Mod4Win Help Index

**Welcome to the help for Mod4Win 1.10 -- the first HIGH-QUALITY MOD-Player
for IBM-compatible PCs running Microsoft® Windows™.**

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Features

Mod4Win is a player for Commodore AMIGA SoundTracker and NoiseTracker Files on IBM-PC compatible machines under Microsoft Windows™

- It supports:
   * sample rates between 11 and **48 kHz**
   * 8 and **16 bit** sample depth
   * Mono and **Stereo**

- **Jukebox** function for up to 999 <u>MOD</u>-Files in one session!
   * generates **playlists** (with files from up to 100 directories!)

- **Drag & Drop** feature of one or more files and of playlists.

- Launching of a file or playlist from a **command line** parameter.

- The program **remembers** several **settings**, for instance
   * window positions
   * actual and last play directory
   * hardware settings

- **Hotkeys** for all player functions

Drag and Drop is a feature of Windows™ 3.1 (and newer versions) and means, that you can drag a file out of the file manager or another desktop manager and drop it onto an application (by grabbing the file with the left mouse button in your file manager, dragging it over to the appropriate application, and releasing the left mouse button).   It's then up to the application to process the file(s).

System Requirements

- A **sound card** with at least one DAC, that can process 11 kHz-Sampling and an appropriate asynchronous **wave driver** (**speaker.drv** won't run).

- AT 286 with 4 MB RAM minimum.
- **AT 386/33** for playing at the highest sample rate.
- AT 486/33 with 8 MB RAM to use Mod4Win as a background jukebox at 44 kHz and 16 bit stereo sampling.

When you sample with 48 kHz 16 bit stereo, and at the same time run an application that requires a vehement video output and intense interaction with your hard drive, the expansion bus of your machine has a heavy load to carry.

If you have a standard ISA-bus, this might easily strain your system (bus) capacity.   With an advanced bus design, such as EISA, MCA, or VESA local bus, you don't have to worry about overloading the bus.

One way to overcome the bottleneck of a standard ISA-bus is to increase the clock rate of the bus.

> **!! Caution !!**
> Some peripherals won't work properly at a clock rate higher than the 8 MHz that the ISA-bus standard suggests.   In this case severe damage to some hardware components might occur.   We don't assume any responsibility for damages resulting from changing your system's bus clock rate.   Many machines however run at a higher clock rate of up to 12-16 MHz without problems.

If you have only 4 MB RAM then it is not very recommendable to work with sample rates higher than 32 kHz, and/or 16 bit, and/or stereo, because the buffer needs about 128 to 192 KB of your main memory for every second of sample data.   Moreover the MOD-File requires some space (up to 2 MB, but normally about 100-300 KB), and after all, Windows™ itself and the other applications need memory too.   Then your total memory can fill up very quickly.

To listen to a MOD-File from your Windows™ swap file in such a situation isn't exactly the excitement you were looking for.

Advice: For a machine with limited memory resources we recommend 32 kHz at 8 bit stereo with 40 buffers.

For a more detailed discussion of System Requirements see also the sections
Known Problems and
Frequently asked Questions (FAQ).

Authors

Mod4Win was written and designed by **Kay Bruns** and **Uwe Zänker**.   The English version of Mod4Win and the Help file was translated and adopted by **Jens Puchert**.

This program was thoroughly ß-tested.   However, if you discover any malfunctions or bugs (you never know), feel free to write your comments to:

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PS: Please, constructive contributions only. All others are to be marked as junk mail, or even better, save yourself the trouble and send it to NIL (or for C-freaks to NULL).

Further Projects

If the months of development work for Mod4Win **pay off,** we plan the following projects for the near future:

1. Some day when most people will have an i486/DX50 or better, we will provide **digital software filters** for this and other programs.   Actually we planned on solving the problem with the harmonics (Harmonics?) with this version of Mod4Win, but the still pretty common 386/40 (some folks even run Windows™ on a 386/SX16) just doesn't have the power to do that.   With these filters, harmonics, tinkling and other distortions will be a matter of the past. But until then there's still some way to go...

2. Before that we're planning to develop a **semi-professional PC sound studio** on sample basis. With that you'll have the tools to edit MOD-Files and a new type of music files.   It will provide 16 channels, 16 bit, real stereo, professional mixer, sampler, sequencer, and MIDI-support.

3. We also plan for a **Mod Player for the OPL-4** (voice synthesizer) chip from Yamaha.   Then it will be possible to realize 16 bit sampling on 16 stereo or 32 mono channels, with relatively low exertion.   Each of these channels will also have a filter and, depending on the sound card, CD quality.

Known Problems

Problems with sound cards:

Several sound cards claim to support multiple sample rates, but then don't play at these rates but at any others they like, that means the **play** rate seems to be **too fast or too slow**.   For instance the Sound Blaster 16 ASP reports, being able to play at 48 kHz, then however starts to **howl terribly**, since it is only capable of playing at 44 kHz.   The same thing happens if you switch from mono to stereo with the Pro Audio Spectrum.   These errors are caused by neither Mod4Win nor the wave driver, but simply by the sound card hardware.

Solution: Buy a different sound card, bear the sound, or adjust to a sample rate that can really be played.

Problems with (**BUGS** in) sound drivers:

General solution for these problems:

Because we didn't have one bug free wave driver during the test phase of the program, we can only give the following advise:

Ask the manufacturer of your sound card for an updated wave driver!

The drivers of the Sound Blaster and Audio Blaster don't automatically adjust their filter frequency to the sample frequency.   That results in the fact that the MOD-Files **sound dull.**

Solution: Use your mixer utility to turn the filter off!

The wave driver of the Sound Blaster Pro 2.5/3/4 reports being able to sample more than **22 kHz 8 bit stereo**, however when it comes to do that it starts to resist.

Solution: Switch to mono at sample rates higher than 22 kHz.

Windows™ only supports the following sample rates: 11, 22, and 44 kHz.   Therefore it may happen that you see an error message like **"General protection fault"** or something similar.   The reason for that is not Mod4Win (because that asks the driver whether it can play the selected sample rate or not), but the clever programming of the wave driver.

Solution: Select only the sample frequencies 11025, 22050, or 44100 Hz.

If you have only one wave driver installed, then it is possible that another application tries to access it while Mod4Win plays.   This could happen for instance if an application wants to generate a system sound.   Then some wave drivers will switch the actual sound output (that's the one from Mod4Win) from stereo to mono or modify the sample rate, without notifying Mod4Win.   As a result you will hear a much **too fast sampled output**, or even **extreme distortions**.

Solution: Install a second wave driver that the other application can utilize while Mod4Win plays.   If you don't have a second sound card or a second driver for your card, you can use **speaker.drv** as a last resort.

Problems with video drivers:

With some video drivers you might notice that while Mod4Win (or any other sample output producing program) plays, that the wave output is **rhythmically interrupted**.   This sounds like bubbling or scratching.   This can be most easily resolved by choosing a different video mode or color resolution.   You can also try to switch from stereo to mono.

Problems that look like BUGS (but are not):

Windows™ or Mod4Win reports **'Less than 500 KBytes memory available!'** although you have plenty of it.   The reason for that is that Mod4Win makes sure there is at least 500 KB left for other applications.   If that's not the case, you'll see the error message.   The same thing happens if Windows™ fragments the memory too much, that means the memory is divided into many little segments, and therefore not enough continuous memory available for other applications.

Solution:

* In the first case (less than 500 KB free): close applications, increase swap file size, or buy more memory.
* In the second case (memory fragmented): stop Mod4Win (not pause!), start application, restart Mod4Win.

Fast forward and rewind takes longer at the end of the song than at the beginning.   The reason for that is that it is impossible to rewind a MOD-File error free utilizing reasonable amounts of memory.   There are effects that jump arbitrarily between Patterns and can't be tracked back easily anymore.   Therefore it is necessary to recalculate the whole song from the beginning and that of course takes more time at the end than at the beginning.

Some wave drivers don't recall exactly where they have been paused.   Instead they will perform certain byte flips that are not very pleasant for the ear.   Therefore the song will be

recalculated from the start after a **Pause**.   This wastes valuable buffer time, but at least it resumes with the regular sound.

For more information about Problems see also the section **Frequently asked Questions (FAQ)**.

Frequently asked Questions

About weird MODs

Q: One of my MOD files **sounds really weird**, compared to other players.

A: We have put an immense amount of work in enhancing the player routines.   This release of Mod4Win supports all ProTracker effects plus BPM-speed.   However, there is always a slight chance, that a command wasn't implemented the same way the original composer intended to use it.   If you have a file that doesn't sound as you would expect, please contact me about the problem and I will probably ask you to send me the MOD-File, as I will need it to find out what the reason for this particular problem is.   There are thousands of MOD-Files that Mod4Win plays just fine, but there is always that slight chance...

This does NOT refer to files that cause a message box "This is not a valid MOD-File!" or "This MOD-Format is currently unsupported!".   Those files are most likely MOD-Files that feature 6 or more channels and are not supported by this release of Mod4Win.

About odd sound drivers

Q: I am having problems trying to get the MOD4WIN program to work on my GUS.   It's a Windows MOD player, and I have never had problems with windows based programs before.   It locks for me when I try to switch to 16 bit mode in any frequency other than 11 kHz.   I believe the WIN drivers for the GUS only support certain frequencies with 16 bit.

A: Many problems turn out to be caused by the sound wave driver, the sound card itself, or certain system setups.

In general Mod4Win does not depend on any hardware specific features.   It only uses the **MCI wave driver interface** for the sound output and therefore should work just fine with any setup that claims to support MPC.   However this is the theory only and odds are that in practice it is a little different.

For the vast majority of users however, there won't be any problems and Mod4Win will play all their MOD-Files flawlessly.

Q: My **system freezes** when I try to play Mod4Win on my GUS.   I can't switch to stereo on my GUS.

A: This problem should be solved with this new release.   The problem here was neither Mod4Win nor the GUS sound card, but only the wave driver the GUS ships with.   Frankly, this wave driver is one of the worst of all sound cards we've tested.

During the Setup Dialog Mod4Win asks the wave driver if it is able to play at the selected

settings.   The wave driver keeps answering "yes", but in fact supports only very few sample frequencies.   Since Mod4Win doesn't know whether it's running on a GUS or any other sound card, it takes this for granted and tries to play at these settings.   Then the wave driver suddenly decides not to play and hangs the system.   So to be correct, it's the GUS wave driver and not Mod4Win that causes your system to lock, but since Mod4Win is the application that called the service of the wave driver, Windows will blame it on Mod4Win.

With this new release of Mod4Win we implemented a more stable approach to this problem by allowing wave drivers that appear to behave subnormal to select only the standard sample rates Windows supports, that is 11025, 22050, and 44100 kHz.   For more information on this topic see also the section about the **mod4win.ini** file later in this topic.

Q: I have a Sound Blaster 16 ASP, and although MOD4WIN was able to identify the driver, **hardware setup** was not automatic.

A: This is due to the incompatibility of some wave drivers that don't conform to the MCI standard and just crash when we ask them if they are able to play certain settings (for instance the GUS Windows driver).   We are working on that and hope to re-enable it as soon as possible.

About PC speaker drivers

Q: I have been playing with Mod4Win and I don't have a sound card yet, but I'm playing around to see what's available when I buy one.   I do have the PC-speaker driver installed and every time I try to play a MOD I get the "use WAVE_ALLOWSYNC flag" message.

I know I really can't get full capabilities w/o a sound card, but I'd like to try this app. out because it seems pretty cool.   Any help would be appreciated.

A: The error message you see is generated by the MCI waveform sound driver you installed in your Control Panel, not by Mod4Win.   We just put it in our own message box.   There is no way you could make Mod4Win run with **speaker.drv**.

The System Requirements section in this help file says very clearly that you need an "asynchronous" wave driver, and that "**speaker.drv** won't run".

In case you are interested, let me explain it a little more technically:

Mod4Win requires an asynchronous wave driver, that means a wave driver, which can play sound by itself, without utilizing the CPU.   A wave driver that drives a sound card is asynchronous and works in the following way: You point the driver to a certain memory location and pass a number of parameters that describe the sound format, and the hardware will then read the data from the memory through its DMA (direct memory access) channel and play by itself (simplified).

The speaker driver cannot do this, because there is no hardware to handle the sound output. The driver emulates a DAC (digital-analog converter), but does this through massive utilization of the CPU, that means, while **speaker.drv** plays a wave file, you can't do anything else on your computer.   Even if you have interrupts enabled, that means nothing else but that you can move the mouse and that your keyboard input will be placed in the message queue.

Mod4Win cannot support this, since it requires a lot of CPU time by itself for generating the sound in the four channels and mixing them together.   So eventually it had to stop the sound output to calculate more.   That doesn't make sense for a background MOD player.

So after all, you should consider getting a sound card.   If you get a card that is capable of 16 bit stereo playback at 44 kHz, you won't be disappointed by the quality of the sound that Mod4Win produces.

How to get more out of Mod4Win

Q: How can I start Mod4Win from the **File Manager**?

A: *   open your File Manager
       *   go to File | Associate...
       *   after Files with extension type MOD
       *   then click on Browse and go to the directory you installed Mod4Win to (by default c:\
           mod4win)
       *   in the files box select **mod4win.exe**
       *   hit OK

All your MOD-Files will be displayed as documents now and double clicking on one will launch Mod4Win with this file already loaded.

You can use the same technique to load Mod4Win list files (MOL).

Q: How can I start Mod4Win with my **favorite MODs loaded**?

A: *   go to your Program Manager
       *   select the Mod4Win icon and hit <ALT>-<ENTER>
       *   the Program Item Properties box comes up
       *   go to Command Line and append the full path and name of the list file you want to load
           at the end as a parameter

If you made an association for MOL files as described above, you can also replace the Command Line string simply with the full path and name of the list file.

Clicking on the Mod4Win icon will load Mod4Win automatically with your favorite MODs specified in the supplied list file.

Q: Being able to see the **"instruments"**.   Many of the song authors have used this space to include information about themselves, how to contact them, etc., etc., but so far I've found no means of seeing this information while using Mod4Win.

A: In the Main Dialog just click the Info Window (the one that shows the song name) or hit I. That will bring up an Info Dialog containing the instrument names (or the author's other remarks - whatever they chose to put in there), file format and size, and the number of instruments used.   This help file contains all this information about hotkeys and active sections in the Main Dialog to click on too.

Q: I just downloaded MOD4WIN - can't find a **version number** anywhere.

A: The version number is shown in the About Dialog (double-click anywhere on the player panel, except the Info Window   which will show the Info Dialog) and in the Help File.

Q: Can I view a **queue list**?

A: With queue list I assume you mean the playlist.   If so, you can view it by launching the Open Dialog (click Open or hit O).   All the titles in the list will be shown in the Playlist window on the right.

Q: While I really like the sound quality of Mod4Win, is it possible to **reduce the amount of memory** required by the program?   My system runs on 4 MB RAM only and I also wish to have other applications running at the same time.

A: The memory required to buffer the output data is directly proportional to all of the following:

* sample rate (11-48 kHz)
* resolution (8/16 bit)
* channels (mono/stereo)
* number of buffers (10-99)

The first 3 parameters directly influence the quality of the sample data.   Since you don't wanna compromise the quality, you can only change the number of buffers to reduce the amount of memory needed.   Indeed there is a wide range to choose from: the minimum is 10 buffers and the maximum is 99.

Buffers are needed because Windows doesn't guarantee an application to get processor time

when needed.   Instead Mod4Win depends on the kindness of other programs to give up the processor for a while.   When an application shows the hour glass, it doesn't want to give up the processor because it needs the full processor power for itself.   All other applications are then suspended and have to wait for the one that ties up the CPU.   The same thing happens when a DOS session is run full screen.

Since you want to hear your MODs continuously, even when an application shows the hour glass for a while, Mod4Win calculates some song data ahead, just as much as fits into the buffers you reserved.   Even when Mod4Win doesn't get CPU time, the asynchronous wave driver will continue to move song data from memory to your sound card.

The reason to have more buffers is to overcome longer periods without CPU attention.   One buffer is big enough to hold 180 ms of sample data.   So the total range is from 1.8 sec (with 10 buffers) to roughly 18 sec (with 99 buffers).

If you usually don't see the hour glass for more than a few seconds (or don't mind a little interruption in play back once in a while), you can safely decrease the number of buffers to whatever makes you feel comfortable in terms of memory utilization.   It doesn't influence the play back quality.

About the mod4win.ini file

Some of the features we've been working on didn't find their way into the Setup Dialog yet, however we'd like to give you a chance to test and evaluate them now, so we can learn how useful they are to you and how we will implement them in future releases.

For all of these settings (except for TimerMode) a 0 means the feature is disabled, any other value means it is enabled.   However it is recommended that you only set values of 0 and 1.   For all of these settings to take effect, you need to close and re-open Mod4Win.

If you don't like tweaking around with these INI settings, simply don't worry about it.   The default settings are safe, and will meet most users' needs just fine.

Q: Is there any way for me to tell how long a selection will run?

A: The total time of a song can be obtained through the Debug Output channel.   If you have a copy of Microsoft's **Debugging Log Application**, you can modify the **mod4win.ini** file by setting:

DebugOutput=1

Mod4Win will then display additional valuable information about the MOD you're playing in the Debug Messages window.   This information includes if and which ProTracker commands are used, if BPM-speed is used, if the module loops, the total play time, and most important, if there were any corruptions in the module detected.   This happens more often

than you would want to believe.   If so, Mod4Win will still play the MOD, but you can get an idea why it may not sound right.

Q: What does the line **TimerMode=1** in the **mod4win.ini** file mean?

A: This feature is meant to select different **timer modes** in future releases.   Although very promising, support for these modes has not been fully developed and tested yet.   It is strongly recommended that you keep the default value of 1 at all times.   If you change this value, unexpected and sudden crashes and locks of the Windows operating system may result.

Q: What are the other settings good for?

A: Let's see:

OverrideRateChange=0

In this standard setting Mod4Win will select only the Windows specific sample rates 11025, 22050, and 44100 when the wave driver appears not to support arbitrary sample rates.   This is in precaution to avoid crashes with the wave driver.   If you're convinced your driver is able to handle other rates than this, but Mod4Win doesn't let you select them, you can change the default setting, and Mod4Win will then allow you to select any sample rate in 1 kHz steps.   However I don't recommend to do this, because most wave drivers Mod4Win detects as odd are indeed odd and will simply crash when you enable this feature.

PauseWhileSetup=1

Because of the incompatibility problems with wave drivers mentioned earlier, Mod4Win defaults to pause any playing song while the Setup Dialog is active.   During this dialog the wave driver is asked if it can handle certain settings.   Some wave drivers then immediately change their settings to these values, whether we want them or not.   Unfortunately there is no way for Mod4Win to tell if your wave driver handles these queries correctly or not.   If you have a wave driver that behaves correct, you can change this setting to 0.   Mod4Win will then continue playing when you open the Setup Dialog.

PlayOnLoad=1

This is a harmless setting.   It simply means, that Mod4Win will start playing the selection automatically when you load files with the Open Dialog, pass command line parameters, or use **Drag & Drop**.   If you don't like that, simply turn it off.

Q: I'm getting annoyed by moving Mod4Win around every time I click on a dialog just to bring it in the foreground.

A: Me too. This feature can be very convenient or very annoying, depending on the expectations and habits of the user. Therefore we offer you a way to turn it off. Simply edit the **mod4win.ini** file and set

MoveOnClick=0

About other stuff

Q: I have to pkunzip my collection of songs in order for Mod4Win to play them, and that *significantly* increases how much space these things take up. I like being able to set up a nice long lineup of songs, which necessitates using the hard drive, as a single disk won't hold the whole thing, and so I'd like to use up as little of that space as possible.

A: On the fly **decompression** takes time. The decompressed file has to be written to the hard drive anyway (at least using the documented API functions, what we are committed to). Time is a critical factor for a program like Mod4Win that takes a considerable amount of your CPU time anyway (around 25% on a 486/DX50). That basically forbids to do that while playing another song. We could do it in the pause between two songs, but that would stretch this pause (depending on your hardware) to several seconds. We will suggest a solution to this problem in one of the next releases.

Q: It's a great program, but a **volume control** would have been nice.

A: Almost no Multimedia program I could think of has such a volume control. The reason for this is, that the MPC (Multimedia PC) standard requires a software mixer anyway.

Such a mixer ships with virtually every sound card that conforms to the MPC standard and allows you to select and mix different sources as well as adjust the volume, balance, and sound of your card.

Just like the Media Player or any Multimedia Encyclopedia don't provide such a volume control, neither thought we that would be necessary.

Q: Unfortunately, at 1024 x 768 or higher, I cannot read most of your buttons very well, and even have difficulty hitting them with the mouse cursor. I'm hoping future version(s) will have this part of the **user interface** worked out.

A: If you have problems with Mod4Win in this resolution, you should have problems with the rest of your programs too. The size of the buttons is approximately the same as the title bar (except for the 3 small ones in the lower right corner) and should therefore be sufficiently large enough to handle. If you compare the size of our buttons to the ones in the speedbar of popular applications, you'll find that they are not undersized. Of course in higher resolutions everything will shrink, but that's why they are meant to be run on larger

monitors.

The player panel is drawn the same way for all resolutions.   Since it must fit also on a 640 x 480 screen, we cannot make it much bigger and having several differently sized panels for different resolutions doesn't seem to be worth the effort.

Q: My GUS supports **hardware mixing**.   Wouldn't that reduce the processor load by a significant margin?

A: Yes it would.   The unfortunate part is, that this hardware capability is not part of the approved MCI interface standard and therefore device and hardware dependent.   However, a drop in processor load from 25% to 2.5% is certainly something worthwhile trying to accomplish.

As more wavetable synthesizer cards hit the market, I hope there will be a standard MCI device driver interface that allows us to take advantage of any hardware that supports hardware mixing or even loading samples into the cards memory, but for now a special version of Mod4Win that supports only one specific sound card is out of question.

Q: Will Mod4Win support **other MOD-Formats**, such as S3M or 669?

A: Hopefully soon.

Q: Anyway, I wanted to express my delight with your marvelous app.   I've tried several **MOD players for Windows**, all with disastrous results.

A: Thanks a lot.   We do the best we can.

For more information about Problems see also the section **Known Problems**.

What is a MOD-File?

A MOD-File is a collection of **sample data** (similar to the WAVE format) and a **description** of how to play these samples (similar to the MIDI format).   The samples in a MOD-File are raw, 8 bit, signed, headerless, linear digital data.   There may be up to **31 distinct samples** in a MOD-File, each with a length of up to 128K (though most are much smaller, about 10K - 60K).   The sequencing information in a MOD-File contains 4 tracks of information describing which, when, for how long, and at what frequency samples should be played.   This means that a MOD-File can have up to 31 distinct sampled sounds, with up to **4 playing simultaneously** at any given point.   This allows a wide variety of orchestrational possibilities.   15 instrument MODs are somewhat older than 31 instrument MODs and are not seen very often anymore.

The samples are called **instruments**, but they don't necessarily have to be samples of real instruments.   It doesn't really matter, if the sound of a violin, an exotic oriental instrument, a human voice, or the noise of crushing tomatoes is used as a sample.   The ability to use one's own samples as instruments is a flexibility that other music files/formats do not share, and is one of the reasons MOD-Files are so popular, numerous, and diverse.

The description how to play these samples is divided into so-called <u>Patterns</u>.   Each of these **patterns** contains exactly 64 note lines, that specify the play pitch and effects for each of the four channels.

Therefore the <u>MOD-Format</u> reveals a **big advantage** over the WAVE and MIDI format.   Any naturally recorded sound can be used as an instrument (what MIDI is only able to do on sound boards with wave table lookup and a special synthesizer chip like Yamaha OPL-4).   Moreover these sounds can be played in any desired order and with several effects (what MIDI can't do at all).   This way, the amount of data is reduced to a fraction compared to a WAVE file that produces the same sound.

Of course, there are also some important disadvantages!   If played on regular sound boards with one or two channels MOD-Files clink (<u>Why is that?</u>).   Samples are stored with only 8 bit resolution in the file, and the maximum possible sample frequency for a sample in a MOD-File is about 32 kHz., which makes CD quality impossible (that's no problem for WAVE and MIDI files).

Another disadvantage is that the samples are only mono and the MOD-Player has to distribute them (somewhat arbitrarily) between left and right.   Therefore listening to a bass drum through head phones can become a cruel experience, since our ear is used to receive low frequencies from all directions and not only in one ear.

Why do <u>MOD</u>-Files often clink?

Summary of the following paragraphs:

The **sound card produces harmonics** like crazy and the average PC is too slow or doesn't have enough memory to implement a digital filter that filters them out again. The remedy here would be an AT 486/DX50 VLB with 16 MB RAM or better, but who has such a machine?

Now it's getting a little theoretical...

The <u>MOD-Format</u> originally comes from the COMMODORE AMIGA, that features a relatively intelligent sound chip, the PAULA. This chip can play samples on four channels in different pitches (sample rates) and volumes at the same time. That's why it is relatively simple to pass the PAULA a new pitch or volume value, or a new sample now and then, and an AMIGA <u>MOD</u>-Player plays almost by itself.

On a PC however we mostly deal with relatively **dumb sound cards**, that feature only one or two channels, which even have to work at the same sample rate. Therefore we are forced to mix the samples from the <u>MOD</u>-Files together at a new sample rate. That means sampling up or down, or to put it this way: we have to skip over some bytes, pack the rest together with other skipped bytes and pass the resulting pulp to the sound card. Also complicating is the missing volume control, which causes an immense loss of quality at low volumes. This can only be compensated by 16 bit sampling. Summary: on a PC we are forced to calculate some pulp, put it in relation to the volume and mix this all together. That takes time!

The big problem with sampling is the art of playing a noise back just as it was recorded, and that as memory efficient as possible. But because the original can only be sampled with a certain frequency, it is not useful to record bird chirps with a sample rate of 1 kHz for instance, because the chirps contain frequencies of up to 20 kHz and higher and you would only record an arbitrary sequence of something. Summary: the signal has to be recorded to the memory in a way that it is reproducible, that means the original signal has to be modified in a way that the highest frequency in this signal is lower than half the sample frequency of the sound card. This is called the **sampling theorem**. If this is not obeyed, it is very likely that the signal is not reproducible or in other words it doesn't sound good.

The same problem exists for reproducing the signal with digital/analog converters. Because it doesn't know what to do between two bytes (or words) of a sample and simply holds the last output value constant until the next input arrives, and that way transforms our nice smooth input to rectangles. The result is the creation of **unwanted frequencies** that can be very high and disturbing and annoying to the ear. They are called **harmonics**. Harmonics can be filtered out from the signal with a low pass (Oversampling and Filtering), but that's a different problem! For more information about filters see <u>Further projects</u>!

The sound cards in our PCs often have these kinds of filters integrated, but they are not intelligent enough and can't be expected to be either. Considering the fact that in a <u>MOD</u>-File,

samples with different sample rates (up to a ratio of 1:8) have to be mixed together over one channel to the sample rate of the sound card, which filter frequency is the sound card supposed to use?   So the DAC doesn't produce harmonics intentionally, but the MOD-Player passes these **rectangular deformed waves**, that contain harmonics below the filter frequency of the sound card, to it, and that clinks!

The only solution for that problem would be the implementation of a digital filter in the MOD-Player that has a variable filter frequency, but using this filter takes either memory or computing power to an extent that is not usual in today's PCs.

Where to get more MOD-Files?

MOD-Files are widely available in a variety of musical styles.   Most of them are freeware or shareware, so you pay only for the distribution.   Mod4Win comes with a number of sample MODs, but of course you want to accumulate and play your own collection of favorite MODs.

You can get MOD-Files from

    many local BBS's,
    various on-line services,
    many Anonymous FTP Sites,
    from shareware dealers, and
    recently on a number of CD-ROMs.

There is even a monthly MOD-Chart by Oliver Bellmann.

Anonymous FTP Sites that carry MODs

This is only a small selection of anonymous FTP sites that carry MOD-Files:

Country	FTP server	Directory
USA	wuarchive.wustl.edu	/systems/amiga/audio/music
	ftp.uwp.edu	/pub/music/sounds/mods
UNITED KINGDOM	ftp.brad.ac.uk	/misc/mods/
FINLAND	ftp.funet.fi	/pub/amiga/audio/modules
GERMANY	ftp.uni-muenster.de	/pub/sounds
	ftp.uni-oldenburg.de	/pub/amiga/incoming/mods
AUSTRALIA	archie.au	/micros/amiga/incoming/ mods
FRANCE	geocub.greco-prog.fr	/pub/incoming/amiga/mods
SWEDEN	ftp.luth.se	/pub/OS/amiga/mods

CD-ROMs with MOD-Files

If you have a CD drive connected to your computer, CD-ROMs are the easiest, most convenient, and cheapest way to gather a large collection of MOD-Files.

From the various CD-ROMs that contain MOD-Files, the one I've heard of (and got sample copies of some) are:

10,000 Sounds & Songs
Mystical MOD Madness
Town of Tunes
Sound Site CD-ROM
The Ultimate MOD Collection

The Digital Data Archives

"10,000 Sounds & Songs"
*   Volume 0 of the Digital Data Archives
*   this CD contains 850 selected MODs
*   also countless other Multimedia files (.wav, .mid, .avi, .fli, .voc, .sam, and much more)
*   price: $40

"Mystical MOD Madness"
*   Volume 1 of the Digital Data Archives
*   available soon
*   will contain about 3,000 MODs, S3Ms, and 669's

For more information or to order contact

Walt Perko
P.O. Box 640608
San Francisco, CA. 94164-0608
phone: (415) 771-1788
e-mail: wperko@netcom.com

Town of Tunes CD

* a compilation of the best 820 MOD music and melody files
* it takes about 70 hours to hear them all
* carefully picked from approx. 4000 files worldwide in a two year period
* includes 21 of the newest and hottest tunes from 'THE PARTY' in Denmark Winter 1994
* also some of the newest S3M music/melody files, 100 MB of the latest spectacular VGA graphic demos, and more
* price: $35 + $6 s/h

To my knowledge this CD is only available as an import from Denmark at this point.   For more information or to order contact

Wichman Consult
Hovmålvej 78-6
2300 Copenhagen S., Denmark
phone: +45-3151-3187
Fax: +45-3122-2744
e-mail: ecjowh@hp3.cbs.dk

Sound Site CD-ROM

* large collection of music files taken from the Saffron archives
* including over 1350 MOD files
* nearly 500 MIDI files, and also 669, STM, and other files
* price: $19.95 + $5 s/h

For more information or to order contact

Island CD Creations
1960 Kapiolani Blvd. Suite 113-592
Honolulu, HI 96826
e-mail: duane@shell.portal.com (Duane Takamine)

The Ultimate MOD Collection

* contains more than 1,700 MODs
* a bunch of players & utilities (editors, etc.) for all sorts of computers
* some 669, STM, MED, and other file formats
* price: $29

For more information contact

    The Marketplace
    phone: (800) 289-1766 or (314) 521-4862

Oliver Bellmann's MOD-Charts

MODCHARTS is a compilation of the fifty best MODs of the month.   This top-50 appears each month and is available all around the world.   All you need is your computer, a modem, and Mod4Win to play these songs.

You can download these MODs from various Anonymous FTP Sites and local BBS's.   Normally, there are 14 MODs, the places 1 through 10 plus four newcomers.

If you need more information about MODCHARTS contact

Oliver Bellmann
(a.k.a. HITMAN on IRC, #modcharts)
e-mail: oliver@math.uni-muenster.de

What the Hell are Patterns?

A pattern can be seen as a **sheet of music**, in which 64 notes are stored for each channel.   Because the regular MOD-Format supports 4 channels, that would come up to 256 notes plus information about effects and the instrument to play for each note.   A MOD-File holds up to 128 patterns.   Under normal conditions that translates to about 17 minutes play time.   But who can stand that much MOD at a time?

How to use Hotkeys with Mod4Win

The program is ready to receive bashes from the user under any circumstances.   To give you an idea what you are punching, we give you the complete hotkey overview here:

      Main Dialog
      Setup Dialog
      Open Dialog
      Info Dialog

If you have No Idea at all, you might want to start with this.

Hotkeys Main Dialog:

Key	Normal	Shift/Control
F1	Help	Help
F2	Shuffle	Shuffle
F3	Repeat	Repeat
F4	Introscan	Introscan
ESC	Stop	Stop
SPACE	Play	Play
P	Pause	Pause
UP	Previous Song	Previous Song
DOWN	Next Song	Next Song
LEFT, -	Rewind	Previous Song
RIGHT, +	Fast Forward	Next Song
HOME	First Song	First Song
END	Last Song	Last Song
A	About	About
O	Open	Open
S	Setup	Setup
I	Info	Info

see also:

Main Dialog
Setup Dialog Hotkeys
Open Dialog Hotkeys
Info Dialog Hotkeys

Hotkeys Setup Dialog:

Key	Normal	Shift	Control	Shift-Control
F1	Help	Help	Help	Help
ESCAPE	Cancel -- 'NO!'	Cancel -- 'NO!'	Cancel -- 'NO!'	Cancel -- 'NO!'
LEFT, RIGHT	Wave Driver ±	Wave Driver ±	Wave Driver ±	Wave Driver ±
UP, DOWN	Sample Rate ±	Mono/Stereo	8/16 Bit	Buffers ±
S	Save	Save	Save	Save

see also:

Setup Dialog
Main Dialog Hotkeys
Open Dialog Hotkeys
Info Dialog Hotkeys

Hotkeys Open-Dialog:

Key	Normal	Shift	Control
F1	Help	Help	Help
TAB	Next List Box	Next List Box	Next List Box
ENTER	Add/Delete/Save	Add/Delete/Save	OK
ESCAPE	Cancel -- 'NO!'	Cancel -- 'NO!'	Cancel -- 'NO!'
LEFT, RIGHT	Add/Delete	Add/Delete All	Add/Delete All
S			Save
Alt-F	Set focus to Filelist		
Alt-P	Set focus to Playlist		
Alt-D	Set focus to Directory Window		
Alt-L	Set focus to List Name		

see also:

Open Dialog
Main Dialog Hotkeys
Setup Dialog Hotkeys
Info Dialog Hotkeys

Hotkeys Info-Dialog:

Key
F1   Help
ENTER, ESCAPE   OK

 see also:
          Info Dialog
          Main Dialog Hotkeys
          Setup Dialog Hotkeys
          Open Dialog Hotkeys

How to use the Dialogs in Mod4Win

To make life for the user of our program a little easier (and save his/her last nerves for more important daily tasks) we put everything you could possibly adjust, switch or change in these little dialogs:
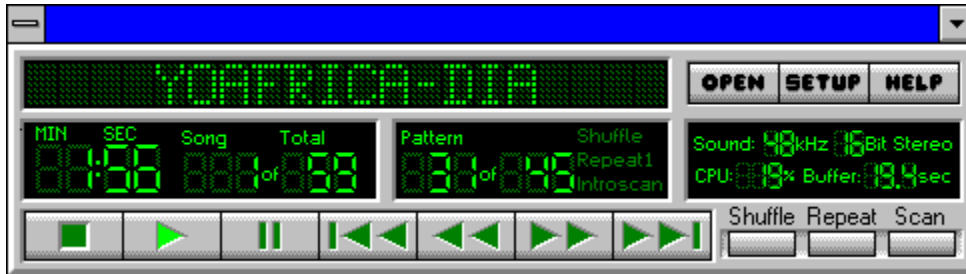
Main Dialog
Setup Dialog
Open Dialog
Info Dialog

If you're new to Mod4Win and have No Idea how to use it, you might want to start here.

Main Dialog

Use the mouse to click at the area you'd like to learn more about!

If you double click on any non-active element, this dialog will be replaced with the About Dialog.

see also:
- Main Dialog Hotkeys
- Setup Dialog
- Open Dialog
- Info Dialog

[About](#)

switches from the Main Dialog to the <u>About Dialog</u>.

Open

opens the Open Dialog.

[Setup](#)

opens the Setup Dialog.

Help

shows this <u>H</u>elp file.

The help file is the document you're just desperately looking for help in!

Info Window

shows the name of the song in the MOD-File that is currently playing, and opens the Info Dialog when clicked with the mouse.

The file name of a MOD-File may be different from the name of the song it contains.

MOD-Time

displays the elapsed time in the currently playing MOD-File in minutes and seconds.

[Song](#)

This is the number of the song in the play list that is currently playing or will be played next if no song is playing.

Song Count

displays the number of songs in the actual playlist.

Pattern
displays the current Pattern in the song.

Pattern Count

displays the number of <u>Patterns</u> in the current song.

Shuffle Play

if highlighted signals that Mod4Win plays in <u>Shuffle Mode</u>.

Shuffle Mode

In shuffle mode the titles from the playlist will be played in random order.

Repeat/Repeat One

if highlighted signals that Mod4Win plays in Repeat/Repeat
one mode.

Repeat Mode

In repeat mode the whole playlist will be repeated continuously.
In repeat one mode the current song will be repeated continuously.

[Repeat One](#)

if highlighted signals that Mod4Win plays in [Repeat One Mode](#).

[Introscan](#)

if highlighted signals that Mod4Win plays in <u>Introscan Mode</u>.

Introscan Mode

In Introscan mode each song plays for 15 seconds, then the next song will be loaded and so on...

Sample Rate

shows the actual Sample Rate, that the wave driver should play with.

The highest play back quality for MOD-Files is already achieved with a sample rate of 32 kHz!

See also: Problems

Bits per Sample

shows the actual sample depth.

16 bit sampling should only be used with at least 8 MB RAM!

See also: System Requirements

[Mono/Stereo](#)

signals mono or stereo play mode.

If you listen with head phones you should stick with mono!

See also: Why is that in <u>What is a MOD-File?</u>

CPU Usage

shows the actual CPU utilization in percent and should be considerably lower than 100.

CPU utilization is the portion of time that Mod4Win needs to calculate the song in relation to the time it needs to play what was calculated at the current sample rate.

See also: System Requirements

Buffer Time

shows the time left that Mod4Win can continue playing if it doesn't get any CPU time anymore.   This is important when another application occupies the CPU for itself, for instance when loading applications, loading files, saving data, or others.

STOP

stops the current song if playing.

PLAY

starts playing the actual song in the playlist if one exists.

PAUSE

pauses PLAY until PAUSE or PLAY will be pushed again.

PREVIOUS SONG

plays the song that is immediately before the actual song in the playlist if one exists.

REWIND

jumps one Pattern backward in the current song if possible.

FAST FORWARD
jumps one Pattern forward in the current song if possible.

NEXT SONG

plays the song that is immediately after the actual song in the playlist if one exists.

Shuffle Play

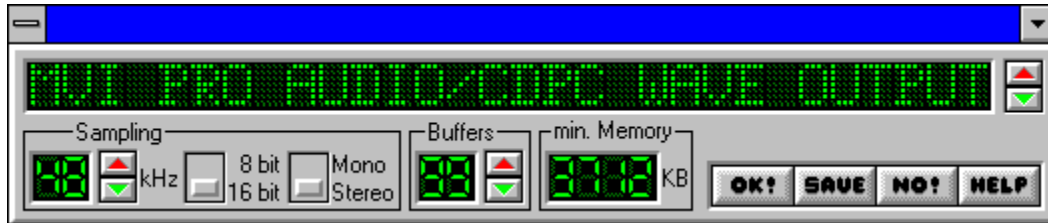switches the <u>Shuffle Mode</u> on and off.

Repeat

toggles between <u>Repeat</u>/Repeat one/Repeat none modes.

Introscan Play

switches the <u>Introscan Mode</u> on and off.

Setup Dialog

Use the mouse to click at the area you'd like to learn more about!

see also:

Wave Device Name

shows the name of the selected wave driver.

Wave Driver Button

selects the wave driver used for sound output.

Sample Rate

This deals with kilo Hertz.   The sample rate determines the quality of the sound produced by Mod4Win.   For instance 32 kHz means Mod4Win produces 32,000 samples per second.

On better sound boards Mod4Win is able to sample with up to 48 kHz, however 32 kHz are practically sufficient, since this is the highest frequency of any sample recorded in a MOD-File and therefore also the highest quality.

For comparison we show here the data of some digital devices:

DAT-Recorder : 32 - 48 kHz
CD-Player   :   44 kHz
DSR-Tuner   : 32 - 44 kHz

Sample Rate Button

allows you to adjust the current <u>Sample Rate</u>.

Sample Depth

determines the resolution of the sample output and should only be set to 16 bit if you have lots of memory at your disposal.

See also: Bits per Sample

Mono/Stereo

toggles the output between mono and stereo.

See also: Mono/Stereo

<u>Output Buffers</u>

shows the number of buffers that Mod4Win uses for sample output.   One buffer is enough to play for 200 milli seconds.

Buffers are necessary, because under Windows™ it is uncertain when a task will get access to the CPU again.   Therefore we have to calculate a certain amount of output in advance that can then be played.

Output Buffers Button

selects the number of <u>Output Buffers</u>.

Minimal Memory

shows the memory in KBytes that is occupied by the selected number of <u>Buffers</u>.

For the total memory size you also have to consider the size of **mod4win.exe**, **player.dll**, the <u>MOD</u>-File that's playing, the system files of Windows™, and other application that are running.

OK

closes the Setup Dialog and passes the settings to the Main Dialog.

Save Settings

closes the Setup Dialog, saves the settings in the file
mod4win.ini, and passes the settings to the <u>Main Dialog</u>.

"No!"/Cancel

closes the Setup Dialog, discards all changes and returns to the
Main Dialog.

Open Dialog

Use the mouse to click at the area you'd like to learn more about!

see also:
> [Open Dialog Hotkeys](#)
> [Main Dialog](#)
> [Setup Dialog](#)
> [Info Dialog](#)

[Played Songs](#)

Songs with a check mark have already been played.

Current Song

The song marked with a double arrow is the currently selected song.   Its name is also visible in the <u>Info Window</u> of the <u>Main Dialog</u>.

Selected Files

Selected files will be removed from the Playlist when you click the Delete button or hit the cursor left key.

Files in Current Playlist

These songs are yet to be played.

Playlist

This playlist holds the filenames without extensions, that
Mod4Win already played or is going to play.

The order of the filenames is identical with the order the files
are played unless you selected the <u>Shuffle Mode</u>.

Directory Window

This window represents a list of all sub-directories of the current directory (Path) as well the parent-directory and all valid drive letters of your machine.   You can use it to change the current directory or drive.

Directories: <xxx>   xxx = directory name
Drives: [-y-]   y   = drive letter

Filelist of the Current Directory

This list shows the filenames without extensions in the current directory (Path) except the ones already moved to the Playlist.

Only files with one of the extensions **.mod**, **.nst**, or **.mol** (these are the file types Mod4Win can handle) are displayed.   Lists are enclosed in angle brackets like for instance <the_best>.

Path

shows the full path name of the current directory.

List Name

If you click <u>SAVE</u>, the actual <u>Playlist</u> will be saved with this name and the extension **.mol** in the current directory (<u>Path</u>).

[Delete](#)

causes **all selected files** to be removed from the <u>Playlist</u>.

Delete All

causes **all files** to be removed from the <u>Playlist</u>.

[Add](#)

causes **all selected files** in the [Filelist of the Current Directory](#) to be added to the [Playlist](#).

Add All

causes **all files** in the <u>Filelist of the Current Directory</u> to be added to the <u>Playlist</u>.

OK

closes the Open Dialog and passes the Playlist to the Main Dialog.

Save List

closes the Open Dialog, saves the <u>Playlist</u> with the <u>List Name</u> and the extension **.mol** in the current directory (<u>Path</u>), and passes the playlist to the <u>Main Dialog</u>.

If no listname has been selected yet you will be asked to specify one.   In case this list already exists, Mod4Win will prompt you again to make sure you really want to overwrite your list file.

["No!"/Cancel](#)

closes the Open Dialog and returns to the Main Dialog without passing the Playlist.

List Files

Files enclosed in angle brackets symbolize saved <u>Playlist</u>s.
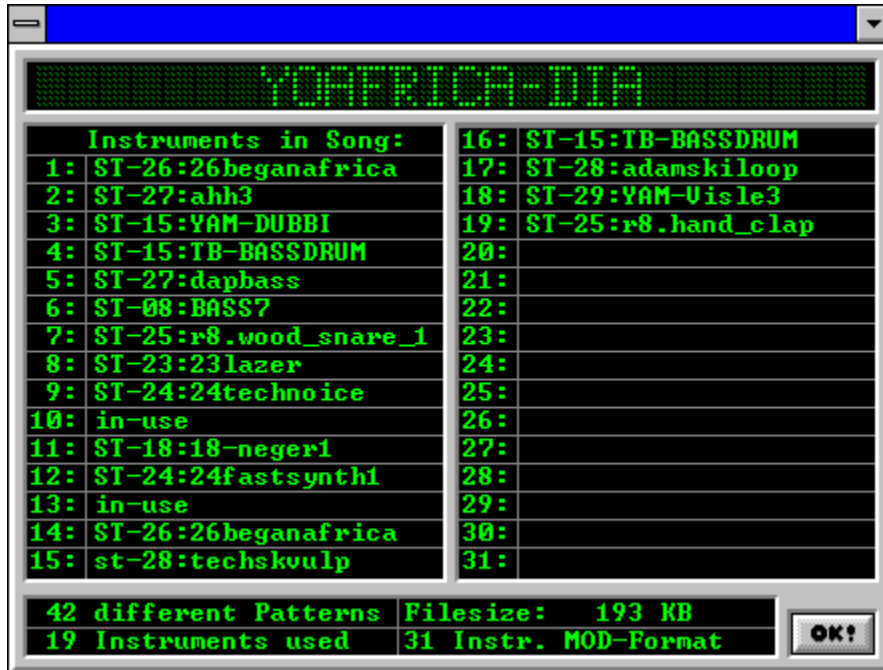
Selected Files

Selected files will be added to the Playlist when you click the ADD button or hit the cursor right key.

[File in Current Directory](#)

This is a song in the current directory (<u>Path</u>) that hasn't been added to the <u>Playlist</u> yet.

Info Dialog

Use the mouse to click at the area you'd like to learn more about!

see also:

[Info Dialog Hotkeys](#)
[Main Dialog](#)
[Setup Dialog](#)
[Open Dialog](#)

OK

closes the Info Dialog.

Number of Patterns

shows how many different Patterns are used in this MOD-File.

[Instruments](#)

shows the names of the particular samples in this [MOD](#)-File.

This space is also frequently used as an about box (or similar) by the Composer of the song.

Song Name

shows the name of the song in the <u>MOD</u>-File that is currently playing.

The file name of a MOD-File may be different from the name of the song it contains.

File Size

displays the size of the MOD-File in KBytes.

One KByte stands for 1024 bytes!

Number of Instruments

shows the number of samples in the <u>MOD</u>-File.

There is a maximum of 31 possible instruments.   The actual number is usually lower.

MOD-Format

Mod4Win currently supports the following MOD-Formats:

NoiseTracker MOD-Format,
4-Channel StarTrekker Format, and
ProTracker MOD-Format.

Other formats, such as

6-Channel FastTracker Format,
8-Channel FastTracker Format, and
8-Channel StarTrekker Format

may be supported in future releases.

The NoiseTracker MOD-Format is the simplest of all MOD-Formats.   It only supports 15 instruments and a basic set of effects.

The 4-Channel StarTrekker Format is similar to the
NoiseTracker Format, however it supports up to 31
instruments.

The ProTracker MOD-Format is the most advanced of the 4-Channel Formats.   It supports 31 instruments, an extended set of special effects, and more sophisticated speed settings (BPM-speed).

This MOD-Format is currently unsupported by Mod4Win.

About Dialog

The About Dialog shows which version number of Mod4Win you're running, to whom this copy is licensed, the legal copyright of Mod4Win, and gives credits to whom credits are due.
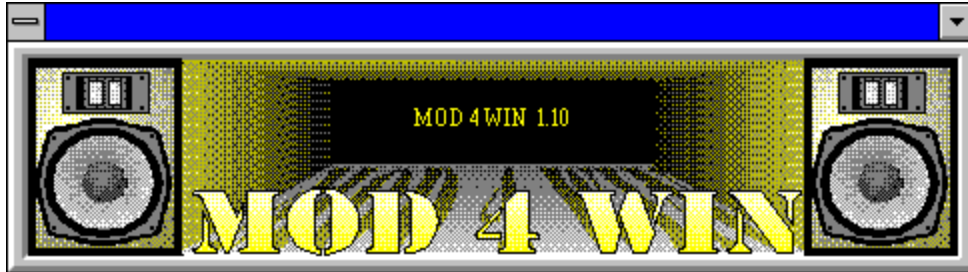
To close the About Dialog and return to the Main Dialog, click anywhere or hit any key.

see also:
        Main Dialog
        Setup Dialog
        Open Dialog
        Info Dialog

Shareware Notes

Differences between Shareware- and Full Version

Principally shareware- and full version are **equally powerful**.   That, of course, shouldn't raise the question in you "Why should I buy the full version?"   We figured, that a limited shareware version makes no sense, because naturally, a feature that hasn't been implemented in the shareware version can't be tested by you.

At the end of the program we refer to the necessity of the full version, if you want to use the program frequently.   To motivate you, we also imposed an **involuntary break** at the beginning of the program, and to make sure you won't forget, Mod4Win will remind you **in certain periods of time** that you're not a registered user yet.   Of course you will be spared all of this, if you purchase a copy of the full version of the program.   Additionally you can determine by the text in the <u>About Dialog</u> what version you are currently using.   If you use the full version, you will find your name (the name of the license holder) here.

Documentation

A handbook for this handy program seems to us much too clumsy and therefore probably won't be issued.   If you like to have something on paper, feel free to spool this text to your printer or to a file and chop it further down with a word processor.

The Full Version directly from JSInc.

Please refer to the section **<u>Registration for Mod4Win 1.10</u>**!

Retail Sales of the Full Version in the U.S.

The full version can only be ordered from JSInc. at this moment.   So please don't harass your favorite computer store around the corner with repetitive questions for the full version, they would have to order it explicitly from me.   It is even possible that they will slander the quality of the program because of that.   But of course you know better, right?

Update Service

For **registered users** it will be possible to always order the latest version from JSInc.   All that's required is that you send us the original disk and a check for **$10**.

For details see **Registration for Mod4Win 1.10** please!

Please don't forget your **return address**, otherwise you'll keep waiting while we won't know where to send the latest update.

License Regulations

This program is **not freeware**!   Mod4Win is **shareware**, that means software you can test for a certain time and then have to purchase or delete from your disk.   The copyright for this program (**mod4win.exe**, **player.dll**) and its help (**mod4win.hlp**) is held by **JSInc.**   You are granted a period of **30 days**, in which you can test the program.   If you use Mod4Win after this test period you are required by federal law to purchase a copy.

You are explicitly encouraged to spread the unregistered version of Mod4Win to other PC users, such that they also have a chance to test the program.   This is valid with the following restrictions:

1. You are not allowed to make money with it (for copying and distributing), and
2. You have to distribute all files that belong to the program and to its documentation.

Modifications of a file that belongs to the Mod4Win package are strictly prohibited!

This help is part of the program Mod4Win and may only be distributed together with the program as mentioned above.

Disassembling and/or patching of the program or its help file is generally prohibited. Preventively we'd like to mention that JSInc. owns the copyright for all routines used in this program.   Intellectual theft on any of the programming and/or design techniques used in Mod4Win may be subject to prosecution.

The shareware version may be distributed by shareware dealers for not more than $10.   If you belong to those who pay more than $10 to acquire shareware, then you should look around for a new source.

With the purchase of the full version of the program Mod4Win, the user acquires the right to install this program on his/her machine and use one purchased copy on exactly one machine at a time.   For each additional machine the user is required to purchase another copy, even if that wouldn't be necessary from a technical point of view.

The user may make copies of the original disk only for the purpose of data security.   However, it is strictly prohibited to distribute copies of the software or make them available to a third party.

Possession of the registered version is only permitted to the registered user.

Please keep in mind that the program did cost you money and us work.   Therefore please don't distribute your copy to a third party.   Commercial usage of the full version of Mod4Win requires the explicit written permission from JSInc.   Mod4Win may not be sold with other products (hard-, or software) without an explicit written permission from JSInc.

We don't assume any responsibility for damages possibly caused by the usage of Mod4Win.

Owners and/or users of a version of Mod4Win absolutely agree to all conditions mentioned above.

Liability, Warranty, and Trademark

We wrote Mod4Win because the <u>MOD-Format</u> is quite nice and there wasn't a really good <u>MOD</u>-Player for Windows™ yet.   To let everybody enjoy it, we decided to issue a shareware version.   As a practical side effect our programmers can make a few Dollars with it.   But since they probably won't become millionaires, we don't assume any liability for damages caused by our program to hard- and/or software.   Registration doesn't reserve you the right to purchase an error free program.

The program is distributed (or sold respectively) as is.   The only thing we guarantee is that it will take up space on your mass storage device (and hopefully as long as possible).   We also guarantee that it will use CPU time on your machine (only as much as absolutely necessary). You may assume though, that our program doesn't cause any harm to you and/or your system. That means by the best of our conscience and knowledge of Computer Science it is a fine program.   After all we like it so much, we have it running as a background jukebox on our own machines.

You are fully responsible for everything you are doing with this program!

We reserve all rights for our program.   That includes especially the right to completely redesign the program.   Therefore it is very possible, that a feature from an older version will not be included in a new version, and a new version will have higher demands to your hardware.

Registration for Mod4Win 1.10

To receive the full version you have to:

1. Fill out the **Registration Form**, and
2. Send it along with a check for **$30** and
3. A **self-addressed envelope** to one of the following addresses:

JSInc.
Jens Puchert
1037 Madison St
Syracuse, NY 13210-2015

Make checks payable to JSInc.   Do not send cash!

If you **Order from Outside the US**, please note these special regulations.

Unfortunately at the moment, we can't accept Mastercard, Visa, American Express or other Credit Cards.

Received orders will be processed at least twice a week.   Just make sure you don't forget your **return address**.   If you haven't received anything within 3 weeks feel free to write, e-mail, or call as noted in the Authors section.

All disks will be mailed in the **3.5" DS-HD** format (the little, nice and durable ones), because they tend to survive the mail procedure with less problems and don't require padded envelopes. If you need another disk format please specify explicitly.

[Orders from Outside the US](#)

Canadian customers send the equivalent amount in Canadian Dollars (at this moment about $41 CDN).

European customers may contact one of our **German Addresses**.

Customers from all other countries send either a money order that can be drawn from an US Bank or add $15 to their check (this is the amount my bank charges me for foreign checks).

European Addresses in Germany

European customers may order from the German Authors:

Kay Bruns
Max-Planck-Ring 6e /5
98693 ILMENAU
Germany

or

Uwe Zänker
Am Grund 26
04207 LEIPZIG
Germany

From these addresses you can receive the latest version of Mod4Win in either **English or German language**.   Please specify when you order.

Registration Form for Mod4Win 1.10

Name: _____

Company: _____

Mailing Address: _____

City, State, Zip: _____

Phone Number: _____

E-mail Address: _____

How did you learn about Mod4Win?

_____

_____

_____

Comments, Suggestions for Mod4Win:

_____

_____

_____

Would you like to get informed about further developments?

        (   )   YES

        (   )   NO