio sample will now be displayed in the Project edit window. You can now play this sample by clicking the Play button



ProSound project edit window with a now waveform



Clicking the Zoom in and Zoom out buttons allow you to view more or less of the waveform.

## Making a Selection

A selection of the audio waveform may be made by dragging Select inside the Project edit window. The selected area is shown in cyan. The current selection may also be adjusted by dragging or clicking with Adjust.



Clicking the Play Selection button will now only play the part of the audio waveform which has been selected. Any other operations performed will now only apply to the selected area of the waveform.

## Cutting and Pasting with the Clipboard

ProSound uses a virtual clipboard system, for cutting and pasting parts of the waveform at different places within the project, or between other projects.



Make a selection in the Project edit window, then press the Copy to clipboard button. This marks the currently selected area as the current contents of the clipboard.



Now move the cursor to another place in the project, before or after the current selection. Press the Paste from clipboard button, and a small Paste options window will be opened.

This window allows you to either Overwrite, Add, or Mix the contents of the clipboard with the waveform already at the position of the cursor.



Alternatively you can choose the Insert option to create a new space at the position of the cursor, large enough to insert the contents of the clipboard.

You may like to experiment with the different paste options to get a feel for how they work. Play the project each time to hear the effect on the waveform.



Now make a new selection in the project, and then click the Cut button. This will completely remove the current selection from the project, and delete the space which it previously filled. You may want to do this after copying a selection elsewhere.



The Erase button will rub out the waveform that is covered by the current selection. This will result in silence in that part of the project.

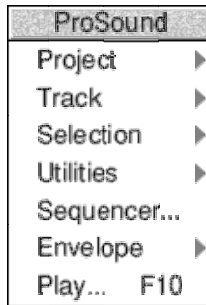
## How to Undo a Mistake



Almost any single operation may be reversed, thus saving your work from potentially disastrous mistakes, using the Undo tool. When available, clicking the Undo tool, will undo the last editing operation.

## ProSound Main menu

This menu is accessed by clicking Menu anywhere in the Project edit window.



ProSound main menu

Most of the facilities offered by ProSound can be operated from the submenus of this main menu, and so a little experimentation with some of the menu options may be beneficial before going on to read about each feature in detail in the following sections. Don't worry you can't break anything, and even the original file you loaded is quite safe.

## Special Effects Toolbox

The Special effects toolbox allows access to the many effects tools offered by ProSound. All of these tools are of a modular nature, and so it is possible to add or replace tools at will.



Special effects toolbox

The effects all operate on the current selection of the project, and include such things as filters, echo, reverb, fades. The best way to learn about these effects is to experiment with them, try each one and listen to the difference it makes to the sound.



## Closing the Project

Click the Close icon of the Project edit window. this will close the project. However if you have not saved the project, ProSound will inform you of this, and ask if you really want to close the project, Click the Cancel button to return fo the project. or click the OK button to discard the project without saving.

## Quick Sample Play

ProSound is able to play audio sample files directly from disc, without uctually loading them. To do this drag the audio file to the ProSound iconbar icon whilst pressing Ctrl.



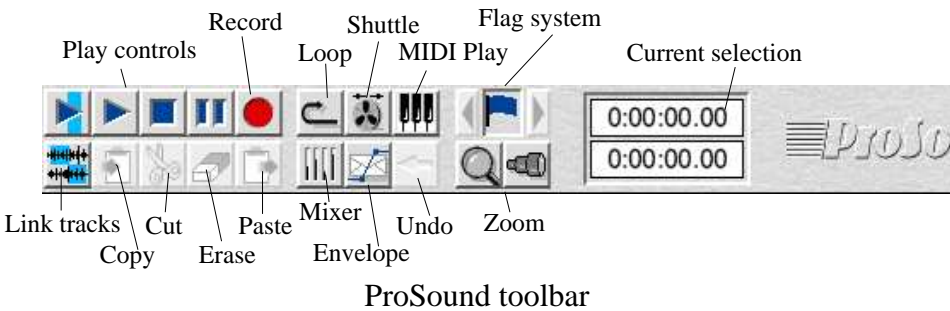
Quick sample play window

Alternatively open the Quick play window by clicking the ProSound iconbar icon with Adjust whilst pressing Ctrl, Dragging an audio sample to this small window will play the file.

To stop playing, press space bar.

# 4. The ProSound Toolbar

The ProSound toolbar is found at the top of each ProSound project window.



Play selection plays the current selection on the current track.



Play plays the current track, or the entire project if clicked Play whilst pressing Ctrl.



Stop aborts playback.



Pause pauses playback, a second press continues playback.



Record opens the ProSound recording studio. for allowing audio samples to be captured.



Looping permits continuously looping playback of the current selection or track.



Shuttle allows very accurate waveform editing by ear,



MIDI allows playback to be controlled by MIDI compatible instruments.



Zoom in allows the waveform to be examined more closely.



Zoom out allows more of the waveform to be seen.



Mixer opens the ProSound mixing desk.



Undo permits the previous editing operation to be undone.



Envelope enters ProSound into envelope editing mode.

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Link tracks allows selections to be made on all available tracks.



Cut will entirely delete the current selection from the Project.



Paste pastes the contents of the clipboard to the project. at the position of the cursor.



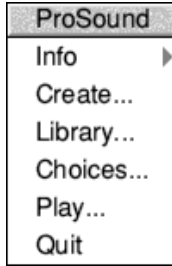
Copy Defines the current selection as the contents of the clipboard.



Erase will erase the waveform which is covered by the current selection, resulting in silence.

## 5. The Iconbar Menu

This menu is accessed by clicking Menu over the ProSound iconbar icon.



iconbar menu

### **Info**

Gives general information about ProSound including the version number.

### **Create...**

Opens the Create new project window. Clicking the ProSound iconbar icon with Select has the same effect.

### **Library...**

Opens the ProSound Library window, Clicking the ProSound iconbar icon with Adjust has the same effect.

### **Choices...**

Opens the ProSound Choices window, for setting up default options.

### **Play...**

Opens the Quick Play window, for playing samples stored on disc, without actually installing them into ProSound.

### **Quit**

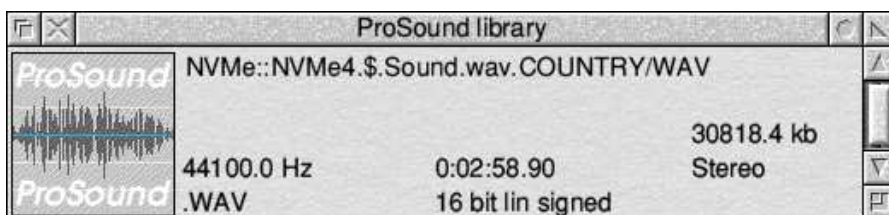
Removes ProSound and any current projects from the desktop. If there are any unsaved projects, ProSound will ask for confirmation of this action.

## 6. Loading and Importing Audio Samples

### The Library

ProSound stores all audio samples to be used within its projects in the Library. In addition to individual audio samples, entire ProSound tracks which make up a project are also stored in the library, so they may be easily moved between any of the projects which ProSound is currently editing. ProSound may edit up to 32 projects simultaneously.

The library is opened by choosing Library... from the iconbar menu, or clicking the ProSound iconbar icon with Adjust.



Audio sample library



An audio sample may be transferred from the library to a track of an existing project H by dragging its sample icon from the library to an appropriate position on the track.

A audio sample may be played directly from the library by double clicking on the Playback toolbar Simple icon, which will open A« small toolbox with Play, Stop and Pause buttons.

If the play toolbox should close, playback may be halted at any time by pressing Escape.

### Loading Audio Samples

An audio sample may be loaded into the library by either dragging it from the directory viewer to the library, or to the ProSound iconbar icon whilst pressing the Shift key.

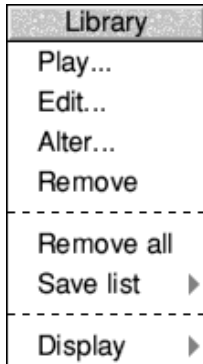
The audio sample may also be put directly onto a track of an existing project by dragging it from the directory viewer to un appropriate position an the track, In this case the sample will be automatically installed into the library.

Dragging a sample file to the ProSound iconbar icon without pressing Shift,

will create a new project containing just that sample.

## The Library Menu

This menu is accessed by clicking Menu anywhere in the library window.



Library menu

### Play

Opens a small toolbox containing Play, Stop and Pause buttons. These are used for playing the selected audio sample.

### Edit

Opens a new project, using the selected audio sample as the basis for the first track,

### Alter

Opens a window which allows the format of an audio sample to be changed.

### Remove

Will remove the currently selected audio sample from the library.

### Remove all

Will remove all audio samples from the library.

### Save list

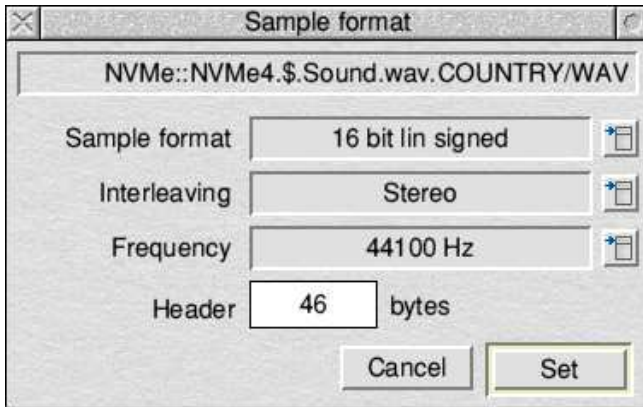
Opens a savebox from where a textfile may be saved, containing a list of all the audio samples currently installed in the library.

### Display

Gives access to the normal RISC OS display options for a directory viewer window.

## Altering the Audio Sample Format

Choosing Alter... from the Library menu, opens a window allowing the various parameters of the audio sample format to be modified.



Audio sample format conversion

- The sample data format may be changed in terms of the bit resolution and whether the file is linear or logarithmic etc.
- The sample interleaving may be changed from mono to stereo.
- The frequency of the sample may be changed. This is useful for changing the frequency of a sample to match others, and the playback frequency.
- The header size may be adjusted, If an unrecognised sample file is loaded, often the file will have a header which will cause noise at the beginning of the sample if not removed.

## Unrecognised Audio Files

This window can also be used for defining the way in which a raw dat file will be interpreted by ProSound. If a sample format is unrecognised then it will be (re)loaded as raw data.

By clicking Select on the ProSound iconbar icon whilst pressing Ctrl. or clicking Adjust in the Quick play window. this window will be opened but the settings made will be specific to the way that raw data files should be treated.

## Supported Audio Sample Formats

Audio samples may be imported into ProSound in any of the following formats.

Format(1)	Recognition method
Replay	
Raw data	Default if type is unknown
Amadeus	Filetype (&D30)
AudioWorks(2)	Filetype (&BD6)
DataVox	Filetype (&108)
WAV(3)	First of third words "RIFF" or "WAVE" Filetype (&FB4)
.SND(4)	First word 'SOUND'
.SOU(5)	
.VOC(6)	String 'Creative Voice' in the start of file
.AVI(7)	First or third word 'RIFF' or 'AVI'
EMR Waveform(8)	Filetype(&DF9)
AIFF	First group chunk 'COMM'
Symphony Sample	Filetype (&10A)
Amiga IFF	First group chunk '8SVX'
Sun/Next	First word '_snd'

1. The audio soundtrack is extracted from track 1. Format 1 and ADPCM supported.
2. Mono and interleaved stereo linear signed/unsigned supported. Only the first sample is recognised / Loops are ignored.
3. 8 and 16 bit PCM and 8 bit  $\mu$ -law / a-law supported. Loops are ignored
4. Assumed mono, 8 bit linear unsigned. If frequency not available - assumed 11 KHz.
5. Assumed mono. 8 bit linear unsigned, 11 KHz.
6. 8 bit 'old format' and 8 / 16 bit mono and stereo 'new format' supported, Loops und silence ignored.
7. 8 und 16 bit PCM and  $\mu$ -law / a-law supported. Mono assumed.
8. Assumed to be 8 bit linear signed. mono. fist sample at offsett 44.

Problems may occur when attempting to playback foreign files from slow media devices such ax CD ROM drives, especially when using a large number of tracks, this can be remedied by copying the audio file to a hard disc,



## 7. ProSound Choices

These are accessed by choosing Choices... from the ProSound iconbar menu.



ProSound choices window

The choices are sectioned into different areas all contained in a scrollable window. After setting new choices, they may be set to be used temporarily for the current session by clicking Set, or may also be saved for use the next time ProSound is loaded by clicking Save. Clicking Cancel will close the choices window, reverting all options back to their original settings.

### Playback and Recording



Playback and recording choices

### Multitasking Playback

Choosing the Multitasking option, allows playback of audio through ProSound to multi-task. A cursor will show the current play position within a project, and

the project window will scroll. All ProSound features other than the Mixer, Pause and Stop will still freeze during playback, which may be aborted at any time by pressing Escape.

When multitasking playback is selected, the current selection may be adjusted during looped playback. Currently multitasking playback is only available for Risc PC machines.

## **Playback Drivers**

ProSound supports different playback drivers for playback through third party hardware, currently supported are:

- Replay (mono/stereo) - via the internal speaker, Acorn 16 bit sound card, or Irlam 24116.

The Replay audio code is found in the directory specified by `ARMovie$SoundDir`. If you are using an Irlam 24i16 card `ARMovie$SoundDir` will usually be set to a directory containing the code necessary to play sound through the card. Refer to your manual for more information.

Note: If an Irlam 24i16 card is installed in a computer containing a 16 bit sound card, the Irlam installation software will force Replay to use the Irlam card for playback, rather than using the 16 bit internal playback code.

The following drivers will be available subject to loading the optional driver, as described in the SoundCard Drivers chapter:

- AudioDynamics - will generate 16 bit audio output through the DMI-50 S.
- Lark / Eagle - will generate 16 bit audio through the lark card, or 12 bit audio through the Eagle M2.

## **Buffer Size**

When playing a project containing many tracks, ProSound has to read a lot of data from the hard disc. If the data can be sent in a few large chunks, rather than many small chunks, playback will be much smoother, but uses more memory.

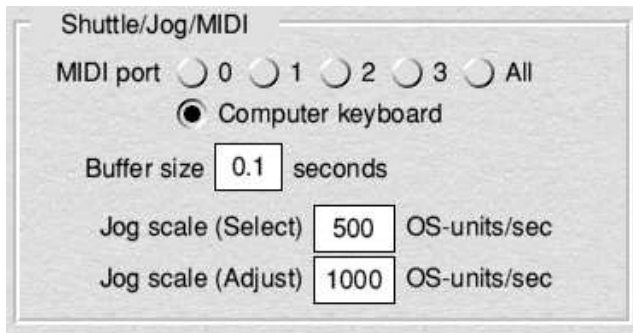
To give some idea of the memory requirement - setting the buffer size to 1 sec for playback of 44.1KHz project will require about 650K of memory. However, the larger buffer setting may not be needed on systems with fast hard drives. so you should experiment to find which setting gives the best results with your own hardware.

## **Multitasking Recording**

This option should be used with caution, but it allows multitasking whilst recording, which is very useful when recording for very long periods. When playing a track whilst recording, recording will remain multitasking as long as multitasking playback is also selected.

Multitasking recording may be aborted by clicking the Cancel button in the Recording window, as well as pressing Escape.

## Shuttle, Jog and MIDI Choices



Shuttle. Jog and MIDI choices

### ***MIDI Port***

Enables the MIDI port which ProSound will recognise input from to be defined. Choosing an option other than All enables other software requiring MIDI control to be used simultaneously, without interference from ProSound. MIDI control may also be simulated by the computer keyboard.

### **Buffer Size**

This sets the buffer size used for Shuttle, Jog and MIDI playback. Values between 0.08 und 0.3 are valid, A small buffer size gives much finer control, but requires more hard disc activity such that slower systems may not be able to cope.

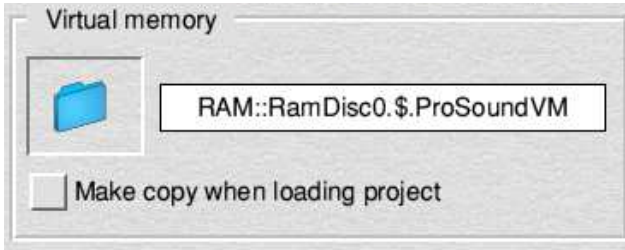
### **Jog Scale**

In Jog mode, the mouse speed controls the playback speed, The ratio:

Mouse speed : Playback speed

may be set to different values for the Adjust and Select button using these choices.

## Virtual Memory



### Virtual memory choices

By default the virtual memory files will be stored in a directory inside the ProSound application. These files are removed when ProSound is removed from the iconbar, hence they are termed temporary VM directories.

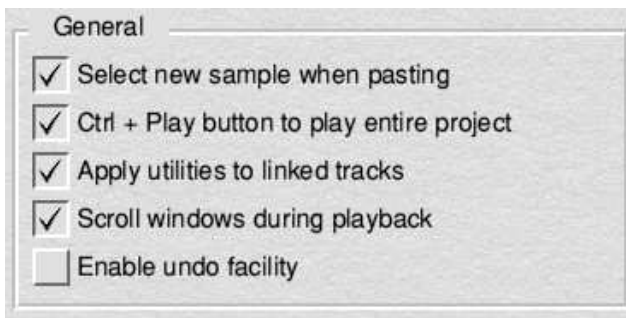
The temporary VM directories may be located in an alternative position by dragging the directory icon to the appropriate directory viewer. You should ensure that there is plenty of free space on the chosen storage media, and preferably use the fastest storage device that you own.

The option Use temp VM directories in the Create window may be deselected so that a non-volatile VM location may be chosen for that particular project.

Selecting the Make copy when loading project option will result in 2 copy of any project that has been created using non-volatile VM storage, being created in temporary VM storage for editing when the session is reloaded, as opposed to editing the actual saved project itself.

The Low memory usage option should only be selected when using a machine with a small amount of available memory, as it will normally result in slower screen refresh rules.

## General



General choices

### ***Auto Sample Selection***

By selecting the Select new sample when pasting option, each new audio sample is automatically selected when inserted on a track in the Project edit window.

### ***Playback Short-cut***

When the Ctrl + Play button to play entire project option is selected, clicking Play button will play the current track only, requiring the Ctrl key also to be pressed to play the entire project.

### ***Linked Track Control***

When the Apply utilities to linked tracks option is selected, all plug-in utility modules will affect all linked tracks of the project.

### ***Scrollable Project Window***

The audio waveform displayed in the Project edit window will scroll to reflect the current playback position when the Scroll windows during playback option is selected.

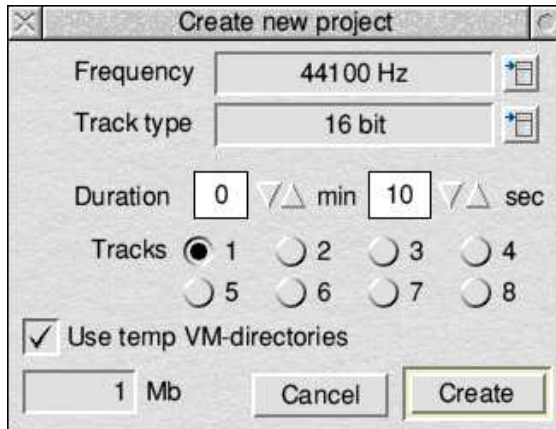
### ***Undo Facility***

When the Enable undo facility option is selected, each single editing operation may be undone by clicking the Undo button In the Project edit window.

There is a Disable undo option in the Recording setup window. This enables the undo facility to be disabled whilst recording only. thus preventing any lengthy pauses prior to recording on track. Of course, the recording operation cannot then be undone.

## 8. Creating a New Project

ProSound enables multiple projects to be edited simultaneously, which are normally created using the Create new project window, which is opened by clicking Select on the ProSound iconbar icon, or choosing Create. from the iconbar menu.



Create new project window

The frequency of the project should be chosen from the standard values available in the popup menu, or a specific value may be entered at the bottom of the menu.

22050 Hz is a commonly used frequency for low-medium quality audio work. 44100 Hz is the standard audio CD frequency, and 48000 Hz is the frequency used for professional audio recording particularly on DAT.

The time duration of the project may be set in terms of minutes and seconds. However, it is always possible to extend or reduce the length of a project, should this become necessary at a later stage.

The number of tracks to be present in the project should be selected. Using superfluous tracks is pointless, as it will simply impair performance and extra tracks may be added at any time once editing has begun.

### Virtual Memory Directories

As default all VM files are stored within a directory inside ProSound. These files are removed when the project is removed, or when ProSound is quit from the iconbar. The files may also be lost if the machine should crash for any

reason.

To avoid this situation, the VM files may be stored in an alternative non-volatile place, which will not be deleted when the project is removed. This is achieved by deselecting the Use temp VM directories option, which will result in a savebox being opened when the project is created.



VM location savebox

Dragging the directory in this window will define the non-volatile place where the VM files are to be stored.

At any time the project may be reloaded by dragging this directory to the ProSound iconbar icon, and the project will restart just as it was left in a previous session.

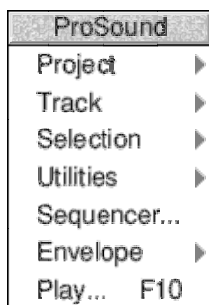


## 9. The Main ProSound Menu Tree

This section describes the main menu structure of ProSound, most of the processing and editing functions are accessed from here, however there are a number of keyboard short-cuts performing the same actions, which are listed in a section at the back of this manual.

### The Prosound Main Menu

This menu is accessed by clicking **Menu** anywhere in the Project edit window.



Prosound Main Menu

This menu is the root of the majority of ProSound's features, giving access to a number of submenus.

#### Project submenu

Operations in this submenu will affect the project as a whole.

#### Track submenu

Operations in this submenu will affect only the currently selected track.

#### Selection submenu

Operations in this submenu are concerned only with the current selection, and include cut and paste options.

#### Utilities submenu

Utilities affect the current selection, the exact contents of this submenu will depend on the utility modules which are installed in your copy of ProSound. All ProSound utilities are modular, and may be added very simply, meaning they may also be written by third parties.

#### Sequencer...

Opens the ProSound Sequencer for sequencing parts of the project which have been designated as regions.

#### Envelope submenu

The audio data on each track may be manipulated by applying an amplitude envelope in real time. The choices in this submenu relate to the currently selected track.

#### Play...

Plays the current project in its entirety.

**The Project Submenu**

All operations in this submenu will affect the project as a whole.



Project submenu

**Info**

Opens a window giving details about the current project.

**Save session**

Opens a standard savebox, allowing a directory containing the current project file to be saved along with all setup files. Dragging this directory to the ProSound icon bar icon at a later time will allow editing to recommence at the point the project was saved.

**Save**

Opens a standard ProSound savebox, allowing the waveforms of the current project to be saved in a number of different formats.

**Control**

Opens a window allowing the playback frequency, and project duration to be adjusted. These parameters are set when the project is initially created, but modification may be required once editing has commenced,

**Display**

Opens the View display window, this allows several choices to be made about the appearance of the Project edit window.

**Beats**

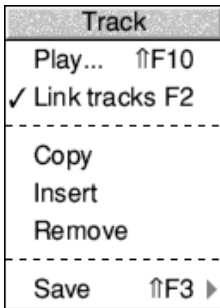
Opens the Beat control window, for altering the beat duration and delay, which acts in an analogous manner to the gridlock of a drawing package.

**Remove**

Choosing this menu item will remove the current project, requiring confirmation if the project is unsaved.

**The Track Submenu**

All operations in this submenu will affect only the currently selected track, A track is selected by clicking on it with any mouse button, The selected track will be shown grey, all other unselected tracks are shown white.



Track submenu

## Play

Will play any audio samples installed on the current track.

## Link Tracks

When chosen this menu item will be ticked as shown, This will have the result of linking all tracks in the project.

When tracks are linked, making a selection will select the same area of all tracks in the project, as opposed to making a selection on an individual track.

With this option selected, playing a selection will play the selected area of all the tracks in the project.

## Copy

Adds an extra track to the project, und copies all waveforms on the current track onto the new track, This menu item will not be available if the maximum of eight tracks has been reached.

## Insert

Adds un extra blank track to the project. This menu item will not be available if the maximum of eight tracks has been reached.

## Remove

Will remove the current track from the project, This menu item will not be available if there is only one remaining track in the project.

## Save

Opens a standard ProSound savebox, allowing the current track to be saved in a number of different formats.

## The Selection Submenu

All operations in this submenu will affect only the currently selected area of an individual track.

Selection		
Select all	^A	<b>Select all</b> Select the whole of the track.
Select to start		<b>Select to start</b> Extends the selected area to the start of the track.
Select to end		
Clear selection	^Z	
-----		
Make region	^R	<b>Select to end</b> Extends the selected area to the end of the track.
-----		
Copy	^C	
Paste	^V	<b>Clear selection</b> Deselects any currently made selection.
Delete	^X	
Silence	^D	
-----		
Save	^F3	<b>Set selection</b> Enables the selected area to be defined numerically in the form HH:MM:SS.CC
Play...	^F10	
Play around	^F11	
-----		
Selection submenu		<b>Make region</b> Leads to a submenu into which a name may be typed. The current selection will then be designated as a region, and labelled with this name.

## Copy

Copies the current selection to the ProSound internal clipboard.

## Paste

Pastes the contents of the ProSound internal clipboard at the position of the cursor.

## Delete

Will delete the part of the track covered by the current selection,

## Save

Opens a savebox for saving the part of the track covered by the current selection. in a number of different formats.

## Play...

Will play the part of the track covered by the current selection.

**Play around...**

Will play the entire track except for the part of the track covered by the current selection. This option is useful for determining the affect of removing part of the waveform.

**The Utilities Submenu**

All ProSound utilities are of a modular nature, as a result new utilities may be easily added, effectively extending the software, and may be written by any capable third party, As a result of this, the contents of the utilities submenu is variable. but it should contain at least the following default menu items.

All effects are are applied to the selected area of the current track, or all tracks if linked.

Utilities	Filters
Filters	Opens the Filter effects submenu, from where a High Pass or Low Pass Filter may be accessed,
Logical	
Generate	Logical
Effect	Opens the Logical effects submenu,
Draw waveform...	
FFT display...	<b>Generate</b>
Utilities submenu	Opens the Generate submenu, for the generation of various synthesised waves.

**Save**

Opens a Save submenu allowing audio to be saved in various innovative formats.

**Effect**

Opens the Special effects submenu.

**Draw waveform...**

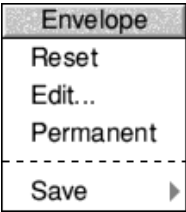
Opens the Draw Waveform window for drawing directly on the sample waveform.

**FFT display...**

Generates an FFT analysis of the current selection.

# The Envelope Submenu

The audio data on each track may be manipulated by applying an audio amplitude envelope in real-time. The envelope is defined by clicking the Envelope Edit button, or selecting Edit... from the Envelope submenu.



Envelope submenu

## Reset

Removes any defined points on the envelope curve of the current truck, so the audio sample will play at its normal amplitude.

## Edit...

Enters ProSound into envelope edit mode, Clicking any of the audio tracks will enable the envelope for that track to be modified.

## Permanent

This feature enables the envelope curve of the current track to permanently alter the amplitude of the waveform on the track, as opposed to applying the envelope in real-time.

## Save

Allows a file containing the envelope curve of the current track to be saved. Dragging a pre-saved envelope file to the Envelope Edit button, will apply the curve to the current track. Envelope files from AudioWorks may also be used in the same manners.

## Enabling the Real-time Envelope

In order for an envelope to take affect when the project, or track is played, it must be enabled by selecting the appropriate envelope button on the mixer  
-see The Audio Mixer section for more details.

## 10. Insert and Paste Options

An audio sample is inserted onto a track of a project by dragging it from either the Library, or directly from a directory viewer. However ProSound allows a sample to be inserted in a number of different ways, so the Insert actions window is opened.



Insert actions

One of the following insertion actions must be selected before the sample is put onto the track:

- **Overwrite**  
Will put the sample onto the track, overwriting any waveform which is on the track.
- **Add**  
Will add the waveform of the new sample to any waveform which is already on the track. This will result in a sample with increased volume, which may lead to clipping or distortion. Using the Mix alternative will avoid this problem.

- **Insert**

This will insert the contents of the new sample at the current position of the cursor, after first creating enough additional space in the project to do so.

- **Mix**

Will mix the waveform of the new sample with any waveform which is already on the track. The volumes of the two samples are averaged, and so no clipping should occur. The resultant sample can later be amplified if necessary.

When the appropriate action has been chosen, the sample will be inserted at the position of the cursor.

- **Selection**

The Selection option will only be available if a selection has been made. When this option is chosen the sample will only be inserted to the selected area.

- **Left / Right**

If the audio file being inserted is stereo, then either the left channel, or right channel may be inserted. However if the project has more than one track, both channels may be inserted. One channel will be inserted on the current track, and the other will be inserted on the track above.

If you want both channels of a stereo sample to appear on the same

track, the sample must first be inserted. selecting the right channel, and then inserted again selecting the left channel and the Mix action.

## Pasting from the Clipboard



Paste action

When pasting a waveform from the ProSound clipboard, the same insert actions will be available.

One of the paste actions must be selected before the contents of the clipboard is pasted to the track at the position of the cursor.

Note, when using the Insert paste option. it is not possible to insert a selection within itself, but it may be inserted anywhere else in the project.



# 11. Playing a Project

There are many different ways that a project, or part of a project may be played.

## Playing the Whole Project

In order for the settings made in the Mixer panel to have any affect, the entire project must be played.

Choosing **Play...** from the Prosound main menu will play the entire edited project.



Alternatively the entire project may be played by clicking the **Play** button on the Project edit window toolbar whilst pressing **Ctrl**.

The entire project may be played from the current position of the cursor by pressing **Ctrl + P**. and stopped again with a second press of the same key combination, or by pressing **Escape**.

## Playing the Current Track

The Play button on the Project edit window toolbar will play the whole of the current track Alternatively this may be achieved by choosing **Play...** from the Track submenu.

Each of the tracks for any project may also be found in the Library. This is primarily for the purpose of copying tracks between different projects. However, a specific track may also be played from the library as described in the Library section,

## Playing a Selection



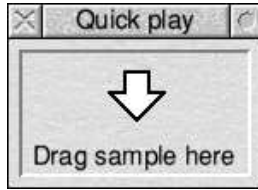
The Play Selection button on the Project edit window toolbar will play the selected area of the current track, providing a selection has been made. A selection may also be played by choosing **Play...** from the Selection submenu.

If the Play Selection button is clicked whilst pressing **Ctrl**, the current selection period will still be played, but all tracks of the project will be mixed and played.

The current section may also be played by pressing the Space Bar, recon press stops playback.

## Playing Without Loading

An audio sample may be played directly from disc, without actually installing it.

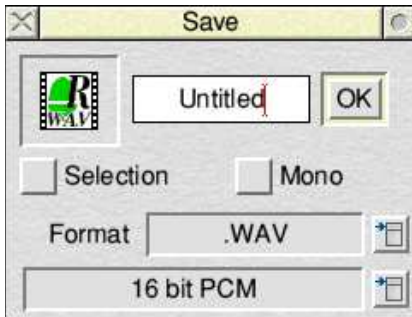


Quick playback window

this is done by either dragging the sample to the ProSound iconbar icon whilst pressing **Ctrl**, or dragging it to the small window which is opened by choosing **Play...** from the iconbar menu

## 12. ProSound Save Windows

All save windows used by ProSound are very similar, and usually take the following format.



Standard ProSound save window

### Selection

When thin option I+ chosen, only the current selection will be saved.

### Mono

When this option is chosen, a mono audio sample is always saved.

A mono sample is also saved if the chosen file format does not support stereo audio, even though the Mono option may not be selected.

### Format

The format of the audio sample to be saved is chosen using the two popup menus, First the file type is chose, in this case WAV (AudioWorks) has been selected, and then the internal format for the audio data, in this case 16 bit PCM.

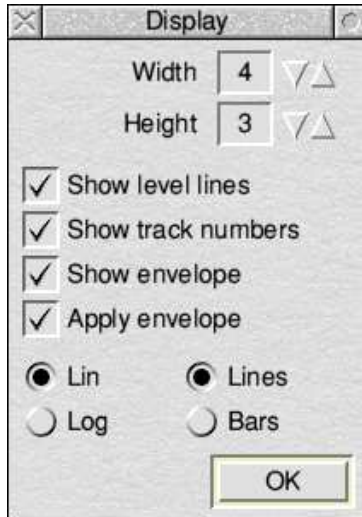
Most of the formats which ProSound is able to import, may also be saved from ProSound.

To save the sample, once the format haw been choosen, drag the File icon from the savebox to a directory viewer.

## 13. Using Beat Markers

Beat markers may be considered to be analogous to the gridlock of a drawing package, in that they provide an easy means of alignment on the timeline.

Beat markers are displayed as vertical red lines on the timeline. The distance between each marker in seconds is completely definable in the **Beat control window**, which is accessed from the Project submenu.



Beat control window

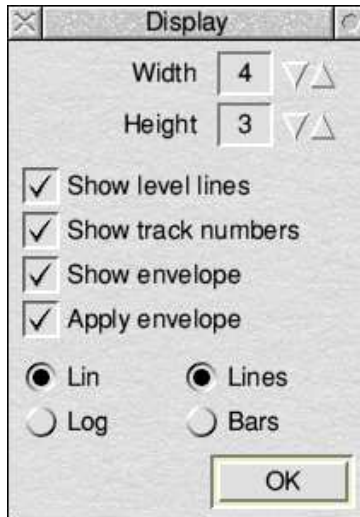
- **Beats per minute**  
Selects the number of beats that will occur in one minute on the timeline.
- **Beat duration**  
Requires an input in milliseconds, which defines the duration of single beat.  
  
The Beats per minute and Beat duration are inversely linked, and will update each other when adjusted.
- **Delay**  
Also requires an input in milliseconds, and is the delay offset from the beginning of the track before the beats start.

- **Snap to beat markers**  
Snaps audio samples to beat markers when they are inserted onto track, The cursor is also snapped to the nearest beat marker.
- **Snap when selecting**  
Snaps selected area to the nearest beat marker when making a new selection.
- **Display markers**  
Shows beat markers on each track of the timeline.

When saving the choices made in the **Choices window**, the current settings in this window will also be saved und used as defaull next time ProSound is loaded.

## 14. Adjusting the Display

Several options are available for modifying the appearance of the Project edit window, most of these are controlled from the Display window which is accessed from the Project submenu.



View display window

- **Width**

The track width may also be temporarily changed by clicking the zoom in, and zoom out buttons, but this option allows the default to be set. The higher the track width number, the higher the zoom.

- **Height**

Gives control of the vertical height of each track, it may be useful to reduce the height when working on projects containing many tracks.

- **Show level lines**

Draws scale lines on each track, corresponding to different levels of waveform amplitude.

- **Show track numbers**

Identifies each track with its corresponding track number.

- **Show envelope**

- Shows the envelope curve defined on each track. See separate section on Audio Envelopes.

- **Apply envelope**

When selected, modifies the appearance of the waveform on each track in real-time, according to the position of the envelope points

- **Lin / Log**

Displays the waveforms in either linear or logarithmic format. & linear view is useful to see whether mixing of adding waveforms will cause clipping distortion.

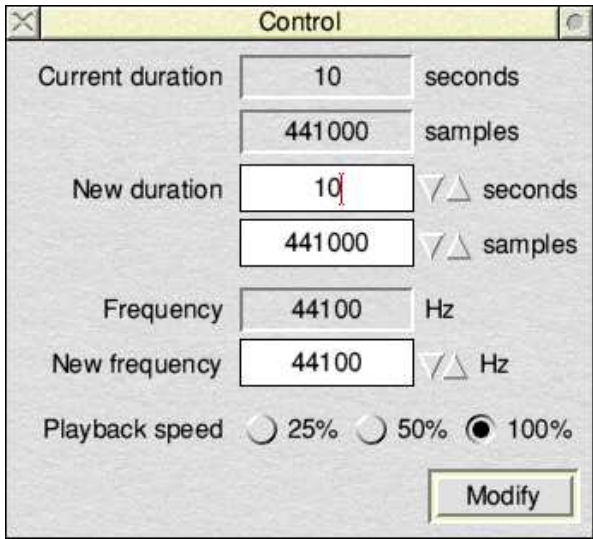
- **Lines / Bars**

Displays the waveforms as either lines or bars.

When saving the choices made in the Choices window, the current settings this window will also be saved and used as default next time ProSound is loaded.

## 15. Project Control and Information

The settings made when creating the project are not rigidly fixed, and may be changed at a later time. These settings are adjusted in the Control window which is accessed from the Project submenu.



Control window

The Current duration of the project in seconds, and the number of samples in the project is shown. A new value may be entered for either of these variables in the New duration writable icons.

The current Frequency of the project is shown, and just below is the New frequency writable icon where a new value may be entered.

The Playback speed of the project may be set to 25%, 50% or 100% in the Control window. This has no effect on the project data itself, but simply the speed at which it is played.

The **Information window** is opened from the Project submenu, and contains information about the size and frequency of the current project. It also contains information about how the project is shared between disc storage and RAM.



**About this project**

Title

Size  samples =  seconds

Frequency  Hz

Disc  RAM  kb

Current selections

Track 1	178.90 seconds / 15779026 bytes
Track 2	178.90 seconds / 15779026 bytes
Track 3	No track
Track 4	No track
Track 5	No track
Track 6	No track
Track 7	No track
Track 8	No track

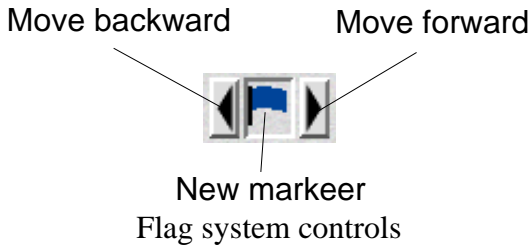
Project information window

The window may be extended by the toggle icon to reveal details of the current selections made on each track of the project.

At the top of this window a title for the project may be set. Enter the required name, then press **Return** in order to rename the project.

## 16. The Flag System

The flag system allows markers to be set on the timeline, to aid navigation through the project during editing.



A new flag marker may be dragged from the new marker recess, to a point on the timeline. It will then be positioned on the timecode ruler, at the time position to which it was dragged.

Further flag markers may then be dragged in the same manner, at different points on the timeline. the project may then be navigated using the **Move forward** and **Move backward** buttons, to step to each flag marker that has been positioned.

These markers may be typically used to mark the start and end of large sample segments. The markers then become very useful when working at high zoom levels.

Markers can be later removed from the timecode ruler, by double clicking them.

### Placing Markers During Playback

It is often useful to place markers during playback of a project. If a mistake is heard, that point may then be marked for editing by pressing **Return**, causing a flag to be dropped.

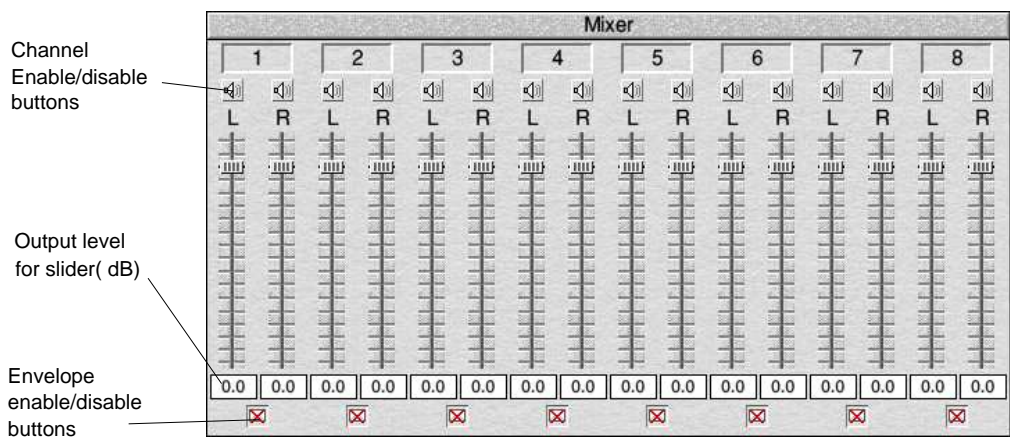
# 17. The Audio Mixer

ProSound uses a more sophisticated approach to the concept of mono und stereo sound than most other audio sample editors. Each track of a project holds a mono audio sample, but the sample may be played through either the left, the Right or both audio channels, with the volume variable for each channel.



The Mixer window is opened by choosing Mixer. from the Prosound main menu, or clicking the Mixer button on the toolbar.

The window contains 16 sliders, which may be dragged vertically. There is a slider to control the audio volume through the left and right channel for each of the eight tracks.



Eight channel audio mixer window

Dragging a mixer slider with Adjust will also move the slider of the corresponding stereo slider for that channel.

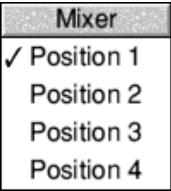
The output of each channel may be enabled/disabled using the 16 buttons above the corresponding sliders.

The eight buttons below each set of sliders allow the audio envelope for each track to be enabled/disabled.

The mixer remains fully functional whilst playing a project. providing that the

multitasking option has been selected in the Choices window.

## The Mixer Menu



Mixer menu

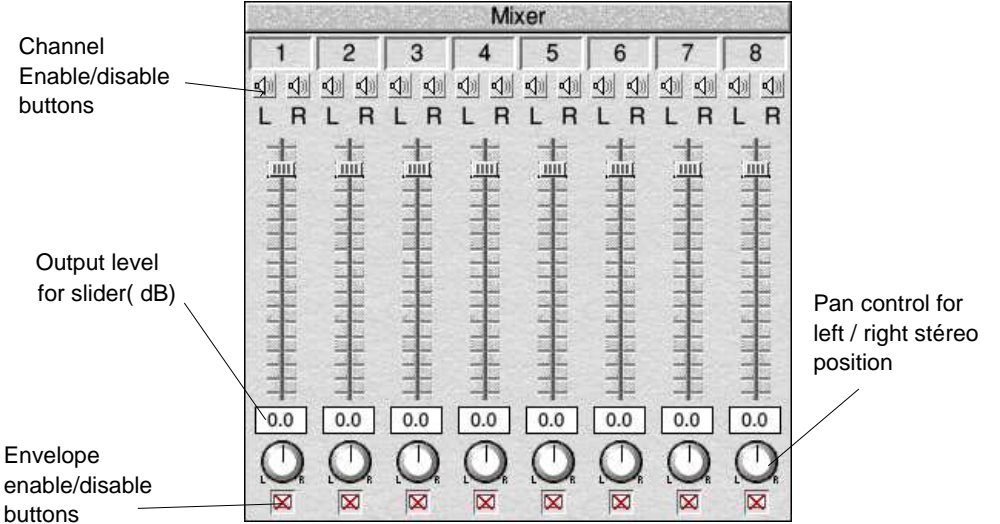
The Mixer menu is opened by clicking Menu over the Mixer window, this allows the mixer to store a number of presets.

By selecting Position 1 then making settings on the mixer, all settings made will be remembered.

Switching to Position 2 allows new mixer settings to be made, but then switching back to Position 1 will return to the old settings.

## Alternative Pan Mixer

An alternative mixer, offering stereo pan controls may be used instead of, or in conjunction with the regular mixer, This is opened by clicking the Mixer button on the toolbar whilst pressing Ctrl.



Eight channel audio pan control mixer window

Note: The mixers are only functional when playing the entire project, not when playing individual tracks. By default, the entire project is played by clicking the **Play** buttons whilst pressing **Ctrl**, or by choosing the **Play** item from the

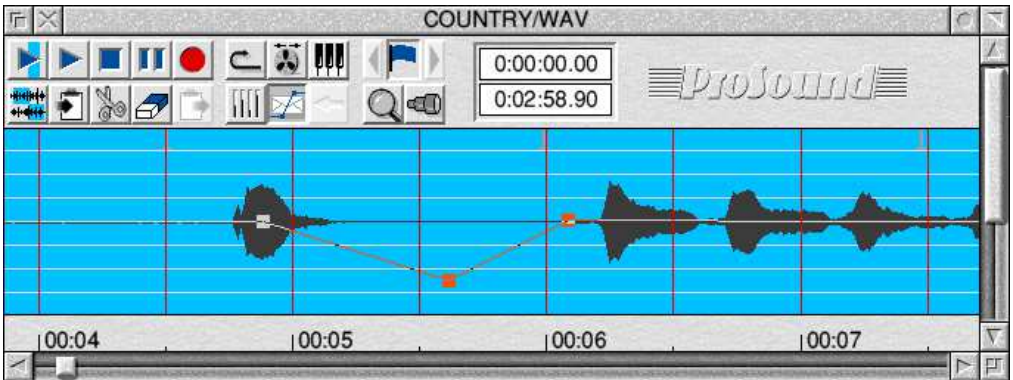
Main menu.

## 18. Audio Envelopes

An amplitude envelope allows the amplitude of the audio data to be adjusted in real-time, and dynamically throughout the sample. Because the envelope is applied in real-time, there is no degradation of the sample data, and so you may experiment with the envelope until the required effect is achieved.



The envelope is defined by clicking the Envelope Edit button on the toolbar, or selecting Edit.... from the Envelope submenu.



ProSound project edit window in envelope edit mode

To add a point to the envelope curve click Select and drag to the required position. An envelope point may be moved by clicking Adjust on the point, or very near to it, and then dragging.

An envelope point may be deleted by clicking the point, whilst holding Shift.

Ctrl-dragging when in envelope edit mode moves the entire envelope up or down.

An existing ProSound or AudioWorks envelope file may be dragged to the Envelope Edit button in order to apply the envelope to the currently selected track.

# Example of Amplitude Enveloping

Here the amplitude (volume) of the sample will fade in from silence, to above normal volume, and then back to normal volume.

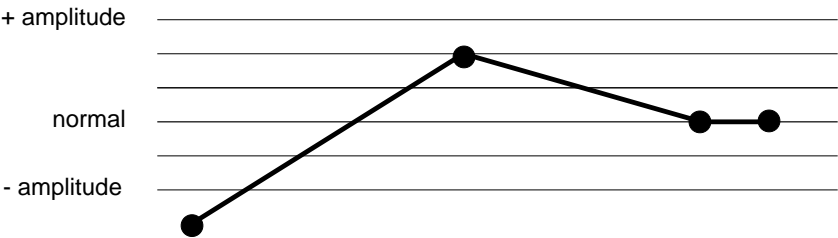


Illustration of envelope control

## 19. Shuttle and Jog Control

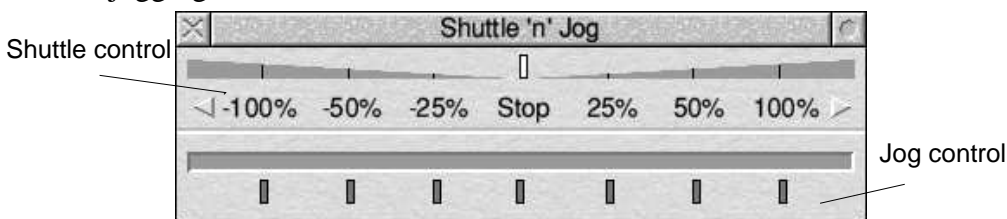
Audio editing can be achieved far more convincingly by ear, rather than by eye which is the fundamental basis of a waveform editor.

ProSound offers shuttle controls for accurate positioning of the cursor by ear. This feature allows the cursor to move slowly and accurately backwards and forwards over the waveform, playing the sample as it does so.



The Shuttle and Jog window is opened by clicking the Shuttle button on the ProSound toolbar.

The upper part of the window is for shuttle control, with the lower part being used for jogging.



Shuttle and jog window

### Shuttling

By moving the mouse over the Shuttle window whilst pressing a mouse button the cursor may be moved, and playback achieved at any speed from -200% to +200%

Whilst shuttling the cursor, the start of the current selection may be adjusted by pressing the Left Arrow key and the end of the current selection may be adjusted by pressing the Right Arrow key.

The playback speed is doubled when using **Adjust** instead of **Select**.

### Editing an 'erm' out of a sentence

The shuttle feature is useful for accurately editing und removing unwanted parts of an audio sample. Here we describe the simple procedure to edit an 'erm' from a sentence.

Play the sample until the offending 'erm' occurs, then stop. Most likely the 'erm' cannot be seen in the waveform, this will be especially true for a voice



with a strong accent. Using the shuttle feature move the cursor whilst pressing the Left Arrow key until you hear the start of the 'erm', or the end of the preceding word. Now whilst pressing the Right Arrow key shuttle to the end of the 'erm'.

The current selection should now be covering the part of the waveform that we wish to remove, and this can be done simply by selecting Delete from the Edit submenu.

## **Jogging**

When jogging, the speed with which the mouse is moved controls the speed of movement of the cursor over the waveform. The mouse pointer wraps around to the other side of the window when the edge of the window is reached.

The direction of mouse movement controls the direction of cursor movement. The ratio of:

### **Mouse speed : Playback speed**

may be set to different values for the Adjust or Select buttons with options in the Choices window.

## **Performance**

Shuttling and jogging require a large amount of processor time, and hard disc activity. However, demand on the hardware and hence performance can be improved by using lower zoom settings, 1 to 5 for example, which will require less of the waveform to be redrawn and less disc activity.

Although shuttle and jog will work with projects containing multiple tracks, only the single current track of the project will be played, due to the system requirements.

## 20. MIDI Control

ProSound enables the playback of tracks and projects to be controlled with a MIDI device. To take full advantage of this facility a MIDI card offering Acorn MIDI compatibility and a MIDI compatible instrument is required.



MIDI control is enabled by clicking the MIDI button on the toolbar. In MIDI mode the playback of a track or selection of a track, will be under full MIDI control.

Clicking the **Play**, or **Play selection** buttons, will put ProSound into standby mode. Playback can then be initiated by issuing a NoteOn command from a MIDI instrument, for example by pressing a MIDI keyboard key, or plucking a MIDI guitar string.

The frequency or pitch of playback will be dictated by the NoteOn command which will be dependent on the key pressed, or string plucked, MIDI control is able to control the playback pitch between three octaves below and one octave above the original playback frequency,

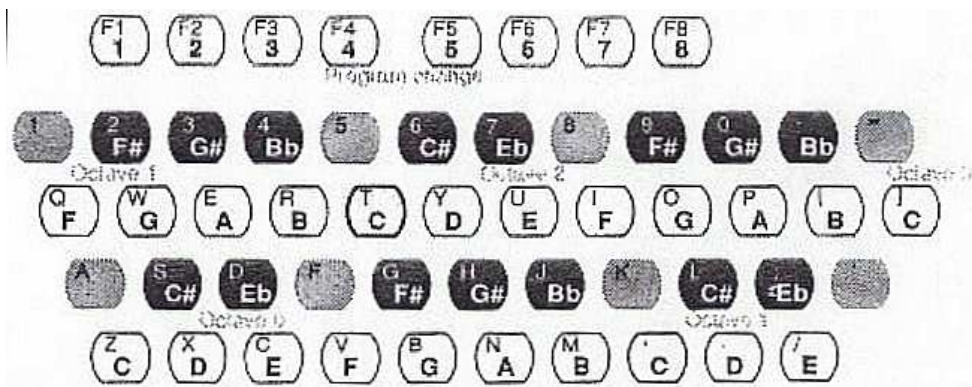
Playback will continue until the end of the track or selection is reached, or until a NoteOff command is issued by the MIDI instrument.

Using the MIDI device to send a **ProgramChange** <n> command will switch to the specified track <n> as soon as the playback buffer is empty. Playback will not be restarted but will simply continue, and the loop points will not change.

The Choices window allows the MIDI ports which ProSound will recognise input from to be defined if an unavailable MIDI port is selected, port 0 will be read a default.

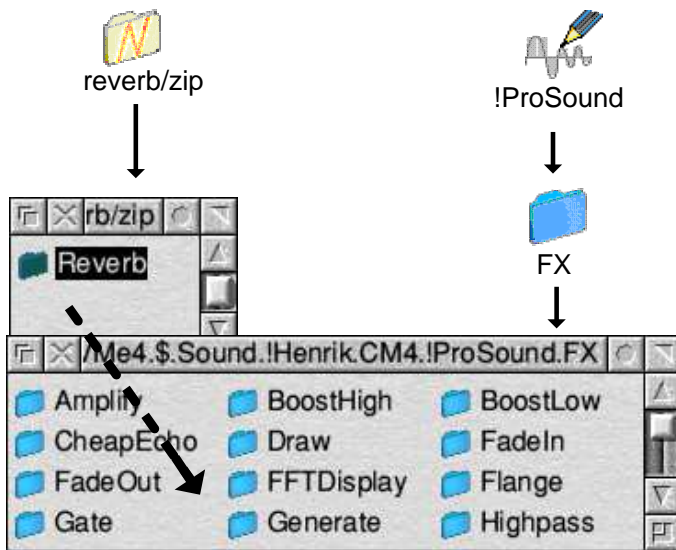
### Computer Keyboard Control

It is possible to use MIDI control as described above without MIDI hardware, ProSound enables the computer keyboard to emulate a MIDI instrument, offering two octaves of pitch control as shown here.



Computer keyboard emulation of a MIDI instrument



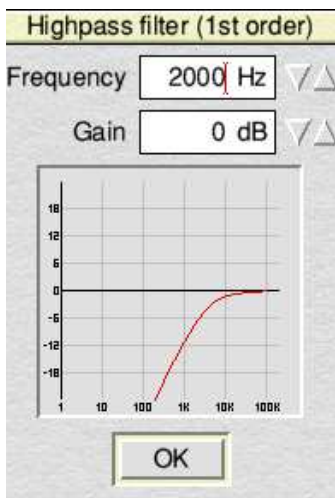


installing new plug in modules

Next time ProSound is run, the module will be automatically installed, and will add a new feature to the program, which will often appear in the Utilities submenu, and on the Special effects toolbox.

## Filters

Two digital bandpass filters are provided, namely a Lowpass filter, and Highpass filter, A bandpass filter is used to filter out unwanted frequencies in audio data.



Lowpass filter window

A **Highpass** filter damps frequencies below the specified range whilst letting the higher frequencies pass through. This may be used to filter out low frequency noise such as low pitch hum.

A **Lowpass** filter lets through frequencies below the middle frequency, whilst damping higher frequencies. This may be used to filter out high frequency hiss.

The graph in the bandpass filter window shows the amplification of the waveform in dB over a range of frequencies, The red graph crosses the x axis at 0dB, any frequencies above 0dB will be amplified, whilst those below 0dB will be attenuated.

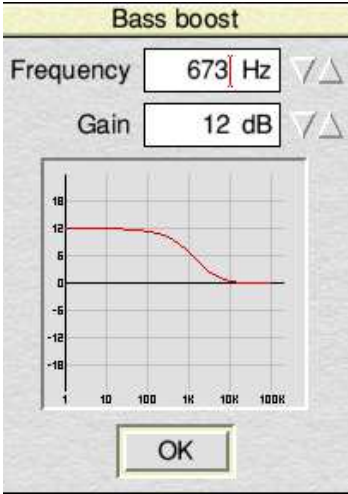
The **Gain** control is used to move the red graph up or down on the axis the **Frequency** control is used to shift the red graph left or right on the axis.

In order to achieve the required effect without degrading the sample quality, you may need to —experiment with the frequency setting of the filter, to find the appropriate filter level.

## Noise Gate

The noise gate filter removes noise in silent parts of the samples. The **Threshold** defines how loud the samples must be before they are no longer considered noise. The **Hold** time defines how long the sample must have been below the threshold before they are muted.

# Boost Functions



Bass boost window

The **Bass boost** increases the amplitude of all those frequencies below the defined threshold, by the specified Gain value.

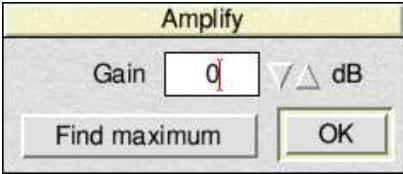
The **Treble boost** increases the amplitude of all those frequencies above the defined threshold, by the specified Gain value.

## Logical Effects

Logical effects are achieved by applying arithmetical logic to the waveform.



Logical submenu



The amplify window

### Amplify

Increases or decreases the amplitude (volume) of the audio waveform, by the specified amount in dB. The **Find maximum** option will find the maximum value the waveform may be amplified by without causing clipping or distortion.

## **Fade In**

â—Will fade in the selected audio from a specified volume level, to maximum volume. The fade may follow either a logarithmic, linear, or cross response curve.

## **Fade Out**

â—Will fade out the selected audio from full volume to a specified minimum volume level. The fade may follow either a logarithmic, linear, or cross response curve.

## **Invert**

The audio waveform is inverted or flipped about the amplitude (x) axis. This phase inversion means that negative values become positive, and vice versa. This effect allows samples with different phases to be matched to each other. When used with the mix or add mixing functions, this function allows subtraction of samples.

## **DC Level**

—Allows the average constant amplitude of the waveform to be found and adjusted. â—This is useful if your sample hardware is incorrectly calibrated such that 0 is not 0Volt.

## **Maximise**

â—This effect modifies the amplitude of the sample data. The amplitude is amplified such that the maximum amplitude occurring in a selection is set to 100% (or any other value between 1% and 400%) â—of the maximum value. First the maximum is detected and correlated to the chosen percentage, after â—which all other values are weighted by the new factor.

â—This function may be used to fully modulate or over modulate samples. The function is particularly suitable before conversion from a high sample resolution to lower ones. You can thus ensure that the dynamic range, which is small anyhow in case of low resolutions, can be fully utilized.

If working with sounds from a single instrument, you should set the factor to



100%. If, however, your piece of music has a background percussion, for example, you will be able to over modulate the simple from 120% to 200%, since only the new percussion peaks are cut off, The same method allows you to differentiate natural instruments by over modulation.

## **Reverse**

Will flip the audio waveform about the time (y) axis, therefore resulting in reverse playback. Playing speech backwards can produce some interesting effects.

## Special Save Options

The save options in this submenu allow parts of the project to be saved via various more specialised methods.

### Surround Sound

Surround sound  
savebox

ProSound enables a four track linked project to be saved as surround sound, in raw data or WAV file format

Using the appropriate buttons select which track should be designated as Left, Right, Centre and Surround channel.

The file may then be saved by dragging to a directory viewer.

When playing the resulting audio file, if the computer is connected to a surround amplifier, it is possible to achieve a true surround sound effect.

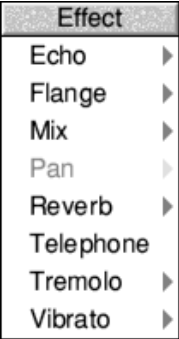
## Save GSM Audio

Audio may be saved in the highly compressed GSM 06.10 RPE-LTP audio format. This is the format used for mobile communications, video conferencing, as well as many CD ROM productions.

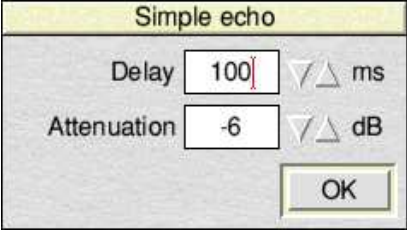
GSM savebox

GSM compressed filex may be replayed using the Oregon GSM playback module, which may be found with full implementation details on the Oregon web site.

# Special Effects



Effects submenu



Echo window

## Echo

—This effect adds an echo to the waveform. **Delay** is the time in ms between each successive echo. **Attenuation** is how much quieter the echo is than the original in dB.

## Flange

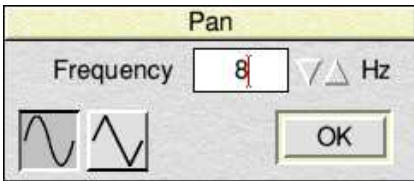
Effect for adding a flange effect to audio sample data, with definable **Variation** and **Delay**.

## Mix

This menu item is only available when editing a project containing at least two tracks, A small window is opened allowing the track of the project to be mixed, according to their settings in the Mixer, and output is made to the currently selected track as mono or left/right audio.

## Pan

This effect will pan the waveform between the left and right stereo channels. The frequency of this panning effect may be set, and the effect may follow a sine or triangular wave.



Pan window

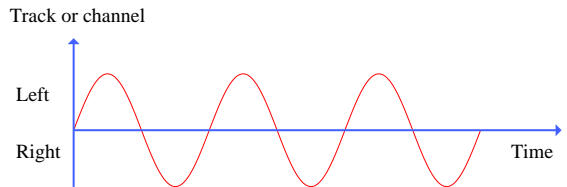


Illustration of panning

## Reverb

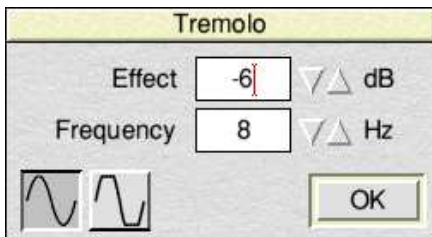
Module for adding a reverb effect to audio sample data, with definable **Gain** and **Delay**.

## Telephone

Effect for attenuating and distorting the audio waveform, such that it sounds as if it is being heard over a telephone line.

## Tremolo

This effect modifies the amplitude of the waveform, at a set frequency, following a sine or clipped sine wave.



Tremolo window

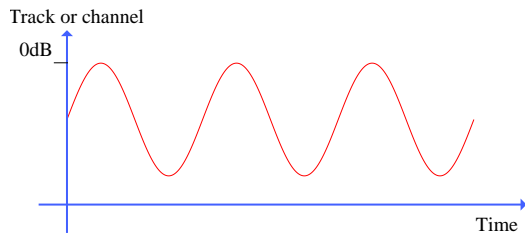


Illustration of tremolo

## Vibrato

Thus effect modifies the pitch of the waveform, by a specified number of semitones. at a set frequency. following a sine or triangular wave.

Vibrato window

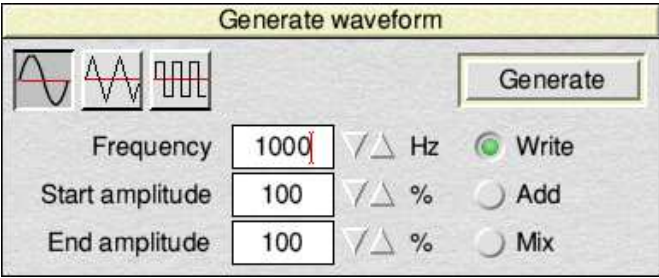
Illustration of vibrato

Generators

The effects in this submenu will all generate a synthesised waveform, confined to the currently selected area.

Waveform Generator

he waveform generator is for the generation of sine, triangular or square wave signals at specifices frequencies.

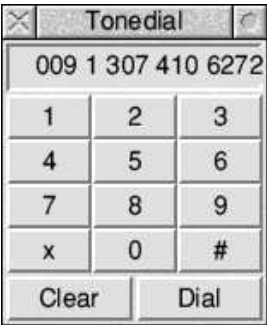


Waveform generator window

Enter values for the Frequency of the wave, and also for the Start and End amplitude, thus the volume of the wave may increase or decrease throughout the wave. Select one of the Insert options, and click Generate to create the wave.

# Tonedial Generator

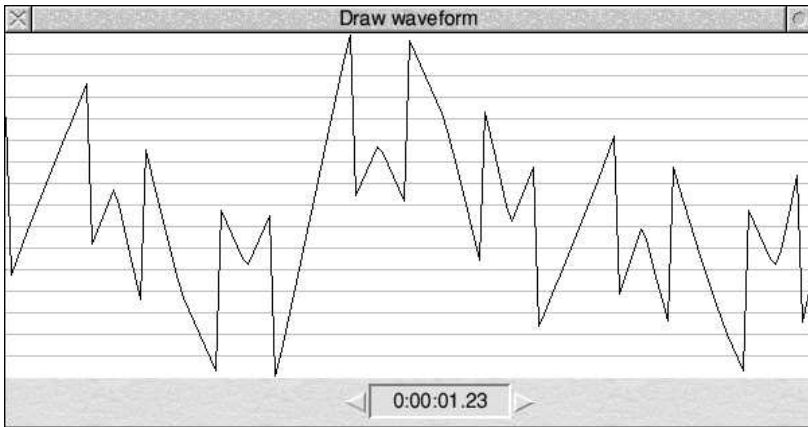
The tonedial generator will create standard telephone tones, given a specified number dialled on the number pad.



Tonedial generation

## Draw Waveform

The Draw waveform window allows the waveform to be modified directly by drawing with the mouse.

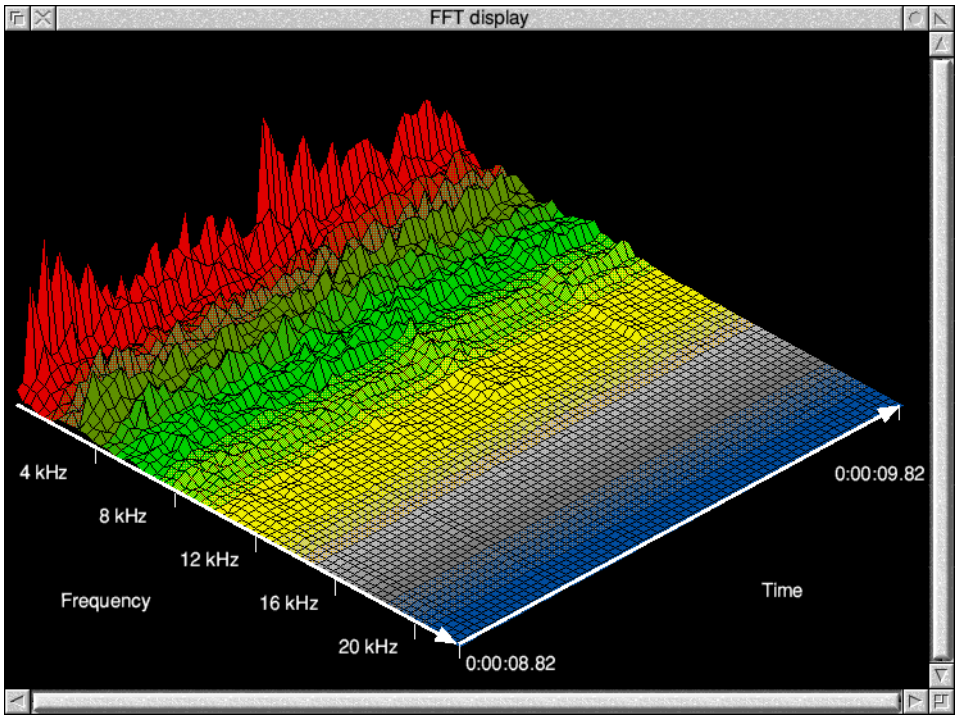


Draw waveform window

The window displays a maximum zoom of the waveform, a small duration either side of the current position of the cursor. Moving the cursor in the Project edit window, updates the area displayed in the Draw waveform window.

The area displayed may also be scrolled slowly left or right using the arrows either side of the timecode displayed in the Draw waveform window.

## FFT Display



FFT Display window

The FFT display provides a graphical representation of the frequencies present in the waveform covered by the current selection. This might be used to identify a particular interference frequency for which a bandpass filter may be later designed.

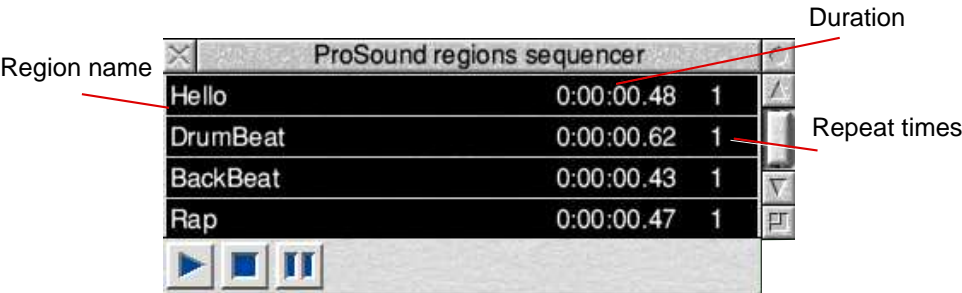


# 22. The Regions Sequencer

The ProSound Regions sequencer window is opened by selecting **Sequencer...** ProSound menu.

## Regions

A region is a current selection which has been named and designated aa a region using the **Make region** menu entry in the **Selection submenu**..A region may later be referred to by name, edited played, saved, or sequenced along with other regions in the sequencer.



Sequencer window

All currently defined regions are displayed in the sequencer window. Initially they are listed in the order in which they were defined, but they may be rearranged by dragging each region to the desired new position with the mouse.

The duration of each region is shown, along with the number of times the region will be repeated in the sequence, The **Repeat times** may be incremented by clicking the number with **Select**, or decremented by clicking with **Adjust**.

The entire sequence may be heard by clicking the Play button on the sequencer toolbar.

# The Regions Sequencer Menu



Sequencer regions  
submenu

This menu is opened by clicking **Menu** whilst over the Region sequencer window. The choices in the upper part of the menu relate to the named region that the pointer was positioned over when **Menu** was clicked.

## Highlight region

Scrolls the ProSound project window, and highlights the current region that is, makes the region the current selection.

## Play region

Plays the current individual region, This cant also be achieved by double clicking a region.

## Clear region

Clears the current individual region.

## Edit region

Opens a small window allowing the part of the project designated as the current region to be modified numerically.

## Clear all

Clears all defined regions.

## Save regions

Opens a savebox from where a directory containing samples of all defined regions may be be saved. The format of the samples may first be selected.

## Save list

Saves a ProSound file containing a list of the defined regions, which may be reloaded at some later stage.

**Save sequence**

Opens a ProSound savebox from where an audio file of the current sequence of regions may be saved. The format of the audio file may first be selected.

**Make new project**

Opens a new ProSound project using the defined regions.

# 23. The Recording Studio

ProSound enables various third party sample cards to capture direct to hard disc using a common recording interface.

The following sample hurd ware is currently supported by ProSound:

Eagle M2	Lark 16
Irlam 24116	irlam SoundCard
Irtam Lambda	Irlam ReplayDIY
Irlam VideoDesk	AudioDynamics DMI
Armadeus <sup>2</sup>	Armadillo <sup>2</sup>
SEMERC	VTi Printer Port Sampler <sup>1</sup>

1 Only recording to RAM supported

2 Not yet fully supported



The Recording studio window is opened by clicking the Record button on the ProSound toolbar, This is the interface from where sampling directly into ProSound is achieved. using any one of the supported cards, (and USB 2025)



Recording wndow

First of all, the appropriate Sampling Device must be chosen from the popup

menu. This will be saved as the default choice when saving the settings in the **Choices window**.

The **Gain** control basically has the effect of amplifying or attenuating the incoming audio signal in real-time as it is captured. The gain may be automatically set by using the Rehearse facility, This will listen to the incoming audio signal and set the gain level accordingly. If a very high gain is set, it may be worth increasing the level of the incoming audio signal und rehearsing again.

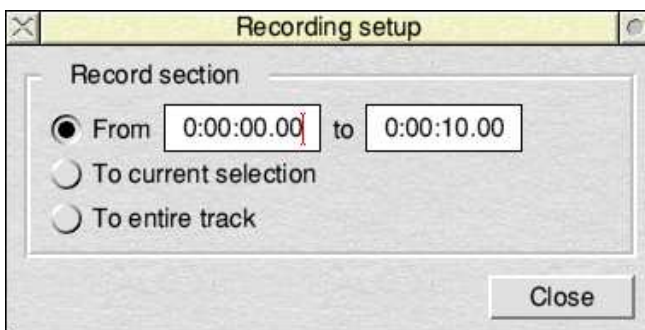
It is now necessary to indicate which track of the current ProSound project, recording is to take place on. This it achieved by clicking the appropriate Rec button at the bottom of the window. In the example above, track 1 is highlighted, and this is the track which will be recorded on.

It is also possible to play a project track whilst recording is taking place. This is useful for knowing what else in going on in the project. whilst a track is being recorded to. The track which will be played is selected by clicking the corresponding **Play** button, and in this example is track 3.

The stereo hardware sampler and driver is being used, it is possible to select two tracks to be recorded onto. No differentiation is made between which is the left und right channel, as this may be assigned for each track later using the mixer.

## **Recording Duration Setup**

Now the section of the chosen track on which to record must be selected, Open the Recording duration setup window by clicking **Setup...**



Recording setup window

Recording may take place to a specified section of the track defined by a timecode in the standard format H:MM:SS:CC, to the current selection of the track, or to the entire track.

Similarly the playback from the selected track during recording may be for a duration the same as the record section, the entire track, or the current selection plus <n> seconds before and after the selection. This final option is to allow time for picking up instruments when recording live instrumentals.

The **Disable Undo** option disables the undo facility whilst recording. this means that the operation of recording to a track cannot be undone, but prevents any delay in recording taking place.

Once the required settings have been made, click **Set** to return to the main Recording studio window. Now clicking **Record** will actually commence sampling.

Whilst recording is taking place. the captured waveform will appear on the track if the multitasking record option has been chosen in the Choices window. and the VU meters will reflect the amplitude of the incoming audio signal. Recording will continue until the end of the duration is reached, or until Escape is pressed.

## **VU Meters**

The VU meters in the Recording window will be active whilst rehearsing and recording, they allow the volume of the incoming audio input to be adjusted to the most appropriate level.

## **24. SampleCard Drivers**

### **IDE/SCI CD Reader**

FX not ready..

## **25. Media Speed Testing**

Not 32 bit...

## **26. Short-cuts and Mouse Actions**

A selection of keyboard short-cuts and mouse actions enable more experienced users of ProSound to move about the package more proficiently.



## Keyboard Short-cuts

F1	Open beat window
F1 + Shift	Open display options
F2	Link tracks toggle
F3	Save project
F3 + Shift	Save track
F3 + Ctrl	Save selection
F4	Open region sequencer
F4 + Shift	Play sequence
F5	Level lines on / off
F5 + Shift	Track numbers on / off
F5 + Ctrl	Linear / log scale toggle
F5 + Shift + Ctrl	Select from start of track to start of current selection
F6	Timecodes on / off
F6 + Shift	Apply envelope on / off
F6 + Shift + Ctrl	Select previous region
F7	Envelope edit mode on / off
F7 + Shift	Zoom in
F7 + Shift + Ctrl	Select next region
F8	Beat markers on / off
F8 + Shift	Zoom out
F8 + Shift + Ctrl	Select from end of current selection to end of track
F9	Open mixer
F9 + Ctrl	Play clipboard contents
F10	Play project
F10 + Shift	Play track
F10 + Ctrl	Play selection
F11	Open recording window
F1 + Shift	Open shuttle window
F11 + Ctrl	Play around selection

Shift + Up	Next track
Shift + Down	Previous track
Shift + Left	Move to start of selection
Shift + Right	Move to end of selection
Ctrl + Tab	Next project
Ctrl + A	Select current track
Ctrl + C	Copy selection
Ctrl + E	Copy envelope to all tracks
Ctrl + F	Open special effects toolbox
Ctrl + L	Loop on / off
Ctrl + N	Set name for current truck
Ctrl + P	Start playback from cursor
Ctrl + Q	Remove project
Ctrl + R	Define region
Ctrl + S	Enter selection numerically
Ctrl + V	Paste copied selection
Ctrl + X	Delete selection
Ctrl + Z	Clear selection
Ctrl + <	Play at half speed
Ctrl + >	Play at full speed
Ctrl + ?	Move to caret position
Space bar	Play current selection
Return	Place marker flag whilst playing
Escape	Abort any ProSound playback

## Iconbar Mouse Actions

Select	Create new project
Adjust	Open Library
Menu	Open iconbar menu
Ctrl + Select	Set loading format for unrecognized sample files
Ctrl + Adjust	Open Quick Sample Play window

## Project Edit Window Mouse Actions

Select	Set cursor, gain caret sel track
Adjust	Gain caret, set track
Drag - Select	Reset selection, start drag
Drag - Adjust	Adjust selection
Shift + Select	Set selection start or end
Drag - Shift + Select	Sonic style set selection
Shift + Ctrl + Select	Select region

## Envelope Editing Mouse Actions

Drag - Select	Insert new point if necessary / move point
Drag - Adjust	Move nearest point
Shift + Select	Delete point
Drag - Ctrl + Select	Move envelop up / down

# 27. Information for Advanced Users

The following information is given to allow experienced users to gain the most from using ProSound, but is not essential to every day use of the package.

## Advanced Choices

It is possible to make some low level choices about the operation of ProSound by setting flags in the file **!ProSound.!Setup**.

• **BigBuffers**

Forces ProSound to use more memory for certain operations. Use only if you have more than 8 Mb in your machine.

• **Colours <colourlist>**

Set the ProSound palette. <colourlist> is a string with 16 hex digits, defining:

- Colour of current track
- Colour of other tracks
- Colour of selection on current truck
- Colour of selection on other tracks
- Colour of timecodes
- Colour of beat markers
- Colour of level lines
- Colour of track numbers
- Colour of cursor (ignored, always inverted)
- Colour of sample dutw on current track
- Colour of sample data on other tracks
- Colour of regions
- Colour of envelope (ignored, always inverted)
- Colour of selected sample data on current track
- Colour of selected sample data on other tracks
- <unused, must be 0>

**Flags <flags>**

Bit 0	Clear	0.7 sec. Replay sound code timing
	Set	Skip Replay sound code timing (Risc PC only)
Bit 1	Clear	Use filetype &FE4 (DOS) for WAV
	Set	Use filetype &FB1 (Waveform) for .WAV
Bit 2	Clear	Open mixer when creating a new project

	Set	Don't open mixer when creating a new project
Bit 3	Clear	Insert sample files where they are dragged
	Set	Insert sample files at the cursor
Bit 4	Clear	Shift-drag file to the iconbar loads and edits file
		Drag to iconbar installs the file in the library.
nn	Set	Drag file to the iconbar loads and edits file
		Shift-drag to iconbar installs the file in the library
Bit 5	Clear	Don't report initialising errors from effects
	Set	Report initialising errors from effects
Bit 6	Clear	Disable Replay ADPCM saving
	Set	Enable Replay ADPCM saving
Bit 7	Clear	Confirm before loading regions
	Set	Don't confirm before loading regions
Bit 8	Clear	Use medium Replay quality at high sample rates
	Set	Always use highest Replay sound quality
Bit 9	Clear	Use old formula for track extension limit
	Set	Allow tracks to be extended to maximum length
Bit 10	Clear	Load all plugin modules
	Set	Load no plugin modules
Bit 11	Clear	Library can hold 64 files
	Set	Library can hold 255 files (Risc PC only)
Bit 12	Clear	
	Set	Open 'Alter format' after loading raw sample file
Bit 13	Clear	Shuttle buffer size = 0.15 sec
	Set	Shuttle buffer size = 0.07 sec (Risc PC only)
Bit 14	Clear	Move cursor/scroll window when playing
	Set	Keep cursor/window fixed when playing

Example:

**Set ProSound\$Options -BigBuffers -Colours 1234561234561230 -Flags & 15**

## Disabling Plug-in Modules

The variable ProSound\$Disabled (set in !ProSound.Setup) may hold a list of plug-in modules that should not be installed, far example:

**Set ProSound\$Disabled FreqDouble,SaveGSM, Lowpass**

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