Advanced GRAVIS

Bundled Software User's Guide

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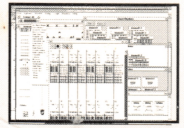
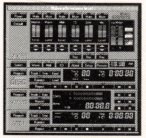


Power Chords™



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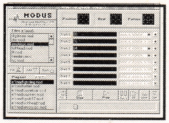

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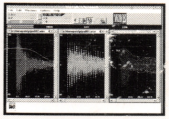

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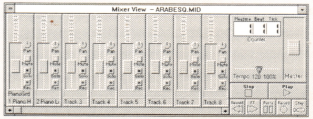

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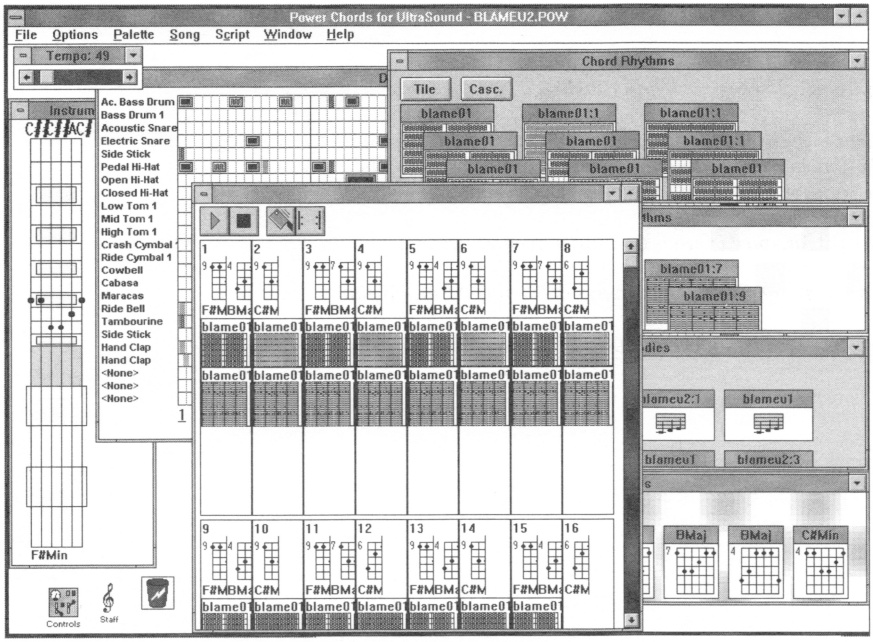

Power Chords™

by Howling Dog Systems

CONTENTS

INTRODUCTION TO POWER CHORDS™

Welcome to Power Chords for UltraSound. Power Chords is a guitar based music creation program, that provides you with tools to make creating music easy and fun. Even if your knowledge of guitars and guitar chords is limited, Power Chords has tools to help you experiment and learn about chords. Power Chords represents everything graphically for your convenience and ease. With one click of the mouse, Power Chords gives you the feedback you need to allow you to experiment, and to get results quickly and efficiently.

Upon completion of the tutorial you should be able to use Power Chords to create music. More extensive information on Power Chords is available via the intensive help facility. The most important rule of thumb is to experiment - try things! There are often many different ways to accomplish the same task. Find out what suits you best.

You are encouraged to write and distribute Power Chords script files. Power Chords script files are a powerful medium through which you can create interactive lessons, tutorials, or even musical correspondence. Using the Staff window can help you relate stringed instrument chords to their notated counterparts. As well, when it comes to learning about Chord Progressions and their use in songs (i.e. percussion rhythms, arranging, etc.) Power Chords is ideal.

Load the various sample files provided and try them out. You will get a better idea of how to use Power Chords by studying the sample songs.

RUNNING THE TUTORIAL

Power Chords comes with a detailed, interactive tutorial. We highly recommend that you take the time to run the tutorial in order to quickly learn how to use Power Chords.

To run the tutorial:

- **Start Windows (if you're not already in Windows).**
  Type: `WIN`

- **Double-click on the GRAVIS ULTRASOUND icon found in the Program Manager window.**

- **Double-click on the POWER CHORDS TUTORIAL icon to start the tutorial.**

There are three tutorial script files in all; TUTOR1.SCR, TUTOR2.SCR, and TUTOR3.SCR. They are linked so they can run in sequence automatically.

However, if you wish to stop after any part of the tutorial, you can access the next part by loading the appropriate file.

Song Structure

A song is composed of one or more parts. Power Chords lets you create the following parts to use in your songs: **Chords**, **Chord Rhythms** (strumming, plucking, or fingering patterns to apply to the chords), **Drum Parts**, **Melodies**, and **Bass Parts**.

Each part is composed of small music elements that are repeated as needed. It is possible to use one music element the full length of the song, but usually each part will contain shorter sections that are repeated. This means that you only have to create the repeatable section once. You can then reuse the section in various places in the song. Variations of music elements are easy to create by modifying a copy of the original.

Songwriting Technique

Often, the first part of the song to be created is the chord structure. Each chord used in the song is created using the Instrument window and is stored in the Chord Palette. Only one copy of each chord is needed in the palette as the chord may be copied from the palette into the song to as many places as you like. All the palettes in Power Chords function in this way. Once you have all the song's chords in the Chord Palette, they can be copied into the Song window to the appropriate locations.

Next Chord Rhythms are created. These patterns are used to play the chords in the song and are equivalent to strumming or plucking patterns on a stringed instrument. The Rhythm Editor is used to create each repeatable Chord Rhythm. As each Chord Rhythm is completed, it is stored in the Chord Rhythm Palette. Chord Rhythms are copied into the song to the appropriate locations.

Drum Rhythms are created using the Rhythm Editor and are stored in the Drum Rhythm Palette. From the palette they are positioned in the song into the appropriate bars. Like Chord Rhythms, Drum Rhythms automatically repeat until a different one is encountered.

Bass Parts and Melodies are created in the Rhythm Editor in three ways: (1) using the mouse; (2) importing from a MIDI file; or (3) recording directly from a MIDI instrument. Once melodies are stored in the Melody Palette they may have one of many MIDI patches assigned to them. This applies to Bass Parts as well.

Finally, completed songs are saved in Power Chords song files. The song itself and the contents of all the separate Palettes are saved. Instrument set up and drum kit information is also saved in the file. The song can also be saved as a Standard MIDI file (Type 1) to export to another music program.

How Power Chords makes music

Power Chords sends out Musical Instrument Digital Interface (MIDI) messages - electronic codes such as 'Note On', 'Note Off', and 'Patch Change'. These messages are what triggers your sound hardware (UltraSound) to play notes or to change instrument sounds.

Patch Changes

A patch change is a type of MIDI message that tells UltraSound which music sound to use on a particular MIDI channel. There are sixteen channels in all, and each can have a different patch setting if desired. Because the MIDI note information for each instrument is on a different channel, the sound hardware can play different sounds at the same time.

A patch change command can specify a patch number from 1 through 192. UltraSound is a General MIDI device which responds to these patch numbers by providing a patch which corresponds to the General MIDI sound for that number.

General MIDI

With General MIDI, any sound module that is General MIDI compatible has its various instrument sounds mapped to the same patch number.

For example, under General MIDI, patch 1 is always piano. Trumpet is always patch 57, flute is always patch 74, and bagpipe is always patch 110.

General MIDI makes things a lot easier. If my friend and I both use a Gravis UltraSound card (General MIDI compatible), I can select instruments by name, and Power Chords knows which instruments go with which patch numbers. Any songs I create will play back on my friend's setup sounding just as great!

ICONS

Power Chords displays many icons on its main screen. Once clicked on, each item turns into either a palette or a window to help you create the parts you want to put into your song.

For each palette and window item, a brief description of each is given below. Each palette works in the same manner; therefore, one "How to Use" list is provided after the palette descriptions to help you use them.

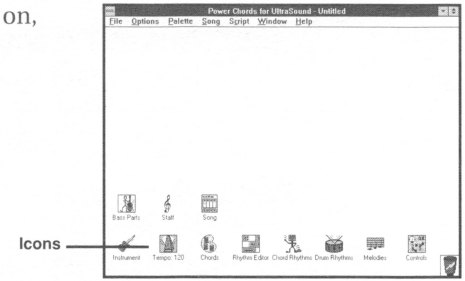

Fig. 1 - Power Chords main screen

Palettes

Chords

Chord Palette is a storage area for chords. Chords can be moved to the Chord Palette from the Instrument or Song windows. Each chord in the palette is represented by a window with the chord name as its title. In the window is a picture of the chord(s) (see Fig. 2).

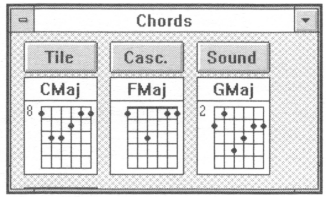

Fig. 2 - Chord Palette

Note ! ***When you create and save a Power Chords song file, all elements written to the various palettes are saved into Song.***

Controls

The Control Palette is a generator and storage area for MIDI control sequences. Control sequences are used to send control type MIDI data such as Patch changes and Controller changes to a MIDI device. Each control is represented by a window with the control's title and a control picture inside, which resembles the Chord Palette.

Chord Rhythms

Chord Rhythm Palette is a storage area for chord rhythms. Chord rhythms are created using the Rhythm Editor (see Fig 3). Once the Chord Rhythms are created, each chord rhythm can then be moved to the Chord Rhythm Palette, which looks similar to the Chord Palette (see Fig. 2). In fact, all the palettes look like the chord palette, except each is a different colour and has its own title. Each chord rhythm is represented by a window with the chord rhythm's title and a chord rhythm grid inside.

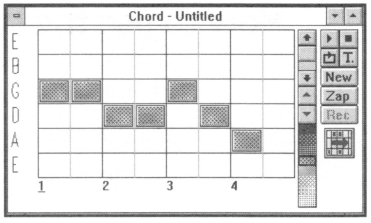

Fig. 3 - Rhythm Editor; creating a Chord rhythm.

Drum Rhythms

The Drum Rhythm Palette is a storage area for drum rhythms. Drum rhythms are created using the Rhythm Editor. Once the Drum Rhythms are created, each drum rhythm can then be moved to the Drum Rhythm Palette, which resembles the Chord Palette (see Fig. 2). Each drum rhythm is represented by a window with the Drum Rhythm's title and a drum rhythm graph inside.

Melodies

The Melody Palette is a storage area for melodies. Melodies are created using the Rhythm Editor. Once the Melodies are created, each melody can then be moved to the Melody Palette, which resembles the Chord Palette (see Fig. 2). Each melody is represented by a window with the Melody's title and a melody picture inside.

Bass Parts

The Bass Part Palette is a storage area for bass parts. Bass Parts are created using the Rhythm Editor. Once the Bass Parts are created, each part can then be moved to the Bass Part Palette, which resembles the Chord Palette (see Fig. 2). Each bass part is represented by a window with the Bass Part's title and a bass player picture inside.

How to use the Palettes

To **sound** any chord, rhythm, melody or bass part in a palette, click the right mouse button on the part you want to hear.

To **move** a chord, rhythm etc., click on the part title and drag the part where you want it. Song parts can only be moved inside a palette in this fashion.

To **copy** a part from a palette, click on the part (not the title) and drag it to a destination.

To **edit,** double-click on the item you want to edit.

To **discard** a part from a palette, click on the part and drag it to the Garbage window.

To **clear** a palette of all items, select Palette from the menu, and select the palette you want to clear (i.e. Clear Chord Palette).

Windows

Song Window

The Song window is the heart of song writing and music playing in Power Chords. The Song window provides a bar by bar framework in which you can place the various music elements that make up a song such as Chords, Chord Rhythms, Drum Rhythms, etc.

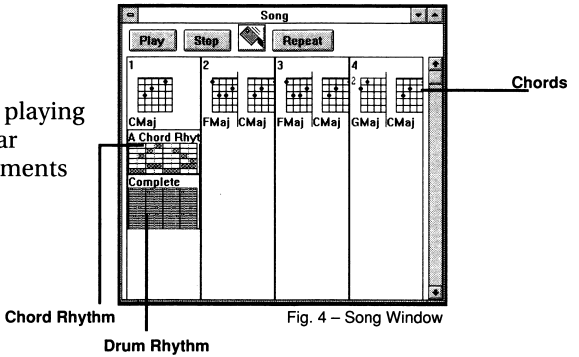

Fig. 4 – Song Window

To **create** a song, drag music elements from their respective palettes into the appropriate bars in the Song window. Music elements can also come directly from the Instrument or Rhythm Editor.

To **discard** a music element, click on it with the left mouse button and drag it to the Garbage window.

You can edit a music element's parameters once a music element is in the song window. The music element's Title, Channel and Patch can be edited by double-clicking on it. This invokes the Edit Rhythm dialog box, just the same as if it was double-clicked on while in a palette. However, changes made to a music element are reflected in all the copies of that music element in the song. For example, if the same Bass Part is used in three different places in the Song, and you double-click on one of them and change the patch used, the other two instances of that Bass Part will also have their patch changed.

The music elements dragged to the bars of the song window are displayed. The Display of all the different music elements can be turned off in the Song Options dialog box, reached via the Song menu.

To start playing at a particular bar, double-click on that bar in an empty area, that is, an area where there is no music element or chord. The song will start playing at that point.

Note ! ***Music elements that start before the bar will not be played. Music elements that start or repeat on the bar will be played, as will all music elements starting or repeating after the bar.***

To play any element visible in a song, click the right mouse button on the element.

To play a single bar, click the top most area of the bar, just under the edge with the right mouse button.

Stop Button stops the song playing immediately.

Song Elements

Chords will not play unless they are accompanied by a Chord Rhythm. Chords must be specified in bars —they never repeat automatically.

Chord Rhythms never sound unless there are Chords with them. They may be longer than 1 bar, and will play and repeat until overridden by a later chord rhythm.

Drum Rhythms may be longer than 1 bar. They will play and repeat until overridden by a later drum rhythm.

Melodies may be longer than 1 bar. They will play until overridden by a later melody. They do not repeat automatically.

Bass Parts may be longer than 1 bar. They will play and repeat until overridden by a later bass part.

Controls are always played at the beginning of a bar. They do not repeat and do not run longer than 1 bar.

Tip: To enter a period of silence for one type of music element, create an empty music element with no notes in it and drag the element into place.

Rhythm Editor

The **Rhythm Editor** is used to create most of the music elements in Power Chords: **Chords**, **Chord Rhythms**, **Drum Rhythms**, **Melodies**, and **Bass Parts**. Musical time is represented as a grid with time running left to right, and different notes running top to bottom. The darker vertical lines in the grid indicate beats. The beats are numbered at the bottom of the grid. Notes are represented in the grid as blue squares. The intensity of color indicates the relative loudness of the note (MIDI velocity). The longer the note square, the longer the note.

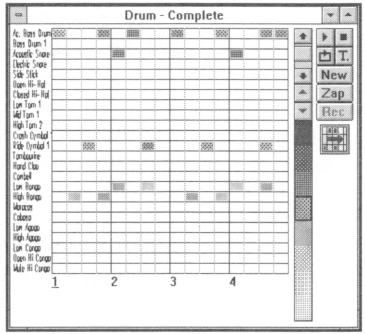

Fig. 5 - Rhythm Editor; creating a Drum Rhythm.

You can create and edit Chord Rhythms, Drum Rhythms (see Fig. 5), Melodies, and Bass Parts with the Rhythm Editor. As well, you can freely switch between these four without losing data. You can also use the Rhythm Editor to record Melodies and Bass Parts from an external MIDI instrument, or to import Melodies and Bass Parts from external standard MIDI files. We suggest you go through the tutorial to learn more about the Rhythm Editor and its functions.

Play Button plays the current rhythm once through. As the rhythm plays, the grid information will be scrolled if necessary to show the current beats being played. A black bar will appear above the current beat. When playing is done, you will be returned to the beat you were at when playback started.

Loop Button plays the current rhythm over and over until the stop button is pressed. While the rhythm is looping, you can add or remove notes in the grid, change resolutions, etc., to create your rhythm in an interactive way. This option is especially useful when creating drum rhythms.

Stop Button stops the currently playing or looping rhythm. It also stops recording, if applicable.

Resolution Scroll Bar, just to the left of the play and loop buttons, allows you to change the resolution of the rhythm editor grid in terms of the number of divisions per quarter note. This scroll bar is mainly used for the easy entry of various values of notes.

For example, if you want to enter quarter notes, you would use the very top resolution of one division per quarter note. Then as you click on the grid, quarter notes are entered. To enter eighth notes, click the down arrow on the scroll bar once. This changes the grid so that there are two divisions per quarter note (eighth notes). The resolutions go down to 96 per quarter note.

Making Long Notes lets you enter notes longer than the current division by pressing the Shift key and dragging the note to the right while the Shift key and mouse button are still pressed. This extends the note to the right.

Velocity Change Buttons change all the velocity of every note in the current rhythm up or down by four for each button press.

Velocity Scale lets you alter the velocity of an individual note by clicking on it with the right mouse button, and dragging it up or down. As the mouse is dragged, the note will be re-triggered at the new velocity so you can judge where you want it to be. As the velocity changes, the note's color will also change.

Horizontal Scroll Bar appears when the whole rhythm cannot be displayed at once. It allows you to shift right or left to the beat desired.

Rhythm Elements

Chord Rhythms are a bit different from the other music elements the Rhythm Editor can create. When editing a chord rhythm, the horizontal areas are not used to represent notes, but the instrument strings (see Fig. 3). A chord rhythm cannot be played by itself—it needs a chord to tell it what notes are on the strings.

Note ! ***The same chord rhythm can play many different notes depending on the chord put with it, because it indicates when the strings are to be played, not which notes.***

Melodies and Bass Rhythms are straight forward. The horizontal areas represent notes. The range of these notes is set when you create a new rhythm, or when you import or record from a MIDI instrument.

Drum Rhythms are also straight forward. The horizontal areas represent the different sounds available in the Drum Kit.

Instrument

The Instrument window contains the emulation of a stringed instrument. This is where chords are created for storage in the Chord Palette, and later use in songs. It is also a testing ground for different tunings and sounds. You can't change the number of strings or frets, but you can retune the instrument.

With the **Fretboard**, **String Bending Area (Bend)**, **Chord Strum Area (Strum)**, and **String Pluck Area (Pluck)** you can alter your song by bending strings, strumming or plucking the instrument. The choice is yours.

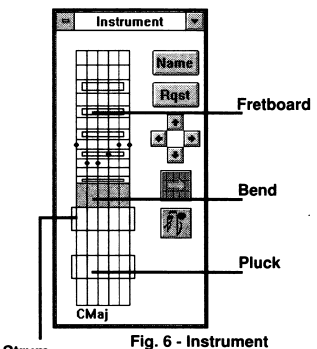

Fig. 6 - Instrument

How to use the Instrument:

To create chords:

- **Click left mouse button or drag the mouse on Fretboard area to position fingers; or,**
- **Click on Chord Request button to create a specific chord.**

To play chords:

- **Click right mouse button in the Instrument window at any time to sound the current chord.**
- **Click on the Chord Strum Area to sound the chord.**
- **Click on the String Pluck Area to sound notes individually or to strum the chord.**
- **To bend notes, click on the desired string in the String Bending Area (the blue rectangle) and drag to the left or right.**

Staff

The staff window displays a normal music staff with treble and bass clefs. When you drag a chord onto the staff window, the notes that make up the chord are displayed.

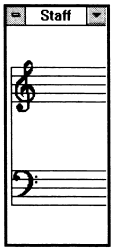

Fig. 7 - Staff

Tempo

This Tempo window is used to set the tempo for song playback.
You can set a tempo from 32 beats per minute to 250 beats per minute.

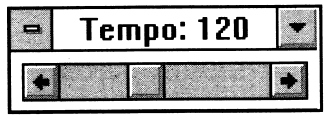

Fig. 8 - Tempo

Garbage

You can discard all sorts of objects by dragging them to the Garbage and releasing the mouse button. The Garbage is located in the lower right corner of Power Chord's main window. Objects that can be deleted are Chords, Chord Rhythms, Drum Rhythms, Melodies, Bass Parts and Controls.

Fig. 9 - Garbage

If you drag a chord to the Garbage window from the Instrument or Staff windows, the chord in the window will be cleared. If you drag any type of rhythm to the Garbage window from the Rhythm Editor, that rhythm will be cleared from the Rhythm Editor. The Garbage Window is the same as the Zap button in the Rhythm Editor.

Script Facility Description

The Power Chords script facility gives you the ability to design interactive tutorials, lessons or presentations using Power Chords. A script file contains a list of commands for Power Chords to do various actions such as display a particular chord, display some text for the user to read, wait for a number of seconds while the user tries out something, etc.

A script file is prepared in advance using the Power Chords script record facility. Some actions are performed directly in Power Chords, and are recorded to the script file automatically. Other actions are selected from the script menu. Usually these actions require you to fill in a dialog box depending on the action selected. When the dialog is complete, the action is stored in the script. Script files can be edited with any text editor, like the notepad Program that comes with Windows. Full documentation of the Power Chords script facility is not included in this manual, but is available in the Online Help documentation that comes with the program.

Once a script file is complete, you can load it into Power Chords. And, you can copy and transfer script files between Power Chords users.

Power Chords for UltraSound Information

Number of Strings on Instrument:	6
Number of Frets on Instrument:	12
Maximum Number of Chords in Palette:	48
Maximum Number of Chord Rhythms in Palette:	24
Maximum Number of Drum Parts in Palette:	24
Maximum Number of Melodies in Palette:	24
Maximum Number of Bass Parts in Palette:	24
Maximum Number of Controls in Palette:	24

There are hidden palettes in the Song for each Rhythm type. They have the same capacities as the regular palettes. So, for example, the maximum number of different Chord Rhythms in a song is 24.

Maximum Number of Bars per Rhythm:	16

Melodies and Bass Parts imported from MIDI files are allowed to exceed 16 bars.

Number of Chords in Bar:	4
Minimum Number of Beats per Bar:	2
Maximum Number of Beats per Bar:	6
Number of Bars in Song:	128
Minimum Tempo:	32 Beats Per Minute
Maximum Tempo:	256 Beats Per Minute
Internal Clock Resolution:	96 ticks per quarter note
Minimum Note Length:	1/96th of a quarter note
Number of Drum Sounds in Palette:	74

Number of Drum Sounds in Kit:	24
Maximum Notes in Rhythm Editor Playback Buffer:	4096 notes or 8192 MIDI Events

Parts can be longer than this. Playback will be truncated in the Rhythm Editor or when played by clicking with the right mouse button. The total number of MIDI Events in a song is limited by the amount of memory available .

Maximum Script Size:	32768 characters

A Message from Advanced Gravis

Power Chords is complimentary software provided by Advanced Gravis. Gravis did not write this software. As such, we do not provide detailed technical support for Power Chords. However, the creators of Power Chords —Howling Dog Systems provided us with answers to the common questions users ask. These questions and answers are found on the next page, so please refer to them if you have any problems.

This manual gives you the basics of Power Chords. You learn about Power Chords and how to get it started; however, we did not go into great detail. For more extensive information, please refer to the Readme and Help files provided.

Common Questions about Power Chords for UltraSound

Some parts of the song do not play, even though they play individually when I click on them.

Your UltraSound card only has a certain amount of memory available for patches. It is possible to use more drum sounds and instrument patches in a Power Chords song than will fit in the available RAM on the UltraSound card. Make sure you have the **Conserve Memory** option selected for the UltraSound driver. This will double the number of patches you have room for. You may want to increase the RAM available for patches by purchasing an UltraSound memory upgrade kit from Advanced Gravis.

To turn on the Conserve Memory option, double-click on the Control Panel icon in Windows Program Manager's Main window. Then double-click on the Drivers icon. Find the driver called UltraWave and MIDI Synth. Click it once to select it, and then click on the button marked Setup. Select the Conserve Memory option in the lower left area of the UltraSound Setup dialog box. Click on OK.

What's so great about the right mouse button?

The right mouse button plays most items in Power Chords. This includes melody, drum, bass parts, chords, and controls. etc. You can also use the right mouse button in any dialog to test changes. This includes the Patch Edit dialog, the Tuning Options dialog and the Drum dialogs (click on the individual items to play them).

How do I change the instrument sounds in a song?

To change the instrument sound for any melody or bass part in the song or in a palette, double-click on the part. Then click on the **Edit Patch** button. You will then have access to the patch select menu.

Click on the new instrument sound you want. Then click with the right mouse button to hear the part played with the new instrument sound. You can audition the part with any of the 192 General MIDI sounds in this way.

How do I change the instrument sound for the chord part or the on-screen guitar?

The chord part in the song and the on-screen instrument use the same instrument patch. To change it, select the Options item from the main menu, then select the **Tuning** menu item. Click on the 'P' button next to any active string in the Tuning Options dialog to change the patch for that string.

How do I change the instrument sound for a part in the Rhythm Editor?

You can set the patch for a part when it is created (by hitting the New button in the Rhythm Editor). You can not change the patch for a part currently in the Rhythm Editor. If you need to change it, copy the part to the appropriate palette. Double-click on it and change the patch. Then just drag it back to the Rhythm Editor.

I can see certain parts displayed in the song, but they don't play.

Access the Song item from the main menu. Select **Song Options**. Note the check boxes on the left. You can choose which song elements Power Chords displays, and which song elements Power Chords plays. It is possible to have song elements that are displayed but do not play, and vice versa.

How do I insert or delete bars in the song?

Power Chords for UltraSound does not support drag and drop editing of bars in the song window. (Version 1.1 of Power Chords and higher does.) You can, however, move all the parts by dragging them with the mouse.

Acknowledgements

Power Chords was created by Eric and Karen Bell. Special recognition for achievements in vocal work to Jinx.

Power Chords Upgrade

Power Chords 1.1 and Power Chords Pro

If you enjoy music creation with Power Chords for UltraSound, you may want to upgrade to version 1.1 of Power Chords or Power Chords Pro. Fill out the upgrade coupon included with your UltraSound card or contact Howling Dog Systems for pricing and availability.

Power Chords 1.1 includes full instrument tuning options, up to 12 strings and 24 frets, powerful song editing features that let you highlight ranges of bars and move, copy, or delete them, improved file open and save dialogs, and access to any MIDI driver in Windows.

Power Chords Pro includes all the features of Power Chords 1.1 plus many powerful advanced features like an on-screen keyboard, 16 melodies per bar, importing any part from any Power Chords file, improved MIDI file import features, and advanced drag and drop editing in the Rhythm Editor.

If you have children you will want to own ***Mr. Drumstix' Music Studio***, available for 50% off list price to UltraSound owners. This colorful program provides an interactive music environment perfect for exploration and play. The amazing Mr. Drumstix cartoon character plays along with the music! Includes 20 children's songs with lyrics, fun, educational musical games, and a playable on-screen keyboard, guitar, and drum kit. Get more out of your UltraSound card with this terrific program. For ages 3-8.

For more information contact:

Howling Dog Systems
Kanata North Postal Outlet
Box 72071
Kanata, Ontario, CANADA
K2K 2P4

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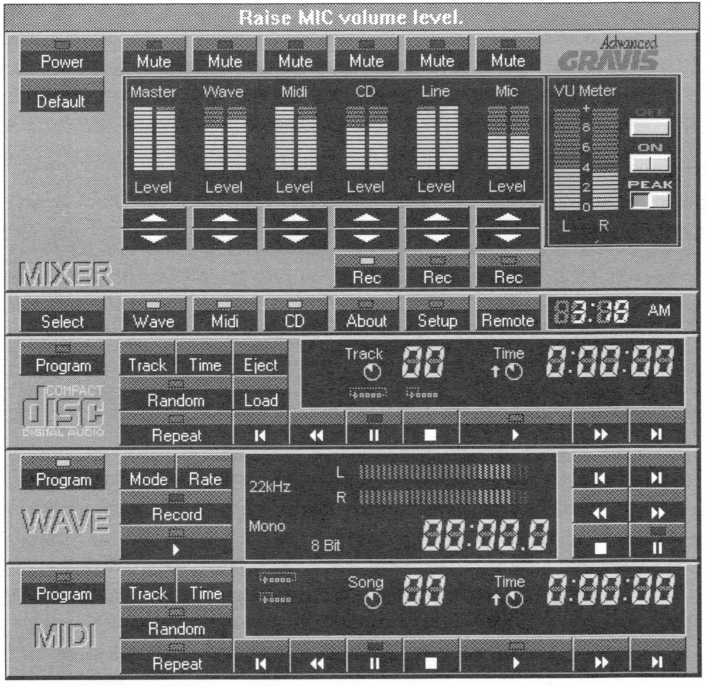

SoundStation

by WinSoft

WinSoft Development Corporation
8605 Allisonville Road #210
Indianapolis, Indiana 46250
(317) 578-4629

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INTRODUCTION TO SOUNDSTATION

SoundStation is a complete sound software solution for your PC. It functions like a home stereo system, and you will find it provides all essential needs for sound recording and playback besides being easy to use. SoundStation consists of one main Window application with individual components (CD , MIDI [synthesized files], Wave Digital Player/Recorder [digitally recorded files]) that can be turned on or off.

SoundStation contains the following components:

Mixing console:

Provides complete control over recording sources and playback volume levels. Requires a sound card with appropriate mixing capabilities to operate. The mixer is dynamic in choosing what mixer qualities are available from the sound card.

CD player:

Full featured compact disc player for compact discs. Requires a CD-ROM drive with audio playback capabilities to operate.

Digital player / recorder:

You can digitally record and play back WAVE files. Recording can be accomplished from any mixer source that allows recording the output. Requires appropriate WAVE drivers and digital recording/ playback hardware to operate.

MIDI player:

Plays MIDI files on your sound card through its built-in MIDI synthesizer. Requires appropriate MIDI drivers and hardware to operate.

WHAT IS SOUNDSTATION?

SoundStation is a one-stop solution for controlling your computer's sound card and/or CD-ROM player using Windows 3.1 and the Windows Multimedia facilities. SoundStation allows you to play Windows WAVE (.WAV) files and MIDI (.MID) files through your sound card. You can also use SoundStation to control your computer's CD-ROM player as if it were an audio CD player.

SoundStation's main screen looks similar to a stacked stereo component system. There are many reasons for this. The most important reason is that most people know how to operate a stereo system. Therefore, logically arranging all of the functionality into one tightly integrated "system" with a familiar face should help both the novice and the expert to quickly familiarize themselves with the program.

One of the main features that we like to point out is the program's extensibility. In other words, if you don't like the way something works, you can probably modify the functionality to suit your tastes.

Another interesting feature of SoundStation is the application of graphical elements and symbols instead of text on many of the buttons and displays. The little button with the right-facing single arrow indicates Play, not only on the CD player, but also on the WAVE player and the MIDI player. In other words, once you've mastered one component's operation, you're most of the way towards understanding the other components. Just like buying all of your real stereo components from the same manufacturer.

INSTALLING SOUNDSTATION

SoundStation is installed during the UltraSound Bonus software automated installation. If you need to re-install SoundStation for any reason, consult your UltraSound installation guide for details on how to do a manual install.

STARTING SOUNDSTATION

In the Program Manager's Gravis UltraSound group, double-click the SoundStation icon to launch SoundStation.

ON-LINE DOCUMENTATION (HELP)

SoundStation features extensive on-line help as well as a graphical "help" file. If you want additional information on a product feature, then press the *right* mouse button while the mouse pointer is over that feature or element. On-line help can also be reached from the *Setup dialog* of SoundStation.

DRAG AND DROP

Drag and Drop is a feature of Windows that is supported by SoundStation. This feature allows you to drag WAVE and MIDI files from Windows' File Manager to SoundStation and have the files load automatically. You may drag both WAVE and MIDI files to SoundStation at the same time.

For both the WAVE and MIDI players, you can have dropped file replace the current play list, or the dropped files can be added on to the current play list. See the topics *The WAVE Player Setup Dialog* and *The MIDI Player Setup Dialog* for more information on drag and drop options.

If you drop files in SoundStation and the device that uses that type of file is currently playing, the dropped files will be ignored. For example, if the WAVE component is playing or recording, then dropped WAVE files will be ignored. Also, dropped files for any particular device cannot exceed 50 files per device, including any existing files if you have the option set to have dropped files add to the current play list.

THE RACK SYSTEM

The rack system is our name for the full-blown default mode of operation for SoundStation. It's the one that looks like a stereo system, full of neat displays and loads of buttons. Here is where you have most of your functionality.

THE MIXER

The mixer is where you can control the various overall aspects of your SoundStation environment. Packed within the confines of this component are many different items which allow you to adjust the sound and operation of your system. There is also a digital clock for your convenience.

THE VU METER

The VU Meter allows you to see the output from the sound card via a pair of bar graph meters. There are several options for operating the VU meters, selectable by the buttons along the right side of the meters. The VU Meter is always turned off whenever SoundStation is started.

There are two basic modes to the VU meter. The first mode is normal mode. Select normal mode by clicking on either half of the VU meter's ON button with the left mouse button while the pointer is over the button. The button will change states to where the appropriate half of the button is depressed, and the word "ON" will light up in bright green. The VU meter should now be active if some input is present on the sound card.

The second mode of operation of the VU meter is peak hold mode. Press the PEAK button and you will see peak hold mode in action. The meter will hold the last highest level it recorded for approximately

one second. The peak is indicated by a red bar that stays steady for a second or so.

By selecting either the ON button or PEAK button a second time (two times in a row), you select single bar mode. Instead of a "stack" of bars indicating VU information, only a single floating bar will be visible, representing the level. Whenever single bar mode is active for either the normal or peak hold modes, the word above the appropriate button will turn yellow and the right half of the corresponding button will be depressed. Pressing the button again will put the selected mode back into stacked bar mode. In other words, the ON and PEAK buttons are toggles.

On sound cards which cannot record from more than one input source at a time, you will need to select the active source with the appropriate Record Input (Rec) Button on the mixer panel. This will allow that input to be monitored by the VU meter. Also note that when the WAVE player device is playing, that the VU meter becomes a mirror for the VU meter in the WAVE component. Also, this means that any other inputs to the sound card will not be reflected on the VU meter while the WAVE device is playing.

THE POWER BUTTON

The Power button turns SoundStation off. That is, it exits the program completely. When you are finished using SoundStation and want to remove it completely from the screen, just press the Power button. Of course, like all well-mannered Windows programs, SoundStation will also exit if you press the Alt-F4 key combination.

Note that if you exit SoundStation while it is playing WAVE or MIDI files, or if SoundStation was controlling your CD audio, then all playing will stop. If you want to continue playing your music, but don't want SoundStation taking up all of your screen real estate, see the topics on *Remote Controls* or *Component Selection Buttons.*

THE MUTE BUTTONS

All of the Input Level Controls and the Master Volume Control have Mute buttons. The mute buttons are used, in all cases, to temporarily decrease input or volume levels all the way to minimum. Note that the previous setting for the particular channel that is muted is saved and is still displayed in the associated control's bar graph display. When the mute is released, the previous level is restored.

By pressing the Mute button for a particular Input Level Control, you decrease the volume only for that particular device. However, if you activate the Mute for the Master Volume Control, you cause all audio output to be decreased to minimum. This is handy when you need to talk on the phone, or need to hear if the baby is crying. Once the distraction is taken care of, press the Master Mute again and you'll be back to your previously selected volume and input levels.

It's easy to tell when Mute is activated for a particular input or the Master. Each activated Mute button will have it's red LED lit. If it's off, then the displayed input or output level should be set. Each mute button is a toggle. That is, pressing it once turns it on and pressing it again turns it off. Note that if the flashing LED is annoying, it can be set to solid through the Setup button. If you press a Mute button and it's state does not change from off to on or vice versa, then that channel may not support mute for one reason or another. In this case, you may want to consult either the topic *Why doesn't the program do this?* or the topic *Hardware-Specific Issues* to see if your particular setup is mentioned. Please do this before calling technical support.

THE RECORD INPUT (REC) BUTTONS

The record input buttons determine what input or inputs will be used when recording on the WAVE player component. All of the record input buttons have green LED indicators which will light up when that input has been selected to record from. In general, the record input buttons toggle their state,

meaning that pushing the button once turns it on and pushing it again turns it back off.

However, some sound boards may not allow you to record from more than one input source at a time. In that case, turning on a record input button for one device will turn off any other record input button LED's, indicating that only the new device is selected. To find out for sure if these circumstances apply to your particular setup, look in the *Hardware -Specific Issues* topic for more information.

THE DEFAULT BUTTON

The Default button is a quick way to return all mixer volumes, and the Master volume, back to a user defined setting. The states of the mute buttons are also saved as part of the default setting. To set your desired default, first set all of the mixer levels to your desired settings. Also, set any mutes on or off that you would like set in the default settings. Then, select the program setup option dialog by pressing the *Setup* button on the rack system. Press the *Set* button on the dialog, under the label *Mixer Level Defaults*, and your level and mute preferences will be saved and the Setup dialog will disappear. Note that you can have SoundStation use these default settings on startup, also. To activate this feature, select the Preferences dialog from the Setup dialog selections. In the group labeled *Save/Restore Volume*, turn on the checkbox labeled *Use Default.* Then, press the OK button. Now, whenever you start up SoundStation, the mixer will preset all of your levels and mutes to your desired default settings.

THE INPUT LEVEL CONTROLS

The Input level controls cover several components, including the WAVE player, MIDI player, CD player, Line input and Mic input. For each level input control, there is a level display and two buttons, one each for increase and decrease input level.

To increase the input signal level for the selected component, press the button with the upward pointing

arrow. To decrease the input signal level for the selected component, press the button with the downward pointing arrow.

On boards which allow separate left and right level adjustments, pressing the left third of either level adjustment button will only adjust the left channel input level, pressing the right third of either button will adjust only the right channel input level, while pressing the middle third of either button will adjust both left and right channel input levels simultaneously. This provides a sort of inherent balance control.

The input level display shows two columns of 15 horizontal bars. The left column indicates the relative input level of the left channel of the desired control, while the right column indicates the relative input level of the right channel of the desired control. When all of the display elements are bright cyan (light blue), then the particular control and level is at the board's full setting. If all the bars are a darker blue color, then the particular control and level is at the board's lowest setting (usually off). Anything in between is shown as a relative level depending on the number of brightly colored (lit) bars in the display.

If pressing the up and down level adjustment buttons does not change the corresponding level display for a particular component, then check for one or more of the following:

1. The particular channel has the Mute button activated.
2. The particular channel is for a component not present in the computer (like the CD).
3. Some sound card drivers, or some sound cards themselves, do not allow volume change while the device is playing. Try pausing the device and then changing the volume level.

For more information on item 3, above, see the topics on *Hardware-Specific Issues* or *Why doesn't the program do this?*.

THE MASTER VOLUME CONTROL

The Master Volume Control allows adjustment of the overall output of all input sources in one control. The Master volume control has a level display and two buttons for increasing and decreasing the output level.

To increase the output signal level, press the button with the upward pointing arrow. To decrease the output signal level, press the button with the downward pointing arrow.

On boards which allow separate left and right level adjustments, pressing the left third of either level adjustment button will only adjust the left channel output level; pressing the right third will adjust only the right channel output level, while pressing the middle third of either button will adjust both left and right channel output levels simultaneously. This provides a sort of inherent balance control.

The output level display shows two columns of 15 horizontal bars. The left column indicates the relative output level of the left channel, while the right column indicates the relative output level of the right channel. When all of the display elements are bright cyan (light blue), then the output volume level is at the board's full setting. If all the bars are a darker blue color, then the output volume level is at the board's lowest setting (usually off). Anything in between is shown as a relative level depending on the number of brightly colored (lit) bars in the display.

If pressing the up and down level adjustment buttons does not change the level display, then check for one or more of the following:

1. The Master Mute button is activated.
2. The sound card does not support direct control over master output level control.
3. Some sound card drivers, or some sound cards themselves, do not allow volume change while the device is playing. Try pausing the device and then changing the master volume level.

For more information on items 2 and 3, above, see the topics on *Hardware Specific Issues* or *Why doesn't the program do this?*.

When a setup allows individual input level controls for each component, but does not support a master output control, the program will often simulate this feature by internally adjusting all of the input controls proportionately. This adjustment will not be reflected in the individual input's display controls.

THE COMPONENT SELECTION BUTTONS

There are three component selection buttons along the bottom row of the mixer panel of the rack system. When each control is activated, the corresponding component will appear below the mixer panel in the rack, stacked on the bottom. If one of the buttons is turned off, the corresponding component will disappear, and any components below it will move up.

It is not necessary to have the particular component visible in order for it to play. For instance, you could load a CD and start it playing. Then, you could deactivate the CD player button to make the CD component disappear and the CD will continue playing. Of course, in order to do anything with the CD player other than work with the volume level, you would either have to re-activate the component or switch to one of the Remote Controls.

THE SETUP BUTTON

The Setup button brings up the setup dialog. In the setup dialog, you can configure SoundStation for your hardware, or select one of several other dialogs to configure particular portions of the program.

THE SETUP DIALOG

If you wish to access the Preferences dialog, the Information dialog or any of the component setup dialogs, choose the appropriate button from the Setup dialog.

To preset the current input and volume levels as well as the states of the Mute buttons as a defined default setting, press the button labeled *Set Mixer Default* and all of these items will be saved. Pressing the default button on the rack system will return these settings whenever you wish to return to them.

Also, the program's Version number is displayed in the Setup dialog. Please refer to this number when calling for technical support.

THE PREFERENCES DIALOG

The Preferences dialog allows you to set various options which determine how SoundStation runs. Each section in the dialog is enclosed in a Group Box with an appropriate label. Each of these groups is discussed below.

Save/Restore Volume

The Save/Restore Volume group has several checkboxes, one for each of the input levels on the mixer, and another one for the Master volume control. By checking the appropriate box, the given input or output level will be saved on exit from the program and used to restore the setting on the next program startup. If the given item is left unchecked, then the current sound card setting for that particular level will be used by the program on restart.

The Save All checkbox is a convenience item that allows you to check all of the other boxes with one

action. The Save All checkbox will uncheck if any of the other checkboxes are changed. If you happen to check all of the other checkboxes individually, the Save All checkbox will not automatically check itself. This does not mean that all of the items will not be active on program exit and restart, however.

To have the program use your defined Default input and volume level settings, as well as Mute states, check the *"Use Defaults"* item. This overrides the remaining selections in this section.
Startup Mode

The Startup Mode radio buttons allow you to select the mode that the program will use to determine how to initially present itself when it is started each time. If you select ***Last Mode***, then the program will start up in the mode it was in when last exited. If you select ***Rack Mode***, then the program will always start with the Rack system and components initially visible. If you select ***Remote Mode***, then the program will always start with the selected remote control type (see Remote Type section, below) initially visible.

Save on Exit

The Save on Exit group allows you to select whether the program will save the rack position to use on the next startup and whether it will save the remote position (moveable remote only) to use on the next startup. If left unchecked, the appropriate device will be placed at the Windows default position the first time it is made visible during each run of the program.

Note that once you move either the rack or the moveable remote once the program is underway, then the position is temporarily stored during that run of the program so that the device is not always placed at a default position every time it is activated. However, the position will not be remembered once the program is exited.

REMOTE TYPE

There are several different types of remote controls supplied with SoundStation in order to try to provide the remote control that works best for you and your desktop layout. Select the remote control type that best suits your needs from the list presented. Note that if you do not want a remote control at all, you can select the None (Iconize) option and the rack system will minimize to an icon at the bottom of the screen when the minimize button is pressed.

If you want the selected remote control to always be on top of any application windows that happen to overlay the remote, check the Remote on Top checkbox. This will make it impossible to cover the remote control with other application windows. Turn the checkbox off to make the remote behave like most other Windows applications and disappear behind other windows when they attempt to overlay the remote control.

The two general types of remotes provided with SoundStation are described below:

Moveable

The moveable remote allows you to drag the remote control around the screen to the desired location. To restore the rack system, press the "Rack" button on the remote.

Tool Bar

The Bar remotes are similar to other applications' toolbars. The buttons are arranged in one horizontal row. The Bar remotes can be attached to either the very top or the very bottom of your screen. To restore the rack system, press the Rack button on the remote.

For more information on the Remote controls and their specific operations, refer to *The Remote Controls* topic.

THE WAVE PLAYER SETUP DIALOG

The WAVE Player Setup dialog allows you to set various options which determine how the WAVE player section of the program runs. Each group of options is discussed below.

Drag and Drop

Select one of the two options in the Drag and Drop group to determine how the program will handle new .WAV files that are dragged from File Manager to SoundStation and dropped. If the Adds to Program option is selected, then .WAV files that are dropped on the program are added to any wave files that are already selected in the program through either the Program dialog or through previous drag and drop operations. If the Replaces program option is selected, then .WAV files that are dropped on the program replace any previously selected wave files.

Recording

Select one of the two options in the Recording group to determine how recording of wave files will proceed when invoked. The default selection, Starts immediately, means that once you press the Record button all necessary setup actions will perform and then recording will start. Actually, immediately is a misnomer in this instance, because the housekeeping performed by Windows to start a recording session involves setting up a disk area for capturing the resulting data. This operation itself takes quite a bit of time, so actual recording may be delayed for several seconds after the Record button is actually pressed.

To be able to cue up a recording session with more accuracy, it is better to select the *Pauses initially*

option. When this option is selected, and the wave Record button is pressed, the usual housekeeping occurs, but then the Pause button comes on and the wave player is ready to record immediately when the Pause button is released. If accuracy in starting your recording is needed, then select this option.

Additional Options

The *Pause after playing each waveform* option allows you to have the WAVE device pause at the end of each selection in a multiple selection playback. Check this box on to have the pause activate between each file, check it off to allow normal sequential operation.

The *Limit waveform recording to:* option allows you to make sure you don't inadvertently fill up your hard disk with a huge waveform recording. This is a safety net you can invoke to limit the amount of recording you can perform at a time. To remove this safety net, enter a 0 for the time and you can record until your hard disk fills up, if you wish.

THE MIDI PLAYER SETUP DIALOG

The MIDI Player Setup dialog allows you to set various options which determine how the MIDI player runs. Each section in the dialog is discussed below.

Time/Track Defaults

The Time/Track Defaults section determines how the time and track display on the MIDI player will operate when the rack system is running and the MIDI player is active. When a new list of MIDI selections is obtained through the MIDI programming dialog, the program finds the length of each song and the total length of all the songs. The totals are shown on the MIDI display for a period of five seconds before reverting to the default or desired time and track display mode. Also, if you press the Time or Track buttons to alter the display, the default action is that the display also reverts back to the default time and track display mode after five seconds.

If the Default on Timeout checkbox is checked, the display will always revert back after a period of five seconds whenever the Time or Track buttons are used to alter the display. If this option is checked, then the default display on the timeout will be the one selected from the other options in the group. These options include whether to count up or down, and whether to display the count on a song by song or total of the selections basis. Turning off the checkbox will cause the Time and Track display to *"stick"* to the last setting instead of trying to revert back.

Reverse Skip

The Reverse Skip option allows you to customize the operation of the Reverse Skip button on the MIDI player. The default operation of the Reverse Skip button while the player is in Play or Pause mode is to return to the beginning of the current song if the current position of the song is greater than 2 seconds, or to skip back to the previous song if the current position of the current song is less than or equal to 2 seconds. By selecting the Previous Track option, then the Reverse Skip button will always skip back to the previous song when pressed, no matter where the current position of the current song is.

Drag and Drop

Select one of the two options in the Drag and Drop group to determine how the program will handle new .MID files that are dragged from File Manager to SoundStation and dropped. If the Adds to Program option is selected, then .MID files that are dropped on the program are added to any MIDI files that are already selected in the program through either the Program dialog or through previous drag and drop operations. If the Replaces program option is selected, then .MID files that are dropped on the program replace any previously selected MIDI files.

MIDI Song Title Display

You can decide how the display in the MIDI component displays the name of the currently playing MIDI song. Choose between full path and filename or just filename only. Also, you can select between all uppercase or all lowercase.

Additional Options

The *Pause after playing each song* option allows you to have the MIDI device pause at the end of each selection in a multiple selection playback. Check this box on to have the pause activate between each file, check it off to allow normal sequential (or random or repeated) operation.

THE CD PLAYER SETUP DIALOG

The CD Player Setup dialog allows you to set various options which determine how the CD player runs. Each section in the dialog is enclosed in a Group Box with an appropriate label. Each of these groups is discussed below.

Time/Track Defaults

The Time/Track Defaults section determines how the time and track display on the CD player will operate when the rack system is running and the CD player is active. When a new list of CD selections is obtained through the Load button, the program finds the length of each song and the total length of all the songs. The totals are shown on the CD display for a period of five seconds before reverting to the default or desired time and track display mode. Also, if you press the Time or Track buttons to alter the display, the default action is that the display also reverts back to the default time and track display mode after five seconds.

If the Default on Timeout checkbox is checked, the display will always revert back after a period of five seconds whenever the Time or Track buttons are used to alter the display. If this option is checked, then the default display on the timeout will be the one selected from the other options in the group. These options include whether to count up or down, and whether to display the count on a track by track or total of the selections basis. Turning off the checkbox will cause the Time and Track display to *"stick"* to the last setting instead of trying to revert back.

Reverse Skip

The Reverse Skip option allows you to customize the operation of the Reverse Skip button on the CD player. The default operation of the Reverse Skip button while the player is in Play or Pause mode is to return to the beginning of the current track if the current position of the track is greater than 2 seconds, or to skip back to the previous track if the current position of the current track is less than or equal to 2 seconds. By selecting the Previous Track option, then the Reverse Skip button will always skip back to the previous track when pressed, no matter where the current position of the current track is.

THE ABOUT BUTTON

The About button brings up a dialog with information about the program and our company. This is otherwise known as an *About Dialog Box,* in common Windows terminology. Move the mouse pointer more than about 15 pixels, or press the left mouse button to remove the dialog from the screen.

THE INFO DIALOG

The Info button provides a visual feedback regarding the status of your sound board. Since not all sound boards are created equal, this dialog box indicates what aspects of the sound board were found on your system. Those items that are marked, are available. Those that are not marked, are not available on your sound board. The information gathered by this dialog box is also the same information that set your SoundStation functions.

The Info dialog also has the version number of your copy of the program listed. Whenever you need to contact us about problems with your program, always get the version number from the Info dialog before calling so that we can know which version of the program that you have. This will help us in determining if there is a newer version of the program which addresses the problems that you are experiencing.

THE CLOCK DISPLAY

The Clock Display shows the current time. Just like most other digital clocks, the time is shown along with an AM or PM indicator. It's mainly just another nice feature that we've thrown in for your convenience. If you prefer, the clock can also present the seconds by choosing the *Clock Seconds* option from the *Preferences* dialog.

THE WAVE PLAYER

The WAVE Player component allows you to cue up one or more digitized waveform files for playback, or to record your own waveform files. To use the waveform player and recorder, refer to the instructions in the following sections.

The Program Button

The Program button pulls up the WAVE programming dialog. With this dialog, you can create a program, or play list, of waveform files. See the topic *The WAVE Programming Dialog* for more information on creating waveform play lists.

The Mode Button

The Mode button changes the recording mode of the WAVE player when the wave player is not currently playing or recording waveform files. If supported by the sound board, the Mode button will cycle through 8 bit mono, 8 bit stereo, 16 bit mono and 16 bit stereo modes. Availability of the various modes is also dependent on the selected recording rate as described in the next section on The Rate Button. The selected mode will be displayed in the wave player component's display area.

The Rate Button

The Rate button changes the recording speed (or sampling rate) of the WAVE player when the wave player is not currently playing or recording waveform files. If supported by the sound board, the Rate button will cycle through 11kHz, 22kHz and 44kHz rates. Availability of the various rates is also dependent on the selected recording mode as described in the previous section on The Mode Button. The selected rate will be displayed in the wave player component's display area.

Waveform recording discussion

Some further explanation is given here on different rates and modes, and the terminology associated with each. When you record waveform samples on your computer, the actual analog signal is converted to digital values which are eventually stored on your hard disk. The recording rate is the number of samples per second that will be gathered while recording. For example, if you choose 22kHz (kiloHertz, or thousand cycles per second), the sound board will store 22,000 (actually 22,050) samples for each second that you record.

A single sample is dependent on the mode that you are recording in. For example, if you are recording at 22kHz and 8 bit mono mode, then each second of your waveform recording will require 22,050 bytes of storage. If you change the mode to 8 bit stereo, you will double the storage requirements to 44,100 bytes per second of recording. Changing the mode further to 16 bit stereo, you will need 88,200 bytes per second of recording for storage of the waveform. As a final note on this subject, CD audio is stored as 44kHz, 16 bit stereo, which requires 176,400 bytes of storage for each second of sound.

The Record Button

In order to record waveform audio data, you press the Record button on the WAVE player to start recording. Before pressing Record, however, you should probably set the desired recording mode and rate, described above. Also, you will probably want to select the input source from which you plan to record. This is covered in *The Record Input (Rec) Buttons* topic.

The suggested mode for initial recording startup is to set the Pauses Initially option in The WAVE Player Setup Dialog. This way, once the recording is set up and waiting to go, you can set the input mixer level(s) for the component(s) that you are recording from. You want to adjust the input so that the dual meters in the WAVE display window do not enter the yellow areas too much and so that the red areas (peak) do not light up at all, or as little as possible. This will help to ensure a good quality recording.

Once the levels are set and/or the material that you want to record is starting, press the Pause button to release the pause mode and start recording if you have the Pauses Initially option set, or just press the Record button itself if the Starts Immediately option is set in the Recording options in The WAVE Player Setup Dialog.

The Play Button

The Play Button starts waveform playback. The waveforms can be selected using the WAVE programming dialog or by dragging and dropping waveform files from File Manager.

The Other Buttons

The remaining buttons perform the functions indicated below. The buttons are described starting at the top left and working left to right, top to bottom:

Reverse Skip	Skips backward in the play list by one file.
Forward Skip	Skips forward in the play list by one file.
Rewind	Skips backwards in the current file at small intervals.
Fast Forward	Skips forward in the current file at small intervals.
Stop	Stops playing the play list.
Pause	Pauses the playing of files until released.

THE WAVE PROGRAMMING DIALOG

The WAVE Programming Dialog allows you to select a waveform file, or several waveform files, to play on the WAVE component. You may select up to 50 waveform files to play at one time. Additionally, you may save your list of waveform files by giving the list a unique name. Then, you can recall your list at a later time by selecting the name of the list from those that you have saved.

Selecting and De-selecting files to play

When you bring up the WAVE Programming Dialog by pressing the Program button on the WAVE component of the rack system, or pressing the Prog button on the remote control while the WAVE device is selected, you will be presented with the dialog illustrated above. On the right side of the dialog are two list boxes labeled Directories and Files. Above both of the list boxes is the currently selected directory in which to look for WAVE files.

To move around your disk, choose the appropriate directory from the list in the Directories listbox. Select the [..] symbol to move up a directory. Double click the left mouse button on the desired directory path to change to that directory. Your choice will be reflected by appearing above the list box. While you move around, any WAVE files that are found in the currently selected directory path will appear in the Files listbox. If you wish to change to a different disk drive, select the desired drive by dropping down the Drives combobox, and clicking once on the drive letter you need.

Once you have found the files that you want, select the files from the Files listbox and they will appear in the Selection List listbox on the left side of the dialog. You can do this in several ways. First, you can select files by double-clicking the left mouse button on the file in the Files listbox, and that file will be added to the Selection List.

If you want to grab several files at a time, you can select individual files one at a time by holding down

the Ctrl key while single-clicking on each desired file with the left mouse button. Once all of the desired files are marked in such a manner, press the button labeled <<*Add* underneath the Files listbox and the selections will be added to the Selection List listbox in the order that they appear in the Files listbox, but not necessarily in the order that you selected them yourself. Also, you can mark a continuous block of files in the Files listbox by clicking on the first or last file that you want, then dragging the mouse cursor up or down as appropriate. The marked list will scroll as you go, marking everything along the way. Again, once you have selected files in this manner and want to add them to the Selection List, press the <<*Add* button.

The Selection List listbox operates in a similar manner as the Files listbox. You can remove files from the Selection List one at a time by double clicking on the files. You can select multiple files to remove from the Selection List by marking them in the manners described above, and then press the *Remove* button. Or you can clear the whole Selection List by pressing the "Clear" button. You can also select all files in the Selection List easily by pressing the *Select All* button.

Saving a Selection List

Once you have created a list of WAVE files to play, you can optionally save the list by giving the list a name. To do this, press the Save List button. An additional dialog will appear, prompting you for a name for the list. Type in a name for the list and press the OK button. Your list will now be saved under that name. Note that the name you give your list is NOT a filename, so you may type in a complete sentence such as *Cartoon Sound Effects*, if you wish. Your selections and the name of your list will be added to the WAVE list database.

To recall your list at a later time, select the dropdown combobox labeled *Program* at the top left of the dialog box, and press the button to drop the list down. Scroll through the entries until you find the one you want and single-click the left mouse button on that entry's name. The list of files assigned to that name will appear in the Selection List. If you want to remove files from the list, use the procedure

described above for removing files from the Selection List. If you want to add new files to the list, select them with the procedure described for adding files to the Selection List. Once your new list is where you want it, press the *Save List* button to update the database.

If you have a list currently active, you may create a new list by pressing the *New List* button. Note that if you select or de-select files while there is a name present in the Program combobox window, that you are modifying the indicated playlist. You will always have a chance, however, to cancel changes to an existing playlist if you attempt to make a new list.

Playing your selections

Once you have performed whatever list maintenance that you desired, and you want to play the files selected in the Selection List, press the OK button on the dialog. You will be returned to the rack (or remote). The program will then compile some information on the files that you selected. Once that is complete, you are ready to play your selections. Just press the Play button and playback will start.
One final note: You do not have to name a playback Selection List before you can play it. You can leave it unnamed if you wish. ***Note that any unsaved changes made to an existing list or to an unnamed list will cause a WAVE Program has Changed message if SoundStation is turned off.*** This gives you a final opportunity to save your changed list, and assigning a name to an unnamed list, if necessary. If you want to discard any changes you made, just press the *Cancel* or *No* button when this reminder appears.

The MIDI Player

The MIDI Player component allows you to cue up one or more MIDI song files for playback To use the MIDI player, refer to the instructions in the following sections.

The Program Button

The Program button pulls up the MIDI programming dialog. With this dialog, you can create a program, or play list, of MIDI files. See the topic *The MIDI Programming Dialog* for more information on creating a MIDI play list.

The Button Group

Along the bottom of the MIDI player are control buttons for performing function on the MIDI player. These buttons are:

Repeat	Repeats the current song, or the entire play list, in a loop.
Reverse Skip	Skips backward in the play list by one song.
Rewind	Skips backwards in the song in small intervals.
Pause	Pauses the playing of MIDI songs until released.
Stop	Stops playing the songs in the play list.
Play	Starts playing the songs in the play list.
Fast Forward	Skips forward in the song in small intervals.
Forward Skip	Skips forward in the play list by one song.

To the left of the MIDI display are other control buttons that provide functions used only with the MIDI player. These are:

Track	Switches the display between the current song playing and the total number of songs in the Play List. Use the Preferences button on the setup dialog to determine the default state of this display option.
Time	Switches the display between the current song time index and the total time of the songs in the Play List. Use the Preferences button on the setup dialog to determine the default state of this play option.
Random	Setting this button ON will cause the MIDI player to randomly select a song from the Play List to play following the current track.
Repeat	This button has three states. First, NOT ON, the MIDI songs are played in sequential

order. Second, REPEAT ALL, the MIDI songs are played through from beginning to end. When the last song in the Play List is finished playing, play resumes with the first song in the Play List, and continues on through the entire Play List until Repeat mode is reset. Third, REPEAT SINGLE, the currently playing song is repeated over and over again until the REPEAT button is reset.

Program Refer to the topic for more information on creating MIDI Play Lists.

Display screen

The MIDI player displays user information concerning aspects of the status of the MIDI player. The following represent the various indications available.

- Total tracks and total playing time
- Track currently playing
- Time of current playing selection presented as desired in the MIDI setup dialog
- Track count down time
- Track count up time
- Total count down time
- Total count up time

THE MIDI PROGRAMMING DIALOG

The MIDI Programming Dialog allows you to select a MIDI file, or several MIDI files, to play on the MIDI component. You may select up to 50 files to play at one time. Additionally, you may save your list of files by giving the list a unique name. Then, you can recall your list at a later time by selecting the name of the list from those that you have saved.

Selecting and De-selecting files to play

When you bring up the MIDI Programming Dialog by pressing the Program button on the MIDI component of the rack system, or pressing the Prog button on the remote control while the MIDI device is selected, you will be presented with the dialog illustrated above. On the right side of the dialog are two list boxes labeled Directories and Files. Above both of the list boxes is the currently selected directory in which to look for MIDI files.

To move around your disk, choose the appropriate directory from the list in the Directories listbox. Select the [..] symbol to move up a directory. Double click the left mouse button on the desired directory path to change to that directory. Your choice will be reflected by appearing above the list box. While you move around, any MIDI files that are found in the currently selected directory path will appear in the Files listbox. If you wish to change to a different disk drive, select the desired drive by dropping down the Drives combobox, and clicking once on the drive letter you need.

Once you have found the files that you want, select the files from the Files listbox and they will appear in the Selection List listbox on the left side of the dialog. You can do this in several ways. First, you can select files by double-clicking the left mouse button on the file in the Files listbox, and that file will be added to the Selection List.

If you want to grab several files at a time, you can select individual files one at a time by holding down the Ctrl key while single-clicking on each desired file with the left mouse button. Once all of the desired files are marked in such a manner, press the button labeled <<*Add* underneath the Files listbox and the selections will be added to the Selection List listbox in the order that they appear in the Files listbox, but not necessarily in the order that you selected them yourself. Also, you can mark a continuous block of files in the Files listbox by clicking on the first or last file that you want, then dragging the mouse cursor up or down as appropriate. The marked list will scroll as you go, marking everything along the way. Again, once you have selected files in this manner and want to add them to the Selection List, press the <<*Add* button.

The Selection List listbox operates in a similar manner as the Files listbox. You can remove files from the Selection List one at a time by double clicking on the files. You can select multiple files to remove from the Selection List by marking them in the manners described above, and then press the *Remove* button. Or you can clear the whole Selection List by pressing the *Clear* button. You can also select all files in the Selection List easily by pressing the *Select All* button.

Saving a Selection List

Once you have created a list of MIDI files to play, you can choose to save the list by giving the list a name. To do this, press the *Save List* button. An additional dialog will appear, prompting you for a name for the list. Type a name for the list and press OK. Your list will now be saved under that name. Note that the name you give your list is NOT a filename, so you may type in a complete sentence such as "Upbeat Jazz Tunes", if you wish. Your selections and the name of your list will be added to the MIDI list database.

To recall your list at a later time, select the dropdown combobox labeled *Program* at the top left of the dialog box, and press the button to drop the list down. Scroll through the entries until you find the one you want and single-click the left mouse button on that entry's name. The list of files assigned to that name will appear in the Selection List. If you want to remove files from the list, use the procedure described above for removing files from the Selection List. If you want to add new files to the list, select them with the procedure described for adding files to the Selection List. Once your new list is where you want it, press the *"Save List"* button to update the database.

If you have a list currently active, you may create a new list by pressing the *New List* button. Note that if you select or de-select files while there is a name present in the Program combobox window, that you are modifying the indicated playlist. You will always have a chance, however, to cancel changes to an existing playlist if you attempt to make a new list.

Playing your selections

Once you have performed whatever list maintenance that you desired, and you want to play the files selected in the Selection List, press the OK button on the dialog. You will be returned to the rack (or remote). The program will then compile some information on the files that you selected. Once that is complete, you are ready to play your selections. Just press the Play button and playback will start.

One final note: You do not have to name a playback Selection List before you can play it. You can leave it unnamed if you wish. Note that any unsaved changes made to an existing list or to an unnamed list will cause a "MIDI Program has Changed" message if SoundStation is turned off. This gives you a final opportunity to save your changed list, and assigning a name to an unnamed list, if necessary. If you want to discard any changes you made, just press the "Cancel" or "No" button when this reminder appears.

The CD Player

The CD-ROM player in your computer can also play standard music CD's, in most cases The CD-ROM component provides a number of ways to control how the unit performs. To use the CD player, refer to the instructions in the following sections.

The Program Button

The Program button pulls up the CD programming dialog. With this dialog, you can create a program, or play list, of CD files. Refer to the topic *The CD Programming Dialog* for more information on creating CD play list.

The Button Group

Along the bottom of the CD component are control buttons for performing function on the CD player.

These buttons are:

Repeat	*Repeats the current track, or the entire CD, in a loop.*
Reverse Skip	*Skips backward by one track.*
Rewind	*Skips backwards in the track in small intervals.*
Pause	*Pauses the playing of CD tracks until released.*
Stop	*Stops playing the CD.*
Play	*Starts playing the CD.*
Fast Forward	*Skips forward in the track in small intervals.*
Forward Skip	*Skips forward to the beginning of the next track.*

To the left of the CD display are other control buttons that provide functions used only with the CD player. These are:

Track	*Switches the display between the current track playing and the total number of tracks on the CD. Use the Preferences button on the setup dialog to determine the default.*
Time	*Switches the display between the current track time index and the total time of the entire CD. Use the Preferences button on the setup dialog to determine the default state of this display option.*
Random	*Setting this button ON will cause the CD player randomly select a track from the CD to play following the current track.*
Repeat	*This button has three states. First, NOT ON, the CD plays in sequential order. Second, REPEAT ALL, the CD plays from beginning to end. When the last track on the CD list is finished, play resumes with the first track and continues through the entire CD until Repeat mode is reset. Third, REPEAT SINGLE, the currently playing track is repeated over and over until the REPEAT button is reset.*
Eject	*This button stops the CD from playing. If your CD is equipped with a power media drawer, the drawer will open. If your CD is not equipped with a power media drawer, no further action will occur.*

Load *This button loads the track information from the CD player. This includes both track times and track numbers. Note that after loading a new CD, you may either press this button to obtain this information, or just press the Play button to load and then star playing.*

Program *Refer to the topic for more information on reading CD play lists.*

Display screen

The CD player displays user information concerning aspects of the status of the CD player. The following represent the various indications available.

Total tracks and total playing time
Track currently playing
Time of current playing selection presented as desired in the CD setup dialog
Track count down time
Track count up time
Total count down time
Total count up time

THE CD PROGRAMMING DIALOG

The CD Programming Dialog allows you to select your own random order of tracks to play from a currently loaded CD. You can select the same song more than once, and you can essentially program your order however you like. You may select up to 50 tracks to play in this manner.

Selecting your Order

Pull up the CD Programming Dialog by pressing the Program button on the CD component or by pressing the Prog button on the remote control while the CD device is the selected component. You must already have a CD loaded in the CD player before you can program it. Once the programming dialog appears you will notice a list of the tracks on the CD in the listbox labeled *"CD Tracks"*. Each track is numbered in sequential order and also contains the time of each track.

To select a track to play, double click on the desired track in the CD Tracks listbox and it will be added to the Play Order listbox. Select each track that you want to play one at a time in this manner until you have your desired play order. Remember that you can use any track more than once, and that you do not have to use every track at least once.
To clear a single selection from the Play Order, double click on that entry with the left mouse button. To clear the entire list, press the *Clear* button under the Play Order list.

Turning Play Order On or Off

If you enter the CD Programming Dialog, select a play order, and press the *"OK"* button, then the Play order is now active. This will be indicated by the LED on the Program (or Prog button on the remote) remaining lit once the Dialog is exited. You can turn off the Play order playing in one of several methods. Selecting *Random* or *Repeat* mode, ejecting or re-loading the CD, or selecting the *"Cancel"* button from the CD Programming Dialog will all turn the Play Order off.

The Remote Controls

Remote controls allow you to have access to the components easily while using other Windows applications.

There are three modes for the remote control window. These are:

- None (the rack will iconize when asked to do so)

- Moveable

- Fixed, top button bar or Fixed, bottom button bar

In addition to these modes, the remote button window can be configured to stay on top of all other windows on your screen. This allows you customize how the remote is presented and allows you to gain access to the control easily.

To move the moveable remote, grab the remote control with your mouse pointer where the *Hold Here* legend appears in the lower left corner. Click and hold the left mouse button and a thin outline box will appear on the screen. Drag the outline to the desired location and release the mouse button to complete the remote control's move.

Note that the remotes have component selection buttons (WAVE, CD and MIDI). Only one of the three buttons is active at a time, indicated by the green LED on the button being lit. When the desired component's LED is lit, the remaining buttons on the remote control are used to operate that particular component.

Note that the Mute button and the up and down volume buttons on the remotes affect only the Master volume control for SoundStation. Also, the Rand (Random) and Rpt (Repeat) buttons are only valid for the MIDI and CD components. The Load and Eject buttons are only valid for the CD component, also.

At the top of the moveable remote and to the right of the bar remote is a small indicator window showing the currently selected track or song for the CD player or MIDI player, respectively. This indicator is not active for the WAVE player. Also, a clock is visible near the bottom of the moveable remote and is not available on the bar remotes. The clock shows the time, repeat modes (when applicable) and has a moving bar indicator which is active when any of the three main components are playing. A small right-hand arrow near the moving bars indicates play mode while the double vertical bars further to the right indicate pause mode.

These remote control panels allow a little less control over SoundStation than the rack system. Also, the top and bottom bar remotes do not have a Fast Forward or Rewind button when running in standard VGA resolution (640x480) At higher resolutions, these buttons are added to the bar remotes automatically. This is done due to space constraints.

CUSTOMIZING SOUNDSTATION

There a number of customizing options with SoundStation. These are presented when you select the Setup button on the "mixer" component. Press the button on the Setup dialog for the desired device to customize.

Hardware Specific Issues

This topic is designed to help answer some potential questions you may have regarding SoundStation and particular hardware setups. Since we have had more experience with hardware that is directly supported by the program, the information contained in this section will generally tend to deal more with those products. Please refer to this section and the topic *Why Doesn't the Program Do This?* before calling us when experiencing problems with the program.

A good rule of thumb to remember with any program is that if a function has worked fine day after day and suddenly it doesn't work correctly or the same way anymore, then something else has changed in

the system to affect the particular program. Before calling us to report a bug with a function that has worked many times over before, make sure that you have not installed or removed software, drivers, or hardware that may affect the way that SoundStation operates. If you buy a new sound card and install it, and SoundStation starts acting differently from that point on, then it should be obvious that some other aspect of the system is probably at fault, and not SoundStation.

WinSoft Development Technical Support will not be available to help you configure your sound card, CD-ROM drive or associated Windows drivers. In order to keep our costs low, and continue to be able to provide new and updated products in a timely manner, we must insist on only fielding technical support calls relating directly to SoundStation itself.

Mixer Input and Master Level Controls

Different sound cards have different on-board mixing capabilities which affect the appearance and operation of the SoundStation Mixer panel. In particular, some sound cards support on-board volume adjustments for items like the line level input and CD-ROM input, while others do not. Individual discussions of sound card mixers by card type are presented in the following paragraphs.

The Advanced Gravis Ultrasound card has a full compliment of mixing capabilities; however, please note that earlier versions of the card (board rev. 2.2, 2.4, and 3.4) required controlling the Mic, Line, and CD levels at the source. Only WAVE and MIDI synthesizer output levels can be controlled on the mixer on these earlier sound cards. The on-board mixer also allows the Mic and Line In inputs and Master output to be turned on and off. The mixer panel on SoundStation simulates a Master output level control by internally scaling the WAVE form and MIDI inputs as you adjust the Master level. ***Note that changing the Master level will not adjust Line In, Microphone or CD-ROM volume levels.*** However, pressing the Mute button for Master will turn off all output signals. Pressing the Mute button for the Line In or Microphone will turn off output from the respective devices. Pressing the Mute button on the MIDI synth will not always immediately terminate all output sounds, as any notes that are already playing will

to decay in volume before the channel is silent. All mixing hardware control for the UltraSound is performed through the card's Windows drivers.

For the generic Windows MCI card type, limited mixing ability will be afforded, depending on the drivers supplied with the particular sound card that you have and it's capabilities. The Windows API for multimedia defines level control capabilities for WAVE form and MIDI synthesizer outputs, as well as auxiliary level controls which can only be defined as CD-ROM and Other. There will be many factors determining what devices may or may not show up as having their input levels available for adjustment. For this reason, we cannot guarantee that with every sound card, this generic driver support will provide all of the available mixer capabilities and of the proper type. As we gain more sound card support, these issues will resolve themselves, however.

The Recording Input (Rec) Buttons

The Advanced Gravis UltraSound allows the user to record from the MIDI synthesizer, Line In, Microphone and CD-ROM inputs, either individually or in combination. To prevent recording from the Line In or Microphone inputs, you must press the Mute button for that particular channel, or ensure that no input is being presented to that channel. To prevent recording from the MIDI synthesizer, ensure that no MIDI songs are playing. To prevent recording from the CD-ROM player, you must stop the CD-ROM from playing. Due to the arrangement of the UltraSound mixer, the Recording Input selection buttons have been eliminated from the SoundStation mixer panel, as they would essentially be duplicates of the Mute buttons.

For the generic Windows MCI card type, current Windows API's do not define recording capabilities or switching between recording inputs. The best bet here is to use any utilities you may have received with your sound card to switch or enable inputs for recording before starting to record with SoundStation.
Device Drivers

SoundStation is, for the most part, fully dependent on the MCI (Multimedia Control Interface) drivers

that should be supplied with newer sound card and CD-ROM players. These are Windows specific drivers. If you have an older sound card which did not come with drivers that you had to install via the Control Panel Drivers applet in Windows, then a lack of functionality is probably due to the fact that you have no current drivers. It is recommended in this case that you contact the manufacturer of your equipment to see if drivers are now available. In most cases, you should be able to obtain current Windows drivers at little or no cost.

Windows 3.0 with Multimedia Extensions

As we have not had access to this fairly rare combination, SoundStation may or may not work with this setup. If you have this environment, we would appreciate hearing from you as to whether SoundStation works or not. We can then pass this on to potential users in the same situation.

Windows 3.1 supplied CD-ROM MCI Driver

We do know for a fact that the generic CD-ROM driver supplied with Windows provides incomplete or quirky operation when used with SoundStation and certain older CD-ROM devices. This is probably due to the fact that it is a generic, catch-all driver which is not particularly targeted to a specific hardware standard. We recommend that you contact your CD-ROM manufacturer to see if current drivers are available for your equipment if you are using the Windows supplied driver and are having problems.

Other Known Anomalies

The Advanced Gravis UltraSound card and drivers present a special case that you should be aware of. When attempting to play a MIDI file through the card when the WAVE device is active (recording or playing), the MIDI file may not load its patches, causing the output from the MIDI file to be silent, or missing most instruments. The fix for this is to stop both devices (pressing Pause on the MIDI player will suffice to stop that device), then start back up in the order of MIDI, then WAVE. *Note that this also affects the VU Meter function, as it uses the WAVE recording feature to obtain VU information when free-running. You may have to turn the VU meter off when playing MIDI files.*

TROUBLESHOOTING

There is always the possibility that something will not work as designed. For that reason, we have enclosed some of the more common question concerning SoundStation.

Questions About SoundStation

Why doesn't the program do this?

This section presents answers to commonly asked questions dealing with the operational capabilities of SoundStation.

Why can't I record MIDI files?

The MIDI player was designed solely to play existing MIDI song files through the built-in MIDI synthesizer present on most all sound cards. It does not attempt to use the external MIDI input/output port when present. There are many excellent programs available for the recording, playback, authoring and modification of MIDI song files using the computer and external MIDI compatible equipment.

I've seen stand-alone software packages for Windows that provides a real-time spectrum analysis of waveform files or sound card output in the form of multiple frequency signal bar graph displays and so on. Why don't you put this feature in SoundStation?

We have considered it, and are investigating the feasibility of this feature. Be forewarned that it will be a CPU intensive task, however. We might offer this capability in the future if we find that it can be done without severely impeding CPU performance for other Windows tasks.

I've got an Advanced Gravis UltraSound card. When playing MIDI files with SoundStation or Windows Media Player, there is a slight pause before each song starts and disk drive activity. What is it doing?

UltraSound uses Windows's patch caching feature, loading instruments from It's 5.6 megabyte General MIDI set into the on-board RAM. Choosing just the instruments that the MIDI song requires means that the highest quality instrument patches can be made available to the song. It also allows the freedom to expand the sounds available, and substitute patches from other sources, like third party patch sets, additional Gravis general MIDI instrument sets, even instruments that you make yourself with UltraSound's patch editor. When you press the play button, the Windows driver looks at the MIDI file, quickly determines the instruments the song will need, and loads those patches onto the UltraSound. You can expand the RAM on the UltraSound to load more patches, for highly orchestrated songs, or change the performance settings in the UltraSound driver dialog to 'conserve memory', which will allow twice as many patches, but at a slight loss in fidelity, as the normally 16-bit patches will load as 8-bit. For instant-on MIDI play, you can also pre-load a set of patches. See the UltraSound manual for details on how to do this.

Why don't you add more components to SoundStation to handle other devices such as Laserdisc players, VCR's, on-board TV tuner cards, etc.?

We are investigating support of other devices such as this. Watch for developments in these areas with future releases of SoundStation and additional products from WinSoft Development.

Hey, SoundStation is pretty neat, but where is the WAVE Editor?

We are investigating this possibility. There are currently several stand-alone packages that do a very good job, and that you may consider in the interim. If you are a registered SoundStation user, you will be

notified of the availability of this and other future features and updates in a timely manner.

I got some MIDI files from a bulletin board and attempted to play them with Sound Station but all I get is silence, or only one or two instruments play, or some of the instruments are not correct.

MIDI files contain information which indicates which instrument is to play each part of the composition, and which channel of the device is to play the particular part. As the instrument information embedded in the file is in the form of a number, and not an actual instrument name, the actual instrument that plays is a function of what instrument is mapped on the particular playing device to the number indicated in the file. The intended instrument may be different on another person's equipment than it is on your equipment. In other words, your computer's MIDI setup may have Instrument #1 mapped as a piano, but the author's equipment had Instrument #1 set up as a Tuba. Obviously, the song that the author composed with a Tuba will sound markedly different with a piano playing the same part.

Some MIDI files have no instrument information embedded, but only channel information. In this instance, the author's equipment probably depended on the author having the proper instrument samples loaded in the proper channels of the equipment. As long at the author performs this manual setup of his equipment, playback of the song would sound fine on his equipment. However, once you get the song, you may have no idea what instruments the author intended to be assigned to each channel of the equipment. Also, some MIDI drivers in Windows cannot assume that an instrument is preloaded in a particular channel and therefore will reward you with dead silence when you attempt the play such a song.

What is the solution? First, most newer sound card MIDI drivers provide a General MIDI mapping. General MIDI is a standard agreement on which instruments are defined by which instrument numbers. When you search bulletin boards for MIDI songs to try, check whether they are General MIDI compatible. This will help ensure that several minutes of downloading will not go unrewarded.

GLOSSARY

This section provides definitions of commonly used acronyms and phrases that relate to PC multimedia systems.

ADC

Analog to Digital Converter. Most sound cards include an ADC. They are used to convert analog sounds (voices, music or sound effects) into digital information which can be stored on a disk, manipulated with software, and played back with a DAC (Digital to Analog Converter).

AUX

An abbreviation for auxiliary. Most sound cards contain an auxiliary sound channel. It is used to connect an external audio source to your sound card, such as a cassette deck, record player or radio.

Capture

Another word for digitizing (converting to computer data) sounds or pictures. Capturing sounds sometimes are called samplings.

CD

An abbreviation for Compact Disc. CDs store high-quality sounds in digital format. They are read with a laser beam.

CD-ROM

CD-ROM or Compact Disc Read Only Memory, is a special type of CD. In addition to sound, CD-ROM discs can store computer information (program files, text files, digitized pictures and sounds). Like CDs, CD-ROM are read only devices. You cannot edit, erase or add to the information on a CD-ROM. A CD-ROM drive can read CD-ROM discs and play standard (audio) CDs.

DAC

Digital to Analog Converter. Most sound cards include an DAC. It is used to convert digitized information to analog sounds (voice, music, sound effects) which you can listen to with your speakers and/or earphones.
Digital Recorder

A component device that allow the full use of the DAC and ADC built into you sound card. The digital recorder allow for the conversion and storage of sounds (voice, music) to your hard disk for further playback.

Digitized

Computers store information in digital (number) form. When you capture a picture or sound with your computer, the information is digitized (analyzed and converted into a string of data). Special software lets you reproduce, copy and manipulate digitized pictures and sounds.

Digitizing

The process of turning sound or video into digital information. Also known as capturing or sampling.

MIDI

Musical Instrument Digital Interface. It is an industry standard that specified how electronic instruments should communicate. MIDI allows musicians to compose music on their computers, then listen to their creations by sending signals to MIDI compatible instruments (synthesizer keyboards, drums machines, etc.) connected to their computer. Most sound boards include a MIDI interface connector.

MIDI Player

A component that controls the MIDI capabilities of your sound card, if available. It lets you play MIDI composed music files through the sound card or an external device that is connected to the sound card MIDI interface on your computer.

Mixing console

A component that controls the mixing hardware of your sound card, if available. It lets you adjust the relative volumes of the available inputs (CD-ROM drive, ADC/DAC, MIDI, AUX Port, etc.).

Playlist

A list of selections (MIDI or digitized sound files, or track on a CD) that you'd like your MIDI player, CD player or WAVE player (digital recorder).

Remote control

A control hub that will allow the sound card to be controlled while using other applications on your computer.

Red Book

This is the industry name for the standard (audio) CD recording format. CD-ROMs may contain sound recorded in the Red Book standard.

Sample

The portion of digitized sound. Samples may be manipulated with various editing applications.

WAVE

A Windows standard for "Pulse Coded Modulated" sound information.

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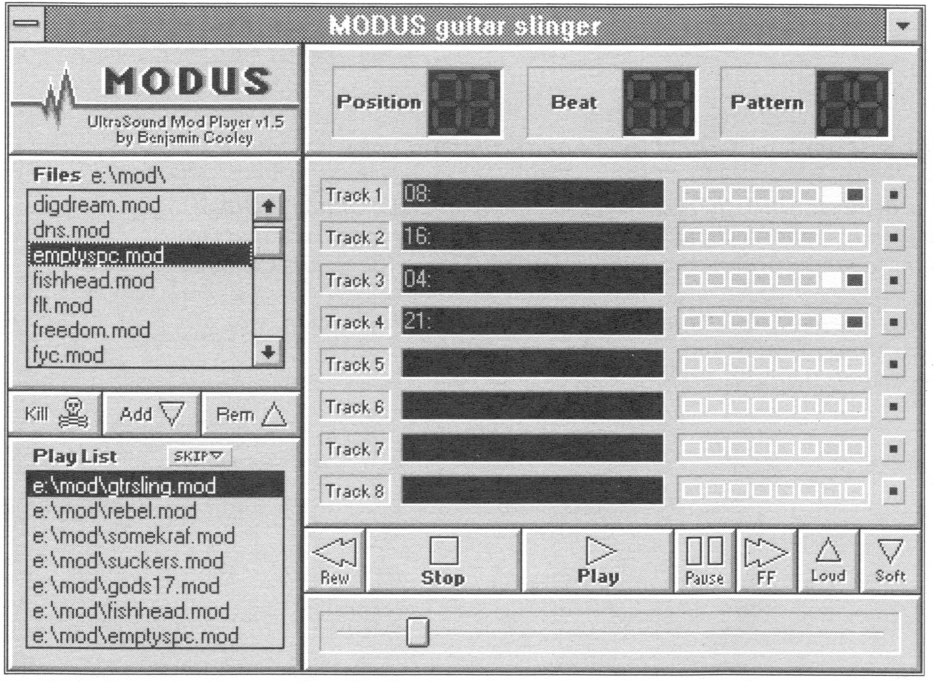


MODUS

by Benjamin Cooley

MODUS

Welcome to MODUS, a really cool MOD file player by Benjamin Cooley.

With UltraSound and MODUS, you can finally play back MOD files under Windows without the crackling and fuzz associated with the software "mixing" needed by other sound cards. Now you hear MODs the way they were supposed to sound.

What is a MOD file?

A MOD file consists of an instrument waveform table and a pattern table. The instrument waveform table holds the digital wave forms of each instrument used in the song in a format similar to Windows WAV files or UltraSound's PAT files. A song is divided into blocks of 64 beats, called patterns. The pattern table indicates which of these patterns is played at each point in the song.

When a MOD is loaded, MODUS loads all the instruments in the file into the UltraSound's RAM before the beginning of the song. The pattern table stores the note on/off information for the song, or the music sequence.

The MOD format differs from MIDI files. MOD files contain complete instrument sounds, while MIDI files contain only note information, and the instrument number that UltraSound must use to play those notes. This means that a MOD file is capable of playing any instrument the composer can digitize or sample, while MIDI files are limited to the instruments provided by the sound card or synthesizer they're played on (usually only the orchestral General MIDI instruments).

USING MODUS

Installation

MODUS was installed automatically into your UltraSound Windows® directory. To load MODUS, **type:** C:\ULTRASND\MODUS.

Playing a MOD

To play a MOD file:

- **Select a MOD file from the Play List on the upper left corner of the MODUS window.**
- **Then press the Add button to add the MOD to the Play List.**

The MOD will begin playing. You may also double click on the MOD in the file list to begin playing. Double clicking on another song in the Play List at any time will stop the current song and begin playing the new one.

Note: Ordinary 4-channel MODs will not use the lower 4 channels. Only 6- and 8-channel MODs use these extra channels, and they are rare.

Stopping a MOD

To stop playing a MOD file:

- **Click on the stop button on the bottom right of the MODUS window. If the MOD you stop is the currently selected file in the Play List, it will be deleted from the Play List.**

Pausing and Resuming a MOD

To pause a MOD:

- **Click the pause button on the bottom right of the MODUS window.**

To resume a paused MOD:

- **Click the play button on the bottom right of the MODUS window.**

Fast Forwarding and Rewinding a MOD

To fast forward or rewind a MOD file that is playing:

- **Click the fast forward or rewind buttons on the bottom right of the MODUS window.**

The MOD will then move to the next or the previous pattern.

Using the Pattern Slider

The pattern slider is below the Play/Stop button bar in the MODUS window, and indicates the pattern position of the currently playing or paused MOD. To change the pattern position:

- **Click on the slider knob and move it left or right, then let go of the mouse button. When the button is released, the MOD will then begin playing at the pattern position you have selected.**

Adding and Removing MODs from the Play List

To add a MOD to the Play List either select a file and click on the Add button, or double-click on the file. To remove a MOD from the Play List, select the MOD in the Play List on the lower left of the MODUS window, then click on the remove button.

Note: The Play List will loop after playing the last MOD. If there is only one MOD in the Play List, it will repeat.

Deleting a MOD File

To delete an unwanted MOD file from your hard disk:

- **Select the MOD file in the file list at the upper left corner of the MODUS window, then press the Kill button.**

MODUS will then ask you to confirm the delete.

Skipping the currently Playing MOD

To skip to the next file in the Play List, click on the Skip button found directly above the Play List.

Interpreting the Track Information Bars

The track information bars display the instruments that are currently active on a channel as a MOD is played. Each time an instrument is played on that channel, the LEDs to the right of the instrument pulse.

Using the Channel On/Off Buttons

The Channel On buttons are to the right of the track LEDs. To turn a track on or off:

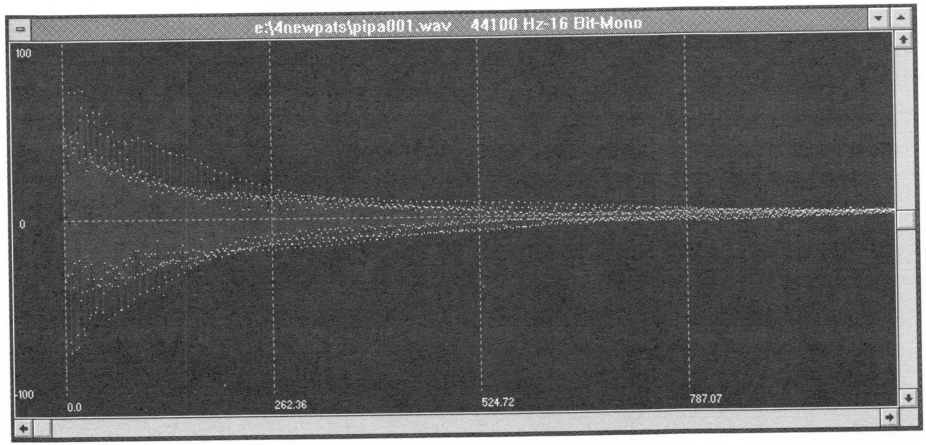
- **Click the track On/Off button to the right of the track you wish to toggle. When a track is turned off, the blue square in the middle of the button will disappear. To turn the track back on, click the button again.**

Interpreting the Position/Beat/Pattern LEDs

The Position LED is the current pattern position in the playing MOD, starting at 1 and increasing sequentially to the end of the MOD. The Beat LED shows the current beat from 1 to 64 in the current pattern. The Pattern LED shows the current pattern block which is being played. Pattern blocks contain the note information for 64 beats and may be repeated several times in a single MOD.

Displaying the About MODUS Panel

To display the About MODUS panel, click on the MODUS title panel in the upper left corner of the MODUS window. The Position/Beat/Pattern LEDs will then be replaced by the About panel.



Wave Lite

by Turtle Beach Systems, Inc.

Manual Revision 1.1

CONTENTS

CHAPTER 1 WHAT IS WAVE LITE™?

Wave Lite™ is a program for recording and editing waveform audio in the Windows environment.

Wave Lite is the result of Turtle Beach's many years of experience in the professional audio field, where they have pioneered the use of PCs as full-fledged recording systems. As such, it will allow you to fully harness the digital audio capabilities of Windows 3.1 or the Multimedia PC.

BEFORE YOU DO ANYTHING ELSE...

Check your disks for a file named README.WRI. This file lists any changes that we may have made to Wave Lite since we printed this manual.

SYSTEM REQUIREMENTS

In order to use Wave Lite, you will need the following hardware and software:

- Windows 3.1 or greater, or Microsoft Windows 3.0 and the Windows Multimedia Extensions
- 386SX or better AT class computer
- A Windows-compatible sound device (like UltraSound)

USING THE MANUAL

Chapter 1 introduces the program and provides support and upgrade information.

Chapter 2 covers installation (which is done automatically for you).

Chapter 3 is an overview of Wave Lite's operation. If you've never worked with waveform audio or sampled sounds before, you'll also want to read Chapter 4, which provides an introduction to these subjects.

From there on, we suggest that you only open the manual as needed for reference. Don't forget to make use of Windows' on-line help!

UPGRADING TO WAVE

Wave Lite is a slimmed-down version of Wave™ , Turtle Beach's professional sound editing system for Windows. While the tools included in Wave Lite will probably be adequate for most of the things you'll want to do with sound in the Windows environment, Wave provides the extra functions needed to do "studio-quality" digital recordings. These features include:

- Four-band parametric equalization
- Three-dimensional Fast Fourier Transform (FFT) analysis
- Mixing of part or all of up to three soundfiles
- Crossfading, gain adjustment, and muting
- Full digital effects (reverb, chorus, echo)
- Time compression and expansion
- Easy-to-use effects presets
- Import and export to a wide variety of file formats

See the enclosed upgrade form for information on purchasing Wave™ .

Customer Support

Advanced Gravis does not provide detailed technical support for Wave Lite. Support is available to registered users from Turtle Beach Systems, (716) 843-6916., 9 AM—6 PM Eastern Standard Time.

CIS ID: 75300,1374 or 75300,3270
BIX ID: Turtle Beach

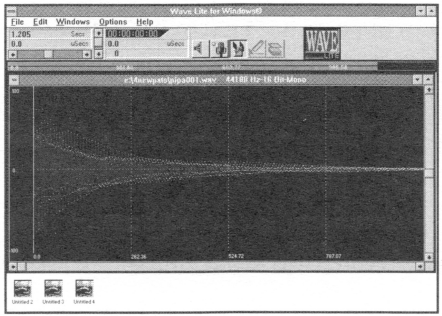
CHAPTER 2 INSTALLATION

INSTALLING WAVE LITE

Wave Lite was automatically installed to your Windows directory during the UltraSound Installation. If you need to re-install Wave Lite for any reason, refer to the 'Windows Software Installation' section of the *UltraSound Quick Installation Guide.*

CHAPTER 3 WAVE LITE OVERVIEW

Despite Wave Lite's complex features, it is easy to use. If you've ever used a tape deck, you'll already be familiar with many of the program's functions; however, Wave Lite has many capabilities that you'd never find in the best-equipped conventional studios, so a complete description of its functions is certainly in order. In this chapter, we'll do just that, starting with the basic concepts of Wave Lite.



Wave Lite's Main Screen

PROGRAM CONCEPTS

Wave Lite makes use of the traditional Windows Multiple Document Interface (MDI), similar to that used in Word for Windows, File Manager, and many other applications. Up to four document windows may be open at any time. These are used for editing *soundfiles,* or digital recordings.

Wave Lite's editing tools take many forms. At the simplest level, you may cut and paste sections of sound, either within a single soundfile or across files, or draw sound freehand using the waveform pencil.

AN IMPORTANT NOTE

Unlike most other software, Wave Lite does not load a copy of its data into memory when you open a sound file. Data on the hard disk is edited directly. This is typical of the way digital audio programs work, and for a very good reason.

Audio sampled and stored at high resolutions can eat up a tremendous amount of memory. CD-quality sound (two channels of 16-bit audio, sampled at 44.1 kHz) uses a stunning 10 Megabytes per minute of sound recorded. Even with the low prices of RAM today, it is impractical to expect a desktop computer to hold this amount of data in RAM.

When editing an existing sound (such as those included with Multimedia Windows) with Wave Lite, make a backup copy before you start your editing session.

MENUS

Virtually all of Wave Lite's functions can be accessed from the main window's menu bar.

The File menu contains options for managing disk files and for exiting the program. This menu is discussed in Chapter 7.

The Edit menu provides cut and paste functions and undo. Edit options are discussed in Chapter 6.

The Windows menu is used to change the arrangement of the four soundfile windows within Wave Lite's main window. The items in this menu are discussed in Chapter 8.

The Options menu contains several options for setting parameters for other parts of the program, as well as system check functions and other items. The Options menu is discussed in Chapter 8.

THE TOOLBAR AND OVERVIEW

The area immediately beneath the menu bar is called the toolbar. This area contains numeric displays and buttons which provide quick access to many of the most commonly used functions.

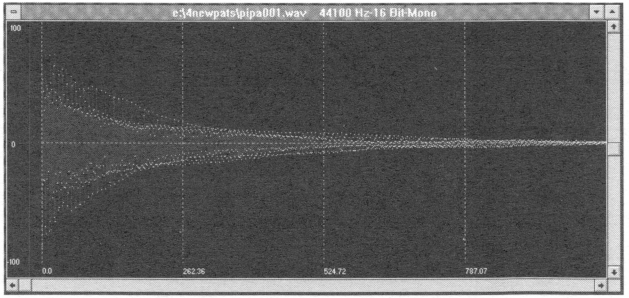
The upper left corner of the toolbar contains several time displays that are related to the active soundfile window, as well as sliders for changing the X (time) and Y (amplitude) resolution of the display. The right side of the toolbar contains icons for playing the recording, for selecting the mouse editing modes, and for retrieving previous views of the window.

Immediately below the toolbar is a display called "Overview" that displays a time line overview of the entire recording. The overview is used primarily to select the portion of the recording that is displayed in the active soundfile window.

SOUNDFILE WINDOWS AND ICONS

Wave Lite's main window is home to up to four child windows. These windows may be minimized within the main window, in which case they will appear as icons. Double-clicking on any icon will maximize the window for that icon. When you start the program, the first soundfile window will already be open, and the remaining windows will be minimized.

Each of the four soundfile windows displays both channels of the recording. The components of a soundfile window are shown below.



The Soundfile Window

The topmost soundfile window is referred to as the active soundfile window. The active window is connected to Wave Lite's menus and toolbar; all recording, editing, and playback operations deal with the sound data shown in the active window. The soundfile windows are discussed in Chapter 6.

CHAPTER 4 ABOUT SAMPLING

WHAT IS SAMPLING?

Sampling, in musician's terms, is the process of converting a sound to a series of numbers which can be stored and manipulated by a computer. The term sampling comes from a description of the physical process used by the hardware that converts sound waves to digital data, which periodically takes a sample of the input wave and converts it to digital data.

Sampling is also sometimes referred to (especially in the computer games arena) as *digitizing*.

In order to master the Multimedia PC's digital audio capabilities and the operation of Wave Lite, it is important to understand at least a little bit of the mechanics of sampling—how it works, and what its limitations are.

This in turn requires some knowledge of the physics of sound. To that end, we have provided some background information on sound and sampling in this chapter. It's not our intention at this point to bring you up the level of a graduate acoustics engineer, but this should at least be enough to get you started.

THE BASICS OF SOUND

Simply put, a sound is a fluctuation in air pressure that can be sensed by our ears. When something happens that creates a sound—for instance, a tree falling in the woods, the air vibrates in a certain way. These vibrations are called sound waves. Our ears sense these waves and send signals to our brains, which interpret the sound and tell us what it means.

The part of the brain that deals with sound is an especially complex and wonderful piece of software. It takes the chaotic fluctuations of the sound waves and transforms them into a continuum of frequencies—that is, independent rates of vibration.

Frequencies are measured in units of Hertz (abbreviated Hz). A Hertz is defined as one cycle per second. Human beings can hear frequencies in the range of 20 to 20,000 Hz—that is, vibrations that repeat between 20 and 20,000 times per second.

The simplest sound is called a *sine wave.* A sine wave consists of a single frequency. As you may have guessed, the sine wave does not exist in nature—it is a theoretical abstraction used primarily in analyzing , testing, and simulating audio, electrical, and mechanical systems.

Sounds that occur in the real world, including natural and synthesized instruments, sound effects, narration, and anything else you can think of, contain many different frequencies. The exact frequency values of these components of the sound, as well as their relative levels and the way they change over time, are what let us distinguish one sound from another.

The reason that it is so important to understand the frequency content of a sound is that most audio systems—whether you're talking about a telephone, an ultra-high quality stereo system, or the sound board in your PC—can only handle a limited range of frequencies.

For example, the frequency response (or bandwidth) of a telephone is somewhere in the range of 400 to 8,000 Hz. This is substantially less than what we can hear, but it's all that is necessary to convey the important information in a person's voice. (It also explains why the telephone sounds so lousy in comparison to, say, an FM radio.) Many of the requirements of sampling limit the frequency response of sampling systems

like that found in your PC, as we'll learn in the next section.

SAMPLING SOUNDS

A microphone works in a manner similar to an ear. When a sound strikes a microphone, the mike produces an electrical wave which is (more or less) an exact replica of the pressure wave that produces the sound. Because there is a one-to-one relationship between the air pressure and the voltage coming out of the mike, this wave is called an analog signal. You've probably heard the term "analog" used to describe certain types of audio equipment, such as analog tape recorders, etc. When someone describes an audio device as an "analog" device, it means that the machine's circuitry operates only on the analog waveform that represents the sound. Computers, on the other hand, do not make use of analog signals.

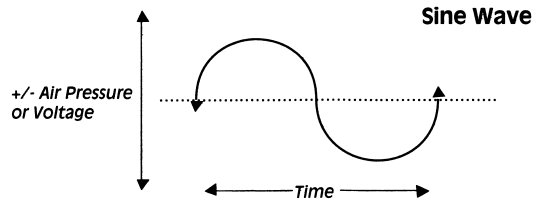
Computers operate in the digital realm, where everything is represented as a series of on/off switches, or bits. Therefore, in order to store a sound in a computer's memory, it is necessary to convert the continuously changing analog signal that represents the sound to digital data.

Not surprisingly, the device used to convert the analog signal to digital data is called a digital to analog converter, or DAC. This outputs a number, in binary format, that represents the input signal at any given instant. Now all we have to do is store those numbers in memory, and we'll be able to say we have the sound stored, right?

Well, yes and no. The numbers put out by the DAC do represent the sound—but for a variety of reasons, it's impossible to store every one of them in memory. This problem is handled by sampling the output from the DAC at a regular rate. This rate, called the *sample rate*, is one of the most important factors in determining the quality of a sampled sound.

Selecting a Sample Rate

The sample rate is also sometimes called the *sampling frequency* because it, too, can be measured in Hertz. From this, you can probably deduce that there is an important relationship between the sample rate and the frequency content. Take a look at the following diagram. This shows a signal that contains a single frequency (a sine wave) which we'd like to sample.



The sine wave is very regular, with a single high point and a single low point. Because of these two facts, and thanks to the physics of electronic filtering (which we will not be discussing here!), it is only necessary to sample a sine wave twice during each cycle in order to get a "complete picture" of it.

For more complex waves, such as those associated with sound, the same thing is true. Even though real-world sounds are made up of many different frequencies (as opposed to the single frequency found in the sine wave), they can be sampled adequately by using a sample rate that is twice as high as the highest frequency in the signal. This is so important, it bears repeating:

In order to sample a signal properly, the sampling frequency must be at least twice as high as the highest frequency component in the signal.

This fact, which can be proven by rigorous mathematical analysis, is the most important single notion in sampling. If you sample at a rate that is at least twice the highest frequency in your input signal, everything will be OK. If the sample rate is less than twice the highest frequency, however, you'll get an inaccurate representation of the input.

The Multimedia PC document issued by Microsoft specifies that the sound hardware be capable of sampling at 11.025 kHz and 22.050 kHz, at a minimum. All MPC-compatible sound hardware can perform at this level, though some boards , like UltraSound, can deliver CD-quality performance.

Sampling Resolution

Another important factor in determining the quality of a sampled sound is the sampling resolution. This term refers to the number of discrete levels used in the analog to digital and digital to analog conversion processes.

Sampling resolution is measured in bits, which refer to the amount of memory required to store each individual sample. Obviously, the more bits of resolution used, the more closely the sampled signal will represent the analog signal, which has an essentially infinite resolution.

However, higher resolutions require more memory, so some trade-offs must be made. Eight bits produce reasonable results, while 16 bit resolution is preferred for professional musical applications.

Unlike the sample rate, the resolution of a sampling system is almost always determined by the hardware. The minimum resolution that is permitted for MPC hardware is 8 bits. Compact disks and digital audio tapes use 16-bit samples, though many players only use 14 bits in their output circuitry. Other musical instruments may use 12, 18, or even more bits.

Wave Lite uses up to 16 bits of resolution for its internal sample storage and editing.

Looping

In the early days of sampling, when computer memory was rationed out in 16K memory chips, musicians were faced with a serious problem. How could sustained musical sounds, like a trumpet or violin note, be stored in RAM, without using a small fortune in memory? Part of the solution, of course, was to use low sample rates and resolution, but an equally important factor was the development of sample looping.

Consider the sound of the trumpet. After an initial attack transient, in which the nature of the sound is changing rapidly, it reaches a "steady state," in which the sound changes very little.

At this point, each cycle of the trumpet waveform is basically identical to the one before it. Because of this, it is possible to delete most of the trumpet sample from memory, then instruct the sampler to repeat a single cycle of the waveform. Musicians call this process *looping.*

While looping is simple in theory, it is a bit more complicated in practice. For example, most musical instruments have subtle periodic changes in pitch and timbre during their steady state period. Looping a single cycle of the waveform therefore results in a sound that is static and lifeless—more like a cheesy organ than a living, breathing instrument. Good looping to create great instrument patches is an art, especially with instruments that don't have a periodic wave form, like cymbals or voices.

References

De Furia, Steve, and Scacciaferro, Joe The Sampling Book Hal Leonard Books

Pohlman, Ken, Principles of Digital Audio

CHAPTER 5 PLAYBACK AND RECORDING

PLAYBACK

Wave Lite has many different options for playing back a soundfile. All or part of a soundfile may be played back, or a segment of a soundfile can be made to play repeatedly.

The Play Icon

Most of the playback options are centered around the Play icon, which is shown to the left.

If a section of the recording is selected, a single click with the left mouse button on the Play icon will play the selected area. If a selected area does not exist, left-clicking on the Play icon will tell Wave Lite to play the material displayed in the active soundfile window.

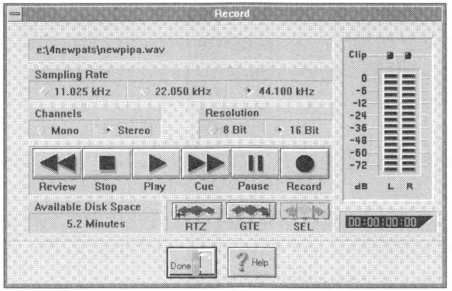
The entire soundfile may be played by double-clicking on the Play icon. Double-clicking at any location in the overview display will play the soundfile, beginning at that point.

The <space> bar performs the same function as a single click on the Play icon: the selected area (if there is one) plays , or the sound in the active soundfile window plays. <Shift-space> plays the entire soundfile. The <space> bar also stops playback.

RECORDING

Wave Lite's recording functions are accessed by clicking on the microphone-like Record icon located in the toolbar.

If you start recording in an empty soundfile window, a file selection dialog will allow you to select an existing soundfile in which to record, or to enter the name of a new soundfile. After you specify a file name, or if you are recording into an existing soundfile, the Record dialog will appear.



Record Dialog

The Record Dialog

The Record dialog contains a wide variety of controls and displays that affect the recording process. Many of its functions are identical to the analogous functions in an analog tape deck, while others are unique to the digital recording medium.

The Review, Record, Play, Stop, and Cue buttons are all similar (but not identical) to the equivalent buttons on a tape deck. Recording starts as soon as the Record button is pressed; there is no need to press Play. Recording stops when the mouse button is clicked, or the <space> bar is pressed. The <space> bar can also be used to start playback.

The Cue and Review buttons change the value in the time counter below the "transport" buttons. Playback

or recording starts at the time shown in this counter when the Play or Record buttons are clicked.

You can also position the starting point for recording or playback with the three buttons to the right of the counter. These buttons allow you to instantly jump to the end of the recording (GTE, or Go To End), the beginning (RTZ, for Return To Zero), or the beginning of the selected area (SEL).

The Sampling Rate buttons are used to set the sound hardware's sampling frequency. The Resolution buttons determine whether individual samples will be stored in a single byte (8 bits) or an entire word (16 bits) of memory. This dialog will only allow you to select options that your sound card can handle, so for example, Sound Blaster users will not be able to choose 44.1 kHz recording.

Changing the sample rate and/or the resolution allows you to balance fidelity and memory usage, depending on your needs.

The Channels button allows you to record in mono or stereo, if your sound hardware has that capability. Note that these settings cannot be changed once you begin recording into a new soundfile, or if you are recording new material in an existing soundfile.
The level meters on the right side of this dialog provide an animated display of the audio input. While the level meter is running, you can set your sound card record level either by manually adjusting it or by using manufacturer-supplied Windows tools to do so.

These bar graphs show the instantaneous and peak input levels for each channel. This is an essential tool when you are recording from an analog source. The level meters are switched on by clicking on the Pause button. You can turn off the meters by clicking Stop or if you are ready to record, click Record.

How to Create a New Recording

1) Open a new window by double-clicking on an Untitled icon. If all four windows are in use, use the New option in the File menu to clear a window.
2) Click on the Record icon.
3) In the dialog that appears, type the name of the new recording, then click OK.
4) Click Pause to start the level meters
5) Start the source tape or CD and adjust the output level while monitoring the level display. When the levels are set properly, and re-cue your source tape or CD.
6) Click on the Record button, then start the source tape.
7) When the recording is complete, press <space> to stop recording, then click Done to return to the editing window.

How to Add Material to the End of an Existing Recording

1) Select the window containing the soundfile in which you wish to record.
2) Click on the Record icon.
3) When the Record dialog appears, click on the GTE button to go to the end of the recording.
4) Follow steps 4 to 7 of 'How to Create a New Recording,' above, to complete the recording.

RECORDING ERRORS

On occasion, if you are recording using Wave Lite's highest sample rate and resolution, 16 bit stereo at 44.1 kHz, DOS may be unable to write data to the hard disk as fast as the sound hardware is sending it. When this happens, a Record Error message appears on the screen. Wave Lite keeps a running count of the errors as they occur. Because of the nature of these errors, they usually result in very nasty glitches in the sound—not the kind of thing you'd like to have in your high quality digital recordings.

Fortunately, this problem is easily solved. Understanding why it occurs, and why the solution works, can be a bit trickier. For this reason, we'll first present the solution, with no explanation, then provide more detailed information for those hardy souls who crave full enlightenment on the minutiae of DOS.

The Solution

When recording errors occur, they can almost always be corrected by simply re-recording the same material—as long as the second recording is no longer than the first. To prevent recording errors from happening, you will need to defragment your hard disk, using a disk defragmenter (or "optimizer") such as Vopt (our favorite) or those found in PC Tools, Norton Utilities, or Mace Utilities. It is only necessary to optimize the "free space" on your hard disk, so look for this option in your disk optimizing software.

The Explanation

When DOS writes a file to disk, the file is not written to disk in one big chunk, but is actually broken into smaller chunks and stored in small areas on the disk called clusters. When the disk is new, its empty clusters are all grouped together, but as time goes by and more files are written to and deleted from the disk, the group of empty clusters becomes broken up, or fragmented.

When DOS writes a file, or adds data to an existing file, it must first search through the disk and find enough empty clusters to store the data. If the clusters are all bunched together, this doesn't take very long, but if the free clusters are scattered around the disk, DOS may take a bit longer to do this. At some point, it can no longer keep up with the sound hardware, and recording errors occur.

Happily, these recording errors do not interfere with DOS at all, and it will continue to successfully search for free clusters as long as recording continues. Even better, this list of free clusters is retained by DOS, so that the next time a recording is made, it already knows where to store the data, and recording errors won't occur.

A disk defragmenter prevents further recording errors by bringing all of the empty clusters together. Another good way to create a large block of empty clusters is to erase any unnecessary soundfiles or programs from your disk, preferably as soon as you are finished with them.

CHAPTER 6 VISUAL EDITING

THE MIRACLE OF VISUAL EDITING

One of the most important benefits of the digital audio revolution is the long-awaited ability to look at sound rather than to simply listen to it. The wave nature of sound has been well understood for centuries, but being able to look at a sound and thereby get a new perspective on such things as clicks, envelopes, noise, and other audio phenomena has been a great help to musicians and audio engineers.

Like all good digital audio programs, Wave Lite not only lets you see your music, it lets you visually edit your recordings as well. In this chapter, we'll cover all aspects of visual editing in Wave Lite.

THE SOUNDFILE WINDOW

The soundfile window, which was discussed briefly in Chapter 4, is the heart of Wave Lite's visual editing system. It contains two views of the recording, several time displays, resolution sliders, and a variety of icons for editing and other functions. These items are all described below.

THE OVERVIEW

The overview is a miniature representation of the soundfile in the active (top) soundfile window. The overview is used to select the portion of the soundfile that appears in this window. The overview appears just below the toolbar.

The Overview

The highlighted portion of the overview corresponds to the data in the active soundfile window. Dragging the mouse across the overview will highlight a new area and, consequently, put a new section of sound in the window. If you drag with the left mouse button down, the amount of sound displayed in the top window may change, but if you drag with the right mouse button, you can slide the view around without changing its size.

Note that if the length of the highlighted portion of the overview is very long, Wave Lite may take an excessive amount of time to redraw the window. If this happens, you can press the <space> bar to cancel the calculation, and Wave Lite will only plot that portion of the active soundfile window that it has calculated.

How to View a New Section of Sound with the Overview

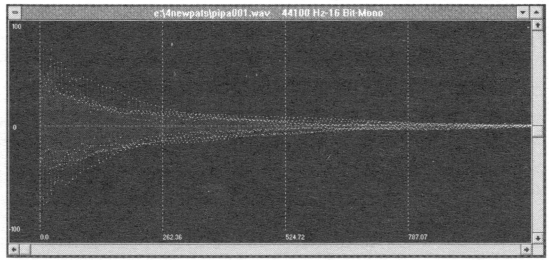
1) **Position the mouse cursor in the overview, at the beginning of the section of sound you wish to view.**
2) **Drag the mouse across the area you wish to view. The area you specify will be highlighted.**
3) **Release the mouse button, and the highlighted area will appear in the active soundfile window.**

The Soundfile Window

The topmost, or active, soundfile window is where most of the action in Wave Lite takes place. This window is used to view a chunk of your recording to any level of resolution (in both time and amplitude) that you desire. It is also used for selecting areas to edit, placing insertion points, and drawing waveforms.

The calibration units along the left and bottom edges of the view, as well as the type of grid used in the soundfile windows, are all set in the Display Setup dialog. The highlighted section of sound in this screen shot is called the selected area, and is discussed later in this chapter.

The maximum amount of soundfile that can be "grabbed" from the overview is set by the Maximum Zoom parameter in the Display Setup dialog.



The Soundfile Window

The reason we allow you to limit the size of the soundfile window display has to do with the mechanics of hard disk recording. When Wave Lite draws the soundfile plot, it takes almost as long to get the data from disk as it would to play the data. This means that, if you want to grab a ten minute recording from the overview, redrawing the soundfile window takes about ten minutes. This is not practical, so we've added this feature.

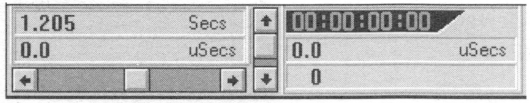
If you attempt to make the soundfile window's display longer than the Maximum Zoom time by dragging the mouse in the overview, it will be limited to this value. Note that you can still view larger sections using the time resolution slider, since its operation is not limited by Maximum Zoom.

The portion of the recording displayed in the active soundfile window can be positioned by ear by setting the Play Mode switch to Tape.

In a stereo soundfile, the upper part of the display in each soundfile window corresponds to the left channel of the recording, and the lower part represents the right channel.

THE TIME DISPLAYS

The five displays in the upper left part of the toolbar show time values that relate to the recording. These displays are shown below.



Time Displays

The display in the upper left corner shows the length of the soundfile. The display immediately below this shows the start time of the sound displayed in the active soundfile window.

The two fields in the lower right part of this display show the start time and duration of the selected area, if any. If there is no selected area, then the upper display shows the location of the insertion cursor, and the lower display shows the sample value at the cursor position.

The units used for the four displays discussed above are set in the Display Setup dialog. This dialog is available through the Options menu, or it may be brought up by clicking on the units portion of any of these displays.

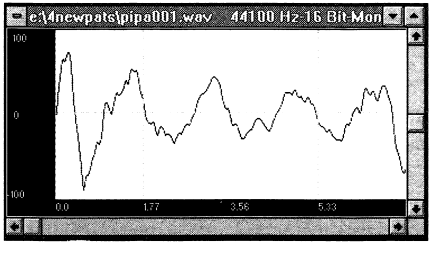
The display in the upper right is slightly different that the other four. It always displays time in hours, minutes, seconds, and frames, regardless of the units used by the other displays. If Wave Lite is playing, it shows a running count of the play time. If Wave Lite is stopped, then it shows the same value as the Start display, that is, the location of the left edge of the active soundfile window.

THE TIME AND AMPLITUDE RESOLUTION SLIDERS

The two sliders located between and beneath the time displays are used to change the resolution of the active soundfile window. The horizontal slider changes the time, or X, resolution of the view, and the vertical slider controls the amplitude, or Y, resolution. These controls are used to zoom in and out on the soundfile.

When the time resolution slider is all the way to the left, up to two minutes of the soundfile will be displayed, and when it is all the way to the right, approximately 64 sample frames will be displayed, depending on the type of video card you're using. Clicking to the right or left of the slider handle will move the handle by one "notch", which will change the resolution by a factor of four.

Similarly, the entire height of the sound data in the active soundfile window will be displayed when the amplitude resolution slider is at the top; when it is at the bottom, only a very small portion of the full range is displayed. Clicking above or below the slider handle changes the resolution by a factor of two.



Sound Data Magnified with Resolution Sliders

Scrolling the Soundfile

When either the time or amplitude resolution is set such that only part of the full range is visible, the soundfile window's scroll bars become active. These can be used to view different areas of the soundfile. The size of each scroll bar's handle shows the size of the viewed area in relation to the full range (either time or amplitude). The screen shot to the left shows a soundfile window in which the resolution sliders and scroll bars have been used to zoom in on a small section of sound.

Typically, you would use the time resolution slider only when you want to look at a very large section of the soundfile, since this slider does not have the automatic limiting that occurs when you drag the mouse in the overview. The amplitude resolution slider, on the other hand, is a very convenient way to zoom in on part of a waveform.

Centering the Amplitude Display

Because it is often necessary to center the zero amplitude line in the active soundfile window, and because this can be difficult to do using the vertical scroll bar, the Windows menu contains a special command for this, called Center Y Resolution. Clicking on this menu item, or pressing <Alt-C>, will center the view around the zero line.

Canceling Long Redraws

If you accidentally move the time resolution slider too far to the left, you may find that Wave Lite takes a long time to redraw the soundfile window. If you tire of waiting for this to happen, you can Click the left mouse button or press the <space> bar at any time to cancel the redraw. The right mouse button, described in the next section, provides an alternate method for changing Wave Lite's display resolution.

How to Magnify a Small Time Slice

1) **Drag the mouse across the section of the overview that corresponds to the section you wish to view. The left edge of the highlight should be at the left edge of the desired segment.**

2) **Slide the time resolution slider all the way to the right.**

3) **If necessary, use the scroll arrows along the bottom edge of the window to zero in on the desired segment.**

RIGHT MOUSE BUTTON ZOOMING

The right mouse button may be used at any time to zoom in on a particular section of the active soundfile window. This is equivalent to adjusting the time and amplitude resolution sliders, as well as the horizontal and vertical scroll bars, in one fell swoop.

When the mouse cursor is inside the active soundfile window and right mouse button is pressed, the cursor changes to a pointing arrow. Dragging the mouse down and to the right across the window will cause a rubber box to appear. When you release the mouse button, the data enclosed in the box will expand to fill the window.

Because it is often desirable to be able to zoom in on a particular time segment in a soundfile without changing the amplitude resolution, we have provided an option to prohibit changes in Y resolution during zooms. If a check mark appears beside "Lock Y Res in Zooms" in the Windows menu, the amplitude resolution will not change when using the zoom mode. This switch can also be toggled by the <L> key.

How to Magnify the Peak of a Waveform

1) **Pull down the Windows menu and make sure that Lock Y Res in Zooms is turned off.**
2) **Position the mouse cursor above and to the left of the section of sound you wish to view, then drag the mouse down and across the desired section.**
3) **Release the mouse button.**

THE SELECTED AREA AND THE INSERTION CURSOR

Most of Wave Lite's editing operations are designed to be used on only selected parts of the soundfile. The selected area is the highlighted portion of the active soundfile window.

The mouse may be used to select an area any time the Select icon is active. To select a section of a soundfile, drag the mouse across the area you wish to select. The boundaries of the selected area may be changed by holding down a <Shift> key and either clicking at the place you want the selected area to begin or end, or dragging the boundary. This technique is especially useful if you wish to fine tune the edges of the selected area.

If a selected area is not defined, an insertion cursor will appear somewhere in the soundfile. The insertion cursor is a vertical blinking line, which is used to tell Wave Lite where to insert new material when pasting. The insertion cursor is placed simply by clicking once in the active soundfile window.

Locating the Selected Area or Insertion Cursor

If a selected area or insertion cursor is not visible in the soundfile window (probably due to scrolling), the location of the selected area or insertion cursor is shown in the time displays.

The display that shows the length of the selected area will be blank if an insertion cursor is in use. To display the selected area or insertion cursor in the window, press the <=> key. Use the F9 and F10 keys to jump to the beginning or end of the selected area; this is especially handy if the size of the active soundfile window is much smaller than the selected area.

How to Precisely Define the Selected Area

1) **Zoom in on the location that you want to be the beginning of the selected area, using the time resolution slider and the horizontal scroll bar.**
2) **Click on the Select icon.**
3) **Place the mouse cursor at the desired location and drag the mouse a short distance to the left.**
4) **Use the horizontal scroll bar to locate the other desired endpoint for the selected area.**
5) **Hold down either <Shift> key, and drag to the desired endpoint.**

THE EDIT ICONS

The two icons shown at the left are called the Edit icons, because they determine what editing function the mouse will perform in the active soundfile window. These two buttons are radio buttons, of which only one may be active at any time. The Edit icons are the Draw icon and the Select icon.

 The Select Icon

When the Select icon is active, the mouse may be used either to define a selected area or to place the insertion cursor. The mouse cursor changes to an "I" beam shape when it is inside the active soundfile window in this mode. Dragging the mouse selects an area, or clicking the mouse places an insert cursor.

 The Draw Icon

When this icon is active, the mouse can be used as a pencil, to draw new sound data. This is primarily useful

for removing clicks, pops, and similar glitches in a recording.

When waveform drawing is enabled, the mouse cursor takes the form of a pencil when it is inside the active soundfile window. Dragging the mouse across the window draws in new sound data. When the mouse button is released, Wave Lite will clean up the display, so don't be dismayed if your drawing seems a bit sloppy at first.

The Draw icon is only available when the time resolution is sufficiently high to make drawing practical. (The sound data is displayed as a set of lines, rather than as a solid curve, when this is so.)

How to Remove a Click in a Soundfile

1) **Drag the mouse across the section of the overview that contains the click to view that part of the soundfile.**
2) **Use the right mouse button to zoom in on the click. If necessary, click once somewhere on the screen to place the insertion cursor, then press the <space> bar to play the contents of the active soundfile window in order to confirm your selection.**
3) **Click on the Draw icon.**
4) **Place the mouse cursor at the left edge of what seems to be the base of the click, and then draw a line from that point to what seems to be the trailing edge of the click.**
5) **Note that some clicks may be too wide to be deleted with this method. If the click does not sound better when the soundfile is played, select Undo Last Edit from the Edit menu to replace the click.**

The Previous View Icon

The Previous View icon is used to step through the last eight views of the soundfile. Clicking on this icon will bring up the last view of the current soundfile window. In this sense, a "view" includes the settings of both resolution sliders and the scroll bars. Selecting a previous view does not change the status of the selected area or insertion cursor. If the stack of previous views is empty when you click on this icon, you will hear a beep.

The <backspace> key performs the same function as this icon.

CUT AND PASTE EDITING

An important part of visual editing in any digital audio program is cut and paste editing. These functions are handled in Wave Lite through the Cut, Copy, Delete, and various Paste items in the Edit menu.

Most of these functions make use of a temporary storage area called the cut buffer. This buffer is actually a file on the hard disk. If there is not enough room on the hard disk to create a cut buffer when the need arises, Wave Lite will issue an error message. When you quit Wave Lite, the contents of the cut buffer are lost.

Cut

This item removes the material in the selected area and places it in the cut buffer. Pressing <Shift-Del> performs the same function.

Copy

This item is similar to Cut except that the selected area is not deleted from the soundfile; it is simply copied to the cut buffer. Pressing <Ctrl-Ins> performs the same function.

Delete

Delete is like Cut , but does not save the selected area from the soundfile in the cut buffer. This is handy if you wish to delete something without disturbing the contents of the cut buffer. The keyboard command for Delete is <Ctrl-Del>.

Paste Insert

Paste Insert is used to place the contents of the cut buffer back in the soundfile. It is only available if something has been placed in the cut buffer; otherwise, this item is disabled.

The exact function of the Paste Insert command depends on whether a selected area or insertion cursor is present. If a selected area exists, Wave Lite first deletes the selected area, then inserts the contents of the paste buffer; in other words, the contents of the cut buffer replace the selected area. If an insertion cursor exists, the new material is inserted at that point, and nothing is deleted from the soundfile.

Paste Insert can also be used to create a new soundfile. If you open an untitled soundfile window and then click on Paste Insert, Wave Lite will present a file selector where you can enter the name of the new soundfile. The data in the cut buffer will then be pasted into the new soundfile.

The keyboard command for Paste Insert is <Shift-Ins>.

Paste Over

This option is similar to Paste Insert, except that it always replaces data in the soundfile, regardless of the existence of a selected area. The length of the replaced data is identical to the length of the cut buffer. The keyboard command for Paste Over is <Shift-O>.

Paste Fill

This function will repeatedly copy data from the cut buffer to the selected area, replacing any existing data. This is primarily useful for dialog editing, when you'd like to replace an extraneous sound with some ambient background noise. Simply copy a few seconds of background noise (or "room tone") to the cut buffer, then select the area you want to replace and select Paste Fill. The keyboard command for Paste Fill is <Shift-F>.

Audition Cut Buffer

Audition Cut Buffer plays back the sound stored in the cut buffer. This is useful if you forget exactly what is stored there. Playback can be stopped by pressing the <Space> bar or clicking the mouse. Pressing the <A> key performs the same function.

Restrictions

Cut and paste editing is fairly unrestricted in Wave Lite. You may paste material at any point in a soundfile, or from one soundfile to another. The only limitation is that the format (mono or stereo) of the destination soundfile must match that from which the material in the cut buffer was taken. If you try to paste the cut buffer into a soundfile with a different format, Wave Lite will issue an error message.

You can paste data from a soundfile with a different sample rate into a soundfile. When this happens, the pasted data will be played back at the sample rate of the destination soundfile.

How to Remove Silence from the Beginning of a Soundfile

1) Position the window at the beginning of the soundfile.
2) Make sure the Select icon is active, then drag the mouse across the silent area.
3) Zoom in on the beginning of the sound by pressing the right mouse button and dragging the mouse diagonally across that part of the soundfile.
4) Click on the Select icon, then fine tune the end of the selected area by holding down the <Shift> key and clicking just before the beginning of the sound.
5) Pull down the Edit menu and click on Delete.

How to Copy Material Between Soundfiles

1) Make sure that the two soundfiles you wish to use as the source and destination are each open in their own windows.
2) Top the window containing the source soundfile.
3) Select the area you wish to copy, then pull down the Edit menu and click on Copy.
4) Top the window containing the destination soundfile.
5) Place the insertion cursor in the destination soundfile by clicking at the location where the copied material is to be inserted.
6) Pull down the Edit menu and click on Paste Insert.

MUTING

The Mute option, in the Edit menu, can be used to erase a portion of either or both channels. Clicking here, or pressing <Ctrl-M>, will set the data in the selected area to zero, which is the computer's way of erasing audio.

UNDOING EDITS

The Undo Last Edit option can be used to undo the effects of any destructive editing operations, such as Cut, Delete, or Paste.

Undo Last Edit is only available when a check mark appears to the left of the Undo Enabled switch. Clicking on Undo Enabled will toggle the undo feature. If undo is disabled, the words No Undo will also appear in Wave Lite's menu bar.

When Wave Lite performs an editing operation, it first makes a copy of the section of the soundfile that will be edited. This copy is placed in a special file called the undo buffer. If you decide to undo an edit, Wave Lite simply swaps the edited section of the soundfile with the undo buffer. Since creating the undo buffer can be quite time-consuming, and may also involve a lot of hard disk space, we have given you the option of disabling the Undo Last Edit option.

We suggest that when you are preparing to make massive changes to an entire soundfile, you first make the change to a small section of the file with undo enabled. Once you are confident of the results you'll be getting, turn the undo feature off, and then edit the entire file.

The status of the Undo Enabled switch is saved in Wave Lite's configuration file.

The <Alt-Backspace> key combination also performs the Undo Last Edit function. The <U> key can be used to toggle the Undo Enabled switch.

CHAPTER 7 THE FILE MENU

Wave Lite's File menu contains several options for managing soundfiles. In this chapter, we will discuss the contents of the File menu, as well as some considerations for hard disk management.

THE FILE MENU

This menu contains several options for managing soundfiles. Its contents are described below.

New

This option removes the soundfile from the top window and sets the window's name to "Untitled". Because the soundfile is contained entirely in disk files, no data is lost when New is selected.

Open ...

This opens a soundfile and places it in the top window. A file select dialog will present you with a list of the available soundfiles.

Save As ...

This option is used to make a copy of the soundfile in the active window. A file select dialog will allow you to enter the name to save the soundfile under.

Delete File...

This item can be used to delete any file from the disk. The extension defaults to .WAV, but you can change this to any extension you wish, and delete any file type.

Exit

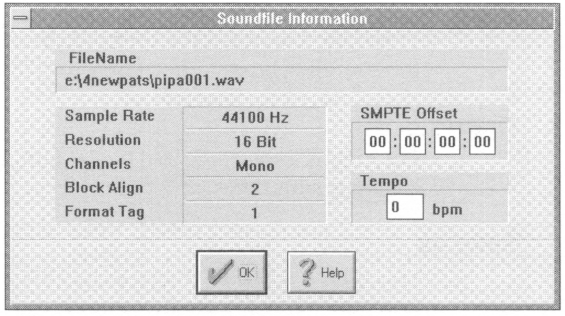
This terminates Wave Lite. Because audio data is stored on the hard disk at all times, there is no need to save your soundfiles before quitting the program.

You may also quit Wave Lite by pressing <Alt-F4>.

THE SOUND INFORMATION DIALOG

The Soundfile Info... option in the Edit menu brings up a dialog which allows you to view important information about the soundfile and add comments.

The Sample Rate, Resolution, and Channels fields show the obvious information. These values are determined when the soundfile is recorded, and cannot be changed from this dialog. Block Align and Format Tag are two data fields found in every Windows-compatible .WAV file, and are provided here solely for the interest of the tech-heads out there. (You know who you are.)



Sound Information Dialog Box

The SMPTE Offset field allows you to enter an offset time, in SMPTE units, that will be added to the time display.

CHAPTER 8 THE WINDOWS AND OPTIONS MENUS

THE WINDOWS MENU

The Windows menu contains items that affect the arrangement of the windows on the screen, as well as some switches for altering the operation of zooming in the active soundfile window.

Lock Y Res in Zooms disables zooming in the Y direction. If this option is checked, then the amplitude resolution will not change when using the zoom mode.

Center Y Resolution is used to center the soundfile's zero line in the middle of the window. This is especially useful when you wish to zoom in on a zero crossing point, as it can be difficult to center the display vertically with the scroll bar.

The next four items in the Windows menu change the arrangement of the windows on the screen. Cascade Windows overlaps the open soundfile windows diagonally. Tile Windows places each open window in a corner of the screen. Strip Windows puts the windows in horizontal strips, one above the other. Arrange Icons simply arranges the icons for any minimized soundfile windows at the bottom of the main window.

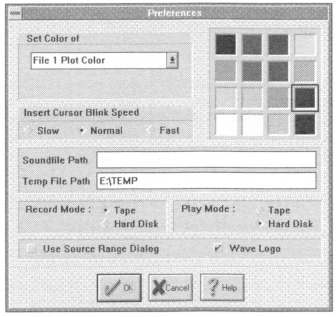
The names of the soundfiles in each window appear at the end of the Windows menu. Selecting any of these will bring the corresponding window to the top.

THE OPTIONS MENU

The Options menu contains several different items for adjusting Wave Lite's display and operational parameters, for performing system checkout functions, and other miscellaneous functions. These items are described in this chapter.

Preferences

This menu item brings up the following dialog, which is used to set many of Wave Lite's global operating parameters; that is, settings that affect the operation of the entire program. You shouldn't need to spend much time here; the usual procedure is to set these parameters once, then forget that this dialog even exists.



Preferences Dialog

Insertion Cursor Blink Speed

Insertion Cursor Blink Speed sets the rate at which the insertion cursor blinks.

Screen Colors

The combo box labeled Set Colors Of and the buttons labeled Colors are used to change the colors used in the soundfile windows. The Set Color Of list determines what part of the display will be changed by the Colors buttons. You may set a different waveform plot and highlight color for each soundfile window; all of the other color settings affect every soundfile window.

Soundfile Path

This setting tells Wave Lite where to look for and store soundfiles. Remember that you can always override this in the file selection dialogs.

Wave Logo

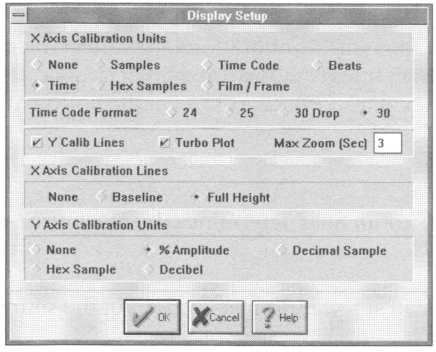
This switch displays or hides the Wave Lite logo that appears in the toolbar.

Play Mode and Record Mode

These buttons tell Wave Lite where it should position the beginning of the active soundfile window when playback or recording is finished. If Hard Disk is selected, the position of the window will not change when playback or recording is finished. This is the mode you'll want to use most often. If Tape is specified, the window will be positioned at the point where playback or recording stopped. This is handy if you want to locate a section of sound by ear.

DISPLAY SETUP

The Display Setup dialog is used to set several options pertaining to the soundfile windows. This dialog can be brought up either by selecting Display Setup..., or by clicking on the units in any of the time displays in a soundfile window.



Display Setup Dialog Box

X Axis Calibration Units

The X Axis Calibration Units setting determines how time is displayed in the overview, soundfile windows, and time displays. If set to SF Time, time is displayed in hours, minutes, seconds, and hundredths of seconds. Time Code is similar, except that the hundredths of seconds display is replaced by SMPTE frames using either decimal or hexadecimal notation. Film displays times in terms of film feet and frames, at rates of 1.5 feet per second and 24 frames per second, and Beat causes times to be displayed in terms of beats.

Y Axis Calibration Units

Y Axis Calibration Units set the calibration used for amplitude in the soundfile windows. If set to % Amplitude, the units on the Y axis will range from -100 to 100. If set to Decimal Samples, the Y axis is calibrated in individual sample levels, from -32767 to 32768. Hex Samples is similar to Decimal Samples, except that a twos complement hexadecimal numbering system is used.

Calibration Lines

X Calibration Lines and Y Calibration Lines affect the grid lines that are drawn in the soundfile windows. The X axis (horizontal) lines can be turned on or off. For the vertical (Y axis) calibration lines, you have three choices: no lines at all (Off), short lines at the bottom of the display (Baseline), or full-height lines (Full Height).

Maximum Zoom

The Maximum Zoom field determines the maximum size of the soundfile window when grabbing it from the overview.

Note that you can still view longer sections of the soundfile by using the time resolution slider.

SYSTEM CHECK OPTIONS

The two system check functions described below are used to provide information about things you normally should not need to worry about. If, however, you ever experience problems using Wave Lite, this is the place to start. Its a good idea to keep track of the information that appears in each check, in case you run into system difficulties.

I/O Device Select ...

This option allows you to select from different wave audio devices that may be loaded in your system. This is useful for authoring sounds that must be played back on a variety of sound cards.

PC Equipment Check...

This item displays important information about your computer. The dialog that appears after you select this option shows the amount of free memory available to Windows, the resolution of your video system, and the capabilities of your sound card.

Hard Disk Check...

This menu option looks at the drive specified in the Soundfile Path field in the Preferences dialog and displays the amount of free space on that drive, along with the drive's total capacity.

CHAPTER 9 - SAMPLING TECHNIQUES

This chapter will take you through several procedures that you will commonly use in order to acquaint you with the program and its interface.

SAMPLING FROM A MICROPHONE

The input circuitry on many sound boards is designed for sampling directly from a microphone. This is convenient if a microphone is the only piece of audio gear you own, but for a variety of reasons, it is much easier to get a good sample if you first record your voice on a tape deck, and then sample the sound from the tape, as described in the next section.

When recording from a microphone, it is important to obtain the highest possible level without overdriving the sound hardware's analog to digital converter. Monitoring the level meters in the Record dialog is the best way to ensure this. As you speak into the mike, the indicator in the meter should just barely touch the top of the meter at its highest point. Don't let it slam against the top of the meter for any length of time, as this will result in some truly nasty digital distortion. It may require a few "takes" to get this right, but with practice it will get easier.

SAMPLING FROM A CD OR TAPE

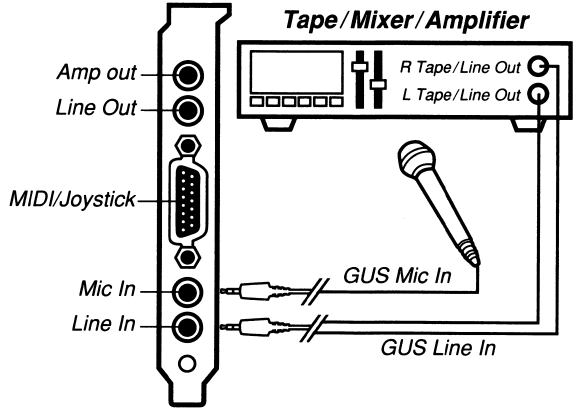
Sampling from a CD or tape is much easier than sampling from a microphone, because the signal is consistent: It will always be at the same level each time you play it, which makes it much easier to get a good recording. It is also easier to get a good vocal "take" when recording on tape than it is when sampling from a mike, because you don't have to deal with the computer and the talent simultaneously.

Depending on which sound board you use, there may be some signal level matching problems when recording from such a source. CD players and tape decks output something called a line level signal, which is much "louder", electrically speaking, than the signal from a microphone. While many sound boards can accept either line level or mike signals, some (including the original Sound Blaster) are designed to accept only microphone level signals. Sampling directly from a CD with such a board will result in serious distortion.

The solution is to use a special "attenuator plug", which reduces the output level of the CD player to match that of a microphone. Radio Shack carries attenuator plugs (part number 274-300). Connect this between one channel of your CD player or tape deck and the sound board's microphone input.

If you're sampling from a stereo sound source like a CD or taped music, there's another problem: many sound boards can only handle mono signals. In this case, you'll need to put an audio mixer between the source and the mono line input in order to mix the two stereo channels to one.

The diagram at right illustrates this arrangement.



Sampling from a tape deck.

APPENDIX A LICENSE AND WARRANTY

License Agreement

This is a legal agreement between you the end user, and Turtle Beach Systems, Inc.

1. GRANT OF LICENSE. Turtle Beach Systems grants you the right to use one copy of the enclosed Turtle Beach Systems Inc. software product (SOFTWARE) on a single terminal connected to a single computer (i.e. with a single CPU). You may not network the SOFTWARE or otherwise use it on more than one computer or computer terminal at a time.

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3. OTHER RESTRICTIONS. You may not rent or lease the SOFTWARE, but you may transfer the SOFTWARE and accompanying documentation on a permanent basis provided you retain no copies and the recipient agrees to the terms of this agreement. You may not reverse engineer, de-compile or disassemble the SOFTWARE.

Although every effort has been made to ensure the accuracy of the text and illustrations in this manual, no guarantee is made nor implied in this regard.

Turtle Beach Systems will not be liable for damages based on inconvenience, loss of use of disks, loss of time, interrupted operation or commercial loss, any other damages, whether incidental, consequential, or otherwise except damages which may not be excluded under applicable law.

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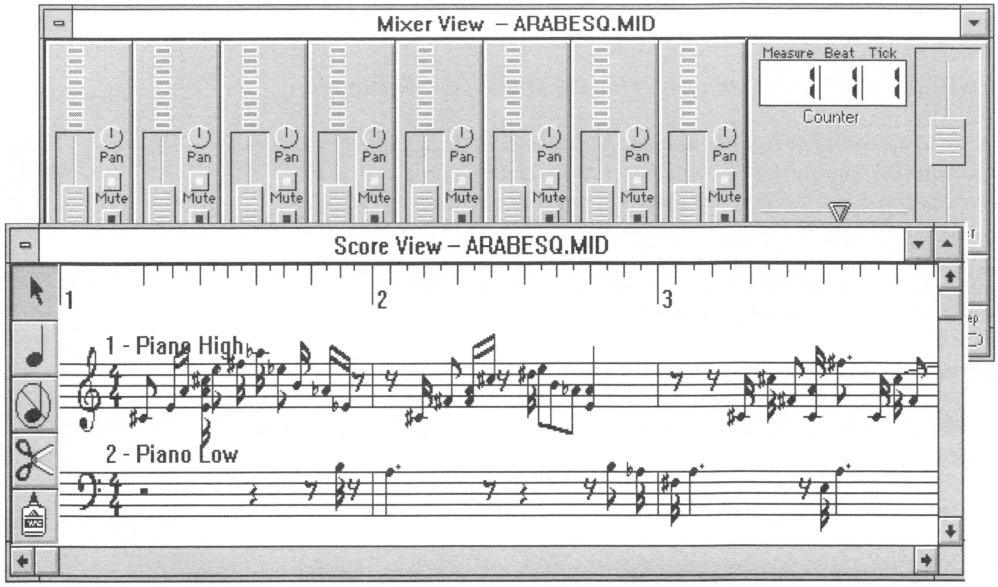

Recording Session®

by MidiSoft®

CONTENTS

OVERVIEW OF RECORDING SESSION

Recording Session is a powerful sequencer offering standard MIDI sequencing features, as well as a musical notation display that you can edit.

The program contains three windows, or views that you use to record, play, and edit your musical compositions.

Score View

This window displays your music in standard musical notation. As you record, notes will appear on screen. When you play back the song, you can see the notes highlighted as they play. You can also add, delete and edit notes and phrases from this window.

In addition, there is a Toolbox in the Score View window, containing a Selection tool, a Note Add tool, a Note Delete tool, a Cut tool, and a Paste tool.

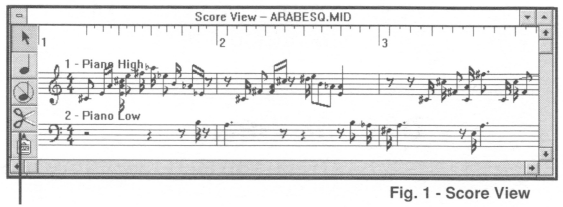

Fig. 1 - Score View

Mixer View

This window is where you record, play, name and adjust tracks. You have real-time control of the playback characteristics of each track, so you can experiment before making permanent changes.

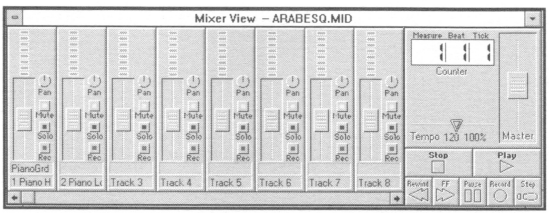

Fig. 2 - Mixer View

This window also contains the transport buttons similar to an audio tape deck, as well as a Tempo slider, a Master Volume control, and a song location display (Counter).

MIDI List View

This window displays your music as MIDI events. If you are more comfortable with a traditional MIDI sequencer, this affords you the flexibility of minute adjustments to the shape of each note. In addition, you can enter and edit MIDI messages such as *Program Change, Aftertouch, Pitch Bend* and others.

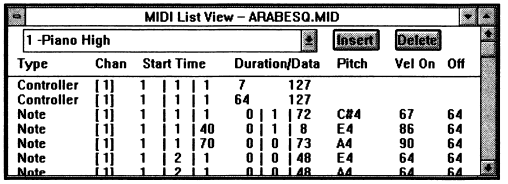

Fig. 3 - MIDI List View

Default Views

When you start Recording Session, the windows (or views) that appear are:

Score View: at the top of the screen, beneath the menu bar. A Toolbox appears on the left side.

Mixer View: beneath the Score View.

You can move these windows to different locations, close them, and size them.

On-line Help

There is an On-line Help facility available at all times. Simply press F1, and you will open the Windows Help program. The information available on line is more complete than this User's Guide. We highly recommend you use the On-line Help.

If you need information about using the Help feature, choose *Using Help* from the Help menu. This is a brief introduction to using Help with any Windows program.

You can navigate the Recording Session Help by clicking on the topics that need explanation or clarification. The information is organized in two ways: (1) by procedure, and (2) by command reference.

The On-line Help also includes a glossary.

Note ! ***Windows 3.1 or Multimedia Windows is required to access the Online Help.***

MIDI SETUP

The UltraSound installation automatically sets up and installs your MIDI interface for you. However, there a few items you should be familiar with.

MIDI Interface

Recording Session works with the UltraSound interface, which is supported by Windows 3.1. The interface should be set up when the UltraSound Drivers are installed.

MIDI Driver

When you start Recording Session for the first time, you will need to specify the MIDI Driver you would like to use. The MIDI Drivers dialog box will appear.

You have three choices: **Multimedia Drivers**, **Midisoft Drivers**, and **No Drivers**.

The **Multimedia Drivers** option uses generic drivers written to work with any MIDI program that supports Windows 3.1/Multimedia Windows. You must have MIDI properly set up in the Windows Control Panel. Use this option if you need to use the Windows MIDI Mapper.

The **Midisoft Drivers** option uses a driver created specifically for Recording Session. If you use this, you will need to disable any standard MIDI driver settings in the Windows Control Panel.

The **No Drivers** option allows you to use the program for display and editing, but not playback. This is useful if you have not yet purchased a MIDI interface.

Note ! ***Choose Multimedia Drivers for your UltraSound card. Also choose the Extended-level Setup, which enables MIDI channels 1-10.***

If you choose **Extented-level Setup** under the Multimedia Drivers, channels 11-16 won't make any sounds. If you want all 16 channels for UltraSound, you must chose the **General MIDI Setup**. When you choose the **General MIDI Setup**, you must change the MIDI Mapper to tell it to use all 16 channels. The MIDI Mapper is usually found in the Program Manager's Main group. To change the MIDI Mapper, do the following:

- **Double-click on MIDI Mapper.**
- **In the MIDI Mapper dialog box, click on the Setups button and choose UltraSound from the Name list.**
- **Click on the Edit button. A window entitled "MIDI Setup: 'UltraSound'" will appear.**
- **Click on the Port Name for each channel from 11-16. Each time you click on Port Name it will be highlighted.**
- **Click on the arrow at the right side of the box and choose UltraSound MIDI Synth from the list.**
- **Click OK to confirm your changes.**

CREATING A SONG

Creating a song in Recording Session is easy, although some basic knowlege of music notation is an asset. If you don't own a MIDI keyboard (synthesizer), you can create a song by clicking on the note icon in the Toolbox and then clicking the note to any location on the staff. Or, you can edit existing MIDI files and modify them to your liking. Please refer to the On-line Help for more detail.

RECORDING A SONG

A MIDI keyboard is required to record a song. To record, first clear the memory by choosing the File/New command (in the File menu).

Make sure the Mixer View is open. If not, choose the proper item from the View menu. When you first record, the MIDI data is placed into Track 1 by default.

Assuming you have a MIDI keyboard connected correctly with the Gravis MIDI Connector Box (optional), you are ready to record. Click on the Record button in the Mixer View (Fig. 2), and the metronome will start to tick. Play a simple part, such as a bass line or chords—remember that you can play each part of your music separately. When you are done, click on the Stop button.

Click in the Track Name field for the track you have recorded to assign a name to it. A dialog box (Fig. 4) will open up that allows you to name the track, rechannelize the MIDI data, and assign a patch to the track.

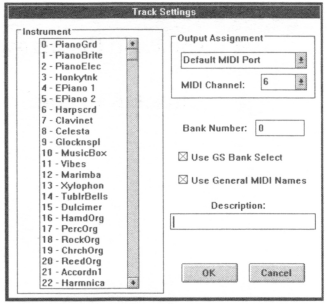

Fig. 4 - Track Settings

PLAYING A SONG

Play

Click on the **Play** button in the Mixer View. The button will be highlighted (the symbol displays in a different color). The music plays back, with an optional lead-in measure and a metronome beat if enabled. As the music plays, the Counter displays the present location within the song.

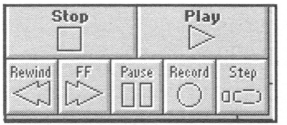

Fig. 5 - Mixer View; tape deck buttons.

Tempo

You can adjust the tempo of the song as it is playing. Click and drag the **Tempo** slider to the left to decrease the tempo. Click and drag to the right to increase the tempo.

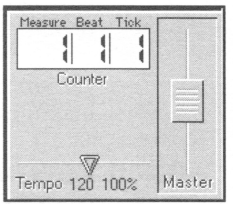

Fig. 6 - Mixer View; Counter, Tempo, and Master Volume.

Stop

To stop play, click on the **Stop** button in the Mixer View. The button will be highlighted momentarily and the music stops.(The Play button returns to the normal inactive color.)

Pause

If you wish to pause the music, click on the **Pause** button in the Mixer View. The button will be highlighted to show that you are in pause mode. The Play button will remain highlighted, because you have not stopped playback. To restart playback, click the Pause button a second time.

FF (Fast Forward)

You may want to move forward to a particular location in the song. To do this, click on the **FF** button in the Mixer View. Time will advance rapidly in the Counter display. When you are near the location you seek, click on the Stop button.

If you click on the FF button while a song is playing, the music will play at double tempo. To return to normal playback, click a second time on the FF button.

Rewind

To return to an earlier point in the music, click the **Rewind** button in the Mixer View. You will see the location in the Counter display decrease rapidly. To stop rewinding, click on the Stop button. (If you rewind to the beginning, the program will automatically pop out of Rewind mode.)

Clicking on the Rewind button with the right mouse button causes the song to rewind instantly to the beginning of the song.

Auto Rewind

If enabled, **Auto Rewind** will return to the beginning, once Play has stopped.

Note ! ***Press the Space bar on your keyboard to switch between Play and Stop.***

BASIC EDITING

One of the most powerful features of word processors is the ability to cut, copy and paste text to different parts of a document, before committing to a final copy. Recording Session is like a word processor for music, in that musical notes can be easily edited, to help you create your masterpiece!

The basic editing operations can be found in the Edit menu.

Clipboard

An important element of the basic editing functions is the **Clipboard**. This is a temporary storage space for MIDI note and event information. The **Cut** and **Copy** commands place information into the Clipboard area, while the **Paste** command retrieves previously stored information from the Clipboard. The Clipboard is only a temporary storage area, so any information in it will be overwritten by a new Cut or Copy command.

Note ! ***The Clipboard used in Recording Session is independent of the Windows Clipboard.***

Edit Menu

Select All

This command selects the entire song file for editing and transformation. The selection will remain in effect until you make a different selection, or until you click within the Score View.

Note ! ***You must have something selected (score, track, measure, note) to use an editing operation.***

Select Measures

This command opens a dialog box. Two radio buttons (small buttons) appear —**New Selection** and **Add to Selections**.

New Selection (the default) allows one selection to be made at a time, while **Add to Selections** allows you to have multiple-measure selections. (An example of multiple selections would be Measure 20 through Measure 25 and Measure 32.)

Select Tracks

This command opens a dialog box. Two radio buttons (small buttons) appear —**New Selection** and **Add to Selections**.

New Selection (the default) allows one track selection to be made at a time, while **Add to Selections** allows you to have multiple track selections. (An example of multiple selections would be Track 3, Track 5, Track 6.)

Note ! ***There are other methods of note and event selection available. You may select one note, or a phrase, or multiple phrases.***

Cut

This command removes selected notes or events and places the selection into the Clipboard, leaving a blank space. Adjacent notes or events are not affected. You use **Cut** in conjunction with Paste.

You can access this command by clicking on the Cut icon in the Toolbox in Score View. This icon looks like a pair of scissors, and lets you click and drag to select a region of music in the Score View. When you release the mouse button, the selected region is cut.

Copy

This command creates a copy of selected notes or events, and places the copy in the Clipboard. The existing music is unchanged. Once a selection is copied, you can paste it to the location you want.

Paste

This command places the contents of the clipboard into the music at the selection point. The notes or events are merged into any existing music, so no subsequent notes or events are shifted in time. The **Paste** command is not active until you have cut or copied a selection of notes.

You can access this command by clicking on the **Paste** icon in the Score View Tool box. This icon looks like a bottle of glue, and lets you paste the contents of the Clipboard to a location in Score View.

Command keys

Spacebar	Play/Record toggle
F1	Help Contents
F2	Stop button
F3	Rewind button
F4	Fast Forward (FF) button
F5	Play button
F6	Record button
F7	Pause button
F8	Step Record
F9	Step Play
Alt or F10	Activate menu bar
Shift+Del	(Edit) Cut
Shift+Ins	(Edit) Paste
Ctrl+Ins	(Edit) Copy
Ctrl+1	(View) Score
Ctrl+2	(View) Mixer
Ctrl+3	(View) MIDI List
Ctrl+A	(Edit) Select All
Ctrl+B	(Options) Split Input at Middle C
Ctrl+C	(Music) Clef
Ctrl+D	(Track) Delete
Ctrl+E	(Music) Tempo
Ctrl+G	(Music) Time Signature
Ctrl+I	(Track) Insert
Ctrl+K	(Music) Key Signature
Ctrl+M	(Options) Metronome Enable
Ctrl+N	(File) New
Ctrl+O	(File) Open
Ctrl+Q	(Music) Quantize
Ctrl+S	(File) Save
Ctrl+T	(Music) Transpose
Ctrl+V	(Music) Velocity
Ctrl+W	(Options) Auto Rewind
Ctrl+X	(File) Exit
Alt+F	File menu
Alt+E	Edit menu
Alt+O	Options menu
Alt+S	Setup menu
Alt+V	View menu
Alt+T	Track menu
Alt+M	Music menu
Alt+H	Help menu

QUESTIONS & ANSWERS ABOUT RECORDING SESSION

When I record with my MIDI keyboard, the notes that I play appear on screen, but don't make any sound.They do make sound when I play my sequence back. What's wrong?

Check that **MIDI Thru** is enabled. You will find MIDI Thru in the **Options** menu.

When I try to use channels 11-16 they don't make any sound. What's happening?

The default setting does not enable channels 11 through 16. This is part of the **Extented MIDI** specification. Confirm that the MIDI Drivers in the **Setup** menu are set to **General MIDI**. Channels 11-16 must also be enabled in the **MIDI Mapper**. Please refer to pages 4–5 in this User's Guide for more information.

Where can I get more information?

Recording Session includes extensive **On-line Help**, which can be accessed by pressing the **F1** key at any time.

A Message from Advanced Gravis

Recording Session is complimentary software provided by Advanced Gravis. Gravis did not write this software. As such, we do not provide detailed technical support for Recording Session.

This manual gives you the essentials of Recording Session. For more extensive information, please refer to Recording Session's **On-line Help**.

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