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Presentation

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

IAP's goal is to allow the Internet users to easily prepare and publish real time audio material on the Internet. Its recording feature and **integrated FTP client** simplifies streaming audio publishing to a simple single step, point and click operation.

Under **Windows 3.x,** it supports any Microsoft **WAV** file formats, Sun/Next **.AU** (8000 Hz/ 8bits µ law encoded) files, US Robotic's **GSM** 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 weel as **True Speech** ™ (no recording support) files, using the built in audio codecs. The higher sampling rate files of the **Ms GSM** format offer a much better audio quality than the 8000 Hz files.

When run under Windows 95, **IAP** 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 !

You can also use **IAP** to record in **GSM6.10**, **USR GSM**, **WAV** and **Sun/Next AU** files. Under **Windows 95,** you can record and play **Ms GSM** files and play **True Speech** files from the disk or from a WWW site in real time.

 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** and **USR GSM** files by dragging them from Windows' file manager and dropping them on **IAP**'s client window area.

Streaming Audio and DirectAudio

DirectAudio is the name we gave to the real time streaming audio scheme introduced by the **DirectAudio Player** (DAP) and **Internet Audio Publisher** (IAP)**.**

Streaming Audio refer to a way of delivering and playing audio files on a network that allows to play the audio file while it is beeig sent instead of requiring to first download the file to a local disk. This applied to the Internet, allows to deliver **audio on demand** progams from any WWW server on the net

There are a few condition that are required to make **uninterrupted** streaming audio possible:

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

IAP/DAP use a buffer of user selectable size to help against network transmission irreguarity 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.

Listening to DirectAudio files.

There are two methods for accessing a **GSM** 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 IAP'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.IAP would then be spawned by your WWW browser and the file would instruct the player on which GSM file to fetch from the net.

Publishing Direct Audio Files on the WWW

Publishing your audio files on the net is very simple. Here's the procedure.

1- Create your **GSM6.10** / **Ms GSM** file by using the <u>recording</u> function of **IAP** or using Windows 95 sound recorder(**Start | Programs | Multimedia | Sound Recorder**).
(Make sure the **<u>Ms GSM</u>** <u>codec</u> have been installed.)

You can also create a GSM6.10 file by using the **IAP**'s **<u>Compress</u>** function:
Start by openning a 8000 Hz 16 bits PCM (WAV) file or from an 8000 Hz 8bits "Mu-Law" encoded file (.AU).(Sun/Next) and use the **Compress** command.

2- Use **IAP**'s **<u>Send File</u>** function to upload the file and description file to your WWW site.

3- Create a link to your description file in an HTML page. The link would be defined as something like:

<A HREF="ex1.gsd">Listen</A>

Or follow the following procedure:

2a- Create a "<u>Description File</u>" with extension **.GSD**. This is a simple ASCII text file which contains a reference to the **.GSM** file that you want to give access to.

The **Description File** or meta file should have the following form:

IAP_URL|protocol://host[:port]/path/filename

Where:
IAP_URL| is a fixed string used for identification. The | (vertical bar) character is the delimiter. This will be used in future versions for **play lists** and WWW site **audio index**.
protocol is for now fixed to: **http**
host is the host where the file is located.
port is the optional port (default to 80. Used only when the HTTP server use a different port)
path is the path to the file on the given host
filename is the **GSM6.10, Ms GSM or TrueSpeech** file name (with extension **.GSM / WAV**)

For instance:
IAP_URL|http://www.cam.org/~noelbou/ex1.gsm or
IAP_URL|http://ihs2.unn.ac.uk:8080/~ihbb1/hal.gsm
IAP_URL|http://www.atlas.co.uk/omni/113/30s_22khzgsm.wav

Note that the referenced (**.GSM**) file may reside on any WWW server on the Internet.

2b- Upload the .GSD (and .GSM) file(s) to your WWW site and make sure the .GSM file that is referenced in your description file is available on the Net.

Setting up your HTTP server

The HTTP (WWW) server must be set up to accept the **GSM, GSD** and optionaly, **TSP** file types (Extension: **.GSM,.GSD and .TSP).**
This is done by adding new MIME type definitions to the server (usually in a configuration file). The new MIME types to add are:

TYPE/SUB-TYPE	EXTENSIONS	
audio/x-gsm files)	**gsm, gsd**	**(For GSM6.10 and USR GSM**
audio/x-wav	**wav**	**(For Ms GSM (WIN 95))**
application/dsptype	**tsp**	**(For True Speech)**

The procedure to add a new **MIME** type varies from one server to another but is quite straightforward and should not cause any major headaches to your server maintenance peoples or your service provider.

Using Voice Mail

IAP V2.2 features a MIME 1.0 compliant **SMTP client** that let you send voice mail message to any Internet email address. The messages can be received using IAP (see below) or any MIME 1.0 compliant email clients like Netscape, Internet Explorer or Eudora.

IAP also features a **POP3 client** that will let you retreive your voice mail messages from your email account. The received voice mail is retreived to your local drive and put in a "voice mail" directory. The received voice mail messages can be played, archived or deleted.

To use IAP voice mail features you must first configure the voice mail clients addresses in the **VoiceMail Clients Setup** dialog.

You can then use the Mail Voice File to mail an existing file or New Voice Mail to record and send a new message.

Notes on the Audio formats

All of the audio file formats supported by IAP can be used as voice mail message but it is highly recommended to use the compressed formats (GSM6.10, USR GSM, MS GSM) because of their size compared to the uncompressed WAV or AU files.

Using GSM6.10 requires only **99000 bytes per minute** of audio compared to **960000 bytes** for WAV (PCM 8000 Hz 16 bits MONO). The GSM6.10 file will be almost 10 times smaller (9.69 times to be exact) !

Retreiving message using a MIME 1.0 compliant email client

You can use any MIME 1.0 compliant email client to retreive voice mail messages sent by **IAP**. The message will appear as a regular email message with the standard headers (TO:, From:, Subject: ... etc) and the voice file will be saved as an attachement. See below for an example in Netscape V3.0 and Eudora 1.54

Netscape:

This is a Voice Mail message sent by: The Internet Audio Publisher V2.1
You can get the player at http://www.cam.org/~noelbou/gsm_wine.html

Part 1.2

Name: ~IAP2532.GSM
Type: audio/x-gsm
Encoding: base64

Click on **Part1.2** to play the message

Eudora:

[HEADERS]

This is a Voice Mail message sent by: The Internet Audio Publisher V2.1
You can get the player at http://www.cam.org/~noelbou/gsm_wine.html

Attachment Converted: **C:\INTERNET\MAIL\~IAP0E11.GSM**

click on the file name (**C:\INTERNET\MAIL\~IAP0E11.GSM)** to spawn IAP and play the message.

Credits

The **Internet Audio Publisher**'s Design and Programming:

> **Noël Bouchard**
> TELE DATA Consultants
> Copyright January August 1996
> email: **noelbou@cam.org**
> WWW: **http://www.cam.org/~noelbou**

IAP 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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THERE IS ABSOLUTELY NO WARRANTY FOR THIS SOFTWARE.

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Contacts

Your comments on this release of the **Internet Audio Publisher** would be very appreciated.

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

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Voice:(514) 527-1201
Fax: (514) 527-2657

Registration

TELE DATA Consultant's goal is to provide a tool to allow WWW users to easily and inexpensively publish real time audio material on their sites.

How To Register

The registration cost is $US **29.99**.

After having received your registration information, and processed your credit information we will email you a registration code which will unlock the **recording and file mailing limitation** and remove the **opening dialog** box. You will also be entitled to **technical support** by email.

For your convenience and protection, we provide the following secure methods of payment:

OnLine Registration using **VISA** or **Master Card** sent by **encripted email**

VISA or Master Card Credit card over the phone or FAX,

      (514) 527-1201 (09:00 - 17:00 EST)

Or print and fill the order form and **fax** to: **(514) 527-2657**

Cheque or money order.

Use this order form. and mail to:

<div align="center">

Tele Data Consultants
4600 de Lanaudiere
Montreal, Quebec
Canada, H2J 3P7

</div>

Before you register, please read the **<u>Licence</u>** agreement.

Online registration

The online <u>registration</u> dialog allow you to easily and securely send your registration information through **encripted email**.

You must be connected to the Internet before you can send.the information. Also you must have configured the email servers information in the <u>Voice Mail Clients Setup</u> dialog.

Please fill all of the fields and **make sure that your email address is correctly entered**.

After having received your registration information, and processed your credit information we will email you a registration code which will unlock the recording and file mailing limitation and remove the opening dialog box. You will also be entitled to technical support by email.

About security

Using the online registration by email raise the question of security...

This function uses an encription algorythm which will encode **all** of the information that is entered in the online registration dialog before it sent online. The information that will be sent online will appear as a bunch of meaningless characters.

Release Information

	Version Number
Internet Audio Publisher	**Version 2.2**

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 <u>toolbox buttons</u> 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.
<u>Record</u>	Record a file
Forward	Go toward the end of the file.

🔴 Recording

The recording function will allow you to record a sound file from a microphone, a CD, a MIDI sequencer or any other device which have a LINE OUT output which you can feed to your sound card LINE IN.

Use the mixer application which came with your sound board to select the source from which you want to record and to adjust the input level. Using the mixer, you can even use more than one input device (i.e. a microphone and a CD player) and control each level separately.

The Audio Properties dialog let you select the input file format that will be used.

Notes:

The following table list the available formats and sampling rates:

FORMAT	Streamable	Platform	Sampling Rates
GSM 6.10 (.GSM)	YES	Win3.x / Win 95	**8000 Hz only**
US Robotics GSM (.GSM)	YES	Win3.x / Win 95	**8000 Hz only**
Ms GSM (.WAV)	YES	**Win 95 only**	8.0, 11.025, 22.050 44.100 Khz
Ms PCM (Wav)	NO	Win 3.x, Win 95	8.0, 11.025, 22.050 44.100 Khz **16 bits**
Sun/Next µ Law (AU)	NO	Win 3.x Win 95	**8000 Hz only**

Notes:

About Ms GSM at 44100 Hz

The Microsoft GSM format require lots of CPU power when operating at the higher sampling rate. A Pentium 120 Mhz test system was just fast enough for 22050 Hz and produced underrun at 44100 Hz which caused non continuous recording with missing "chunks" of sound. We had the same result using Windows 95's **Sound Recorder** applet. The cause is that the machine is not fast enough to handle the heavy compression algorythm in real time. In these cases you can always record in WAV format at 44100 Hz MONO and use Sound Recorder to convert to **Ms GSM** 44100 Hz.

You can also use **Automatic Volume Control** for recording GSM6.10, AU and PCM (WAV) files.

File Menu

The File menu provides commands for opening files for **Playing**, **Compressing** or **Expanding**, and exiting the application.

Open   Open an existing file.
Open Location   Fetch a GSM file from the Net.
Save As   Save a downloaded or newly recorded file.
Compress   Compress a .**AU** or .**WAV** file to **GSM6.10** or **USR GSM 6.10**
Expand   Expand a **GSM6.10 or USR GSM6.10** file to .**AU** or **WAV**.
Send   Send a file to your WWW site using **FTP**.
Exit   Exit **IAP** application.

VoiceMail Menu

This menu provides functions to send a voice file to a Internet email address, receive voice message from your POP3 email account and manage the received messages.

Voice Mailboxes   Let you access and manage received messages.

Get Voice Mail   Check your email POP account and retreive any voice message.

Mail Voice File   Send the opened file to a given Internet email address.

New Voice Mail   Let you record a new message and send it to an email address in a
single operation.

Mail Voice File Command

This option will send the currently opened file to an Internet email address. A dialog will ask for the email address.

IAP will send the message as a MIME 1.0 compliant message to the given email address through the SMTP server given in the **VoiceMail Clients Setup** section.

Get Voice Mail Command

This command will connect to the POP3 server given in the **VoiceMail Clients Setup** section and retreive any voice mail message. The messages that are not voice mail messages are left untouched on the server. The Voice Mail message will be retreived and deleted from the POP3 server. You can have the message left on the POP server if you select the **Leave Voice Mail on Server** option in the Voice Mail Clients Setup dialog. Be carefull not to fill up your POP3 mailbox if you use this command as all the message received will accumulate in your mailbox. Also, IAP will retreive all of your voice messages that have been left in your POP3 mailbox each time you use the Get Voice Mail command.

Voice Mailboxes Command

This command let you open the Inbox or Archive mailbox to play, delete or save received voice messages.

The messages in the InBox can be saved to the archive mailbox by using the **Archive** button.

New Voice Mail Command

This command will start recording a new message using the audio format set in the Audio Properties Options dialog. It will then ask for the destination email address and send the message.

VoiceMail Clients Setup

This section will allow you to identify your voice mail servers addresses and configure IAP's voice mail features.

These settings are similar to the one found in most email programs. If you have a browser or an e-mail client program that is already configured you can refer to it for the information required here. If you don't know these address, ask you system administrator or service provider.

Outgoing Mail (SMTP) server:

The SMTP server allows you to send email on the internet. It has the form of a standard domain name and often begins with smtp. i.e. **smtp.domain.name.com**

Incoming Mail (POP) Server:

The POP3 server is your email messages manager. It allows you to get your mail from a remote location. It has the form of a standard domain name and often begins with **pop**. Example: **pop.domain.name.com**

POP User Name:

This is your full email address in the form: **name@domain.name.**

POP User Password:

This is the password needed to access your POP3 Server.

Voice Mail Directory:

This is the path of a directory on a local drive where the voice messages will be saved and the InBox and Archive <u>mailboxes</u> will be created.

Options Menu

The Option menu will let you set and save configurable options.

General Options

Audio Properties

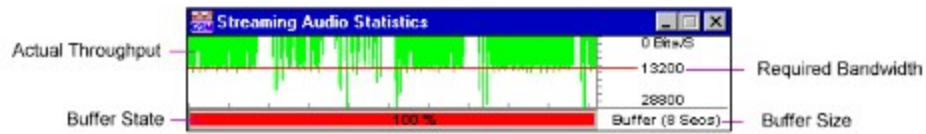**FTP Client Setup**

Setup Menu

The setup menu give access to the Voice Mail and FTP clients setup dialogs.

VoiceMail Clients Setup   SMTP and POP clients configuration.

FTP Client Setup   FTP client configuration For audio on demand uploads.

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 thoughput. 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 bandwitdh 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" bandwith 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.

General Options

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. **IAP** 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 IAP 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 adjust the sound level to the maximum permisible before clipping occurs. This option is also usefull when **recording** directly from a microphone.

Note: This function has been designed to improve the inteligibility 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.

Help Menu

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

<u>Contents</u>   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, Compressed or Expanded by dragging it from the File Manager, and dropping it on **IAP**'s main window. The Option|Drag/Drop Action option let you select the action that will be triggered when a file is dropped. If the Compress/Expand action is selected, the file extension will determine the action. Compress for a .AU or .WAV file and Expand for a .GSM file.

You can also minimize IAP so that the icon is displayed on the desktop, drag a file from Window's file manager and drop it on the icon.

File Compress Command

The File|Compress command will Compress a **.AU** or **WAV** file to **GSM**.or **USR GSM**
This command is only allowed when a **.AU** or .**WAV** file has been selected as input file.
The format of the input WAV file **must** be **8000 Hz** sampling rate / **16 bits** samples. The
format of an input Sun/Next **.AU** file is **8000 Hz, 8 bits, μ-law** encoded. A "Save File"
dialog will let you enter or select the path and name of the output file. The output path
will be memorized.

File Expand Command

The File|Expand command will Expand a **GSM** or **USR GSM** file to the **.AU** or .**WAV**. format This command is only allowed when a .**GSM** file has been selected as input file. The file will be expanded to a **8000 Hz** sampling rate / **16** bits samples **WAV** file or to a **8000** Hz **8** bits µ-law encoded file.. A "Save File" dialog will let you enter or select the path and name of the output file. The output path will be memorized..

File Exit Command

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

File Open Command

The **File|Open** command displays the Open a File dialog box so you can select a file to **Play**, **Compress** or **Expand**. A file Open 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 type 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 a GSM file from an HTTP server on the net. The file will then be played in real time. You must enter the full URL of the **GSM6.10, USR GSM, Ms GSM** or **TrueSpeech** file that you want to listen to. 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 copy 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 IAP's input dialog using the [**SHIFT-INSERT**] key combination

File Save As

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

File Send

The File Send Option let you upload an audio file to your WWW site. It will also create a description file used for audio on demand.

You must first open a file using the File | Open command or record a new file.

Make sure the information required to reach your WWW site through FTP has been filled in the **FTP Setup** Dialog.

A window will display the destination info as well as the name to give to the file to upload.
The destination file name can be changed.

You can also select to Create and Send a **description file** that will be used as a link to allow selection of the audio file from an HTML page on a WWW site.

The description file can use the original **GSD** format or the **True Speech** format (**.TSP**). You can use the True Speech format for the description file if your sound file has been recorded in True Speech and you want to be able to stream the file using **DAP/IAP** or the True Speech Player. You should not use the True Speech description file format for other sound file format.

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..

Options Drag/Drop Action

The Drag/Drop Action let you specify which action will be triggered when a file is dropped on **IAP**'s client window area. You can select one of the following values:

Play:
The dropped files will be played.

Compress/Expand:
.AU or .WAV files will be compressed and **GSM** or **USR GSM** files will be expanded.

Options Audio Properties

The Audio properties dialog let you select the file format and sampling rate that will be used for **recording**. The following table describes the available formats.

FORMAT	Streamable	Platform	Sampling Rates
GSM 6.10	**YES**	Win3.x / Win 95	8000 Hz
USR GSM 6.10	**YES**	Win3.x / Win 95	8000 Hz
Ms GSM	**YES**	**Win 95 only**	8.0, 11.025, 22.050 44.100 Khz
Ms PCM (Wav)	**NO**	Win 3.x, Win 95	8.0, 11.025, 22.050 44.100 Khz
Sun/Next µ Law (AU)	**NO**	Win 3.x Win 95	8000 Hz

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

Format / Sampling Rate	Required Bandwith	Quality	Internet Connection
True Speech (.WAV)	8536 bps	**Low**	14,400 bps and over
GSM 6.10 (.GSM)	13200 bps	**Low**	14,400 bps and over
USR GSM 6.10 (.GSM)	15600 bps	**Low**	28,800 bps and over
Ms GSM 8000 (.WAV)	13000 bps	**Low**	14 000 bps and over
Ms GSM 11025 (.WAV)	17912 bps	**Medium**	28,800 bps and over
Ms GSM 22050 (.WAV)	35824 bps	**Medium-High**	56,000 - 64000 bps and over
Ms GSM 44100 (.WAV)	71656 bps	**High**	128000 bps and over

Options FTP Client Setup

The FTP setup option let you configure **IAP**'s FTP client. The FTP client allow you to upload audio files to your WWW site and to create and upload the description files used to allow links to audio files on an HTML page.

The dialog is divided in two sections which gives the FTP access data and describe your WWW site URL and directory.

Uploading a file to your WWW site

The upload option requires that you have an FTP access to your WWW site. Most service provider who allow their clients to create their WWW sites will run an FTP server on their system and will give their client an access to it so that they can upload their HTML page to their site. You will need to know your FTP server URL as well as your access Name and Password.

FTP Host:

This is the FTP server name or host name. Example: **ftp.cam.org**

Login Name:

This is your user name. Example: **david**

Password:

This is your access code: mycode... (this will show as "******")

Remote Dir.:

Example: **public_html/**

This is the sub-directory in your WWW site home directory, where you want to upload your audio files. This deserve some clarifications. When you login to the FTP server using your Account Name and Password you will be most likely sent to your "home directory". Depending on the WWW server setup, your WWW site may have to reside in a specific directory under your "home directory". For instance our site reside in a directory named public_html. You may want to change to your WWW site directory or may want to create a new directory to hold your sound files. for instance under public_html a directory called audio. You would then set this to: **public_html/audio.** If you are not sure about the location of your site ask you network administator or service provider.

After having logged on to the FTP host, **IAP**'s FTP client will send a command to the host to change to the directory specified here.

Your WWW site URL

The following two entries are used to build up the **description file**

URL:
          Your WWW site base directory URL, where your home page resides.
          Example: **http://www.cam.org/~noelbou**

Directory
          The sub-directory under your site base directory where you want the file uploaded. Leave this blank to upload the files in your home directory.
          Example: **audio**

The description file will be formed using the two entries above and the filename.

IAP_URL|URL/Directory/Filename

For the examples above we would get:

IAP_URL|http://www.cam.org/~noelbou/audio/filename.gsm

Your WWW site URL

The next section contains informations that are used to create the "description file".

The description file is a simple ASCII text file which has the following format:

GSM_URL|protocol://host[:port]/path/filename
Where:
protocol is for now fixed to: **http**
host is the host where the file is located.
path is the path to the file on the given host
filename is the GSM file name (with extension **.GSM**)

For instance:
GSM_URL|http://www.cam.org/~noelbou/ex1.gsm or
GSM_URL|http://itre.ncsu.edu/gsm/garotos.gsm

This section let you enter the information that will be used to create the description file.

URL:
This is your WWW site URL. Example: **http://www.cam.org/~noelbou/**

Directory:

> This is the sub-directory under your site main directory which contains your sound files. Example: **audio/**
> Leave this blank if the audio files reside in you main WWW site directory.
> **Note:** The URL example above will go to the user (noelbou) WWW site directory, that is
> http://**www.cam.org/"user-dir"/public_html/**.because the WWW server is configured to assume **public_html/** as the default home directory for WWW sites.Again your network administrator or service provider is the best source of information about this.

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:

IAP "PathName"

Example: **IAP c:\audio\gsm\ex1.gsm**

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

IAP Shortcuts Keys

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

KEYS	FUNCTION
ENTER	Play
SPACE	Stop
ALT SPACE	Pause
CTL SPACE	Record
ALT-A	Save **A**s
ALT-C	**C**ompress (WAV/AU to GSM6.10)
ALT-E	**E**xpand (GSM6.10 to WAV/AU)
ALT-L	Open **L**ocation
ALT-S	**S**end File (FTP)
ALT-X	E**x**it
CTL-B	Display Units as **B**ytes
CTL-S	Display Units as **S**econds
CTL-M	Display units as Sa**m**ples
CTL-V	Toggle Automatic Volume Control
F1	Help
Shift-F1	Context sensitive Help
F2	File Open
F3	Open Location
ALT-F4	Exit
F5	Options Dialog
F6	Recording audio Properties
F7	Voice Mail Clients Setup
F8	FTP Client's Setup
F9	Open Stats. window

Troubleshooting

Problems related to BWCC.DLL

Some users have reported getting GP (general protection) errors on IAP and / or DAP startup. This problem is caused by the installation program which may fail to replace an existing version BWCC.DLL (because an existing older copy of it is beeing used by other programs).

If you get GP error on IAP / DAP startup please check your \Windows\ and/or   \ Windows\system directory for BWCC.DLL and make sure that it is not older than the one shipped with IAP. if you have an older copy replace it by the one shipped with IAP. This will not affect any other application that make use of this DLL since these are always backward compatible.

Q: How do i set my Browser so that it uses **IAP** to play the audio files.

A: Your browser can be told to run a specific program (a "helper application") when it receives a given type of file. You must set it so that it spawn **IAP** whenever a GSM6.10, Ms GSM, TrueSpeech (tm), WAV or AU file is received. The file type is identified by the server with a **MIME** type and a file extension. Here's the MIME type / extension that IAP supports:

MIME-TYPE/SUB-TYPE	EXTENSION(S)	DESCRIPTION
audio/basic	.au	Sun/Next "mu" law
audio/x-wav	.wav	Microsoft WAV
audio/x-gsm	gsm, gsd	GSM6.10 Ms GSM and description files
application/dsptype	tsp	TrueeSpeech (tm) description files

For example to add support for GSM6.10 and Ms GSM

Add a new MIME Type definition for GSM6.10 in your WWW browser: **audio/x-gsm**
Set file extension for this type as **gsm,gsd**
Select **IAP.EXE** as the application launched when receiving audio/x-gsm media type.

To set **audio/x-gsm** for **Netscape**:

Select Options|General Preferences|Helpers
Click on the **"Create New Type"** button.

MIME TYPE: **audio**
MIME SUBTYPE:**x-gsm**
Set File Extension as: **gsm,gsd**

Select the "Launch Application" radio button
Enter the pathname of IAP.EXE Example: c:\diraudio\diraudio.exe
Press the "OK" button.

Q: I have uploaded a file to my site but when i try to receive it i get a lot of "garbage" on my screen and hear nothing.

A: The reason for this is that the server does not know about the file type and it is interpreting and sending it as plain text. The HTTP (WWW) server must be set up to accept the GSM file type (Extension: **.GSM**).
This is done by adding new MIME type definitions to the server (usually in a configuration file).   The new MIME types to add are:

TYPE/SUB-TYPE   EXTENSION
audio/x-gsm   gsm, gsd
audio/x-wav   wav
application/dsptype   tsp

Windows 95

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 **Auto-Configure** to have Windows evaluate the fastest speed it can support on your machine for compression and decompression.
6. Click **Apply** and **OK**.

Do the same for DSP Group's **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.

Button   **Action**   **Menu Equivalent**

Locate and open a file.   File|Open

Fetch a file from the WWW.   File|Open Location

Send a file to your WWW site .   File|Send

Open the InBox mailbox window.   VoiceMail|Mailboxes

Record and send a new voice mail message.   VoiceMail|New Voice Mail

Go toward the beggining of the file. Play|Rewind

Stop Playing. Play|Stop

Start or Resume playing.   Play|Play

Start recording.   Play|Record

Pause Playing.   Play|Pause

Go toward the end of file.   Play|Forward

Display help file contents.   Help|Contents

Windows Keys

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.
Pape 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	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.
	In some Windows applications, pressing F1 displays a Help topic on the selected command, dialog box option, or system message.
Shift+F1	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.

(This feature is not available in all Windows applications.)

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.