



DARTech, Inc.

7400 Metro Blvd.

Suite 350

Edina, MN 55439-2323

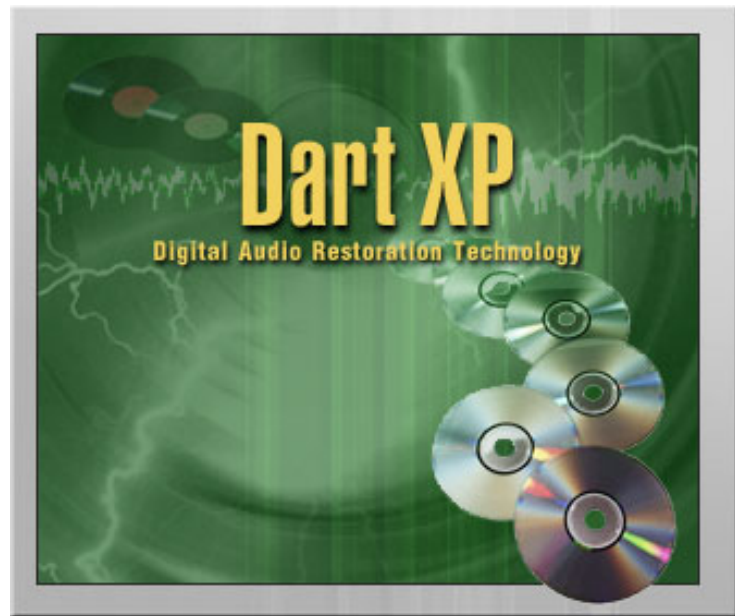
(800) 799-1692 (US only)

(952) 844-0217 (outside US)

(952) 844-9025 (Fax)

www.dartech.com

DART XP



Tutorials & “How To...” Guide

- If you're a novice with DART software, or with PC audio software editing, signal processing or burning CDs, please read on...
- If you're an advanced user, jump down to the Contents section...

About DART XP

User: "How do I clean my audio or get rid of clicks and hiss?"

DART: "DART XP is a powerful tool. The process takes more than one click or two or three slider moves. This means that users have to learn to harness it slowly...comfortably. Learning to wield it carefully and properly will produce stunning results.

User: "Great...but how to I get rid of clicks?"

DART: "We'll get there...just stay with us. We have to help prepare you for the journey first. Getting the **best** from our software takes a little bit of reading, and practice, but it's a powerful tool and well worth the effort.

Since you're reading this section, you are likely new to audio software, CD burning or signal processing. That's okay. We were all that way at one time. In the words of Obi-Wan Kenobi..."you've taken your first step into a larger world".

Below...you'll find quick descriptions of the basic steps needed for popular and often-used features. Keep in mind that these descriptions are outlines. They are not intended to detail our product in every tiny detail. It is a 'QuickStart' guide, after all..."

DART XP QuickStart Guide Contents

ABOUT DART XP	2
DART XP QUICKSTART GUIDE CONTENTS.....	3
STARTING DART XP FOR THE FIRST TIME.....	6
TO LAUNCH THE SOFTWARE	6
WHAT YOU’LL SEE THE FIRST TIME... ..	6
STARTING DART XP FOR THE FIRST TIME (CONT.).....	7
DART XP KickStart	7
ABOUT DART XP’S HELP SYSTEMS	7
ABOUT ONLINE HELP SYSTEM	7
<i>Help Topics</i>	7
ABOUT DART XP’S HELP SYSTEMS (CONT.)	8
<i>Context-sensitive Help</i>	8
<i>Help line</i>	8
HOW TO RECORD SOUNDFILES USING YOUR SOUND CARD.....	9
THE DART “SOURCE/DESTINATION” SYSTEM.....	10
DART XP – BASIC FILE MANAGEMENT	10
SELECTING A SEGMENT (“BLOCK”) OF AUDIO FOR EDITING.....	11
HOW TO REMOVE CLICKS/POPS (DECLICK PLUS)	12
SELECTING THE PROCESSING MODE (FFT/AR) FOR DEHISS PLUS AND DENOISE PLUS.....	13
<i>Which processing mode is better?</i>	14
HOW TO REMOVE TAPE HISS (DEHISS PLUS AR/FFT).....	15
HOW TO REMOVE WIDEBAND NOISE (DENOISE PLUS AR/FFT).....	16
NOISEPRINT	16
HOW TO REMOVE WIDEBAND NOISE (DENOISE PLUS – CONT.).....	17
DENoise PLUS	17
USING OTHER DART XP PROCESSING TOOLS	18
VOLUME-RELATED TOOLS	18
<i>Scale</i>	18
<i>Maximize</i>	18
USING OTHER DART XP PROCESSING TOOLS (CONT.).....	19
EQUALIZE.....	19
<i>Gain</i>	19
USING THE INCLUDED DART CD RECORDER.....	20
HELP TOPICS.....	20
CONTEXT HELP	20

DIALOG BOXES	20
HOW TO USE CD RECORDER'S "EDIT" TOOLS.....	21
CUTTING AUDIO	21
INSERTING SILENCE INTO AUDIO.....	21
DIVIDING AUDIO FILES	21
HOW TO USE CD RECORDER'S "EDIT" TOOLS (CONT.).....	22
DIVIDING AUDIO FILES (CONT.)	22
HOW TO CONVERT FILES TO DIFFERENT FORMATS	23
HOW TO CONVERT FILES TO DIFFERENT FORMATS (CONT.).....	24
HOW TO CONVERT FILES TO DIFFERENT FORMATS (CONT.).....	25
WAVE TO WMA ENCODING.....	25
HOW TO USE AVAILABLE DIRECTX AUDIO PLUG-INS	26
HOW TO COPY EXISTING AUDIO CDS	27
STEP 1 - USING THE READ TRACK TOOL.....	27
HOW TO COPY EXISTING AUDIO CDS (CONT.).....	28
STEP 1 - USING THE READ TRACK TOOL (CONT.)	28
HOW TO COPY EXISTING AUDIO CDS (CONT.).....	29
ADJUSTING SILENCE GAPS BETWEEN AUDIO TRACKS (IF DESIRED)	29
HOW TO COPY EXISTING AUDIO CDS (CONT. 2).....	30
STEP 2 - WRITING YOUR FILES TO A NEW, BLANK CD	30
HOW TO COPY EXISTING AUDIO CDS (CONT. 3).....	31
STEP 2 (CONT.) - WRITING YOUR FILES TO A NEW, BLANK CD.....	31
HOW TO BURN AUDIO CDS FROM FINISHED WAV, MP3 OR WMA FILES.....	32
STEP 1 - CREATING A PLAYLIST FROM FILES ON YOUR HARD DRIVE	32
ADJUSTING SILENCE GAPS BETWEEN AUDIO TRACKS (IF DESIRED)	32
HOW TO BURN AUDIO CDS FROM FINISHED WAV, MP3 OR WMA FILES (CONT.).....	33
STEP 2 - WRITING YOUR FILES TO A NEW, BLANK CD	33
HOW TO BURN AUDIO CDS FROM FINISHED WAV, MP3 OR WMA FILES (CONT.).....	34
STEP 2 (CONT.) - WRITING YOUR FILES TO A NEW, BLANK CD.....	34
HOW TO BURN DATA CD-ROMS FROM FINISHED WAV, MP3 OR WMA FILES.....	35
TROUBLESHOOTING AND SOLVING PROBLEMS.....	36
<i>"When I attempt to start the software, I see a message window stating 'Protection check failed'. How do I get into the program?"</i>	<i>36</i>
<i>"When I attempt to use either the Read Track tool or Write to Audio CD, I get some kind of message about 'ASPI' not being installed. What is this?"</i>	<i>36</i>
<i>I think that the program has become corrupt or I simply want to remove and reinstall. What's the best way to do this?"</i>	<i>39</i>

<i>“When I attempt to record audio, I’m not seeing the volume (VU) meters showing any signal. How do I solve this?”</i>	<i>39</i>
END-USER LICENSE AGREEMENT FOR DART® SOFTWARE	42

Starting DART XP for the first time

To launch the software

After successfully installing the software, you can start it in a few different ways.

- Double-left-click on the DART XP icon on your Windows Desktop.
- Click on the Windows “Start” menu, then on “Programs”. Find the “DART XP” program group (or whatever you might have named it). From the menu shown, left-click on “DART XP”. Note that you can also directly launch the included CD-Recorder utility with this method as well.
- Click on the Windows “Start” menu, then on “Run”. Type in “dartxp” (without the quotes) and hit “OK”.

What you’ll see the first time...

When starting the software for the first time, you’ll see the main DART XP window. Next, the DART XP “splash” screen will appear, which will display the currently installed version number for the software. Note that the currently installed version number can always be found by clicking on the **Help** menu item (not the question mark) then on the **About DART** item in the drop-down menu.

After this screen appears, you’ll be shown the DART XP “Tip of the day”.

You’ll have the option to select either **Next Tip** (this will cycle through available tips if clicked repeatedly) or the **Close** button. Make sure you leave the **Show Tips on Startup** option checked, if you want to see these each time you launch the software.

At this point, you’ll see that only a few of the menu items are selectable (**File**, **Group**, **Record**, **Options** and **Help**).

This is normal. For now, it is recommended that you concentrate on becoming familiar with the interface.

By placing your mouse (“hovering”) over each of the buttons, on the DART XP Toolbar, you’ll be shown the function or tool that the button will control or launch. Don’t worry too much if you’re not sure what each button does yet...you can pick that up as you go. The only one that’s important for the time being is the “Help” button on the far right (the question mark button).

Starting DART XP for the first time (cont.)

DART XP KickStart

We've included an additional "walkthrough" of the software's tools, called the "KickStart"...for those after "instant gratification". This section is set up to make your experience with DART XP fun, quickly gratifying, and as painless as possible. It is recommended that you take advantage of the KickStart walkthrough to get yourself acclimated to how the different screen areas and basic controls function.

To launch the KickStart guide:

- If you haven't yet (in the steps above), click on the "Help" button on the right side of the Toolbar.
- After the Help window appears, look for the "KickStart – instant gratification" on the left.
- Left-click on this selection. The KickStart guide will appear to the right.

Just follow the 10 quick steps in the KickStart guide and you'll be well on your way audio nirvana.

About DART XP's Help Systems

About Online Help System

There are three ways of accessing Help in DART XP.

Help Topics

Each time you choose the **DART help** command accessible from the **Help** menu, or by pressing the **HELP** button, situated on the toolbar, a list of all topics on which Help information is available is displayed.

Should you have problems identifying the entry that answers your question, open the **Index** folder, which contains an alphabetical listing of topics available in the Help file. Then click on the desired topic or "keyword" (i.e. "burn", "DeClick", "record", etc.) to open it in the main Help window.

It is recommended that you spend some time looking around in the Help file and become familiar with where/how the information is arranged.

About DART XP's Help Systems (cont.)

NOTICE

For your convenience, all DART CD-Recorder index items start with capital letters. This should allow you to distinguish most of the DART XP help items, displayed in the **Index** folder, from the corresponding CD-Recorder items.

Context-sensitive Help

By pressing the F1 (keyboard) key, you can obtain Help information for a selected menu item or for an open dialog box.

To get information about different menus proceed as follows:

1. Use mouse to select (highlight) menu or a particular menu item.
2. Without releasing the left mouse button press F1.

To get information about an open dialog:

1. Make sure that the title bar of the dialog is highlighted (which may not be the case once you press some buttons inside the dialog).
2. Press F1.

If no menu item is selected and no dialog is open, pressing F1 will bring up a list of available Help topics.

Help line

Each time you move the mouse pointer over one of the control buttons or text boxes situated on the toolbar, a Help line appears at the bottom of the screen with a brief description of the selected button/box functions. The same pop-up Help line is displayed when you use mouse or keyboard arrows to highlight different menu items.

Once you've acclimated yourself to the user interface and the Help system, you should be ready to take on the next step in using the software...recording your audio.

How to record soundfiles using your soundcard

DART XP allows you to record any audio source connected to your computer's sound card.

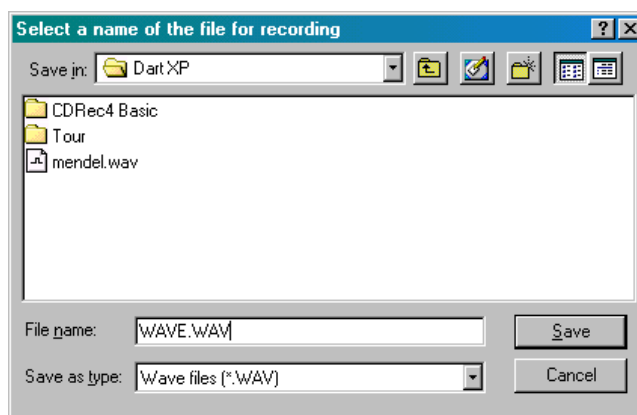
Some computers are equipped with more than one wave device. In order to check which audio card is currently being used for recording and/or to select the preferred device, use the **Hardware info** dialog, available after choosing the **Hardware** command from the **Options** menu.

In order to create a new recording:

1. Choose the **Record** command available from the **Record** menu, or click the **RECORD** button situated on the toolbar, or press **R**.

2. Select the name for the new recording, or pick one of the existing names and click the **Overwrite** button.

3. Set the record mode (number of channels, sampling frequency, sampling resolution).



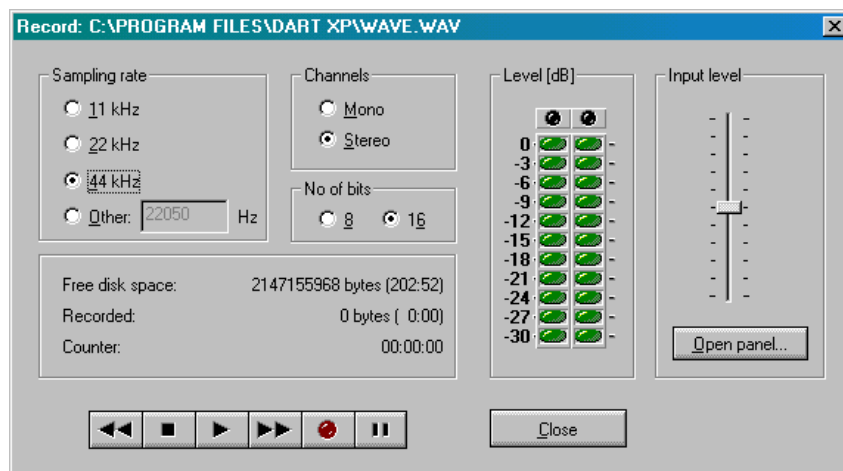
4. Click the **PAUSE** button to initialize the volume meter(s). Start the audio device from which you wish to record and adjust the output level while monitoring the VU (volume) level display.

5. Rewind or go to the beginning of your source, press the **RECORD** button, and start the audio device. The available disk space and the current length of the recorded material (both in bytes and seconds) are displayed in the lower part of the **Record** dialog. These should start to change.

6. When the recording is complete, click the **STOP** button or press ENTER.

When you press the **CLOSE** button, the **Record** dialog will disappear and the recorded soundfile will be loaded on the screen.

Using the **PLAY**, **FAST FORWARD**, and **FAST REVERSE** buttons, you can audition the recorded material or its fragments prior to closing the **Record** dialog. It is also possible to add some new material at the end of an existing recording or modify its content.



The DART “Source/Destination” system

The two buttons situated in the upper-left corner of a WAVE file’s window are used in the course of sound renovation and editing.

The **SOURCE** button, “S”, which turns red when pressed, indicates a soundfile scheduled for renovation. This will be the file that is ‘passed’ to the tool of your choice (i.e. DeClick Plus).

The **DESTINATION** button, “D”, turning blue when activated, marks a soundfile that will contain the results of processing.

Only one soundfile at a time can be assigned a source status, and only one - if any - can have a destination status. In addition, the source and destination soundfiles must always be different.

A very simple rule is used to decide whether the results of processing should overwrite the contents of an existing file or if an additional soundfile should be created:

- If the destination soundfile is not indicated (no destination checkbox is selected), the results are saved in a new soundfile.
- If the destination soundfile is marked, its contents is overwritten (the previous results are lost in this case).

Read the section on audio trees (in the Help files) to find more details and hints on source/destination mechanisms provided by the system.

DART XP – Basic File Management

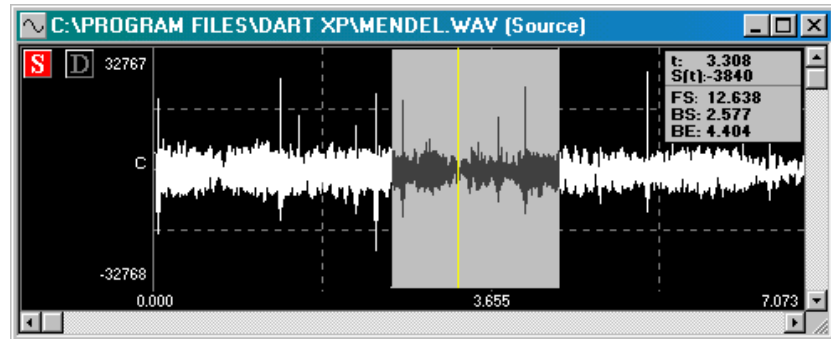
The **File** menu contains several items for handling WAVE files on your PC’s hard drive.

- **New** - When you choose this option a new (empty) file is created.
- **Open** - This option can be used to open an existing file (a soundfile or a detection file). The file select dialog, shown after choosing the **Open** command, allows you to inspect a list of available files, audition a soundfile prior to loading it (**Play**) and get basic information about a soundfile (**Info**). Additionally, it provides means for deleting files (**Delete**). When convenient you can open or delete several files at once.
- **Save as** - You can use this item to make a copy of the soundfile in the active window. A file select dialog will allow you to choose a name under which the soundfile will be saved.
- **Rename** - You can use this item to rename a file.
- **Delete** - This item can be used to delete any file from the disk. For your convenience, each time a soundfile <*.wav> is deleted the corresponding detection file <*.det> (if any) is also removed.
- **Close** - Use this option to close open files. When a file is closed the corresponding window is removed from the DART XP's clipboard.

Selecting a segment (“Block”) of audio for editing

In DART XP, a “block” is a section of audio data that is highlighted for the purpose of editing, restoration or more intense scrutiny.

In the figure to the right, the area marked in gray is a “block” of audio.



There are four different ways of selecting blocks:

- Left-click on the audio (where the block should start) and ‘drag’ the cursor to the end of the desired block, while holding down the CTRL key.
- Left-click on the audio (where the block should start) and click at the end of the block, while holding down the SHIFT key.
- Left-click on the audio (where the block should start) and use the keyboard LEFT/RIGHT ARROW keys to select the end of the block, while holding down the SHIFT key. Release the SHIFT key when finished.
- Position the cursor on the overview strip (under the buttons) and drag the mouse, while holding down the right mouse button.

Blocks of samples are displayed on the screen in light gray. Each time you select a new block, the former one is canceled. In order to modify the size of an existing block, place the cursor over the left/right edge of the block. When the cursor turns into a two-sided arrow, drag the boundary to a new position, holding down the left mouse button (when in a soundfile/binary window) or the right mouse button (when on the overview strip).

To return to the beginning of the block, choose the **Go to beginning of the block** command available from the **Edit** menu or press **F11**; to jump to the end of the block choose **Go to end of the block** or press **F12**.

To remove a block marking, click the left mouse button while holding down the CTRL key (when in a soundfile/binary window) or click the right mouse button (when on the overview strip).

NOTICE

By default, if the CTRL key is not pressed, dragging the cursor will not result in selecting a block. If you don't like this arrangement, uncheck the **Use CTRL to select block** box in the **Preferences** dialog accessible from the **Options** menu - at your own risk! When clicking the mouse button, one tends to drag the mouse slightly, so when the act of dragging alone becomes equivalent to selecting a block, it is easy to accidentally cancel an existing block.

How to remove clicks/pops (DeClick Plus)

DeClick Plus uses a sophisticated algorithm designed to simultaneously track time-varying characteristics of a processed audio signal, isolate and reconstruct irrevocably distorted samples, e.g. samples corrupted with clicks, pops, record scratches and other forms of impulsive noise.

In order to use **DeClick Plus**, proceed as follows:

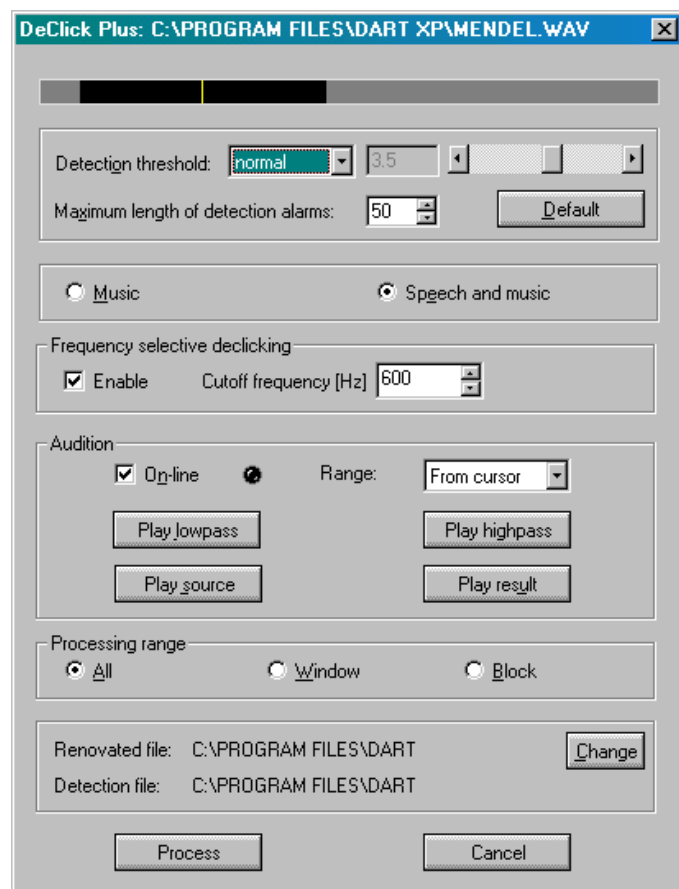
1. Open or Record a WAVE file (which you should now be familiar with) and select it as the source soundfile, by clicking the corresponding **SOURCE** button.
2. Choose the **DeClick Plus** command (from the **Restore** menu), hit your “F2” keyboard key or click the **DeClick Plus** button on the toolbar.

3. Set the **Detection Threshold** to “normal”, the **Maximum length of detection alarms** to “50” and the **Frequency selective declicking** control to “500” (these will very likely change later, to obtain the best results).

4. Preview the results of the current settings from step 3, using the **Play result** and **Play source** buttons, in the **Audition** group, to compare them with the original recording.

5. While the audio plays, make adjustments to the **Detection Threshold**, **Maximum length of detection alarms** and **Frequency selective declicking** controls, to your “taste”, to achieve the best possible results.

6. If necessary or desired, use the **Change** button to choose a name for the new destination soundfile (for unregistered source soundfiles only).



7. Click the **Process** button to start processing. (Note: when you “process” a file, you’re setting the results “in stone”, in a newly created destination file.)

Remember that there is NO WAY that we could tell you the “best” settings to use in all cases, since the results are highly subjective. In addition, don’t forget that you can get more details on how the **DeClick Plus** controls work by using your keyboard’s **F1** key while working. It is highly recommended that you take time to read the section “Adjusting DeClick Plus parameters”.

Selecting the Processing Mode (FFT/AR) for DeHiss Plus and DeNoise Plus

DeNoise Plus and **DeHiss Plus** are renovation tools designed specifically to remove broadband noise (tape hiss, surface noise of vinyl records, etc.) from audio files. Both noise reduction procedures operate in the frequency domain and are based on the same principles. They differ in the way noise characteristics are taken into account in the process of sound renovation.

DeNoise Plus uses a specific noise characteristic - we call it a noiseprint – when eliminating noise disturbances. The specific noise characteristic “Noiseprint” – is extracted from an archive recording by selecting it as a “block” (described in this guide). If no reference noise snapshot for a noiseprint can be found, you can use **DeHiss Plus** - a disturbance rejection tool based on a standardized noise model.

As a matter of fact, you should try out **DeHiss Plus** even if an archive audio file can be noiseprinted. Based on a standard noiseprint, **DeHiss Plus** is more robust than **DeNoise Plus**. In particular, it may yield better results if noise characteristics are time-varying (in cases like that, **DeNoise Plus** may fail to provide a uniform renovation quality along the entire soundfile).

Even though both schemes are not equipped with any explicit mechanism for click elimination, they are capable of removing most of low-amplitude clicks and pops. However, to obtain the best results it is recommended that the audio file be declicked prior to using **DeNoise Plus** and **DeHiss Plus**.

The wideband noise reduction techniques employed in DART XP require estimation of a time-varying spectrum of an audio signal. You can choose between two methods of spectrum estimation - the nonparametric (FFT) approach and the parametric (AR) approach. For more detailed information on both methods, see *Spectrum estimation* in DART XP's Help files.

When tuning different renovation procedures, you have to rely on your own subjective evaluation of the results. Even though, as the Romans used to say, "De gustibus non est disputandum" ("There is no accounting for tastes"), we beg you: please, do not forget about the signal in your pursuit of removing noise. Forcing noise attenuation that is too strong may result in a signal, which is noiseless, but sounds DEAD.

NOTICE

When modifying program settings, try not to introduce too many changes at a time, otherwise you may have problems figuring out which parameters are responsible for specific (favorable or unfavorable) effects.

Which processing mode is better?

Although there is no clear-cut answer to this question, we recommend you start from the AR mode. For many old recordings the AR approach does miracles - noise is removed completely revealing the clean and fresh audio signal. You should be aware, however, that when denoising/dehissing is performed in the AR mode, the program is generally more sensitive to the choice of tuning parameters, such as weight/gain and adaptation rate. For this reason, to obtain really superb restoration results, we encourage you to spend some time on fine tuning the AR-based noise reduction utilities.

When the AR approach does not yield satisfactory results (on some occasions the renovated signal may have some "synthetic" characteristics), try the more universal and less sensitive FFT approach.

NOTICE

When processing in the AR mode, the DeHiss Plus filter may occasionally produce clattering artifacts, especially at very high noise reduction rates. To eliminate clatter, try using larger frame sizes, smaller values of the weight/gain coefficient and/or smaller adaptation rates (when dynamic noise reduction is enabled).

How to remove tape hiss (DeHiss Plus AR/FFT)

DeHiss Plus's “AR” and “FFT” modes offer renovation tools designed specifically to remove broadband noise (tape hiss, surface noise of vinyl records, etc.) from .WAV format audio files.

In order to use **DeHiss Plus AR** or **FFT**, proceed as follows:

1. Open or Record a WAVE file (which you should now be familiar with) and select it as the source soundfile, by clicking the corresponding **SOURCE** button.

2. Choose the **DeHiss Plus** command (from the **Restore** menu), hit your “F4” keyboard key or click the **DeHiss Plus** button on the toolbar.

3. Set the **Gain**, **Smoothing range**, **Frame size** and **Frequency carving** to “normal”. Then, set the **Noise floor** to “500” (50% of the available range) and the **Adaptation rate** to “50” (50% of the available range). These will very likely change later, to obtain the best results.

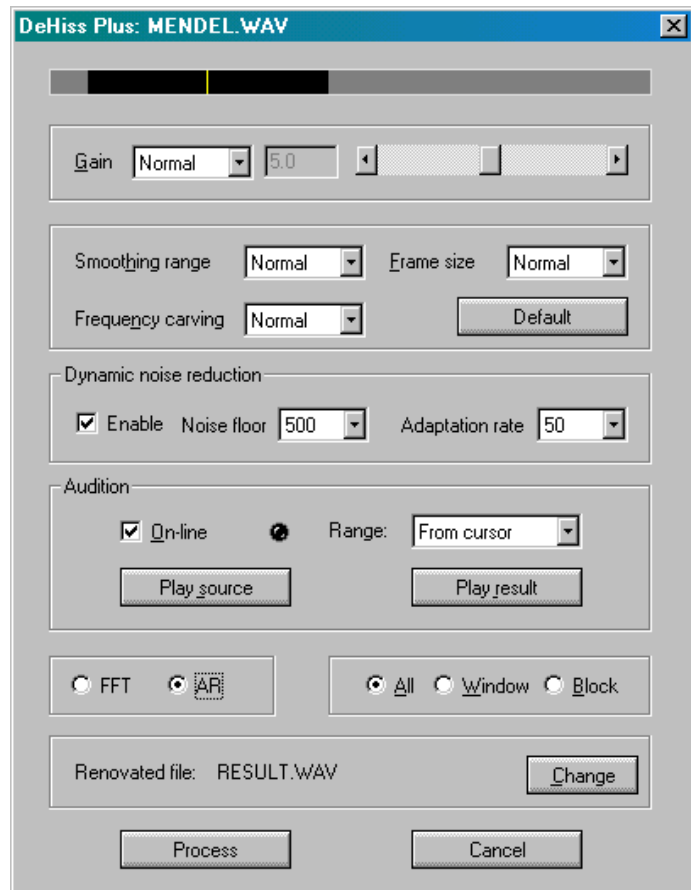
4. Preview the results of the current settings from step 3, using the **Play result** and **Play source** buttons, in the **Audition** group, to compare them with the original recording.

5. While the audio plays, make adjustments to the **Gain**, **Smoothing range**, **Frame size**, **Noise floor** and **Adaptation rate** controls, to your “taste”, to achieve the best possible results.

6. If necessary or desired, use the **Change** button to choose a name for the new destination soundfile (for unregistered source soundfiles only).

7. Click the **Process** button to start processing. (Note: when you “process” a file, you’re setting the results “in stone”, in a newly created destination file.)

Remember that there is NO WAY that we could tell you “best” settings to use in all cases, since the results are highly subjective. In addition, don’t forget that you can get more details on how the **DeHiss Plus** controls work by using your keyboard’s **F1** key while working. It is highly recommended that you take time to read the section “Adjusting DeHiss/DeNoise parameters”.

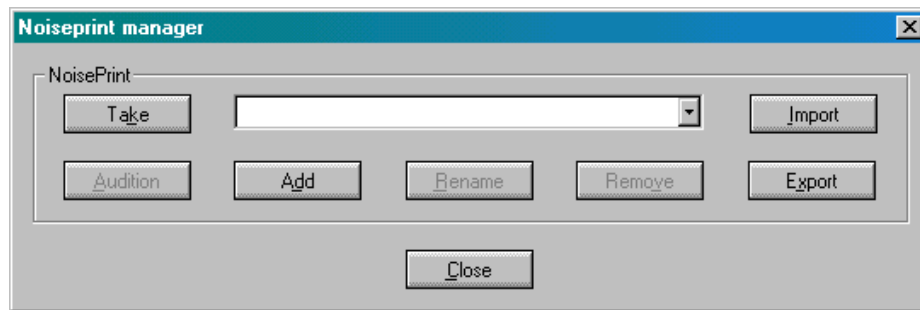


How to remove wideband noise (DeNoise Plus AR/FFT)

Before you can start the process of using the **DeNoise Plus** tool, you'll need to first take a "noiseprint" from the audio file with which you're working. This is a 'signature' of the noise that will later be removed using the **DeNoise Plus** tool.

In the overall process of using the **DeNoise Plus** tool, taking a NoisePrint is always step 1. Step 2 will come a bit later...

NoisePrint



To noiseprint an audio file, find a fragment of the file which contains only the background noise (analog tape hiss, surface noise of a vinyl record, etc.). Audio material suitable for a noiseprint can usually be found at the very beginning or end of the recording.

To take a noiseprint:

1. Open or Record a WAVE file (which you should now be familiar with) and select it as the source soundfile, by clicking the corresponding **SOURCE** button.
2. Select a block of reference noise samples (the minimum size of the block is 2048). If you're not sure how to select a "block", see the section above - "Selecting a segment ("Block") of audio for editing".
3. Choose the **NoisePrint** command (available from the **Restore** menu) or press the **NoisePrint Manager** button (at the top of the **DeNoise Plus** dialog, if you've already started **DeNoise Plus**) to access the **NoisePrint Manager** dialog.
4. Press the **Take** button in the **NoisePrint Manager** dialog. After evaluating the noise characteristics of the selected block of audio, DART XP will create a temporary noiseprint ID file. The noiseprint curve will be displayed within the **DeNoise Plus** dialog (in red).
5. Press the **Close** button to complete the process of taking your noiseprint. Now, you're ready to move to the next step...using **DeNoise Plus** to remove this 'signature' noise.

You can get more details on the NoisePrint tool by hitting F1 in the **DeNoise Plus** dialog window and then selecting the link to "Noiseprinting an audio file".

How to remove wideband noise (DeNoise Plus – cont.)

DeNoise Plus's “AR” and “FFT” modes offer renovation tools designed specifically to remove broadband noise (tape hiss, surface noise of vinyl records, etc.) from .WAV format audio files.

DeNoise Plus

In order to use **DeNoise Plus** proceed as follows:

1. Open or Record a WAVE file (which you should now be familiar with) and select it as the source soundfile, by clicking the corresponding **SOURCE** button.
2. Choose the **DeNoise Plus** command from the **Restore** menu or hit **F5** on your keyboard.
3. Select a noiseprint that can be used in the course of signal renovation. If noiseprint was taken just prior to choosing **DeNoise Plus**, the last taken/inspected noiseprint will appear at the top of the **DeNoise Plus** dialog. To take a new noiseprint, modify spectral characteristics of an existing noiseprint or to change noiseprint to another (registered) one, press the **NoisePrint Manager** button to launch the **NoisePrint Manager**. When done, press the **Close** button to return to the **DeNoise Plus** dialog.
4. Set the **Weight**, **Smoothing range**, **Frame size** and **Frequency carving** to “normal”. Then, set the **Noise floor** to “500” (50% of the available range) and the **Adaptation rate** to “50” (50% of the available range). These will very likely change later, to obtain the best results.
5. Preview the results of the current settings from step 3, using the **Play result** and **Play source** buttons, in the **Audition** group, to compare them with the original recording.
6. While the audio plays, make adjustments to the **Gain**, **Smoothing range**, **Frame size**, **Noise floor** and **Adaptation rate** controls, to your “taste”, to achieve the best possible results.
7. If necessary or desired, use the **Change** button to choose a name for the new destination soundfile.
8. Click the **Process** button to start processing.

Remember that there is NO WAY that we could tell you “best” settings to use in all cases, since the results are highly subjective. In addition, don't forget that you can get more details on how the **DeNoise Plus** controls work by using the **F1** key while this window is open.

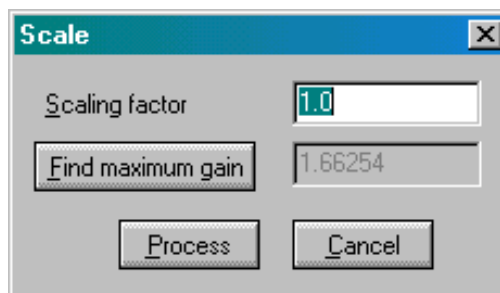


Using other DART XP processing tools

Volume-Related Tools

Scale

The **Scale** tool can be used to either amplify (increase) or attenuate (reduce) the volume of your audio in a selected area. If no specific area (“block”) is selected then the entire signal is changed. To set the amount of increase or decrease in volume, type in a positive number (greater than 0.00...) for the **Scaling factor**. A **Scaling factor** smaller than one (0.50, for example) will result in audio attenuation (turning the volume down) while a number greater than one (1.50, for example) will cause signal amplification (turning the volume up).



No upper limit will be enforced for the **Scaling factor** - if some parts of the scaled audio signal end up being too loud (i.e. fall outside of the dynamic range provided by 16-bit (8-bit) coding), all samples 'sticking out' are clipped. Basically, this means that it IS possible to “clip” your audio information with the **Scale** tool. It will not, in any way, prevent you from choosing amplification that will cause distortion (“clipping”) to occur. To find the maximum volume change allowed, to amplify the signal without clipping, press the **Find maximum gain** button in the **Scale** dialog.

NOTICE

Remember that due to the limited precision of 16-bit (8-bit) representation of numbers, **scaling is not a 100% reversible operation**. For example, if you turn the volume down (using a **Scaling factor** of “0.01”), then subsequently increase the volume (using a **Scaling factor** of “100.0”), the **Scale** tool will not restore the original numbers (this effect may be greatly increased for very small/large **Scaling factors**).

Maximize

The **Maximize** tool is similar to the **Scale** in that allows you to change the gain (volume) of your audio. However, this tool will automatically apply a maximum gain/volume increase, which does not result in clipping. You can maximize the entire signal or a selected area. Maximizing a “block” of audio may be preferable for some classes of audio signals, e.g., for speech recordings. Since different areas may significantly differ in loudness, maximization performed phrase by phrase may be a way of internal 'balancing' of the entire signal.

Using other DART XP processing tools (cont.)

Equalize

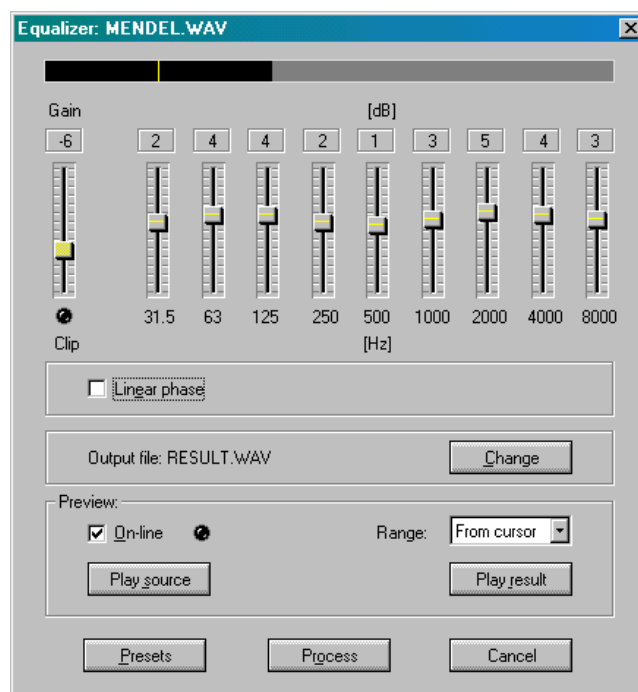
The **Equalize** tool (in the **Toolbox** menu) is a multi-band graphic equalizer that allows you to shape the frequency content of your audio. Equalization is usually employed to shape the sound of different instruments, e.g., to add a 'fullness' effect to weak instruments such as the acoustical guitar or to increase the 'crispness' in percussion instruments such as the bongo or snare drums. Basically, this tool is similar to the “Bass” and “Treble” tools on your stereo. Note that there are actually a number of available “EQ” filter tools in DART XP (in the **Toolbox** / **Filter** menu).

The number of bands available will depend on the sample rate of the audio file that will be edited and provides 8-bands (for 11.025kHz), 9-bands (for 22.050kHz) or 10-bands (for 44.100 kHz).

Gain

There are separate gain sliders for several frequency ‘areas’ (63Hz, 250Hz, etc.) and a **Gain** slider for the overall output volume of the tool (i.e. your “main” Equalizer volume control).

Just use the **Play result** and **Play source** buttons, in the **Audition** group, to playback your audio while you make adjustments to the individual band sliders. The number displayed above each slider shows the gain, expressed in decibels (dB). Positive values will result in amplification (volume increase) and the negative values in attenuation (volume decrease) of the corresponding frequency area. When you’re happy with what you hear, just hit **Process** and your changes will be saved to the file.



NOTICE

When the audio is amplified, some of its parts may rise out the available dynamic range. Basically, this means that the audio in one or more frequency ranges is “clipped”, which may result in audible sound distortions. If the **Clip** indicator (below the **Gain** slider) is triggered in red, or if a warning about clipping occurs onscreen (upon completion of equalization), you’ll want to process the signal again, making sure to lower some of your slider settings. You can also simply lower the main **Gain** control until you see that the **Clip** indicator no longer illuminates. To reset the **Clip** light, just left-click right on the red circle and it will return to black (a ‘no clip’ status).

Using the included DART CD Recorder

DART CD-Recorder Basic allows you to record and edit audio files from different sources (tape deck, reel-to-reel, phonograph, CD players, MIDI and MPEG 3 codecs) and combine them into a sequence called a “playlist”. If your computer is equipped with a supported compact disc recorder (CD-R or CD-RW) you’ll be able to record your own audio CDs. You can start CD-Recorder Basic from within DART XP by using the CD button on the **Toolbar**.

Help topics

Each time you press the HELP button situated on the toolbar, a list of all topics in which Help information is available will be displayed.

Should you have problems identifying the entry that answers your question, open the **Index** folder, which contains an alphabetical listing of topics available in the Help file. Then click on the desired topic to open it in the main Help window.

Context help

To obtain help on a particular screen item press the CONTEXT HELP button on the toolbar and click the screen element/area you would like to learn about.

Dialog boxes

Most of the dialog boxes are equipped with the context help buttons (placed in their upper right corners). To get a general help on a dialog, press the **F1** keyboard key.

After entering DART CD-Recorder Basic you will see a screen consisting of five screen areas.

The corresponding items are:

- the **Menu** bar - providing access to various system functions.
- the **Toolbar** - giving access to the most frequently used system functions.
- the **File Panel** - allowing you to select, record or get information about the soundfiles you want to add to your playlist. This is the left and middle of the 3 sections shown.
- the **Playlist Panel** allowing you to manage your playlist. This is the section on the right.

and (if present)

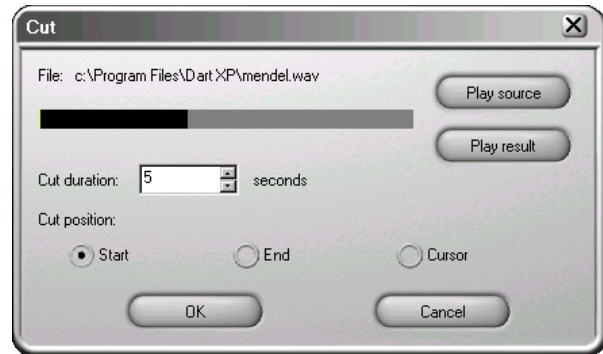
- the **Status** bar providing a brief explanation of certain system functions.

How to use CD Recorder's "Edit" tools

DART CD-Recorder allows you perform a number of audio editing operations. These can be accessed via the **Toolbox / Edit** menu, after selecting a WAV file in the middle "File" panel.

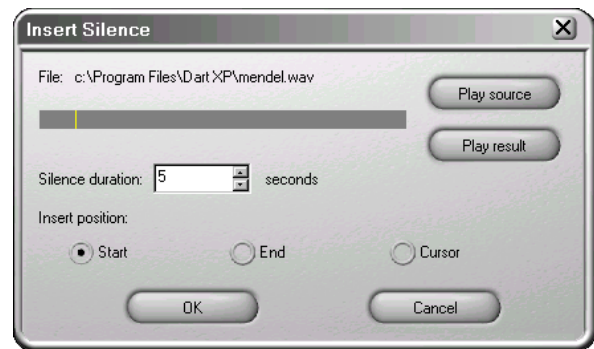
Cutting audio

To delete a selected portion of the recording, use the **Cut** tool, available from the **Toolbox/ Edit** menu. You can use this function in three different ways: to remove data from the beginning of the audio file (**Start**), to remove data from the end of the file (**End**), or to remove the data from the current cursor position (**Cursor**). Use the **Cut duration** box to set the length of the removed fragment. To check the results before processing and after processing use the **Play source** and **Play result** buttons, respectively.



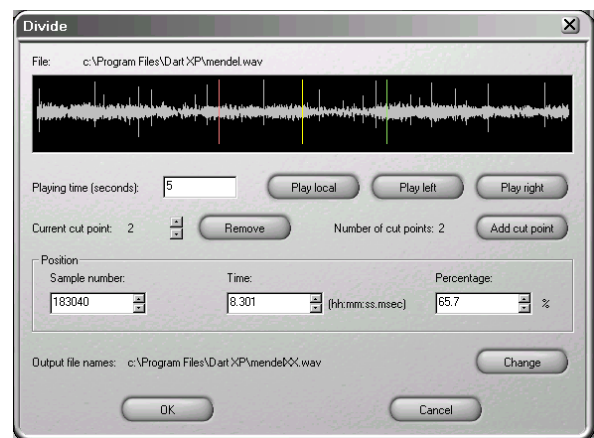
Inserting silence into audio

To insert a section of silence into a soundfile, use the **Insert silence** tool, available from the **Toolbox/Edit** menu. First, enter the length of the silence block in seconds. Then choose the insertion point. An insertion point can be placed at the beginning of the file (**Start**), at the end of the file (**End**) or at the current cursor position (**Cursor**). To check the results before processing and after processing use the **Play source** and **Play result** buttons, respectively.



Dividing audio files

Use the **Divide** tool to 'split' long WAV files (e.g. entire LPs) into separate tracks. Note that the cut points can be located anywhere, not necessarily in silent parts of the recording. You can divide audio files in any way you wish. The graphic waveform image of the entire audio file, displayed at the top of the **Divide** window, will help you set the cut points appropriately. To introduce a new cut point, position the cursor anywhere in the audio signal window and click the right mouse button. You can also use the left mouse button to place the cursor in the audio signal window and click the **Add cut point** button.



How to use CD Recorder's "Edit" tools (cont.)

Dividing audio files (cont.)

Use one of the three **Play** buttons to listen to the audio near your cut point:

- **Play left** - used to play audio data leading up to the selected cut point
- **Play right** - used to play audio data immediately after the selected cut point
- **Play local** - used to play audio data centered on the selected cut point (for example, if the **Playing time (seconds)** were set for 10 seconds, this would play 5 seconds leading up to the cut point and 5 seconds after.)

Note: playback time for all three of the options above is set using the **Playing time (seconds)** control.

Cut points are color-marked as follows:

- Green cut point – indicates the currently selected cut point (if there is more than one) for position editing, playback or removal.
- Red cut point – indicates another proposed cut point, which is not currently selected for editing.

To select a cut point, click on the cut marker in the audio waveform (which will turn it green, if it is not already) or choose the cut number using the **Current cut point** control's up and down arrows. **Note:** cut points are numbered automatically in the order they appear in the file).

Adjust the cut point's position using your mouse (by 'left-click-and-dragging' the green line) or any of the three **Position** options (**Sample number**, **Time**, or **Percentage**).

To remove a cut point, click the **Remove** button (if there is more than one cut point, only the selected one, in green, will be removed).

After you finish selecting the cut points, use the **Change** button to choose a name and location for the new WAV files that will be created, if necessary or desired. Note that by default, new WAV files created by **Divide** will be stored in the same folder as the original uncut WAV.

Tracks are saved in separate WAV audio files called *<name[xy].wav>*, where *name* is an user-dependent prefix and *[xy]* denotes the two-digit track number. For example, if your original uncut WAV file is named "track1.wav", and it will be split into 4 new tracks, you will get the following:

"track101.wav", "track102.wav", "track103.wav" and "track104.wav"

Once you've selected the name and location for your tracks, hit **OK**.

How to convert files to different formats

MP3 to WAVE conversion

DART CD-Recorder Basic allows you to play and convert MPEG (“MP3”) compressed audio files (i.e. to decompress the encoded sound and save it in a standard wave format accepted by every CD-player).

To convert MPEG (“MP3”) audio files to WAVE format:

1. Select the MPEG files for processing, among those listed in the **File Panel** (if you hold down your “Ctrl” key and select several files, all of them will be converted to WAVE).

Note: to see MPEG files in the **File panel** window, set the **File type** pull-down menu, in the lower left of the CD-Recorder window, to *All files*, *Mp3 files* or *Soundfiles*.

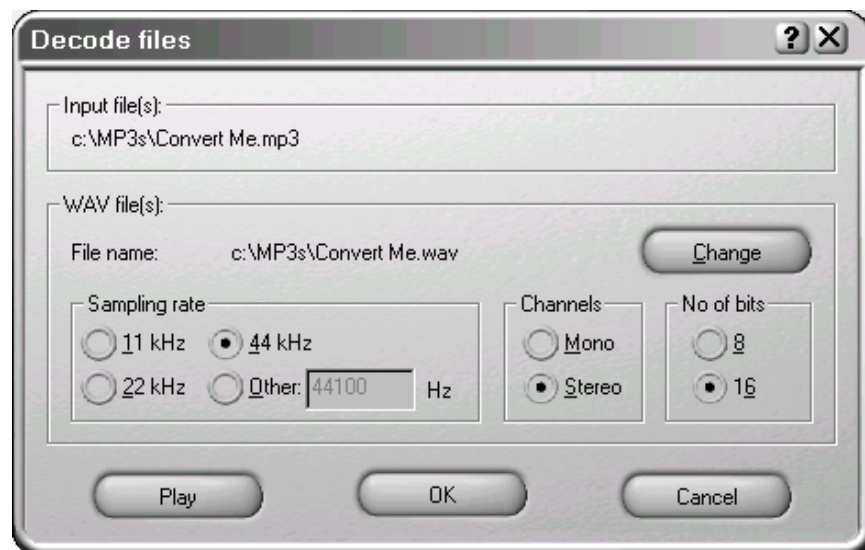
2. Launch the **Decode files** tool, available from the **List** menu (in the upper left corner).

3. Use the **Change** button to select the directory (where the results will be saved) and/or the name of the new WAV file to be created. If several MP3s files are selected for conversion to WAV, their original names will be retained – only the extensions will change from ‘mp3’ to ‘wav’.

4. Set the desired decoding parameters (*sampling frequency*, *number of channels* and *sampling resolution*). It’s recommended that you use 44kHz, 16-bit, stereo settings for making audio CDs.

5. Click **OK**.

Note: To audition a file prior to decompression, click the **Play** button.



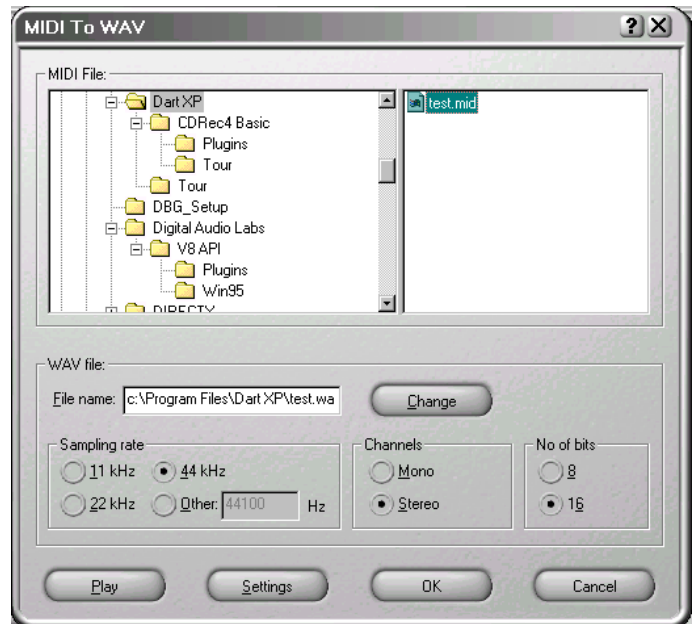
How to convert files to different formats (cont.)

MIDI to WAVE conversion

MIDI, which is an acronym for Musical Instrument Digital Interface, is a set of special commands used by different pieces of electronic musical equipment to speak to each other. Vaguely speaking, the MIDI data contains information about musical notes along with detailed instructions telling how, when and how long each note should be played.

DART CD-Recorder Basic allows you to play and convert MIDI music data, (i.e. to synthesize the encoded sound and save it in standard wave format).

To convert MIDI files to WAV files:



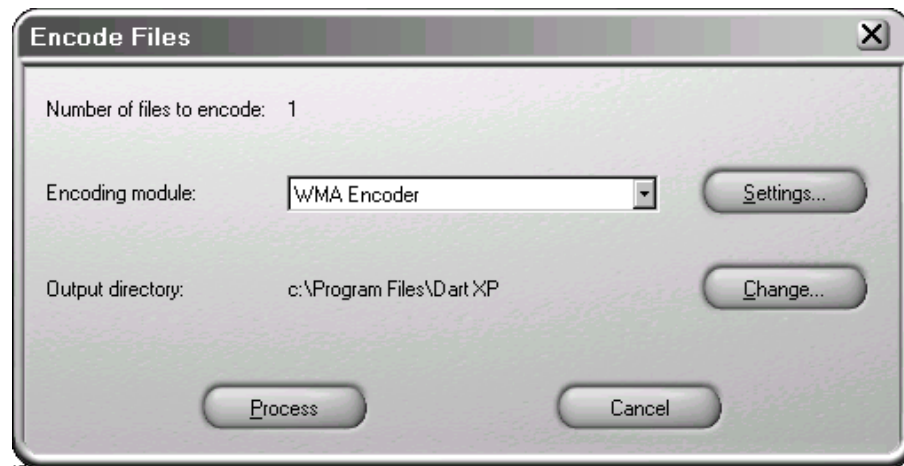
1. Click the **MIDI TO WAV** button (the piano keyboard) on the toolbar or choose the **Convert MIDI to WAV** command from the **List** menu.
2. Use the upper-left and upper-right sections of the **MIDI to WAV** window to browse your hard drive to the hard drive and folder where your MIDI files are located. When a MIDI file appears, in the upper-left, select the MIDI file you would like to convert to a WAVE format (a typical MIDI file has a ".mid" extension)
3. Set the recording mode, which will be used to create the WAV file, by means of choosing the desired sampling frequency, number of channels and sampling resolution. It's recommended that you use 44kHz, 16-bit, stereo settings for making audio CDs.
4. Use the **Change** button to select the directory (where the results will be saved) and/or the name of the new WAV file to be created.
5. If your computer is equipped with more than one audio card use the **Settings** button to select a particular MIDI mixer / soundcard with which you'd like to work.
6. Click **OK**.

To audition a file prior to recording click the **Play** button.

Note: It is **extremely** common that most PC soundcards will not be properly configured for MIDI to WAV conversion by default. To get information on configuring your soundcard for this feature, please see the "Troubleshooting..." section at the end of the guide.

How to convert files to different formats (cont.)

WAVE to WMA encoding



DART CD-Recorder's WMA encoder allows you to save space when storing or transmitting audio files. A WMA file is a "compressed" audio file, similar to an MP3, made from a WAV.

To encode WAV audio files as a compressed WMA audio file:

1. Select the WAV files for encoding, among those listed in the **File Panel** (if you hold down your "Ctrl" key and select several files, all of them will be encoded to WMA).

Note: to see WAV files in the **File panel** window, set the **File type** pull-down menu, in the lower left of the CD-Recorder window, to *All files*, *Wave files* or *Soundfiles*.

2. Launch the **Encode files** tool by pressing the **ENCODE FILES** button (the 'vice') on the Toolbar or by choosing the **Encode files** command from the **List** menu.

3. Choose the 'WMA encoder' from the list of available encoding modules (it may very likely be the only option).

4. Click the **Settings** button to launch the **Encoding parameters** dialog. Select compression parameters (*Quality* and *Bitrate*). To choose standard 'quality encoding' settings, press the **Default** button.

5. Use the **Change** button to select the directory (where the results will be saved) and/or the name of the new WMA file to be created. If several WAVE files are selected for encoding to WMA, their original names will be retained – only the extensions will change from 'wav' to 'wma'.

6. Press **Process** to start encoding.

How to use available DirectX audio plug-ins

The DirectX technology, designed by Microsoft for the Windows family of operating systems, allows you to create and run multimedia applications (called “Plug-Ins”) on any Windows-based PC, no matter what hardware is used.

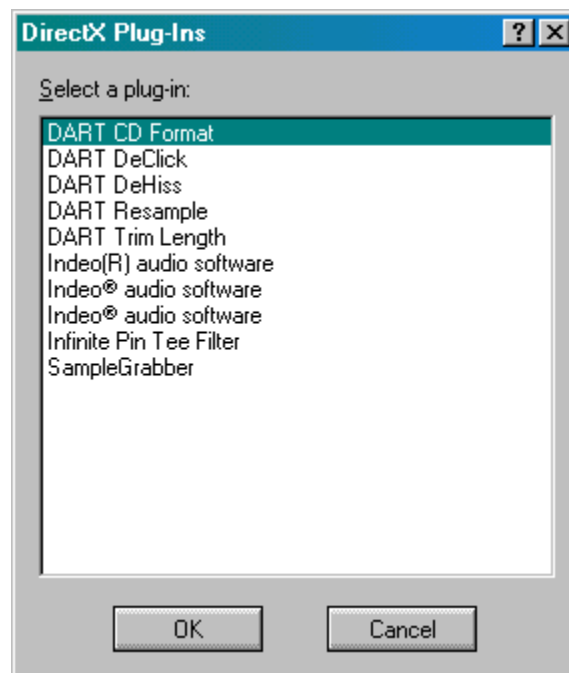
To access DirectX Audio Plug-Ins installed on your computer:

1. Select the wave file for processing.
2. Choose the **DirectX** command from the **Toolbox** menu.
3. Click the desired item on the list of available Plug-Ins.

Note: The steps described above are valid/correct for both DART XP and the included CD-Recorder Basic utility. In CD-Recorder Basic, you can also use the **DirectX** button (which looks like a ‘power plug’) to get access to available DirectX audio plug-ins.

NOTICE

DirectX Audio Plug-Ins are based on the Microsoft's DirectX specification. Any developer can write plug-ins for DART CD-Recorder using the DirectX Software Development Kit (SDK) available from Microsoft - for more information see: <http://www.microsoft.com/directx>.



How to copy existing audio CDs

DART CD-Recorder Basic allows you to make copies of existing audio CDs or CD+Text CDs, provided your PC is equipped with a supported CD-R or CD-RW drive.

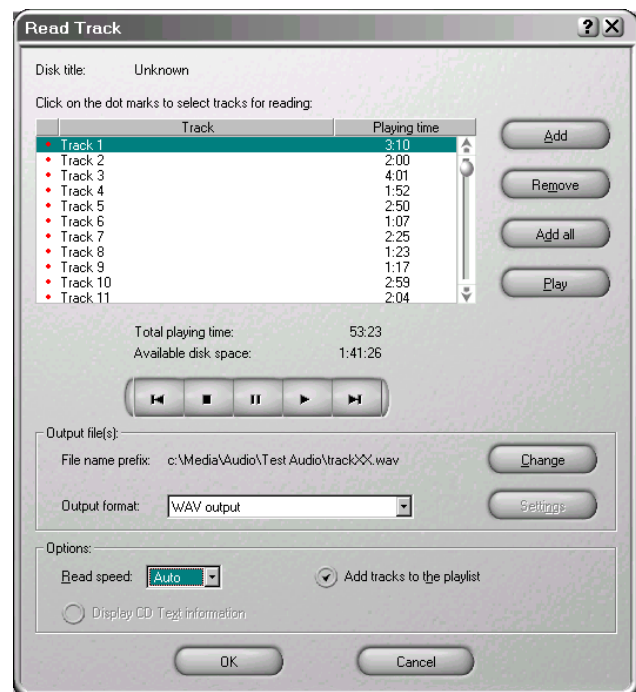
Before you begin the process of reading and writing audio CDs, it is recommended that you assign which CD drive installed in your PC will perform either reading and/or writing duties in the CD-Recorder Basic utility.

- Click on the **View / Options / Devices** menu.
- Assign the **Default CD-Recorder** device from the available pull-down menu. This will be the CD drive that will be used to write (“burn”) your new audio CDs.
- Assign the **Default CD-Reader** device from the available pull-down menu. This will be the CD drive that will be used to read (“rip”) audio CD tracks to the hard drive.
- Assign the **CD-Reader drive letter**, which must be the drive letter of the currently selected **Default CD-Reader** device (above).

Step 1 - Using the Read Track tool

1. Insert your source audio CD into the assigned **Default CD-Reader** drive. If any other software audio CD player program (“Windows Media Player”, “WinAmp”, “Real Player”, etc.) starts automatically when you do this, close it prior to moving to step 2.

2. In the far-left section of the CD-Recorder Basic window, select a hard disk drive and directory (folder) where you want the WAVE files to be stored on your system (Example: “C:\My Music”). Do not select the CD drive where the audio CD is currently located. It makes no difference to our software which hard disk drive and/or folder that you use to store your WAVE files. What matters is that YOU know where you are putting them (so that they can be found later, if needed).



Note: We **MUST** copy the audio data to the hard drive first (and, in fact, it is FAR safer to do this anyway). It is **NOT** possible to create a “direct” CD-to-CD copy with our software, nor is it recommended using any companies’ software, due to the likelihood of error and/or failure.

How to copy existing audio CDs (cont.)

Step 1 - Using the Read Track tool (cont.)

3. Once your destination folder is selected, click on the **Read Track** button on the Toolbar. You should see a message window stating that we are reading the CD's track list. If you are asked to look up the CD on the Internet, using the CDDDB service, just hit "No" for now. If you have an Internet connection, you may very well want to use this service down the line, since we can use it to automatically fill in **Disk title** and **track title** information for the CD (if its found in the CDDDB database).

4. Select **Add All**, since you are making a full, exact copy of the entire CD. It is also recommended that you select the **Add tracks to playlist** option, if it is not enabled already.

5. Select the desired **Read speed** from the pull-down menu provided. You can select any speed supported by your burner for reading audio CD data. However, we recommend (to get the best quality results) that you always read at slower speeds (1x, 2x, etc.).

6. After that, click on **OK** at the bottom of the screen. Click **OK** on the copyright notice screen (but read it **and** understand it, first.) You should see a progress indication, showing that the CD drive is reading data to the hard drive, one track at a time.

By reading tracks in this manner, you'll be creating files on your hard drive called ".WAV" files. Those files contain the audio. The audio data will be read and stored to the drive and folder you selected earlier.

After your tracks are read to the hard drive, you should see the track (WAV) listings on the far right (the Playlist), such as "track1.wav", "track2.wav", and so on, if you used the **Add tracks to playlist** option mentioned earlier. Take the audio CD out of the assigned CD-Reader drive.

How to copy existing audio CDs (cont.)

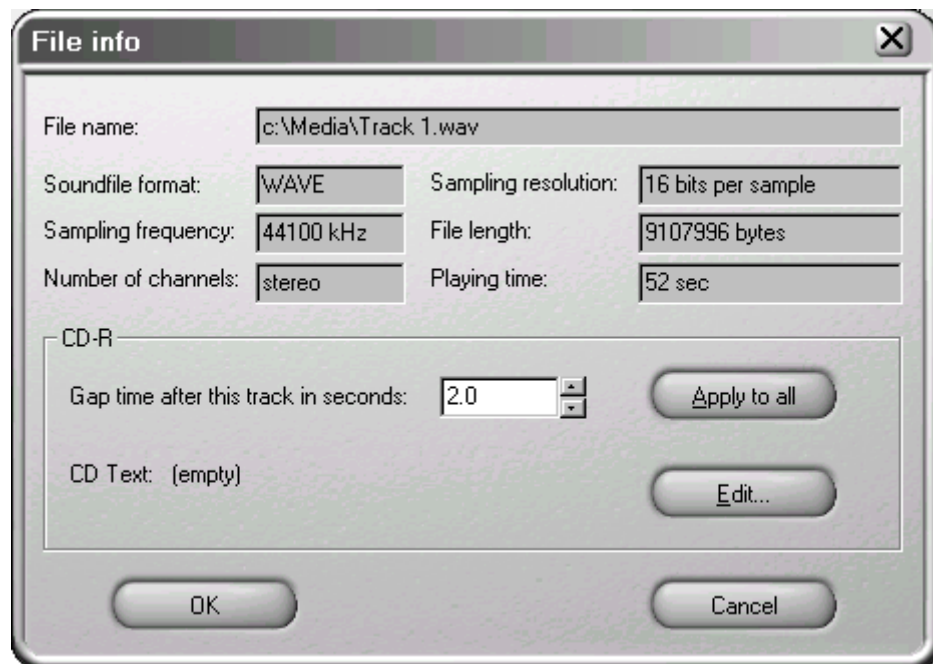
Adjusting silence gaps between audio tracks (if desired)

DART CD-Recorder Basic allows you to individually adjust silence gaps between consecutive CD tracks. To do this, follow the steps below:

1. Right-click a playlist item and select the **Info** command (or double-click the item) to launch the **File info** dialog.
2. Modify the value displayed in the edit box entitled "Gap time after this track in seconds" (anything between 0 and 30 seconds).
3. If you want this time to be identical for all tracks, click the **Apply to all** button.
4. Click **OK**.

Each silence gap is added the end of the file you selected earlier. So, if you have a playlist with 2 tracks and you add silence to the first playlist item, the silence gap will be added to the end of the first file, not the beginning of the second. Remember, if you change position of an audio file within the playlist, the corresponding silence gap will move along with the file.

To help you adjust spacing between subsequent tracks the actual size of silence gaps is retained when a particular item or all items on the playlist are played back.



How to copy existing audio CDs (cont. 2)

Step 2 - Writing your files to a new, blank CD

When you are ready to record your CD, make sure you have a new, unformatted CD-R or CD-RW blank CD ready and insert it into your assigned **Default CD-Recorder** drive (from step 1).

Note: We recommend using only CD-R media, due to a greater compatibility with consumer audio CD players. You will only want to use CD-RW media when burning CDs that you know will be played on CD-RW compatible audio CD players.

Note: If you don't have any files or items in the area on the right, the **Playlist**, you'll need to add them from the middle **File** panel (the middle section of our program window). If, after using the **Read Track** tool, you do not see playlist items on the far right (for example: "track1.wav", "track2.wav", etc.), you'll want to follow the directions below, in "Creating a playlist from files on your hard drive", then return to the next item.

Click the **WRITE TO AUDIO CD** button on the toolbar or select the **Write to audio CD** command from the **List** menu.

If any of the files in the playlist require conversion to the CD format (16 bit, 44kHz, stereo), a **Check CD Format** dialog appears on the screen. Prior to recording, DART CD-Recorder Basic checks all items on the playlist and runs a CD format conversion procedure if necessary. The results of soundfile conversion are saved in temporary files - the **Check CD format** dialog allows you to estimate the amount of disc space needed to perform such conversion and to select the temporary directory.

If any file conversion is necessary, it is performed on the selected playlist items. When conversion is finished, the **Write** dialog appears on the screen.



How to copy existing audio CDs (cont. 3)

Step 2 (cont.) - Writing your files to a new, blank CD

The settings in this window allow you to control:

- The device used for CD recording (which is useful if your system is equipped with more than one CD-R or CD-RW drive).
- The speed at which your CD will be written (“burned”). Note that the list of speeds provided are given to us by your CD-R or CD-RW drive as supported speeds for audio CD creation.

To enable any of the following other three options (below), click on the associated checkbox in the **Write** window.

- The **Simulate disc creation** option, which will check whether your system is capable of recording with a given speed (all actions will be identical with those taken during actual recording, except that no data will be written to a CD). If you use this option, you’ll have to perform the write process again, removing this option, to complete your audio CD.
- The **Write CD Text information** option, which will write any available CD+Text information, for files in your playlist, to your new audio CD. If you didn’t “read” this information from an existing audio CD, you may have to add it to our playlist by hand. To get more information on this feature of our software, read the “Using CD Text” section of our Help files (available by hitting F1 in the main program window).
- The **Enable BURN-Proof** option, available only when using Plextor or Plextor-based CD burner drives, To enable this “buffer underrun” protection feature on Plextor drives.

To start recording your CD, press the **Write** button.

How to burn audio CDs from finished WAV, MP3 or WMA files

DART CD-Recorder Basic offers you the ability to create and record (“burn”) your own audio CD or CD Text CDs, provided your PC is equipped with a supported CD-R or CD-RW drive.

Step 1 - Creating a playlist from files on your hard drive

Prior to recording, you must specify to be written to the CD, as well as their order. Creating a “playlist” of soundfiles can do this. Make sure that you select **Soundfiles**, in the lower left pull-down menu of our program’s window, so that we will display all “.wav”, “.mp3” or “.wma” files available in the selected folder (on the far left).

- To add files to the playlist, “drag” one or more from the **File Panel** to the **Playlist Panel** (“drag” means: hold down your left mouse button, when selecting a file, and then move your mouse).
- To select more than one file in the **File Panel**, hold down the CTRL key while clicking.
- To select a group of files, select the first file of the group, hold down the SHIFT key and select the last file.
- To add all files to the playlist, from a particular folder, click the **Add all** button below the **File Panel**.

DART CD-Recorder Basic creates CDs in a standard audio format, which can be read by every CD player. For this reason the playlist items must obey several standard restrictions:

1. The playlist must consist of at least one but not more than 99 soundfiles.
2. Each soundfile has to be at least 4 seconds long.
3. Soundfiles must be audio CD-format compatible.

Since DART CD-Recorder Basic provides automatic audio file conversion you do not have to worry about the last requirement.

Adjusting silence gaps between audio tracks (if desired)

DART CD-Recorder Basic allows you to individually adjust silence gaps between consecutive CD tracks. To do this, follow the steps below:

1. Right-click a playlist item and select the **Info** command (or double-click the item) to launch the **File info** dialog.
2. Modify the value displayed in the edit box entitled "Gap time after this track in seconds" (anything between 0 and 30 seconds).
3. If you want this time to be identical for all tracks, click the **Apply to all** button.
4. Click **OK**.

How to burn audio CDs from finished WAV, MP3 or WMA files (cont.)

Each silence gap is added the end of the file you selected earlier. So, if you have a playlist with 2 tracks and you add silence to the first playlist item, the silence gap will be added to the end of the first file, not the beginning of the second. Remember, if you change position of an audio file within the playlist, the corresponding silence gap will move along with the file.

To help you adjust spacing between subsequent tracks the actual size of silence gaps is retained when a particular item or all items on the playlist are played back.

Step 2 - Writing your files to a new, blank CD

When you are ready to record your CD, make sure you have a new, unformatted CD-R or CD-RW blank CD ready and insert it into your assigned **Default CD-Recorder** drive (from step 1).

Note: We recommend using only CD-R media, due to a greater compatibility with consumer audio CD players. You will only want to use CD-RW media when burning CDs that you know will be played on CD-RW compatible audio CD players.

Note: If you don't have any files or items in the area on the right, the **Playlist**, you'll need to add them from the middle **File** panel (the middle section of our program window). If, after using the **Read Track** tool, you do not see playlist items on the far right (for example: "track1.wav", "track2.wav", etc.), you'll want to follow the directions above, in "Creating a playlist from files on your hard drive", then return to the next item.

Click the **WRITE TO AUDIO CD** button on the toolbar or select the **Write to audio CD** command from the **List** menu.

If any of the files in the playlist require conversion to the CD format (16 bit, 44kHz, stereo), a **Check CD Format** dialog appears on the screen. Prior to recording, DART CD-Recorder Basic checks all items on the playlist and runs a CD format conversion procedure if necessary. The results of soundfile conversion are saved in temporary files - the **Check CD format** dialog allows you to estimate the amount of disc space needed to perform such conversion and to select the temporary directory.

If any file conversion is necessary, it is performed on the selected playlist items. When conversion is finished, the **Write** dialog appears on the screen.

How to burn audio CDs from finished WAV, MP3 or WMA files (cont.)

Step 2 (cont.) - Writing your files to a new, blank CD

The settings in this window allow you to control:

- The **CDR Device** used for CD recording (which is useful if your system is equipped with more than one CD-R or CD-RW drive).
- The **Recording speed** at which your CD will be written (“burned”). Note that the list of speeds provided are given to us by your CD-R or CD-RW drive as supported speeds for audio CD creation.

To enable any of the following other three options (below), click on the associated checkbox in the **Write to Audio CD** window.

- The **Simulate disc creation** option, which will check whether your system is capable of recording with a given speed (all actions will be identical with those taken during actual recording, except that no data will be written to a CD). If you use this option, you’ll have to perform the write process again, removing this option, to complete your audio CD.
- The **Write CD Text information** option, which will write any available CD+Text information, for files in your playlist, to your new audio CD. If you didn’t “read” this information from an existing audio CD, you may have to add it to our playlist by hand. To get more information on this feature of our software, read the “Using CD Text” section of our Help files (available by hitting F1 in the main program window).
- The **Enable BURN-Proof** option, available only when using Plextor or Plextor-based CD burner drives, To enable this “buffer underrun” protection feature on Plextor drives.

To start recording your CD, press the **Write** button.

How to burn data CD-ROMs from finished WAV, MP3 or WMA files

In addition to burning audio CDs, DART CD-Recorder Basic allows you to create ‘ordinary’ (Joliet-compatible) data CD-ROMs, in which audio files are saved ‘as are’; i.e. they are not converted to digital audio CD tracks. You can use this option to burn MP3/WMA-ROM CDs, i.e. create collections of MP3/WMA audio files that can be played back using the increasingly popular MPEG(MP3)/WMA players.

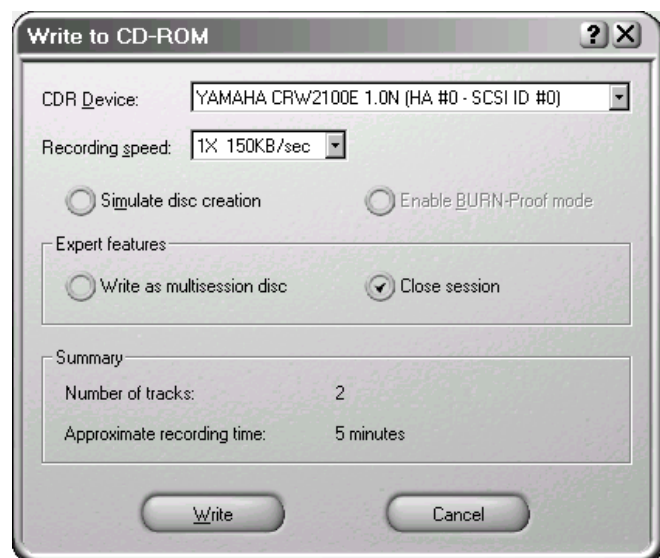
1. Create a playlist of your files. This is explained in step 1 (“Creating a playlist from files on your hard drive”) of the previous section, “How to burn audio CDs...”.

2. Click on the **List** menu and select **Write to CD-ROM**.

3. Choose among the available recording options. The settings in this window allow you to control:

- The **CDR Device** used for CD recording (which is useful if your system is equipped with more than one CD-R or CD-RW drive).
- The **Recording speed** at which your CD will be written (“burned”). Note that the list of speeds provided are given to us by your CD-R or CD-RW drive as supported speeds for audio CD creation.

To enable any of the following other three options (below), click on the associated checkbox in the **Write to CDROM** window.



The **Simulate disc creation** option, which will check whether your system is capable of recording with a given speed (all actions will be identical with those taken during actual recording, except that no data will be written to a CD). If you use this option, you’ll have to perform the write process again, removing this option, to complete your audio CD.

The **Write as multisession disc** option allows you to create “multisession” CDs, which can have data added to them in the future. Do not choose the option below, if you wish to add more data later to the CD that we’ll be burning.

The **Close session** option will “fix” the contents of a CD, such that no more data can **ever** be added.

4. Click the **Write** button to start recording.

Troubleshooting and solving problems

The problems and solutions (below) are the most common that we see with our software. Most of the “issues” you are likely to encounter with our software can be solved with the information below. If your specific problem isn’t mentioned in this list, it’s recommended that you visit the “Support” section of our website and/or contact our Technical Support.

Note: It is also quite likely that another user has encountered the problem you may be having with the software. On our **DART Forums**, available via our website, you may find the exact problem and a solution listed.

Problem:

“When I attempt to start the software, I see a message window stating ‘Protection check failed’. How do I get into the program?”

Solution:

The software uses software protection checking to ensure proper ownership of the software. At times, the software will require that the DART CD-ROM be inserted in a CD-ROM (or CD-R) drive so that ownership verification can be performed. Most of the time the operation will not be noticeable because of the use of other data on the CD-ROM. The validation operates whenever “fresh” installs and updates occur or if a fundamental aspect of your PC hardware setup is altered. If the panel “Protection Check Failed” appears, insert the DART program CD-ROM and follow the instructions to complete the validation check. This generally means inserting the CD into a particular CD drive (noting its drive letter) and then selecting this drive letter from the list provided when launching the software. After you’ve selected the correct CD drive letter and hit “OK”, our software should start.

Problem:

“When I attempt to use either the **Read Track** tool or **Write to Audio CD**, I get some kind of message about ‘ASPI’ not being installed. What is this?”

Solution:

You may not have a current ASPI layer of drivers installed. We require an up to date install of ASPI drivers to handle our communication with the CD burner drive.

There are two primary options for obtaining ASPI drivers for our software, below, in the order we recommend.

1) ASPI from GoldenHawk

Go to the following URL: http://www.goldenhawk.com/download_body.htm

Click on the link labeled:

"Golden Hawk ASPI drivers for Windows 95 / 98 / Me / NT / 2000 / XP"

Save this file to your system somewhere (such as your "Desktop") and then run the install program. It will install the GoldenHawk ASPI drivers for Windows.

You may not have a current ASPI layer of drivers installed.

2) ASPI from Adaptec's website

If you're using any software from Adaptec/Roxio (namely, Easy CD Creator or DirectCD), they probably installed it, but it ****may**** need to be updated to version 4.71 (especially for newer Windows versions, i.e. XP/2000).

The needed ASPI layer that can be installed by a program called "aspi_v471.exe" (note: this file's name/version may change).

The following directions should lead you to the file you need on Adaptec's website.

- Go to Adaptec's Home Page (<http://www.adaptec.com>).
- Click on link to "Support" page.
- Click on "Downloads".
- Click on "Microsoft Windows XP" (irregardless of your **actual** version of Windows) Scroll down to (then click on) the link dated "28 May 2002", which will be "ASPI Driver for Windows version 4.71".
- Click on the "Download" link (with the 3 floppy disks on it) Choose "Yes" at the bottom of the page. Then, select the "I agree & answer truthfully" button and you'll be taken to the download site.
- Click on the link "Download from HTTP server" to start your download. It's recommended that you select to "Save" the file to your hard drive, specifically to the "Desktop" (which will make it easier to find).

Problem:

"When I attempt to burn an audio CD, the software crashes either at the beginning or during the **Write to Audio CD** process. What's happening?"

Solution:

Most errors encountered, when using **Write to Audio CD** are caused when:

1. The **Default CD-Recorder** and/or **Default CD-Reader** settings are not correctly assigned.

In CD-Recorder Basic, these options are located in the **View / Options / Devices** menu.

If the CD-Reader drive doesn't match what the CD-Reader drive LETTER, the program can get confused. For example,

CD-Recorder: whatever you have (drive E)

CD-Reader: whatever you have (drive F)

CD-Reader drive letter: E - This is the line that causes the problem. This **MUST** be set correctly and matching your CD-ROM or you may see this issue.

2. Another program may be running in the background that is preventing us from communicating with the CD-R.

Use "Ctrl+Alt+Del" and select "End Task" for each listed item, except for "Explorer" and "Systray" (if you don't have "Systray" listed, don't worry about it).

Also, if you have Adaptec's DirectCD installed, I would recommend closing it down, as it has caused various problems for many of our users. You should be able to close by using the "Ctrl+Alt+Del" process described above, and selecting "DirectCD".

3. Make sure that you disable "Auto Insert Notification" in the "Settings" window for your burner. To do this:

Go to Control Panels / System / Device Manager / CD-ROM / select your CD burner model / Properties / Settings

Uncheck "Auto Insert Notification" box and restart the computer. This will prevent Windows from "peeking" at a blank when you insert it into the CD burner drive.

4. When doing "on the fly" conversion from MP3 files to CD, we do NOT recommend that you burn at speeds faster than 4x. The reason for this is that the system has to be able to keep up with how quickly the burner needs data and some systems can't complete the conversion fast enough. This causes buffer underrun conditions, which is what might yield the message you're seeing.

5. Try burning at a slower speed. If you're getting a buffer "underrun" (which is likely the case, for burn speed related problems), then slowing down the burn to a safer speed is a good first bet. We don't actually recommend that users **EVER** write faster than 2x, even if the burner will do it.

Problem:

I think that the program has become corrupt or I simply want to remove and reinstall. What's the best way to do this?"

Solution:

To remove/reinstall DART XP:

- Go to the Windows Control Panels and select Add/Remove Programs.
- Select DART XP and hit "Add/Remove" or the similar control.
- After that's finished, go to "My Computer" / "C" / "Program Files" and delete the entire "DART XP" folder (not just its contents), making sure to move out any audio files that might be stored in that folder first. If you don't see the folder, skip this step.
- Find and delete "cdrec.ini", "tour.ini", "cdrec4.ini", "tour4.ini" and/or "machnm1.exe" (note: you MAY not find some or all of these files).
- Reboot the system and reinstall the software from the CD-ROM or latest available download version. **Note:** If installing from the CD-ROM, you'll also likely want to download and install any available updates from our website (in "Support", "Software Updates").

Problem:

"When I attempt to record audio, I'm not seeing the volume (VU) meters showing any signal. How do I solve this?"

Solution:

This is the single most common PC audio problem that we (and users) encounter. The input settings for the PC's soundcard need to be changed, in software, such that the soundcard looks at a different "channel" for the signal it's going to be recording. Basically, this means that the soundcard is set to record from the "Mic In", for example, but a user has the cable connected to the "Line In". Making a quick change in the soundcard setup will resolve this.

In DART XP, you can quickly access the proper window by using the **Open Panel** control, located in the **Record** window. Once you've done this, move down to step 2, below, and follow the process from there to make the proper changes.

You can access the Windows input volume control by doing the following (in most cases):

1. Double-left-click on the speaker icon which may be located in your task bar. This should take you to a window labeled "Volume Control", which will consist of between one and a whole bunch of music/audio "channels". However, these channels are for output control ONLY. NONE of them will have any impact on input.

2. Click on the **Options** menu, then selecting **Properties** to access the input section for your soundcard. You should then see a section labeled **Adjust volume for** with 3 choices. You need to select **Recording** and then make sure that both the **Microphone** and **Line** (or **Line In**) checkboxes below are checked. After doing this, click **OK**.

3. You will now notice that the mixer is different, and may show a different number of “channels” than it did before you selected **Recording**. This is because this is the mixer section that is dedicated to adjusting input levels for your soundcard. Simply check the **Select** box for the proper input being used or desired (Mic, Line, etc.), and turn the volume up and down to set your input levels. If you’ll be recording from the **Line** or **Line In** input, it is recommended that you set this level at its maximum level and leave it there (which lets your soundcard record with the best possible “specs” that it can provide).

After doing this, you should see our software has levels running in the record window. You'll also likely be able to hear the input passing to the output/speakers.

If this isn't the case, please also make sure that you have the correct **Play** and/or **Record** device(s) selected in each of our software utilities. Some users that attempt to record from a “Line In” have actually had their voice modem's audio port assigned as their input/output, which of course isn't going to work very well. Below, you’ll find the menus to use, in each utility, to assign the soundcard input/output devices we’ll use for recording audio.

DART XP:

Options / Hardware

CD-Recorder Basic:

View / Options / Soundcard

Problem:

“When I attempt to convert MIDI files to WAV files, I’m not seeing the volume (VU) meters showing any signal. How do I solve this?”

Solution:

This is the single most common PC audio problem that we (and users) encounter. The input settings for the PC’s soundcard need to be changed, in software, such that the soundcard looks at a different “channel” for the signal it’s going to be recording. Basically, this means that the soundcard is set to record from the “Mic In”, for example, but a user has the cable connected to the “Line In”. Making a quick change in the soundcard setup will resolve this.

In DART XP, you can quickly access the proper window by using the **Open Panel** control, located in the **Record** window. Once you’ve done this, move down to step 2, below, and follow the process from there to make the proper changes.

You can access the Windows input volume control by doing the following (in most cases):

1. Double-left-click on the speaker icon which may be located in your task bar. This should take you to a window labeled "Volume Control", which will consist of between one and a whole bunch of music/audio "channels". However, these channels are for output control **ONLY**. **NONE** of them will have any impact on input.
2. Click on the **Options** menu, then selecting **Properties** to access the input section for your soundcard. You should then see a section labeled **Adjust volume for** with 3 choices. You need to select **Recording** and then make sure that both the **Microphone** and **Line** (or **Line In**) checkboxes below are checked. After doing this, click **OK**.
3. You will now notice that the mixer is different, and may show a different number of "channels" than it did before you selected **Recording**. This is because this is the mixer section that is dedicated to adjusting input levels for your soundcard. Simply check the **Select** box for the proper input being used or desired (Mic, Line, etc.), and turn the volume up and down to set your input levels. In the case of MIDI conversion, you'll be looking for something close to "Stereo Out", "Stereo Mix", "Mix Out", etc. Simply "select" this channel and set its volume slider all the way up. It may take a couple of tries before you find the correct item to adjust the MIDI input level, but this window is where you need to do it.

After doing this, you should see our software has levels running in the record window. You'll also likely be able to hear the input passing to the output/speakers.

If this isn't the case, please also make sure that you have the correct **Play** and/or **Record** device(s) selected in each of our software utilities. Some users that attempt to record from a "Line In" have actually had their voice modem's audio port assigned as their input/output, which of course isn't going to work very well. Below, you'll find the menus to use, in each utility, to assign the soundcard input/output devices we'll use for recording audio.

DART XP:

Options / Hardware

CD-Recorder Basic:

View / Options / Soundcard

End-User License Agreement for DART[®] Software

IMPORTANT-READ CAREFULLY!

BY OPENING THE SEALED PACKET(S) OR MAKING & USING COPIES OF THE SOFTWARE YOU AGREE TO BE BOUND BY THE TERMS OF THIS DARTECH END USER LICENSE AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THE LICENSE AGREEMENT, RETURN THIS PACKAGE PROMPTLY.

This software is owned by DARTECH or its suppliers and is protected under copyright laws and international copyright treaties as well as other intellectual laws and treaties. The software is licensed not sold.

1. Definitions.

- a) "DARTECH" means the name of the company that manufactures the DART Products. The company name is DARTECH, Inc.
- b) "DART[®] Software" means the software programs included in the enclosed package, and all related updates supplied by DARTECH. DART software includes, DART PRO 98[™], DART CD-Recorder[™], DART DeClick[™], and other DART products sold by DARTECH, Inc.
- c) "DART Product" means the DART Software and the related documentation and models and multimedia content (such as animation, sound and graphics), and all related updates supplied by DARTECH.

2. License. This agreement allows you to:

- a) Use the DARTECH Software on a single computer.
- b) Make up to three (3) copies of the DART Software in machine-readable form solely for backup purposes. You must reproduce on any such copy all copyright notices and any other proprietary legends on the original copy of the DART Software.

3. Restrictions.

You may not make or distribute copies of the DART Product, or electronically transfer the DART Software from one computer to another or over a network. You may not decompile, reverse engineer, disassemble, or otherwise reduce the DART Software to a human-perceivable form, except to the limited extent expressly permitted by applicable law. You may not modify, rent, resell for profit, distribute or create derivative works based upon the DART Software or any part thereof. You will not export or reexport, directly or indirectly, the DART product into any country prohibited by the United States Export Administration Act and the regulations thereunder.

4. Ownership.

The foregoing license gives you limited rights to use the DART Software. Although you own the media on which the DART Software is recorded, you do not become the owner of, and DARTECH retains title to the DART Product, and all copies thereof. All rights not specifically granted in this Agreement, including Federal and International Copyrights, are reserved by DARTECH.

5. Limited Warranties.

DARTECH warrants that, for a period of ninety (90) days from the date of delivery (as evidenced by a copy of your receipt): (a) when used with a recommended hardware configuration, the DART Software will perform in substantial conformance with the documentation supplied as part of the DART Product; and (b) the media on which the DART Software is furnished will be free from defects in materials and workmanship under normal use. EXCEPT AS SET FORTH IN THE FOREGOING LIMITED WARRANTY, DARTECH DISCLAIMS ALL OTHER WARRANTIES OR CONDITIONS, EITHER EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IF APPLICABLE LAW IMPLIES ANY WARRANTIES OR CONDITIONS WITH RESPECT TO THE DART PRODUCT, ALL SUCH WARRANTIES OR CONDITIONS ARE LIMITED IN DURATION TO NINETY (90) DAYS FROM THE DATE OF DELIVERY. No oral or written information or advice given by DARTECH, its dealers, distributors, agents or employees shall create a warranty or in any way increase the scope of this warranty.

6. Exclusive Remedy.

Your exclusive remedy under Section 5 is to return the DART Software to the place you acquired it, with a copy of your receipt and a description of the problem. DARTECH will use reasonable commercial efforts to supply you with a replacement copy of the DART Software that substantially conforms to the documentation, provide a replacement for the defective media, or refund to you your purchase price for the DART Software, at its option. DARTECH shall have no responsibility with respect to DART Software that has been altered in any way, if the media has been damaged by accident, abuse or misapplication, or if the nonconformance arises out of use of the DART Software in conjunction with software not supplied by DARTECH.

7. Limitations of Damages.

- a) DARTECH SHALL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF BUSINESS, LOSS OF PROFITS, OR THE LIKE), WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY OR OTHERWISE, EVEN IF DARTECH OR ITS REPRESENTATIVES HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND EVEN IF A REMEDY SET FORTH HEREIN IS FOUND TO HAVE FAILED OF ITS ESSENTIAL PURPOSE.

8.

This Agreement shall be governed by the internal laws of the State of Minnesota, USA. This Agreement contains the complete agreement between the parties with respect to the subject matter hereof, and supersedes all prior or contemporaneous agreements or understandings, whether oral or written. All questions concerning this Agreement shall be directed to: DARTECH, Inc, 7400 Metro Boulevard, Suite 350, Edina, MN 55439-2323, Attention: Chief Financial Officer.

DART, Digital Audio Restoration Technologies, is a registered trademark of DARTECH, Inc., another subsidiary of ZH Computer, Inc. **DART XP**, **DART CD-Recorder**, **DART DeClick**, and the **DART** logos are trademarks of DARTECH, Inc. Other names may be trademarks or registered trademarks of their respective companies.