

Cakewalk DirectShow Audio Configuration

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General DirectShow Audio Configuration

(Tools | Audio Options)

Default Sampling Rate

The Sampling Rate drop-down list allows you to specify the audio sampling rate for a new .WRK file. Once any audio has been added to a .WRK file — either by recording audio or by using Insert | Wave File — you can't change the sampling rate for that .WRK file. Therefore, you should choose the sampling rate immediately after choosing File | New to start a new song.

You can choose one of five sampling rates: 11025 Hz, 22050 Hz, 44100 Hz, 48000 Hz, and 96000 Hz. The default used by Cakewalk Pro Audio is 44100 Hz, the same rate as audio CDs. However, you may choose a lower rate if your PC is slow or has a slow hard disk.

Note: For most sound cards, all digital audio in the same song must be at the same sampling rate. Some dedicated audio systems let you mix different sampling rates in the same song; Cakewalk Pro Audio only lets you do this if the audio system supports it. This feature is meant primarily for sound cards that use different Windows drivers for input and output; Cakewalk treats such cards as two different programs.

Default File Bit Depth

Determines the number of bits per sample used for storing recorded (or imported) audio data to disk. The choices here are 16 or 24. Note that other values such as 18 or 20 aren't permitted, because they are technically not legal wave format values as defined by the Microsoft's multimedia specifications. Also, you don't need to have 24-bit capable audio hardware to use this setting, but be forewarned that 24-bit files require 50% more overhead for streaming.

Playback Timing Master and Record Timing Master

These two options determine which sound cards should control timing for the song, if you're using multiple wave drivers for playback or recording. Note that if you've got two wave drivers, but all audio tracks are playing on only one wave driver, then that driver will be the timing master no matter what you choose.

Every sound card's clock crystal is slightly different, which causes minor differences in the actual playback rate on each card. These differences may lead to slight synchronization problems if you use one card for recording and a different one for playback. Multiple wave drivers on the same card will not have sync problems.

Number of Aux Buses

This determines how many auxiliary mixes can be created. These are useful mainly for effects sends or for other purposes. Specify only the number of aux buses you intend to use.

Bits per Sample

Determines the number of bits per sample used for communicating with the audio hardware for playback or recording. Your audio hardware must be capable of supporting the setting you supply here. In most cases, even if your hardware is "advertised" as being 18 or 20 bit, you will want to set this value to 24 for optimum performance.

Dither

Controls whether a dither signal is added to the final (floating point) audio mix, before conversion to integers. Disabling this option may provide a slight increase in real-time effects performance.

Mono

This option forces monaural recording and playback. It is required for full-duplex recording on the Roland RAP-10.

MIDI Volume Mapping

Linear Scale is the mapping used in Cakewalk version 6 (and earlier). Quadratic Taper provides a more fine control of volumes at lower settings, analogous to what you might experience with a hardware console.

MIDI Pan Mapping

This controls how pan controls function. Balance Control works by attenuating the right channel for pans to the left, and vice-versa. This is simple, sensible and controllable, and is how previous versions of Cakewalk always dealt with pan.

Constant Power pan alleviates a drawback of balance-control pan, by maintaining constant perceived volume at all pan settings.

Wave Profiler

Wave Profiler attempts to detect the make and model of your sound card, which determine the card's DMA settings. Once Wave Profiler identifies the card, it displays the results and asks whether you want to use the default settings for that card or to override them:

If Wave Profiler has identified your card correctly, you may accept the default settings. Otherwise, Wave Profiler will run a series of tests to attempt to determine the correct DMA settings. Usually this process is successful; however, if it is not, you will need to enter the correct settings in the Advanced Windows Multimedia Configuration dialog box.

To determine the correct settings, consult your sound card documentation. Our web site, at www.cakewalk.com, contains the latest DMA settings for commonly used sound cards.

The Wave Profiler utility runs automatically the first time you run Cakewalk. You need not run it again unless you install a new sound card or an updated driver for your current sound card.

Wave Profiler will not analyze the card at the 48 kHz sampling rate. It assumes that 48 kHz settings are the same as 44 kHz settings. If your sound card doesn't sync to 48kHz, you may need to enter the settings manually.

Drivers Page -- DirectShow Audio Configuration

(Tools | Audio Options)

This list shows you what drivers are available, so you can selectively enable them.

Input Drivers

These pertain to recording.

Output Drivers

These pertain to playback.

Advanced DirectShow Audio Configuration

(Tools | Audio Options)

Data Directory

This item specifies the directory in which Cakewalk Pro Audio stores audio data files. You may want to keep your audio files in a separate data directory or on a different drive; just be sure to enter that data directory's path here.

Note: Do not casually change the data directory! Any .WRK files that contain digital audio will be unable to locate their audio files if you enter the wrong directory.

Take Vault

This feature safeguards against accidental loss of recorded takes. When you choose a Take Vault, all newly recorded material will be saved as .WAV files in the specified directory. Cakewalk will use the file's time and date of creation as the filename.

Cakewalk will never automatically delete files in the Take Vault when you choose "Clean Audio Disk" or Undo. You must delete Take Vault files by hand.

Enable Read Caching and Enable Write Caching

Choosing either of these options lets Cakewalk bypass the Windows 95 disk cache while reading or writing audio data. Cakewalk will usually perform best with all caching disabled. If your computer has an older IDE disk controller, or a disk controller that does not use DMA transfers, enabling caching may improve Cakewalk's audio performance.

Copy and Manage Imported Files

By default, Cakewalk will make a new copy of any audio data imported via the Insert | Wave File command. If you don't choose this option, Cakewalk will attempt to "share" the original file, thereby saving disk space.

If you accidentally delete the original audio file, it's gone forever!

File I/O Buffers and I/O Buffer Size

These values determine the buffer characteristics for transfers to and from the disk. Changing them will not affect audio latency, but will affect the disk throughput for audio tracks. For best performance, you should make sure that the number of I/O Buffers is greater than or equal to the maximum number of audio tracks you expect to play at a given time. Also, on some disk controllers, you may get better performance by increasing the default I/O Buffer Size to 128k.

Playback Buffers and Wave Buffer Size

These values determine the buffer characteristics for transfers to and from the audio drivers. Lowering either of both of these values will improve audio latency, though making them too low will make your system more susceptible to stuttering or dropouts.

Record Buffers

This value determines the buffer characteristics for transfers from the audio drivers. If you are using multi-input hardware, and experience problems with recording/playback simply stopping, increase the number of Record Buffers.

Scrub Buffer Size (ms)

Scrub determines the length of each snippet, in milliseconds, that you hear when you scrub in the Audio view.

Enable Simultaneous Record/Playback

Check this option if your audio hardware is supposed to support simultaneous record and playback, but for some reason is unable to do so.

Use Wave Out Position For Timing

Select this option if you have sync problems between MIDI and audio tracks. (In earlier Cakewalk versions, this option was available as the AltTiming=1 variable in AUDMM.INI.)

Clip Audio Mix Upon Overflow

When this option is enabled, Cakewalk will "clip" every mixed output sample instead of letting it "wrap," or overflow. This often reduces the audible results of mixing too hot, and creates a warmer, more pleasing type of distortion when you overdrive tracks. You may find it especially useful on guitar-heavy mixes.

Enabling this option adds more overhead to the mix engine, so you may notice a reduction in the maximum number

of playable tracks.

Use unpacked 32 bit storage for >16 bit audio

Checking this option can improve performance on specific 24-bit audio hardware systems (for example, the Sonorus STUDI/O card). By choosing this option, you are instructing Pro Audio to skip its expensive 24-bit data packing operation, and allowing the audio hardware to do this work instead. Please contact your hardware manufacturer to determine if their drives support this "24-bit unpacked" data format.

DMA

These options are critical for proper synchronization between audio and MIDI in Cakewalk Pro Audio. They must be set to the proper values for your particular make and model of sound card. Use the Wave Profiler utility to analyze your hardware and automatically enter the appropriate DMA values.

SMPTE/MTC Sync

Cakewalk gives you three choices for synchronizing your audio tracks to SMPTE or MIDI Time Code:

Freewheel-allows audio to drift away from SMPTE time.

Normal-may introduce slight audio distortion.

High-Quality-requires Pentium CPU or better.

Note: Choosing "Use Wave-Out Position for Timing" disables these options.

