Contents

DSP Sound Station, v1.00

File Menu

Use the scroll bar to see more commands.

New   Ctrl+N
    Opens an empty <u>WAVE</u> format file for recording. When you choose **New**, you are prompted to save the file you have been working on, if it has been changed.

Open   Ctrl+O
    Opens an existing WAVE format file. Before opening a file, you are prompted to save the file you have been working on, if it has been changed.

Save   Ctrl+S
    Saves changes to the file you have been working on. After using **Save**, the file remains open so you can continue working on it. If the file is <u>Untitled</u>, you are prompted to name the file before saving. The file is saved in standard Windows WAVE format. The current compression format is recorded in the header of the file for use during playback.

Save As
    Saves a new or existing file. You can name a new file or save an existing file under a new name. The original file remains unchanged. After using **Save As**, the file remains open so you can continue working on it.

Exit   Alt+F4
    Closes the file you have been working on and quits *Sound Station*. You are prompted to save any changes to the file before quitting.

Edit Menu

Use the scroll bar to see more commands.

Undo   **Ctrl+Z**
        Undoes your last editing action, including cut and paste actions. If an action cannot be undone, **Undo** appears dimmed on the Edit menu.

Cut   **Ctrl+X**
        Deletes the marked audio from the file and places it into a temporary Clip file, replacing the previous Clip file contents. The audio remains in the Clip file until *Sound Station* cuts or copies other audio data, or until *Sound Station* is exited, at which time the Clip file is deleted. You can use **Paste** to copy the audio back into the file at a different place, or into a different file (if loaded without exiting *Sound Station*). If no audio is marked, **Cut** appears dimmed on the Edit menu.

Copy   **Ctrl+C**
        Copies the marked audio from the file into a temporary Clip file, leaving the original data intact and replacing the previous Clip file contents. The audio remains in the Clip file until *Sound Station* cuts or copies other audio data, or until *Sound Station* is exited, at which time the Clip file is deleted. You can use **Paste** to copy the audio back into the file at a different place, or into a different file (if loaded without exiting *Sound Station*). If no audio is marked, **Copy** appears dimmed on the Edit menu.

Paste   **Ctrl+V**
        Copies (pastes) audio from the Clip file to the file at the current insertion point or replaces marked audio in the file. The Clip file audio can come from either the current file or an earlier *Sound Station* document (loaded within the same *Sound Station* session). If the Clip data is from a different audio file, the audio format (compression) of the Clip audio must match the format of the destination file. You can use **Paste** multiple times to duplicate a section of audio many times. **Paste** can also be used to transfer audio from one audio file to another. If no Clip file audio is available, **Paste** appears dimmed on the Edit menu.

Delete   **Del**
        Deletes marked audio from the file, but does not place the audio into the Clip file. Use **Delete** when you want to delete audio from the current *Sound Station* file but you have audio in the Clip file that you want to keep. If no audio is marked, **Delete** appears dimmed on the Edit menu.

Options Menu

Use the scroll bar to see more commands.

Recording Format...

This menu entry displays the Recording Format dialog box.   This dialog allows the user to specify parameters for the next 'New' recording. Parameters include the type of compression, data size, and mono or stereo operation (where applicable).

Display in Samples / Display as Time

This menu entry determines the format of the information displayed by *Sound Station*.

Selecting this entry when it reads 'Display in Samples' will cause *Sound Station* to display the file Length, cursor Position, and <u>marked</u> Start and Stop position in audio samples. The menu entry will be changed to 'Display as Time'.

Selecting this entry when it reads 'Display as Time' will cause *Sound Station* to display the file Length, cursor Position, and marked Start and Stop position in minutes, seconds, and tenths of seconds. The menu entry will be changed to 'Display in Samples'.

Disable Undo / Enable Undo

This menu entry disables or enables the creation of the Undo file.   Disabling the Undo file can speed operation and reduce the amount of temporary disk space required.

Help Menu

The help menu has two entries. One starts this help file, the other displays the obligatory ego dialog box.
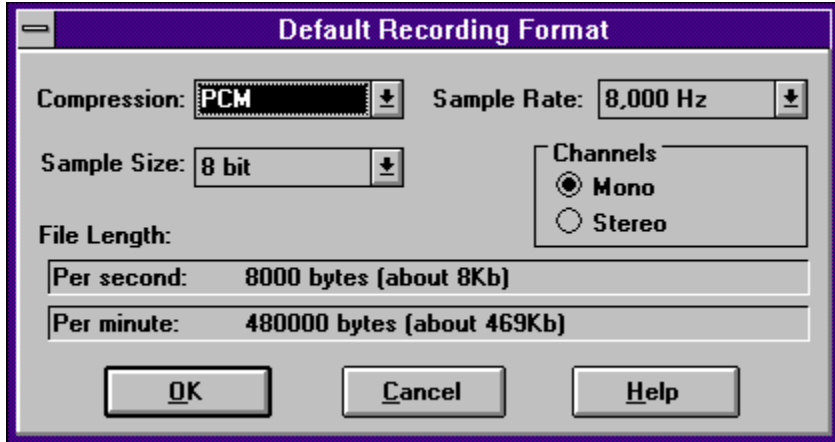
What Is Sound Station (A Graphical Tour)

Sound Station is an audio file playback and recording utility with OLE 1.0 capability.   *Sound Station* allows users to record and playback voice and music in normal or compressed form. The OLE capability of *Sound Station* allows the user to add voice annotation to Word Processor and Spread Sheet documents, or any other document that supports OLE.

Click the left mouse button on the area of the *Sound Station* display that you are interested in.
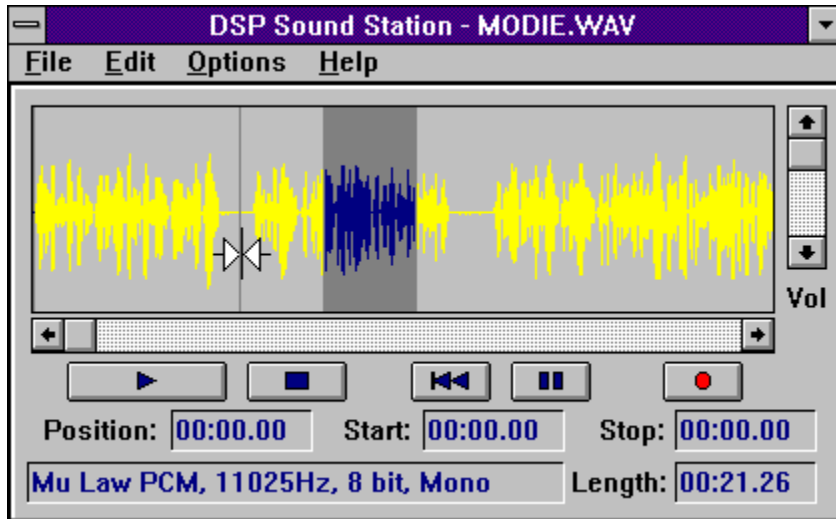
Default Recording Format (A Graphical Tour)

Click the left mouse button on the area of the Default Recording Format dialog box that you are interested in.

Default Recording Format

Compression: `PCM`   Sample Rate: `8,000 Hz`

Sample Size: `8 bit`

Channels
- ⦿ Mono
- ○ Stereo

File Length:

| Per second: | 8000 bytes (about 8Kb) |
| Per minute: | 480000 bytes (about 469Kb) |

[OK]   [Cancel]   [Help]

Untitled

An untitled audio file is the file created when *Sound Station* is started without a filename on the command line, or when New is chosen from the <u>File</u> menu. It must be given a filename before it can be saved.

Clip File

Sound Station creates a temporary file to hold audio data that has been cut or copied using the <u>Edit</u> menu. The Paste command on the Edit menu can be used to transfer this information to the current cursor position if the Clip file data format is compatible with the current file data format. The temporary Clip file is deleted when *Sound Station* is exited.

Undo File

Sound Station copies the current audio file to a temporary file each time an <u>Edit</u> menu operation is performed.   These operations include Record, Cut, Paste, and Delete.   If the Undo entry on the <u>Edit</u> menu is dimmed, there is no undo information available. The temporary Undo file is deleted when *Sound Station* is exited.

Marked Blocks

A marked block is a length of audio samples highlighted in reverse video (blue waveform on dark gray background). A marked block is created by holding the left mouse button down and dragging the mouse while the mouse pointer is in the waveform display. The mouse pointer becomes the Wave Edit Pointer when marking is enabled.

Marked blocks are affected by Edit menu operations such as **Cut**, **Copy**, **Del**, and **Paste**. If a marked block is present, the Play command plays only the marked audio.

Sound Station Controls

Use the scroll bar to see more commands.

Play

If a valid audio file is loaded, the entire file or marked portion is played.   If no file is loaded, or a file incompatible with the current WAVE driver is loaded, this button is gray.

Stop

If audio is in progress, it is halted.   The Wave Edit Cursor is moved to the beginning of the file (leftmost on the waveform display) or marked block, if any exists. If audio is not in progress, this button is gray.

Rewind

If audio is in progress, it is halted.   The Wave Edit Cursor is moved to the beginning of the file (leftmost on the waveform display), and any marked area is unmarked.

Pause/Resume

If *Sound Station* is playing or recording, the operation is paused.   If the operation is already paused, it is resumed. If audio a playback or recording operation has not been started, this button is gray.

Record

Begin recording operation.   For new files, the default recording format selections are used. If an audio file is already loaded, it is cleared and a new recording is made using the same parameters as the loaded file. If a playback operation is in progress, or the WAVE driver is not capable of recording in the selected format, this button is gray.

Wave Edit Pointer

When the mouse pointer is in the waveform display of an editable waveform, it takes the shape of the Wave Edit Pointer. Click the left mouse button with the Wave Edit Pointer at the desired location on the waveform to set the Wave Edit Cursor. Click and hold the left mouse button, then drag the Wave Edit Pointer left or right to define a marked area for playback or Edit menu operations.

Wave Edit Cursor

The Wave Edit Cursor is a vertical line in the waveform display that determines the start position for playback or insertion of paste data, and is the anchor position for marked blocks used in Edit menu operations.

Audio Position Scroll Bar

The position scroll bar is located directly beneath the waveform display. Click on the left or right arrows to move the Wave Edit Cursor in the indicated direction. Click and hold the left mouse button on the scroll bar 'thumb', then drag and release at the desired position. The scroll bar is useful for positioning when non-displayable audio formats are loaded.

Volume Scroll Bar

The Volume scroll bar is located immediately to the right of the waveform display. Click on the up or down arrows to increase or decrease playback volume. Click and hold the left mouse button on the scroll bar 'thumb', then drag and release at the desired position.

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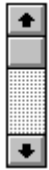
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-

A dash.

Sound Station Status Display   Tour ➡

Use the scroll bar to see more information.

Status

Displays the current action being performed by the *Sound Station*.

Stopping...

Sound Station is in the process of saving the final recorded audio to disk.

Already stopping!

User clicked Stop button twice.

Playing...

Recording...

Sound Station is playing or recording an audio file.

Playback paused

Recording paused

Sound Station is paused during playing or recording an audio file.

Record limit reached

The temporary recording file has exceeded the available disk space. Recording is terminated, but all audio recorded up to that point is still available.

Saving undo information...

Copying selected audio...

Cutting selected audio...

An edit command caused *Sound Station* to write the current audio data to a temporary undo file or clip file.

Pasting audio...

Recovering undo information...

The temporary undo or clip file information is being read from disk.

Loading file...

Saving file...

Sound Station is loading or saving an audio file.

Processing data...

Sound Station is processing recorded data following the Stop command.

When *Sound Station* is idle, the current WAVE file format, sample rate, and sample size are displayed. If no file is loaded, the defaults specified in the Recording Format dialog box are shown.

Position

Displays the current position of the Wave Edit Cursor in **samples** or in **minute:second:tenths** format, as selected from the Options menu. See *Sound Station Controls* for information of the Wave Edit Cursor.

Start

Displays the leftmost (lowest) position of the marked block during selection operations. The value is displayed in **samples** or in **minute:second:tenths** format, as chosen from the <u>Options</u> menu.

Stop

Displays the rightmost (highest) position of the marked block during selection operations. The value is displayed in **samples** or in **minute:second:tenths** format, as chosen from the <u>Options</u> menu.

Length

Displays the length of the current file in **samples** or in **minute:second:tenths** format, as chosen from the <u>Options</u> menu.

Waveform

A Waveform is a graphical representation of audio information. Increasing Time is on the X axis, and audio amplitude (volume) is on the Y axis.

System Menu

Display the system menu, which contains commands for sizing, moving, and closing the *Sound Station* application, along with a menu entry to switch to another application.

Minimize Box

Display *Sound Station* as an Icon on the Windows Desktop.   The application stays active and may be restored to it's previous maximized or normal state by clicking once on the Icon and selecting Restore from the resultant system menu, or double-clicking on the Icon.

File Name

Displays the name of the audio file being edited, or <u>Untitled</u>.

Sound Station

The name of this here application.

DSP Solutions, Inc.

DSP Solutions is a manufacturer of high quality audio peripherals for portable computing environments.

Current Position

Displays the current position of the edit cursor in **samples** or in **minute:second:tenths** format, as selected from the Options menu. The edit cursor determines the start position for the next play command, and the anchor position for selection operations.

Select Start Position

Displays the leftmost (lowest) position of the marked block during selection operations. The value is displayed in **samples** or in **minute:second:tenths** format, as chosen from the Options menu.

Select Stop Position

Displays the rightmost (highest) position of the marked block during selection operations. The value is displayed in **samples** or in **minute:second:tenths** format, as chosen from the <u>Options</u> menu.

Audio Length

Displays the length of the current file in **samples** or in **minute:second:tenths** format, as chosen from the Options menu.

Compression Format

Select the compression format for recording. The *Sound Station* queries the Windows WAVE driver for available recording formats and displays the formats available from the following list. To record in a format not on this list, but supported by the Windows WAVE driver, first load a file that was recorded in the desired format using another program. Then save the file to a new name using Save As..., and start recording.   The new recording will overwrite the previous contents and will be in the same format.

PCM (Pulse Code Modulation)

The standard recording format, and produces the best quality sound (16-bit is tops) but uses the most disk space.   16-bit PCM is the highest quality recording format available.

A Law PCM
Mu Law PCM

MuLaw and ALaw formats sound better than 8-bit PCM, but use the same amount of disk space.

All other formats save on disk space, but result in lower sound quality. You must experiment to determine the best compromise.

IBM CVSD

CVSD compression is available in rates from 1800 bytes per second to 4800 bytes per second. This older compression is used primarily for compatibility with older educational programs.

OKI ADPCM (ADaptive Pulse Code Modulation)

This 4-bit per sample compression results in moderate quality audio files that use half the disk space of 8-bit PCM files.

DVI (IMA) ADPCM

Slightly better than OKI ADPCM, this 4-bit per sample compression compares favorably with 8-bit PCM recording, but uses only half the disk space.

DigiREAL

Provides good quality reproduction of human voice while consuming only 21 percent of the disk space used by 8-bit PCM recording. Primarily for use in voice annotation.

DSP ADPCM

This 3-bit ADPCM provides moderate quality audio recording, but uses only 37 percent of the disk space used by 8-bit PCM recording.

Sample Size

This control selects the number of bits per audio sample. Not all compression formats allow the Sample Size to be changed.

Mono

This control selects recording in **Mono** format (one channel).

Stereo

This control selects recording in **Stereo** format (two channels).

File Size per Minute

This message displays the approximate number of bytes required per **minute** of recording for the selected compression format.

File Size per Second

This message displays the approximate number of bytes required per **second** of recording for the selected compression format.

Sampling Rate

This control allows selection of the number of audio samples recorded per second.

OK Button

Click on this button to accept the changes made in the Default Recording Format dialog box.

Cancel Button

Click on this button to return to the *Sound Station* main application without accepting changes to the Default Recording Format dialog box.

Help Button

WAVE file format

The WAVE file format refers to a file format developed by Microsoft Inc, to contain audio recorded in a variety of formats. WAVE files normally have an extension of .WAV.

The most common WAVE files contain uncompressed audio data called PCM (Pulse Code Modulation), but are not limited to that format. PCM format usually produces the best quality sound but uses no compression. Most other formats save on disk space, but result in lower sound quality. You must experiment to determine the best compromise.

All Windows compatible sound devices can play PCM WAVE files, but no single sound device can play all registered Windows WAVE data formats.

WAVE Driver

A Windows WAVE driver is a piece of software that is loaded when Windows starts. The driver translates commands from applications requesting audio recording or playback into the commands appropriate for the sound device installed on the computer.

The WAVE driver is supplied by the manufacturer of each sound device.   It is installed and setup using the *Drivers* applet in the Windows *Control Panel* (found in the Main Program Manager group).

Command Line Parameters

The *Sound Station* can load and play an audio file specified on the command line. The following is the command line syntax for the *Sound Station*:

`DSPSS <filename>  </O | /S>`

Where:

`<filename>`   A standard MSDOS filename, including path, for an audio WAVE file to be loaded by *Sound Station*.

`/O` or `/o`   Play the loaded file once upon startup, then terminate.   The *Sound Station* window is not displayed, and the user has no control over the play. Cannot be used with the `/s` flag.

`/S` or `/s`   Play the loaded file upon startup. Cannot be used with the `/o` flag.

Questions

This section will attempt to answer questions that you may have about the operation of the *Sound Station*.

Q1)   Some files display a DSP Solutions Logo instead of the waveform.

A1)   Displaying data from compressed audio files does not convey any meaningful information. Since all DSP Solutions' products perform decompression in the hardware, it is inefficient to decompress the software on the PC just for display purposes.   The files still play, and can be manipulated via the Audio Position Scroll bar.

NOTE: Even though A-Law and Mu-Law formats are considered compressed, DSP Solutions has provided software decompression for these formats.