

AUDIO CONVERTER – INSTRUMENT EDITOR – MUSIC PERFORMER



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FILE_ID.DIZ	<i>Short program description.</i>
README.TXT	<i>Installation instructions.</i>
SETUP.EXE	<i>Installation program.</i>

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Using *Awave Studio*



*Welcome to **x**ave Studio!*

This text will teach you the basics of using *Awave Studio*.

It is *highly recommended* that you read through it at least once; it may save you both time and frustration later on!

The text is divided into the following sections:

- *What can Awave Studio do?*
- *Windows and menus*
- *Configuration*
- *Converting simple audio files*
- *Converting instruments and banks*
- *Converting MIDI songs*
- *Batch conversions*
- *Editing in general*
- *The Audio Processing Wizard*
- *Using DirectShow audio effect filters*
- *Recording waveforms*
- *Waveform parameters*
- *Looping waveforms*
- *About articulation*
- *Using auditioning*
- *A customizable synth editor*
- *The Instrument Processing Wizard*

Please use the [

Historical footnote

The first precursor to *Awave Studio* first saw the light of day in late '93 when the author needed to extract some samples from an Amiga tracker module (.MOD) and save them as Gravis UltraSound instruments (.PAT). So, he hacked up a small program called *Mod2Pat*. As he thought that perhaps other people might find it useful too, he released it on the Internet. As some programs tend to do, this one soon grew beyond all bounds. In response to user demands, more file formats were continually added (and still are). It was ported to Windows, and it got a steadily improving user interface. The name was now something of an understatement so it was shortened into *2Pat*. It didn't take very long until that name too was something of a misnomer so it was finally metamorphosed into *Awave* (*pron.* "A-Wave"). Today, several major rewrites later, it handles more than one hundred and fifty audio carrying file formats for import, as well as most popular formats for export. And sporting a rich set of audio and wavetable instrument editing, playback and auditioning functions to boot! The very latest edition, named *Awave Studio*, adds many new features, first of these, the ability to handle MIDI song data and package MIDI music together with custom instruments in a single distributable file, or even render it to a WAV file on disk using a software synthesizer. It also returns full first circle to the

earliest days and adds support for converting entire MOD files with instruments, song data and all into MIDI format!

This product would never have been accomplished without the support of many dedicated users.

Thank you all!



Using *Awave Studio*



What can Awave Studio do?

A*wave Studio* reads a veritable host of audio carrying file formats from different platforms, synthesizers and trackers. It can be used in a variety of ways: as an audio file format converter, an audio editor, an audio and MIDI player, and, last but not least, as a wavetable synthesizer instrument editor and converter. Here are a few examples of uses:

- Do you have a strange audio file that you want to use but can't figure out how to convert it into any sensible format that can be used by the programs you need? Maybe you even have a large number of files that you need to convert or process in some way? Chances are good that *Awave Studio* can help you!
- Are you a composer? Ever wanted to take advantage of all those free instruments floating around the web but found it impossible to get them in a format suitable for your synthesizer? *Awave Studio* reads the instrument formats of most (if not all) commercial synthesizers and soundcards and can also write a fair number of them! It also supports SDS and SMDI so you can send samples over MIDI or really fast over SCSI using these standard protocols.
- Ever wanted to play a MIDI song that comes with an 'instrument bank' that were created for another wavetable sound card than yours? *Awave Studio* cannot only make *high quality* conversions between the most of the major sound cards; it can also load both the MIDI song and the instruments and play it directly for you! And that's not the end of it - it can even write the song to a WAV file on disk for you! (Which you could later convert to e.g. MP3 format and distribute on the web).
- Need a simple audio editor? You can do such things as resampling, fading in and out, maximizing amplitude, applying effects, and more.
- Need an instrument editor for your wavetable sound card? Or not satisfied with the one that you have? It provides full support for all of the features (in fact a superset) of both the new Downloadable Sounds level 2 standard and the SoundFont 2.0 standard. And you can also 'customize' it for use as an editor for many other formats just as well!

And here's a more complete list of features!

- Do conversions from the more than 150 (no kidding!) audio carrying file formats that it can read into any of the more than 60 audio file formats that it can write! No other software even comes close!
- Do quality conversion between the instruments formats most common PC synthesizer sound cards. Some examples: SB AWE32, SB Live!, all Vortex II-based cards, TB Pinnacle, TB Maui, AVM Apex, Gravis UltraSound, UltraSound PnP.
- Convert MIDI song data between several formats. Package MIDI songs together with custom instruments in a single file. You can even convert MOD-tracker modules into MIDI-format accompanied by custom instruments!

- Also supports reading, and in some cases writing several commercial synthesizer file formats, including formats from Ensoniq, Akai, Kurzweil, Roland, and Yamaha.
- Send or receive waveforms to professional synthesizers using standard SDS transfers over MIDI or *really fast* using SMDI transfers over SCSI.
- A 'Batch Conversion Wizard' makes converting large numbers of audio files extremely simple! And with optional effects processing!
- The 'Audio Processing Wizard' let's you accomplish many common editing tasks like resampling, fading, cutting and pasting, merging and combining waveforms, and much more! 'DirectShow audio effect filters' (a.k.a. DirectX plug-ins) are also supported opening up whole world of 3rd party effect processing modules. And it can work on multiple waveforms at once just as easily as on a single!
- A nice example of a use for the 'Audio Processing Wizard' function is the 'cross-fade loop' function. Using this, you no longer have to search in vain for that elusive optimal loop point. Just select a likely portion of the waveform and cross-fade it and voilá – you have a good sounding loop!
- The Instrument Processing Wizard, help you avoid having to manually do repetitive editing tasks on instruments.
- It is a fully featured DLS level 1, DLS level 2 *and* SoundFont 2 wavetable instrument editor. But you can also use it as an editor for a lot of other instrument formats! For some, it is the *only* PC editor. You can customize the editing user interface for your particular soundcard by using the 'parameter set' feature. Predefined sets for common synthesizer soundcards are available!
- Easy to use and understand two 'panes' layout –a hierarchical instrument 'tree' to the left, and waveforms to the right.
- Graphical editors available for instrument parameters! E.g., the much applauded loop editor let's you easily find the best loops. Refined to perfection based on feedback from our users!
- Play sampled audio files using the 'Audio Player' - Sporting real-time oscilloscope or frequency analyzer display! This is also integrated into the Windows shell so that you can play files with a click of the right mouse button.
- Play MIDI files with custom instruments using the 'MIDI Player'. Works on any computer with a basic sound card and DirectX 7 or later – you don't have to have a sound card with a fancy MIDI synth. And MIDI songs are guaranteed to sound exactly the same on all computers since it uses *Microsoft DirectMusic* technology and DLS synthesis.
- Record your MIDI songs (with or without custom instruments) to a WAV file on disk using the software synthesizer - an all-digital process! Great if you later want to convert it to e.g. MP3 format.
- Audition your instruments directly using any of the several 'natively' supported synthesizers (including *DirectMusic* and the *Microsoft software synthesizer* or the simpler internal sound mixer). Use the PC keyboard or an external MIDI keyboard to play.

- Record new waveforms using the Waveform Recording Wizard.

Sorry about giving you such a long list to read through – but this program simply does so many things!

Use the [>>] button to go on to the next section...

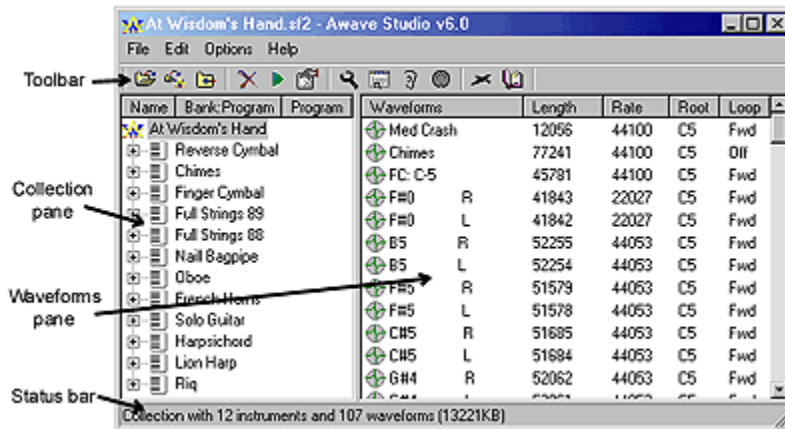


Using Awave Studio



Windows and menus

The first thing that you see when you start the program (well, actually the second, after the 'nag screen' if you run the unregistered version) is the 'main window'. It consists of several parts:



- The 'Collection pane'. This is the 'left pane' that takes up about half of the window. It is used to hold a 'collection' of synthesizer instruments as a hierarchical tree of 'instruments', 'layers' and 'regions' that makes up an instrument bank for a wavetable synthesizers. It can also contain 'MIDI songs' which are placed below the instrument tree, and containing one or more 'tracks' as sub-items. If you are not going to use *Awave Studio* for dealing with instruments, then you can in fact ignore this pane...
- The 'Waveforms pane'. This is the 'right pane' that makes up most of the window. It contains a list of all loaded 'waveforms' (digitally recorded sounds). The list contains not only the names of the waveform but also several columns with additional information like e.g. length and sample rate.

Tips: You can use the mouse to drag the split between the two panes. You can change the width of the waveform pane columns by dragging the 'split' between the column headers! And you can sort the instruments or the waveforms by clicking on one of the buttons at the top of the panes!

- The 'Main menu'. This is the standard Windows menu layout containing an assortment of commands and options. These will be considered in greater detail further on.
- The 'Toolbar'. Several of the most common commands from the main menu have been here collected for quick access in a toolbar list at the top of the window. If you let the mouse pointer rest for a while over a button, a small text will pop up that describing what it does.
- The 'Status bar'. When you select something (by clicking on it with the mouse) in the collection or the waveforms pane, additional information about the selected item will be shown in the status bar at the bottom of the window. Some commands also report their 'completion' status here.
- 'Context' menus. Clicking with the right mouse button on an item will pop up its context menu

containing the most useful commands for that particular item. This can be very handy!

The main window is the 'container' for your work in *Awave Studio*. But there are also a number of 'dialog windows' that you can use in various situations. E.g.:

- All of the 'items' in the two panes have their own 'property sheets'. These allow you to view and edit the detailed properties for the item. See the [Editing in general](#).
 - There are a number of 'wizards' –that helps you do specific tasks:
 - The 'Batch Conversion Wizard' is used to more easily convert large numbers of files (see [Batch conversions](#)).
 - The 'Audio Processing Wizard' that is used to apply effects on waveforms (see [The audio processing wizard](#)).
 - The 'Instrument Processing Wizard' frees you from some boring repetitive editing tasks (see [The instrument processing wizard](#)).
 - The 'Create Instrument Wizard' helps you create instruments if you're new to the program.
 - The 'Waveform Recording Wizard' helps record audio (see [Recording waveforms](#)).
- There is a configuration dialog containing general options and various preference settings. See the [Configuration](#).
- There is an 'Audio Player' window which you can use to play waveforms, similar to the Windows MediaPlayer but with the entire massive audio file format support of *Awave Studio*! There is also a corresponding 'MIDI Player' to play MIDI songs (using a combination of GM instruments and the custom instruments in the loaded collection!).

BTW, if ever you have trouble with something in *Awave Studio*, be sure to browse through the [FAQ section](#) of this help file for an answer. If ever your wonder about what exactly a certain control does, try selecting it and then press F1. Or if there is a technical mumbo-jumbo word that you don't understand, try looking it up in the [Glossary](#)!

Use the [[>>](#)] button to go on to the next section...




Using *Awave Studio*



Configuration

Let's do some configuring now!

Start by selecting **Preferences...** from the **Options** menu to enter the preferences dialog (alternatively, click the  toolbar button). BTW, don't get scared by the length of this section, there is usually not that much to configure, we just want to walk you through most of the options more comprehensively as they all relate in some way or other to things that you can do with it.

The first you see is the **Miscellaneous** tab. There's a few different things here but nothing much that we are interested in right now.

Tips: You can often use the [?] button and click on anything that looks interesting to get more information about it.

Select the **Audio device** tab. Here you select the audio device to be used by the 'Audio Player'. The term 'Audio Player' refers to *Awave Studio's* audio playback engine. It is usually seen in the form of a special audio playback window but it's also used as the output for the internal 'Sound Mixer' software synthesizer. If set to 'DirectSound' mode, then it'll also be used as the output for the 'MIDI Player' any DirectMusic software synths for auditioning (e.g. the Microsoft software synthesizer).

Under **Primary**:, select your 'primary' audio playback device. When playing audio, it will always first try to use this device. But if it is 'busy' playing something else at the moment, then any other device(s) that you may have will be tried and used if available.


Next, let's select the 'method' that should be used for audio playback. If you have *Microsoft DirectX* (v3 or later) installed on your computer then it is highly recommended that you select the '*Use Microsoft DirectSound services*' option. This will give much smaller delays when playing sounds as well as make the *Awave Studio* Synthesizer sound much better... If you do not have *DirectX* installed or if it is not working properly (due to bad drivers or other factors) then select '*Use Windows multimedia services, buffered output*'. If, and only if, you have problems with no sound in the Audio Player for both the other two options, then try '*Use Windows multimedia services, unbuffered output*'.

Now select the **Auditioning** tab. 'Audition' refers to the feature that allows you to directly play an instrument or an audio sample using your computer keyboard or an external MIDI keyboard. To enable it, simply check the **Enable auditioning box**.

In the **MIDI-Input** list, choose what device you want to use for 'playing' on. If you don't have (or don't want to use) a proper MIDI-in device, then select <none> from this list. If you check the **Enable virtual keyboard** box, then you can use the computer keyboard to play on instead of, or in addition to, a MIDI keyboard.

In the **Wave-synth** list, select any of the wavetable synthesizers that *Awave Studio* provides 'native' support for (i.e. if you happen to have one of them) or else, simply select the *Sound Mixer*. Or better yet, install Microsoft DirectX v7 or later (containing 'DirectMusic') and select the *Microsoft software synth* for superior sound quality and fast load times!

The drawback with having auditioning enabled can be that it does slow down the program somewhat when selecting items (since the program then downloads the selected item to the synth). Also, while it is on, you may not be able to simultaneously use the synth in other applications. Therefore, the program toolbar contains a handy

 button for quickly toggling this feature on and off.
More information about in the [Using auditioning](#) section.

Next, select the **Helper apps** tab. It is possible to use an external (specialized) application of your choice for recording, editing, or otherwise processing waveforms. In order to make that possible you must enter the program name and path for the editor under the **Waveform editor** heading. You can easily browse the disk for it by pressing the **[..]** button. Then enter any command line switches that you want the program to start with, e.g. "c:\foo\myeditor.exe -load". The name and path of a wav-format file will be appended to the end of this when starting the editor, which should cause it to load the wav file. As default, the simple 'Sound Recorder' that comes with Windows is selected but you may want to change it to a more capable program.

Analogously with the waveform editor, there's a **MIDI song editor** field where you can select an external application (e.g. a MIDI sequencer) that you want to use for editing MIDI songs.

There are also fields for selecting an **On-screen keyboard app** (which could be used for MIDI input instead of a real MIDI keyboard) mixer or volume control app and an on-screen keyboard app (e.g. for use with the auditioning feature) and a field for an **External MP3-encoder** (which is necessary for saving to MP3 format).

The last tab is the **Parameter set** tab. When you have got accustomed to using *Awave Studio*, and are planning on using it as an instrument editor for your synthesizer card, you may want look into this page. It is used to 'restrict' some of the things that you can do in the program so that it more closely matches the capabilities of your particular synthesizer. More on that in the section [A customizable synth editor](#).

Ok, we're done configuring, so click **OK!**

*Use the **[>>]** button to go on to the next section...*





Using *Awave Studio*



Converting simple audio files

The basic building block in *Awave Studio* is the waveform. You may also have seen it called a 'sample', a 'sound', 'audio recording', 'clip' or something similar in other programs and in literature. In strict *Awave Studio* terminology :-), a *waveform* is a temporal sequence of *wavesamples*. A *wavesample* in turn is a number describing a finite 'sample' of a sound (for stereo it is two numbers). The waveform is the actual recorded and digitized sound that is played back by your computer. It is also the basic building block of so called wavetable synthesizers. A 'simple audio file' is a computer file that contains one single waveform plus, usually, some auxiliary data describing the 'sample rate' (the rate at which the wavesamples are played back) and such things.

To open (import) an audio file, press  on the toolbar or select *File→Open new* from the program menu and select a file using the dialog box that pops up. This will replace all currently loaded items with the contents of the file you open. As you can see in the status bar of the open file dialog, it will display the recognized import format of a file. It tries to find the correct format even though it may have an incorrect file extension by looking for 'identification markers' inside the file. If you want, you may select several files in order to open them all at once. To later open more files without throwing away the presently loaded items, use the


 button or the *File→Merge files* command. The number of files that you can simultaneously have opened is limited by the amount of memory in your computer. It will never load any actual waveform data until it is absolutely necessary (lazy loading) - when you first 'open' a file, only the necessary information about the waveform is loaded so that it can be loaded when needed. But when it is loaded, all of the waveform data must be able to fit in memory.


Anyway, noticed the *Formats...* button? Pressing it will bring you *Awave Studio*'s help reference containing a list with short 'pop-up' descriptions about all supported file formats.

Click **OK** in the open file dialog to load the file(s) that you have selected.


Tips: You can also 'merge' the contents of a file by simply dragging it from the Windows Explorer and drop it in Awave Studio's main window.


When you have opened one or more waveforms, they will appear in the 'waveforms pane'. Every waveform in the list also has a small icon to its left, either a

 for mono waveforms, or a

 for stereo waveforms. BTW, with the term 'item' we mean 'any thing with such a small icon to the left', not only waveforms but also instrument and MIDI song items (see the next few sections). Whenever you want to perform an 'action' on an item you must select it by clicking on it with the mouse. In the waveforms list you can select multiple items by holding down the shift key and clicking to select a range of items; or the control key and clicking to add an individual item to the selection.


To play one of the waveforms you just loaded, select it and press

 on the toolbar (or use the corresponding *Play audio* menu command). This will bring up the Audio Player window that we talked about in the configuration section. To close the Audio Player click the **[X]** button or the **[>>]** button. The difference between them is that the **[>>]** button will proceed with playing the next selected item in case you had selected more than one waveform, or some other kind of 'higher level' item (again see the next section). To do more advanced editing press

 or select **Properties** from a menu. More on that in the editing section.

Now let's try saving an audio file!

Select the waveform(s) that you want to save and then press

 or select **Save waveform as** from a menu (either the **File** menu, or the right button context menu).

Notice that there is no 'regular' save command for waveforms - you must always first select the particular item(s) that you want to save and then issue a save as command. This is because you can load up many waveforms at once, but the file formats you can save them to can generally only contain a single one, that's why you need to select which one to save!

Anyway, this brings up a save file dialog where you can type in file name et c. as usual. In the **File format** list you select, guess what? What file format you want to save it in! But there is also a **Subformat** list which changes depending on what file format you have chosen. There you can sometimes select what sub-format of the selected file format that it should be saved in. Typical choices are PCM 8 bit and PCM 16 bit data sub-formats. Waveforms are always stored in PCM 16bit format internally so even if the original data were 8 bit, 16 bits will be selected as default. You can of course manually override this by selecting PCM 8 bit in the sub-format list. Next, mark the **Mono** and **Stereo** check boxes to indicate what channel format you want to save it in. If both boxes are checked (only possible with file formats supporting both stereo and mono of course) then it will be saved in the channel format of the original waveform i.e. 'leave it as it is'. This is the default selection and probably is what you usually want to do. Now press **OK** to save the waveform or **Cancel** to skip it. If more than one waveform was selected, the procedure will be repeated for the next one.

*Tips: In both in open file and the save file dialogs, there is a **Recent** drop down list which you can use to quickly go to a recently used directory (a directory where you have either opened or saved a file). This can sometimes save you from a lot of directory browsing!*

Tips, you can select multiple waveforms and select save them in the same manner – you'll just get a 'save file' dialog for each of them in sequence.

Use the [**>>**] button to go on to the next section...





Using *Awave Studio*





Converting instruments and collections


To read a file containing an instrument or a collection of instruments (often called a bank file), follow the same procedures as described for reading audio files. The same things also apply regarding opening and saving multiple files. You can also read so-called 'tracker' files. These are files containing both a collection and a 'song' that uses the instruments in the collection. For *most* of these *Awave Studio* will *only* read the instruments and waveforms – not the song data. See the next section for details.


The 'collection pane', displays a hierarchical representation of the various 'component' items of the total loaded collection of wavetable instruments. It is a 'tree-view' list with the  collection as the 'root' having


 instruments as branches, which in turn leads to

 layers that go to

 regions that maps to the


 waveforms as 'leaves'. The 'waveforms' pane will also hold a list of all loaded waveforms but with more information than in the collection pane, as well as allowing multiple selections (which the collection pane doesn't). Some other symbols may also appear:

 stereo waveforms and

 drum kits (they are really treated like any other instrument, only one small flag is set differently to indicate that it is a drum kit). When you select an item (except the collection root item) in the collection pane, all the waveforms that it ultimately maps to in its 'leaves' will automatically be selected in the waveforms pane.

BTW, all these items are component of the 'Downloadable Sounds level 2 architecture' (or DLS 2 for short) – a standard for how to represent wavetable instruments in a way so that they can be shared between different kinds of hardware (actually, *Awave Studio* goes a little beyond this standard by providing some extra parameters that are useful with certain synthesizer formats).


Select any item (e.g. an instrument) by clicking on it with the mouse. You may now be able to play it on your MIDI keyboard and/or computer keyboard, provided that you have setup auditioning properly. See [configuration](#) and [auditioning support](#) for details. You can also press


 or use the *Play audio...* menu item to use the Audio Player to play all the waveforms that the item maps to, in sequence.


To save an item, first select it (



 or

, the others are not very useful for saving), then use

 on the toolbar (or selecting *Save X as...* from the context menu, or select the corresponding command from the File menu). Here *X* will reflect the type of currently selected item (if nothing is selected it will default to the 'collection'). A standard dialog box will appear and prompt you for the file name to save to. Same thing goes here as for saving waveforms. The selections made will apply to *all* the data stored in the output file; it is not possible to e.g. save some waveforms used in an instrument as 8bit, and others as 16bit.

If you want to save the whole instrument collection to the same file as you loaded it from, i.e. a more normal 'save' as you may be used to from other applications, then use the  button. If the collection was not loaded from a file format for which saving is supported, you'll be prompted for a new format.

Note! Many of the export formats only support saving waveforms (and not instruments et c.); see the symbols in the [export formats](#) list for which formats support what. Moreover, the capabilities of the various 'instrument capable' file formats and synthesizers may vary greatly, see [notes on cross platform compatibility](#) on how to create instruments that can be used on as many wavetable sound cards as possible. An especially thorny issue is how to best convert articulation data (lfos, envelopes...) between formats for different synthesizers as they can be implemented quite differently. There are some notes in the [FAQ](#) that explain some important issues relating to this. You may want to read that once you have mastered the basics of this program.

Use the [>>] button to go on to the next section...




Using *Awave Studio*



Converting MIDI songs

To read a file containing MIDI song data, follow the same procedures as described for reading audio files.

In the 'collection pane', you will find a hierarchical representation of the various 'component' items of the total loaded MIDI song(s). They will appear 'below' the instrument collection as  MIDI songs, with one re more

 MIDI tracks as 'leaves'.

Select any item (except the collection root item) by clicking on it with the mouse. You can use the *Play MIDI...* menu item to use the MIDI Player to play it. Any instruments set with bank and program change messaged in the MIDI data will use instruments from the loaded collection. If an instrument is not defined in the collection, then it will be fetched from General MIDI instrument set will be used. The 'default' DirectMusic synthesizer is used for playback. This is normally the Microsoft Software synthesizer, but could also be a DLS capable DirectMusic hardware synthesizer if you have one (none were yet available when this was written). As this makes use of custom DLS instruments and/or the Roland GM set included with DirectMusic, songs should sound *exactly* the same on all computers!


To save an item, first select it (



or



), then use

 on the toolbar (or select *Save MIDI as...* from the context menu, or select the corresponding command from the File menu). A standard dialog box will appear and prompt you for the file name to save to.

The RMI and MSS file formats supports MIDI songs with embedded DLS collections. This could be a very nice way to distribute your compositions along with your own instruments! Just like in the old 'tracker' module days... The currently loaded instrument collection (if not empty) will automatically be included when you save to one of these file formats. A note on the RMI format is in order – it was only very recently extended to support DLS collections. So software support for it is currently kind of lacking. However, we have released a free WinAmp plug-in called 'dmAmp' that will let you play RMI-files in Nullsoft's popular (and free!) WinAmp media-player. And things should improve in the future as the Microsoft audio team has included support for such RMI files in the latest release of DirectMusic.

A note on various 'tracker module' formats is also in order here. *Awave Studio* does not in general support reading and writing song data from these files. They often use a format much more complicated than MIDI (which is what we use). However, there is one notable exception, we have built in a MOD to MIDI converter into *Awave Studio*. This means that you can convert all your old .mod format PC and Amiga modules into MIDI songs plus custom instruments. Not all 'effect' types are parameters are converted – but most of them, and certainly all the most common ones are converted. To use it, simply open a .mod and a MIDI song will be created along with the instruments. Try playing it with the MIDI Player!

Last but not least – notice that when you save a MIDI file – among the output file formats you have several selections to save to a WAV file with different sample rates! Selecting one of them will launch the built in 'MIDI to WAV' converter. This uses a software synthesizer to render a MIDI song to a wave file. There's no longer any need for any separate program to do this, or for recording the output of a sound

card et c. As it uses the Microsoft Software Synth from DirectX v7 or later (v8 req. for DLS level 2 support) it will use not only your own custom DLS instruments, but also to the standard Roland GM set that is installed with DirectX.

An obvious example of a use for this feature is if you have made a song that you want to distribute in MP3 format (and keep the 'MIDI source' to yourself).

Use the [>>] button to go on to the next section...




Using *Awave Studio*



Batch conversions

There are two ways to do 'batch conversions' (converting a whole bunch of files from one format to another).

The first, and easiest way is to use the 'Batch Conversion Wizard'. You reach it by selecting **Batch conversion...** from the **Tools** menu or from the  toolbar button popup menu. This brings up a dialog where you select whether you want to convert waveforms, instruments, collections, or MIDI songs. The choice you make here will determine what types of files you can use as input, and what file formats will be available for output. Next (after pressing 'Next') you reach a dialog where you have tools to construct a list of input files that is to be converted. You can add files one or more at a time, you can play files, you can delete files, you can search for files, and you can drop files from the Windows Explorer. When you are done with you input file list, press 'Next' again. Now you come to the final dialog – 'output options'. Here you can select the output file format, the data and channel sub-format, the output directory and 'existing files overwrite' policy. You can also specify a few optional audio processing functions – resampling, normalization, and leading & trailing silence removal. Furthermore, you optionally can select up to 4 DirectShow effect filter 'plug-ins' to be used to process waveforms. To go ahead with the conversion, just press the 'Finish' button!

Tips: When converting MIDI songs and selecting RMI or MSS as output format (both formats than can include a custom instrument collection with the cons), you will now be asked if you'd like it to check for DLS and SF2 files with the same name as the input file. Then if it finds any, it will automatically merge them with the input MIDI song during the conversion. This is great if you have a lot of MID's making use of e.g. custom SF2 instruments that you want to convert to RMI format!

0 The second way of doing batch conversion is the 'manual' method. Because it works within the 'normal' operational context of *Awave Studio* it is much more flexible and gives you more control over what happens. But it also takes a little more work to use, and for very large jobs it runs a risk of 'running out memory' since everything must be kept in memory simultaneously.

1 You start by opening all the files that you want to convert as usual with the Open and/or Merge files commands. Remember that this only load information about the contents of the files, and reading the actual waveform data is deferred to until it is needed. You may want to keep this in mind and refrain from doing 'large batch jobs'. Although they will 'load' all right, they will start eating up a lot of memory first when their waveform data has to be pulled from disk and could cause an 'out memory message' in the middle of the batch). The Batch Conversion Wizard works differently in this respect because it will convert one file at a time and free the memory used by each one when it has been processed.

2 Next, you may want some automatic processing and stuff on all items – for this you can use the [Audio processing wizard](#) (which can operate on all waveforms, or only selected waveforms) and the [Instrument processing wizard](#) (which can operate on a whole collection, or on a single instrument). See the appropriate sections on those wizards for details, but you can use them for things like these:

- Using the *Instrument processing wizard*: Split all stereo waveforms into dual mono waveforms and convert any layers using them into 'dual layers'; one layer panned full left using the left mono waveforms and another corresponding layer for the right. Practically no wavetable synthesizers can

handle real stereo but uses 'dual layered' mono waveforms to achieve the same affect. Thus this option will be useful if you want to use stereo waveforms in your instruments. If you do *not* do this manually, then when you save an instrument containing a 'real' stereo waveform to a file format that does not support it, it will automatically be converted to and saved as mono (with the two channels mixed into one).

- Using the *Audio processing wizard*: Resample the all waveforms to a common sample rate.
- Using the *Audio processing wizard*: Convert the loop format. Some synthesizers do not support reverse or bi-directional loops. If you try to save to a file format that do not support a certain loop type, it will be saved as forward loops with no further conversion. This may sound awful. Using this feature you can convert such loops to forward loops by constructing a forward loop that emulates the reverse and/or the bi-directional loop. This will enlarge the waveform(s) a little but will sound correct on all synthesizers. You also have an option to remove everything after the loop end point except some padding bytes to keep 'loop interpolation' happy. This will shrink the waveform(s) by removing this potentially wasted/unused end part.

Of course you can also use all of the usual editing functions to edit individual items.

The normal way of saving a set of waveforms would be to select them in the waveforms pane, Select **Save waveforms as** (from the file menu or the context menu) and supply an output file name (and file format) for each of them. But it can be tiresome to have to supply name for each and everyone if you have a lot of them. The solution is to 'batch save' all the loaded instruments depending on the file format you select (some save waveforms only, some save instruments... Saving to file formats holding entire collections is perhaps a little bit pointless as all items would go into the one collection file as normal...). To accomplish this, use the **File→Save all in multiple files** command! This first brings up a dialog where you choose 'how' the output files should be named. It is not self-evident how this should be done so you are presented with a choice of a few 'naming schemes'. Next press **Continue**. A new dialog comes up, looking just like the normal 'single save' dialog. Here you can enter a 'base name' for the naming scheme that you selected. You can also select the file format and sub-format that you want to save to. All of the output files will share these selections. *Note!* If you need to use old 8.3 file names you must yourself ensure that the naming 'scheme' that you have chosen will not give rise to too long file names.

Use the [**>>**] button to go on to the next section...



Using *Awave Studio*




Editing in general

To edit the name of an item, do a 'slow double click' on the name 'label' or press F2 and then edit the name (works just the same as when editing filenames in the Windows 95 shell). Or you can select **Rename** from the context menu.

Editing instruments is a little special – at least if the 'Display instrument bank and program numbers' options is turned on in the preferences dialog (which it is by default). Then the instruments MIDI cc0 bank and program change number will be prefixed to the instrument name, e.g. like: 001:120 : Solo flute


The first number is the bank the second (follow by the : is the program) and after the last : is the name. This way you can edit the bank and program number in the same way as you edit the name, so you don't have to open the instrument properties box for that. If you just want to change the name, then it is okay to wipe out all of the text (incl. the numbers) and type in the new name and the old bank and program numbers will be retained.

For all other parameters, select the item and then press  on the toolbar (or select **Properties** from the context menu or from the main menu), to bring up its property sheet. The context menu will also contain a list other useful commands. Try this for all the various item types (collection, instruments, layers, regions, waveforms, ...) and carefully explore all the tabs! You will find, among other things, a visual loop point editor, a waveform editor, a layer keymap editor and an audio processor wizard! *Awave Studio* uses a superset of the DLS level 2 architecture and all its associated parameters. Unfortunately, we are not aware of any good 'freely distributable' documentation for the DLS standard so you will have to go by what sparse help is available from the 'context help' (select a control then press F1 to see it) if you do not understand any particular parameter.

Note! When auditioning is enabled, you can click the **Apply** button in a property sheet to download the changes then hear them directly by playing them on your MIDI in device..

Tips: You can also double click on a waveform in the waveforms pane to bring up its property sheet.

If you turn on **Options**→**Auto property sheet**, then there will always be a property sheet open, showing the properties for the *currently selected* item. The

 toolbar button can be used to quickly toggle this feature on and off.

To add new things while editing or creating collections and instruments, you can work in two ways. Either right-click on the 'parent item' (e.g. the collection if you want to add a new instrument) and select **Add new X**, where X is the item type that you want to add. Or, you can use an existing item as a 'template' by using drag and drop to copy it or by selecting an instrument or a waveform and selecting **Clone** from its context menu. You can also create new instruments, layers, and/or regions by dragging a waveform from the waveforms pane to a suitable 'parent' in the collection pane. Note that when dragging a waveform to a layer, a new region will not only be created in the layer, but the region properties dialog will also pop-up. This way you can select the key range for the region *before* it is added to the layer. This is useful since creating a new region, or copying one from another layer, will overwrite or modify any existing region(s) with colliding key-ranges inside the layer.

One thing that can often come in handy is 'copy and paste'. It works like usual, you select things, then

you can copy or cut them to the clip board. After that you can paste them back in as 'new' items. This also works between files. E.g. open a collection, copy and instrument that you like, open another collection that you use for a song (which will close the other collection) and paste the instrument to it. Or you could copy two copies of *Awave Studio* and copy and paste between them...

You have a fairly large selection of 'processing' functions that you apply to waveforms by using the [Audio Processing Wizard](#). It is found on the **Editor** page in the waveforms properties dialog, as well as the context menu if you right click on one *or more* waveforms in the waveforms pane. The editor page is where you can look at a waveform as a whole or on a zoomed in portion of and do simple cut and paste operations. The 'zoom level' is adjusted by the leftmost scrollbar and the display position by the rightmost bar. The **>** button is used to play the waveform. You can select a portion of it by dragging with the mouse over it while holding down the left mouse button. The **|<=>** button is used to select the entire wave and the **→|←** button to zoom in on the currently selected part. Back to the Audio Processing Wizard – activate it by clicking the **Process** button – and up pops a list with the different things it can do for you!

If you need even more waveform editing and processing power, or if you want to record new waveforms, then you can use an external, specialized, helper application for this purpose. There are numerous such programs on the market, shareware as well as commercial. You can select which app to use in the [preferences](#) dialog. To use it, select a waveform and select **Run editor app** from the context menu or **Run waveform editor** from the **Tools** menu. The selected waveform will then be saved to a temporary file on the disk and the external editor will be launched with this file as a command line parameter. While you use the external editor, *Awave Studio* will 'freeze up'. When you are done editing, save it and close the external editor. *Awave Studio* will then 'unfreeze', automatically reload the waveform, and delete the temporary file. To record a new waveform, select **Edit→Add new waveform**, then run the editor/recording app on this waveform and record a new one 'over' the old.

You can also edit MIDI songs in a similar way (selecting **Run Editor**) using an external editor.

If you want to use *Awave Studio* as a dedicated instrument editor for your sound card, rather than purely as a converter, then you might want to customize what parameters should be editable, check out [A customizable synth editor](#).

To help you get started at how you create a new instrument, there's a **Create Instrument Wizard** (select it from the **Tools** menu or the **✖** menu) that will guide you through the initial procedure.

*Tips: A handy way to quickly create instruments from loaded waveforms is the **Edit→Autocreate instruments** command. If you want to create a drum kit with all loaded waveforms, then create an empty drum kit with one layer, go to the layer properties, select the **Drum kit** tab and try the **Auto create** button!*

Use the **[>>]** button to go on to the next section...

✖

Using Awave Studio



The Audio Processing Wizard

To access the Audio Processing Wizard, select one waveform, then select **Properties** and go to the **Editor** tab and hit the **Process** button – if you want to use the wizard to this single waveform. Another way to use it is to select one or *multiple* waveforms in the waveforms pane - yes that is right, it is okay to select multiple waveforms, which will allow you to do 'batch processing' on all of them! Right click on the selection to bring up the context menu and select **Process**. You can also start the Audio Processing Wizard from the **Tools** menu. In this case, if you haven't selected any waveform, it will default to work on all loaded waveforms!

Anyway, once it's up, you'll see a list of available audio processing functions. Many of the options in the list only turn up if you first make a 'selection' in the aforementioned editor page and launch it from there. To do a selection, you hold down the left mouse button drag with the mouse over the wavesample range that you want. Alternatively, you can press the **|<->|** button to make a selection covering the whole waveform. Other options may appear, or not, depending on various characteristics of the waveform, e.g. 'convert to stereo' only appears for mono waveforms. *Also*, several selections are only available when working on a single waveform since they don't make much sense in a context of multiple waveforms.

Here's a list of all of the available audio-processing functions:

- Append/combine waveforms,
- Calculate tuning,
- Convert bi-directional to forward loop,
- Convert reverse to forward loop,
- Convert to stereo
- Convert to mono,
- Cross-fade loop,
- Cut away selection,
- DirectShow audio effect filters (a.k.a. DirectX plug-ins!
- Double the loop section length,
- Fade in/out selection,
- Insert silence,
- Insert another waveform,
- Maximize amplitude,
- Mix out = $a*\text{wave1} + b*\text{wave2} + c$,
- Remove silent sections,
- Resample waveform,
- Reverse selection,
- Search and replace text in names,
- Set loop points to selection,
- Set selection to loop points,
- Smooth out the selection,
- Statistics,
- Swap left and right channels,
- Time stretch,

- Trim data after loop end point,
- Trim waveform to selection.

Select any one of these functions and hit the **Next** button. This will bring you to a new screen where you can enter any optional parameters (if available for that function). Press **Finish** to apply the function to all the selected waveforms!

Use the [>>] button to go on to the next section...



Using Awave Studio



Using DirectShow audio effect filters

An especially nice option in the audio-processing wizard is the **DirectShow audio effect filters** selection.

It gives you access to a wide range of 'plug-in effects' from other manufacturers. Of course this assumes that you have installed both DirectShow (previously known as ActiveMovie) as well as any 3rd party audio effect filters - also known as 'DirectX plug-ins' in certain other programs. These plug-ins, which use a subset of the general Microsoft DirectShow media filter architecture, has lately become something of a de-facto standard for audio editing software. You can find a number of vendors of such plug-ins on the Internet; some of them also have free plug-ins for you to download!

To use it, first bring up the audio-processing wizard as usual and select the **DirectShow audio effect filters** selection and press 'Next'. This will bring up a list of all installed DirectShow filters that it believes that it should be able to use for audio-processing purposes. The first time you do this (for every time you run the program) you may have to wait a little while for this list to be constructed. Select the filter you want then press 'Finish'. If the filter has any 'setup' dialog for setting any parameters that it may need, then it will be displayed now. Adjust any setting you want to change, and then press OK to accept them or Cancel to quit. If there is more than one page of settings, then there is a Next button instead of the OK button in all but the last page. Anyhow, when you finally press OK (or if the filter has no settings dialog, it will happen directly when you press Finish), the filter will be applied to the waveform! That's it!

Use the [>>] button to go on to the next section...

If you don't ever intend to use Awave Studio as an instrument converter or editor, then you can skip the following sections and go directly [here](#)



Using *Awave Studio*



Recording waveforms

You can use your sound card to record a new waveform. To do it, you use the Waveform Recording Wizard on the **Tools** menu. The process has three steps:

- 1) Select the device to record from (in case you have more than one sound card). Select the waveform format you want to record in, e.g. 44100 Hz stereo format for CD-quality audio. And enter a file name to record it to. This will be a WAV format file that is automatically opened in *Awave Studio* when the recording is done. Click **Next**.
- 2) Connect a microphone to the Mic input of your sound card, or any other sound source to the Line input. Open up your sound card mixer application (either the standard 'volume control' that comes with Windows, or a custom one that is supplied with your sound card) and set the 'recording source' in it appropriately (see your sound card's manual for details on that). Next you need to use the mixer to set the recording level. If it is too high, sound will be 'clipped', if it is too low, you will not get the maximum 'dynamics' that is possible if it is properly adjusted. Any sound you make on the input will be shown in the 'input level bars' in *Awave Studio*. If they anytime reach the maximum value, then you should probably lower the recording volume a little. When you think you have the level right, prepare to start recording and click **Next** when you want to start capturing it!
- 3) Continue recording and click **Finish** when you have it all captured. Alternatively, click **Back** if you want to restart it. Remember that you can always do some editing and cleaning up afterwards so if you got a little bit of silence at the beginning (which is normal) then it's no big deal to remove. That's it!

Use the [**>>**] button to go on to the next section...



Using Awave Studio



Waveform parameters

If you look at a waveform property dialog, you'll find a number of parameters associated with the waveform that you can edit. Tightly associated with the actual waveform data are the sample rate and optional comment and copyright text fields. But there are also a number of parameters that is associated with the usage of the waveform in an instrument. These can also (optionally) be 'overridden' by setting corresponding override-parameters for each region in an instrument (a region is an object in an instrument that maps a waveform to a range of keys on the MIDI-keyboard. A region that has 'waveform parameters override' enabled will have a small blue **w** in its icon. Note that any given waveform can be used by more than one region (that is the whole point of having the region override parameters!). Here is a description of these waveform parameters:

Root key	Defines the MIDI key at which the waveform will be played back at its original pitch. Lowering the root key will lower the pitch of the sound for any given key. Correspondingly, increasing it will raise the pitch.
Fine tune	Allows you to make adjustments to the pitch smaller than one semitone (the root key let's you adjust it in semitone steps). E.g. setting fine tune to -50 cents will lower the pitch by one quartertone.
Volume damping	In case the waveforms were not recorded at a perfectly equal volume (which can be rather hard to do), then you can use this parameter to dampen the volume of the waveform. As it is a damping only parameter (i.e. no amplification is allowed), only 0 (no damping) or negative values (e.g. -0.52 dB) are allowed.
DLS memory...	These two parameters allow you to give a synth engine a few hints about how it can conserve onboard waveform memory in case it is in short supply. This is only used with DLS synthesizers.
Looping	There are several parameters concerning (optional) looping of a waveform. These are described in further detail in the next section. You find them under their own 'Loop' tab in the dialog.

Tips: Note the **Auto-tune** button in the waveform properties dialog! This can be used to automatically set the root key and fine tune to values determined by looking at the strongest 'peak' in the frequency domain of the waveform.

*Use the [**>>**] button to go on to the next section...*



Using Awave Studio



Looping waveforms

During instrument playback, a section of the waveform can be looped, giving an ‘infinitely long’ continuous sound instead of the normal ‘one-shot’ playback. Of course it will not usually be played ‘forever’ but faded out when you release the MIDI key using an amplitude envelope (more on that in the next section). To enable looping, go to the **Loop** tab of the waveform properties and check the **Enable** box.

If you are a true novice to instrument creation, brace yourself now for this is probably the most difficult part to master if you want to build your own instruments from the ground and up!

There are several variations of loops – but beware, not all synth hardware supports all kinds. The ‘forward loop’ (the default loop type) is the most common one (and is supported by all synths). When the playback reaches the loop end point, it immediately ‘jumps’ to the loop start point (the end point sample is thus never played) and continues playing from there until it reaches the loop end point again, where it performs a new jump... Then there is the reverse loop (the **Reverse** box) which plays like normal until it reaches the loop end point for the first time. There it reverses the playback direction and starts playing ‘backwards’ towards the loop start point, at which it jumps back to the loop end point and once more plays towards the loop start point... Finally, there’s the bi-directional loop (the **Bidirectional** box), which is sort of like a cross between forward and reverse. When playback reached the end point it reverses direction and plays until it reaches the start point, where it again reverses the direction and plays ‘forward’ towards the end point, et c... This is also known as a ‘ping-pong’ loop for obvious reasons!

There’s also a checkbox named **Sampled release**. If you enable this, then the waveform will loop while the MIDI key that triggered it is pressed down. But when it is released, it will ‘break’ the loop and it will continue playing like a normal (unlooped) waveform until it reaches the end of the waveform. Again not all synths support this feature.

Ok, so how do you set a loop point? Well, if you are a genius, you can type in the absolute sample values directly into the corresponding edit boxes. Else, you can use the set of four sliders to try to find a good loop point. This is not that easy, finding superb loop points is an art form! Anyway, the upper two sliders control the loop start point and the lower two control the loop end point. The lower slider in each pair is a ‘fine tune’ slide while the upper one is for course adjustments. During all editing you’ll see the areas around the loop ‘jump’ updated in real time in the loop graph. In dark lines in the graphs left half you see the waveform immediately before the loop end point. Similarly in the right half you see the part immediately following the loop start point. The ‘weaker’ line that is visible beneath the darker lines is the ‘continuation’ (if any) of the waveform after the loop end point (in the right half) and before the loop start point (in the left half) respectively.

Tips: If you get the ‘dark’ and the ‘weak’ lines to match up well, you generally have a good or at least a decent loop!

Tips: You can use the ‘t-slider’ to the right of the loop graph to control the time-window of the graph. Similarly use the ‘a-slider’ to control the amplitude window in order to get the ‘perspective’ on the loop that you want...

One thing to consider is that each wavesample output during playback is interpolated from several

wavesamples in the source waveform, and not just one! (the exact numbers depend on the synth, earlier synths used only two, today they can use as much as 8 or more wavesamples). So the playback position can often be somewhere 'in-between' wavesamples – i.e. a 'fractional' position. This means that the loop 'jump' occurs when the playback first reaches or *pass* the loop end point (for forward loops). It also means that not only need the waveform line up nicely 'across' the 'jump' points but all several neighboring wavesamples should also line up nicely in order to keep the synths interpolation algorithm happy. On a related subject, some synths allow you to actually specify fractional loop points as well! Of course this is also supported but it can be disabled for 'more truthful' editing on synths that do not support it. Enabling and disabling support for fractional loop points is done with the [Fractions](#) checkbox.

Tips: The audio processing wizard (the Edit button in the Edit tab) has a very useful function named [Crossfade loop](#) that will let you 'cross-fade' the wavesamples at the end of the loop with the wavesamples just prior to the loop. This makes the loop start and end 'blend into each other'. This is an easy way to create good sounding loops without much work but can perhaps sometimes give a little more 'muddled' or boring sound. You don't even have to find a very 'good looking' loop region before doing the cross-fade to get a decent sound but it is important to make sure that there is an 'integer' number of 'periods' in the loop first! I.e. that the distance between 'zero crossing's should be about the same, otherwise you can get very bad 'interference' effects.

Ok, so how can you hear your loop? Well, if you have a MIDI keyboard and are using the auditioning feature (described in a later section). You can always hit the 'Apply' button to download it to your synth and play it on the MIDI keyboard. But there is perhaps a better alternative. *Awave Studio* can use you soundcard to play back the loop if you hit one of the 'play' buttons. The [|<|>|](#) button continuously plays the loop until you hit it again to stop it. The [+|<|>|](#) button works similarly but starts playing at the beginning of the waveform rather than at the beginning of the loop (the actual loop part will of course play the same though). There are a few limitations to these buttons though – they can only play forwards loops and the loop section must not be too short or it may not work properly. While a sound is playing you will hear the change automatically when you change a loop point position! (there'll be about two seconds delay though).

Here's a useful procedure for creating a loop:

- 1 First go to the [Editor](#) page in order to get the 'big picture' of how the waveform looks like. After a little study, select a part of the waveform that you feel ought to be suitable for looping and set a 'coarse loop' by choosing [Process→Set loop points to selection](#).
- 2 Next go to the [Loop](#) page and try to set as good a loop as possible in the 'traditional manner'. Try the play loop button so you can hear the changes you make to the loop positions 'in real time' (well, to be honest there is a two or three seconds delay before you can here the change). It's not uncommon that a good-looking loop in fact doesn't sound very well at all... If you can't get anything that sounds at least a little decent, then go back to step 1. If you on the other hand are perfectly happy with the loop, go on to step 4!
- 3 If the loop section is long and there is a feeling of 'different tonality' at its beginning versus its end, or if it in some other way not 'perfect', then finish by going back to the [Editor](#) page and selecting [Process→Crossfade loop](#). This can sometimes make a big improvement for hard-to-loop sounds.
- 4 Enjoy your new loop!

Use the [>>] button to go on to the next section...



Using Awave Studio



About Articulation

Simply playing back (optionally looped) sampled waveforms in an instrument can sometimes give a somewhat 'static' or 'dead' sound. What you need to make it feel more 'alive' is some means to transform and process the sound during playback. You could perhaps wish to make the sound 'evolve' over time. Or maybe you want it to sound a little differently depending on how fast you hit a MIDI key (the key on velocity) or perhaps depending on how you move the MIDI modulation wheel 'in real time'. The processes that you have to achieve these things are collectively called 'articulation' and are defined by a set of 'articulation parameters'.

You can set articulation parameters on three different 'articulation levels' - on the instrument level, on the layer level and on the region level. Any parameters set on the lower levels 'overrides' parameters set on the higher levels. When articulation has been enabled for a given level, the corresponding item in the collection pane tree view will have a ~ (a red tilde) overlaid on its icon. Note that most synthesizers do not support articulation on all the three different 'levels' so you may only want to use it on the level(s) that your particular synth uses. Much more on this issue in the section on [customizable synth editor](#).

How do you enable and use articulation on a given level?

If you open the property dialog for the corresponding item (instrument, layer, or region), you will find an **Articulation** tab. Select it and check the **Enable X articulation** checkbox (X is here the name of the level). This should pop up several other tabs in the property dialog! These extra tabs describe the different articulation 'sources' that you have at your command. In the original articulation tab you select how, and to which degree these sources should affect the sound.

An in depth discussion of the articulation architecture(s) commonly used by wavetable synths is a little beyond the scope of this text but basically, besides 'control sources' like MIDI key number, velocity, and controllers, there are two kinds of articulation sources:

- LFO's (low frequency oscillators) provide a cyclic time varying control.
- EG's (envelope generators) provide a 'one shot' ramp structure.

Then there are basically three different things that they can 'control':

- The output volume
- The playback pitch
- Post processing effects

Tip: More information on these concepts can be found in the [Glossary](#) section.

Here is a brief overview of the different articulation 'tabs':

- The **Articulation** tab – As mentioned earlier, here you control the effects of the various articulation sources.
- The **LFOs** tab – Here you can set the parameters for up to two independent LFO's. You can also set how the MIDI modulation wheel should 'modify' the LFO mappings set in the articulation tab.

- The **EG1** and **EG2** tabs – Here you set the parameters for two independent EG's. The first one is commonly used to control the volume, the second to control pitch and/or filter cutoff.
- The **Effects** tab – Here you control what post processing effects should be applied. The currently available types are output mixing (pan, reverb, chorus) and frequency filtering (low pass filter).

Use the [>>] button to go on to the next section...



Using Awave Studio




Using auditioning

Using the auditioning feature, you can directly 'play' your instruments and waveforms by simply selecting them in the collection or waveform panes!

To enable auditioning, go to the **Options**→**Program**→**Auditioning** tab. Just click the Enable checkbox and choose appropriate MIDI-Input and WaveSynth devices. If you don't have a MIDI-in device, then select **<none>** as MIDI input device. If you check the **Enable virtual keyboard** box, you can use the computer keyboard as a MIDI keyboard as well. Click **OK** and everything should be go!

The auditioning feature works by downloading the instrument and waveforms to either a hardware or a software synthesizer. These are the currently supported synthesizers options:

- Microsoft DirectMusic (Microsoft DirectX v6.1 or later).
- Creative Labs SoundBlaster Live! (EMU10K1 based).
- Creative Labs SoundBlaster AWE32, SB32, or AWE64 (EMU8000 based).
- Any other card supporting Emu's SoundFont Management System.
- Turtle Beach Maui, Tropez, Rio (WaveFront based).
- Gravis UltraSound Classic/Max/Ace (GF1 based).
- Gravis UltraSound PnP (InterWave based).
- Any S3 SonicVibes based card.
- Any digital audio playback card (using the internal **Sound mixer**).

The download is done whenever you change the selection in the collection pane or when you hit the Apply or the OK buttons in a property dialog box. The time it takes to download varies a lot depending on the synthesizer chosen for the auditioning work. E.g. DirectMusic (using e.g. the Microsoft software synth) is very fast. Others can take a fairly long time, which could be annoying to wait for. Hence the  button on the toolbar, which let's you quickly toggle the auditioning feature on or off so that you can easily enable it only when you actually need it.

The 'virtual keyboard' uses the following 2½-octave 'MIDI-keyboard' layout:

```
| | S | D | | | G | H | J | | | 2 | 3 | | | 5 | 6 | 7 | | | 9 | 0 | |
| | _ | _ | | | _ | _ | _ | | | _ | _ | _ | | | _ | _ | _ | |
| Z | X | C | V | B | N | M | Q | W | E | R | T | Y | U | I | O | P |
| _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
|
C 4           C 5           C 6
```

Ctrl-Up arrow	Increase note velocity
Ctrl-Down arrow	Decrease note velocity
Ctrl-Right arrow	Increase octave shift
Ctrl-Left arrow	Decrease octave shift

If you have a 'non-standard' (non-QWERTY) keyboard layout, then you can [edit the key layout](#).

Use the [**>>**] button to go on to the next section...

x

Using *Awave Studio*



A customizable synth editor

Different synthesizers supports different 'parameter sets' (such as different envelope and LFO engines...). *Awave Studio* uses a fairly 'generic' parameter set that can encompass the most common things from a wide variety of synthesizers. It is a 'superset' of the 'DLS level 2 architecture' as defined by the MIDI Manufacturers Association (btw, 'DLS1' is also supported by Microsoft's new DirectMusic technology). It allows articulation parameters can be set on three 'articulation levels' - on the instrument, on the layer and on the region level. Any parameters set on the lower levels 'overrides' parameters set on the higher levels. In some ways, particularly when it comes to articulation levels, *Awave Studio* uses a larger set than what is available on commercial synth cards (e.g. some only support articulation parameters on the layer level). When saving to a particular file format it (that supports the parameter set of a particular synth card), algorithms are used to automatically 'transform' *Awave Studio's* full set into a set that is suitable for the particular file format. Similarly, in cases where the input format uses parameters that does not fit into the set used by *Awave Studio*, they are often transformed into their most 'closely fitting' approximation.

You can define your own parameter set by disabling selected parts of the full parameter set. You can also select among several predefined sets corresponding to common synthesizers and standards (e.g. 'DLS level 1' or 'Sound Font 2'). When a parameter is disabled the corresponding control(s) will be 'grayed out' in the relevant property sheets. When you load a file, all items in it will partly be 'transformed' as best as *Awave Studio* can into your chosen parameter set with as little loss of information as possible.

To set up the parameter set, first go to the program options dialog. Then select the **Parameter set** tab. The drop-down list contains all the predefined sets. Double click on the items in the list box to construct your own set by enabling or disabling the given parameter.

When doing conversions it can be a good idea to have the full parameter set visible even though your target synth may not support all of it. That way you can manually inspect instruments to see if there is going to be a problem (e.g. when trying to convert a multi-layered instrument to a format that doesn't support multi-layering). Sometimes you can manually fix it much better than what it could do automatically (e.g. by manually splitting the multi-layer it into several single-layered instruments, a task which btw, can be automated using the Instrument Processing Wizard).

But when using *Awave Studio* as an editor rather than as a converter, you would probably prefer not to be bothered with a lot of parameters that are of no use for your target synth, right? That is when it is very useful to use parameter sets!

What if you'd like to write instrument banks that are useable on as many platforms as possible? The 'DLS level 1' set was designed to be a very good 'least common denominator'. It might also be a good idea to observe [this list of 'rules'](#). However, if you are satisfied with 'more or less' compatibility with something like 80 % of all PC wavetable synthesizers, then you can use the much more capable 'SoundFont 2' or 'DLS level 2' parameter sets instead!

Use the [**>>**] button to go on to the next section...



Using *Awave Studio*



The Instrument Processing Wizard

To access the Instrument Processing Wizard, select a region, a layer, an instrument, or the collection, then select **Process** from the context menu, or select the Instrument Processing Wizard from the **Tools** menu. In the latter case, if you haven't selected anything, or if the collection pane is not 'in focus', it will default to work on the whole collection.

Anyway, once it's up, you'll see a list of available instrument processing functions. These will work on various places in the 'instrument hierarchy' (collection→instrument→layer→region) so some of them may not be available depending on what kind of item you selected.

Here's a list of all of the available instrument -processing functions:

- Merge non-colliding layers.
- Modify region velocity ranges.
- Move articulation level.
- Move instruments between banks.
- Move region waveform overrides to waveform.
- Remove items not used by any MIDI song.
- Search and replace text in names.
- Split multi-layered instruments.
- Split stereo waveforms to dual layers.
- Transpose region key ranges.

Select any one of these functions and hit the **Next** button. This will bring you to a new screen where you can enter any optional parameters (if available for that function). Press **Finish** to apply the function!

Use the [>>] button to go on to the next section...



Using Awave Studio



More information

*Now you should have a general idea of how **Awave Studio** works... But there are still a few features around that haven't been mentioned yet. So, you may wish to continue with the Commands section. After that, you may also want to glance through the FAQ section of this help file for additional 'hints' on how to use the program!*

And if you are interested in transferring waveforms to and from professional synthesizers and samplers, you should probably be interested in reading about MIDI SDS transfers and/or SCSI SMDI transfers.

Happy Awaiting!



Reference



Sections

- [The menus](#)
- [The property sheets](#)
- [Audio Player command line](#)
- [MIDI SDS transfers](#)
- [SMDI transfers](#)
- [Import formats](#)
- [Export formats](#)

The documentation regarding menus, property sheets, keyboard shortcuts, command line options et cetera is rather sparse. But here you will at least find a brief listing of all such things so that you may get an overview of what is available. BTW, most of the commands can be issued in multiple ways, from the main program menu, from the toolbar, from the context menu, and/or using a keyboard shortcut.

Please use the [[<<](#)] and [[>>](#)] buttons to browse between sections.



Reference



The menus

Toolbar:

- Clears the instrument list and prompts you for a new file.
- Merges with another file.
- Saves the currently selected item.
- Saves the currently loaded instrument collection.
- Delete the currently selected item(s).
- Launches the integrated Audio Player.
- Will pop up a property sheet information and editors.
- Pops up a 'list of wizards' for quick selection.
- Pops up a 'clipboard / SDS / SMDI transfer' menu.
- Quick switch for toggling 'auto properties' on/off.
- Quick switch for toggling 'auditioning' on/off.
- Opens the program preferences dialog.
- Takes you to our www site.
- Brings up the content page of this file.

File menu:

New collection Clear all and create a new, empty collection.

Open file... Clear all and open a new file. *Key: F3*

Merge files... Merges (inserts) the contents of a file with the current bank. *Key: Shift-F3*

Tip! An alternative way to merge files is to drag them from the Explorer.

Save X as... Saves the currently selected item (of type X). *Key: F4*

Save collection Try to save the entire collection to the file it was loaded from. *Key: Shift-F4*

Save collection as... Saves the entire collection prompting for a file name.

Save all in multiple files... Saves all instruments or waveforms depending on output format. *Key:*

Ctrl-F4

Recent files→ Submenu containing a list of the last 10 files for quick access.
Statistics Information about the number of loaded items.

Exit Close the program. *Key: Alt-X*

Edit menu:

Properties... Will pop up a property sheet information and editors. *Key: F5*

Play audio/MIDI Launches the integrated Audio Player or MIDI Player. *Key: F6*

Cut Cut away the selected item to the clipboard. *Key: Ctrl-X*

Copy Copy the selected item to the clipboard. *Key: Ctrl-C*

Paste Paste whatever item is in the clipboard. *Key: Ctrl-V*

Autocreate instruments Creates instruments for all 'lonely' waveforms.

Add new instrument Create a new, empty, instrument in the current bank.

Add new waveform Create a new, empty, waveform in the current bank.

Edit X name Edit the name of the selected item (of type X). *Key: F2*

Delete X Delete it the selected item (of type X). *Key: Del*

Delete unused waveforms Deletes all waveforms that is not used by any instrument.

Tools menu:

Batch conversion wizard... Launch the 'Batch Conversion Wizard'. *Key: Ctrl-B*

Audio processing wizard... Launch the 'Audio Processing Wizard' with selected waveforms. *Key:*

Ctrl-P

Instrument process. wiz... Launch the 'Instrument Processing Wizard' with selected item. *Key:*

Ctrl-I

Create instrument wizard... Launch the 'Create Instrument Wizard'. *Key: Ctrl-N*

Waveform recording wiz... Launch the 'Record Waveform Wizard'. *Key: Ctrl-R*

MIDI SDS transmit Opens the MIDI SDS transmit dialog.

MIDI SDS receive Opens the MIDI SDS receive dialog.

SMDI transmit Opens the SMDI transmit dialog.

SMDI receive Opens the SMDI receive dialog.

Run waveform editor Run the waveform editor helper with selected waveform. *Key: Ctrl-E*

Run MIDI editor Run the waveform editor helper with selected MIDI song. *Key: Ctrl-E*

Run on-screen keyboard Run the on-screen keyboard helper app (if defined). *Key: Ctrl-K*

Options menu:

Preferences... The preferences and options dialog. *Key: Ctrl-O*

Auditioning A quick switch for toggling auditioning on/off. *Key: F7*

Auto property sheet Toggle auto property sheet on/off. *Key: F8*

Help menu:

Contents Brings up the help contents page. *Key: F1*

... Brings up various help sections.

Visit www.fmjsoft.com Brings up your web-browser and our web-site. *Key: Ctrl-A*

*About **Awave Studio*** Brings up some program info. *Key: Ctrl-A*

Left mouse button:

Single click Select an item.

Double-click Expand or shrink the tree view list.

Slow double-click Edit name field of item.

Context menu:

The exact menu depends very much on the selected item type!

It contains the many useful commands for each item type!

Drag and drop:

You can drag and drop items within the collection pane, or from the waveforms pane into the collection pane. The 'action' that takes place when you drop an item is always 'copy/create'. E.g. if you drag a waveform to an instrument, a new layer is created in that instrument, containing one region, that is in turn linked to the waveform. Or e.g. if you drag one region from one layer to another (perhaps in a different instrument), then a copy of that region is placed in the drop target layer (replacing, or modifying any already present regions within the layer that has a colliding key-range).

Another form of drag and drop is if you drag files from the Windows shell to the main window; in which case they are opened and their contents 'merged' with the current collection.



Reference



The property sheets

Almost all of the editing power is hidden in property sheet dialogs, easily accessible through the context menu or the ✂ toolbar button. The various data items are a superset of the Downloadable Sounds (DLS) Level 2 standard. If you don't understand what something does, try clicking the [?] dialog button and then on the control that you want explained!

Collection properties:

General tab, Info, comment, copyright notice.
Programs tab, Program no assignment to instruments.

Instrument properties:

General tab, Type, bank no, program no, comment.
Layers tab, List of layers.
Articulation tab, Instrument global articulation enable, 'scalings' and levels.
LFOs tab, Instrument global volume, pitch and modulation lfo's.
EG1 tab, Instrument global volume envelope.
EG2 tab, Instrument global modulation envelope.
Effects tab, Instrument global pan, reverb, chorus & filter.

Layer properties:

Keymap tab, Key to region editor.
Drum kit tab, Drum kit editor (when **drum mode** is enabled on the keymap tab).
Articulation tab, Per layer articulation override, 'scalings' and levels.
LFOs tab, Per layer volume, pitch and modulation lfo's.
EG1 tab, Per layer volume envelope.
EG2 tab, Per layer modulation envelope.
Effects tab, Per layer pan, reverb, chorus & filter.

Region properties:

General tab, Waveform link, key & velocity range, key group, loop & root override.
Articulation tab, Per region articulation override, 'scalings' and levels.
LFOs tab, Per region volume, pitch and modulation lfo's.
EG1 tab, Per region volume envelope.
EG2 tab, Per region modulation envelope.
Effects tab, Per region pan, reverb, chorus & filter.

Waveform properties:

General tab,
Editor tab,
Loop tab,
Source tab,

Info, sample rate, root-key, volume, pan.
Waveform editor and display, Audio Processing Wizard (the **Process** button).
Visual loop point editor, loop type.
Source data type, file position and size.



Reference



Audio Player command line

If you start *Awave Studio* with **-AP** as the first option on the command line and follow this with one or more filenames and/or directory names, the Audio Player mode will be entered. You can also launch the Audio Player at any time from the normal main window of the program with the **Play audio** command.

In this mode *Awave Studio* acts as a digital audio player that can play all the supported import formats.

Files will be consecutively loaded and all the sounds contained within them played before the program terminates. When a directory name is specified, all the recognized audio files in that directory will be played. You must press the >>Next>> button to advance from one waveform to the next, closing the Audio Player after the last one (to immediately close it, skipping any remaining waveforms, click the standard close window button [X]). The play/stop button should be obvious. The *off*, *wf*, *sp* radio buttons determines the operational mode for the scope (off/hold, waveform oscilloscope, or frequency spectrum analyzer).

The following command line switches are allowed, and must precede the file names:

- AP** Specifies that the Audio Player mode shall be entered.
- ONCE** Plays all items in a sequence without any pause; closes the Audio Player after the last one.
- DELETE** Delete the input file(s) from disk after the Audio Player is closed.
- NOWIN** Runs the Audio Player and plays the sound without displaying any window.
- LOOP** Repeatedly plays the indicated files and/or directories. Break the loop by pressing the [X] button.
- NOMSG** Turns off all warning and error dialog boxes.

Warning if you combine the **-NOWIN** switch with the **-LOOP** switch then *Ctrl-Alt-Delete* is the only way to break the loop.

With the Audio Player option, you can use *Awave Studio* e.g. as a helper app to your favorite Web-browser!

Example: "AWAVE -AP QUADRA.AU POPCORN.MOD"

Example: "AWAVE -AP -ONCE -NOWIN -DELETE filename"

Example: "start AWAVE -AP -ONCE -LOOP"

The last example repeatedly plays all files in the current directory (the current directory is, as usual, denoted by a single dot (.)). The 'start' command can be used in Windows 95 to start a 'registered' program without having to have it in the path or having to type whole the path explicitly.



Reference



MIDI SDS transfers

SDS, or the MIDI Sample Dump Standard defines a standard method for transfer of waveform data between MIDI equipped devices. Please consult your synthesizers manual to see if it supports MIDI SDS, and if it does, how to put it an appropriate 'mode' for sending or receiving samples via SDS. Sample dumps may be accomplished with either an *open loop* or *closed loop* system. *Awave Studio* supports both types of systems but the closed loop system is *highly recommended* over the open loop system.

- In the *open loop* system, you simply have a cable between the transmitters (senders) MIDI out jack to the receivers MIDI IN jack and do a straight dump of all sample data. There is no 'handshaking' between them at all, which means that there is no error correction and that if the receiver cannot keep up with the data (e.g. if it need to flush it to disk) then it will loose data.

- In the *closed loop* system, you also have a cable from the receivers MIDI out jack to the transmitters MIDI in jack (i.e. two cables) so that it can receive feedback from the receiver. Thus if a data packet is 'lost' during the transmission, it is automatically resent. It is also faster than the open loop system since in the open loop system the transmitter has to allow 'generous' time for pauses between data packets in order to give every possible receiver a decent chance to process them. In the closed loop system on the other hand, the receiver immediately tells the sender when it is ready for the next packet.

We recommend that you always first try a closed loop transfer and if for some reason doesn't work properly with your particular combination of hardware, then try an open loop transfer...

How to send a waveform from Awave Studio to a synthesizer using SDS:

- 1, Connect your MIDI cables properly (connect your computers MIDI out to the synthesizers MIDI in and vice versa).
- 2, Put your synthesizer in a mode for receiving MIDI SDS (see your synthesizers manual). This is sometimes called 'slave' mode.
- 3, In *Awave Studio*, select the waveform that you want to transmit. It is also possible to send several waveforms in one 'batch' by instead selecting any one item 'higher up' in the 'hierarchy', e.g. an instrument or the waveforms folder (the latter will let you send all loaded waveforms).
- 4, Select **Tools**→**MIDI SDS transmit**. The MIDI SDS transfer dialog pops up. First select the MIDI in and out devices to which you have connected your synth. Then you may have to select a 'channel'. Some synths uses the channel to determine if they should respond to a certain dump or not, others ignore it. Then enter a 'sample location number'. This is used to determine in what 'slot' or 'location' on the receiving synthesizer the sample/waveform will be stored in; the exact interpretation of this differs between different synthesizers.
- 5, Click **Send this** to start transmitting the 'current' waveform. The name of the 'current' waveform is always displayed in the right half of the status bar. The status bar also displays the progress of the transfer. When it is finished, the name of the next waveform in the 'batch' is displayed. If you only selected one waveform, or when the last waveform in the batch has been sent then the transmit buttons are grayed. To send the next waveform, i.e. the new 'current' waveform, just click **Send this** again... There is also a button labeled **Send all** that will simply send all waveforms in a batch without a pausing. Another button labeled **Skip this** will skip the current waveform in a batch: Using these buttons will let you selectively send only some of the waveforms in a batch.

6, Click the [x] button to close the dialog when you are done.

How to send a waveform from a synthesizer to Awave Studio using SDS:

- 1, Connect your MIDI cables properly (connect your computers MIDI out to the synthesizers MIDI in and vice versa).
- 2, Put your synthesizer in a mode for transmitting MIDI SDS (see your synthesizers manual). This is sometimes called 'master' mode.
- 3, Select **Tools**→**MIDI SDS receive**. The MIDI SDS transfer dialog pops up. First select the MIDI in and out devices to which you have connected your synth. Now there is two ways to start the transfer:
- 4, Click the 'Start' button. Then use your synthesizer's control panel to start the transfer (see your synth manual again). *Awave Studio* will responds to transfers on all 'channels' and to all 'sample numbers' so you can leave your synthesizer to its default values. The progress of the transfer will be displayed in the dialogs status bar. When the transfer is completed, it will display that it is ready to receive another sample.
- 5, The alternate way to start the transfer is to first fill in a sample number in the dialog. Then press the 'Request' button. This will ask the synthesizer to send the sample corresponding to that number and will automatically start the transfer. Not all synthesizers may support such requests though, and it will certainly not work on open loop systems.
- 6, Click the [x] button to close the dialog when you are done.



Reference



SMDI transfers

SMDI, or the SCSI Musical Data Interchange protocol, defines a method for transfer of waveform data between MIDI equipped devices. Please consult your synthesizers manual to see if it supports SMDI, and if it does, how to connect it to a SCSI port in your computer, and set the synthesizer to an appropriate 'mode' for SMDI transfers.

Awave Studio communicates with the SCSI hardware using something called 'ASPI'. This means that you must have an 'ASPI for WIN32' driver installed on your computer for it to work. If you have a file called WNASPI32.DLL in your Windows/System directory then you've probably got it. Otherwise contact the manufacturer of your SCSI card to get an appropriate driver.

Note that just because your synthesizer has a SCSI connector it doesn't mean that it necessarily supports SMDI.

How to send a waveform from Awave Studio to a synthesizer using SMDI:

- 1, Connect your synth to the SCSI chain properly.
- 2, Put your synthesizer in 'SMDI transfer' mode if applicable (not all synths need to be set into any special mode).
- 3, In *Awave Studio*, select the waveform that you want to transmit. It is also possible to send several waveforms in one 'batch' by instead selecting any one item 'higher up' in the 'hierarchy', e.g. an instrument or the waveforms folder (the latter will let you send all loaded waveforms).
- 4, Select **Tools**→**SMDI transmit**. The SMDI transfer dialog pops up. Select the SCSI device that represents your synthesizer.
- 5, Select the 'sample location number' where you want to store the waveform in your synth (the meaning of this number depends on the synthesizer).
- 6, Click 'Send this' to start transmitting the 'current' waveform. The name of the 'current' waveform is always displayed in the right half of the status bar. When it is finished, the name of the next waveform in the 'batch' is displayed. If you only selected one waveform, or when the last waveform in the batch has been sent then the transmit buttons are grayed. To send the next waveform, i.e. the new 'current' waveform, just click **Send this** again... There is also a button labeled **Send all** that will simply send all waveforms in a batch without a pausing. Another button labeled **Skip this** will skip the current waveform in a batch: Using these buttons will let you selectively send only some of the waveforms in a batch.
- 6, Click the **[x]** button to close the dialog when you are done.

How to send a waveform from a synthesizer to Awave Studio using SMDI:

- 1, Connect your synth to the SCSI chain properly.
- 2, Put your synthesizer in 'SMDI transfer' mode if applicable (not all synths need to be set into any special mode).
- 3, Select **Tools**→**SMDI receive**. The SMDI transfer dialog pops up. Select the SCSI device that represents your synthesizer.
- 4, Select the 'sample location number' of the waveform that you want to receive from your synth (the meaning of this number depends on the synthesizer).
- 5, Press the **Start** button and wait until it indicates in the status bar it is finished.

6, Click the [x] button to close the dialog when you are done.



Ensuring cross-platform compatibility

When authoring instruments and MIDI songs that should be usable by as wide a range of different wavetable sound cards and synthesizers as possible, follow the following 'guidelines':

- Do not use stereo waveforms.
- Do not use reverse or bi-directional looping.
- Do not expect perfect reproduction of envelopes and other modulation parameters.
- Do not use more than 512K wavesamples in total (e.g. 1MB of 16bit mono waveforms).
- Use no individual waveform larger than 128K wavesamples (256KB).
- Remove all unused waveforms from the bank.
- Use only one layer per instrument.
- Use a maximum of 16 regions in an instrument.
- Use only instrument global articulation.
- For regions, always use the complete velocity range; i.e. 0..127.
- Use only one 'bank' and in your songs, do not use any MIDI program not defined in that bank.
- In your songs, the drum channel, ch10, is always supposed to be the standard GM drum bank.



If you want to edit the key assignment for the virtual keyboard then there is a little 'tweak' that you can use to edit it. You need to use the 'registry editor' (regedit.exe) that comes with *Windows*. Use Start→Run→regedit.exe to start it, then open *this_computer→HKEY_CURRENT_USER→Software→FMJ-Software→Awave Studio* and edit the *mtKeys* string. It's just a string of uppercase characters holding the ASCII key to assign to a note, beginning with C3 for the first character and then in increasing order... (It's normally 29 characters but up to 36 characters are allowed).

Awave Studio supports using any DLS capable DirectMusic synthesizer for auditioning.

Note! Both level 1 and level 2 devices are supported if you have DirectX v7 or later.

Note! Using the 'Microsoft software synthesizer' that is available with every DirectMusic installation is a recommended auditioning choice! It is *extremely* fast to download instruments to it! However, the one that comes with DirectX 6.1 and 7 are 'only' DLS level 1 capable. The one that will come with DirectX 8 (not released at the time of writing) should support DLS level 2. Perhaps the main limitation with level 1 is that multi-layering is not supported – so you'll only hear the first sound layer in any multi-layered instrument.

Awave Studio can use any audio card capable of playing digital audio to emulate a very simple wavetable synth in software. It should be enough to give a rough idea of an instruments or waveform. It supports the following MIDI messages: note on, note off, pitch bend, all notes off. If you have set 'Use Microsoft DirectSound services' in the Audio Player property tab' then the software synth will be 16-voice polyphonic and support key velocity, volume and pan. If not (i.e. in 'Use Windows multimedia services' mode), those parameters are ignored, it will be monophonic, and it will generally sound much worse...

Awave Studio supports downloading instruments to any card supporting the Emu SoundFont Management System (SB Live!, AWE64, AWE32, ...).

Note! You need to install the SoundFont Management System - it is available for download from FMJ-Software's [www](#) site.

Note! Awave also supports the older 'AWEMAN API' so if you already have that (for the AWE32, AWE64, but not for the SB Live!) then you do not need to install the SoundFont Management System to be able to use native auditioning.

Awave Studio supports downloading instruments to the Creative Labs- EMU 8000 based synthesizers (SB AWE32, SB32, ...).

Note! You will need the very latest drivers with 32bit application as well as .SF2 bank file support in order to be able to use auditioning with the AWE32 (these drivers were only available in beta version when this was written). Also make sure that the AWEMAN32.DLL file is correctly installed in your windows directory.

Note! If you run out of memory on the card when trying to load an instrument, try removing any other user banks you may have previously loaded to card memory (by using the standard AWE32 control panel).

Note! User bank 120 will be used as a 'scratch bank' and any data in it will be lost...

Awave Studio supports downloading instruments to the Advanced Gravis GF1 based synthesizers (UltraSound Classic/Max/Ace soundcards).

Remember that, that a GUS with full memory can handle a maximum of 1M of 8bit samples.

Awave Studio supports downloading instruments to the Advanced Gravis InterWave based synthesizers (the UltraSound PnP soundcard).

You need the sound card drivers v2.0 or later. You also need to have 'IWINIT.EXE' in the same directory as your IW.INI file, or it won't work... Finally, make sure that 'close on exit' in the Windows explorer's property sheet for IWINIT.EXE.

Awave Studio supports downloading instruments to Turtle Beach WaveFront based synthesizers (Maui, Tropez, Rio, ...)

However, you must install an 'add-on' file called AW2WF16.EXE into the same directory as AWAVE.EXE. You can download this add-on file from FMJ-Software's [www](#) site.

You must also have installed the WFGATE.DLL file into your Windows directory in order to use auditioning with the WaveFront synth. This file is normally installed with TB's WavePatch software but you may also find this file on my [www](#) site.

Note! Any custom instruments that you may previously have loaded into wavetable RAM will be overwritten. You may also have to reset the synth to restore the GM setup after using *Awave Studio*.

Awave Studio supports downloading instruments to the S3 SonicVibes DLS-accelerator using the 'S3BASE.DLL' API.

Note! This API does not seem to be supported by the WDM driver that comes with Windows 98.

File Formats

import formats

export formats



When opening files, *Awave Studio* tries to determine the file type, not only by looking at the filename extension, but also by looking for 'signatures' inside the file. Thus, even if it has an incorrect extension, it can, for file types marked with **awro**, be correctly identified. For formats that are not possible to detect in this way you will have to pay attention to using correct file extensions. If a file is not of a recognized format, it is treated as raw audio data and the waveform properties **source** tab pops up querying you for additional information about the data format. If you see the **x** icon, then 'song data' can also be read from that format and converted to MIDI format!

x *Awave Studio* recognizes the following import file formats:

- 669** 669 tracker module. **awro**
- AIFC** Compressed Audio Interchange File Format.
- AIFF** Audio Interchange File Format.
- AIS** Velvet Studio Instruments.
- AKP** Akai S5000/S6000 program file.
- ALAW** European telephony format audio.
- AMS** Extreme's Tracker module format.
- AMS** Velvet Studio Module.
- APEX** AVM Sample Studio bank file.
- ARL** Aureal 'Aspen' bank file.
- ASE** Velvet Studio Sample.
- AU** Sun/NeXT/DEC Audio file.
- AVI** MS Audio Video Interleave file.
- AVR** Audio Visual Research sound file.
- C01** Typhoon wave files.
- CDR** Raw Audio-CD data.
- DCM** DCM module format.
- DEWF** Macintosh SoundCap/SoundEdit recorded instrument format
- DIG** Digilink format.
- DIG** Sound Designer I audio file.
- DLP** DirectMusic Producer DLS file.
- DLS** DownLoadable Sounds level 1.
- DLS** DownLoadable Sounds level 2.
- DMF** Delusion/XTracker Digital Music Fileformat.
- DSF** Delusion/XTracker Digital Sample Fileformat.
- DSM** Digital Sound Module tracker format.
- DTM** DigiTrekker module.

~~X~~
DWD DiamondWare Digitized file.
~~X~~
EDA Ensoniq ASR disk image.
~~X~~
EDE Ensoniq EPS disk image.
~~X~~
EDK Ensoniq KT disk image.
~~X~~
EDQ Ensoniq SQ1/SQ2/KS32 disk image.
~~X~~
EDS Ensoniq SQ80 disk image.
~~X~~
EDV Ensoniq VFX-SD disk image.
~~X~~
EFA Ensoniq ASR file.
~~X~~
EFE Ensoniq EPS file.
~~X~~
EFK Ensoniq KT file.
~~X~~
EFQ Ensoniq SQ1/SQ2/KS32 file.
~~X~~
EFS Ensoniq SQ80 file.
~~X~~
EFV Ensoniq VFX-SD file.
~~X~~
EMB Everest EMBedded bank file.
~~X~~
EMD ABT Extended MoDule.
~~X~~
ESPS ESPS audio files.
~~X~~
EUI Ensoniq EPS family compacted disk image.
F2R Farandoyle linear module format.
~~X~~
F3R Farandoyle blocked linear module format.
~~X~~
F32 Raw IEEE 32bit floating point values.
F64 Raw IEEE 32bit floating point values.
FAR Farandoyle tracker module.
~~X~~
FFF GUS PnP bank file format.
~~X~~
FNK FunkTracker module format.
~~X~~
FSM Farandoyle Sample format.
~~X~~
FZB Casio FZ-1 Bank dump.
~~X~~
FZF Casio FZ-1 Full dump.
~~X~~
FZV Casio FZ-1 Voice dump.
~~X~~
G721 Raw CCITT G.721 4bit ADPCM format data.
G723 Raw CCITT G.723 3 or 5bit ADPCM format data.
G726 Raw CCITT G.726 2, 3, 4 or 5bit ADPCM format data.
GDM Bells, Whistles, and Sound Boards module format.
~~X~~
GIG GigaSampler files.
~~X~~
GKH Ensoniq EPS family disk image file.
~~X~~
GSM Raw GSM 6.10 audio stream.
GSM Raw 'byte aligned' GSM 6.10 audio stream.
GSM US Robotics voice modems GSM w.o. header.

GSM US Robotics voice modems GSM w. header.
HCOM Sound Tools HCOM format.
IFF Interchange file format.
INI MWave DSP synth's mwsynth.ini GM-setup.
INI Gravis UltraSound bank setup.
INRS INRS-Telecommunications audio.
INS Ensoniq EPS family instrument.
INS Sample Cell / II Mac instrument.
INS Sample Cell / II PC instrument.
IST Digitrakker Instrument File.
IT Impulse Tracker module.
ITI Impulse Tracker instrument.
ITS Impulse Tracker sample.
K25 Kurzweil 2500 sample.
KMP Korg Trinity/Triton KeyMaP file.
KR1 Kurzweil 2000 sample (multi-floppy).
KRZ Kurzweil 2000 sample.
KSC Korg Trinity SScript file.
KSF Korg Trinity Sample File.
MAP Native Instruments Reaktor.
MAT Matlab variables binary file.
MAUD MAUD sample format.
MDL Digitrakker Module.
MED OctaMED tracker module.
MID Standard Midi File.
MLS Miles Sound System compressed DLS file.
MOD Amiga and PC tracker module.
MOV Apple QuickTime audio.
MP1 MPEG audio stream, layer I.
MP2 MPEG audio stream, layer II.
MP3 MPEG audio stream, layer III.
MPA MPEG audio stream, layer I, II, 'II½' or III.
MPEG MPEG system stream, audio+video.
MPG MPEG system stream, audio+video.

MSS Miles Sound System DLS 1 + XMI file.
X
X
MTM MultiTracker Module.
X
MUS10 Mus10 audio.
X
NIST NIST Sphere audio.
X
O01 Typhoon vOice file.
X
OKT Oktalyzer tracker module.
X
P Akai S1000/S1100/S01 program.
X
PAC SB Studio II package.
X
PAT Advanced Gravis Ultrasound / Forte tech. Patch.
X
PBF Turtle Beach Pinnacle Bank File.
X
PCM OKI MSM6376 synth chip PCM format.
X
PLM DisorderTracker2 module.
X
PLS DisorderTracker2 sample.
X
PPF Turtle Beach Pinnacle Program File.
X
PRG WAVmaker program.
X
PSB Pinnacle Sound Bank.
X
PSION PSION a-law audio.
X
PSM Protracker Studio Module Format.
X
PTM Poly Tracker module.
X
RAW Raw signed PCM data.
RMI RIFF-MIDI file, embedded DLS optional.
X
X
ROCKWELL Rockwell 2,3,4 bit ADPCM audio.
S Akai S1000/S1100/S01 sample.
X
SAM Signed 8bit Sample data.
SB Raw Signed Byte (8bit) data.
SBK Emu SoundFont v1.x Bank files / Creative Labs SB AWE 32.
X
SC2 Sample Cell / II PC instrument.
X
SD Sound Designer I audio.
X
SD2 Sound Designer II flattened file.
X
SD2 Sound Designer II data fork.
SDK Roland S-series floppy disk image.
X
SDS Raw MIDI Sample Dump Standard file.
X
SDW Raw Signed DWord (32bit) data.
SDX MIDI Sample Dump Standard files as compacted by SDX.
X
SF IRCAM SoundFile format.
X

SF2 Emu SoundFont v2.x file.
SFD SoundStage Sound File Data.
SFI SoundStage Sound File Info.
SFR Sonic Foundry Sample Resource.
SMP Samplevision format.
SMP Ad Lib Gold Sample.
SMP Avalon sample format.
SND Raw unsigned PCM data.
SND AKAI MPC-series sample.
SNDR Sounder sound file.
SNDT Sndtool sound file.
SOU SB Studio II sound.
SPD Speach Data file.
SPL Digitrakker Sample.
SPPACK SPPack sound sample.
STM Scream tracker v2 module.
S3I Scream tracker v3 instrument.
S3M Scream tracker v3 module.
S3P Akai MESA II/PC S-series program.
SVX Interchange file format, 8SVX/16SV.
SW Raw Signed Word (16bit) data.
SYW Yamaha SY-series wave files (really named W??).
TXT Ascii Text formatted audio data.
TXW Yamaha TX16W wave files (really named .W??).
UB Raw Unsigned Byte (8bit) data.
UDW Raw Unsigned DWord (32bit) data.
ULAW US telephony format (CCITT G.711) audio.
ULT UltraTracker modules.
UNI MikMod 'UniMod' format.
UW Raw Unsigned Word (16bit) data.
UWF UltraTracker Wave File.
V8 Covox 8bit audio.
VAP Annotated speech.
VOC Creative labs sound.
VOX Dialogic adpcm.
VOX Talking Technology Incorporated file.
W?? Yamaha waveforms (see TXW, SYW).
WAV Ms Windows PCM wave.

~~X~~
WFB Turtle Beach WaveFront Bank (Maui/Rio/Monterey).
~~X~~
WFD Turtle Beach WaveFront Drum set (Maui/Rio/Monterey).
~~X~~
WFP Turtle Beach WaveFront Program (Maui/Rio/Monterey).
~~X~~
WMA Windows Media Audio.
~~X~~
XM Fast Tracker 2 extended module.
~~X~~
XMI Miles Sound System Extended MIDI file.
~~X~~
~~X~~
XI Fast Tracker 2 instrument.
~~X~~
* Unrecognized formats prompts user to supply basic info. (
-
~~X~~)
~~X~~

File Formats

import formats

export formats



When saving files, select the desired File Type in the appropriate list in the Save As dialog, or just type in a file name with an extension matching one of the supported export types. Note that most of the formats can only handle a subset of the item types as denoted by the symbols below.

Xave Studio can export to the following formats:

AIF Audio Interchange File Format, **X**.

AKP Akai S5000/S6000 program file,

X.

ALAW Raw A-law data,

X.

APEX AVM Sample Studio bank file,

X.

X.

ARL Aureal 'Aspen' bank file,

X,

X,

X.

AU Sun Audio format, linear, μ -law or A-law,

X.

DLS DownLoadable Sounds level 1,

X,

X,

X.

DLS DownLoadable Sounds level 2,

X,

X,

X.

DWD DiamondWare Digitized audio,

X.

EFE Ensoniq EPS family instrument,

X,

X.

FFF GUS PnP bank file format,

X,

X.

FZB Casio FZ-1 Bank dump,

X.

FZF Casio FZ-1 Full dump,

X.

FZV Casio FZ-1 Voice dump,

X.

G721 Raw CCITT G.721 4bit ADPCM format data,

X.

G723 Raw CCITT G.723 3 or 5bit ADPCM format data,

X.

G726 Raw CCITT G.726 2, 3, 4 or 5bit ADPCM format data,

~~X~~
GSM Raw GSM 6.10 audio stream,
~~X~~
GSM Raw 'byte aligned' GSM 6.10 audio stream,
~~X~~
GSM US Robotics voice modems GSM w.o. header / VoiceGuide / RapidComm,
~~X~~
GSM US Robotics voice modems GSM w. header / QuickLink,
~~X~~
IFF Interchange file format,
~~X~~
INI Gravis UltraSound bank setup extract plus patch files,
~~X~~
INS Sample Cell / II Mac instrument,
~~X~~
INS Sample Cell / II PC instrument,
~~X~~
ITI Impulse Tracker instrument,
~~X~~
ITS Impulse Tracker sample,
~~X~~
KMP Korg Trinity KeyMaP file,
~~X~~
KSC Korg Trinity Script file,
~~X~~
KSF Korg Trinity Sample File,
~~X~~
MAP Native Instruments Reaktor wavetable file,
~~X~~
MAT Matlab variables binary file,
~~X~~,
~~X~~
MID Standard MIDI File
~~X~~
MP3 MPEG audio stream, layer III (needs external encoder),
~~X~~
MSS Miles Sound System DLS 1 + XMI file
~~X~~
MWS MWave DSP synth's instrument extract,
~~X~~,
~~X~~
P Akai S1000/S1100/S01 program,
~~X~~
PAT Advanced Gravis UltraSound / Forte tech. patch file,
~~X~~,
~~X~~
PBF Turtle Beach Pinnacle Bank File,
~~X~~,
~~X~~
PRG WAVmaker program file,
~~X~~
RMI RIFF-MIDI file, embedded DLS optional,

~~X~~

~~X~~

ROCKWELL Rockwell 2,3,4 bit ADPCM audio,

~~X~~

S Akai S1000/S1100/S01 sample,

~~X~~

S3I Scream tracker v3 instrument,

~~X~~

S3P Akai MESA II/PC S-series program,

~~X~~

SB Raw Signed PCM Byte (8bit) data,

~~X~~

SBK Emu SoundFont v1.0,

~~X~~

~~X~~

~~X~~

SD Sound Designer I audio file,

~~X~~

SD2 Sound Designer II flattened file,

~~X~~

SD2 Sound Designer II data fork,

~~X~~

SDS MIDI Sample dump standard,

~~X~~

SF2 Emu SoundFont v2.1 file,

~~X~~

~~X~~

~~X~~

SMP Avalon sample format,

~~X~~

SND AKAI MPC3000 sample,

~~X~~

SPPACK SPPack sound sample,

~~X~~

SW Raw Signed PCM Word (16bit) data,

~~X~~

TXT Ascii Text parameter description,

~~X~~

~~X~~

~~X~~

TXT Ascii Text formatted audio data,

~~X~~

UB Raw Unsigned PCM Byte (8bit) data,

~~X~~

ULAW Raw μ -law (CCITT G.711) data,

~~X~~

UW Raw Unsigned PCM Word (16bit) data,

~~X~~

VOC Creative labs sound file,

~~X~~

VOC Creative labs 'old' sound file,

~~X~~.
VOX Dialogic adpcm file,
~~X~~.
W01 Yamaha TX16W wave,
~~X~~.
W01 Yamaha SY-series wave,
~~X~~.
WAV Ms Windows PCM wave file, linear, μ -law, A-law or GSM,
~~X~~.
~~X~~.
WFB Turtle Beach WaveFront Bank,
~~X~~.
WFD Turtle Beach WaveFront Drumkit,
~~X~~.
WFP Turtle Beach WaveFront Program,
~~X~~.
~~X~~.
WMA Windows Media Audio,
~~X~~.
XI Fast Tracker 2 instrument,
~~X~~.
~~X~~.
XMI Miles Sound System Extended MIDI file
~~X~~.

~~X~~ *indicates that the format supports saving waveforms.*

~~X~~ *indicates that the format supports saving instruments.*

~~X~~ *indicates that the format supports saving collections.*

~~X~~ *indicates that the format supports saving MIDI songs.*

~~X~~

: *Unrecognized file types

If a file can't be determined to be one of the, by this program, supported file types, then the waveform properties box will appear. Select the **source** tab and supply information on the file's data type.

Note! if you get it wrong, you can always use the waveform properties dialog again and try some other settings.

Features:

8 / 16 bits / μ -Law / A-Law, mono / stereo.

.669: 669 tracker module

Features:

8 bits, mono, loop, name, bank.

.AIF/.AIFF/.AIFC/.C01: Audio Interchange File Format

AIFC is an extension of the original AIFF format also supporting compressed sample data.
The .C01 files are used by the Typhoon OS for the Yamaha TX16W.

Features:

1..32bits / IMA / DWVW compression / μ -law encoding, loop, key-range, mono / stereo, name.

Unsupported features:

Apple MACE and ACE compressions can not be supported for patent reasons.

.AKP: Akai S5000/S6000 program format

Note: The writing of AKP files is to be considered a beta implementation and has not been tested properly. Let us know if you find any bugs.

Features:

16bits mono / stereo, articulation, instrument.

.ALAW: European Telephone format (CCITT G.711) audio

Some applications saves these with a 'reverse' bit ordering within each byte. If you have such a file then go to the waveform properties, select 'A-law 8bit reversed' and press apply. To save such a file, simply change the sub-format and the save dialog box appropriately.

Features:

A-Law, mono, 8kHz.

.AMS: Extreme's Tracker format

Features:

8/16 bits, mono, name, bank.

Unsupported features:

Compression.

.AMS/.AIS/.ASE: Velvet Studio Module/Instrument/Sample

Features:

8 / 16 bits, mono, name, loop, instrument, collection.

.APEX: AVM Sample Studio bank file

Features:

8/16 bits, loop, name, lfos, envelopes, layers, instruments, drum kit, collection.

Unsupported features:

VAST architecture.

ARL: Areal 'Aspen' bank file

Note: This is to be considered as a beta implementation. Let us know if you find any bugs.

Features:

8/16 bits, loop, name, lfos, envelopes, layers, instruments, drum-kit, collection.

Unsupported features:

A few parameters, e.g. more complex envelopes.

.AU: Audio file (Sun/NeXT/DEC)

Features:

8 / 16 / 24 / 32 bits / μ -law / A-law / CCITT G.721 (4bits) & G.723 (3,5bits) ADPCM / IEEE FP (32, 64bits) FP encodings and compressions, mono / stereo.

Unsupported features:

> 2 channel files.

Other compression schemes.

.AVI: Msft Audio Video Interleave file

Features:

Same as for .WAV files

Unsupported features:

Of course, only the digital audio streams are read, not video or such...

.AVR: Audio Visual Research sound file

Features:

8 / 16bit, mono / stereo, name, loop.

.CDR: Raw Audio-CD format data file

This is raw CD-*format* audio, and not raw CD-*data* which also contains a lot of error correction and formatting information, i.e. you can not read directly from an audio CD but if you have made a raw sound data dump with another program, you can give it an .CDR extension and it will be read properly.

Features:

16 bits, stereo.

.DCM: DCM module format

Features:

8 / 16bits, mono, loop, collection.

.DEWF: SoundCap / SoundEdit recorded instrument format

Features:

8bit, mono, loop.

.DIG: Digilink format

Features:

16 bits, stereo.

.DLS: *Downloadable Sounds level 1 and level 2*

Awave Studio reads and write files conforming to the DLS level 1 and DLS level 2 file format specifications.

Saving to the 'DLS level 1' file format will gives you files compatible with the DLS synthesizer architecture level 1, which is designed to be compatible across a wide range of synthesizers.

Similarly, saving to the 'DLS level 2' file format will gives you files compatible with the DLS synthesizer architecture level 2, which is designed to be compatible with the latest (and greatest) of the more 'capable' PC wavetable synthesizer soundcards.

DirectMusic Producer uses a DLP file extension for DLS files until the file that is being composed is 'finalized' (when it is changed to DLS).

When using *pure DLS level 1* keep in mind the following:

- Only one layer per instrument can be used.
- A maximum of 16 regions can be used in a melodic instrument, 128 in a drum set.
- Only instrument global articulation is allowed for melodic instruments.
- A regions velocity range is always 0..127.
- Panning is ignored for melodic instruments.
- Only mono waveforms can be used.
- Only unlooped and forward looped waveforms are supported.
- The minimum required RAM memory of a DLS-1 synth is 256K *Samples*, if you use larger collections, data may be discarded on synths with little memory.
- The volume and the pitch lfo's will use the same frequency and start delay values (a weighted average will be used if they are not equal for the two lfo's).

Features:

8 / 16 bits, mono, loop, envelopes, lfo's, collection, drum-kits, instruments, layers (level 2 only), ...

.DMF/.DSF: Delusion/XTracker Digital Music/Sample Fileformat (PC)

Features:

8 / 16 bits, mono, loop, name, instruments, collection.

Unsupported features:

Packed samples.

.DSM: Digital Sound Module tracker format

Features:

8 bits, mono, name, loop, collection.

.DTM: DigiTrekker module

Features:

8 / 16 bits, mono, loop, name, collection.

.DWD: DiamondWare Digitized file

Features:

8 / 16bits, mono / stereo.

.EDx,GKH,EUI: Ensoniq disk image

The Ensoniq files are usually encountered in form of .GKH disk image files (with an additional header) as well as in the slightly compacted .EUI disk image format. You may also find the .EDx files, x = A,E,K,Q,S,T,V.

It can only read contiguous sub-files in Ensoniq disk images. If it can't handle a certain file (because it's fragmented on the disk), you can extract the individual instrument files to .INS or .EFE files with a utility called EDE (from Giebler Enterprises). INS files are the same as an EFE files except the latter may also contain EPS sequenced songs, bank info or such, instead of an instrument.

Features:

16 bits, mono, loop, names, fine-tune, layers, instruments, collection.

Unsupported features:

Envelopes, .EDT (Ensoniq TS) files.

.EFx,INS: Ensoniq instrument file

INS files are the same as an EFX files except the latter may also contain EPS sequenced songs, bank info or such, instead of an instrument.

Note! If an Ensoniq instrument uses a 'custom pitch table' or is 'unpitched' instead of using the 'standard pitch table', then it will be emulated by trying to set the region root key overrides values. This 'emulation' will only correct for the 'middle key' in the region but it will usually sound ok over the whole region and drum-kits (that often are 'unpitched') usually have regions that only span one key anyway.

Features:

16 bits, mono, loop, names, fine-tune, layers, instruments.

Unsupported features:

Envelopes, .EFT (Ensoniq TS) files.

.EMB: Everest EMBedded bank file

Features:

Compression, loop, name, lfos, envelopes, layers, instruments, drum-kit, collection.

Unsupported features:

VAST architecture.

.EMD: ABT Extended MoDule format

Features:

16 bits, mono, loop, name, collection.

.ESPS: ESPS audio file

Features:

8 / 16 / 32 bit integer / 32 / 64bit floating point, mono.

.FAR,.FSM,.F2R,.F3R: Farandoye tracker format

Features:

8 / 16 bits, mono, loop, name, collection.

..F32,.F64: Raw 32/64bit IEEE floating point values

Note! If you try to read data that actually aren't IEEE floating point as .F32/.F64,files, then the application may hang with an invalid floating point exception error.

Features:

32/64 bits, mono.

.FFF+.DAT: GUS PnP bank file

Note! The .FFF file contains all 'instrument parameters' and stuff while the accompanying .DAT file contains the actual sample data which is to be downloaded to the synth's memory.

Features:

8 / 16 bit / μ -law, mono, loop, lfo, amplitude envelope, layers, instruments, drum kits, collection.

Unsupported features:

Pitch envelope.

.FNK: FunkTracker module format

Features:

8 bits, mono, loop, name, panning, collection.

.FZB/.FZF/.FZV: Casio FZ-1 Bank / Full / Voice FZDUMP/FZCom dump

These files are the result of dumping one or more Casio FZ-1 'voices' (= waveforms) and/or 'banks' (= instruments) to a PC using either a MIDI cable or a parallel cable connection and a program called FZDUMP or one called FZCom.

Features:

16 bits, mono, loop, name, instruments.

Unsupported features:

Envelopes and lfo's.

.G721: Raw CCITT G.721 4bit ADPCM format data

Note! The first sample is assumed to be in the high-nibble, the second in the low-nibble.

Features:

ADPCM 4bit lossy compression, mono.

.G723: Raw CCITT G.723 3 or 5bit ADPCM format data

Note! When you read one of these files a dialog pops up where you manually must chose if it is 3 or 5bit per sample data, this can't be auto detected...

Features:

ADPCM 3 / 5bit lossy compression, mono.

.G726: Raw CCITT G.726 2, 3, 4 or 5bit ADPCM format data

Note! When you read one of these files a dialog pops up where you manually must chose if it is 2, 3, 4 or 5bit per sample data, this can't be auto detected...

Features:

ADPCM 2 / 3 / 4 / 5-bit lossy compression, mono.

.GDM: Bells, Whistles, and Sound Boards module format

Features:

8 bit, mono, loop, name, collection.

.GIG: GigaSampler files

These files are really a form of ‘extended DLS’ files. It only reads the parts that is also part of the DLS standard – not any of the extensions for various kind of articulation parameters and such...

Features:

8 / 16 bits, mono, loop, envelopes, lfo’s, collection, instruments, layers, ...

Unsupported features:

Compressed waveforms, a bunch parameters ...

.GSM: GSM 6.10 audio stream

Note! These files can't be auto detected so be sure to use the .GSM extension.

There are at least two possible types of 'packings'. One with packets of 32.5Bytes/frame and one with 33Bytes/frame (where the first 4bits in a packet is ignored). Which packing style is used is auto detected.

Features:

GSM compression, mono.

.GSM: US Robotics voice modems GSM files

There are two types of these files. One has a file header. The other has no header. Which type a file is can usually be detected, but when saving files to be used by some voice modem software, you may have to try both and see which one works with that program...

Features:

GSM compression, mono.

.HCOM: Sound Tools HCOM format

Features:

Huffman compression, mono.

.IFF/.SVX: Interchange File Format: 8SVX or 16SV data

The 16SV flavor is rather uncommon and is, I think, only used by some PC trackers. Thus if you save 16 bit waveforms as .IFF files, don't expect them to be readable by most .IFF readers.

Features:

8 / 16 bits, loop, name, mono / stereo.

.INI: Gravis UltraSnd.Ini bank setup

You can read the whole melodic bank 0 setup with all the associated patches from the UltraSnd.Ini file. You can also write 'extract' .INI files for a complete bank that you can then paste into your UltraSnd.Ini file, this will also save all the patches referenced in the bank to .PAT files (they will be automatically named based on the name of the .ini extract file).

Features:

Same as for .PAT + collection + drumkits.

.INRS: INRS-Telecommunications audio file

Features:

16 bits mono.

.IT/ITI.ITS: Impulse Tracker module/instrument/sample

Features:

8 / 16 bits, mono / stereo, loop, name, instrument, collection.

Unsupported features:

MMCMP compressed files.

.KMP/.KSF/.KSC: Korg Trinity/Triton keymap/sample/Script files

The KSF files contain individual waveforms. The KMP files bind together separate KSF files into instruments. The KSC files contains a list of KMP files to load as melodic instruments as well as KSF files to load as drums (note that these contain no key assignments so they will not show up as a drum-kit)..

Features:

8 / 16 bits, mono, loop, names, instruments, collection.

.KRZ/.KR1/.K25: Kurzweil K2000/K2500 instrument file

The K2000 file format is considered proprietary by Kurzweil; so any resemblance with the .KRZ file format this program reads is purely coincidental :-/. If one, against better knowing should try to use this program to read the former file type, one shall find that they match fairly closely :-D, of course, sometimes things may go a bit wrong here and there...

To read multi-floppy files. Rename the file parts into .KR1 for the first floppy, .KR2 for the second et c. Place all the parts (.KR1, .KR2, et c.) in one and the same directory on your hard disk. Then open the .KR1 file to read them all.

.K25 files, intended for the K2500, seems to be compatible with the K2000's .KRZ files.

Features:

16 bits, mono, loop, names, fine-tune, layers, instruments, collection.

Unsupported features:

Envelopes, stereo... Drumkits may sound out of tune.

.MAP: Native Instruments Reaktor wavetable file

Note! Only 32-bit float files seems to work with Reaktor so that's all you can save right now.

Features:

8 / 16 / 32 bits / floats, mono / stereo, instrument (single layer).

.MAT: Matlab variables binary file

When reading floats they are expected to be in the range [-1, 1]

Stereo files are stored as a 2 column matrix.

The data is stored in a variable named as the waveform but with all non-Ascii 33..127 characters removed.

The sample rate is stored in the variable with the same name as the data plus `_SR`, e.g. `MySound_SR`.

When saving, the data is stored in either 8 bit unsigned or 16 bit signed format. So if you're going to play the sound using the `sound()` function you'll have to remember to normalize the sound to `-1..1`, e.g.

```
sound(my16bit/65536, my16bit_SR);  
sound(my8bit/256 - 0.5, my8bit_SR);
```

Features:

8 / 16 bits / floats, mono / stereo, collection.

.MAUD: MAUD sample format

Features:

8 / 16 bits / μ -Law / A-Law, mono / stereo, name.

.MDL/.IST/.SPL: Digitrakker Module/Instrument/Sample File

Features:

8,16bits, mono, loop, name, huffman packing, collection.

.MED: OctaMED tracker module: MMD0|MMD1|MMD2

Note! The old MED tracker .MED format is not supported, if you have a description of this format, please send it to me.

Features:

8 bits, loop, name, collection.

.MID: Standard MIDI File

When saving you have two sub-format selections; “MIDI” and “MIDI – format 0”. This selects the ‘MIDI file type format’. The first option saves using the type that the loaded data is in. The second option converts it to format 0 if it is not already that. Format 0 has all data for all channels stored in a single track. This is the most portable format. Format 1 has the data for each channel separated into it’s own track. There is also an extra track (the first one) that contains ‘control information’ (e.g. tempo changes). This is the format most often used by sequencers and is the format that we recommend. Format 2 is used to store temporally disjoint ‘sequences’ in different tracks. This format is seldom used.

Features:

MIDI song data.

.MOD: Module file

Recognizes the following flavors:

M.K., M!K!, 4CHN, 6CHN, 8CHN, 10CH, 12CH, 14CH, 16CH, 24CH, 32CH, FLT4, FLT8, OCTA, CD81, EX08.

When you open a MOD file it will not only read the instruments – our internal MOD to MIDI converter will also automatically convert the song data into MIDI format!

Features:

8 bits, mono, loop, name, fine-tune, collection, MIDI song.

.MOV: Apple QuickTime audio

Reads the audio track from QuickTime movies.

Features:

8 / 16 bits / μ -law, mono / stereo.

Unsupported features:

Compressed formats.

.MP3: MPEG audio stream, layer III

There is no internal encoder for compressing and writing MP3 files (this is because of the patent issues involved). However, you can use any 'L3ENC' command line syntax compatible 'external' encoder that you select in the 'Options'-'Preferences'-'Helper apps' dialog. The original L3Enc.exe is available from Fraunhofer institute but there are a few alternatives, e.g. the freeware 'BladeEnc'.

Features:

16 bit mono / stereo.

.MPA/.MP1/.MP2/.MP3: MPEG audio stream, layer I, II, '2.5', or III

Note! These files can't be auto-detected reliably so be sure to use any of the above file extensions.
Note! If it is a large file, then you will need a lot of memory to decode it...

Features:

16 bit mono / stereo, 48,44.1,32,24,22.05,16,12,11.025,8 kHz, compresses to 8-448 kbit/s.

.MPEG/.MPG: MPEG system stream

An MPEG 1 system stream or MPEG 2 'Program' system stream.
Note! Multiple-audio stream files may not be handled correctly.

Features:

See [MPA](#).

.MSS/.MLS: Miles Sound System embedded / compressed DLS file / with MIDI song

MLS files are simply an 'DLS level 1' file with the addition of DVI/IMA 4:1 ADPCM compression of the waveform data. MSS files combines an 'Extended MIDI' or .XMI song with either a .DLS or an .MLS in a single file.

Features:

8 / 16 bits, mono, loop, envelopes, lfo's, collection, drumkits, instruments, layers, MIDI song.

.MTM: Mtm tracker module

Features:

8 / 16 bits, mono, loop, name, collection.

.MUS10: Mus10 audio file

Features:

12 / 16 / 18 / 20 bits, mono / stereo.

MWSYNTH.INI: MWave DSP synthesizer's GM bank setup

The software synthesizer module for the MWave DSP uses this file to construct instruments from usual .WAV files.

Features:

8 / 16 bits, loop, name, instruments, layers, collection.

.MWS: MWave DSP synthesizer's MWSYNTH.INI instrument extract

The software synthesizer module for the MWave DSP uses the MWSYNTH.INI file to construct instruments from usual .WAV files. When exporting to the MWS format, it outputs a bunch of .WAV files as well as a .MWS text file containing an instrument extract that can be manually pasted into the MWSYNTH.INI file.

Features:

8 / 16 bits, loop, name, layers, instruments.

.NIST: NIST SPHERE file

Features:

16 bits / μ -Law, mono / stereo.

.001: Typhoon vOice file

Note! The actual waveform data are stored in accompanying .C01 file(s).

Features:

DWWV compression, mono, loop, instrument.

.OKT: Oktalyzer tracker module

Features:

8 bits, mono, loop, name, collection.

.P/.S3P: Akai S1000/S1100/S01 program / MESA II/PC program

Note that *Awave Studio* can't read Akai CD-ROM's or floppy disks directly. You'll have to use some other program to transfer the files in 'raw' format to the PC first.

The .P files are 'raw' Akai S1000 programs. The S3P format contains the same information, but encoded in a 'SysEx' like format.

Features:

16 bits, mono, instrument, layers, loop, name.

Unsupported features:

Envelope, lfo and filter parameters.

.PAT: Advanced Gravis UltraSound GF1 / Forte tech. patch file

Note! The current UltraSound drivers do not support multi layering and no max. 16 waveforms per instrument.

Features:

8 / 16 bits, mono, loop (incl. fractional), envelopes, lfos, names, instruments.

.PBF/.PPF: Turtle Beach Pinnacle Bank/Program File

The current version of this format stores waveforms in external .WAV files that must be placed in the same directory as the .PBF file. PPF files do not actually exist when this was written but I am told they will be the same as PBF only that they must only contain a single instrument...

Note! To use the PBF file with your Pinnacle, you *must* use the Pinnacle Patch Editor beta release 6 or later. Earlier versions will not be able to handle *Awave Studio's* files.

Features:

8 / 16, loop, name, lfos, envelopes, layers, instruments, drum-kit, collection.

Unsupported features:

VAST architecture.

.PCM: OKI MSM6376 synth chip PCM format

This format supports the following sample frequencies: 4000, 5300, 6400, 8000, 10600, 12800, 16000, 21200, 32000 Hz. When saving files, the nearest supported frequency will be used and the waveform first resampled if it is not exactly the same frequency. To explicitly save in a certain frequency, first *manually* resample the waveform to that frequency.

Features:

16 bits, mono.

.PLM/.PLS: DisorderTracker2 module/sample

Features:

8 / 16 bits, mono, loop, name, collection.

.PRG: WAVmaker program file

Note! when importing the referenced .WAV files must be in the same directory as the .PRG file and when exporting, the .WAV files will also be put in the same directory.

Note! If you want to create .PRG instruments, then, for best results when setting loop points, make sure that you first resample the waveform(s) (by waveform->Properties->Waveform->Process->Resample...) into one of the rates supported by WAVmaker: 11025, 22050 and 44100 Hz. If you do not, then they will automatically be resampled when you save the .PRG file..

Features:

8 / 16 bits, mono / stereo, loop, name, instrument.

.PSB: Pinnacle Sound Bank

Note! This format is basically a list with assignments of .WAV files to MIDI program numbers. Make sure you have the referenced .WAV files in the same directory.

Features:

8 / 16 bits, mono/stereo, loop, name, instrument, drumkit.

.PSM: Protracker Studio Module Format

Features:

8 / 16 bits, mono, loop, name, collection.

.PSION: PSION a-law file

Features:

A-law, mono.

.PTM: Poly Tracker module

Features:

8 / 16bits, mono, loop, name, collection.

.RAW,.SB,.SDW,.SND,.SW,.UB,.UDW,.UW: Raw PCM data format file

The file extension has the following meaning:

S Signed data

U Unsigned data

B Byte (8bit) data

W Word (16bit) data

DW DWord (32bit) data

.SND is the same as :UB.

.RAW is the same as .SB.

Assumes 22khz mono, Intel byte order when reading. Use the waveform properties dialogs source tab to change any parameters that are not correct.

Features:

8 / 16 / 32 bits.

.RMI: RMID MIDI file with optional embedded DLS collection

This is a structured file format containing MIDI data plus some additional optional data like comments et c. But perhaps the most spectacular feature is that it can also contain a DLS instrument collection. This is a new addition to the format so far from all software that handles RMI files may support it yet though...

Features:

See DLS and MID.

.ROCKWELL Rockwell 2,3,4 bit ADPCM format

Note: There is no standard file extension for these files and there is no file header that they can be auto-detected from, so you'll have to name them '.rockwell' if they are going to be recognized when reading them.

Features:

2,3,4 bit ADPCM, 7200 Hz, mono.

.SAM: Raw signed PCM sample file

Features:

8 bits, mono.

.SBK/.SF2: EMU Sound Font Bank v1.x / v2.x file / Creative Labs SB AWE 32

The .SBK format (Sound Font v1) has been replaced with .SF2 (Sound Font v2) which should be used for all new files. If you are used to the naming conventions of the Vienna 2.0 editor, then the following small 'dictionary' may be useful:

<i>Awave Studio</i>	<i>Vienna 2</i>
instrument	preset
layer	instrument
region	instrument zone
waveform	sample

Note that a layer in wave must contain regions with non-colliding key ranges which a Vienna instrument must not. Thus, when reading .SF2 file, *Awave Studio* may split an instrument into several layers. Also, if there is any 'Vienna instrument' that is not used by any preset, then it won't be read.

Awave Studio reads and writes SF2 files according to the SoundFont 2.1 specification. All SoundFont 2.0/2.1 'generators' except sample start and end address modifiers are supported. For SoundFont 2.1 'modulators', only those routings that are also supported by DLS level 2 are supported. SoundFont 2.0 compatible devices should be able to read *Awave Studio*'s SoundFont 2.1 files just fine – they just ignore the new 'modulators'.

Features:

16 bits, loop, name, lfos, envelopes, layers, instruments, drum kits, collection.

.INS/.SC2: Sample Cell / II PC or Mac instrument

There are two different (incompatible but very similar) varieties of these files, a PC format and a Mac format. These files contains one instrument definition (per file) and references a bunch of external waveform files. For the PC format, the external files is .WAV files. For the Mac format (usually .INS) they can be either .AIF(F) or .SD2(F) files. When reading an .INS file you should put all these external files into the same directory as the .INS file. It is very important that these external files retain the original filename that they were written - so when transferring Mac files to a PC, take extra care to retain the 'long' file names. And in case of referenced .SD2 files you must transfer it to a 'flattened' MacBinary format file.

Features:

8 / 16bits mono, instrument.

Unsupported features:

lfo's and envelopes.

.S: Akai S1000/S1100/S01 sample

Note that *Awave Studio* can't read Akai CD-ROM's or floppy disks directly. You'll have to use some other program to transfer the files in 'raw' format to the PC first.

Features:

16 bits, mono, loop, name.

.SD, .DIG: Sound Designer I audio file

Features:

8,16 bits, mono, name.

.SD2: Sound Designer II flattened/resource fork file

On the Macintosh these files are really two file 'forks'. When they are transferred to a PC these two forks may be flattened (preserving all data and parameters) or only the resource fork (containing the raw sound data) may be copied. if only the resource fork has been copied, then it is assumed to be 16bit mono data.

Features:

8,16 bits, mono/stereo.

.SDK: Roland S-series floppy disk image file

They might go under another extension but SDK seems to be most common.

Note! The instrument key assignments may not always be read correctly so you may have to do some manual editing on that.

This is really two file formats, one 12bit used by Roland S50, S51, S550 and S330 synthesizers and one 16 bit used by Roland S70, S750, S770 and S772 synthesizers.

Features:

12 / 16 bits, mono, loop name, fine-tune, instrument, collection.

Unsupported features:

A zillion different parameters.

.SDS, .SDX: MIDI Sample Dump Standard file

SDS is a raw MIDI data dump of an SDS (Sample Dump Standard) transfer and can be up to twice as large as the actual waveform. SDX is a 'compacted' form that the program SDX uses to save SDS samples in order to avoid this problem. It also contains a sample name which SDS does not.

Features:

8..32 bits, mono, loop, (SDX only: name , note).

.SF: IRCAM SoundFile format

Features:

16 bits, name, note, mono / stereo.

Unsupported features:

Other bits/sample.

SFISFI SoundStage Sound File Info (.SFI) + Data (.SFD) files.

.SFI, .SFD: SoundStage Sound File Info + Data file.

Note! These files must always come in a .SFI + .SFD pair! You should only load the .SFI file.

Features:

16 bits, name, note, mono / stereo.

Unsupported features:

Other bits/sample.

SoundStage Sound File Info (.SFI) + Data (.SFD) files.

.SFR: Sonic Foundry Sample Resource file.

Features:

8 / 16 bits, mono / stereo.

.SMP: Samplevision file

Features:

16 bits, mono, loop, name, note.

Unsupported features:

Only the first of the 8 possible loop points are considered.

.SMP: Ad Lib Gold Sample file

Features:

8 / 16 bits, mono / stereo.

Unsupported features:

Yamaha ADPCM compression.

.SMP: Avalon SaMPle format

Features:

8 / 16 bits, mono, loop, name, comment.

.SND: AKAI MPC-series sample file

The AKAI program (.PGM) files defining instruments (and referring to various .SND waves) are currently not supported. Any info on this format would be welcome. The MPC series samples supported should include MPC 60, MPC 2000 and MPC 3000 using OS versions 1, 2, and 3. Only OS v3 style files are supported for saving.

Features:

12/16 bits, mono/stereo, name.

.SND: Sounder sound file

Features:

8 bits, mono.

.SNDT: SndTools sound file

Features:

8 bits, mono.

.SOU,.PAC: SB Studio II sound/package file

Features:

8 / 16 bits, mono, loop, name, collection.

.SPD: Speach Data file

Features:

16 bits, mono.

.SPPACK: *SPPack sound sample file*

Features:

8 / 16 bits / μ -Law / A-Law, mono.

.STM: ScreamTracker module file

Features:

8 bits, mono, loop, name, collection.

.S3M, .S3I: ScreamTracker v3 modules / Digiplayer sample

The .S3I files are usually named .SMP but they will be saved as .S3I in order to avoid confusion with Samplevision files..

Features:

8 / 16 bits, mono / stereo, loop, name, note, collection.

.SYW/.W??: Yamaha SY-series wave file

The Yamaha 16-bit SY-series wave sample files are really named *.W??*. There's also *.T??* (All Data Files, often contains waves and are much more common than *.W??*; but aren't supported at the moment), *.J??* (Patch parameters?) and *.K??* (Sequenced songs). See also the [12bit format](#).

Note! Before reading a directory of files on your synthesizer, make sure they have all unique extensions like *.W01*, *.W02*, *.W02* et c.

Features:

16 bits, mono, loop.

.TXT: Ascii Text parameter description file

Contains human readable information about items at bank, instrument or waveform levels. Useful if you can't export directly to your destination format and you'll have to piece together instruments from, say, .WAV files.

Features:

Human readable information, no sample data.

.TXT: Ascii Text formatted audio data

Ascii text file with integer sample values in base 10. Samples are delimited by either , (ascii no 44) or new-line (ascii no 10). Comments and lines not containing sample values must begin with a ; or a %.

For stereo files (with interleaved samples), you must manually set stereo in the waveforms properties box source tab.

Ex 1:

;signed 8bit, 3 samples

127 ; first sample

-3

15 ; last sample

Ex 2:

% This will be detected as unsigned 15bit, 5 samples

9,0,32767,1000,20001

Features:

1..32 bits, signed / unsigned (autodetect).

.TXW/.W??: Yamaha TX16W wave file

The Yamaha TX16W (and probably also the other Yamaha 12bit samplers) waveform files are really named *.W??* (where ?? is a number). There's also *.F??* (Filter), *.V??* (Voice to MIDI no assign?), *.U??* (Performance settings) and *.S??* (System setup?) files which are of no use to you. See also the [16bit format](#).

Note! The format only supports 16, 33 or 50kHz sample frequency and no tuning or rootkey parameters so when saving to TX16W *.W01* files, the closest of the three rates will be selected and you must manually tune it when you're using it in an instrument on your synth... Alternatively you may resample it to either of 16, 33, 50kHz before saving it.

Note! Before reading a directory of files on your synthesizer, make sure they have all unique extensions like *.W01*, *.W02*, *.W02* et c.

Note! When saving files, be aware that the TX16W only supports a maximum of 128K samples in the 'attack' plus 128K samples in the 'loop', if the waveform is longer then it will be truncated.

Features:

12 bits, mono, loop.

.ULAW: US Telephone format (CCITT G.711) audio

This is also the format used by the MIME mail encoding standards audio/basic attachments.

Some applications saves these with a 'reverse' bit ordering within each byte. If you have such a file then go to the waveform properties, select 'Mu-law 8bit reversed' and press apply. To save such a file, simply change the sub-format and the save dialog box appropriately.

Features:

μ-Law, mono, 8kHz.

.ULT, .UWF: UltraTracker module / wave file

Features:

8 / 16 bits, mono, loop, name, collection.

.UNI: MikMod 'UniMod' tracker format

Features:

8 / 16 bits, mono, name, loop, instruments, collection.

.V8: Covox 8bit file

Features:

8 bits, mono.

.VAP: VAP annotated speech file

Features:

8 bits, mono, name.

.VOC: Creative Labs sample file

Note for compatibility with older programs select the 'old VOC format'. The 'new' format is much more 'capable' though.

Features:

8 / 16 bits / μ -Law / A-Law, mono / stereo, name.

Unsupported features:

Other compression and packing schemes.

.VOX: Dialogic ADPCM file

Features:

Adpcm compression (4bit), mono, 8kHz.

.VOX: *Talking Technology Incorporated file*

Note: These files do not contain any kind of file header so there is no way to know the correct sample rate. 8kHz seems to be the most common though so that is what *Awave Studio* will read and write per default. But some people also use a 6kHz variety. If you should happen to read a 6kHz file, then you must manually change the rate in the waveform properties dialog. An alternative if you use many 6kHz files, is to enter a little flag in the Windows registry that changes the default to 6kHz. However, do not attempt this if you do not have any experience with editing the registry and/or don't know what you are doing. To set 6kHz Vox files as default, use 'regedit' and enter the *binary value* b6KHzVox =01 under the path HKEY_CURRENT_USER\Software\FMJ-Software\Awave Studio".

Features:

8 bits, mono.

Unsupported features:

Compressed subformats.

.WAV: *Microsoft Wave file*

Supports the Sample (smp1) chunk (used by Turtle Beach Wave SE, WavePatch, Gravis PatchMaker and others), the Instrument (inst) chunk (used by IBM?) as well as 'cue '+'labl' chunks to support loop.

Also supports some info chunks (INAM, ICMT, ISFT).

Note that there is also a built-in MIDI to Wav renderer that will let you save a MIDI song to a WAV file using software synthesis to render it in an all-digital process!

Features:

1..32 bits PCM / μ -Law / A-Law, MS ADPCM (4bit) / Intel DVI/IMA ADPCM (2,3,4bit) / CCITT G.721 (4bit) & G.723 (3,5bit) ADPCM / Dialogic (4bit) ADPCM / GSM 6.10, MPEG audio encodings and compressions, mono / stereo, note, loop, rootkey, fine-tune.

Unsupported features:

Other compression schemes and formats.

.WFB, .WFP, .WFD: Turtle Beach WaveFront synthesizers / WavePatch file

WaveFront based synthesizers are currently the Maui, Tropez, Rio and Monterey.

.WFB files contains a whole MIDI Bank, .WFP a single Program and .WFD a complete drum set.

Instruments using ROM samples, of course, can't be converted.

If the files doesn't use embedded waveforms, but external .WAV files instead, you must have the .WAV files in either the exact path they where when the .WF? file was created, or, in the same directory as the WF? file.

Currently saves files with embedded waveforms only.

Note! TB Rio users should only save .WFP files as the .WFB exported by this program are 'Maui' style and may not be loadable on the Rio.

Features:

8 / 16 bits / μ -Law, name, note, loop (incl. fractional), envelopes, lfos, layers, instruments, drumkit, collection.

Unsupported features:

Pre v1.2 files.

.WMA: Windows Media Audio

Note! To use this you must install the WMA 4.0 encoder/decoder runtime (wmaudsdk.dll). It is available for free from our web-site.

Features:

16 bit mono / stereo, 8, 11, 16, 22, 32, 44.1 kHz, compresses to 5-160 kbit/s.

.XM, .XI: FastTracker 2 eXtende Module/Instrument

Features:

8 / 16 bits, mono, loop, name, instruments, panning, collection.

Unsupported features:

A bunch of ramping parameters (envelope, pan, vibrato...).

.XMI: Miles Sound System extended MIDI file

These files are a type of 'time quantized' MIDI songs. They are usually a little smaller than a regular MID file but may in some cases lose a little information. You can also combine an XMI with a DLS into an MSS file.

Features:

MIDI song.

Frequently Asked Questions



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Frequently Asked Questions



The most frequent questions

- Q** Can I convert a .WAV (or any other digitized audio) file to a .MID?
- A** This is the one most common question that we are asked. The answer is: NO! It would take too long to explain this in detail here but suffice to say that it is a very difficult problem since it is two fundamentally different data types (e.g. see <http://www.lysator.liu.se/~zap/tutorial/formats.html>). There is no computer program that can do it in a very 'reliable' way (the best we have heard of is software that can recognize the note of a single instrument played monophonically). You really need a highly trained professional (human) musician to do it – there are still these things that no computer can do yet!
- Q** I can't save in format XYZ even though you claim that *Awave Studio* supports this format!
- A** Not all formats can store *all* types of data. E.g. only a few formats support saving whole bank files while most formats will save only single waveforms. What type of data you are trying to save is determined by what kind of 'item' in the collection pane or the waveforms pane, that you have selected. See [File Formats](#) and look at the export formats list for info about what formats support what data types.
- Q** I'm a registered user of *Awave*. Why doesn't my registration code work with *Awave Studio*?
- A** *Awave Studio* is a different product containing many, many features not available in *Awave* (it is also more expensive).
But, if you are an *Awave* user, and are interested in buying *Awave Studio*, please contact us for a money-saving upgrade offer!
- Q** I want to use *Awave Studio* but I don't want it to associate itself with all those file types, what can I do?
- A** Go to [Options](#)→[Preferences...](#)→[General](#) and uncheck 'register 'play audio' & 'convert' commands.
- Q** I installed another program and now a file that was opened with *Awave Studio* is now opened with the new program. I want *Awave Studio* back, what do I do?
- A** Go to [Options](#)→[Preferences...](#)→[General](#). Uncheck the 'Register play audio...' checkbox and click OK. Then repeat this but now check the checkbox. This should restore the file associations!
- Q** How do I uninstall *Awave Studio*?
- A** Use the Windows Control Panel's Install/Uninstall feature.
- Q** Can I convert to/from RealAudio (.RA) files?
- A** No. RealAudio uses a proprietary algorithm that we can not use without the blessing of RealNetworks. And they have a policy of not allowing conversion of RA format to other formats. So there is no way we can read RA files. Writing RA files may perhaps be added in a future release though...
- Q** Please, can you add Roland .SDK or Kurzweil .KRZ file export?
- A** Sorry, we have not been able to obtain an official, complete, file format specification from Roland or Kurzweil resp. What we know, stems from what various people, not associated with Roland or Kurzweil, has been able to tell us. It is just enough to enable us to read the most basic

data from those files but not to write 100% correct files.

Q Can you please add support for the 94B/94I/TTS/TTI formats used by e.g. the MaxiSound/Terratech cards?

A We know of the 94b format and have the relevant documentation from Dream (the maker of the synth chip used in these cards). However it is a complete mess of 'low-level DSP details' and it would take *at least one months* work to implement correctly. Alas, this is more time than we can spare for it.

Q Can you please add support for the ECW format used by my Ensoniq AudioPCI sound card?

A No. We have asked Ensoniq for documentation for this format and told them that we would like to add support for it. But they declined our request telling us that a driver supporting the 'open' DLS format would be released in the future.

Q Can I read Kurzweil/Akai/Roland CD-ROMs?

A No, they do not use any standard (e.g. ISO-9660) file format so your CD-ROM/Windows can't read them.

However, there may (or may not) be other programs that specialize in transferring such the files to/from the PC.

Frequently Asked Questions



Shareware and registering

- Q** What does 'registering this software' mean?
- A** This is synonymous with buying it. The different phrasing is used for historical reasons for software that is distributed as 'Shareware' (see below). When you buy it, you become a 'registered' user with the benefits of being able to use the full version of the software for an unlimited period of time.
- Q** How do I register *Awave Studio*, how much does it cost, and how can I pay for it?
- A** Please consult the REGISTER.TXT file that comes with the program. It contains detailed instructions. You can pay by credit card, by check, by bank transfer, or by cash.
- Q** Why this nag box in the unregistered version?
- A** Early versions did not have it since we thought that users should get every opportunity to properly evaluate 100% of the program. But we soon realized that that wasn't working and that we had to add an 'incentive' to make people register the program. Sure, *you* are probably very honest and register *all* your Shareware programs that you use, even if they do not contain any nag boxes or are crippled in any way. However, in our experience, 99% of people are not that honest (or rich?). And the nag box did bring a very clear increase in sales...
- Q** Where can I find out if there's a new version of this software?
- A** Check our www site: <http://www.fmjsoft.com/>

The following selected Q&A's have been reproduced from the Shareware FAQ by kind permission of Mitchell Friedman, ASP Public Relations. The Shareware FAQ is copyright 1995-1997, Association of Shareware Professionals, All Rights Reserved.

- Q** What is shareware?
- A** Shareware is a marketing method, not a type of software. Unlike software marketed through normal retail channels, where you are forced to pay for the product before you've even seen it, the shareware marketing method lets you try a program for a period of time before you buy it. Since you've tried a shareware program, you know whether it will meet your needs before you pay for it. Shareware programs are just like programs you find in major stores, catalogs, and other places where people purchase software -- except you get to use them, on your own computer, before paying for them.
- Q** What happens if I like a shareware program?
- A** You pay for it at the end of a trial period (typically 30 days) by sending the author a fee he or she has established for the program.
- Q** Why should I pay for and register a shareware program?
- A** The same reason you should pay for any program: because it is the honest thing to do. Shareware is commercial software, fully protected by copyright laws. Like other business owners, shareware authors expect to earn money for making their programs available. Paying for and registering a program also entitles you to support from the author and other benefits, as specified by the author.

Moreover, the more consumers who pay an author to use a program, the more likely the author will continue to improve it and to offer new programs.

Q How do shareware programs compare with other kinds of software?

A Consumers who purchase shareware programs receive a level of product support that exceeds what traditional software manufacturers deliver. Shareware users who need support often speak directly to the actual developer of the program, who is intimately familiar with how it operates and therefore can provide excellent technical support. Shareware authors often fix bugs in programs and add features quickly, based on feedback from users. There is a wide price range for shareware, as there is with software distributed through other channels. In general, many shareware programs cost less than other kinds of software, while some programs cost about the same as retail counterparts.

Q What do I receive when I pay for a shareware program, besides the use of the program?

A Typically, the same things you receive when you pay for other software: support by telephone, fax, computer bulletin board, and/or through online services such as America Online, CompuServe, and Microsoft Network. Many authors also send manuals, reference cards, and other printed materials, and may offer free upgrades. Every shareware program is different, so the version you purchase comes with different materials. Documentation files included with the program describe the benefits you receive by paying for and registering a particular shareware program.

Q What happens if I don't like a shareware program?

A You simply stop using the program, and remove it from your system. Since you have had the opportunity to try the program first before paying for it, you lose only the tiny amount of money you spent to download the program or to acquire it from a vendor or other source.

Q I ordered a shareware program from a catalog and paid for the disk. Why should I pay more now?

A Shareware vendors distribute shareware versions of programs, charging a small fee for the costs of disk duplication and advertising, plus a small profit. Most shareware authors allow this type of distribution so you'll have a chance to try their programs. However, none of the money paid to a shareware vendor goes to the author. If you try a shareware program, then continue to use it after the trial period, you must pay for and register the program. The same principal applies if you buy a shareware disk at a computer show or find a shareware program on a CD-ROM disc or at a store.

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Frequently Asked Questions



Conversion issues

- Q** Why can it only convert song data from .MOD files and not e.g. from .X3M modules into MIDI format?
- A** This is a complicated process and MOD is the simplest and most widespread of these formats. So in addition to it's 'nostalgic' values, that made it our top priority to implement. If there is enough demand, we may perhaps add additional format translations.
- Q** Can I use it to convert an audio file into a format that I can burn onto a CD and play on a standard CD-player.
- A** Yes, sort of, what you need is an CD-authoring program for your CD-writer (usually you get one bundled with the writer). Most of these today accept standard WAV files as input for each track for creating an audio CD. But they can sometimes be a bit picky about what sample rate et c that the WAV files are saved in. If you resample the data to 44100Hz before saving and save them as 16bit PCM stereo WAV files then it should work.
- Q** I'd like to be able to add a few audio file format conversion functions to my commercial software, is it possible to license parts of the *Awave Studio* code from you?
- A** Yes it is, for more information look at the dev tools section of our www site: www.fmjsoft.com
- Q** Why do I need an external 'helper app' to write to MP3 format?
- A** The patent licensing costs for (legally) including an MP3 encoder would make the program too expensive. So instead set up an external program to compress MP3's. There are a few such programs such as Mp3Enc.ex and BladeEnc.exe. How those have solved the patent issues are none of our business.
- Q** I can't read/write stuff from/to floppies for my Ensoniq EPS or ASR-10!
- A** See the next **Q**. You need a program called 'EDE' from Giebler Enterprise – www.giebler.com.
- Q** For some synthesizers formats (like Ensoniq & Roland formats), *Awave Studio* can only read 'disk images', why can't it read the disks directly?
- A** Because they are not in FAT compatible format and thus are not readable by the OS. This means that it would require some serious low-level reprogramming of the floppy disk controller in order to read them. While this is possible under DOS and perhaps under Win3.1, it is far more difficult under Win95, not to speak of under Win NT, requiring (three different) custom ring 0 device drivers (for the three resp. OS's). This is not a project I care to embark upon... There are Shareware/Freeware DOS programs for the resp. synthesizers that you can use to make disk images instead.
- Q** How do I read/write 'raw' data files without any header information?
- A** As these can't be autodetected (due to the lack of header) and there is no standard for the file extension, I have had to make up some file extensions. If you rename your files to have the proper extensions then they should read just fine! BTW, all formats assume little endian (Intel style) byte ordering. You also have an option of saving 16bit words in big endian (Motorola style) format but when reading these you will have to manually enter the waveform 'source' property sheet and check the 'byteswap' box (finish by hitting 'Apply'). Anyway, the various 'raw' formats are named

as follows:

.ub unsigned 8bit bytes
.sb signed 8bit bytes
.uw unsigned 16bit words
.sw signed 16bit words
.udw unsigned 32bit dwords
.sdw signed 32bit dwords
.f32 IEEE 32bit floating point (import only)
.f64 IEEE 64bit floating point (import only)

Q I converted a file to .AU format for use in a Java applet but it doesn't work!

A The standard Java code is really stupid in that it is *very* particular as to what 'flavor' of .AU files it will accept... It must be an 8kHz, 'mu-law subformat' .AU file. First use the Audio Processing Wizard to resample the waveform to 8000Hz. Then save it as an .AU file and specify *mu-law* in the subformat list of the save file dialog.

Q Why is there three levels (region, layer, instrument) of articulation data? What happens with this when I save a file?

A Articulation consists of 'modifiers' that change the sound over time, e.g. lfos and envelopes. *Awave Studio* supports articulation parameters stored at 'three levels', instrument global, layer override, and region override articulation. Each level can be enabled or disabled. The relation between the three levels should be interpreted as follows: When a waveform is played, the 'per region override' articulation parameters are used if enabled. If not then the 'per layer override' articulation parameters are used if enabled. If not, then the 'instrument global' articulation parameters are used if enabled. If not, then reasonable, neutral default values are used. Now, various synthesizers generally only support articulation parameters stored at one of these three levels. When reading files this is naturally not a problem. When writing to a format that supports per region articulation then the process for determining the articulation for a waveform outlined above is used to find the per region parameters to write. But what happens when the output formats only support per layer or instrument global articulation? The approach used is to average the articulation for all the waveforms used in the layer or the instrument, i.e. the process described earlier is used to 'propagate down' articulation to every waveform. All the 'waveform articulations' are then 'averaged upwards' to the articulation level that we want. *Sounds complicated?* This is the best process I have been able to figure out for converting between the formats of different synthesizers. As an example consider if only per layer articulation is enabled in a single layered, two-region instrument and we want to save this instrument to a file format that supports only per layer articulation. This process will save the instruments per layer data in the files per layer data as is natural (although it has first been propagated down to each of the two regions and then averaged back to form the original per layer articulation again). Let's say you then enable the articulation for one of the two regions. When next you save the instrument again, the average of the per layer data (propagated down to the waveform with no per region articulation) and the new per region data (for the articulated regions waveform) is saved as the files per layer data...

Hint! While very useful for making good conversions, this three level articulation structure may only be confusing when editing instruments targeted for a specific synthesizer. In this case you can use the Instrument processing wizard to 'move the articulation level' of all data to the single level supported by your target synthesizer. E.g. if you will be using the Turtle Beach Maui synth then you can use this to get all the articulation at the 'per layer' level.

Q It does not seem to convert envelope/lfo/layer data for my instrument file format!

A There can be several reasons:

- a) Your file format do not support that particular kind of data. See the table below.
- b) *Awave Studio* do not support that particular feature of that particular file format. This can be because: i) it uses a format completely incompatible with the one used by *Awave Studio* (this can often be the case with envelopes, of which there seems to be as many varieties as there are synthesizers...), or ii) it is an obscure file format for which I have not cared to implement every finest detail. See the table below.
- c) Perhaps it is there but has been ‘averaged’ out so much that you don’t hear it. This can e.g. happen if you have an instrument with 10 waveforms, each with their own per region articulation, and save it to a format that only supports e.g. instrument global articulation. If one of the regions has articulation differing from the others then it still only affects 1/10th of the instrument global articulation data that is saved which may be too little to hear. Read the previous Q for a more in depth discussion about how articulation is treated. To avoid confusion, you can use the [Options→Preferences→Parameter set](#) feature to disable articulation for all levels not supported the output file format. See the table below for what level articulation various file formats supports.

Here follows a table of what is implemented for some of the most important instrument file formats:

<i>Format</i>	<i>Layers</i>	<i>AmpE</i>	<i>PitchE</i>	<i>LFO</i>	<i>LFO shapes</i>	<i>Effects</i>	<i>Filter</i>	<i>Articulation</i>
.DLS+	-	Y	Y	Y	-	-	-	per inst.(mel.) / per region (drums)
.DLS*	Y	Y	Y	Y	-	Y	Y	per inst. + per region
.EFE	Y	N	N	N	N	-	-	per region
.FFF	Y	Y	N	Y	tr,pt	Y&	-	per region (env.'s) / per layer (lfo's)
.PAT	-	Y	-	Y	tr	-	-	per region
.PBF	Y	Y	Y	Y	tr,sin,sqr,saw	-	Y	per layer
.SBK	Y	Y	Y	Y	tr	Y	Y	per region
.SF2	Y	Y	Y	Y	tr	Y	Y	per region
.WFP/BY	Y	Y	Y	Y	tr,sin,sqr,saw,pt	-	-	per layer, max 4 layers.

Y Supported by *Awave Studio*,

N Supported in some sense by the file format, but *not* by *Awave Studio*,

- Not supported by the file format.

+ Conforming to the DLS level 1 standard.

* Conforming to the DLS level 2 standard.

& Not supported by the current drivers though...

LFO-shapes: tr=triangle, sin=sine, sqr=square, saw=sawtooth, pt=positive triangle

Q The converted instrument looks all right, but when I upload it to my synth, I can't hear anything when I try to play it!

A There can be several causes.

1. Make sure that you have in fact uploaded it correctly to your synthesizer correctly. As this is done differently for almost every synth, we can't help you there; you must know what you are doing.
2. Make sure that you have assigned it to the correct program number and MIDI channel as you are trying to play it 'on' and check that all MIDI routing et c are OK so that MIDI data actually gets where you want it to.
3. Look at each 'region' in the instrument; the region(s) is used to trigger a waveform. Look at the key range parameter. The waveform is only triggered if the MIDI key lies within the key range (e.g. drum sounds is often only triggered by one single key).
4. Look at each 'region' in the instrument. Look at the velocity range parameter. The waveform is only triggered if the MIDI key down velocity lies within the velocity range.

5. Look at both all the regions and all the waveforms. Check the 'damping' parameter. This adjusts the 'volume' at which the waveform(s) is played. Perhaps it is set so low that you can't hear anything?

Q Why do loops sometimes 'click and pop' when converted to my synth's format?

A A possible explanation may be that there are reverse or bi-directional loops and your synth doesn't support those. In these cases those loops are saved flagged as normal forward loops but they are not actually converted to forward loops. However you use the Audio Processing Wizard to convert them to 'forward' loops. Then save it in your synth's file format. Of course it may also be that the loops simple are badly made so that the pops and clicks where there to begin with...

Q It displays the root-keys one octave too high in my files!

A Not necessarily. It may be that we simply use a different numbering for the octaves than the program you created the original file in. There are two ways to number the MIDI keys. One by starting with C-1 for MIDI key number 0 which gives C4 as the 'middle C'. The other starting at C0 for MIDI key 0, which gives C5 as 'middle C'. The difference is only semantic, there is of course no difference in the sound if you call something C4 or C5... *Awave Studio* use the latter way, starting at 'C0'.

Q When saving stereo data to a format that only support mono waveforms (like .PAT) or when doing an SDS transfer, how do I specify which channel of the stereo data should be used?

A In these situations the channels are automatically merged using an 'arithmetic average' algorithm. However, you can use the waveform Audio Processing Wizard to specifically convert the data to mono before you save it; there - you can choose between 'average of channels', 'left channel only' or 'right channel only' algorithms.

Q Why can't it read .CDA (i.e. Audio CD's under Windows 95)?

A Because to do that we would need to 'speak' directly to the CD-ROM hardware. Not only does that work differently with different hardware, it also works differently under different Windows versions. And it doesn't work very well with many CD-ROM anyway (not all of them can sync properly when reading in 'raw mode' so there is clicks and stuff in the audio). So we feel that this task is best left to a dedicated software. There are several, e.g. WinDAC32.

Q How do I read a file as 'raw audio' data, i.e. how do I override the automatic type detection?

A If the file in question is 'auto-detected' with '100% certainty' (in the lower right portion of the file open dialog) as a supported file format then you can't. You can however often go 'waveform→[properties](#)→[source](#) tab and change the data type there. This will not work for some types. If the file type can't be detected at all (0% certainty) then it will be read as 'raw data' and you will automatically get to this tab when you load the file. If however it is detected with say '33% certainty' and you get an error message when you try to open the file then you may try to remove the file extension (e.g. turn 'foo.bar' into 'foo') and open it again.

Q My synth complains about something with name collision, or that it need unique names in some way – help!

A We attempt to ensure that all items have unique names (since this is required by several synthesizers). This is accomplished by adding a number to the end of the name whenever a collision would otherwise have occurred. However, it may well be that the file format for your synth only allows much shorter names than what we do, so the when they are truncated to fit, the names no longer are unique. If this is the case, you will simply have to keep an eye open for the situation and manually adjust the names wherever necessary before you save it.

- Q** I'm saving FFF files, why can't I hear any reverb, chorus, or lfo on the instruments in this file even though I have set these parameters?
- A** For reverb and chorus: Ask Gravis! (Actually, as they no longer are in the sound card business, don't bother...) These parameters are written to the files, but it seems like the current drivers ignore these 'default effect' parameters. You should be able to insert MIDI reverb and chorus send control change commands in your MIDI songs to explicitly set reverb and chorus levels instead. For lfo's: The FFF format only supports lfo's 'per layer' so any 'per region' or 'instrument global' lfo articulation parameters are averaged over the layers. If you use a multi-region layer where only one of the regions has lfo set to max and the rest of them has it set to 0 then, naturally, the average of them all (that is written as the layer lfo) may be too small to hear...



Frequently Asked Questions



Editing issues

- Q** Where is all the audio processing functions listed in the help file for the Audio Processing Wizard? I only see a few of them!
- A** Some of them are only applicable to some sorts of data (like 'convert mono to stereo' is only meaningful for mono data) while other is only implemented for some data types (like remove silence only works on mono data) and *finally*, many of the functions requires you to select a range in the waveform first. To do that, in the waveform properties editor tab, press down a mouse button over the waveform, drag with the mouse and release the button. To deselect all, just click on the waveform again.
- Q** How can I 'hear' the loop in the loop point editor?
- A** There are two ways:
- 1) Press the *play* |> *loop* button to start/stop playing the loop. While it is playing, you can directly hear changes while you edit the loop points. There is a delay of second or two, due to the buffering in the software synthesizer...
 - 2) Using auditioning. First enable auditioning. Back in the loop point editor, press the 'Apply' button to update the loop point. Then play it on your keyboard! If you don't have an external MIDI keyboard and are using *Awave Studio's* 'virtual keyboard', then you'll have to use some other 'virtual keyboard' program since it won't work in the property dialogs (where you need your computer keyboard to type in numbers and things).
- Q** My synthesizer doesn't support bi-directional or reverse looping, what can I do about waveforms that uses it?
- A** Use the Audio Processing Wizard to convert them to forward loops. Note that any region 'loop overrides' will be left as is and you will have to sort those out by hand if necessary...
- Q** How do I create an appropriate amplitude envelope for 'one-shot' waveforms, which really should have no amplitude modification and be played until the end of sample data?
- A** The simple ADSR envelope provided by *Awave Studio* can't really handle this case. The '*tweak solution*' is to set the attack duration to 0 and sustain and release values to maximum. If the sustain and release values are at their maximum then it will be saved with an envelope appropriate for such 'one-shot' waveforms
- Q** In the waveform source properties page, why is the data type controls always 'grayed out' for some file formats (like .WAV)?
- A** These controls are only available for file formats that internally are handled by a 'generic' waveform data reader. Some file formats has more specialized readers that won't let you change these things. There's really no reason why you should change these things in those cases; the data type controls is intended for use when reading raw data formats which lack any 'header information' and you may have to manually adjust the data type. Another reason they may be 'grayed' is if you have done any editing or processing on the waveform data. In that case they are grayed to prevent the 'editing' from being lost (by rereading the data from disk which is what happens if you change the data type).
- Q** How can I use a stereo waveform in an instrument for my synthesizer?

- A** If the synth supports multi-layering, you can split the stereo waveform into two mono waveforms (e.g. using the Audio Processing Wizard), pan them full left res. full right and put them in separate layers in the instrument. This whole process can be fully automated by using the Instrument Processing Wizard's 'Split stereo waveforms' feature!

There is one more thing, some synthesizer formats supports an additional 'cue' to let the engine know that the samples should be played back in 'phase lock', this means that everything affecting pitch (pitch bend, lfo's et c) is calculated the same for both of them. In the DLS world, which we use, you set the region level 'phase group' parameter to the same group number for all waveforms that should be played back in phase lock. And you check the 'phase master' box for the one that should be used to calculate all pitch effects for all of the waveforms in the same phase group.

- Q** What about drum kits? Are they supported?

- A** Drum kits are treated as just another multi-waveform instrument, but has a 'Drum kit flag' set in the instrument property sheet. They are also indicated with a different icon in the tree-view. Note that different synthesizers select and number drum kits a bit differently; some select them by program number alone, some by bank number, and some by both. *Awave* uses both the bank and the program number as one 'linear' number so that drum kits no 0 to 127 are all in bank 0. Kit 128..255 are in bank 1 et c. This is then translated to or from the numbering scheme used by each particular synthesizer and file format. For maximum portability, it is recommended that you always set the bank number to 0 for drum kits.

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Frequently Asked Questions



Miscellaneous issues

- Q** How do I pronounce *Awave* and does it have any meaning?
A In two parts, like “*A wave*”. No, it was inspired by terms like AudioWaves, AudioWorkshop, AnyWave, AllWaves, or names like that, but indecision set in :-)
- Q** Where can I find free audio samples and instruments?
A The Internet is good source. Here is a (by no means complete or 100% up-to-date) list of sites you may want to check out:

SoundCentral	http://www.soundcentral.com/
Hammer Sounds	http://www.pvv.org/~thammer/HammerSound/
<i>Atmosfear's Synth Gallery</i>	http://www.servtech.com/staff/spetry/
<i>An SB32/AWE32/AWE64 page</i>	http://www.telebyte.nl/sound/awe32.htm
<i>Some AWE-32 files</i>	ftp://ftp.inc.net/pub/awe32/
<i>More AWE32 files</i>	http://www.geocities.com/SiliconValley/park/3452/jns.html
<i>Yamaha TX16W site</i>	ftp://ftp.t0.or.at/pub/sound/tx16w/
<i>Various .WAV files</i>	ftp://ftp.funet.fi/pub/sounds/wav/samples
<i>Roland files</i>	ftp://lotus.uwaterloo.ca/pub/sgroup/samples
<i>Ensoniq files</i>	ftp://oak.oakland.edu/pub/eps/samples
<i>Official Ensoniq site</i>	http://www.ensoniq.com/
<i>The Kurzweil Launch Pad</i>	http://home.sprynet.com/sprynet/palermo/k_main.htm
<i>Some Kurzweil K2000 files</i>	ftp://bach.nevada.edu/pub/K2000/sounds
<i>Yet more Kurzweil K2000 files</i>	ftp://ftp.sweetwater.com/pub/k2000/files/
<i>Gravis UltraSound archive</i>	ftp://wuarchive.wustl.edu/packages/ultrasound/sound/
<i>MIDI SDS format samples</i>	ftp://alf.uib.no/pub/MIDI/sds/samples
<i>Some AKAI sounds</i>	ftp://ftp.mfi.com/pub/keyboard/AKAI/

- Q** Can I just use any 'sound data' that I happen to find for whatever purposes that I like?
A No, you must first make sure that it is in the public domain and that it is not copyrighted material. If it is copyrighted, then you will need to have permission from the copyright owner. Most materials that you find on the Internet are public domain though ('unless otherwise stated') but it is up to you to make sure that it really is the case.
- Q** Can you tell me a little about the capabilities of different synth chips?
A Well... the following table might be of some interest comparing different chip sets:

Chip:	MA-1	EMU8000	GF1	InterWave	WaveFront
Used by:	Pinnacle Apex	AWE32 SB32/64	GUS GUS Max	GUS PnP	Maui Tropez
File format(s):	PBF	SF2, SBK	PAT	FFF+DAT	WFB,WFD,WFP
Max. sample rate:	48kHz	44.1kHz	44.1kHz	44.1kHz	44.1kHz
Polyphony at "-":	32	30?	14	32?	24

Multiple loops:	-	-	^	^	-
Forward loops:	Y	Y	Y	Y	Y
Reverse loops:	-	-	Y	Y	Y
Bidir. loops:	-	-	Y	Y	Y
Sampled release:	-	Y	Y	-	-
Fractional loop pt:	-	-	4bit	4bit	4bit
Max up-pitch shift:	1 oct?	2 oct	no limit?	no limit?	no limit?
Lfo shapes:	4	1	1	2	8
Lfo at:	per layer	per wave	per wave	per layer	per layer
Envelope at:	per lay/wav	per wave	per wave	per wave	per layer
Max envelope pts:	13	4	6	unlimited?	6
Max.layers per inst:	32	unlimited?	1	unlimited?	4
Chorus & reverb:	Y	Y	-	Y	-

Y Supported by hardware (but not always by software)
 - Not supported (as far as I know)
 ^ Can perhaps be done with some clever programming but not supported by current software.

Q With which synthesizers can I use SDS/SMDI transfers?

A There are so many synthesizers out there...

But here are a few that we have been told supports SDS and/or SMDI:

SDS:

Akai S2000, S3000
 EMU 32SI E64 EIV
 Korg T1, T2 and T3
 Kurzweil K2000, K2500
 Roland S-50, S-330, S-550, S760

SMDI:

EMU 32SI E64 EIV
 Kurzweil K2000, K2500
 Peavey SP, SX.

Q I've connected my AKAI synth to my PC via a SCSI-cable. Why do I get an error message when I try to do an SMDI sample transfer?

A Because the synth doesn't support SMDI? AKAI seems to use a proprietary method of transferring samples over SCSI.

Q I try to load, convert, audition or play this really huge file, but it takes a very, very long time and the program just exits with an out-of-memory message... (Or perhaps it even crashes?)

A *Awave Studio* is currently limited to working only with files it can fit into memory. To play huge files you may need a huge amount of *physical* RAM. And when loading and saving stuff it sometimes may need up to twice as much memory as the size of the uncompressed 16bit sound data.

Q I try to convert this MPEG file, which is only, lets say 7MB, I have lots of more memory than that but it *still* behaves like in the previous Q? Why is this?

A Well, a 7MB *compressed* MPEG file becomes about 75MB when uncompressed! And if that needs to be converted further before saving, then the memory requirement could become double that – a whopping 150MB! That is enough to bring many a PC on its knees... What you need is a program that decodes the MPEG file 'in small pieces at a time' (known as streaming), e.g 'l3dec.exe'.

Q The program just exits after I have used it for less than a minute! Is this normal?

A No. The most probable explanation for this is if AWAVE.EXE has been tampered with (it has a built in protection against such things!). Perhaps the file was corrupted during a file transfer or a disk problem. Or if you are unfortunate, your system may be infected by a computer virus! Try running an anti-virus program to see if your computer is 'clean' and if it is, then try (re-) downloading it directly from our official web site.

Q Why don't you make a Macintosh version?

A With SoftWindows 95 you can in fact run *Awave Studio* on a Power Mac. For a 'native' version, see the next Q.

Q Why don't you make a DOS/OS2/Linux/Unix/Amiga/Atari version?

A Because we don't have the time and don't think the market would motivate in purely economical terms.

Q Why don't you do a French/Dutch/Japanese/whatever language version?

A Partly because we do not possess the necessary language skills. But mostly because developing and maintaining several different language versions would mean a huge amount of additional work and we believe that 99.9% of the users knows enough of the English language to use the present version. If anyone would like to translate the help file, then we'd be happy to supply the necessary English source texts files.

Q Why is there no manual for this program?

A Duh, you're reading it!

Q Can you help me with this or that problem that I'm having with my soundcard/computer/software/whatever? Can you tell me what to buy? Et c, et c.

A NO! Some people seem to believe I am some sort of 'free tech support' for any kind of stuff that they've got. I will do my best to answers questions concerning my own software and help any registered users with what problems they may have it. For anything else, please contact the manufacturer and/or distributor for the product in question!

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Frequently Asked Questions



Auditioning and Audio playback issues

a) General auditioning issues:

- Q** The Audio Player doesn't work. I get no sound, or it sounds really strange..
- A** Try selecting 'Use Windows multimedia services, unbuffered output' in the **Options**→**Program**→**Audio device** tab.
- Q** The virtual keyboards key layout is not well suited for my non-QWERTY keyboard (e.g. German keyboards. may have X and Y swapped). What can I do?
- A** You can edit the key assignment for the virtual keyboard with the registry editor (regedit.exe) that comes with Windows 95. Open "this_computer→HKEY_CURRENT_USER→Software→FMJ-Software→Awave Studio" and edit the mtVKeys string. It's just a string of (normally 29, but maximum 36) characters holding the ASCII key to assign to a note, beginning with C3 for the first character, then in increasing order.
- Q** Why doesn't the virtual keyboard work in the property sheets?
- A** Because there you may need your keyboard to type in numbers and stuff. Use some 'on screen' virtual MIDI keyboard program instead (like the vpiano.exe program that comes with Cakewalk Audio).
- Q** Why can't I select 'Use Microsoft DirectSound services'?
- A** You need to install DirectX v2 or later (available for Windows 95 or NT).
- Q** I get a 'DS::CreateSoundBuffer()' message when I set the Audio Player to 'Use Microsoft DirectSound services'. Why?
- A** You probably have DirectX v1 installed. You need DirectX v2 or later.

b) DirectMusic synths:

- Q** Does it support DirectMusic and the Microsoft software synth for auditioning?
- A** Yes it does! And it is much better than the primitive internal software synth!
- Q** How do I get DirectMusic?
- A** You need to install Microsoft DirectX v7 or later. It should be available as a free download from <http://www.microsoft.com/directx>.
- Q** I can't hear all regions and/or layers when using this for auditioning!
- A** The current (DirectX 7) version of the Microsoft software synth is 'DLS level 1' only. This means that melodic instruments can have only a single layer with a maximum of 16 regions. With DirectX v8 it should be update to DLS level 2 support though, which doesn't have these limitations. And since Awave Studio is already prepared for that, this problem will go away with time!

c) The Sound Mixer:

Q How can I make it sound better?

A Install Msft DirectX (v2 or later) on your computer. Go **Options**→**Preferences**→**Audio device** and select 'Use Microsoft DirectSound services'.

Q It doesn't play reverse and bi-directional loops correctly!

A Yes, they aren't supported by this simple software synth.

Q There are 'breaks' in some loops! Why?

A If you have the Audio device set to use any of the 'Use Windows Multimedia services' modes, and the loop is very short, then the software synth may 'skip a few beats' every now and then during the loop... The solution to this problem is to set the Audio device to the DirectSound mode.

d) Creative Labs SB Live! / Emu SoundFont Management System:

Q I have an SB Live!-card (or any other card that supports the Emu SoundFont Management System) but it doesn't appear in Awave's list of auditioning devices, what should I do?

A Install the latest version of the Emu SoundFont Management System. It's available from FMJ-Software's www site.

Q I get the error message "You need a newer version of the soundfont manager". What's wrong?

A You need to install v1.01 or later of the Emu SoundFont Management System. You probably have v1.00.

Q The SoundFont Management system installs a 'SoundFont MIDI router' MIDI device in my system. I don't want it. Can I remove it safely?

A *Awave Studio* do not need the MIDI router device but here may be other applications that do. It's up to you... But you can always keep and turn off 'map through this device' in the Windows multimedia settings if you don't want MIDI files to be played through it...

e) Creative Labs SB AWE32 / AWE64 / SB32 (EMU8000 synths):

Q Program complains about not being able to load AWEMAN32.DLL when I try to use auditioning on the SB AWE32 (or compatible).

A You must have this .DLL installed in your WINDOWS or WINDOWS\SYSTEM directory. You must also have the very latest driver that supports the new .SF2 file format.

Q After having used *Awave* and auditioning I sometimes cannot play back MIDI files properly! Instruments are silent or messed up!

A You need to restore your original MIDI instrument setup. Quit *Awave* then launch the Awe Control Panel. Use it to clear all user banks and to reload your GM or GS bank.

Q I get this message: AWEMAN32::AWE_ERR_DEVICE_DRV_INVALID

A You may have 'mixed' up driver versions. This happened to some people who had installed the 'beta SF2 drivers' and then an sbw95up.exe package which contained newer SB16 drivers but in fact older AWE32 drivers. Get and install the very latest drivers.

Q After running *Awave* and using auditioning for the AWE32, I have trouble running a few 16bit

programs that uses the AWE32. Why?
A This is a bug in early 'beta SF2' drivers. Get the newest release drivers.

Q So, where can I find the latest AWE32 drivers then?

A On the Internet, from: "<http://www.creaf.com>"

Q When auditioning waveform items, I can only hear anything within a certain key-range.

A It seems like the EMU8000 synthesizer use by the AWE32 can only interpolate within a certain range so if the note is too far off from the Root key, then nothing will sound.

f) Turtle Beach Maui / Tropez / Rio (WaveFront synths):

Q Program complains about not being able to run something named AW2WF16.EXE!

A You must have this .EXE file installed in the same directory as AWAVE.EXE. This file does not come with the Awave package but can be downloaded separately from our www site.

Q Program complains about not being able to load WFGATE.DLL when I try to use auditioning on the Maui/Tropez.

A You must have this .DLL installed in your WINDOWS or WINDOWS\SYSTEM directory. It is available from Turtle Beach and it comes (and is automatically installed) with the latest versions of the Windows drivers as well as their WavePatch software.

Q When having auditioning enabled, why does it take such a long time to start up?

A Not my fault. It's the same thing as when starting TB's WavePatch.

Q When I load a bank file (.WFB) in WavePatch to my Tropez or Rio, I get a 'bank not saved for the Tropez/Rio' message. Why?

A *Awave* sets 'Maui' as synth name in the WFB files but that is the only thing that would differ from a Tropez or a Rio bank. Just click OK to load it anyway.

Q What is this AW2WF16.EXE file?

A TB provides sample downloading support through something called the GateKeeper which is implemented by the WFGATE.DLL file. But, it is 16bit code and TB has failed to provide a 32bit equivalent meaning that 32bit programs can't use it. Thus the AW2WF16 program, which acts as a middle layer between AWAVE.EXE and WFGATE.DLL.

g) Advanced Gravis UltraSound Classic / Max / Ace (GF1 synths):

Q I can only hear the first layer in a multi-layered instrument!

A The GUS do not support multi-layering.

Q Some regions are 'mute' in large instruments!

A The current GUS driver seems to be limited to a maximum of 16 regions per instrument. Even though the .PAT file format supports more, only the first 16 regions will be used (and heard, the rest will be mute).

h) Advanced Gravis UltraSound PnP (InterWave synths):

Q Auditioning doesn't work! It plays the wrong instruments!

A Make sure that you have the soundcard drivers of version 2.0 or later.

Q It complains that it can't find 'IWINIT.EXE'. What can I do?

A This file must be placed in the same directory as your IW.INI file. On most systems it already put there by the UltraSound installation program is there but if it not, then locate it and place a copy of it there.

Q I have turned on auditioning and selected the GUS PnP as auditioning device, but now *Awave* just 'freezes up' whenever is select anything the tree-view list! Help!

A If you look in the task bar (or at the minimized icons if you're a Win3.1 user) you'll see that a DOS-box having finished running IWINIT.EXE. Close down the DOS box manually and *Awave* should 'unfreeze'. To avoid this situation in the future, locate IWINIT.EXE on your disk using the Windows Explorer. Click the right mouse button on it and select properties. Select the 'Program' tab. Check the 'Close on exit' box. Click 'OK'. This assumed you were using Windows 95 or NT 4.x; if you're a Windows 3.1 or NT 3.x user you would use the PIF editor to do something similar (consult your Windows manual for help about the PIF editor).

Q Why does it have to use IWINIT.EXE?

A This is the only way that I currently have found to force the drivers to reread certain information that is crucial to making auditioning work...

i) Aureal 'Vortex II' / TB Montego II (Aureal 8830 synths):

Q Why doesn't it work with 'my' Vortex II based card?

A The Vortex II auditioning has been tested with Aureal's reference drivers and with TB's Montego II drives. It ought to work on others as well but if you have another card based on the same chipset that it doesn't work with, then we'd like to hear from you!



Glossary

The world of digital audio and particularly wavetable synthesis can sometimes be a bit confusing when you are new to the subject. As help on the way to becoming an 'initiate', here is a small glossary of common terms and abbreviations that may come in handy for the beginner.

*Note: Entries marked with * has been borrowed from the 'Beginners synthesizer FAQ' by kind permission from its author Chad Gould (see <http://tilt.largo.fl.us/faq/synthfaq.html>).*



ADSR - The 'classic' envelope consisting of four phases – Attack, Decay, and Sustain while the key is pressed, and finally the Release phase when the key is released. *Awave Studio* uses an extended ADSR envelope that also includes Delay (before attack) and Hold (between attack and decay) phases.

Amplitude Modulation - A process that allows you to modify the amplitude (or level) of a sound using various other signal sources. This allows you to produce a range of tremolo or timbre modulation (wah-wah) type of effects. Also known as AM. *

Articulation - The process of changing the sounds of a waveform over time by modulating the amplitude, pitch, and/or frequency content.

Artifact - An audible, usually undesired, side-effect of applying a function (such as a filter) or an algorithm (such as looping) on a sound.

Attack - In an ADSR envelope, the control that determines the time it takes to get to the maximum attack level. *

Auditioning - In *Awave Studio*, listening to an instrument or similar by downloading it to a synthesizer and then playing it in 'real time' using a MIDI keyboard and/or the computer keyboard.

Bank - A set of instruments, all having unique program numbers within the bank. Instruments are often accessed from a MIDI sequencer by specifying their bank number with MIDI controller 0 and sometimes a 'sub bank' number with MIDI controller 32, followed by the program number with the program change controller.

Cent – A measure of 'pitch difference'. One hundred cents equals a half step or one 'semi tone'.

Channel - Or MIDI Channel. Each MIDI cable has 16 channels which a synthesizer can transmit and receive data on them. One must match the channels in the external device to the channels in the synthesizer to get the correct data. *

Chorus - An effects processing algorithm which makes the sound 'richer' as if more than one instrument was playing. It achieves this by adding a second copy of the sound which has been delayed and pitch shifted in a cyclic fashion. For a more detailed description, see <http://www.harmony-central.com/Effects/effects-explained.html>

Collection - In *Awave*, this is simply everything that you have currently loaded. It is this top-level 'thing' which holds all the instruments (each having a distinct bank + program number combination), waveforms, and all the objects in between. You can only have one collection loaded at a time but you can merge different collections if you wish. There are also some file formats in which you can store

complete collections.

Cutoff Frequency - The frequency in which a filter is set to. Beyond this frequency (in a lo-pass filter, the most common), the sound is cut off. *

Decibel (dB) - A logarithmic measurement of sound intensity or amplitude. The rationale for it being logarithmic is that the ear/brain also perceives the 'loudness' of a sound in a more or less logarithmic fashion (although the ear is also very much frequency dependent). The human ear can (at least when you are young and your hearing has not been damaged) perceive differences in loudness through the range from 0 to 120dB. This corresponds to a quite extraordinary span in sound intensity from 10⁻¹² to 1 W/m² in (non-logarithmic) SI-units.

Decay - In an ADSR envelope, the control that determines the time it takes to go from the maximum attack level to the sustain level (set by the sustain control). *

Delay - Sometimes refers to delay time before a specific keyboard section starts (such as a delay time in an envelope or LFO). *

DirectMusic - A new (not yet released when this was written) Microsoft technology designed to replace the older 'Windows MM API' for MIDI audio. Its advantages to the older API are so numerous that I could go on at great length here but I chose to defer until it is actually available to end users.

DirectSound - A Microsoft technology designed to replace the older 'Windows MM API' for digital audio on the PC. The main improvements are lower 'latency' (time from e.g. when a play command is issued until you can hear it play), better hardware acceleration support, and mixing support (previously only one sound could be played back at a time, and by only one application, now with DirectSound, multiple sounds can be played by multiple applications more or less as they want).

Downloadable - Waveforms that are 'downloaded' from the computer to the soundcard RAM, in contrast to factory waveforms in ROM. Many sound cards have dedicated RAM on board for this purpose or can be expanded with such. Several newer PCI cards do not have any RAM on their own but instead makes use of the system memory for this purpose. That way the amount of waveforms possible to download is only limited by system memory and no special memory modules need to be purchased for the sound card.

DLS - The Downloadable Sounds specification. An industry standard for sharing instruments and banks between different synthesizers. It is actually two things today - the Downloadable Sounds level 1 architecture specification - detailing the minimum required capabilities of a DLS synthesizer. And the Downloadable Sounds level 1 file format specification - describing the actual '.DLS' file format used to 'share' the instruments. Both are commonly referred to as DLS level 1 or just DLS 1. DLS 1 was designed with a 'least common denominator' approach so that it should be implementable on most of today's hardware. But this also means that most synthesizer has their own (and generally *much* less well designed) file formats that supports every 'bell and whistle' that that particular synthesizer supports. The new DLS level 2 standard expands considerably on the capabilities of the DLS format while resting on the same foundations. As an important side-note, DLS 1, and in the future DLS 2, are a fundamental part of Microsoft's new DirectMusic technology (introduced with DirectX 6.1).

EG - In some synthesizers, they use the term "Envelope Generator" instead of Envelope; this is a shortened abbreviation for this. *

Envelope - The signal processing device in a synthesizer that controls amplitude over a time. In not-

so-technical terms, it gives sound its shape. It tells when the synthesizer volume should go up and down in volume, and the time it should take to go up and down. Early synthesizers commonly used an envelope type called ADSR, but modern synthesizers tend to have a lot more complicated parameters. The basic concept, however, remains the same. *

Envelope Tracking - A function that changes envelope length, time, etc. depending on what note is played. *

Filter - A device that blocks certain frequencies while letting other frequencies through. *

Frequency - The pitch of a tone. In oscillators (VCOs, etc.), they usually refer to the initial starting pitch. In filters (VCFs, etc.), they usually refer to the setting of where the cutoff frequency begins. In samplers, it sometimes is used to specify the sample rate. Frequency is measured in Hertz, where one Hertz (Hz) is one cycle per second. *

General MIDI (GM) - An industry standard for MIDI synthesizers defining a standard set of 128 'programs' (instruments) as well as how it should interpret certain MIDI messages. The idea is that a 'GM song' played on any GM instrument should sound more or less the same. Of course this doesn't preclude a synthesizer for sounding 'better' than others, nor to provide custom instruments not defined by GM. The 'more or less' bit has been debated in recent years as not being 'good enough' and various solutions have been suggested to provide a stricter standard, the most promising ideas today IMHO being addressed DLS and DirectMusic.

GS - An enhancement of general MIDI defined by Roland Corp. One of the enhancements is that addition to the standard 128 GM instruments, there can be additional 'banks' of different instruments. The GM bank is bank 0. Additional banks are often arranged so that an instrument in a GS bank belong to the same 'category' or perhaps even is a variation of the corresponding instrument in the GM bank with the same program number. Other enhancements include a variety of MIDI messages that can be used to control various aspects of an instrument and its reproduction (e.g. chorus and reverb settings). As a side note, the GM bank of Roland's 'SoundCanvas' GS sound set is today something of a 'de facto' standard for how a GM bank should sound like.

Keyboard Tracking - A function on some keyboards that determines how the area of the keyboard affects tonal qualities. *

Hertz (Hz) - A way of measuring frequency, where one hertz is one cycle a second. *

Hold - When something is 'held' at a constant level for a specified time. E.g. in an extended ADSR

Instrument - In Awave, the top-level object that is 'played' by a MIDI note using wavetable synthesis. It uses a hierarchy of one or more each of layers, regions, and waveforms (in descending order) to produce a sound. It is the waveforms at the bottom of the hierarchy that actually produce the sound. The other layers are used to 'modulate' and transform it in different ways to produce the final result.

Key range - A continuous range of MIDI keys, from the 'low key' to the 'high key'.

Key number - In MIDI, a number denoting a specific note pitch, e.g. 60 means 'middle C'. Each key on a MIDI keyboard is assigned a key number in an increasing fashion. The lowest possible key number in MIDI is 0, often called C0 or C-1 depending on who you're asking (Awave calls it C0). The highest MIDI key is 127, similarly called G10 or G9. For those that are interested, for a modern 'flat' tuning, the root-frequency of a note played by a MIDI key is usually calculated as

$8.17578125 * 2(\text{key_number}/12.0)$ Hz.

Layer – In Awave, a set of regions with non-overlapping key ranges.

LFO - Stands for "Low Frequency Oscillator". An oscillator that in general is not triggered but runs continuously at a very low speed. Is usually used to modulate the pitch (for vibrato), the amplitude (for tremolo) or the filter cutoff frequency (for filter sweeps).

Loop - An option in a sample that allows you to repeat a sample at a certain point when it reaches a certain point in the sample. In other words, a way to repeat a sample forever. The basic sample loop simply loops the sample from a previous point in the sample when the sample reaches a designated end point; this is called a forward loop or a sustain loop. Other types of loops include the reverse loop (a loop where the sample loops from a point near the end of the sample to a point near the beginning; in other words, reverse of the forward loop) and the bi-directional or ping-pong loop (a loop that plays from the starting point to the ending point, reverses and plays from the ending point to the starting point, and continues ping-ponging back and forth). Some samplers allow two loops: a loop for sustaining a note, and a second loop when a note-off message is received (called the release loop). *

Lowpass Filter - A filter which only lets frequencies lower than a certain cutoff point through. *

MIDI - Musical Instrument Digital Interface. A communications protocol that allows one instrument or device to control another instrument or device.

Mix - Often used to describe the amount of volume between one source and another. Often used to describe mixing two oscillator volumes. Also used to describe mixing two samples. *

Modulation Wheel - A wheel that you can control to produce a certain effect. Unlike pitch wheels, which center in the middle, these wheels usually center at 0 (for no effect). Most often used for vibrato, but can be used for many other things as well! *

Multisample - A "patch" that is made up of several samples spanned over the keyboard. For example, a piano patch could be made up of seven samples, each at an octave point of the piano, spanned over the keyboard. This creates a more realistic sound. * In Awave multisamples are built using layers and regions in an instrument.

Pan - The placement of the sound between the left and right stereo channels of a synthesizer. *

Patch – A different word for an instrument, used by some synthesizer manufactures.

PCM - Pulse Code Modulation. A really technical way of describing a sample, often specifically referring to samples hard-coded into ROM. Sample-based synthesizers are sometimes called "PCM synthesizers". *

Pitch Bender - A little wheel that exists on most synthesizers. By raising and lowering the wheel, you can raise and lower the pitch. These pitch bends can even be recorded and played back via MIDI. Neat, eh? *

Program – The 'location' in a synthesizer where you 'put' an instrument. Often referred to by number.

Program number - A number used to access a particular instrument in an instrument bank using MIDI. In GS, the bank and program numbers make up an 'instrument space'.

Q-factor - A common name for the degree of resonance of a filter.

Region - In *Awave*, an object used to map a waveform onto a certain key and velocity range.

Release - In an ADSR envelope, the control that determines how long it takes to go from the sustain level to 0 when the note is released. *

Resonance - The 'resonant peak' in a filter, is a narrow band of frequencies, often located just near the cutoff frequency, where the sound is amplified. This is an 'artifact' of the function used to create the filter but is often used as a special effect by controlling the height of the peak. The degree of resonance is often called Q-factor. If it is high enough, the filter will begin to 'oscillate' by itself even if there is no input.

Reverb - Reverberation. An effects processing algorithm which makes the sound more natural by simulating the many reflections of a sound that occur in a room or environment of some kind. For a more detailed description, see <http://www.harmony-central.com/Effects/effects-explained.html>

Sample - A piece of analog audio encoded digitally. Samples are what make possible much of today's music, as they enable people to take "snippets" of sound and produce either realistic-sounding instruments or astonishing effects. Technically, a sample is simply one "reading" of audio data, but most people refer to samples as a full snippet. * A single 'sample reading' is referred to as a 'wavesample' in *Awave Studio*, and a full recording as a 'waveform'.

Sample Rate - The rate at which a sample is recorded. It determines how many "samples" are reserved to store a particular sample in the machine. For example, a sound sampled at a sampling rate of 44,100 will require 44,100 samples per second to store the sound. The higher the sample rate, the higher quality the sample will be, with less of a phenomenon known as aliasing (a situation where unwanted frequencies appear in the sample, due to the lack of information present in the sampled data). Each sample will require a certain number of bits to store, depending on the machine. From this, you can calculate the storage space a sample requires (i.e., a 16 bit machine requires 16 bits per sample. Monophonic samples require one channel; stereo samples require two. Since 8 bits equals one byte, you can determine that a one second sample will require 88,200 bytes at a rate of 44,100 / 16 bit, monophonic; and double that for stereo samples). *

SDS - MIDI Sample Dump Standard. A protocol for transmitting samples over a MIDI connection.

SMDI - Acronym for SCSI Musical Data Interchange protocol. A way to transfer and manage samples over a SCIS (Small Computer Systems Interface) bus. Serves the same purpose as SDS but is *much* faster and more capable.

SoundFont 2 - An instrument exchange file format developed by Emu Systems and proposed as an open standard. Mostly used by sound cards from Creative Labs (these days also the owner of Emu, or e-μ as I believe it originally was). This format is much more capable than DLS level 1 but should be equal in capabilities with the upcoming DLS level 2 (which, with the backing of Microsoft, has perhaps a greater chance of acquiring a broader support).

Sustain - In an ADSR envelope, the control that determines the level that the sound is played at while the note is being held, and after the other envelope portions (Attack and Decay) have been cycled through. *

Tremelo - A periodic change in amplitude (unlike vibrato, which is a periodic change in frequency).*

Velocity - An MIDI protocol parameter accompanying 'key-on' and 'key-off' commands which tells the speed with which the key was pressed or released. For keyboards that are not 'velocity sensitive', default values are sent.

Vibrato - A periodic change in frequency. Sometimes used as a term for an LFO, specifically a fixed LFO set at a certain speed designed to perform vibrato-like effects.*

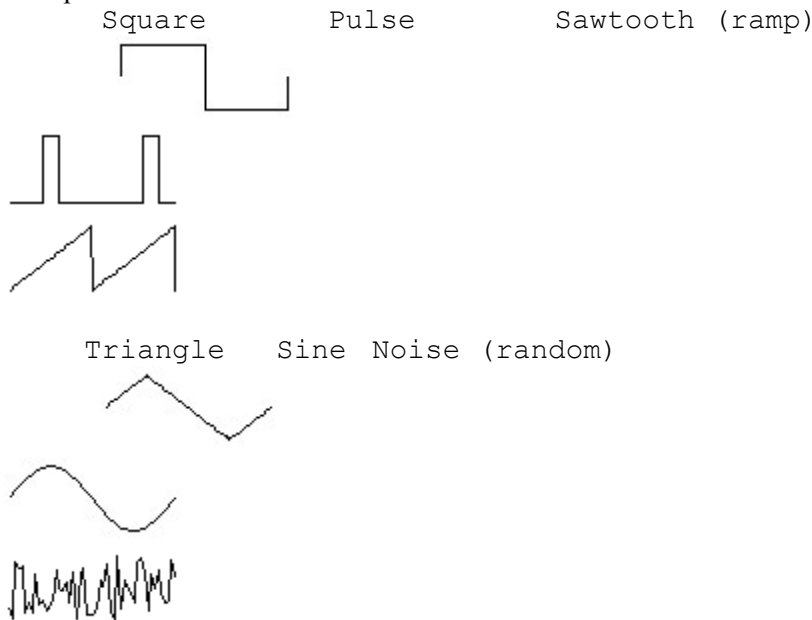
Volume - The perceived loudness or amplitude of a sound.

Wavesample - A number (for each audio channel) describing a finite 'sample' of a sound. When recording sound digitally, wavesamples are measured periodically at an interval determined by the sample rate.

Waveform - The basic building block in Awave. You may also have seen it called it a 'sample', a 'sound', 'audio', or whatever in other programs and in literature. In strict Awave terminology :-), a waveform is a temporal sequence of wavesamples. Or in simpler terms, it is the actual recorded and digitized sound that is played back by your computer.

Wavetable synthesis - The sound synthesis methodology which uses digitally recorded sound, waveforms as a basis for sound production. There are many other forms of synthesis, e.g. 'FM', 'wave guides', 'physical modeling', 'additive', 'subtractive', 'granular' and other, but wavetable synthesis is the dominant one today. Awave 'only' addresses handling instruments used in wavetable synthesis.

Wave shape - The shape of the wave being produced, usually referring to oscillators. Common oscillator wave shapes are square waves, pulse waves (square waves whose width is controlled somehow), saw-tooth (ramp) waves, triangle waves, sine waves, and random / noise waves. The shapes look like:



x

Revision History



Revisions of Awake Studio

version 7.0 <2000-03-22>
version 6.2 <2000-02-12>
version 6.0 <2000-01-01>

Revisions of Awake, the predecessor to Awake Studio

version 5.4 <1999-10-18>
version 5.3 <1999-08-05>
version 5.2 <1999-07-01>
version 5.0 <1999-01-22>
version 4.9 <1998-08-30>
version 4.8 <1998-07-02>
version 4.5 <1998-06-16>
version 4.4 <1998-01-01>
version 4.3 <1997-10-01>
version 4.2 <1997-08-20>
version 4.1 <1997-07-03>
version 4.0 <1997-03-18>
version 3.2 <1996-09-17>
version 3.1 <1996-06-06>
version 3.0 <1996-04-21>
version 2.7 <1996-03-10>
version 2.5 <1996-01-21>

Revisions of 2PAT, the predecessor to Awake

version 2.0 <1995-09-09>
version 1.5 <1995-04-14>
version 1.4 <1994-10-14>
version 1.3 <1994-08-02>
version 1.2 <1994-07-28>
version 1.1 <1994-06-08>
version 1.0 <1994-04-27>
version 0.1 <1993-11-13>



version 7.0

Added support for true clipboard copy & paste of instruments, layers, regions, and (multiple) waveforms! The great thing with this compared to drag'n'drop (as is also supported since earlier versions) is that you can open multiple instances of Awake Studio and copy and paste things between them! You can also copy something from one file, then close it, open up a new one, and still be able to paste the data.

The file open/merge/save toolbar buttons looks a little bit different now, plus there's a new 'Save collection' entry in the file menu and a corresponding tool bar button. This will save the currently loaded collection to the file it was opened from without asking for a file name or output format – i.e. if that file

format is supported for saving collections. Else it will prompt for a new file type but present a default name (and save directory) that matches the file it was opened from.

Added a slight 'texture' to all windows.

Added a splash screen and new logo (check it out in the About dialog too!).

Added recording support in the form of a 'Waveform recording wizard'.

Added SMDI transfer protocol support for transferring samples over a SCSI connection. To use it, you need to have an 'ASPI for Win32' driver installed (WNASPI32.DLL) as well as a SMDI capable synthesizer hooked up to your SCSI chain. The new 'SMDI receive' and 'SMDI transmit' commands on the new Tool menu works much like the corresponding MIDI SDS commands.

Added an 'Instrument Processing Wizard'. It is accessed by right clicking on a region, layer, instrument, or a collection and selecting 'Process...' from the context menu. You can also select it from the Tools menu - if no instrument item is selected then it will default to the entire collection.

Here are the functions that it currently provides (not all available for all item types):

- Modify region velocity ranges.
- Move articulation level.
- Move instruments between banks.
- Move region waveform overrides to waveform.
- Merge non-colliding layers.
- Remove items not used by any midi song.
- Search and replace text in names.
- Split multi-layered instruments.
- Split stereo waveforms to dual layers.
- Transpose region key ranges.

The 'Remove items not used by any midi song' is worth special mention. It removes all instruments, regions, and/or waveforms that is not used by the loaded midi song(s). This can be a great way to 'minimize' the size of RMI file (that contains a midi song plus a DLS collection to play it with) that you want to distribute!

The 'Audio Processing Wizard' can now work on multiple waveforms at once!

Not all the functions are available in this mode - but many are! To use it select the waveforms you want in the waveforms pane, then right click on them and select 'Process...'. You can also select it from the 'Tools' menu. In case no waveform is selected (and in focus), then it will default to all loaded waveforms!

Added a 'Search and replace text in names' function to the Audio Processing Wizard (multi waveform mode only).

Added a 'Trim data after loop end point' function to the Audio Processing Wizard.

The old 'Process all wizard' has been retired since it is in its entirety superseded by the new and improved instrument and audio processing wizards.

Added a 'midi editor' helper app. You launch it from the midi song context menu or by 'Tools'->'Run midi editor'. This allows you to use your favorite midi editor to edit midi songs while Awake Studio 'freezes' until you exit the midi editor, and then 'unfreezes' and reloads the edited song.

Added Akai S5000/S6000 .AKP program file read and write support. This have not been tested properly and is to be considered to be in beta form.

Added 'Old VOC format' write support.

Added an 'Auto create' button to the drum kit editor tab. Clicking on this will very quickly let you assign all waveforms to keys in a drum kit either based on their root keys, or consecutively starting with a key of your choice.

In the envelope editor, you now edit the absolute decay and release times rather than 'decay and release rates' as was the case before. Plus, the part of the envelope currently selected for editing is now drawn in a different color for 'visual feedback'.

Added a small blue 'w' to the region symbols when 'override waveforms parameters' is turned on.

Added a 'transfer' drop down menu to the tool-bar for quickly initiating clipboard, SDS, or SMDI transfers.

Instruments now always show up in bank-program-number sorted order after loading a collection file (previously they just turned up in the order that they were read from the file).

Added a small button to the loop editor that attempts to 're-center' the fine position sliders by moving the coarse position sliders (which usually will not exactly 'center' them but at least help you out in the situation where you want to move a fine position slider 'further' in any given direction and have already reached the end of the slider).

There is now a small button in the region properties dialog for copying the value of the low key to the high key, i.e. setting a single key range.

You can now save DLS level 1 files with more regions/instrument than what the standard allows - but you'll have to click OK in a warning dialog first.

It is now possible to save a midi song directly to MP3 format and not only WAV – though you still need an external MP3 encoder helper application.

Added a File->Statistics command that shows how many instruments, waveforms, etc that are loaded.

Fixed problem with stereo data in MAT files - which are now handled as 2 column matrices.

Fixed a bug with DirectSound playback not working with pre-v7 DirectX.

Fixed a few minor bugs and/or annoyances.

version 6.2

We have finally added one of the top-three requested features: A 'Midi to Wav' converter. This uses a software synthesizer to render a midi song to a wave file. You use it by 'saving' the midi song and selecting .WAV as output format (8, 11, 22 and 44 kHz mono or stereo output is selectable). There's no longer any need for a separate program to do this, or for recording the output of a sound card etc. As it uses the Microsoft Software Synth from DirectX v7 or later (v8 req. for DLS level 2 support) it will not only let you use your own custom DLS instruments, but also give you access to the standard Roland GM set that is installed with DirectX.

An obvious example of a use for this new feature is if you have made a song that you want to distribute in MPEG format (and keep the 'midi source' to yourself).

Added a 'Calculate tuning' option to the audio processing wizard. Also added an 'Auto-tune' button to the waveform properties 'general' tab - just hit it to set the root key and fine tune values! Note that there's no guarantee that this always gets it right (especially the octave can be difficult to determine correctly for instruments with funny 'overtones' or 'undertones'). But it works surprisingly well!

Added support for reading and writing Native Instruments Reaktor format (.MAP).

Added support for reading and writing Aureal bank files (.ARL). This is to be considered as a beta implementation, especially the writing support (note that the 'Download' button on the Midi tab in the current Vortex II control panel should only be used with 'complete' general midi banks – selecting an instrument that is not defined in a bank will mess up the midi synth).

Added Rockwell 2, 3, and 4 bit ADPCM audio format support (you need to give the files the extensions .rockwell for Awave Studio to recognize them - there is no standard extension and no way to 'auto-detect' them).

Added support for reading Dialogic ADPCM and Rockwell ADPCM subformat WAV files.

When running the Batch Converter Wizard in midi mode and selecting RMI or MSS as output format, you will now be asked if you'd like Awave Studio to check for DLS and SF2 files with the same names as the input files and automatically merge them with the input midi songs during the conversion. This is great if you have a lot of MID's making use of e.g. custom SF2 instruments that you want to convert to RMI format!

When operating the batch converter in 'instrument mode', you can now open not only instrument and collection files, but also waveform files. An instrument (with a single layer, region and waveform) will then automatically be created from the waveform and saved.

Instrument name labels in the collection pane can now be displayed as "bbb:ppp : name" where bbb is the midi CC0 bank number, ppp the program number, and name the actual instrument name. When editing a label, you can easily change the bank and program number as easily as the name! Or if you want to retain the number but enter a completely new name, then just type over the whole text (incl. the numbers) with the new name and the old numbers will be retained. This feature can be turned off in the options->program setup dialog.

Property windows are now automatically closed when opening a new file - avoiding the situation that they 'lock' the old data and prevent the load.

Added a 'LFO ramp time' parameter for formats that support that.

Added a 'zoom to selected' button in the waveform edit page.

Fixed a bug that could cause MIDI SDS transmissions to hang.

Fixed a bug with reading WavMaker .PRG files.

Fixed a bug with 'native auditioning' not working for several older synthesizer options (because they didn't handle long file names).

Fixed a bug with saving DLS level 2 files with *really* many regions and articulation settings.

Fixed reading of stereo instruments in .GIG files.

version 6.0

This is the first version of *Awave Studio*. However, it inherits all of the functionality of our earlier product *Awave v5.4*. Here is what has been added to make *Awave Studio v6.0*:

Added support for two new data types: 'midi song' representing a midi composition consisting of one or more 'midi tracks'.

Added support for reading and writing midi songs to and from .MID and .RMID files. The .RMID files can also contain some extra text information plus (optionally) a DLS level 1 or level 2 collection! This means that there is finally a way for you to bundle a midi song with a custom instrument set in one single file! (just like the old Amiga Tracker Modules but for midi!). These files can be played by anyone that has installed DirectX v7 or later using our free 'dmAmp' WinAmp plug-in.

Added an internal Midi Player that uses DirectMusic to play back midi songs complete with custom instruments (or the default DirectMusic Roland GM set, for instruments which do not have an instrument defined in the currently loaded collection).

Added support for reading song data from MOD tracker files and converting it into MIDI format! Together with the translation of the samples this means that you can now play the modules using a midi synth!

Added .XMI song data (Miles Sound Studio Extended Midi IFF) as well as .MSS (XMI + DLS level 1 in the same file) read and write support.

Added support for up to 4 DirectShow 'effect' filters (a.k.a. DirectX plug-ins) to be applied to waveforms in the Batch Conversion Wizard.

The Batch Conversion Wizard now both reads and writes all supported file types, not just 'single waveform' files. There is a new 'first step' where you select if you want to convert waveforms, instruments, collections or midi songs.

An 'Awave Studio Batch Converter' selection are now added to Windows Start menu to launch the Batch Conversion Wizard directly.

Added a 'Create Instrument' wizard.

Added Windows Media Audio (.WMA) read and write support. To use this you must also install the WMA 4.0 encoder/decoder runtime (wmaudsdk.dll).

Added limited SoundFont 2.1 support. More specifically those modulation routings that are also supported by DLS level 2 are now supported for SF 2.1 files. The only card that currently supports SF 2.1 is the Emu APS card, but it should be followed by the SB Live! cards in the future. Note that SF 2.0 capable cards is not affected - they should still be able to load the new SF 2.1 files written by Awave Studio (they just ignore the new parameters). Also added a SoundFont 2.1 selection to the synthesizer parameter set quick select list in the program setup dialog.

Added support for reading and writing 'phase link' information for stereo support in SoundFont 2.x files.

Most dialogs now have icons indicating what 'item type' that they relate to (e.g. waveform, instrument, et

c).

The Process all wizard's 'split stereo' function now also sets phase group and phase master settings for the 'split' regions and layers that it creates.

Added DLS level 2 auditioning support for DirectMusic. Note that the DirectX 7 version of the Microsoft software synth currently only supports level 1. So you need to wait for DirectX 8 (which it is said will update it to level 2) or for some 3rd party to release a DirectMusic compatible synth with DLS level 2 support to be able to actually use this...

Added support for several Akai S1000 articulation parameters.

Added support for reading and writing the .s3p Akai program files used by Mesa II/PC.

Added a simple 'Time stretch' algorithm to the Audio Processing Wizard.

Added exponential fade in / logarithmic fade out options to the Audio Processing Wizard.

Added an 'Append/Combine waveforms' function to the Audio Processing Wizard which lets you append up to 4 waveforms to make a new longer waveform.

When creating new instruments, they now gets assigned a 'new' program number, i.e. they no longer can 'steal' already occupied numbers.

The comment fields now supports up to 400 characters of multi-line text.

Added 'sorting buttons' on top of the instrument pane - this let's you sort instruments by: name, bank:program, or program

Added a 'recent' list to the open file and file save file dialogs for quick selection of recently used directories.

Added a 'New collection' command to the File menu.

Added a toggle to the tool-bar for that 'Auto Property sheet' option. Added 'Clone instrument' and 'Clone waveform' commands to the appropriate context menus.

Improved the 'recent files' list operation.

version 5.4

MPEG audio: Added support for reading song title, artist name, and comment from MP3 files with 'ID3v1' tags. Fixed a problem with some MPEG-2 LSF files. And finally, fixed a problem with layer III files where only the first opened file where decoded correctly.

The layer keymap editor now has two buttons that you can use to select the displayed keyboard size between 61, 76, 88 and 128 key layouts.

Added support for reading the new "Extensible" subformat of .WAV files used for new high bit-resolution and multi-channel files. *Awave* still only use 16 bits and 2 channels but it will read files with more: Bit depths >16 will be converted to 16 bits. For multi-channel files, the front left and front right channels will be read (if present, otherwise the 'first' two channels whatever they may be will be

used).

Added Akai MPC-series stereo support for 16bit samples.

Added support for reading DLS collections embedded in RMID (.RMI) files.

Added support for reading and writing Akai S1000 program and sample files (.P and .S respectively). This only works with files already transferred to the PC using some other application - you can not read Akai CD-ROMs or floppy disks directly. Right now, there's not that many such applications - there's a DOS program called ADISK which can read and write Akai files to and from Akai floppy disks. And I think that Creamware's Pulsar comes with one that reads and writes CD-ROM's. Envelope and lfo data conversion is not yet implemented but may perhaps be added in a future release.

You can now change the play position in the waveform edit page by clicking on the waveform while playing.

Added a 'select loop' option to the audio processing wizard.

Fixed problem with the loop editor not working properly on very large waveforms.

Fixed a bug with some audio processing wizard commands hanging if you managed to execute them without the waveform data not already having been loaded from disk.

Changed the routines that ensure that all waveforms have unique names. Previously it 'modified' the first letter in the names of any duplicates found. Now it adds a number to the end instead. This looks nicer - but, users with synths that requires unique waveform names *and* have short maximum name lengths (e.g. WaveFront synths) must now keep a closer eye on possible name conflicts.

version 5.3

Added support for Korg Triton .KMP files.

Added support for reading and writing raw A-law and U-law files with 'reversed bit ordering'.

Added recognition of the DLP extension used by DirectMusic Producer when composing DLS files.

Changed the interpretation of the 'key num to decay', 'key num to hold' and 'velocity to attack' envelope parameters to better fit with how they are presented by Microsoft's 'DirectMusic Producer'.

Fixed bug with the LFO1 to pitch parameter getting set to 0 for instrument global articulation under certain circumstances.

Fixed problem with writing USR type GSM files with header.

Fixed (hopefully) the problem with incorrectly reading key-maps from .GIG files created by the S-Convert software.

Fixed bug with the waveform editor's display not drawing the end(s) of larger sound clips.

Fixed the problem with the program setup dialog not opening for some people with the original release of Windows 95.

version 5.2

Added DLS level 2 file format support! This new file format encompasses nearly all of the parameters available in *Awave* (including a whole lot of new ones that was added only for the sole benefit of DLS 2!). Now you only have to start nagging your favorite sound card maker to add support for this exciting new standard too!

Handling of very large collections (large numbers of instruments, layers and regions) is now *considerably* faster.

Added support for calling an 'external' MPEG audio encoder - see the 'program setup' -> 'helper apps' dialog. (Note: 'internal' support will probably never be added because of patent licensing issues).

Added Aureal 8830 'Vortex II' native auditioning. Tested with Aureal's reference drivers and with TB/V's Montego II drivers.

Added a 'Drum kit' page to the layer properties! (check the 'drum mode' box in the layer keymap tab to bring up a drum kit tab). This should make creating and editing drum kits a lot easier!

The 'recent files list' is now remembered between *Awave* sessions.

Added a 'Confirm before losing data' option to the options dialog.

Added a 'Names: Search and replace' function to the 'Process all' dialog.

Finally fixed the compatibility problem with *Awave*'s EFE and the Ensoniq ASR-10.

There's now separate Dialogic VOX 6KHz and VOX 8KHz output format in the save dialog.

Added CCITT G.721/723 ADPCM compression (3,4,5 bit) as subformats for saving WAV files.

Fixed miscellaneous minor bugs...

And finally, improved the Setup program...

version 5.0

Added DirectMusic/DirectX 6.1 support for auditioning, using the Microsoft software synth. It sounds much, much better than the *Awave* software synth, and 'sample downloading' is *very* fast compared to many hardware based alternatives!

Added a 'batch conversion wizard'. This can be very useful when converting large amounts of files. Besides being easier to use, the new wizard only loads one file at a time so you are no longer as likely to run out of memory when doing 'very large' batch job as could be the case with the old 'manual' way to do it. On the other hand the wizard only works with 'single waveform' files - not with instrument files - so both methods are still useful.

More robust DirectShow plug-in support - it should work with a few more plug-ins. And now you can also use them on only the currently selected part of the waveform, not just on the waveform as a whole. Further, the list of plug-ins is now cached so you will not have wait for it to be constructed every time you want to use a plug-in.

Much improved the 'parameter set' feature (go options->program setup->parameters).

The old 'process all' toolbar button has a new function - it now pops up a 'wizards menu'!

The loop editor is now available for editing the 'region loop override' parameters - not only for the regular waveform loop.

Added a new 13-point Finite Impulse-Response resampling filter. It is now the default resampling method. The quality of the cubic resampling algorithm was also improved.

The LFO, EG1, EG2, and Effects tabs are now removed when articulation is not enabled.

Added 'phase master', 'phase group', parameters to regions as per DLS level 1 specification (They weren't implemented earlier because they are rather useless when you can't use multi-layered instruments. But DLS level 2 will probably change that!).

Added a 'key number to pitch' articulation parameter (SBK, SF2, PAT, FFF files). This can be used to produce e.g. quarter tone scales, unpitched drums, or why not special effects using layered instruments with different scaling in the different layers (used carefully this can produce a pleasant variation in e.g. the sound of sea waves, or whatever).

BTW, *Awave* can now handle practically all of the parameters of the SoundFont 2 specification! (only the two 'sample address offset' parameters are not supported).

Added a 'bank renumbering' option to the 'process all' wizard which lets you move all instruments in one bank to another bank.

Added panning support for Ensoniq files.

Fixed the broken 'process all'-'>'split all stereo waveforms...' option.

Fixed bug which caused DLS loop points to be written incorrectly so that some DLS synthesizer did not recognize them (this bug was only in v4.9 and not in earlier versions...).

Fixed a bug which caused a crash when deleting a waveform from a large collection.

Added recognition of Gigasampler, 'extended DLS', .gig files. Although none of the 'DLS extension blocks' are read, the basic DLS data should be.

Added support for reading Akai's MESA-PC extension chunk in .WAV files.

Finally, several sections have been added, or rewritten, in the manual.

Nothing much else is new since so many of the things *originally* planned for v5.0 were already added to the 'preview' releases 4.8 and 4.9! :-)

version 4.9

Added support for 'DirectShow audio effect filters' in the audio processing wizard. This is what for some reason is called 'DirectX plug-ins' by certain other programs. So now you can now use many effect plug-ins from other companies in *Awave*!

Added SoundBlaster Live! native auditioning support. An excellent card BTW. To use it with Awave you also need to have Creative's 'SoundFont Management System' installed. This is available as a separate download from my www site. I assume that it will also be included with the next release of their Vienna editor...

Added a 'parameters' tab to the program setup dialog. It let's you enable or disable the use of various instrument parameters in Awave. The idea is that when you want to use Awave as an instrument editor you should only enable those parameters that are relevant for your particular synth card and the rest will be grayed out in Awave's various property dialogs. This should make editing easier but is not recommended when doing purely conversion work - in which case you probably will want to see all parameters so that you can sometimes manually 'compensate' for a feature that is not supported by your target card (e.g. splitting multi-layered instruments into several single layered instruments). Anyway, you can not only define your own parameter set but you can also choose one from a predefined list containing the sets for several common PC soundcards.

Added a 'Mix out = a*wave1 + b*wave2 + c' option in the audio processing wizard. It let's you mix waveform and/or adjust amplitudes.

Added AVM Sample Studio bank file (.APEX) import and export support.

Added Everest embedded bank file (.EMB) import support.

Added an 'MPEG 1 system stream' parser (.MPG, .MPEG files). This let's you grab the audio from most MPEG clips containing audio & video.

Added 'delay' and 'hold' parameters to the envelopes - these are only useful with the SF2, SBK, and PBF formats right now but I expect that they will also eventually make their way into DLS level 2.

The WaveFront auditioning 'helper' AW2WF16.EXE is no longer included with the program but is still available as a separate download from my www site.

Changed midi octave numberings from C4 for middle C into C5 for middle C.

Fixed a bug which only let you could only save to the 'first' in a range of file formats with the same extension (e.g. different .GSM file formats).

Fixed handling of Korg Trinity unlooped sounds.

Added support for 'velocity zone' information in SampleCell/II (.INS) files.

Fixed bug with not reading multi-waveform instruments from .Wfx files.

Fixed bug with a few registration codes not working.

Added a glossary section to the help file.

version 4.8

A new look! And more user-friendly too!

There's now two separate 'panes' - 'Collection' and 'Waveforms'. The collection pane inherits the 'tree view' from the previous versions. The 'Waveforms' replaces the 'All waveforms folder' but it is much easier to use, displays more info and supports multiple selections for saving, deleting et c.

And yes, there's now some drag and drop functionality as well!
I also added a few more toolbar buttons!

Found, and (hopefully) fixed, a really nasty little bug in my 'tool-tip' handling code (only two characters wrong!) that was responsible for some very mysterious and unpredictable crashes...

Added a new naming option 'prompt on each' for the 'Save all in multiple files' function.

Fixed a some bugs in the code that is supposed to 'remember' what file type you last saved a particular item type to (instrument, waveform, ...).

Fixed bug with reading Avalon sample files.

version 4.5

Added a 'Fractions' toggle to enable or disable the use of fractional loop points in the loop editor.

Added a 'reverse-crossfade after loop end' option to the loop crossfade audio processing dialog.

Added an 'insert another waveform' option to the audio processing wizard.

Added a 'play from start of waveform' button to the loop editor.

Double-clicking on a an algorithm in the audio processing wizards first page now automatically brings the next page (same as the 'Next' button).

Drum kits now have their own icon in order to distinguish them from melodic instruments.

Added import support for .MLS (Miles Sound Tools 4.0 'compressed DLS' files, using IMA/DVI 4:1 ADPCM) and .MMS (DLS or MLS embedded with an XMIDI file).

Added .KSC (Korg Trinity Script file) import and export.

Added .f32 and .f64 'file formats' for reading 'raw' 32bit and 64bit IEEE floating point values. Value 0.0 is expected to be the 'middle value'. All other values will be normalized to a 16bit range.

Added Avalon sample format import and export.

Added SPPACK as export format.

Fixed bug with not marking drum kits as drum kits when reading DLS files.

When reading SampleCell files and it can't find a referenced sample file, then a 'please locate file' dialog now pops up and let you manually browse to the desired file.

Fixed bug with Awave's DLS files that made the 'S3 SonicVibes DLS manager' report 'Unable to find list rgn chunk' when trying to load multi-instrument DLS files created by Awave.

Fixed bug with incorrectly turning on loops for some looped waveforms in PBF files.

Fixed bug in the 'convert to stereo' function when combining two mono waveforms (didn't always

select the right waveform to combine with).

Fixed bug when saving USR style GSM w.o. header (VoiceGuide / RapidComm) that sometimes made garbled sounds when played on the USR modems.

Fixed (or I hope so) the .XI/.XM pitch being off one octave.

Fixed problem with frequency detection of some AVR files.

Fixed name problem with Korg KSM/KSF files - Now only uses capital letters for referencing the KSF files from a KSM file.

version 4.4

Pinnacle PBF files: Added support for 'aliased' waveforms (when writing PBF files, an alias is used for every region with 'override waveform parameters' turned on). This also means that you must use PPE beta 6 or later to read Awaves files (earlier PPE versions can not handle these files).

Added CCITT G.726 import and export support. As these can't be autodetected, you should use the extension '.g726' to get Awave to recognize them. You will also be prompted for the correct 'subformat' (2, 3, 4, or 5 bits per sample).

Added support for reading "MPEG 2.5" audio (this is a non-standard MPEG extension made by Fraunhofer IIS for low bitrate audio; 8, 11.025 or 12kHz).

Added Akai MPC60 and MPC2000 import support (.SND) and improved the MPC3000 support (also .SND) so that it can now read both 12 & 16bit, mono & stereo files written by MPC OS versions 1, 2 and 3. It now writes OS v3 compatible files (both 12 and 16bit).

Added .FZF (Casio FZ-1 'full dump') export support.

There is now a new kind of 'raw GSM data' that can be imported and exported using 'byte aligned' packets.

Removed the 'center root key' option from the layer keymap editor (it didn't work very well anyway). Instead I've added a 'drum mode' checkbox. When checked, it modifies the way the keymap editor works so that when you click on a key, you will get a dialog where you can select a waveform to assign to the 'drum' key, or you can 'clear' any current waveform assigned to it. If you assign a new waveform, then a new region will be created for that waveform and key. It will have the per region waveform parameters override enabled and the override root key will be set to the key ensuring that the waveform is played back at the correct pitch at this one key.

Added a 'process' option to the right mouse button menu for waveforms. This is a shortcut to the audio processing wizard (otherwise found under the waveform property sheet's 'edit' tab).

Added an 'Only downsample' checkbox to the 'process all->waveform' tab.

Added an option to swap the left & right channels of stereo files (in the audio processing wizard).

Fixed a bug with garbled audio from many QuickTimes movie files.

Fixed problem with not assigning unique instrument program numbers when merging multiple files.

version 4.3

FFF files: - Fixed a few potential bugs when reading amplitude envelopes written by other programs. - Added pitch envelope support although I have not been able to change the time of the various envelope segments (it seems like the v2.0 drivers always 'ramp' the pitch envelope at the same 'rate!'). - Writes slightly smaller FFF files (crucial since they must be < 64KB). - No longer writes any envelopes in drum kits (since they make the FFF files *much* bigger while not being very useful for drums anyway).

Updated the PBF file export code to the format used by the Pinnacle Patch Editor beta 5. These files are not compatible with earlier versions of the patch editor.

Added alphabetical as well as numerical sorting options to the 'process all'->'instruments' dialog.

Added a resonant low-pass filter to the articulation parameters (.SBK, .SF2, .PBF)

Moved the reverb and chorus parameters to the articulation parameter, i.e. they can now be set per region if you want...(SBK, .SF2 files).

Added a 'set zero point to mean value' option to the 'maximize amplitude' option of the waveform audio processing wizard.

Fixed bug with 'process all' dialog not working.

Waveform lists should now be presented in alphabetically sorted order...

Fixed bug when writing longer Casio FZ-1 files.

Writes slightly smaller SBK files...

version 4.2

Pinnacle .PBF-files: Added support for pitch and amplitude envelopes & lfos. Fixed loop problem.

AWE32 .SF2 files: Now only saves those parameters deviating from their 'default' values. This gives slightly smaller files as well as solves a bug where really big sound sets (containing thousands of regions) passed the SF2 formats limitations of 65536 'parameters' and were saved 'garbled'.

GUS PnP .FFF files: Re-enabled support for writing μ -law format FFF files since the GUS PnP v2.0 release drivers now seem to support it. Fixed bug with drumkit lfo's and panning (incorrectly per layer averages (as for melodic instruments) instead of per region parameters for each key...). Corrected read/write of collection comment + copyright.

Updated the DLS code so that Awave's files are now compatible with the S3 SonicVibes drivers v1.00.08. Added 'native' auditioning support for the same S3 SonicVibes based sound cards. BTW, the *final* DLS v1.0 specification was still not available when this was written.

Somewhat faster when handling large collections of instruments. Especially when deleting instruments...

The 9 last files opened in a 'session' now appear in the File menu for quick access...

Items with articulation enabled now displays a small red ~ sign in the tree-view.

Added a check box to automatically set root key when creating new regions from the layer keymap editor.

Moved the 'Delete unused waveforms' command to the 'process all'->'other' dialog.

Added lfo shape selection for some formats that supports it (FFF: tri/ptri, WFP: tri/sin/sqr/saw/ptri, PBF: tri/sin/sqr/saw).

Added 'Allow truncation', 'Allow compression' and 'Allow note overlap' flags as per DLS spec.

Added Korg Trinity keymap & sample file import & export support (.KMP/.KSF).

Added support for reading & writing USR modem GSM files without header (VoiceGuide / RapidComm).

Added Impulse Tracker instrument & sample file export (.ITI/.ITS).

Added 'Bells, Whistles, and Sound Boards' module format import (.GDM).

Fixed a couple of bugs with the .EFE export.

Fixed bug that prevented changing the region loop override.

Fixed 'split stereo' in the 'process all' wizard to work correctly with per layer articulation.

Fixed bug with reading loop point markers from some AIFF files (even could hang sometimes).

Fixed bug that restricted the volume lfo to +-12dB instead of +-96dB as the DLS spec states.

version 4.1

UltraSound PnP news! Added 'native auditioning' (sample downloading) support as well as support for amplitude envelopes (.FFF files)!

Pinnacle news! Added 'basic' support for the new Turtle Beach Pinnacle .PBF files. You can read and write 'multi-sampled' as well as 'multi-layered' instruments. However, envelopes, lfos and 'shared' waveforms are not supported in this release. I hope to add those for the next release though I can't promise anything.

Added support for reading and writing Casio FZ-1 dump files (.FZB, .FZF, .FZV) as stored by the programs FZDump or FZCom.

Redesigned the MIDI SDS transfer dialog. Added support for SDS closed loop (handshaking) transfers. This should fix the problems that previously occurred with some synthesizers. Added Midi SDS 'request sample' command.

Larger and better property sheet windows. E.g. a much improved layer keymap editor!

Added many more keyboard shortcuts.

You can now use your favorite waveform editor as a 'helper app' (registered version only). You can use it to edit, record, or otherwise process waveforms in *Awave* without having to manually save and reload it from the disk. You can also have a 'mixer' and an 'on-screen keyboard' helper app that can quickly be launched from a menu.

The right mouse button menu is now extended with an 'add instrument', 'add layer', 'add region', or an 'add waveform' entry (depending on the item type selected).

Added new option 'item name' to the naming schemes for the 'save all in multiple files' command.

Added 'per layer override articulation' to the internal instrument 'architecture' in addition to the 'instrument global' and 'per region override' articulations. Most synthesizers only support articulation at one of these three 'levels'. The problem is that they do not all use the same level, some use per layer, some per region... *Awave* uses this three level structure so that you can always edit at the 'level' used by your synth. There is now also a 'articulation level' conversion feature in the 'process all' box that let's you force articulation to a specific 'level'. It uses the same 'propagate - average' algorithm as used when saving stuff (the FAQ now contains a note that explains that in more detail).

Divided the process all dialog into three pages for 'waveforms', 'instruments' and 'articulation'.

Added support for reverb and chorus level parameters (SBK, SF2 and FFF file formats, though the current GUS PnP drivers do not seem to use these settings from the FFF file...)

Added support for .KRZ multi-layered programs.

Added support for reading Dialogic ADPCM subformat WAV files.

Fixed all known bugs- yes really!(to be more specific, all the following 'bugs' in v4.0 have now been fixed: 12bit Midi SDS data not read properly - win 3.1 open multiple file not working - very unstable after double-clicking a layer in instrument property dialog - written SBK's were incompatible with a few programs - SDS transfers dropped packets for some synths - reading WFD files with ROM samples crashed - only first file read when dragging multiple files from the explorer - canceling a 'merge' with an unsupported file format hanged - failed reading VOX files with text comments - SampleCell II PC export didn't work - incorrectly read a few QuickTime files using 'twos' data format)



version 4.0

A brand new instrument architecture with a *Collection -> Instrument -> Layer -> Region -> Waveform* hierarchy complete with new and updated property sheets. This means: layers, amplitude and pitch envelopes, lfo's, shared waveforms, and more! *Awave* supports a superset of the forthcoming Downloadable Sounds (DLS) level 1 architecture specification.

Added support for drum kits for .INI+.PATs, .FFF, .SBK, .SF2, .WFD/.WFB formats.

Added (multi-)layer support for .DLS, .EFE, .FFF, .INI(mWave), .SBK, .SF2, .WFX formats

Added envelope support for: .DLS, .PAT, .SBK, .SF2, .WFX formats

Added LFO support for: .DLS, .FFF, .PAT, .SBK, .SF2, .WFX formats

Added *beta* DLS level 1 file format support, import and export (.DLS). The format specification haven't been formally completed yet...

Added support for Sample Cell II, PC and MAC type files import and export (.INS).

Added MPEG layer 3 and MPEG-2 LSF support as well as improved the decoding speed for layer1 and 2 (.MP2/.MP3).

Added support for reading IMA4 format sound from QuickTime movies (.MOV).

Added Talking Technology Incorporated file import, uncompressed only (.VOX).

Added support for very old (v1.00) UltraSound patches (.PAT).

Added raw CCITT G.723 ADPCM (3bit/24kbits or 5bit/40kbits) read and write (.G723).

Added Pinnacle Sample Bank file import support (.PSB). Before you ask: *No*, I will never support exporting to this format. According to TurtleBeach, it will soon be replaced with a 'real' Pinnacle bank file format (.PBF) which I *do* hope to be able to support in a future release.

Added an installation program; SETUP.EXE.

Added a toolbar.

You can now create loops by 'crossfading'; use the 'Crossfade loop' option in the waveform's 'audio processing wizard'

Reworked the software synth code, increased the polyphony in DirectSound mode to 16 simultaneously playing waveforms and added support for multi-layering. Also fixed a number of things that could sometimes make it hang when using it for auditioning.
Fixed a bug that could cause a crash when using an external keyboard for auditioning.

Added loop 'play' button to the loop editor.

Combined the two '*Convert all->Resample*' and '*Convert all->Convert loops*' commands into one '*Process all...*' command and added options to: *Split all stereo* waveforms into mono waveforms and create 'dual layered' instruments for any instruments using those waveforms, *Combine non-colliding layers* in instruments, and: *Split multi layered instruments* into several single layered instruments. The 'Save in multiple files' command now has a dialog box where you can choose how the output files should be named. And, there is now (after strong demand :-)) an option to use the source file names as the base for the export names.

Added 'Auto property sheet' option which, when turned on, always keeps a property sheet open for the currently selected item in the tree view.

Added 'Delete unused waveforms' command to the Edit menu.

Programs are now numbered 0..127 (not 1..128 as before)

Added copyright parameter for waveforms (.AIF, .WAV). Moved 'Comment' parameter from instrument to collection.

Added option to explicitly enter the 'selection range' in the Audio Processing wizard.

Added display of the length (time) of the selection in the waveform editor.

Added 'Insert silence' option to the audio processing wizard.

Now allows the Midi SDS transmit 'channel' to be in the range 1..64. And now automatically closes down auditioning while receiving Midi SDS in order to avoid conflicting use of midi in device.

Added a -NOMSG command line switch that turns off all error and warning messages.

Fixed problem with losing the 'selection' after closing a property sheet.

Fixed bug when saving .EFE files: all names will now be converted to only uppercase characters, numbers, and -, *.

Fixed bug in the instrument keymap editor (now named the layer keymap editor).

Fixed some problems with WaveFront bank files (.WFB) that made WavePatch dislike *Awave's* files.

Fixed bug in Bi-directional to Forward loop conversion (the new loop end point was bogus); also made some improvements to the loop point editor.

Hopefully fixed a bug with .IT instrument 'pitch' and updated the .IT code to handle IT v2.0 files.

Fixed bug with fine tuning in .PAT files

Fixed problem with the audio player sometimes stopping prematurely in DirectSound mode.

Fixed bug with Yamaha SY-series wave files.

Changed some shortcut keys to correspond to the order they appear in the toolbar.



version 3.2

You can now explicitly select 'subformat' type when saving to an export format.

Added US Robotics voice modems / QuickLink format (.GSM) import and export.
Added Sound Designed II flattened import and export.,+ resource fork only import (.SD2).
Added QuickTime (.MOV) audio import.
Added GSM subformat to .WAV's export.
Added Fast Tracker instrument (.XI) export.
Added speech data (.SPD) import format.
Added Akai MPC3000 wavefile (.SND) export.
Added μ -law support when writing .FFF files.
Added μ -law support when writing .WF? files.

Can now have multiple property sheets and AudioPlayer's as long as no-one is for the same 'item'.

Added a 'Use Windows multimedia services, unbuffered output' to the AudioPlayer property tab for those that has had problems with no sound in the AudioPlayer.

The Awave AudioPlayer synth has been rename into 'Awave software synth'.
Fixed the worst 'popping' problems in the software synth.
The software synth now supports pitch bend and all notes off midi messages.

On the Edit menu there is now a submenu 'Process all' with two subitems:

- Resample..., resamples all waveform to a given sample rate.
- Convert loops..., converts all loops to common format.

Added support for Microsoft DirectSound (optional, select 'Use Microsoft DirectSound services' in the AudioPlayer property tab).

It's benefits are:

- Lower memory usage for the AudioPlayer and the software synth.
- Lower latency for the AudioPlayer and the software synth.
- Allows multiple simultaneous AudioPlayers as long as they do not play the same item.
- The software synth is 8 note polyphonic.

Auditioning GUS & WaveFront: Will load as 16b if it fits in memory, else it will load as 8b if that fits, else it fails...

Improved the "Convert to stereo" selection in the audio processing wizard so that you can now combine two waveforms into one stereo waveform.

Added "Statistics" selection to the audio processing wizard.

Added option to enable and disable association of file formats.

Fixed bug with .EFE files (hanged when editing a waveform on an Ensoniq)

Fixed problem with recognizing .PAT files from 'Howling Dog Systems PowerPatch series' CD-ROMs.

Various minor bug fixes and improvements.



version 3.1

Added GUS PnP .FFF format import/export.
Added Yamaha SY-series waveform (.W01) export.
Added Dialogic adpcm file (.VOX) import & export.
Added Sound Designer I format (.SD) export.
Added DiamondWare Digitized file (.DWD) import & export support.
Added OKI MSM6376 synth chip format (.PCM) import.
Added raw GSM 6.10 audio stream (.GSM) export.
Added Digilink (.DIG) format import.

It's now possible to select multiple files for opening in the file open dialog.

Added 'Midi SDS receive' to Edit menu.
Added 'Send all' to the MIDI SDS transmit dialog. This frees you from having to press the 'Start' button for every waveform when downloading banks or instruments; useful if you want to dump a lot of samples...

The 'AudioPlayer synth' now supports forward looping.

Added 'Convert reverse to forward' loop to audio processing wizard.

The AudioPlayer command line interface now accepts directory names as well as file names, when a directory name is given, all recognized audio files in that directory will be played in turn.
Added -LOOP switch to the AudioPlayer command line interface to repeatedly play the indicated file(s). Break the loop by closing the AudioPlayer with the [x] button. Ex: To repeatedly play all audio files in the current directory, type on the command line: "start AWAVE -AP -ONCE -LOOP ."

Various minor fixes and improvements:

Fixed bug with TB WaveFront cards auditioning that made it require wfgate.dll v1.3.0.6, should now work with other versions as well,

Reading EDE files bug fixed,

Saving TX16W W01 files sometimes crashed, fixed that,

In the instrument keymap editor, you can now click on an 'assigned range' (rather than drag with the mouse over a range) to change that waveform assignment,

Fixed problem with Ensoniq instruments larger than 1MB,
et c...



version 3.0

100 file format barrier broken => I must be crazy :-)

Added auditioning for all digital sound cards! Emulates a very simple monophonic synthesizer (no loop support though...).

Added cut, copy, insert and paste to what is now the waveform 'editor' in the waveform property sheet.

Added Power / Current graph toggle in the waveform properties Editor tab.

Added (time domain) resampling algorithms (nearest neighbor, linear interpolation, sin(x)/x filter) to the Audio processing wizard.

Added Bidder to forward loop conversion to the Audio processing wizard.

Added fade in, fade out, trim, cut, reverse, remove silence, maximize amplitude, set loop point, and smooth out selections to the Audio processing wizard.

Added 'Split into mono channels' command to the right mouse button menu for stereo waveforms.

For non-standard playback rates, the Audio player Always now resamples the waveform to an appropriate standard rate.

Decreased the need for (physical) memory when using the Audio Player. Should reduce the disk crunching for large files...

Improved the accuracy of the AudioPlayers frequency spectrum graph.

The AudioPlayer position bar is now draggable, both when stopped and when playing.

Added a -NOWIN command line switch to launch the AudioPlayer and play the sound without displaying the AudioPlayer window.

Tweaked the file open dialog to show detection info on selected files. Also increased the visible length of file formats combobox list.

Fixed what I hope is the last two bugs in my .SBK writing code :-)- (bugs occurred whenever there were names longer than 19 chars or when there were 'shared' or 'lonely' waveforms...)

When loading an .SBK which uses hundreds of ROM-samples you no longer have to press OK a hundred times...

Fixed incompatibility between my .AIF writing code and a few programs.

Fixed bug when writing .WFB's.

Added log/status window when auditioning using the Maui/Tropez.

No longer automatically creates instruments for 'lonely' waveforms when saving bank items. You have to specifically use the new 'Autocreate instruments' command (on the File menu) before you save if you want it.

If you want to edit the key assignment for the virtual keyboard you can now do that with the registry editor (regedit.exe) that comes with Windows 95. Open this_computer->HKEY_CURRENT_USER->Software->FMJ-Software->Awave and edit the mtVKeys string. It's just a string of (normally 29, but maximum 36) uppercase characters holding the ASCII key to assign to a note, beginning with C3 for the first character and then in increasing order...

On request, I have added a few 'keycuts' (F5 - Save as..., F6 - Open new file... F7 - Play audio... F8 - Properties...).

Added WAVmaker program files (.PRG) import and export.

Added Yamaha TX16W waveform export (.W01).

Added support for 16bit Roland samplers floppy disk images (.SDK). Now also tries to convert the instruments for .SDKs (both 12bit and now 16bit) files although it may not always get it right.

Added Digitracker instrument (.IST) format as well as v1.x module (.MDL) import.

Added Extreme's Tracker (.AMS) format.

Added FunkTracker module format (.FNK).

Added Impulse Tracker modules/instruments/samples (.IT).

Added DisorderTracker2 module (.PLM) and sample (.PLS) files.

Added Poly Tracker module (.PTM).

Added ABT Extended MoDule (.EMD) format.

Added Velvet Studio Modules (.AMS) / Instruments (.AIS) / Samples (.ASE).

Added DigiTrekker module (.DTM).

Added DCM module format (.DCM).

Added Typhoon vOice files (.O01)

Added Typhoon wave files (.C01)

Now reads more Ensoniq synthesizer files (.Efx) and disk images (.EDx, x=A,E,K,Q,S,T,V)

Added raw CCITT G.721 ADPCM data (.g721) read and write.

Added an experimental 'Upload bank' command, related to the auditioning feature. You can use it to upload all of the instruments in the bank to the wavesynth. As it is still in the 'experimental stage', I can not guarantee that it will work as intended. The idea is that, using this command, you'd be able to develop 'cross-soundcard' compatible instrument bank files. You'd then be able to distribute them with your midi songs and use Awave to upload them to any one of the supported wavetable sound cards. If there is enough interest, I might be able to produce freeware, standalone, 'bank loaders' for the GUS, AWE32, Maui/Tropez respectively.

Various minor fixes and improvements.



version 2.7

Fixed the SB AWE32 auditioning to work with the new Win95 drivers. The AWE32 auditioning now uses the new .SF2 file format so in fact these latest, .SF2 compatible, drivers are now required (for auditioning with the AWE32). Note! They had only been released in beta (although public beta) versions at the time this was written.

Changed the loop editor to a nice 'dual layer' view.

Added an 'Audio Processor wizard' connected to the 'Process' button in the waveform properties box's waveform tab. Only 16->8bit, 8->16bit, mono->stereo and stereo->mono conversion algorithms are available for the moment.

Added spectrum analyzer option to the Audio Player (uses a Fast Hartley Transform (FHT) algorithm on 256 samples to compute a 128 band power spectrum, all in real time).

Added 'Virtual Keyboard' feature, i.e. when using the auditioning feature (with one of the supported wavetable cards) you can now play on the computer keyboard (if you do not have an external midi device).

Added a 'programs' tab to the bank property sheet where you can easily view (and edit) the instrument to midi program number assignments for the bank.

Can now save whole instruments to Ensoniq .EFE files in addition to single waveforms (i.e. more than one waveform/instrument are now supported).

Added Windows Clipboard import.

Added .AVI import support (audio part only...)

Added ultrasound initialization file (ULTRASND.INI) melodic bank import as well as 'export' (.INI extract + bunch of .PAT files).

Added support for writing μ -law and A-law format .AU and .WAV files.

Added Matlab variables binary file (.MAT) import and export.

Added .VAP annotated speech files import.

Added .UB, .UW, .UDW, .SB, .SW, .SDW, .ULAW, .ALAW import formats and changed .RAW, .SND export formats into .UB, .UW, .SB, .SW, .ULAW, .ALAW. Here U means unsigned, S signed and B, W & DW means byte (8bit), word (16bit) & dword (32bit) respectively.

Added Covox 8 Bit File (.V8) import.

Added Ad Lib Gold Sample (.SMP) import

Added Sonic Foundry Sample Resource (.SFR) import

Fixed AudioPlayer scope bug that made it go faster than the sound on some soundcards (read Sound Blaster when playing 16bit and/or stereo data).

Whenever the selected WaveOut device is busy playing something else, the Audio Player will now look for, and use, any other waveout device(s) you may have installed.

Fixed SBK/SF2 bug that made it hang sometimes when saving.

Fixed MS ADPCM (.WAV) format decoder bug.

The mandatory small fixes and improvements.



version 2.5

Changed the name from 2PAT into the more appropriate *Awave*. All registered users of 2PAT are, of course, also registered to *Awave*.

Waveforms are now cached in memory. This eats memory but is necessary for some of the new as well as for future editing functions. It also makes auditioning more responsive.

A visual loop point editor page has been added to the waveform property sheet.

A waveform display page has been added to the waveform property sheet (true RMS display, plus peak indication)

Auditioning feedback is now available when editing stuff in the property sheets (i.e. if you have one of the supported wavetable synthesizers). Just hit the Apply button to download the changes to the synth.

An oscilloscope display has been added to the AudioPlayer.

Added option to force the AudioPlayer to use only standard sample playback rates (some buggy drivers says they can play things that they can't!).

Added -ONCE (closes the AudioPlayer when finished playing a waveform) and -DELETE (deletes the source file when finished) command line options in addition to the old -AP (launches in AudioPlayer mode) switch.

Auditioning with the SB AWE32 no longer uses a stand alone program, but now requires the latest drivers with 32bit application support, more specifically, with the AWEMAN32.DLL file.

Added an 'Insert File' command that lets you merge several files.

Added a 'Save All As' command to allow you to easily save all instruments or waveforms.

Added 'MidiSDSDump' virtual export format to allow Midi transfers of waveforms to external synthesizers.

Added Ensoniq EPS instruments, .EFE, export (for single waveforms only).

Added Sound Font v2.0 (.SF2 files) export. CL says they will support SF v2.0 during the 2nd quarter of '96 so in about a years time it will probably have replaced SF v1.0 and .SBK export support will then be dropped from this program.

Added .VOC export format (note! files are written using the new and much more capable 'type 9' subformat (well it's not that new, but there's still a few programs that do not support it)).

Added .S3I, Digiplayer/ST3 sample fileformat export

Added text formatted audio, .TXT export (the old text description format renamed to .DES)

Added MWave DSPs software synthesizers MWSYNTH.INI bank read support as well as .MWS text

file export, containing an instrument extract that can be manually pasted into mwsynth.ini.

Added MPEG audio layer I, I and III import, .MP2, .MPA (very slow and memory hungry though).

Added GSM 6.10 audio stream import (.GSM)

Added SoundStage .SFI/.SFD import.

Added Farandole .F3R blocked linear module format (1.0).

Added SBStudio II, .SOU, .PAC sound & package files import.

Added .EPSP audio file import.

Added .NIST SPHERE import.

Added .SPPack sound sample file import.

Added .INRS Telecommunications audio file import.

Added: MAUD sample format import.

Added .SD1 Sound Designer I file import.

Added PSION a-law file import

Added Mus10 audio file import

Added Sound Tools HCOM format import.

Added μ -law and IMA compression support for .AIFC files.

Added CCITT G.721 & G.723 ADPCM as well as IEEE 32bit and 64bit floating point support for .AU.

Added CCITT G.721 & G.723 ADPCM, GSM 6.10 and MPEG audio support for .WAV.

Added support for the new type 9 .VOC blocks as well a μ -law and A-law compression.

Some corrections/bug fixes for loop points of .KRZ and a few other file types.

Fixed bug with many .GKH files appearing 'empty'. Now also automatically removes the duplicate but 'noisy' wavesamples that appeared from multi-layered instruments..

Added fast auditioning on/off switch to the Options menu.

Much more transparent file type associating behavior. No longer will you be prompted if you want to replace types that have already been associated with other programs. You'll have to do that yourself if you want to. Registers 'convert' and 'play' command verbs in the new Windows 95 shell extension fashion (so multiple programs can cooperatively assign different commands for a given type). This doesn't work very well under Window 3.1 so this feature has been disabled when running under Windows 3.1. You can of course still manually associate file types using the File Manager.

And, as always, a whole bunch of bug fixes and minor enhancements.



version 2.0

User interface enhanced based on the Windows 95 UI guidelines. Runs under Windows 95, Windows NT 3.51 or Windows 3.1 + Win32s v1.3.

The really stupid "couldn't register app class" bug fixed (occurred on many Win32s systems).

Now writes converted stuff to disk first when you actually saves or auditions anything, instead of doing everything in one sweep when opening a file, as was done in previous versions. This change has made possible a number of the enhancements below.

Tree list view with nodes and leaves for bank file, instrument and waveform levels. You can now save stuff from any of the 'levels' (Note only a few of the export formats support all levels). There's also Property sheets for the items of the various levels. Most stuff is editable!

You no longer have to decide on export format before you load a file. Just select from a list in the Save dialog.

Auditioning now works regardless of what you're going to export to.

Sound Blaster AWE32 auditioning support added.

A virtual '.DAC' export format added. Saving to this format will simply play the item on a digital audio output device. So users that doesn't have a GUS, Maui or AWE32 can now play sounds as well, provided you have some sort of basic audio card. An 'Audio Player' item in the right mouse button menu acts as a shortcut for saving to this format.

Audio Player mode and -AP command line switch added. Lets 2PAT be used as a multiformat digital audio player. Great as a helper app for your favorite Web-browser.

A virtual '.CLIP' export format added. Saving to this format will simply copy a wavesample to the Windows clipboard.

.AU export format added.

.IFF export format added.

.SBK export format added as well as improved import support..

Smart file format recognition, Tries to recognize the format of a file correctly, even if it has no, or even an incorrect, file type extension.

FastTracker 2 .XM (module) and .XI (instrument) files read supported.

Farandoyle .FAR tracker modules read support.

Oktalyzer .OKT tracker module read support.

Sndtool sound file, .SNDT read support.

Souder sound file, .SNDR read support.

IRCAM SoundFile format, .SF read support.

Raw Audio-CD format data, .CDR read support

MikMod 'UniMod' format, .UNI read support

Digital Sound Module tracker format, .DSM read support

Text formatted audio data, .TXT read support

Delusion/XTracker Digital Music/Sample File format, .DMF, .DSF read support

Digitrakker Module/Sample File, .MDL, .SPL read support.

Signed 8bit Sample data, .SAM read support.

Farandoyle Linear module (2.0) format, .F2R read support.

Macintosh SoundCap/SoundEdit recorded instrument format, .DEWF read support.

Protracker Studio Module Format, -PSM read support.

OctaMED tracker modules (MMD0|MMD1|MMD2), .MED read support.

Machintosh Audio Visual Research sound files, .AVR read support.

Ensoniq, .EUI disk images read support, somewhat like .GKH, which now also reads subdirectories.

US telephony audio format, .UL read support.

AKAI MPC3000 sample files, .SND, read support

Stereo support for a number of formats (WAV,SND,RAW,S3M,S3I,IFF,AU,AIFF)

A-law and μ -law encoded .AU files now supported.

A-law, μ -law, MS ADPCM and DVI/IMA ADPCM encoded .WAV files now supported (read).

16bit 'SV16' flavor of IFF files now supported (read/write).

A bunch of additional .MOD flavors now recognized.

Added cue-points support for looping in .WAV files (read/write).
Fixed ugly bug with .SDS import and export.
Reads and writes 'inst' chunks in .WAV files.

A 'Dummy' midi in device now added so people without a midi-keyboard can use the audition feature of 2PAT by using any 'on-screen keyboard' program.

Added 'Uninstall' button to the program properties box that can be used to clean up the registry.

Imposed a somewhat annoying save times limit. Registered users receive a personal keycode that removes this.



version 1.5

Reworked user interface for Windows 95. 'Right mouse button' based, uses the registry, associates file types, uses long filenames, new icons, resizable window frame et c. No longer uses CTL3D32.DLL since that's no longer necessary for the 3D look. Will still run under Windows 3.11 with Win32s v1.1 and up but will probably not look very good; Win32s v1.3 will probably fix that when it's out.

Instrument info box with info corresponding to a .DES file.

Improved Kurzweil *KRZ* support; fixed the sample rate and a few other things. Now creates instruments from both the 'sample' and the 'keymap' level, since the 'keymap, i.e. instrument, level doesn't always work....

Added *AIF* as export format.
Added *SND* as export format.
Added *RAW* as export format.

Fixed problem with not being able to launch WinHelp from arbitrary directories.
Assigns unique names for 'unnamed' samples and instruments (fixes problem with WaveFront based cards).
Fixed problem with 'unnamed' instruments in .PAT files.



version 1.4

Improved support for Turtle Beach WaveFront based cards! (Maui / Rio / Monterey);
Reads .WavePatch's .WFB, .WFP and .WFP files (v1.2 or later only).
Exports .WFP files.
Supports downloading instruments to the Maui card, using the WF GateKeeper (WFGATE.DLL).

Reads ScreamTracker 3 instruments (.S3I).



version 1.3

Now a Win32s (v1.1 or later) program.
CTL3D32.DLL replaces CTL3DV2.DLL.
FMJMTHRU.DLL no longer needed.
Saves configuration in the Win32 registry instead of in an .INI file.

Now reads the GKH disk image files in addition to INS/EFE for Ensoniq EPS.

Bare bone .SBK import support (EMU SoundFonts Banks / SB AWE32); at wavesample level.



version 1.2

Restructured for multiple export formats, currently:

- Ultrasound patches (.PAT)
- Turtle Beach Maui (.WAV+.WFS+.DES)
- Ms Windows wave files (.WAV+-DES)
- Midi Sample Dump Standard files (.SDS+.DES)

Config dialog window where you can choose export type and midi in device.
Saves config in 2PAT.INI.

You can start 2PAT with a filename on the command line and that file will be loaded at once; so now you can associate various file extensions with 2PAT in the File Manager and launch 2PAT by double clicking on a file.

Reads and writes .WAV files with the (new Ms standard) smpl (root key, fine-tune, loop points) and ICMT (name) chunks.



version 1.1

Uses Microsoft's 3D controls extensions, CTL3DV2.DLL instead of Borland's BWCC.DLL as earlier.

Improved Ensoniq EPS support (.INS, .EFE, .GKH).
Now treats the sample rate correctly as well as doing a coarse decay rate conversion.

Now supports fine-tune for a few formats.

Better at cleaning up temporary files after itself...



version 1.0

Reads: .AU, .INS, .EFE, .VOC, .SMP, .PAT, .SDK, .SDS, .SDX, .SYW, .TXW, .IFF, .AIF, .UWF, .MTM, .ULT, .WAV, .SND, .FSM, .669, .KRZ, .STM, .S3M, .MOD (M.K., 4CHN, 6CHN, 8CHN, FLT4 or FLT8) and raw files

Writes: .PAT and .WAV.

Now a Windows hosted program (Win16). And the manual is in WinHelp Hypertext format.

Lots of improvements over previous beta versions...



version 0.1B

Nothing fancy, a DOS program that reads 4ch .MOD's and writes .PAT's and an ULTRASND.INI

extract.



MISC:

✂ *FMJ-Software!*

If you enjoy this program, please
support our efforts by registering it.

OF:

Press to get help on file formats...

Displays what file format type the currently selected file has been identified as (if any).

The % value indicates how certain the file format type detection was with 100% being very certain, and 0% being quite unsure...

Select the sub-format or data format to use when saving waveforms.

Check to allow saving in mono format. If both the mono and the stereo boxes are checked then the most suitable alternative will automatically be chosen for every waveform in the file.

Check to allow saving in stereo format. If both the mono and the stereo boxes are checked then the most suitable alternative will automatically be chosen for every waveform in the file.

This is a list of recently used directories that you can quickly go to by selecting one from this list.

PS_GNRL_*:

Shows if the program is registered or unregistered.

Click button to locate your personal registration key-code and remove all imposed limitations of the unregistered version of *Awave Studio*.

Click button to uninstall this program.

This will clean up the registry entries for the program.

You can also use the Windows 95/NT control panel's install/uninstall feature to do exactly the same thing.

If you have a www-browser installed on your computer, then clicking here will get you to FMJ-Software's www site. There may find the latest news and updates to this program among other things.

Check this box if you want ***Awave Studio*** to associate all its supported file formats with itself so that you may easily access ***Awave Studio*** through ‘*play audio*’ and ‘*convert*’ commands on the Windows Explorer’s right mouse button menu.

Note! If any other program is already associated with a file type, then that association will *not* be overwritten.

Note! If you ever uninstall ***Awave Studio*** then these associations will be removed automatically.

Check to enable the main window toolbar.

Display an instruments MIDI CC0 bank and MIDI program number in its text label in the collection pane.

Put up a confirmation dialog before losing any loaded data, i.e. before loading a new file, or before exiting the program.

PS_AUDI_*:

Check to enable auditioning.

Auditioning works by routing MIDI messages from a keyboard or other MIDI-in device to a wavetable synth, combined with automatic creation and loading of instruments and samples to the same wavetable synth.

Select the wavetable synth you want to use for the auditioning feature.

Select the MIDI input device you want to use for the auditioning feature.
Data from this device will be routed to your selected wavetable synth, and automatically translated to use the correct bank, program and channel.

Check to enable the virtual keyboard.

When enabled you can play on your computer keyboard instead of (or as a complement to) an external MIDI keyboard.

PS_AUDP_*:

Select the primary digital audio playback device you wish to use with the Audio Player. If this device is used when the Audio Player is launched then any other free device(s) will be used.

The Audio Player has a built in oscilloscope graph.

Use Microsoft DirectSound services for waveform playback.

Selecting this will let you have multiple simultaneous Audio Players and the Awave Studio Synth will be polyphonic rather than monophonic. It will also reduce latency (the time it takes before a sound starts playing) as well as much reduce the memory usage.

This option is only available if you have installed Microsoft DirectX v2 on your computer.

Use the older Windows multimedia services for waveform playback using an audio buffer queue.

Use the older Windows multimedia services for waveform playback without using an audio buffer queue. Select this only if you have trouble getting any sound from the Audio Player otherwise. Looping support will also be disabled when this box is checked.

PS_APPS_*

You can use an external helper application for editing waveforms. Enter the file name and path for such an app here or click the [...] button to browse the disk for it. Then add any command line options necessary. Awave Studio will launch the application with a .WAV file name appended last, e.g. "c:\windows\sndrec32.exe -ASwitch New.WAV". The .WAV file name is generated automatically by Awave Studio.

You can use an external helper application (such as a sequencer) for editing MIDI songs. Enter the file name and path for such an app here or click the [...] button to browse the disk for it. Then add any command line options necessary. Awave Studio will launch the application with a .MID file name appended last. The MID file name is generated automatically by Awave Studio.

You can use an external on-screen keyboard helper application. Enter the file name and path for such an app here or click the [...] button to browse the disk for it. Selecting 'Run keyboard app' from the Options menu will then launch it.

You can use an external on-MPEG encoder/compressor application to enable creation of MPEG audio layer III files. This application should have an “L3ENC” compatible command line syntax. Enter the file name and path here or click the [...] button to browse the disk for it.

PS_PRMS_*:

You can quickly select a number of predefined parameter sets here.

List of 'instrument architecture' parameters that you can toggle on/off (by double clicking on one)

XGP:

Place the name of the author or the engineer who created the file here.

Place any text comment here.

Place the copyright information here.

Place the name of the artist here.

Place the name of the product here.

CGP:

Source file (import type) description.

Source file name and path.

Information about the number of instruments in the collection, and their total size.

CPP:

A list of what instruments have been assigned to what MIDI bank and program numbers.
You can change the program number for an instrument in the instruments property sheet's general tab.

Click to add a new layer to the instrument.

Click to delete the selected layer.

IGP:

Info on the number of layers in the instrument and their total size.

Select melodic instrument type.

Select drum kit instrument type. This also selects that it should reside in the drum-kit rather than in the melodic bank and program space.

The major MIDI bank number for the instrument. This is usually set with MIDI Control Change 00. Bank 0 is generally the standard General MIDI bank.

The minor MIDI bank, or 'sub bank', number for the instrument. This is usually set with MIDI Control Change 32. It is ignored by many synthesizers.

The MIDI Program Change number for the instrument. Note that programs are numbered from 0 to 127 (some programs and synthesizers displays these numbers as 1 to 128, in which case you should mentally add 1 to the number displayed here to get the number used by the synthesizer).

ILP:

List of layers used in instrument. Double-click to edit the layer keymap.

Press to add a new layer.

Press to delete the selected layer.

Press to add the currently selected layer in the pick list to the instrument.

The instrument pick list: Select the instrument whose layers is to be displayed in the next list box.

The layer pick list: Select the layer that will be added if you press the button to the left.

LKP:

The note name of the key currently under the cursor.

Click to create a new range object for the selected key range.

Click to clear (remove any range assignments for) the key range selected.

Click to leave key range unmodified.

Select the waveform that you want to assign to this drum key.

Select the low key of a key range.

Select the high key of a key range.

When this box is *checked*, and you click on a key, you will get a dialog where you can select a waveform to assign to the 'drum' key, or you can 'clear' any current waveform assigned to it. If you assign a new waveform, then a new region will be created covering that waveform and key. It will have the per region waveform parameters override enabled and the override root key will be set to the key thus ensuring that the waveform is played back at the correct pitch at this key.

When it is *not checked* the default keymap editor behavior applies: Click on a region to edit it. Drag over a key range to pop up a dialog where you can either clear the range, or create a new region covering the range (if the key range is already clear, then a region is created directly).

Use these buttons to change the size of the displayed keyboard between 61, 76, 88 and 128 key layouts!

LDP:

List of all waveform to MIDI key assignments (linked by way of regions that are not showed here).
To edit an assignment for a key, click on the key name (e.g. D3) and then use the controls to the right of the list to change the assignment.

Select a MIDI key that you wish to change.

Select the waveform that you want to have assigned to the selected key.

Select the root key (key of unity pitch) for the waveform assigned to the currently selected MIDI key.

Click to clear (remove) the waveform assignment for the selected MIDI key.

Click to set the root key for the current waveform assignment to the same key as the MIDI key.
Note that this doesn't actually change the root key parameter for the waveform. Instead it enables the root key override parameter in the region mapping the waveform to the MIDI key (which btw, is automatically created by the drum kit editor).

Click to bring up the 'auto create drum kit' dialog, which will help you to very quickly create a drum kit from all loaded waveforms.

WGP:

Enter the sampling rate in Hz (number of recorded wavesamples per second). Valid range is 100.100 000 Hz.

A little information about the waveform data.

Root key.

This is the MIDI-key number at which the waveform is played back at its original sample rate.

Fine-tune.

Adjust the Root Key in steps of 1/1200th of an octave.
Range is -99..99 cents.

Enter relative volume damping.

Range is -96.0..0.0 dB (virtual silence .. max volume) .

Check if you want to allow 16bit waveforms to 'truncated' to 8bits if the synth is low on sample memory.

Check if you want to allow the waveform to be compressed if the synth is low on sample memory.

Press this button to automatically set the root key and fine tune. The program will use its built in chromatic tuner algorithms to attempt to find the waveforms 'highest peak' in the frequency domain and calculate the root key from that.

WEP:

Controls the position (offset) of the part of the waveform that is displayed.

Displays the waveform.

P-mode: Red is the True RMS (Root of Mean of Squares, 'power') display, Light blue dots is absolute maximums ('tops').

I-mode: Green is absolute values ('current').

Blue bars are always loop points.

Controls the zoom state of the waveform window.

Selects the power vs. time graph.

Selects the current vs. time graph.

Play the waveform using the *Audio Player*.

Bring up the audio processing dialog.

Cut away the selection and place on the clipboard.

Copy the selection to the clipboard.

Paste waveform from the clipboard. It will be pasted 'over' the current selection.

Insert waveform from the clipboard. The insertion point will be the start of the current selection.

Selects and displays the whole waveform.

Zoom the display to the selected part of the waveform.

Displays the length in seconds or in milliseconds of the current selection, or if nothing is selected, of the whole waveform.

WLP:

How the waveform looks like when its looping! They 'dark' parts are just before the waveform first enters resp. leaves the looping portion. The 'light' part is the actual looping section with the loop point break in the middle (this should be much easier to understand by looking at the graph and trying moving the loop point sliders than trying to explain it in words...)

Loop start point.

Also called repeat from point. The loop start point is the first wavesample *in* the loop range. Note that fractional loop points are supported. Synthesizers that can interpolate between samples use this. The point is expressed in number of wavesamples from the beginning of the waveform, starting at zero.

Loop end point.

Also called repeat point. The loop end point is the first wavesample *after* the loop range.

Note that fractional loop points are supported. Synthesizers that can interpolate between samples use this. The point is expressed in number of wavesamples from the beginning of the waveform, starting at zero. It may not be less than the loop start point.

Fine-tunes the position of the loop start point.

Fine-tunes the position of the loop end point.

Zoom the two loop-split displays in the time domain.

Zoom the two loop-split displays in the amplitude domain.

Check to enable sampled release.

This means that the waveform loops while the key is pressed down, but stops looping and plays to the end of the sample (remember there may be sample data past the loop end point) when it is released. When this is not checked, it loops until the amplitude envelope has faded it out upon key release.

Click this button to 're-center' the loop position fine tune sliders.

Check to enable reverse looping.

This makes the loop go backwards instead of forwards.

This option may not be available on some sound hardware (including the *Awave* software synth)..

Check to enable looping.

When looping is on, the waveform is looped between the loop start and loop end points, as long as the MIDI key is pressed.

Check to enable bi-directional looping.

Bi-directional looping means the loop direction alternates between forwards and backwards.
This option may not be available on some sound hardware (including the *Awave* software synth)..

Press to start/stop playing the looped waveform region.

Press to start/stop playing the looped waveform from the beginning.

Check to enable the use of fractional loop points in the editor.
Note! Not all synthesizers support fractional loop points!

WSP:

Select the wavesample data type.

Check if signed wavesamples.

Check to perform a byte swap when reading 16bit data (necessary when reading 'Motorola byte order' data).

Check if stereo wavesamples.

Source file name, and the positions and size of the waveform data.

Enter the size of the file header (the number of Bytes preceding the actual sample data).

Enter waveform size (number of Bytes of sample data).

The value is automatically truncated if it extends beyond the file length.

If all data, after the (optional) file header, is sample data, then you need not change this.

Note that 16bit data is 2 Bytes/Sample/Channel.

Shows the approximate number of bits per wavesample in the source data.

AGP:

Click to enable articulation.

Controls how much the key on velocity affects the volume.

Controls how much LFO 1 affects the volume. The sign controls the starting phase.

Controls how much EG 1 affects the volume. This value cannot be changed.

Controls how a MIDI note number is translated into a key number. This value cannot be changed.

Controls the effect of the MIDI RPN2 parameter.

Controls how many cents the key number affects the pitch. Default is 100 for 1 semitone per key number step. This gives a normal twelve-tone scale. For a quartertone scale, set it to 50. For no effect on pitch (e.g. some percussion), set it to 0.

Controls how much EG 2 affect the pitch. Setting a positive value will thus have the EG2 increase the pitch while a negative will have it decrease the pitch. It is thus not possible to have a pitch envelope with both positive and negative values.

Controls how much LFO 1 affects the pitch. The sign controls the starting phase.

Controls how much LFO 2 affects the pitch. The sign controls the starting phase.

Controls the effect of the MIDI RPN1 parameter.

Master tuning for all waveforms affected by this articulation set.

AOP:

Enter LFO frequency.

Enter LFO start delay, i.e. the time from the start of the waveform playback until the LFO kicks in.

Enter LFO ramp time, i.e. the time from that the LFO starts (see the star delay) until it reaches maximum effect.

Select LFO waveform shape.

Enter how much the MIDI Mod Wheel should affect the LFO1 volume modulation depth.

Enter how much the MIDI Mod Wheel should affect the LFO1 pitch modulation depth.

Enter how much the MIDI Mod Wheel should affect the LFO1 filter cutoff modulation depth.

Enter how much the MIDI Mod Wheel should affect the LFO2 pitch modulation depth.

Enter how much the MIDI Channel Pressure should affect the LFO1 volume modulation depth.

Enter how much the MIDI Channel Pressure should affect the LFO1 pitch modulation depth.

Enter how much the MIDI Channel Pressure should affect the LFO1 filter cutoff modulation depth.

Enter how much the MIDI Channel Pressure should affect the LFO2 pitch modulation depth.

AEP:

What this envelope generator connects to (what it modifies).

A graph displaying the selected envelope generator curve.

Zoom the envelope graph in the time domain.

Edit the value for the currently selected edit item (attack, decay, ...).

Select to edit the delay time.

Select to edit the attack time.

Select to edit the hold time.

Select to edit the decay rate.

Select to edit the sustain level.

Select to edit the release rate.

Select to edit the shutdown rate (the shutdown rate is like the release rate but is to 'shut off' a voice when when a note-exclusive or key-exclusive event occurs).

Select to edit how much the MIDI key velocity should affect the envelope attack time. A value of 0.5X means that a doubling of velocity will halve the time. A value of 2.0X means the time will double instead.

Select to edit how much the MIDI key number should affect the envelope hold time.
A value of 0.5X means that a doubling of velocity will halve the time. A value of 2.0X means the time will double instead.

Select to edit how much the MIDI key number should affect the envelope decay time.
A value of 0.5X means that a doubling of velocity will halve the time. A value of 2.0X means the time will double instead.

AXP:

Sets the default panning position, i.e. the position of the waveform in the stereo field. Range is -50.0% for full left, through 0.0% for centered, to +50.0% for full right. This can be overridden in a MIDI file by using the appropriate MIDI pan controller.

Controls the default degree to which the sound is sent to the reverb effects processor (if one is present). This can be overridden in a MIDI file by using the appropriate MIDI GS reverb depth controller.

Controls the default degree to which the sound is sent to the chorus effects processor (if one is present). This can be overridden in a MIDI file by using the appropriate MIDI GS chorus depth controller.

Controls the range of the MIDI channel pan command, i.e. the MIDI value is 'scaled' by this value. Note that this means that a negative value means essentially that the stereo channels are 'swapped'.

Controls the range of the MIDI channel reverb send command, i.e. the MIDI value is 'scaled' by this value.

Controls the range of the MIDI channel chorus send command, i.e. the MIDI value is 'scaled' by this value.

Check this box to enable the low pass filter.

The filter cutoff, or 'resonance' frequency. The exact behavior past this point depends very much upon the particular filter implementation but usually the volume decreases logarithmically.

The filter resonance peak, or 'Q-value'. This value determines how large a volume 'peak' there is around the cutoff/resonance frequency. A value of 0 gives a non-resonant filter.

Controls how much the key velocity affects the filter cutoff frequency.

Controls how much the key number affects the filter cutoff frequency.

Controls how much EG 2 affects the filter cutoff frequency. Use a positive value to increase the cutoff frequency, use a negative to increase it.

Controls how much LFO 1 affects the filter cutoff frequency. The sign controls the starting phase.

RGP:

Select which waveform you want to assign to this region.

Check to override certain waveform parameters.

Select the lowest (inclusive) MIDI key number in the range of this region.

Select the highest (inclusive) MIDI key number in the range of this region.

Select the lowest (inclusive) MIDI velocity in the range of this region.

Select the highest (inclusive) MIDI velocity in the range of this region.

Select the key group this region should belong to, or none if no key grouping is desired.

Click to see the properties for the linked waveform.

Controls what happens when a MIDI note on command is issued when a note with the same key number is already playing (using the same MIDI channel and instrument). When this box is checked, the old note is not affected and continues playing while a new one is started. When it is not checked, the old note is cut off and a new one is started.

Select the 'phase group' for the linked waveform or 'None' for no phase group. Waveforms with the same phase group within an instrument will play in 'phase lock'. This can prevent unwanted and unpredictable interference phenomena when using layering (e.g. for producing stereo). Also all modulators that affect pitch will follow the phase master.

Select the 'phase master' in a phase group. The other members of the same phase group will follow this one in pitch (i.e. all pitch modulators that are set for this region will be 'global' to the phase group).

Check if this is a 'DLS compatibility region'. Awake only uses this parameter when saving to DLS level 2 files. What happens is that regions with this option checked are saved as DLS level 1 regions with level 1 articulation. It is written together with a 'conditional' that tells DLS level 2 readers that this data should be used only on DLS level 1 devices and skipped for DLS level 2 devices. DLS level 1 devices on the other hand reads them, but ignores any level 2 regions, i.e. all that do not have this option checked when saving a level 2 file. In other words, this is a mechanism that can be used to create a kind of 'dual target' files that works with, and takes advantage of, both DLS level 1 and level 2 synths.

Click this small button to set the high key to the value of the low key, giving a single key range.

MGP:

Shows the number of tracks and total data size of the MIDI song.

TGP:

Shows the data size of the MIDI track.

List of all MIDI events in the track!

PLAY:

Press to start or stop playing the waveform.

Go to the next waveform in a sequence. Closes the Audio Player if this is the last waveform.

Close the Audio Player (does not go to the next waveform in a sequence).

Name of the waveform.

Info about the waveform.

The waveform display. Can be set to one of three modes: off, waveform (oscilloscope), or spectrum.

The current playing position.

The length in seconds of the waveform.

Select to pause the oscilloscope graph.

Select to set waveform display mode.

Select to set spectrum analyzer mode.

