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Presentation

DirectAudio Player or **DAP** is an **AU / WAV / GSM** file Player utility which features **DirectAudio**, **real time playing** of **GSM6.10**, and, if run under Windows 95, **Microsoft GSM**, and **True Speech** encoded audio files from **any** HTTP (WWW) server on the Internet.

Under **Windows 3.x**, it supports any Microsoft **WAV** file formats, Sun/Next **.AU** (8000 Hz/ 8bits μ law encoded) files, and can also receive, expand and play in real time **GSM6.10** encoded files.

If run under **Windows 95** it will also support (play, record, stream) **Ms GSM** files at **8000**, **11025**, **22050** and **44100** Hz as well as **True Speech**™ files (no recording support), using the built in audio codecs. The higher sampling rate **Ms GSM** format files offer a much better audio quality than the 8000 Hz or TrueSpeech files.

When run under Windows 95, **DAP** also supports the **True Speech**™ description files (**.TSP**) so that you can use it to play all of the current True Speech files available on the Internet !

The easy to use interface, provides seek and play features at the touch of a slider bar. Support for **Drag and Drop** allows you to play or convert any **AU**, **WAV**, **GSM** or **TrueSpeech** file by dragging them from Windows' file manager and dropping them on **DAP**'s client window area.

Streaming Audio and DirectAudio

Streaming Audio refer to a way of delivering and playing audio files on a computer network which allows to play an audio file while it is being sent instead of requiring to first download the file to a local disk. This applied to the Internet, allows to deliver **audio on demand** programs from any WWW server on the net. Using **DirectAudio** doesn't require any special server software since it uses the same protocol used by the WWW servers to deliver HTML pages to your browser (**HTTP**).

There are a few conditions that must be satisfied to make **uninterrupted** streaming audio possible:

- The digital sound stream must be equal or smaller, in terms of required bandwidth, than the available network bandwidth.
- The server must be able to deliver a steady stream of the required bandwidth.
- The client must be fast enough to receive, decode and play the received stream.

DAP use a buffer of user selectable size to help against network transmission irregularity by gathering a given number of seconds of sound before it starts to play the audio stream. It will use this buffer whenever the network chain fails to deliver the audio stream fast enough. In such case the buffer will get used up until it becomes empty. At this point, the playing stop for the time needed for the player to refills its buffer. The playing can then resume.

The next table gives the required bandwidth for each of the supported streamable formats. The required bandwidth represent the minimum throughput required to play uninterrupted streaming audio. It does not represent an absolute requirement as the higher resolutions will work on slower connections but not without interruption.

Format / Sampling Rate	Required Bandwidth	Quality	Internet Connection
True Speech (Win 95)	8536 bps	Low	14,400 and over
GSM 6.10 (Win3.x/Win 95)	13200 bps	Low	14,400 and over
Ms GSM 8000 (Win 95)	13000 bps	Low	14 000 and over
Ms GSM 11025 (Win 95)	17912 bps	Medium	28,800 and over
Ms GSM 22050 (Win 95)	35824 bps	Medium-High	56,000 - 64000 and over
Ms GSM 44100 (Win 95)	71656 bps	High	128000 and over

Listening to DirectAudio files.

There are two methods for accessing a **GSM** or **TrueSpeech** file from a HTTP (WWW) server:

1 -By selecting the **File|Open Location** option on the main menu and entering the full URL of the file you wish to fetch. For instance:

<http://www.cam.org/~noelbou/ex1.gsm>

will fetch the example ex1.gsm from my WWW site on my service provider's server.

If run under Windows 95, you can also receive **Ms GSM** and **True Speech** Files:

Try the following URLs

http://www.cam.org/~noelbou/audio/dixi_8g.wav (**Ms GSM** at 8000 Hz)

http://www.cam.org/~noelbou/audio/dixi_11g.wav (**Ms GSM** at 11025 Hz)

http://www.cam.org/~noelbou/audio/dixi_22g.wav (**Ms GSM** at 22050 Hz)

http://www.cam.org/~noelbou/audio/dixi_44g.wav (**Ms GSM** at 44100 Hz)

http://www.cam.org/~noelbou/audio/dixi_8ts.wav (**True Speech**)



You can use your browser and Windows' Cut & Paste feature to make this easier. Copy the desired link (In your browser, right click on the desired URL and select **Copy Link**) and paste it using [**SHIFT-INSERT**] in DAP's **File|Open Location** input dialog.

2 By clicking on a "description file" link (see below) on a WWW page. For instance:

A link to the EX1.GSD file on a WWW page would fetch the description file named ex1.GSD from the WWW site. DAP would then be spawned by your WWW browser and the file would instruct the player on which GSM file to fetch from the net.

Credits

DirectAudio Player's Design and Programming:

Noël Bouchard

TELE DATA Consultants

Copyright January-August 1996

email: noelbou@cam.org

WWW: <http://www.cam.org/~noelbou>

DAP uses an implementation of the European **GSM 06.10** provisional standard for fullrate speech transcoding, which uses RPE/LTP (residual pulse excitation/long term prediction) coding at 13 kbit/s to provide support for GSM6.10. The library has been written by:

Jutta Degener (jutta@cs.tuberlin.de) and **Carsten Bormann** (cabo@cs.tuberlin.de).

Here's the library authors' copyright notice:

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Berlin, 15.09.1992

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Contacts

Your comments on this release of the **DirectAudio Player** would be very appreciated.

Please address your bug reports, suggestions, or any other comments to:

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Release Information

Version Number

DirectAudio Player

Version 2.0

Your feedback / comments / suggestions / bug reports would be very appreciated ... See [Contacts](#)



Information about GSM 6.10

The speech coding algorithm used in GSM is based on a rectangular pulse excited linear predictive coder with long-term prediction (RPE-LTP).

This is a lossy compression algorithm devised especially for speech. The quality of the algorithm is good enough for reliable speaker recognition. Music can also be compressed with a quite noticeable loss in the high frequency spectrum and a result that has been qualified to sound like "AM to Low quality FM" radio sound.

GSM 06.10 full rate compress 8000 Hz sampling rates / 16 bits samples PCM encoded files (128000 bits / sec.) to 13200 bits / sec. A **9.69** ratio. That means that the **GSM** file will be almost **10 times smaller** than the original PCM (WAV) file !

Play Menu

The Play menu provides commands to control the playing of sound files. You can also use the toolbox buttons which duplicates this menu options.

Rewind	Go toward the beggining of the file.
Stop	Stop playing the file and rewind to beggining.
Play	Start or Resume playing the file.
Pause	Pause Playing.
Forward	Go toward the end of the file.

File Menu

The File menu provides commands to open files for **Playing**, fetch audio files from a WWW server and exit the application.

Open

Open an existing file.

Open Location

Fetch a GSM file from the Net.

Save As

Save a downloaded file.

Exit Exit **DAP** application.

Options Menu

Display Units

Select the units to display file size and position.

Drag/Drop Action

Select the action triggered when a file is dropped from the file manager.

BufferSize Set the buffer size. This can be set from 1 to 32 secs. Set this to a higher number will help in adverse network condition. **DAP** will wait until the given amount of sound has been received before starting to play.

Dont Ask to Save

Skip the "File has not been saved" dialog on exit.

Always On Top

Keep **DAP** window on top of all others. Usefull in many situation particularly when using the Drag/Drop feature from the file manager.

Automatic Volume Control

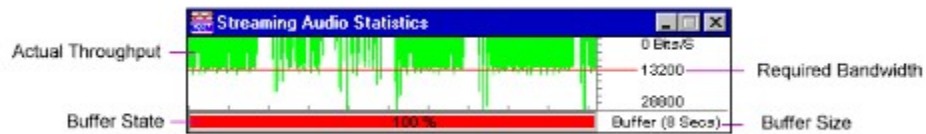
This option may be usefull when listening to audio recorded at a too low level. It will ajust the sound level to the maximum permissible before clipping occurs. This option is also usefull when **recording** directly from a microphone.

Note: This function has been designed to improve the intelibility of speech files recorded over a telephone interface. It should be used selectively as it will alter the audio dynamics significantly and can produce some perceptible "clicks" in the audio. This option is not available with Ms GSM or True Speech files and will have no effect when used.

The status line will display **AVC On** on playing or recording when AVC is active.

Stats Menu

The stats menu opens the following Streaming Audio Statistics window:



Actual Throughput:

This is a graphical display of the number of bits per second that is actually getting to your machine from the server. The horizontal scale represents time, the vertical scale represents the actual throughput. Each vertical green line represent 1 second. The top line represents 0 bits per seconds and the bottom one is the maximum scale which varies according to the received format. The red line represents the required bandwidth to get uninterrupted audio. Once the display is full it will shift to the left and display the new throughput to the right. This way you have a display of the throughput over the last several seconds.

Buffer State:

This displays the proportion the buffer that is filled with received data. The player will stop to refill its buffer when it gets close to 0.

Required Bandwidth:

That is the "network chain" bandwidth required to receive uninterrupted audio from the server. This will vary according to the format beeing received.

Buffer Size:

The number of second that will be buffered as configured in the General Options.

Help Menu

The Help menu provides access to the help system and the about dialog.

Contents Help topic contents.

Exiting

To exit the application, choose **File|Exit** from the menu.

Drag/Drop from the File Manager

A file can be Played, by dragging it from the File Manager, and dropping it on **DAP**'s main window.

In Windows 3.x, you can also minimize **DAP** window so that the icon is displayed on the desktop, drag a file from Window's file manager and drop it on the icon.

File Exit Command

The **File|Exit** command exits **DAP**.

File Open Command

The **File|Open** command displays the Open a File dialog box so you can select a file to **Play**. An Open file dialog will be displayed that will let you select an **input file**. You can select a **drive and directory** from the list on the right. You can select the **file format** by selecting from the list under the file list in the open dialog window. You can select the **file name** from the list or type it in the input box.

File Open Location Command

The **File|Open** Location command is used to fetch an audio file from a HTTP server on the net. The file will then be played in real time. You must enter the full URL of the **GSM6.10**, **Ms GSM** or **TrueSpeech** file that you wish to hear.

For instance: **<http://www.cam.org/~noelbou/ex1.gsm>**
would fetch the file Ex1.GSM in directory ~noelbou of host www.cam.org.

Under Windows 95 you can also listen in real time to **Microsoft GSM (.WAV)** and **True Speech(.WAV)**:

http://www.cam.org/~noelbou/audio/dixi_11g.wav (Ms GSM 11025 example file)

The file must be available from a WWW server for this to work this will not work on a FTP server. i.e.

<ftp://ftp.cam.org/anyfile.gsm> would not work since this is an FTP server URL.

Hint: You can use Windows' and your browser's **Cut & Paste** feature to paste an URL in the Input Box. Right click on the desired link on an HTML page from your browser and select **Copy Link Location** (or similar) function and then **paste** the location in DAP's input dialog using the **[SHIFT-INSERT]** key combination

File Save As

The **File|Save As** command is used to save a downloaded file. It will be available only after a file has been downloaded. Note that you can't save a streamed file. To save a file residing on a WWW site, it must be downloaded first.

Options Display Units

The Display Units option let you select the unit used to display the file size and position. You can select one of the following values:

Bytes:

This selection display the numbers as bytes. This setting is usefull for comparisons of files sizes.

Samples:

The numbers are displayed as the number and current samples.

Seconds:

The numbers are displayed as hours:minutes:seconds..

Playing a file from the Command line

You can play a file by giving its pathname on the command line argument. In the file manager, select the File|Run command and type:

DAP "PathName"

Example: **DAP** c:\audio\gsm\lex1.gsm

You can also install **DAP** as you **.AU**, **WAV**, **GSM**, **Ms GSM** and **TrueSpeech** format audio player in your Internet browser. **DAP** will be launched after a **.AU**, **WAV** or **GSM** file has been downloaded to let you hear it

.

DAP Shortcuts Keys

You can use the following shortcut keys to get a quicker access to DAP functions.

KEYS	FUNCTION
ENTER	Play
SPACE	Stop
ALT SPACE	Pause
ALT-A	Save A s
ALT-L	Open L ocation
ALT-X	E xit
CTL-B	Display Units as B ytes
CTL-S	Display Units as S econds
CTL-M	Display units as S amples
CTL-V	Toggle Automatic Volume Control
F1	Help
F2	File Open
F3	Open Location
ALT-F4	Exit
F5	Options Dialog
F8	Open Stats. window

Windows 95

codecs **Installing the Ms GSM and TRUESpeech™ codecs**

Use the following steps to enable the Microsoft GSM 6.10 Audio Codec audio compression driver:

1. In **Control Panel**, double-click **Multimedia**.
2. Click the **Advanced** tab.
3. Double-click the **Audio Compression Codecs** branch to expand it.
4. Double-click Microsoft **GSM 6.10 Audio CODEC**.
5. Click **Use This Audio Codec**. Make sure the "**ALL Rates**" is selected for Compression and Decompression. You can also use the **Auto-Configure** to have window evaluate the fastest speed it can support on compression and decompression.
6. Click Apply and OK.

Do the same for DSP Group **TrueSpeech™** Software CODEC.

Help table of contents

The **Help|Contents** displays the help contents page.

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The Toolbar

The Toolbar is a row of buttons at the top of the main window which represent application commands. Clicking one of the buttons is a quick alternative to choosing a command from the menu. Buttons on the toolbar activate and deactivate according to the state of the application.

<u>Button</u>	<u>Action</u>	<u>Menu Equivalent</u>
	Locate and open a file. File <u>O</u> pen	
	Fetch a GSM file on the Net. File <u>O</u> pen <u>L</u> ocation	
	Go toward the beggining of the file. Play <u>R</u> ewind	
	Stop Playing. Play <u>S</u> top	
	Start or Resume playing. Play <u>P</u> lay	
	Pause Playing. Play <u>P</u> ause	
	Go toward the end of file. Play <u>F</u> orward	
	Display help file contents. Help <u>C</u> ontents	

Windows Keys

[Cursor Movement Keys](#)

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Cursor Movement Keys

Key(s)	Function
Arrow key	Moves the cursor left, right, up, or down in a field.
End or Ctrl+Right Arrow	Moves to the end of a field.
Home or Ctrl+Left Arrow	Moves to the beginning of a field.
Page Up or Page Down	Moves up or down in a field, one screen at a time.


Dialog Box Keys

Key(s)	Function
Tab	Moves from field to field (left to right and top to bottom).
Shift+Tab	Moves from field to field in reverse order.
Alt+letter	Moves to the option or group whose underlined letter matches the one you type.
Arrow key	Moves from option to option within a group of options.
Enter	Executes a command button. Or, chooses the selected item in a list box and executes the command.
Esc	Closes a dialog box without completing the command. (Same as Cancel)
Alt+Down Arrow	Opens a drop-down list box.
Alt+Up or Down Arrow	Selects item in a drop-down list box.
Spacebar	Cancels a selection in a list box. Selects or clears a check box.
Ctrl+Slash	Selects all the items in a list box.
Ctrl+Backslash	Cancels all selections except the current selection.
Shift+ Arrow key	Extends selection in a text box.
Shift+ Home	Extends selection to first character in a text box.
Shift+ End	Extends selection to last character in a text box

Editing Keys

Key(s)	Function
Backspace	Deletes the character to the left of the cursor. Or, deletes selected text.
Delete	Deletes the character to the right of the cursor. Or, deletes selected text.

Help Keys

Key(s)	Function
F1	<p>Gets Help and displays the Help Index for the application. If the Help window is already open, pressing F1 displays the "Using Windows Help" topics.</p> <p>In some Windows applications, pressing F1 displays a Help topic on the selected command, dialog box option, or system message.</p>
Shift+F1	<p>Changes the pointer to  so you can get Help on a specific command, screen region, or key. You can then choose a command, click the screen region, or press a key or key combination you want to know more about.</p> <p>(This feature is not available in all Windows applications.)</p>

Menu Keys

Key(s)	Function
Alt	Selects the first menu on the menu bar.
Letter key	Chooses the menu, or menu item, whose underlined letter matches the one you type, when a menu has focus.
Alt+Letter key	Pulls down the menu whose underlined letter matches the one you type.
Left or Right Arrow	Moves among menus of the main menu bar.
Up or Down Arrow	Moves among menu items within a drop-down menu.
Enter	Chooses the selected menu item.

System Keys

The following keys can be used from any window, regardless of the application you are using.

Key(s)	Function
Ctrl+Esc	Switches to the Task List.
Alt+Esc	Switches to the next application window or minimized icon, including full-screen programs.
Alt+Tab	Switches to the next application window, restoring applications that are running as icons.
Alt+PrtSc	Copies the entire screen to Clipboard.
Ctrl+F4	Closes the active window.
F1	Gets Help and displays the Help Index for the application. (See Help Keys)

Text Selection Keys

Key(s)	Function
Shift+Left or Right Arrow	Selects text one character at a time to the left or right.
Shift+Down or Up	Selects one line of text up or down.
Shift+End	Selects text to the end of the line.
Shift+Home	Selects text to the beginning of the line.
Shift+Page Down	Selects text down one window. Or, cancels the selection if the next window is already selected.
Shift+Page Up	Selects text up one window. Or, cancels the selection if the previous window is already selected.
Ctrl+Shift+Left or Right Arrow	Selects text to the next or previous word.
Ctrl+Shift+Up or Down Arrow	Selects text to the beginning (Up Arrow) or end (Down Arrow) of the paragraph.
Ctrl+Shift+End	Selects text to the end of the document.
Ctrl+Shift+Home	Selects text to the beginning of the document.

Window Keys

Key(s)	Function
Alt+Spacebar	Opens the Control menu for an application window.
Alt+Hyphen	Opens the Control menu for a document window.
Alt+F4	Closes a window.
Alt+Esc	Switches to the next application window or minimized icon, including full-screen programs.
Alt+Tab	Switches to the next application window, restoring applications that are running as icons.
Alt+Enter	Switches a non-Windows application between running in a window and running full screen.
Arrow key	Moves a window when you have chosen Move from the Control menu. Or, changes the size of a window when you have chosen Size from the Control menu.

