



**Zulu2**  
for  
**Microboards Disc Publishers**  
*For Microsoft Windows®*

**Users Manual**



## TABLE OF CONTENTS

<b>MICROBOARDS DISC PUBLISHERS AND ZULU2.....</b>	<b>5</b>
GX-2 DISC PUBLISHER .....	5
CX-1 DISC PUBLISHER .....	5
MX SERIES DISC PUBLISHERS .....	5
<b>MICROSOFT VISTA AND ZULU2 TEMPORARY FILES .....</b>	<b>5</b>
<b>HOW TO USE ZULU2.....</b>	<b>6</b>
INSTALLING AND LAUNCHING .....	6
UNINSTALLING .....	6
ROBOTICS .....	7
WIZARD .....	7
<b>QUICK START.....</b>	<b>7</b>
COPY A DISC WITH THE MICROBOARDS DISC PUBLISHER .....	7
STREAM DUPLICATION .....	8
RIP AN AUDIO CD TO WMA FILES.....	9
RECORD AN AUDIO COMPILATION .....	10
RECORD DATA TO CD OR DVD.....	11
RECORD A DVD MOVIE (VIDEO_TS) .....	11
EXTRACT AND RECORD A DISCIMAGE .....	12
ERASE AN RW DISC.....	14
DISC CONTENT .....	14
<b>MAIN WINDOW .....</b>	<b>15</b>
MAIN WINDOW LAYOUT .....	15
<i>Drive List</i> .....	15
<i>Action List</i> .....	15
<i>Action Launch Pad</i> .....	16
MAIN WINDOW MENU.....	16
<i>Action Menu</i> .....	16
<i>Drive Menu</i> .....	16
<i>Robotic Menu</i> .....	17
<i>View Menu</i> .....	18
<i>Tools Menu</i> .....	18
<i>Advanced Menu</i> .....	19
<i>Window Menu</i> .....	19
<i>Help Menu</i> .....	19
TASKBAR ICON .....	19
<i>Taskbar Menu</i> .....	19
<b>RECORDING ACTIONS.....</b>	<b>20</b>
ACTION LAYOUT .....	20
ACTION COMMON SECTION.....	20
<b>EXTRACTION &amp; TOOLS.....</b>	<b>22</b>
RIP AUDIO .....	22
<i>File Naming</i> .....	22
<i>Digital Audio Format</i> .....	22
<i>File Menu</i> .....	23
<i>Edit Menu</i> .....	23
<i>Drive Menu</i> .....	23
<i>Track Menu</i> .....	23
<i>View</i> .....	24
EXTRACT DISCIMAGE.....	24
<i>Options</i> .....	24
MANAGE DISCIMAGE .....	24
COMPARE FILES .....	25
<b>OPTIONS .....</b>	<b>25</b>
GENERAL .....	25
VIEW .....	26
TEMPORARY FILES .....	26
ADVANCED .....	26
<b>ADDITIONAL NOTES AND TIPS .....</b>	<b>27</b>
RECORDING SPEED .....	27
THE DISCIMAGE FORMAT.....	28
DVD RECORDING MODE .....	29
SHORTCUT KEYS .....	29
LISTVIEW TIP .....	29



# Microboards Disc Publishers and Zulu2

Microboards Disc Publishers all use Zulu2 as the application that controls the robotics during Burn-and-Print operation. Each model may have variations in the input/output capacity, number of drives available, Print-Only Mode process, and functions in the Zulu2 **Robotics** and **Utilities** menus.

---

## GX-2 Disc Publisher

Input/Output Capacity: 50 discs

Number of Drives: 1

Print-Only Mode: Uses Zulu2 to print SureThing labels

The GX-2 Disc Publisher is designed for office desktop use and is the perfect solution for businesses and organizations requiring short runs of discs.



---

## CX-1 Disc Publisher

Input/Output Capacity: 100 discs

Number of Drives: 1

Print-Only Mode: Prints directly out of SureThing or other applications

For all-in-one publishing, the CX-1 Disc Publisher gives you all of the features and benefits of the PF-3 Print Factory® with an added high-speed DVD/CD recorder and a complete software suite. The industrial CX-1 will burn virtually any DVD or CD format, including Dual Layer. Churches, schools, small office/home office, sales and marketing departments, videographers, and recording studios will benefit from its innovative design.



---

## MX Series Disc Publishers

Input/Output Capacity: 100 discs

Number of Drives: MX-1: 1 recorder drive  
MX-2: 2 recorder drives

Print-Only Mode: Prints directly out of SureThing or other applications

The MX-1 and MX-2 Disc Publishers are ideal for organizations that need to produce anywhere from one to thousands of discs! Designed for industrial environments, the MX comes with either 1 (MX-1) or 2 (MX-2) high-speed DVD/CD recorders and the industry's fastest, lowest cost-per-disc inkjet printer, all integrated into a robust publishing solution.



# Microsoft Vista and Zulu2 Temporary Files

Microsoft Vista includes a security feature called the User Account Control (UAC), which is by default on. Because of this security feature, the location of any temporary files must be specified or Vista will not allow the files to be stored. This applies to Stream mode and Disc-to-Disc Copy. Please see page 26 for information regarding temporary file placement.

***Only those products specified by Microboards Technology as being Vista supported will operate under Vista. Please see the System Requirements for your product.***

# How to use Zulu2

## Installing and Launching

Zulu2 is installed as part of the initial setup of the Microboards Disc Publisher. Please refer to the Software Installation section for details.

Zulu2 is small and, apart from the device driver, does not “share” any system components as it links directly to the main Windows support libraries. Therefore, it is extremely stable, is not subject to interference from other processes, and more importantly, Zulu2 does not interfere with anybody else.

Because of its small footprint on the system, Zulu2 is always installed in a specific folder under Program Files; this means that the installation will not prompt you about where to copy the application files.

### Windows Media 10 and Audio Format

The installation of the Microsoft Windows Media 10 run time support is strongly recommended, for audio encoding and decoding. With previous version of this Microsoft multimedia run time support, Zulu2 will record and extract only in the standard Wave PCM (uncompressed) format, at 44KHz, 16 bit stereo. Certain versions of the Zulu2 installation Setup can install or update Windows Media 9, should your system have an older version. Windows Media 10 is fully backward compatible and represents the latest Microsoft multimedia technology, with enhancements in compression and WMA sound quality. Windows Media 10 guarantees decoding compatibility for virtually every existing MP3 or WMA file formats, and encoding in many different WMA formats, from phone low-quality high-compression to professional quality up to 500Kbit per second.

### Launching the Application

When Zulu2 is installed, you will see it listed in the Start Menu under Programs, as it is standard within the Windows operating system. A desktop shortcut is also created.

## Uninstalling

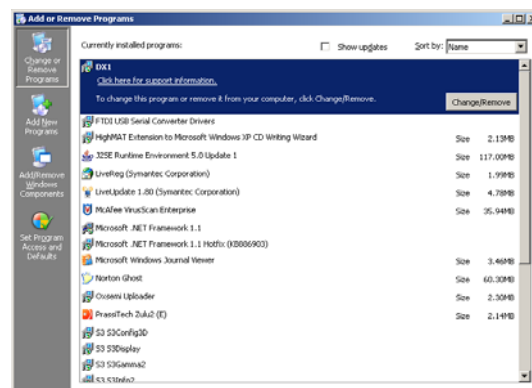
Zulu is uninstalled by uninstalling the Disc Publisher software in Add/Remove Programs in the Control Panel. The model shown in the list will depend on the model of Microboards Disc Publisher you have.

### Device Driver Removal

Zulu2 requires a device driver to better communicate with the drive. Under Windows 2000/XP the driver is named PzWDM.sys and is placed in the System32/Drivers folder; in this case, it becomes a “system service”, started at boot time.

There is the possibility that applications other than Zulu2 that use the same driver are installed on your system. If so, the driver will be shared among them. When you uninstall Zulu2, an option will appear (checked by default) to remove the driver only if the driver is not shared; you can leave it in the system, as it is totally harmless. If other applications using that driver are installed, the option to remove the driver will not appear. The driver is left on the system after decrementing the proper “user count” in the Windows Registry.

If the driver is removed, you should reboot your system to fully unload it from the memory.



## Robotics

The Robotics menu allows users to run specific functions associated with the Microboards Disc Publisher system. These functions are explained in the Main Window Menu section.

You can also use Zulu2 to manage the drives that are not inside the autoloader, like an internal CD-RW in your computer. You cannot mix normal drives and robotic drives in the same action, however.

Therefore, the module that interfaces the autoloader is in charge of all the functions of the robotic menu, plus loading, unloading and printing the discs in the robotic drive.

## Wizard

The Wizard function of the Zulu2 software is designed for single recorders installed inside a PC. It does not apply when using the Microboards Disc Publisher system.

## Quick Start

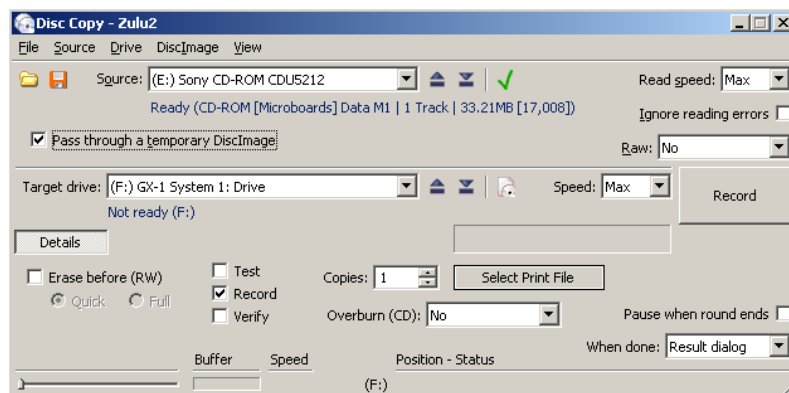
In this section you find a quick guide for using Zulu2 and how to start working with it right away, completing the most common mastering operations without using the wizard. For more information on each of these actions, please see the Main Window section of the manual.

You should not attempt to copy material that you do not have the copyright for or have the permission to copy. Please note that when you violate the copyright law, you may be subject to payment for any damages you may have caused.

## Copy a Disc with the Microboards Disc Publisher

To make a copy of a CD or a DVD using one drive to read and another to record:

- Highlight the recording drive in the Zulu2 main window and then double-click on the Disc Copy icon. The Disc Copy window (referred to as an “action”) will open.
- Select the drive inside your computer as the Source. Insert the source disc; when it is ready you will see the disc description appearing below the drive.
- Check the pass through a temporary image box to copy the data to an internal hard drive first. This is highly recommended, in order to allow the system to record at full speed.
- Recorder drives available to Zulu2 will be listed in the Drive box. The drive selected as the Disk Publisher drive in the Configuration window will be designated in the list as Disk Publisher 1 Drive.



- If you need to Test, or you want to activate the Verify, or set any other recording specific flag like erasing the destination disc before proceeding, check the appropriate box.
- Select the number of copies you wish to make.
- If you wish to print on the recorded discs, click on the Select Print File box and select a print file. This file can be a .prn file or a SureThing .std file.

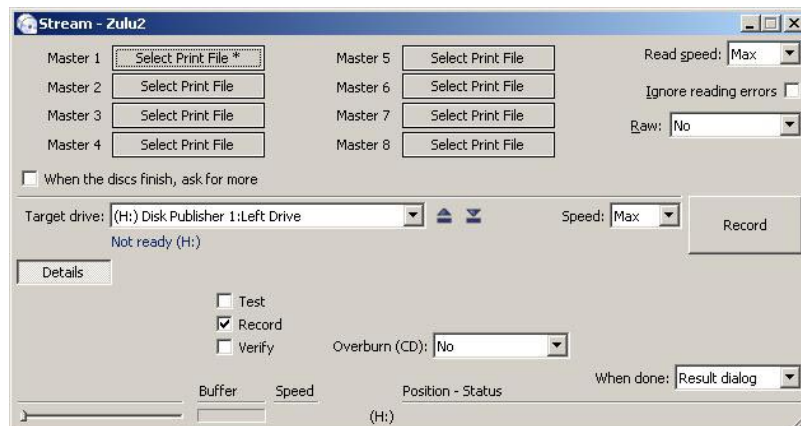
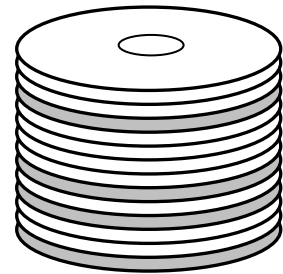
- Press the **Record** button (the caption on the button will change to reflect the Erase/Test/Record/Verify selections) to start the operation. This button remains grayed if the source disc is not ready or if there is any setting that prevents from starting.
- The discs will be loaded into the recorder(s), burned, and then printed, if a print file was selected. If no print file was selected, the discs will bypass the printing process and be moved directly into the output bin when unloaded from the recorders.

## Stream Duplication

Stream duplication allows the user to record up to 8 masters to blank media with print images specified for each master. The drive(s) in the Disc Publisher are used, with both the masters and the blanks being loaded and unloaded by the robotics.

This option is only available when a robotic Disc Publishing system is present.

- Highlight the drive(s) you want to record to in the Zulu2 main window and then double-click on the Stream icon. The Stream window (Zulu2 calls that an "action") will open, with the target drive already set.
- Load the first master into the input hopper, then load as many pieces of blank media as you need. Load the next master and blanks; up to 8 masters can be loaded. In the example shown to the right, masters are shown as grey discs and the blanks as white. The bottom disc must always be a master, the top disc must always be a blank, and there must be at least one blank disc between masters. The disc on the bottom of the stack is loaded first.
- Select the Print Image for each master. The Select Print File button will have an asterisk ("\*") for each master with a selected print file.
- Recorder drives available to Zulu2 will be listed in the Drive box. The drive selected as the Disk Publisher drive in the Configuration window will be designated in the list as Disk Publisher 1 Drive.
- If you need to Test, or you want to activate the Verify, or set any other recording specific flag like specifying that Zulu2 ask for more discs when the input is empty, check the appropriate box.
- Press the **Record** button (the caption on the button will change to reflect the Test/Record/Verify selections) to start the operation. This button remains grayed if there is any setting that prevents from starting. The discs will be loaded into the recorder(s), burned, and then printed, if a print file was selected. If no print file was selected, the discs will bypass the printing process and be moved directly into the output bin when unloaded from the recorders.



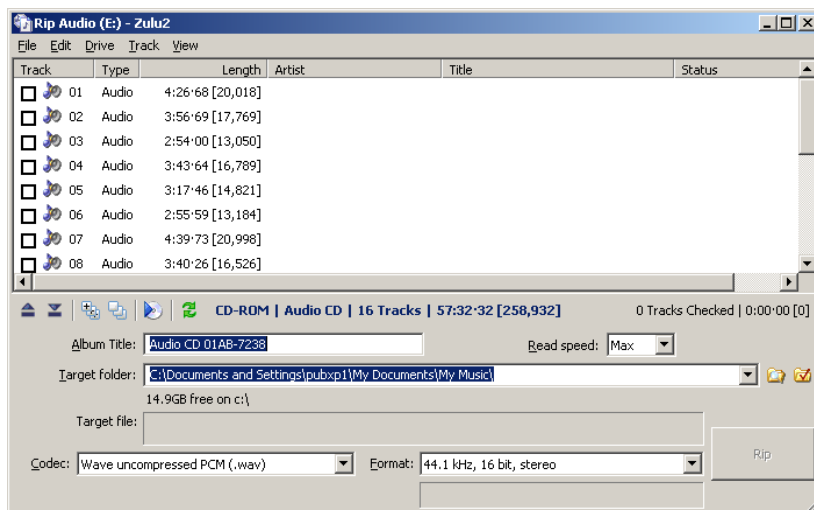


## Rip an Audio CD to WMA Files

The Rip Audio function will work with CD's placed into a drive inside your computer. The recorders inside the Disc Publisher system are not used for this function.

When you have an Audio CD from which you want to extract one or more tracks as audio files into your hard drive:

- Highlight the internal drive in your computer and double-click on the Rip Audio icon. The Rip window opens; it shows the audio tracks when an Audio CD (or a CD Extra) is inserted in the drive and is ready.
- Select the tracks by placing a check in the checkbox in front of the listed tracks you want to rip. You can play the tracks with the Track Player by double clicking the track or by selecting the menu **View > Track Player**. The track player lets you skip from one track to the other, check the track from its own small window, and move quickly within the tracks if you need to recognize a certain piece of music.
- When all the tracks to rip are selected you need to choose the target folder where the file will be created. By default this is set to the "My Music" folder.
- By default, the file names will be composed of the Album Title and each track Artist and Title. If the disc has CD Text information, these values are automatically loaded from the disc. You can edit them by highlighting a track and selecting the menu **Edit > Artist...** and **Edit > Title...** (you can also double click on the track in the appropriate column position). The Artist and Title information are also inserted in the ripped track into the appropriate fields, so you will see them displayed regardless of the filename while you are playing those files with the Media Player.
- After editing the titles, they can be saved in a text file using the menu **File > Save Artist and Title to Text File...** so you can eventually reload them later via **File > Load Artist and Title from Text File...**
- Select the menu **Edit > Filename Format** to pick among different filename composition schemes. The composition is pre-shown in the field Target File, so you can preview exactly how the filename will be created.
- Select the Codec and its Format among the choices available, which depend on which codec you have currently installed in the system.
- Click the **Rip** button to start the operation. The Status column of each track reports the progress and, when done, the size of the file.

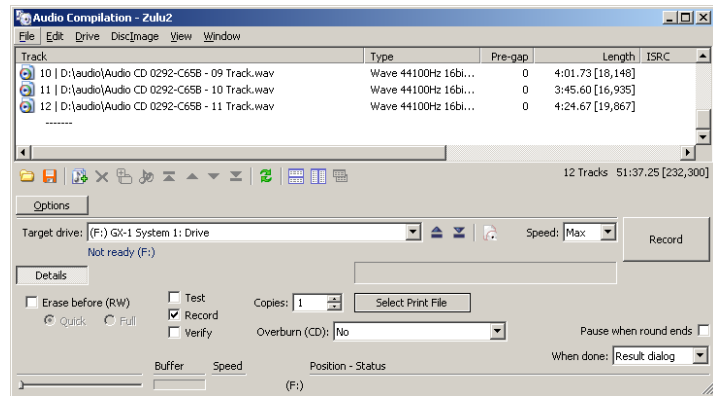


The music that you transfer from an Audio CD should not be distributed to other user if it is protected by Copyright, and most of the commercial music is indeed copyrighted material. You should use this function to create audio files from commercial music only for your private use.

# Record an Audio Compilation

To create a compatible Audio CD from MP3 or WMA files:

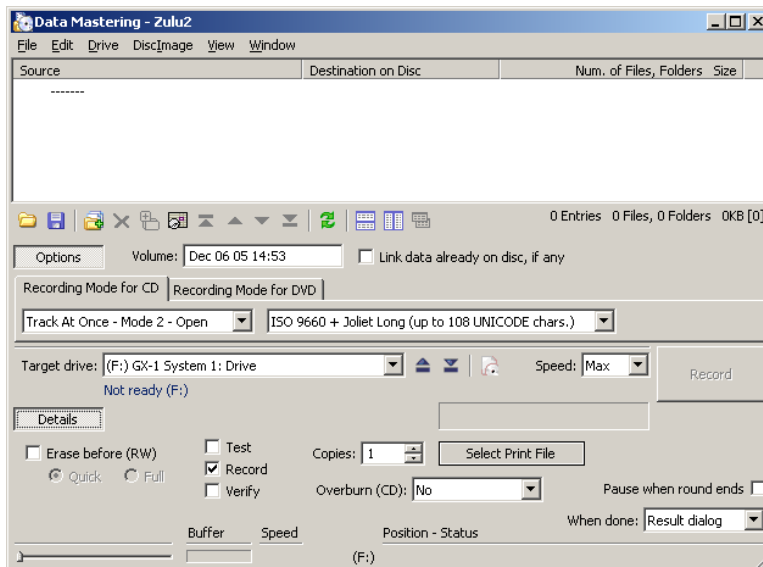
- Highlight the drive(s) you want to record to in the Zulu2 main window and then double-click on the Audio Compilation icon. The Audio Compilation window (Zulu2 calls that an “action”) will open, with the drive already set and an empty list.
- Drop into the list the MP3, WAV or WMA files you wish to use make your compilation. You can also use the **Edit > Add Audio Files...** or the button with a small green plus.
- Re-arrange the sequence if needed by dragging the track with the mouse or using the menu entries **Edit > Move Up/Down**. You can also select one or more tracks from the list and right-click to quickly access the Track menu.
- You can add the Album CD Text by clicking Options and filling the Album Artist (CD Text) and Album Title (CD Text) fields. You can then add each track Artist and Title highlighting a track and selecting the menu **Edit > Track > CD Text - Artist...** and **Edit > Track > CD Text Title...** This can also be done by double-clicking on the track in the appropriate column position.
- If you need to Test, activate the Verify, or set any other recording specific flag like erasing the destination disc before proceeding, check the appropriate box.
- Select the number of copies you wish to make.
- If you wish to print on the recorded discs, click on the Select Print File box and select a print file. This file can be a .prn file or a SureThing .std file.
- When your Action is ready, you can save the compilation setup with **File > Save**, for use again at a later time.
- Press the **Record** button (the caption on the button will change to reflect the Erase/Test/Record/Verify selections) to start the operation. This button remains grayed if the list is empty or if there are any settings that prevent the recording from starting.
- The discs will be loaded into the recorder(s) and then printed, if a print file was selected. If no print file was selected, the discs will bypass the printing process and be moved directly into the output bin when unloaded from the recorders.



## Record Data to CD or DVD

To copy files and folders to a CD or a DVD:

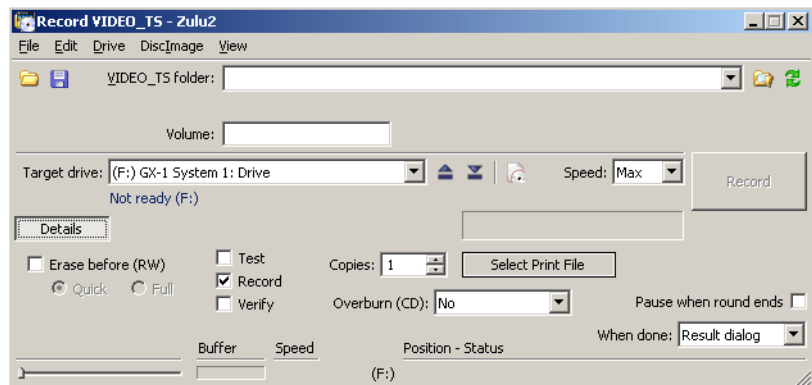
- Highlight the drive(s) you want to record to in the Zulu2 main window and then double-click on the Data Mastering icon. The Data Mastering window (Zulu2 calls that an “action”) will open, with the drive already set and an empty list.
- Drop the files and folders that you want to transfer to CD or DVD into the list. You can also use the **Edit > Add Files/Folders...** or the button with a small green plus.
- You can reparent files/folders to change the way they will appear on the recorded disc. You can reparent multiple files/folders at once by selecting the desired files/folders and choosing **Edit > Reparent...** or clicking on the Reparent button. You can also double-click on the file/folder list. The Reparent panel will launch, giving four different options. Whichever option you choose and enter in the text input area will be reflected at the bottom of the panel. When you press OK, you will see the change in the Destination on Disc column of the list.
  - **Add** will add parent folder to selected files/folders.
  - **Substitute** only works with folders, not files, and will replace the source folder with what you type.
  - **Reset to default** will write the default path, which is the source name of the file/folder.
  - **Force full path** will write the full path of the source file/folder.
- Type in the Volume label for the disc to replace the default label based on your system date/time.
- If you need to Test, activate the Verify, or set any other recording specific flag like erasing the destination disc before proceeding, check the appropriate box.
- Select the number of copies you wish to make.
- If you wish to print on the recorded discs, click on the Select Print File box and select a print file. This file can be a .prn file or a SureThing .std file.
- When your Action is ready, you can save the data disc setup with **File > Save**, for use again at a later time.
- Press the **Record** button (the caption on the button will change to reflect the Erase/Test/Record/Verify selections) to start the operation. This button remains grayed if the list is empty or if there are any settings that prevent the recording from starting.
- The discs will be loaded into the recorder(s) and then printed, if a print file was selected. If no print file was selected, the discs will bypass the printing process and be moved directly into the output bin when unloaded from the recorders.



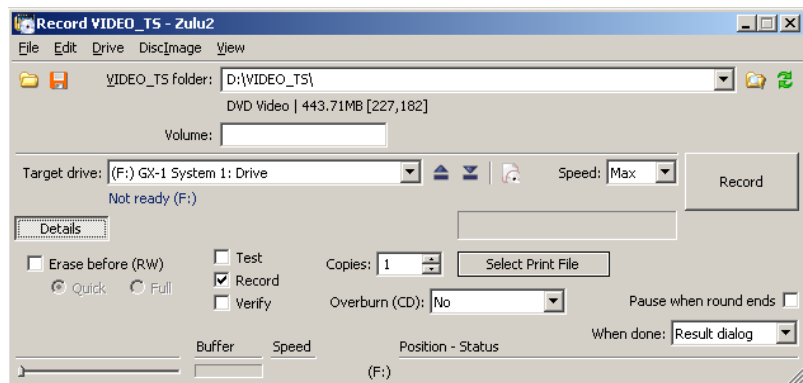
## Record a DVD Movie (VIDEO\_TS)

When you have a DVD Video movie ready to be recorded in your computer hard drive, you can use this action to prepare a DVD compatible with most of the consumer DVD player:

- Highlight the drive(s) you want to record to in the Zulu2 main window and then double-click on the Record VIDEO\_TS icon. The Record VIDEO\_TS window (Zulu2 calls that an “action”) will open, with the drive already set.
- Type in the VIDEO\_TS folder or use **Edit > Browse...** to select it. A compatible folder contains the files VIDEO\_TS.IFO, VIDEO\_TS.BUP, VIDEO\_TS.VOB, plus a number of VTS\_nn\_m.\*. Usually this folder is named VIDEO\_TS, but it could also have another name.



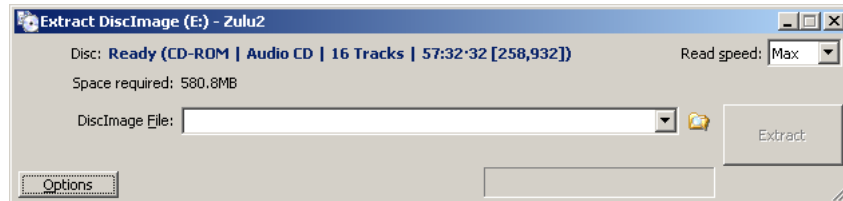
- After the folder has been selected, a string below its name will indicate if the folder is valid, and the size of the movie. Zulu2 will verify that all the needed files are present and are in the correct format.
- The name of the Volume defaults to the name of the folder or, if it is VIDEO\_TS, the name of the parent folder.
- If you need to Test, activate the Verify, or set any other recording specific flag like erasing the destination disc before proceeding, check the appropriate box.
- Select the number of copies you wish to make.
- If you wish to print on the recorded discs, click on the Select Print File box and select a print file. This file can be a .prn file or a SureThing .std file.
- When your Action is ready, you can save the DVD file setup with **File > Save**, for use again at a later time.
- Press the **Record** button (the caption on the button will change to reflect the Erase/Test/Record/Verify selections) to start the operation. This button remains grayed if the list is empty or if there are any settings that prevent the recording from starting.
- The discs will be loaded into the recorder(s) and then printed, if a print file was selected. If no print file was selected, the discs will bypass the printing process and be moved directly into the output bin when unloaded from the recorders.



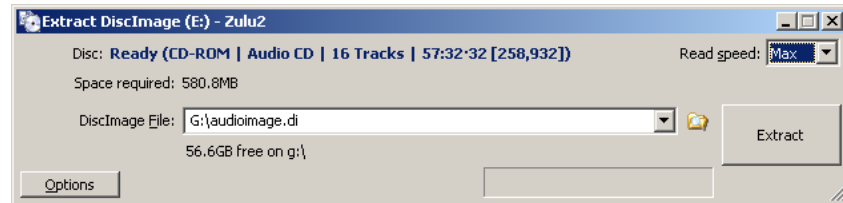
## Extract and Record a Disclmage

A “Disclmage” is a set of files that completely describe either a CD or a DVD. Extracting a Disclmage, therefore, means to completely copy a disc on the hard drive. The Extract Disclmage can only be used with drives outside of the Disc Publisher. The recorders inside the Disc Publisher are not used for this Action:

- Highlight the drive from inside your computer from which you want to extract in the Zulu2 main window and then double-click the Extract Disclmage icon. The Extract Disclmage window will open.



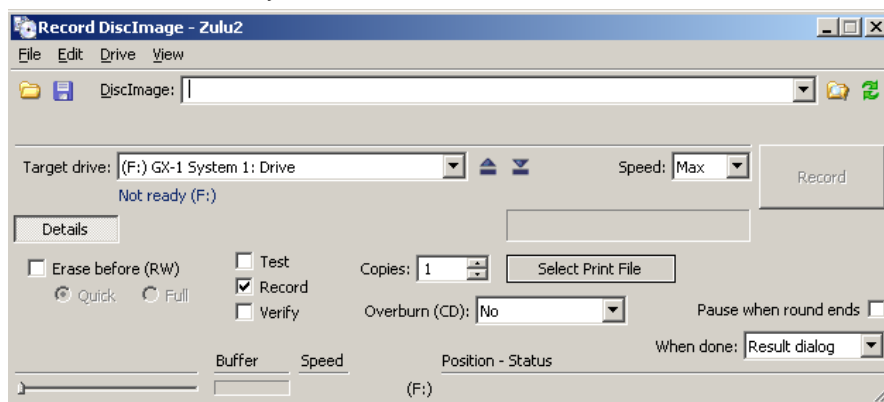
- Type the name of the destination DiscImage or use the Browse button to select a filename.



- When the disc in the drive is ready, press the **Extract** button to begin the operation.

When you have a DiscImage ready for recording:

- Highlight the drive(s) you want to record to in the Zulu2 main window and then double-click the Record DiscImage icon. The Record DiscImage window (Zulu2 calls that an "action") will open, with the drive already set.



- Type in the DiscImage filename or use **Edit > Browse...** to select it. After selecting the DiscImage, a string will appear below the name, indicating if the file is valid, and its size. Zulu2 will verify that all the needed files are present and are in the correct format.



- If you need to Test, activate the Verify, or set any other recording specific flag like erasing the destination disc before proceeding, check the appropriate box.
- Select the number of copies you wish to make.
- If you wish to print on the recorded discs, click on the Select Print File box and select a print file. This file can be a .prn file or a SureThing .std file.
- When your Action is ready, you can save the DiscImage setup with **File > Save**, for use again at a later time.
- Press the **Record** button (the caption on the button will change to reflect the Erase/Test/Record/Verify selections) to start the operation. This button remains grayed if the list is empty or if there are any settings that prevent the recording from starting.
- The discs will be loaded into the recorder(s) and then printed, if a print file was selected. If no print file was selected, the discs will bypass the printing process and be moved directly into the output bin when unloaded from the recorders.

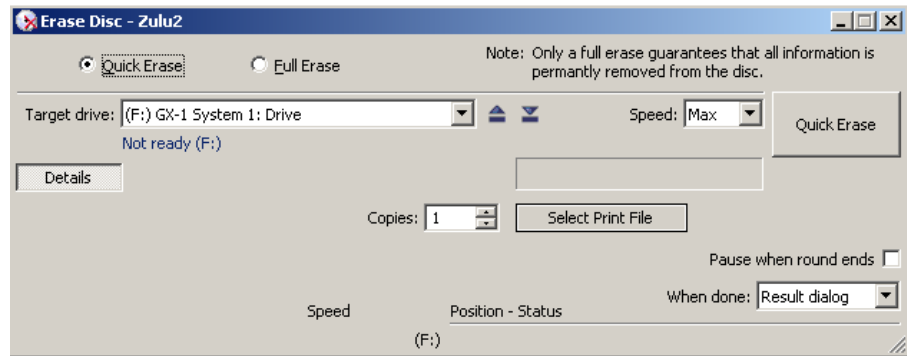
## Erase an RW Disc

To erase a CD-RW, a DVD-RW, or a DVD+RW:

- Highlight the drive(s) from the Disc Publisher you wish to use to erase in the Zulu2 main window and then double-click the Erase Disc icon. The Erase Disc window will open, with the drive already set.

- Load the discs you wish to erase into the input bin.

- Select either Quick or Full erase.



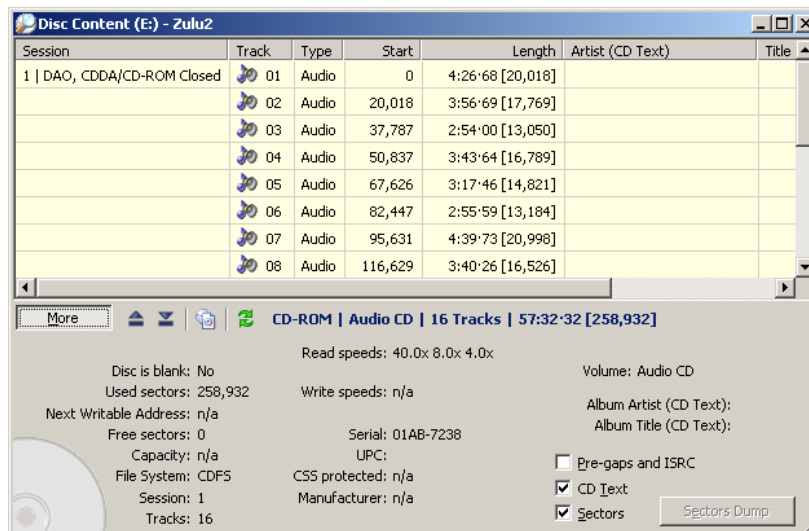
The full erase takes longer but guarantees that all the information is wiped out from the disc.

- Click the **Erase** button (which will include either Quick or Full, depending on the erase method selected) to start the operation.
- The discs will be loaded into the recorders, erased, unloaded, and then moved into the output bin.

## Disc Content

To explore the actual content of a disc:

- Double-click the drive containing the disc to explore in the Zulu2 main window or select **Drive > Disc Content**. The Disc Content window will open.
- You can check the information about each track (CD) or zone (DVD), and additional disc information by expanding the window using the **More** button.



- To force the drive to re-read all the information, click the Refresh button holding the Ctrl key.

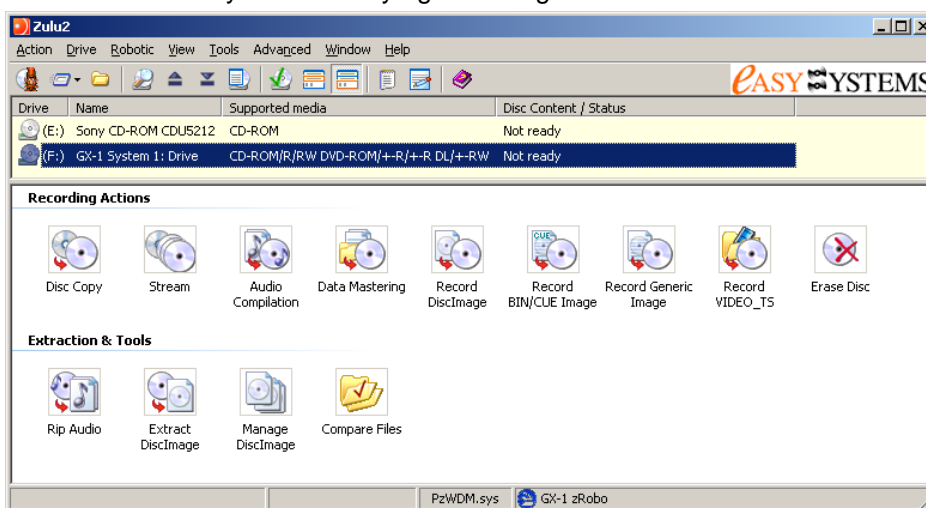
# Main Window

When you initially launch the application, the Zulu2 main window starts. This is the place to monitor all your drives, to launch Actions, to control many Actions if several operations are running at once, and from where to launch the Zulu2 tools and set its options.

The main window is not essential, as all the recording actions and tools run into separate windows, and you can easily run Zulu2 from its Taskbar Icon. However, we suggest that until you are comfortable operating Zulu2, you should use the main window to explore all the features and to control the behavior of your new drive.

## Main Window Layout

Besides the common menu and toolbar, the *Drive List* and the *Action Launch Pad* are displayed when you launch Zulu2 for the first time. Another component, the *Action List*, is hidden by default, but can be shown and toggled with **View > Action List**. The Action Launch Pad can also be hidden and toggled with **View > Action Launch Pad**. The Drive Window is always visible. Context menus for the components can be conveniently accessed by right-clicking on them.



## Drive List

The Drive Window area can be resized vertically by dragging the horizontal bar that separates it from the other components below, if any are visible. The Drive Window is an overview of your drives and their characteristics; when you insert or remove a disc from a drive, this list is normally updated; to manually refresh the list use **View > Refresh Drive List**. Highlighting a drive and right-clicking on the list gives you a convenient way to access the **Drive** menu.

By default, main information such as drive Name, Supported Media, Disc Content/Status are displayed. You can view additional information, such as Firmware version, by choosing the Field you want from **View > Drives List**. The **Gridlines** Field is useful when you want to view multiple drives or additional Fields more easily.

## Action List

The Action List has been designed to control the progression of many simultaneously open and/or running actions. All the actions that are currently open appear in the Action List; 2 columns display which drives the Action is operating, and the Action status.

Zulu2 can manage several actions at a time on different drives, such as a Data Mastering recording on one drive and an Audio Compilation recording on another drive. Multiple actions can also be queued on the same drive, like a Data Mastering recording on your autoloader and an Audio Compilation on the same drive, which will begin when the Data recording finishes.

Highlighting one Action in this list and right-clicking gives you a convenient way to access the **Action > Current Action** submenu.



## Action Launch Pad

Use the Action Launch Pad to easily find and launch the various Zulu2 actions and tools. To launch an action from the Action Launch Pad, you can double click the action icon. To see text description of various actions next to small icons rather than the default icons, choose **View > Action Description** or right-click on the Action Launch Pad area and select **Action Description**. If you have only one drive, the actions will start with that drive selected by default. If you have several drives in your system, it is convenient to select the drive you intend to use in the upper Drive List and then start the Action, which will have the selected drive as its target. The target drive can be changed inside the action window, but the Action Launch Pad will show which drives are already in use for an existing action.

When the Action Launch Pad is toggled off you can launch the various Actions by selecting **Action > Launch »** in the menu.

Each action will open up an interface with the minimum options needed to start recording immediately. The **Details/Options** buttons at the lower left corner of each window can be clicked to show or hide the advanced options and information that are available for the selected action. Each window is resizable by dragging the lower right corner of the window.

---

## Main Window Menu

### Action Menu

#### Wizard

The Wizard function does not apply when using the Microboards Disc Publisher system.

#### Launch »

Launches any Zulu2 action, just like double-clicking in the Action Launch Pad.

#### Open...

Opens a Zulu2 action document that has been saved in the past.

#### Recent Actions »

Accesses directly one of the latest 10 action documents you created or used.

#### Current Actions »

Accesses the Action List submenu. This submenu is available only when the Action List is visible, and appears also as the context menu when you right-click on the Action List.

#### Current Actions » Show

Puts the selected action in foreground, useful for isolating a specific action when many are running.

#### Current Actions » Close

Closes the selected action.

#### Current Actions » Record

Functions like pressing the Record button on the selected action.

#### Current Actions » Pause when round ends

Stops the selected action at the end of the round. This is like checking the homonymous checkbox in the details of the action.

#### Current Actions » Move Up / Down

Moves the selected action up or down in the list. This is useful when you have actions waiting for drive to become ready (because engaged by other actions) and you want to change their priority. The actions are listed in order of priority from top to bottom and will be performed in order.

#### Exit

Terminates Zulu2, or closes the main window if the Taskbar icon is set to remain.

### Drive Menu

#### Disc Content

Opens the Disc Content window for the selected drive(s).



**Eject**

Ejects the disc in the selected drive(s).

**Close Tray**

Closes the tray of the selected drive(s). Note that many drives cannot be closed by software, but only by pushing back the mechanism by hand, including almost all drives found in laptop and notebook computers. For certain pop-up drives (these do not have a tray, only a slot in which the disc is inserted, such as car-stereos) even if the disc is usually inserted by hand, this command can retract the disc if it is half-inserted.

**Windows Shell » Properties**

Starts the Windows standard properties dialog on the selected drive.

**Windows Shell » Launch Explorer**

Starts Windows Explorer on the selected drive.

**Select All**

Selects all the drives in the drive list.

**Unselect All**

Unselects all the drives in the drive list.

**Invert Selection**

Inverts the selection on the drives in the drive list.

**Drive Properties**

Opens the Zulu2 drive properties dialog for the selected drive(s). In this dialog you can find some drive characteristics that are not usually reported by the system.

## Robotic Menu

**Load**

Loads a disc from the input hopper into the Disc Publisher drive that is selected in the Drive List.

**Unload**

Unloads a disc from the Disc Publisher drive selected in the Drive List. The disc is placed into the output bin.

**Reject**

Unloads a disc from the Disc Publisher drive selected in the Drive List. The disc is rejected and placed in the reject bin, on the left side of the Disc Publisher.

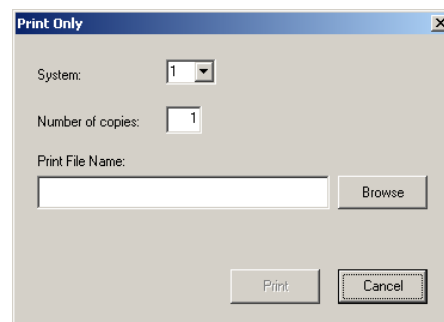
**Print Only**

For most Microboards Disc Publishers, SureThing will be launched when **Print Only** is selected; printing will occur directly out of SureThing.

The GX-2 Disc Publisher prints discs through Zulu2, bypassing the recording step. Select the **System**, **Number of Copies**, and the **Print File Name**.

**Sure Thing (GX Disc Publishers Only)**

This selection launches the SureThing label design application. SureThing is used to create labels for printing onto the surface of the discs. These labels can be used inside any of the Zulu2 Action screens or in the Print Only function. The GX-2 cannot print directly from SureThing.

**Utilities**

The contents of the Utilities menu will vary depending on the model of Microboards Disc Publishing system you are using. Please refer to the User Manual for your Disc Publisher for information on the options available.

**About**

Shows the version of Zulu2 that is currently installed.

## View Menu

### **Toolbar**

Shows/Hides the toolbar of the main window.

### **Logo**

Shows/Hides the logo in the toolbar of the main window.

### **Status Bar**

Shows/Hides the status bar of the main window.

### **Drives List » Physical Address**

Shows/Hides the Bus/ID address of each drive in the list.

### **Drives List » Firmware Version**

Shows/Hides the internal firmware version of each drive in the list.

### **Drives List » Bus Type**

Shows/Hides the type of bus connection (SCSI, ATAPI, USB, etc.) of each drive in the list.

### **Drives List » Capabilities Column**

Shows/Hides an additional column in the drive list, including specific characteristic of each drive, like CD Text support or BUR (buffer underrun) protection technology.

### **Drives List » Gridlines**

Shows/Hides a gridline to better read the list when you have a large number of drives.

### **Drives List » Default**

Returns all the display options of the drive list to the original default. The list is resized to the optimal dimension.

### **Refresh Drives List**

Forces Zulu2 to refresh the drive list, re-reading the content of any inserted disc.

### **Action List**

Shows/Hides the Action List in the main window.

### **Action Launch Pad**

Shows/Hides the Action Launch Pad in the main window.

### **Action Description**

Toggles between large icon or small icon and description in the display of Action Launch Pad.

### **Show Groups**

Toggles between normal or group display in the Action Launch Pad. This is available when using Windows XP only.

## Tools Menu

### **Log Panel**

Shows/Hides the log window. In the log, Zulu2 records all the major events that happened, like the start and the result of each recording, any drive error that happened, the number of copies made. You can save the log in a file, and eventually produce it when asking for technical support.

### **Options...**

Starts the Options dialog.

### **Reset Options and Defaults...**

Returns all the Zulu2 options to their original defaults after confirming this action. The location of the various folders used lately, as well as the last accessed documents and disc images, are cleared as well. After using this reset, Zulu2 should act exactly as just after the initial installation.

### **Save Options and Defaults**

The options and the folder/file locations are saved in the registry when Zulu2 exits. With this function you can “freeze” the current settings, to avoid the loss of those settings.

## Advanced Menu

### Re-Scan for Drives

Forces a rescan of the computer bus connections and reloads the drive list. This will cause any drive listed as a Disc Publisher drive to be disassociated from the robotics, however; requiring that Zulu2 be restarted and configured again before use.

### Lock/Unlock Drive Tray

The tray of each selected drive can be locked and unlocked manually, preventing other applications from ejecting the disc. Remember to unlock the drives that you have locked before exiting Zulu2. This function is for experienced users only.

### Block/Unblock Drive Activity

You can prevent the system from seeing the selected drives. Blocked drives will be reported by the system as not ready (no disc inside). Remember to unblock the drives that you blocked before exiting Zulu2.

### Commands Log

Opens a command log (trace) window for every selected drive. The log shows all the commands that Zulu2 sends to the drive, in the common SCSI format, whether or not the drive is attached via a SCSI connection or another type of bus. You can right-click on the command log to access a specific context menu to pause the logging and to control its appearance. You can also save the log into a file. This function is for experienced users that understand the recording command specifications.

### Reset Drive

Sends a reset sequence to the selected drive(s). This function must only be used when a drive has failed to respond, such as media recognition failure caused by a damaged disc. The reset sequence is not a complete bus-reset, which is forbidden for any application under Windows, but it is usually strong enough to prevent having to reboot the system to get a drive back in running condition.

## Window Menu

### Close All

Closes all the running action windows.

A list of all running action windows appears under this menu. Selecting an entry puts the corresponding window for that entry into the foreground.

## Help Menu

### Contents and Index

Opens the Zulu2 Help.

### Web Site

Opens Internet explorer on the web site of the application vendor.

### About Zulu2

Opens the about box with relevant version information.

---

## Taskbar Icon

The Zulu2 taskbar icon can be used as a shortcut to the most important functions of Zulu2, available at any time without having to keep the complete mastering application open.

In the Options (**Tools > Options > [View]**) you can select to keep the taskbar icon or to launch it at startup; doing so you may access Zulu2 even if its main window is closed.

## Taskbar Menu

### Wizard

Launches the Wizard for simple recording on the spot. Again, the Wizard is not used with the Microboards Disc Publisher.

**Launch »**

Launches any Zulu2 action, just like from the main window.

**Open...**

Opens a Zulu2 action document that you have saved in the past.

**Option...**

Accesses the Zulu2 Options dialog.

**Contents and Index**

Opens the Zulu2 Help.

**About Zulu2**

Opens the about box with relevant version information.

**Window »**

Re-opens the main window or any other action window that is running. You can also re-open the main window by double-clicking directly on the taskbar icon.

## Recording Actions

Zulu2 calls every recording operation an “action” and keeps it in a separate window on the desktop, with its proper entry in the taskbar.

Every action has its proper document, with the standard New, Open and Save functions, as it is common in Microsoft Windows. You can create a new action from the Zulu2 main window or from the Zulu2 taskbar icon.

---

## Action Layout

Every action is divided in 2 distinct sections. In the upper part of the window you find action specific controls, while the lower part is common to all actions.

**Input and Output Concept**

The upper area defines and controls the “input” to the operation, and the lower part the “output” to the drive, with all the recording options. Therefore, if you are doing an Audio Compilation, for example, the upper part will define the files or the CD Text; the lower part defines the drive you want to record to, all its options like the writing speed, etc.

---

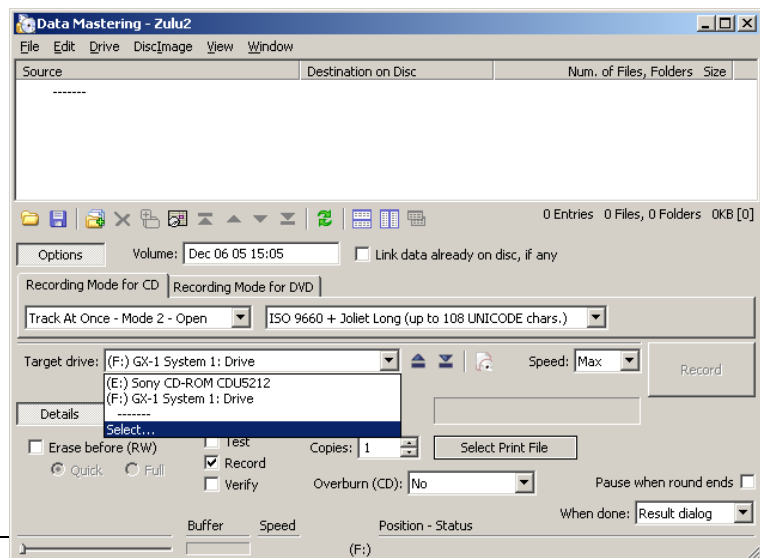
## Action Common Section

The common section of every action starts from the line just above the **Drive** control. Under this **Details** area, you control everything regarding the recording.

**Target Drive**

Select the recording drive inside the Disc Publisher, or the target Disclmage if you want to create a Disclmage instead of recording. The highlighted drive in the Zulu2 main window Drive Pad becomes the default drive of a new launched action. You can change the drive you wish to use within the action, as well.

Choose **Select...** and check the drive or drives in the subsequent small dialog box.

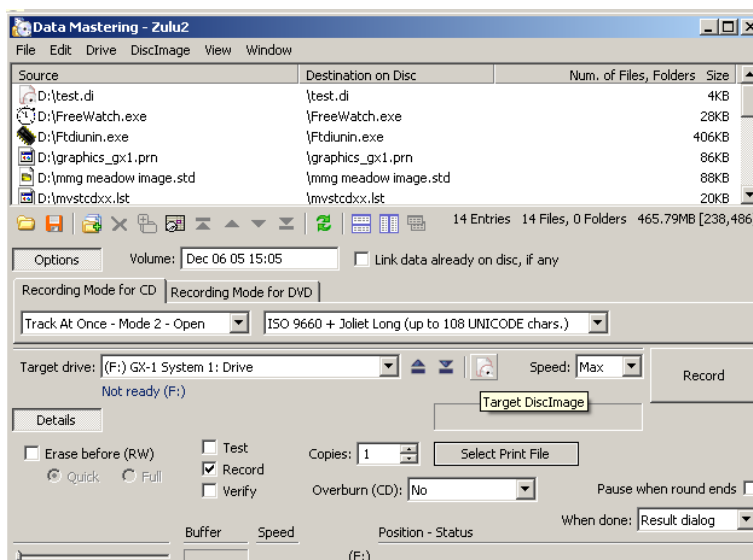


## Recording Speed

You can use the **Speed** combo to select among Max, Med (medium) and Min, or the actual possible speed if you have already inserted the target disc. A more in-depth explanation of recording speed is in the paragraph Recording Speed of this document.

## How to Create a Disclmage from an Action

Some actions allow you to create a Disclmage instead of recording to a disc. Press the button at the right of the Close Tray button, or select **Disclmage > Target Disclmage** in the action menu, to toggle between recording to disc or creating a Disclmage.



The recording section options will change, as many of the settings required for actual recording are not necessary. Enter or browse for a target .DI file to create a Disclmage that can be used as a source at a later time or location.

## Erasing Disc Before Recording

All of the actions except Erase Disc give you an opportunity to erase RW discs before recording onto them. You can choose between a Quick erase and a Full erase mode.

## Test / Record / Verify

You can choose to just Record (which is the default) or to Test and Verify also. Some combinations are forbidden, like testing and verifying without recording, or verifying only if the erase option is checked.

## Copies

Select how many copies you want to record. Zulu2 will act in multiple “rounds” until all the discs have been successfully recorded.

Should any disc fail to be recorded successfully, it is not counted, and the rounds will continue until you get the number of successful copies requested. Failure of the drive during three consecutive rounds will cause the rounds to stop.

## Overburn (CD)

Select here the overburn “size” of the discs. This option is valid only if you are recording CD. Remember that most drives support overburn only in SAO (Session at Once) mode.

---

There is no way to say in advance if a recorder supports overburn, and to which extent. Moreover, there is no way to read via a recorder what overburn size is possible on a certain disc. You need to experiment or rely on the information provided by your drive and media supplier.

---

## Pause When Rounds Ends

Checking this option will cause Zulu2 to stop at the end of each round and ask for user confirmation before continuing. This gives an opportunity to pause long operations, allowing for more discs to be loaded into the Disc Publisher, or do another urgent task with your computer.

The pause cannot happen in the middle of the recording; the operation will pause only at the completion of a round.

## When Done...

You can choose what Zulu2 will do when an operation is completed. By default it pops up a result dialog; other options include no notice, an audio tone upon completion, or a shutdown of the computer.

### Recording Control Area

In the lower part of the recording section appears a line for each drive involved in the operation, plus some information with the respect of the input cache. These are quite technical information, but you may want to watch the level of the internal drive buffers to understand the system performance, as well as from where every thread is reading from the Zulu2 input cache at any given time.

Also, and probably more interestingly, you can check the actual recording speed of every drive. If you double click the word **Speed**, the display will toggle between the instant speed is displayed and the average speed from the beginning of the operation.

In the right side of the line are left specific error message that each drive could report. Such messages are also present in the Result dialog.

## Extraction & Tools

This chapter describes those Zulu2 functions that cannot be considered actions. These functions do not record, they do not appear in the Action List, nor do they use the same interface as an action.

This is a collection of tools for disc extraction or for other purposes.

---

### Rip Audio

The Rip Audio function works outside of the Disc Publisher system. The drive inside the Disc Publisher system is not used with this Action.

When the disc in the drive becomes ready, its content is shown in the window. Audio tracks will be shown with a checkbox is put in front of it; check the box to indicate that you want to rip that track. Audio tracks are contained in Audio CDs, in CD Extra discs (all are audio tracks but the last, which is a data track), in old-style Mixed mode discs (all are audio tracks but the first, which is a data track) and on some other disc types, like Portfolio Photo CD and some games.

The Zulu2 Rip Audio function features a small but efficient Track Player that you can use to quickly recognize and select the appropriate tracks.

### File Naming

Naming the extracted files can be very tedious but very important if you want to give some consistency to your collection of digital music.

There are many naming formats currently in use. Zulu2 tries to help you in creating files that do not need to be immediately renamed. You can select among different naming formats in the Edit menu, and in the Target file field of the Rip Audio window you can verify how the files that you extract will be named.

By default, the name is composed of the Album Title plus the track titles. If the disc has CD Text, as do many recent Audio CDs, the CD Text information will be put in the list and in the Album Title. If not, you can enter the Artist and Title of each track with the Track menu, or by double-clicking on the appropriate list column. The Artist and Title information are also inserted in the audio file into the appropriate fields, so you will see them displayed (regardless of the filename) while you are playing those files with the Media Player.

If you need to put the same Artist name to all the tracks, you can multiple-select and enter the Artist just once.

Because entering all the titles can take some time and effort, you can save them on text files to be used at a later time, using the File menu.

### Digital Audio Format

If you do not have Microsoft Windows Media 9 run-time support installed, you will be able to extract only in the standard Wave format, which is the 44KHz, 16 bit stereo PCM format used by Audio CD. You will not have any quality loss but, the file dimension is considerable.

Windows Media 9 represents the latest Microsoft multimedia technology, with enhancements in compression and WMA sound quality. It guarantees encoding in many different WMA formats, from

phone low-quality high-compression to professional quality up to 500Kbit per second. You can select the WMA codec and the format in 2 controls inside the window.

Please note that Zulu2 does not rip in MP3 format. The reason is twofold; first, MP3 involves expensive licensing fees for the user, and second, today's WMA technology has greatly surpassed the MP3 formats in sound quality. You will find that most of today's players, consumer devices or other, are compatible with both MP3 and WMA formats.

## File Menu

### **Load Artist and Title from Text File...**

Loads the Album Title and all the track names from the selected file. The file is in a simple text format, and can be created by the function below.

### **Save Artist and Title to Text File...**

Saves the Album Title and all the track names in a text file, so you can extract tracks at a later time from the same disc without having to enter that information again.

### **Close**

Closes the Rip Audio window.

## Edit Menu

### **Browse...**

Selects the target folder for ripping.

### **Target Folder Default**

Sets the Windows default folder ("My Music") for audio extraction as the folder for ripping.

### **Filename Format »**

Selects from the different file naming formats.

### **Substitute All Spaces with Underscore**

Some users do not want any spaces in their filenames, as that could create incompatibility with UNIX file systems.

## Drive Menu

### **Eject**

Ejects the disc from the drive.

### **Close Tray**

Closes the drive tray.

### **Rip**

Starts the ripping operation.

## Track Menu

### **Artist...**

Edits the Artist field for the selected tracks. You can also double click on the Artist column of the track you want to edit.

### **Title...**

Edits the Title field for the selected tracks. You can also double click on the Title column of the track you want to edit.

### **Check All**

Checks all the audio tracks of the disc.

### **Uncheck All**

Unchecks all the audio tracks of the disc.

### **Invert Checks**

Inverts the checks on all the audio tracks of the disc.

### **Play**

Starts the Track Player on the selected track.

## View

### Full Row Select

Toggles an option of the Windows Listview to allow selection of an entry by clicking on the entire line, instead of clicking on the first column.

### Gridlines

Toggles the gridline on the list.

### Track Player

Shows/Hides the Track Player.

### Refresh

Forces a reload of the disc.

---

## Extract Disclmage

The drive inside the Disc Publisher system does not need to be used with this Action.

As soon as the disc in the drive becomes ready, its content is shown in a line at the top of the window, as well as the dimension that the Disclmage would take.

You can select the extraction speed, although with modern drives, using the default, Max, typically will work fine.

Also with Zulu2, like in any other case in which you want to physically extract from a disc, the physical condition of the medium is essential, as well as its cleanness. It is common to have users reporting reading problems because the discs are scratched, not clean, or full of fingerprints. Please make sure your disc is free of any scratches or contamination.

You will need to select the target Disclmage file before starting the extraction.

## Options

The window expands when the Options button is clicked, to include settings to eject or play a sound when the extraction is done. Like with the actions windows, you can minimize the window while the operation is in progress, and do other tasks on the computer.

### Ignore reading errors

Setting this option instructs Zulu2 to not report that a reading error happened on one or more sectors. Those sectors will be “zeroed” in the image. This is not recommended, as the content of a file could get damaged. Still, there are situations in which an experienced user will prefer to go on and read as much as they can and complete the operation, rather than being barred from creating an image from a disc that has uncorrectable reading errors on some sectors.

### Raw

A CD can be read in several ways. Selecting **Raw P-Q Channels** forces the drive to read additional portion of the sectors, and every sector will be 16 bytes longer. **Raw P-Q Channels** will force Zulu2 to read the entire sector information, adding 96 bytes per sector.

Not all drives are able to read in these Raw modes and there is no way to know in advance if they can. If you get an error trying to read in Raw mode, simply read the disc normally.

A Raw mode image must be recorded in Raw mode as well, so be sure that you have access to a drive that supports both reading and recording in Raw. These drives are not common and are generally more expensive.

---

## Manage Disclmage

Because a Disclmage can be created by multiple files, and also because Zulu2 keeps the image in an open format, this function provides a way to easily manage and explore Disclmages.

The Manage Disclmage window is a standard Windows open file common dialog with a few additions, including a list and few buttons. When you select a .DI (Disclmage), all the files included in the image are listed, along with a brief description and the size. If the image is incomplete or corrupted, that is noted in the list.



**Copy / Move / Delete**

All the Disclmage's files are either copied, moved, or deleted, depending on the action chosen. You can also rename a Disclmage.

**Master**

A Record Disclmage action is opened with the selected Disclmage as the data source.

**Show**

Opens a window showing the Disclmage index or the Disclmage track that is selected in the list. This display is meaningful only for experienced users, as the bare, unstructured data is shown.

---

## Compare Files

Compare Files lets you select 2 files or 2 folders and compare them to the byte. There is an option to compare if the selections have the same date stamp. Differences are listed in the Details area.

This function is simple but extremely efficient and fast. It provides a compare capability on a large amount of files, and detailed reporting otherwise unavailable within Microsoft Windows.

## Options

Zulu2 has a set of options that are stored within the Windows system registry. These option settings can be changed from the defaults, and will remain in effect until you uninstall and re-install the application, or change the option settings again.

---

## General

**Autoplay is blocked while this application is running**

Autoplay is a feature of Windows that checks for a disc that has been inserted in a drive. When a new disc is detected, Windows will normally initiate the Autoplay dialog (Windows XP) or a default application, depending on various settings. This can cause multiple Autoplay dialogs to appear during the duplication or mastering process, forcing you to close the Autoplay down several times. This option deactivates the Autoplay feature while Zulu2 is running. The blocking feature is checked by default.

**Use the Buffer Underrun protection when available in the recorder**

Buffer underrun occurs when the recording speed outpaces the source providing the data. The data is not being supplied when the recorder requests it, interrupting the data flow and corrupting or aborting the recording process. Many recorders currently provide buffer underrun protection as a mechanism to prevent this kind of failure. This option activates buffer underrun protection and is checked by default.

**Show the Action Check dialog even if there are no Warnings or Errors**

A dialog comes up if the Action settings present a warning or error situation to Zulu2. For instance, if you asked to load the previous session of a Data Mastering action but the disc in the source drive is blank, a warning message is displayed. If no warning or error situation exists, the recording will normally start without interruption. Check this option to have always the Action Check dialog appear, to verify the type of recognized disc and to see which speed has been selected. This option is unchecked by default.

**Use SPTI instead of PzWDM.sys**

If, for any reason, you wish to use the built-in Microsoft SPTI (short for SCSI Pass Through Interface) instead of the Zulu2 device driver (PzWDM.sys) you can check this option. Zulu2 must be re-launched for this setting to take effect. To use SPTI you need to have Administrator privileges. This option is unchecked by default.

---

# View

## Sectors Show

All the dimensions of a CD or a DVD are in sectors, which is the smallest addressable block of information on the disc (a sector is around 2K bytes in length). When this option is checked, Zulu2 will show the exact number of sectors with every disc dimension, after the reported total size (data) or overall time (audio), between square parentheses.

## Taskbar Icon

You can choose to keep or not keep the Zulu2 icon on the taskbar. Note that you can keep the icon on the taskbar even if all application windows are closed. There are four options from which to select:

- **No taskbar icon** – The taskbar icon will not appear.
- **Only when the application is active** – The taskbar icon appears after Zulu2 is launched and is removed when Zulu2 is closed.
- **Keep the taskbar icon (even after all the application windows are closed)** – The taskbar icon appears after Zulu2 is launched, but it is not removed when closed. Zulu2 remains in the background, and can be reached using the taskbar icon.
- **Launch at startup** – The Zulu2 taskbar icon is activated when Windows is started.

## Monitor for a ready VIDEO\_TS folder

Checking this option will activate a special monitor function of Zulu2, which looks for VIDEO\_TS (video DVD) folders that have become ready. When this happens, a Record VIDEO\_TS Action is automatically started on that folder, ready for recording.

---

# Temporary Files

To perform a **Disc Copy Action** using a single drive, enough hard disk space is required to temporarily hold the data for transfer from the master to the blank media. The drive will read the data from the source disc, store it temporarily on the hard disk, and then write it back onto a blank disc. You have the option to let Zulu2 choose the first hard drive with enough space to hold the temporary file or you can specify a folder you want.

## Placement

If the default setting of “Automatic” is chosen, Zulu2 will check the root of your C: drive to see if there is enough disc space, specifically the space needed to store the data from the source along with an additional 50MB. If enough space is not found, then the next hard disk on the system will be checked. This continues until either enough space is found on a hard drive, or no hard drives remain to be checked.

If you specify a temporary folder, Zulu2 only checks the drive on which that folder resides for available space.

Microsoft Vista includes a security feature called the User Account Control (UAC), which is by default on. Because of this security feature, the location of any temporary files must be specified or Vista will not allow the files to be stored.

## At every launch, scan for (and delete) any lost temporary...

When this is checked, Zulu2 will scan for and delete any lost temporary files every time it is launched.

---

# Advanced

## Disc Content Auto Refresh

Zulu2 always keeps the content of the disc in the drives updated in its windows. Windows has a “volume tracking” feature that an application can utilize to recognize when a disc has been inserted or removed from a drive. This advanced option activates a private tracking function within Zulu2 that sends a Test Unit Ready command every few seconds. Even though the private tracking is more reliable, users may prefer to use the Windows feature exclusively, to minimize the number of commands that are sent to the drive.

## Recording

Specific recording options can be set here. The Recording Cache defines the number of Mb of data that Zulu2 keeps in its circular buffers while recording. This is also commonly known as the “level 2” caching, and in the past was an extremely important mastering parameter. With current buffer

Underrun protection mechanisms that most of the drives now use, and also because DVD recording does not usually have buffer Underrun problems, this value is less important now. Zulu2 can manage a large cache, though. The cache value can be adjusted if you are recording to a large number of drives simultaneously, and do not want the drives buffer Underrun protection mechanism to activate too often, which can extend recording time.

You can choose to have every disc be closed even if an error occurred during the recording process. Having this option checked will add time to the process when an error occurs.

The last option specifies the reporting of the drive internal buffer status. By default, in the Details window of an Action, the internal buffer for each drive is shown with a small progress meter. While informative, this requires Zulu2 to send read buffer status command between write commands, requiring more communication with the drive. In extreme situations, or handling drives or controllers that have problems with higher communication levels, uncheck this option.

### **Ripping**

This sets the reading cache when physically reading an audio disc during ripping. Increasing this value above the default 16 sectors can greatly improve the ripping speed; however, some drives and controllers cannot reliably operate with transfers larger than 16 sectors per command, which may lead to an operating system crash.

## **Additional Notes and Tips**

You find here additional notes on Zulu2 as well as tips for optimum use.

---

### **Recording Speed**

Zulu2 was designed with a special effort to implement a more correct and precise way of determining the recording speed, combining the capability of both the recorder and the disc you are using. Until a disc is inserted in the drive, Zulu2 does not show any specific speed. Therefore, if you prepare an Action without a disc in the drive, the speeds you can choose are Max (maximum, the default), Med (medium) or Min (minimum). When the disc is recognized and the recording operation begins, Max will set the maximum possible speed of that disc on the drive; Med will set the speed equal to or just below half of the maximum speed, while Min sets the minimum possible.

If an Action is prepared with the disc already inserted in the drive, the speed combo will indicate the possible recording speeds, after Max, Med and Min.

#### **Actual Recording Speed Depends on the Disc**

Recording speed is determined by the combination of the drive and the disc inserted in it. A drive that supports 48x burn speed to CD could instead report only 16x on one disc while another disc could report a 24x speed.

Zulu2 makes a point to not just list the “declared” speeds of a drive, as those speeds that are very often not achievable depending on the media that you are using. Until the disc is inserted in the drive, Zulu2 displays a “neutral” Max, Med or Min; only after the disc’s capabilities are recognized does Zulu2 list the real possible recording speed.

#### **Example of Recording Speed Selection**

Let’s assume that you have a 52x CD recorder, which in theory could record to from 52x down to 4x (many modern drives do not go slower than 4x), and you insert a disc that cannot record faster than 32x on that drive. If you select Max, Zulu2 will pick 32x; if you select Med, Zulu2 will record at 16x, while 4x is the speed selecting Min.

#### **Speeds While Recording**

During recording, Zulu2 indicates the real speed that the drive is achieving in the details area of the action. This speed is the average speed from the beginning of the operation.

---

If you want to see the “instant” speed, which means the speed the operation is going at in the last 2 seconds, double click on the word “Speed” on the Action window.

---

### How to Check a Disc Possible Speeds

The simplest way to verify which speeds are possible by your drive on a certain recordable disc is to insert a disc, and click **Drive > Disc Content** after having selected the drive in the Zulu2 main window. If you now click More, you will see a list of all possible recording and reading speeds after the disc has become ready.

### How to Change the Speed after the Disc is Recognized

To set the speed to a specific value, or to check which actual speed has been selected, before a disc has been inserted (as will happen when using an autoloader device), you need to click **Tools > Options > General** and check "Show the Action Check dialog..." Before the recording starts but after the disc has been recognized, the Action Check dialog will show up; the selected speed is shown, and can be modified at this point.

### CLV vs. CAV speeds

Modern fast drives usually use the CAV (Constant Angular Velocity) scheme, instead of CLV (Constant Linear Velocity). With a CLV drive, the selected speed remains the same all across the recording. This means that the disc will rotate at different speeds, faster at the beginning and slower as the pickup gets more distant from the center.

With CAV, however, the disc rotates always at a selected speed or has 3 or 4 ramp speeds. In this case, the recording speed changes during the recording process. So, when a vendor declares a very high speed for a drive, the declared speed is its maximum possible, occurring only at the outer border of the disc. It is common to see a 52x drive burning at 24x initially, going through several record speed zones, until achieving 52x only at the very end of the disc. If you are not recording a full disc, you are not getting to the maximum burn speed.

---

## The Disclmage Format

A "Disclmage" refers to a set of files that completely describe a CD or a DVD. These files contain all the information retrieved from the disc. Extracting a disc into a Disclmage, which is also referred to as "creating a DI from a disc" or "copying a disc into a DI", and then mastering another disc from that Disclmage is absolutely equivalent to performing a disc to disc copy.

### How Disclmage is Composed

There is one small file, the index, which contains all the disc logical information, with a default extension is ".DI". Zulu2 selects the entire Disclmage by using this index file.

Aside from the .DI file, there is a file for each track of the CD. These files have the same name of the index, but their extension is .DI01a for the 1st track, .DI02a for the second, and so on, eventually up to .DI99a. Therefore, if we create a Disc Image of a CD with 4 tracks, we will result with the files:

- ImageFile.DI
- ImageFile.DI01a
- ImageFile.DI02a
- ImageFile.DI03a
- ImageFile.DI04a

A common standard is that each file not be bigger than 1GB, so creating a Disc Image of a DVD could result in having more files for each zone (a zone for a DVD is more or less the same as a track for a CD). In this case the zone would be split into multiple files, where the last extension character runs a, b, and so on. For instance, the Disclmage of a DVD with 2 zones, the first 1GB or less and the second 2.5GB will be:

- DVDImage.DI
- DVDImage.DI01a
- DVDImage.DI02a
- DVDImage.DI02b
- DVDImage.DI02c

When Zulu2 accesses a Disclmage, all the files are checked, and the parameters contained in the .DI index file are verified for consistency. If you need to move or delete a Disclmage manually, be sure to include all files named "ImageFile.DI\*".

---

## DVD Recording Mode

Because Zulu2 can manage 5 different types of DVD recordable media, DVD-R, DVD-RW, DVD+R, DVD+RW, and DVD-RAM, and because a disc can usually be written in “Disc at Once” or “Incremental” mode, there could be 10 potential possible combinations of medium type and recording mode. 3 of these combinations are considered impossible, and some other limitations are set to keep the remaining modes under control and to maximize the reader compatibility. Please check below the 7 combinations that Zulu2 considers legal.

**DVD-R At Once**

Only blank disc, always closed.

**DVD-R Incremental**

Blank or Incr. disc, closed or not closed. Link or Not the data already on disc (if not blank).

**DVD-RW At Once**

Only blank disc, always closed (DVD-R compatibility mode).

**DVD-RW Incremental**

Blank or Incr. disc, always not closed. Always link data already on non-blank disc (Zulu2 uses the Restricted Overwrite method).

**DVD+R At Once**

Not possible.

**DVD+R Incremental**

Blank or Incr. disc, closed or not closed. Short or Long Lead-out if closed. Link or Not the data already on disc (if not blank). Always record, no test.

**DVD+RW At Once**

Not possible.

**DVD+RW Incremental**

Blank or Incr. disc, always not closed. Always link data already on non-blank disc. Always record, no test.

---

## Shortcut Keys

You can quickly accomplish tasks you perform frequently by using shortcut keys, one or more keys that you press on the keyboard to complete an operation.

For example, pressing CTRL+O will bring up the dialog to open a file, as is common in the Windows interface. Zulu2 also implements shortcuts common all across the Actions; for instance F6 and F7 always open and close the tray of the selected drive, F5 refreshes, and F8 (and Ctrl+F8) open/close the Options and Details windows.

---

## Listview Tip

The “Listview” is a Microsoft Windows control in which a list of information is displayed in icons or in columns. Windows is full of listviews, like the right side of the Windows Explorer. Zulu2 also uses the Listview, primarily in column mode. The drive list of the main window is a Listview, as the compilation file list, for example.

A quick and easy way to automatically resize the columns to fit the longest entries is to double-click on the Field dividing line at the top. Just place the cursor on the dividing line and double-click when the cursor changes to left and right arrows with a bar in between.

Resizing will make dealing with a large number of columns in Zulu2 (as well as in Windows itself) more simple.

