USER'S MANUAL

proTize converter

LaserAnimation Sollinger GmbH · Crellestr. 19/20 · D-10827 Berlin
Phone +49 (30) 780 963 00 · Fax +49 (30) 780 963 25
Email info@laseranimation.com
Internet http://www.laseranimation.com

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Information in this document is subject to change without notice and does not represent a commitment on the part of the manufacturer. The software described in this document is furnished under license agreement or nondisclosure agreement and may be used or copied only in accordance with the terms of the agreement. It is against the law to copy the software on any medium except as specifically allowed in the license or nondisclosure agreement. The purchaser may make one copy of the software for backup purposes. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or information storage and retrieval systems, for any purpose other than for the purchaser‘s personal use, without written permission.

Trademarks

- Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Adobe, Flash, FreeHand, Illustrator and PostScript are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
- Pangolin is a registered trademark of Pangolin Laser Systems, Inc., within the United States and internationally.

Other product and company names mentioned herein may be the registered trademarks, trademarks or service marks of their respective owners.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Contents

Trademarks 2
Contents 3
proTize converter Overview 11
Installation 12
Step 1, before you install proTize converter 12
Step 2, install proTize converter 12
Step 3, connect USB dongle 13
Step 4, authorize Lasergraph DSP for use with proTize converter DSP 14
Additional steps after reinstallation/update 16
Reboot the PC 16
Troubleshooting the Dongle Driver 16
Uninstalling proTize converter 16
Getting started with proTize converter 17
The proTize converter Main Window 20
Overview 20
Converting files 21
Drag and Drop 21
Open Files... 21
Directory Watch 21
Clipboard Watch 21
Command Line 21
Supported File Formats 22
Overview 22
Vector files 22
Adobe® Illustrator® Files (*.AI) 22
Windows® Metafile (*.WMF) 23
Enhanced Metafile (*.EMF) 23
Scalable Vector Graphic (*.SVG) 23
Bitmap Files 24
Windows® Bitmaps (*.BMP, *.DIB) 24
Windows® AVI (*.AVI) 24
JPEG (*.JPG, *.JPEG) 24
Portable Network Graphics (*.PNG) 24
Tagged Image File Format (*.TIF, *.TIFF) 24
Main Menu Reference 25
Overview 25

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

File Menu 25
Minimize (Tray) 25
Open Files... 26
Clear All Pending Files 26
Load into Memory 26
Edit in Piced (DSP Only) 26
Save To Disk 26
Abort Conversion 26
Disable Laser Output 26
Conversion Thread Priority 27
Exit 27

Properties Menu 28
Add Row 28
Delete Row 28
Row Properties 28
Conversion Parameters… 28
Super-Preview Properties… 28

Clipboard Menu 29
Paste 29
Bitmap (BMP) 29
Windows® Metafile (WMF) 29
Enhanced Metafile (EMF) 29
Adobe® Illustrator® (AI) 29

Window Menu 30
Open Preview 30
Open Super-Preview 30
Default Two Windows 30
Default Three Windows 30

Help Menu 30
Manual 30
Check for Updates… 30
About 30

Row Properties Reference 31

Overview 31

General Rollup 33
Enable 33
Priority 33
Parameters 33
Edit… 33

Destination Rollup 34
Location where the converted files are stored 34
If file already exists 34
Write Lasergraph DSP format 35
Catalog name 35

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Create ANI for sequences of ... 35
Write LD2000 format ... 36
Write ILDA format ... 36
Write SWF format ... 37
Width ... 37
Height ... 37
FPS ... 37
Protect SWF from import ... 37
Laser Device Rollup ... 38
Enable Preview ... 38
Output Device ... 39
Load converted images directly into memory ... 39
Clipboard Watch Rollup ... 40
Enable Clipboard Watch ... 40
Save converted files to disk ... 40
Load converted files to memory ... 40
Load converted files into Piced (DSP only) ... 41
Directory Watch Rollup ... 42
Enable Directory Watch for the specified directory ... 42
When file converted ... 43
Conversion Parameters Reference ... 44
Overview ... 44
Toolbar ... 45
Reset Parameters To Default ... 45
Save Parameters ... 45
Delete Parameters ... 45
Parameter set Selection drop down ... 45
Copy ... 45
Paste ... 45
Import ... 46
Export ... 46
General ... 47
Limit time ... 47
Auto Maximize ... 47
Force Aspect ... 48
Aspect X ... 48
Aspect Y ... 48
Clip To Frame ... 48
Clip to these edges ... 48
XMin ... 48
XMax ... 48
YMin ... 48
YMax ... 48
Import Vector ... 49

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Overview ... 49
Convert stroked ... 49
Convert filled ... 49
Favor Stroked ... 49
Convert N ... 49
Convert H ... 49
Omit Black ... 50
Omit White ... 51
Hidden Line ... 51
Hidden Overlap ... 51
Smoothing ... 51
Interpolate ... 53
Fixed ... 53
Map Black To White ... 53
Delete Black ... 53
All White ... 54
DSP 16 Colors ... 54
Rainbow Palette ... 54
Display with Palettized Colors ... 54
True Color ... 54
Pay Attention To Grouping ... 54

Trace Bitmap ... 55
Auto Inverse ... 55
Inverse ... 55
Gaussian Filter ... 55
Threshold ... 55
Remove Foreground Noise ... 56
Remove Background Noise ... 56
Outline Detection ... 56
Trace With X ... 56
Fill Gaps ... 56
Touchup Blanks ... 56

Anchor Detection ... 57
Overview ... 57
Anchor By Scanner Simulation ... 57
Maximum Repeat ... 57
Anchor By Angle ... 58
Minimum Length ... 58
Angle ... 58
Repeat ... 58

Optimization ... 59
Overlap Removal ... 59
Overlap Removal value ... 60
Overlap Removal Minlen ... 60
Overlap Removal Ignore Color ... 60
Overlap Removal Passes Bitmap ... 60

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Overlap Removal Passes Vector ... 60
Recombine ... 60
Recombine value ... 60
Recombine Ignore Color ... 61
Recombine Angle ... 61
To Dot Reduction ... 61
To Dot Size ... 61
To Dot Distance ... 61
To Dot Distance 0 ... 61
To Dot Delete All ... 61
To Dot Ignore Color ... 61
To Dot Delete By Dist ... 62
Keep Right ... 62
Reshuffle ... 62
Animation Correlation ... 62
Optimize Blanking ... 62
Optimize Blanking Timeout in 1/100 sec ... 62
Straighten ... 62
Straighten value ... 62

Overlap Closed Contours ... 63
Overview ... 63
Overlap Closed Contours ... 63
Switch Repeats ... 63
Pre Points ... 63
Post Points ... 63
Overlap Distance ... 63
Overlap Points ... 64

Smart Interpolation ... 65
Overview ... 65
Smart Interpolation ... 65
Normal Distance ... 65
Fine Distance ... 65
Guard Distance ... 66

Softblank ... 67
Overview ... 67
Softblank ... 67
Mindist ... 67
Minlen ... 67
Minangle ... 68
Handle objects separately ... 68
Check boundary ... 68
VBon Dist ... 68
VBon Repeat ... 68
NBon Dist ... 68
NBon Repeat ... 68
VBoff Dist ... 68

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

VBoff Repeat ... 68
NBoff Dist ... 68
NBoff Repeat ... 69
Display Parameters ... 70
Overview ... 70
Scanning Frequency ... 70
Max. Distance Drawn ... 71
Max. Distance Blanked ... 71
To Startpoint Repeat ... 71
Pre Blank On Repeat ... 71
Post Blank On Repeat ... 71
Pre Blank Off Repeat ... 71
Post Blank Off Repeat ... 71
Color Delay ... 71
Soft Blank Down ... 72
Soft Blank Up ... 72
Additional Points ... 72
Preview Window Reference ... 73
Overview ... 73
The Toolbar ... 73
Hand Tool ... 73
Select Tool ... 73
Zoom Tool ... 74
Zoom Out, Type In, Zoom In ... 74
Fit in Window ... 74
Clear Window ... 74
Preview Configuration ... 75
Display Steps ... 75
Input ... 76
Input BW ... 76
Hidden Line ... 76
Filtered ... 76
Thresholded ... 76
Noise Removed ... 76
Outline Detected ... 76
Thin Steps ... 76
Traced ... 76
Final ... 76
Button: None ... 76
Button: All ... 77
Button: Input ... 77
Button: Intermediate ... 77
Button: Final ... 77
Display Information ... 77

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Show Points 77
Show Repeats 78
Show Frequency 78
Show Number Of Points 78

Super Preview 79

Overview 79

Super Preview Properties 79

Super Preview Properties: Default, Load and Save 80

Super Preview Properties: Main 81
Line Width 81
Graphics 81
Fog 82
Beam Detect 82
Beam Table 82

Super Preview Properties: Fog 83
Overview 83
True 3D Fog 83
Structure 83
Clouds 83
Speed 83
Direction 83
Rotate 83

Super Preview Properties: OpenGL Setup 84
Overview 84
Force generic OpenGL driver 84
Enhanced Line Drawing 84
Enhanced Beam Drawing 84
Line/Beam Profile 84
Polygon Smoothing 85
True 3D Fog 85
Load Defaults 85
Save As Defaults 85
Reset To System Default 85

Super Preview Properties: Background 86
Overview 86
Load 86
Intensity 86
Size 86
Position 86

Command Line Reference 87

Overview 87
General syntax 87
Example 87

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Reference **87**
Parameter: -? 87
Parameter: -m 87
Parameter: -r <row> 87
Acknowledgements **88**
Thanks to the Independent JPEG Group **88**
Thanks to authors of libpng, zlib **88**
Thanks to authors of libtiff **88**
Release Notes **89**
Version 2026/09/11 ..... **89**
Version 2026/06/11 ..... **89**
Version 2026/04/30 ..... **89**
Version 2025/11/24 ..... **89**
Version 2023/09/25 ..... **89**
Version 2022/09/12 ..... **89**
Version 2020/06/02 ..... **89**
Version 2018/06/21 ..... **90**
Version 2015/11/24 ..... **90**
Version 2015/09/25 ..... **90**
Version 2015/07/08 ..... **90**
Version 2015/06/18 ..... **90**
Version 2014/07/15 ..... **90**
Version 2014/04/10 ..... **90**
Version 2013/04/10 ..... **90**
Version 2012/12/03 ..... **90**
Version 2011/10/13 ..... **91**
Version 2010/01/18 ..... **91**
Version 2009/04/24 ..... **91**
Version 2008/05/07 ..... **91**
Version 2005/09/08 ..... **91**

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

proTize converter Overview

proTize converter allows conversion of images from various formats into laser images. Bitmap images are supported as well as vector images.

Images can be sent directly to a Lasergraph DSP or a QM2000 board as they are converted. This provides direct feedback in laser and optimizes workflow.

proTize converter can capture images directly from the clipboard which allows integrated work with programs like Adobe® Illustrator®, FreeHand® and Adobe® Flash®. Copy the current image to the clipboard (usually **Ctrl+A** followed by **Ctrl+C**) and it will be captured by **proTize converter** and sent to the Lasergraph DSP or QM2000. It is not even necessary to switch away from the drawing program.

Another option for automated conversion is the built in directory watch. That means **proTize converter** sits in the background, tracking all changes in a given directory. All files found in that directory will automatically be converted by **proTize converter**. A sample application for this is the use with Adobe® Flash®. Once you are ready with your animation, export it with "**`Export Movie`**", choose Adobe® Illustrator® format and select the directory watched by **proTize converter** as the destination. Without any other interaction **proTize converter** will convert the whole sequence to a perfect laser animation sequence.

proTize converter, even though a single program, incorporates a rich set of useful tools:

- A complete bitmap tracer. Allows tracing in Windows® BMP, AVI, JPEG, PNG, TIFF formats and converting these into laser images.
- A complete vector image parser and renderer. This allows conversion of Adobe® Illustrator® files (*.AI), Windows® Meta Files (*.WMF) and Enhanced Meta Files (*.EMF). Rendering of the data with regard to the layer structure is implemented for hidden line removal.
- A clipboard monitor that intercepts images from the clipboard in BMP, WMF, EMF or AI format. This allows simple use of **proTize converter** from within other programs.
- A directory monitor that automatically starts the conversion of files found in a directory.
- A batch processor that allows starting batch jobs even while other jobs are already being processed. Setup all the files that need conversion at once, optionally with different conversion parameters. The thread priority of **proTize converter** can be reduced so that the conversion will only use CPU time not required by other programs.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Installation

Step 1, before you install proTize converter

Lasergraph DSP users should install the latest version of LGRemote and verify that LGRemote can access the Lasergraph DSP over the network. The latest Lasergraph DSP system software should be installed too. Check http://www.laseranimation.com for updates.

Pangolin® users should make sure the LD2000 installation works properly before installing **proTize converter**.

Important: proTize converter comes with a USB dongle. Make sure this dongle is *not* connected during the installation of proTize converter!

If you are upgrading from **proTize converter DSP** (Lasergraph DSP only version) to **proTize converter** (dongle version) please uninstall **proTize converter DSP** first! In general it is a good idea to uninstall previous/different versions of **proTize converter** before installing another version.

Even the dongle version of **proTize converter** needs an additional license key that you must type in once after installation. Without this key you cannot use **proTize converter**. Make sure you have this authorization key available. If you just purchased **proTize converter** this key will be delivered with the installation CD, the dongle and accompanying documentation. If you downloaded **proTize converter** we recommend you request an authorization key *before* updating **proTize converter**. Otherwise you will not be able to use **proTize converter**.
Please contact proTize@laseranimation.com to get information about this key before updating.

Step 2, install proTize converter

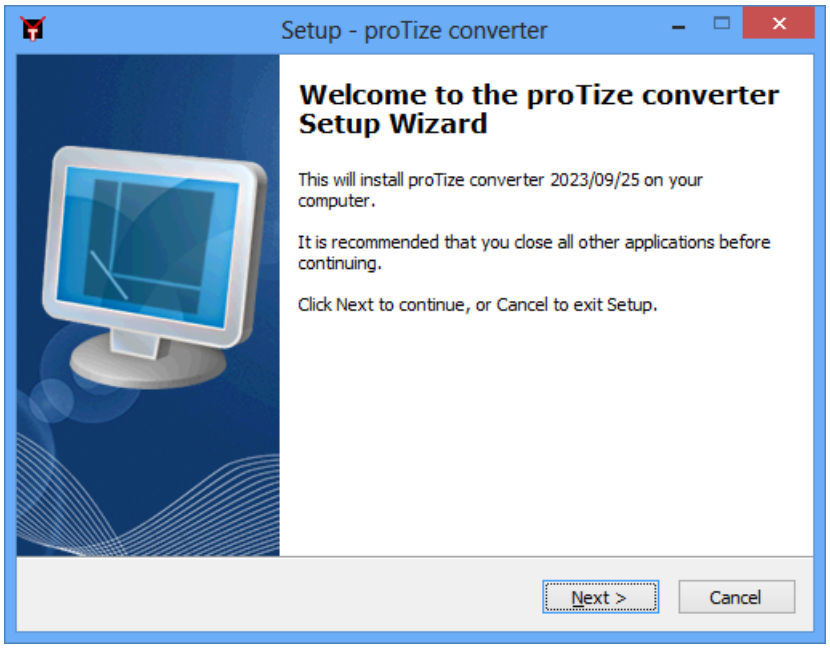
If you received the **proTize converter** installation on CD-Rom, just insert the disk and the installation should start automatically. If the Autorun feature of your CD-Rom drive is disabled you might have to access the drive in Windows® Explorer and double-click **Setup.exe**.

If you are installing a downloaded version (e.g. **proTizeConverter--2023-09-25.exe**), just double-click this file to start installation.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Note: **proTize converter** may be installed on more than one computer. However, **proTize converter** can only be used on one computer at a time. **proTize converter** will only work on the computer that has the dongle connected.

Once the installation starts **follow the instructions carefully**. Make sure to remember the location of the installed directories. This is where you will find **samples, documentation** etc.



Step 3, connect USB dongle

This only applies to the standard version of **proTize converter**. The Lasergraph DSP only version **proTize converter DSP** does not require the dongle.

Connect the USB dongle to any of the USB ports of your PC. The system should report "**new hardware found**" and then automatically install the driver. Often this is just displayed for a short time or will not be visible at all.

Sometimes the system may ask for installation of a driver. Choose "**default**" in such cases. Then start **proTize converter**. If **proTize converter** starts without complaining "**Hardware key not found**", then your installation was successful.

See "**Troubleshooting the Dongle Driver**" if the dongle does not work as expected.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Step 4, authorize Lasergraph DSP for use with proTize converter DSP

This only applies to **proTize converter DSP**, the Lasergraph DSP only version of **proTize converter**. The standard version (that comes with a dongle) does not require this step, whether it is used with a Lasergraph DSP or not.

proTize converter DSP will only work with a Lasergraph DSP that has been authorized for use with **proTize converter DSP**. Make sure to choose a Lasergraph DSP that is accessible from the PC over the network. Remember, you cannot use **proTize converter DSP** without the Lasergraph DSP. So make sure you choose a Lasergraph DSP that is available all the time.

Make sure to install the latest version of the Lasergraph DSP system software. You can download this from http://www.laseranimation.com.

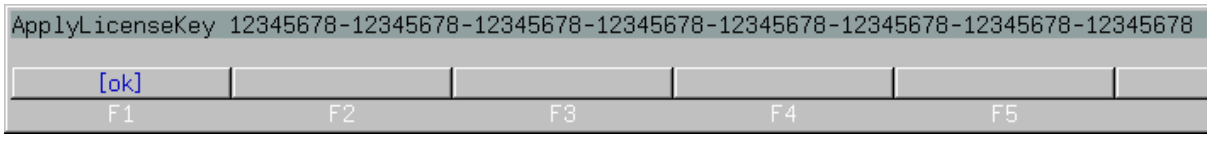
The Lasergraph DSP Mark 2 has a built-in authorization for **proTize converter DSP**. So if you use a Lasergraph DSP Mark 2 you do not need to authorize the Lasergraph DSP manually.

For all other Lasergraph DSPs type "**`ApplyLicenseKey`**" (or the shortcut "**ALK**") without parameters and click OK:

Something like this will be displayed:

The required information is the request code (1234567 in the example). Send this to LaserAnimation to receive an authorization key.

As soon as you have the key, apply it like this:



Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Since the key is rather long (about 80 characters) we recommend using LGRemote and cut and paste to avoid actually typing the key. Note, the key can only be applied once. The Lasergraph DSP will respond like this:

The actual response will be different for each Lasergraph DSP.

Now start **proTize converter DSP**. From the menu select "**`Properties ⇨ Row Properties...`**". In "**`Laser Device`**" you will find "**`Output Device`**". Open the list and select the Lasergraph DSP that was authorized for use with **proTize converter DSP**. Then from the main menu select "**File ⇨ Open Files...**" and navigate to the directory where **proTize converter DSP** was installed (usually "**`C:\Program Files\proTize converter DSP`**"). Find "**Samples\Turtle.BMP\Turtle-001.bmp**" and open it. If everything works the file will be converted.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Additional steps after reinstallation/update

Reboot the PC

Usually you will be informed by the installer in case a reboot is required. But if things do not work properly a reboot may solve the problem even if this was not requested.

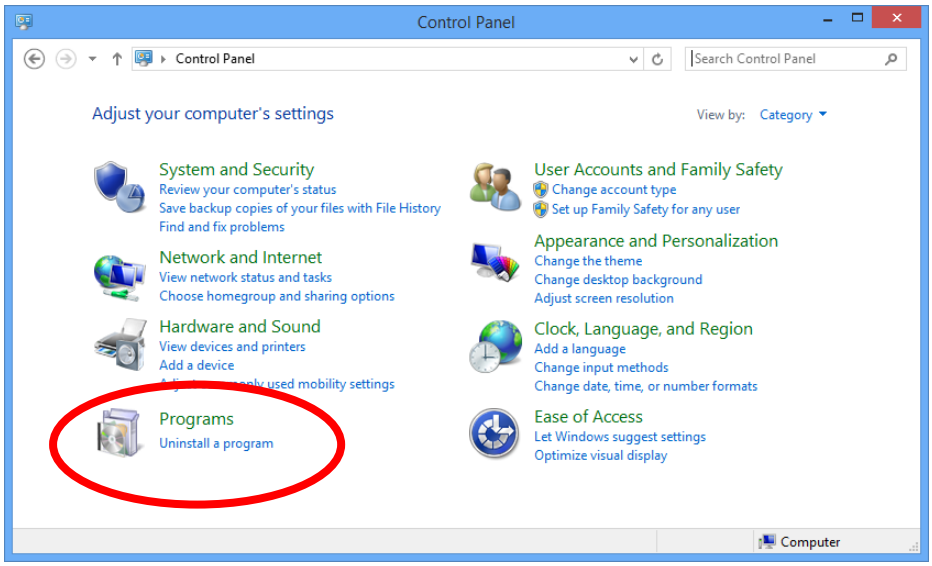
Troubleshooting the Dongle Driver

If the dongle is not recognized properly, check the installation of the driver. It can be found in "**`Start ⇨ proTize converter ⇨ Dongle Driver`**". Repair or reinstall the driver to correct any problems. Follow the instructions of the installer carefully.

In some cases the installation of the driver might fail due to an older version of the driver already installed. In such cases remove the old driver (**`Control Panel ⇨ Programs ⇨ Sentinel Protection Installer`**), reboot if requested and reinstall **proTize converter** (or at least the dongle driver).

Uninstalling proTize converter

To uninstall **proTize converter** open the "**`Control Panel`**" and select "**`Uninstall a program`**"



The dongle driver is not automatically removed from the system by uninstalling **proTize converter**. If you are sure you do not need it anymore you can manually remove the "**`Sentinel Protection Installer`**", found in "**`Control Panel ⇨ Programs`**" option "**`Uninstall a program`**".

Do not uninstall the driver if you have any other software installed that comes with a dongle (like proTize max) - unless you are going to uninstall this too.

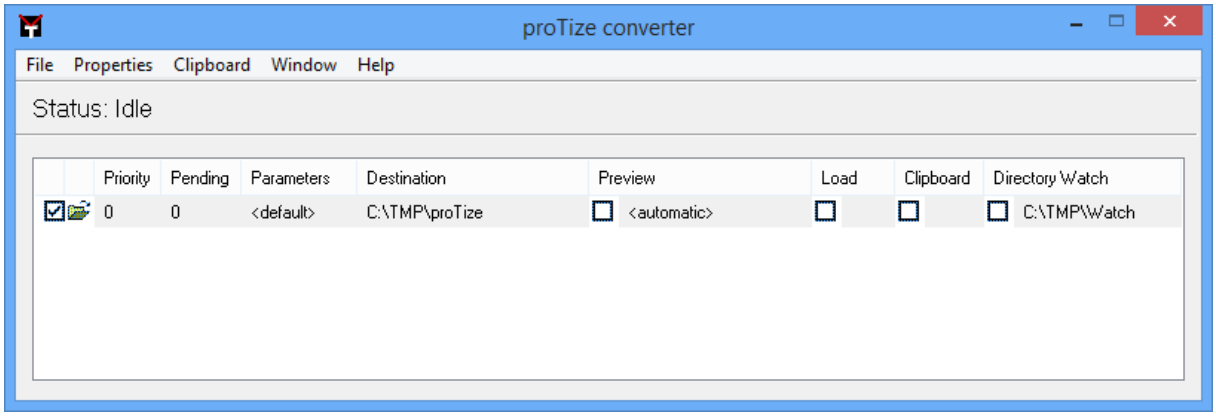
Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Getting started with proTize converter

To get started with **proTize converter** and a Lasergraph DSP load **proTize.FILM** on your Lasergraph DSP. This is a simple film that will display the images in laser as they are converted by **proTize converter**. The film uses a default color palette setup that matches the colors as they are created by **proTize converter**.
This film can be found on the PC in the directory where **proTize converter** was installed. With the standard installation this would be "**`C:\Program Files\proTize converter\DSP-Stuff`**".
Once the film is loaded go to edit mode, activate the line with "**`DisplayAnimation`**" and leave the Lasergraph DSP alone. The Lasergraph DSP will automatically capture the output of **proTize converter** and display the images in laser.

If you are using an LD2000 system it is best to close all other programs accessing the QM2000 board to avoid conflicts.

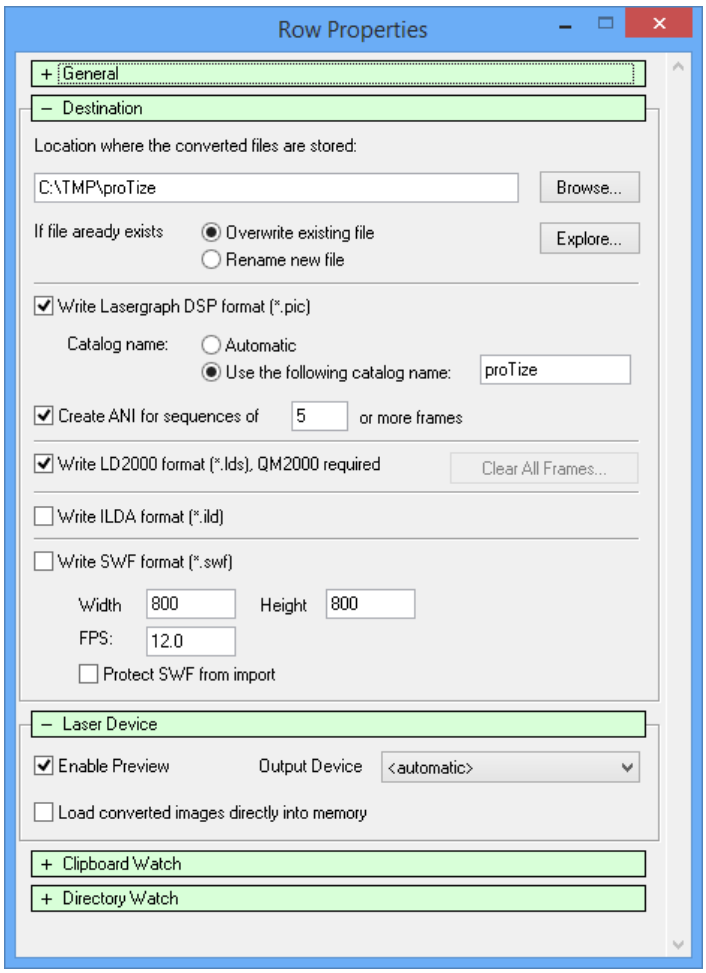
Now start **proTize converter**. You will get three windows. Two preview windows showing the input and output of the conversion and the main **proTize converter** window.



The main window shows one row of conversion properties. Later we will show how to add more rows in order to define different parameter sets for converting different types of images. For now we will use the default.

The first thing to do now is to define which laser device to use, where to store the converted files and which formats to create. This is done with the Row Properties. From the main menu select "**`Properties ⇨ Row Properties`**" or just press **Ctrl+R**. The Row properties windows shows up:

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.



"**`Destination`**" contains all the output options. Choose a location for the converted files. All converted files will be placed into this directory.

Then check the output formats you need. You can enable more than one format.
Lasergraph DSP users enable "**`Write Lasergraph DSP format`**".
Pangolin® users will probably enable "**`Write LD2000 format`**" instead. Note: this format is only available if a QM2000 board is installed. Otherwise you should choose "**`Write ILDA format`**".
Optionally "**`Write SWF format`**" (to create Adobe® Flash® previews).

Next choose the laser device to use for preview. You will find the option below.
Lasergraph DSP users will select one of the Lasergraph DSPs from the list.
LD2000 users will just select "**`LD2000`**".

Warning: You can use "**`<automatic>`**" to select any Lasergraph DSP in the network. But it is highly recommended that you explicitly select which Lasergraph DSP to use to avoid conflicts. If there is more than one Lasergraph DSP in the network you will never know which one **proTize converter** ends up using.

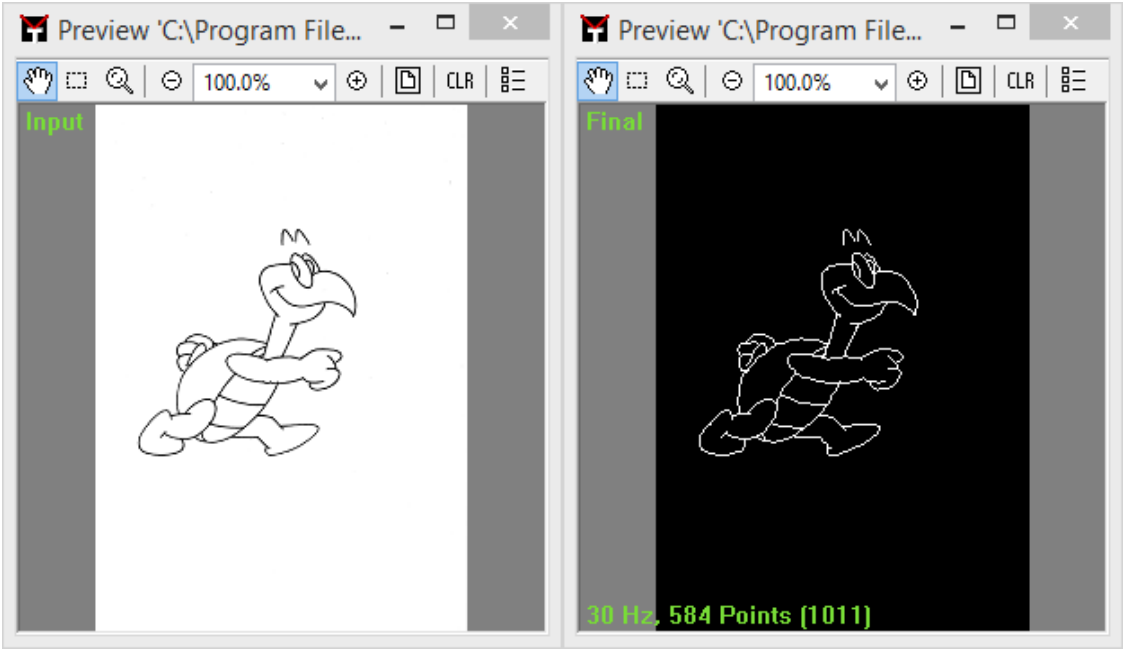
Finally check "Enable Preview" so that converted images will directly be displayed by the selected Lasergraph DSP or LD2000.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

You are now set up for your first conversion. Close the properties window.

From the menu select "**`File ⇨ Open Files...`**". A file open dialog appears. Navigate to the directory where **proTize converter** was installed (default installation will be in "**`C:\Progam Files\proTize converter`**"). Find the directory "**`Samples\Turtle.BMP`**". In this directory you will find **turtle-001.bmp – turtle-008.bmp**. Open the first one.

Right away the right window will show the first image converted by **proTize converter**:



The image should also be displayed in laser.

In a second step we will convert the small animation sequence. Select "**Open Files**" from the menu again (or hit **Ctrl+O**) and select all files in **Turtle.BMP**. The whole sequence will then be converted. Alternatively just specify wildcards (*.bmp etc.) to choose multiple files for conversion.

Next we will look at the clipboard watch. Enable the checkbox below **Clipboard**. Then go to your favorite drawing program, load or create an image and hit **Ctrl+C** to copy it to the clipboard.

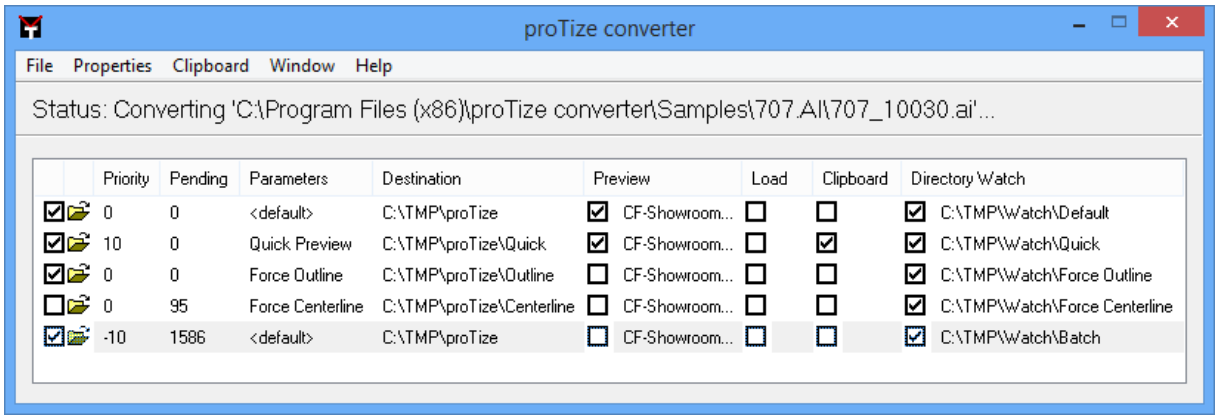
You should see the image in **proTize converter** and (if preview is still enabled) in laser.

If the image does not appear check the different formats available from the **Clipboard** menu (in the main menu of **proTize converter**).

Probably one of the formats will be supported by your program.
Test all formats to find the one that provides the best results. (You only have to click on a different format and **proTize converter** will convert the graphic again using this format if available.) Often the quality of one of the formats is significantly better.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

The proTize converter Main Window



Overview

In the example above the main window of **proTize converter** provides the rows of different conversion setups. Each row represents a unique set of properties. The row properties define where to get images from, where to store the conversion results, whether to display the result in laser, which set of conversion parameters to use etc.

You see five rows. The first row has a priority of 0, no files pending, uses the default parameters, stores converted images in "**`C:\Tmp\proTize`**". The result is displayed on the Lasergraph DSP "CF-Showroom", but not directly loaded into memory. The clipboard is ignored. The directory "**`C:\Tmp\Watch\Default`**" is watched. Any files found there will be converted by this row with the properties and parameters defined for this row.

In the second row we are using a set of parameters named "**`Quick Preview`**". This row is intended for a quick preview of conversions. The conversion parameters have been optimized for quick conversion, not for best quality. This makes sense to get fast feedback when watching the clipboard. The row has the highest priority (10), so that whenever there are files pending in this row they will be converted first.

The last row in this example has quite some files pending (1586 to be precise). Since the priority of this row is lowest (-10), the files pending for conversion in this row will only be converted if there is nothing else to be converted. This happens in the background, so **proTize converter** can still be used to convert images from the clipboard etc.

The fourth row (Force Centerline) has files pending, but is currently disabled, so the files are not converted.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Converting files

Drag and Drop

proTize converter supports drag and drop operation. To convert files drag the files over from Windows® Explorer to one of the rows of the **proTize converter** main window. The files will become pending in the selected row. You can also drop files in one of the preview windows. The current row (the one that is highlighted) will be used to determine properties and conversion parameters.

Open Files...

Another option to start the conversion is to open the files explicitly. Double click the row you want to use for conversion. A standard Windows® file dialog will open. Select the files you want to convert. Note: you can use wildcards to specify the files to be converted. E.g. "`*.*`" to convert all files, "`*.AI`" to convert all AI files etc.
Open Files is available from the main menu (**File**), from the context menu of a row and from the keyboard (**Ctrl+O**) .

Directory Watch

This is a method to convert files without any direct interaction with **proTize converter**. Each of the rows can be set up to watch a directory for all files found in the specified directory. The files found in this directory will be converted automatically. This works even if **proTize converter** is minimized to the tray. If for instance you are working with Adobe® Flash®, once you have your movie ready export it to one of the directories (as an AI sequence) and **proTize converter** will automatically convert the whole sequence. This way you do not have to switch applications. See **Row Properties Reference** for details.

Clipboard Watch

The clipboard watch tracks all changes to the clipboard. Whenever there is an image placed on the clipboard, this will be detected by **proTize converter**. If one of the rows is enabled to watch for clipboard changes, the image will be converted by that row. Since an image can be placed on the clipboard in different formats you can select the preferred format. See **Main Menu Reference** for details.

Command Line

proTize converter supports starting conversion by specifying command line parameters. "`proTizeConverter.exe -r2 C:\tmp\cool*.ai`" would start the conversion of all files matching the pattern "`c:\tmp\cool*.ai`". The second row will be used for conversion. See **Command Line Reference** for details. Ideal for automated workflow using batch files etc.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

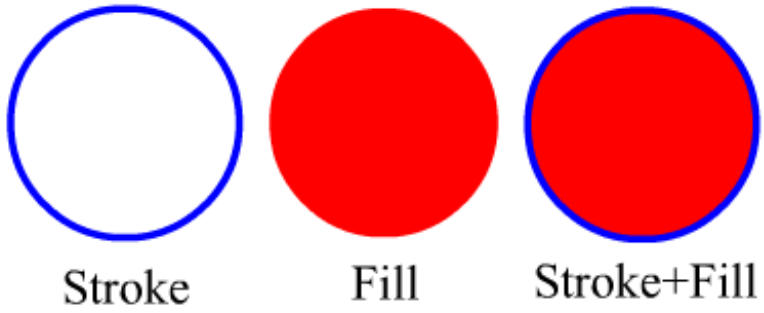
Supported File Formats

Overview

proTize converter has support for many different file formats. There are two main categories: vector formats and bitmap formats. It is important to understand the difference.

Vector files

Vector images are already pretty close to what is needed for laser display. They are made up of lines (curves) that define the boundary of shapes. The shapes are either stroked, filled or both.



The actual structure of vector files can be pretty complex. **proTize converter** tries to interpret all the data in vector files to create a perfect laser image. If there is text in such a file this text must be converted to paths in order to be recognized by **proTize converter**. Almost any vector drawing has an option to achieve this. e.g. with Adobe® Flash® select the text, then choose **Break Apart**. With CorelDraw® there is an explicit **Convert to Paths** option. Check the manual of your favorite vector drawing tool.

Adobe® Illustrator® Files (*.AI)

The AI format is one of the most important vector formats. It is so important because almost any application that deals with vector data has an option to import and - more important for working with **proTize converter** - export data in AI format. Actually there are many different versions of this format. And some vector drawing tools allow defining explicitly which version to create. **proTize converter** tries to handle all versions up to AI 7.0. If you try to export from another program for conversion with **proTize converter**, you should try which version produces best results for your application. If more than one version of the AI format is supported, try the highest version first, then check the other versions provided. Version 8.0 and later are not supported by **proTize converter**.

Even though **proTize converter** tries to interpret AI files as well as possible, **proTize converter** will not always handle everything that is found in an AI file. As stated above, text is not supported unless it is converted to paths, bitmaps that are present will be ignored. Also some sophisticated features of AI files that only make sense for printing and publishing are ignored by **proTize converter**. Gradient fills and complex path constructs may be ignored or misinterpreted by **proTize converter**.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Most of the time the AI format produces the best results for conversion of images with **proTize converter**. So this should be your first choice.
Note: **proTize converter** supports the AI format on the clipboard. However few programs place data on the clipboard in AI format. The quality of the AI data found on the clipboard is often different (worse) from the quality of an explicitly exported file. It is up to you to figure out whether this works with your favorite vector drawing tool.

Windows® Metafile (*.WMF)

The Windows® Metafile format is the standard Windows® graphics format. It supported by most Windows® applications that deal with images. The quality of data found in WMF files varies from application to application. Sometimes the results are very good, sometimes the data is almost unusable for **proTize converter**. Actually the WMF format is not limited to vector data. It can contain vector data, bitmaps, text etc. **proTize converter** ignores any bitmaps or text found in WMF files. If the files seem to be empty when being converted with **proTize converter**, then the file is probably a bitmap encapsulated in a WMF file. This is not uncommon. In those cases export the image to the BMP format.
proTize converter tries to interpret WMF data as well as possible. But there are some limitations similar to conversion of the AI format.

proTize converter supports WMF data from the clipboard. The quality of data placed on the clipboard depends on the program. Try EMF too!

Enhanced Metafile (*.EMF)

Enhanced Metafiles are similar to WMF files. This is also a standard Windows® graphics format, although it is not as commonly supported. However, if supported by an application the quality of the data is often better than the same data exported to WMF. If an application supports the EMF format it is always worth to test this format. Unfortunately this is not a rule, we have also seen programs that produced pretty good quality WMF data but terrible EMF data - at least regarding the final quality after converting with **proTize converter**.

The EMF format is supported by **proTize converter** when converting images from the clipboard. Again you need to test if this produces satisfying results with your favorite tools.

Scalable Vector Graphic (*.SVG)

SVG files can be opened by **proTize converter** using Inkscape (www.inkscape.org).
To enable this, Inkscape must be installed in the default installation path "C:\Program Files\Inkscape".

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Bitmap Files

Bitmaps (also referred to as raster images) are made up of pixels. There is no information about the shapes of objects in a bitmap. Therefore **proTize converter** has to figure out the shape. This process is called tracing. We have put a lot of research into tracing images for the conversion into laser images. The result is one of the best tracing tools available today. Still, if the original data is available in one of the vector formats, try this first. Tracing can never achieve the same quality. Another reason for preferring the vector formats is that **proTize converter** does not currently support color when tracing bitmap images. Colored images are always converted to black and white before being converted. Any color information present will be lost.

With vector files it often makes sense to test all the available formats to find the one which produces the best quality in combination with **proTize converter**. This is different with bitmaps. Usually it does not make any difference which of the formats is used. However, there are some compressed formats that allow reducing the size of the files at the cost of degraded quality. JPEG is such a format. So you should avoid saving to such a format for conversion with **proTize converter**. On the other hand, if you have a file in JPEG format you will not get better results by converting this to BMP before converting it with **proTize converter**.

Windows® Bitmaps (*.BMP, *.DIB)

The Windows® bitmap format, also referred to as device independent bitmap (DIB), is the most commonly supported format. Almost any Windows® application that deals with images supports the Windows® bitmap format.
The BMP format is the only bitmap format supported by **proTize converter** to get images from the clipboard. This is no limitation, as this is the standard bitmap format when working with the clipboard.

Windows® AVI (*.AVI)

The Windows® AVI format is actually a movie format, not a frame format. It is still supported by **proTize converter**. The frames present in an AVI file are all converted if an AVI file is opened by **proTize converter**. This can be handy when working with large numbers of frames.

JPEG (*.JPG, *.JPEG)

This format is commonly used to transfer images over the internet. It compresses files to achieve a smaller file size. However, the compression is achieved by omitting details from the image. If the level of compression is too high, the image can be significantly reduced in quality. Avoid creating images in JPEG format when creating images for conversion with **proTize converter**.

Portable Network Graphics (*.PNG)

The PNG format has been introduced as a bitmap format that supports many features while being portable across different platforms. It is sometimes used to transfer images over the internet. It is supported by most graphics programs.

Tagged Image File Format (*.TIF, *.TIFF)

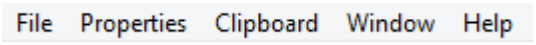
The TIFF format is often used by desktop publishing software. It is pretty commonly used.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

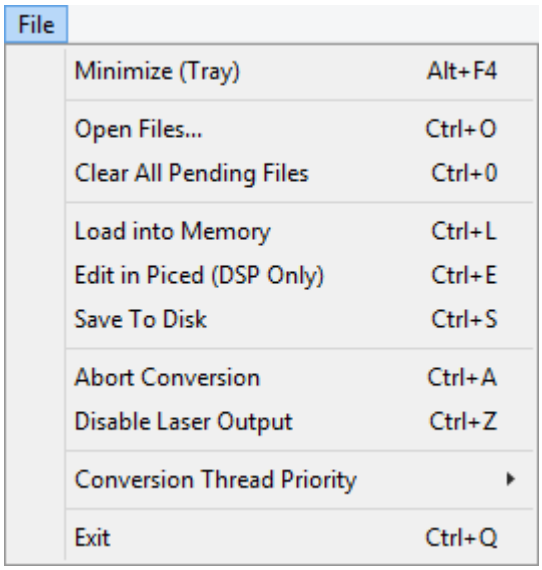
Main Menu Reference

Overview

This is the reference information about the **proTize converter** main menu. The menu is found in the **proTize converter** main window.



File Menu



Minimize (Tray)

Minimize allows hiding all **proTize converter** windows without actually closing **proTize converter**. It remains in the background waiting for images to be processed. You will find **proTize converter** in the tray.

See **proTize converter Tray** for more details.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Open Files...

This is one of the ways to open files to be converted. The files opened will be converted with the properties defined by the current row. You can select multiple files or specify wildcards when opening files.

Clear All Pending Files

Discards all pending files from the current row. This aborts all files that have been selected for conversion with the parameters of the current row.

Load into Memory

Loads the current image into the memory of the Lasergraph DSP or LD2000 (again).
This is useful if parameters have been changed after converting an image. In such cases the image has been automatically reconverted and displayed, but not loaded into memory. This makes sense to avoid creating multiple copies and to avoid discarding the previously converted image if you change parameters only to prepare for the next images to be converted.
If you changed parameters to optimize the conversion of the current image press **Ctrl+L** to load it into memory once you are done.

Edit in Piced (DSP Only)

Loads the current image into the Piced of the Lasergraph DSP (not available with LD2000).
Note that this will work only if the Piced is currently active in the Lasergraph DSP. Otherwise an error message will be displayed.

Save To Disk

Save the last image directly to disk (again). When you open or drag files into **proTize converter**, the files will automatically be written to disk in the formats enabled in the **Row Properties**. However, if you change parameters *after* an image has been converted it is reconverted on each change of the parameters and shown in the preview, but not rewritten to disk. This makes sense to avoid multiple copies and to avoid discarding the last converted image if you are only changing the parameters to prepare for the next image(s) you want to convert.
If you still want to overwrite the last state with the new parameters press **Ctrl+S**.

Abort Conversion

Aborts the conversion of the current image. Most of the time **proTize converter** will convert images in a few seconds. But sometimes, for very complex images the conversion takes much longer. In such cases, if the preview of the input indicates the image is going to be too complex anyway, you might want to abort the conversion.

Disable Laser Output

Disable laser display of last image converted. Sends an empty image to be displayed by the Lasergraph DSP or LD2000. This does *not* disable output permanently. The next image converted will be displayed normally.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Conversion Thread Priority

By default **proTize converter** uses CPU time as any other program when it converts images. It is possible to lower the priority of the conversion so that only CPU time not used by other programs is consumed by **proTize converter**. This allows working with the PC while converting images in the background.

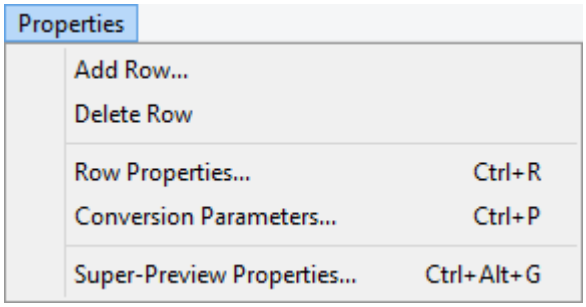
Exit

Exit **proTize converter**. Any pending conversions will be discarded. You will get a warning if **proTize converter** is not idle when exiting.

LaserAnimation Sollinger GmbH · Crellestr. 19/20 · D-10827 Berlin
Phone +49 (30) 780 963 00 · Fax +49 (30) 780 963 25
Email info@laseranimation.com
Internet http://www.laseranimation.com

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Properties Menu



Add Row...

A new set of conversion parameters is created and a new row is added to the main window. The row properties window will be opened to allow modification of the properties for the newly created row.

Delete Row

Deletes one set of conversion properties. This cannot be undone!

Row Properties...

Opens the properties of the selected row.

Conversion Parameters…

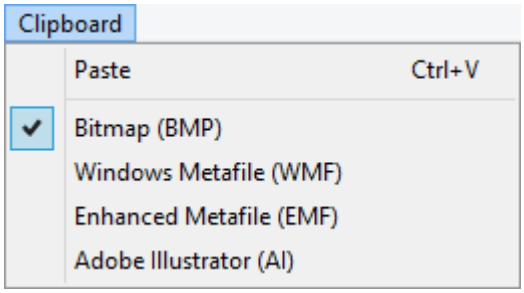
Opens a conversion parameters window. These are the core values that determine how the images are converted.

Super-Preview Properties…

Opens the Super Preview Properties window. See chapter **Super Preview** for details.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Clipboard Menu



Paste

Paste the current image on the clipboard for conversion as defined by the current row.

Bitmap (BMP)

Select the bitmap format as the preferred clipboard format. See **Working with the Clipboard** for details. This is the right choice for converting bitmap images from the clipboard.

Windows® Metafile (WMF)

Select Windows® Metafile as the preferred clipboard format. See **Working with the Clipboard** for details. Most vector drawing programs provide metafile data on the clipboard.

Enhanced Metafile (EMF)

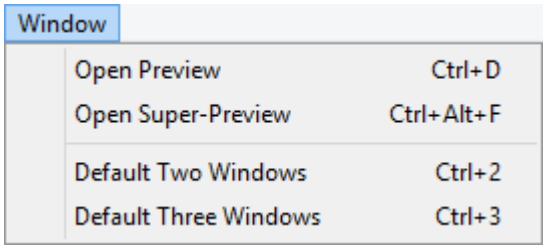
Select Enhanced Metafile as the preferred clipboard format. See **Working with the Clipboard** for details. Sometimes this results in better quality than Windows® Metafiles.

Adobe® Illustrator® (AI)

Some programs provide vector data in Adobe® Illustrator® format. Most of the time this results in the best quality. See **Working with the Clipboard** for details.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Window Menu



Open Preview

Open another preview window. Up to 6 different preview windows can be opened. See **Working with Preview Windows** for details.

Open Super-Preview

Opens the Super Preview window. See chapter **Super Preview** for details.

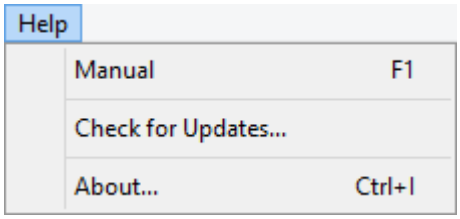
Default Two Windows

Choose default layout of two preview windows. The left window shows the input image, the right window the final output.

Default Three Windows

Choose default layout of three preview windows. The left window shows the input image, the right window the final output. The middle window shows all intermediate states.

Help Menu



Manual

Opens the **proTize converter** manual.

Check for Updates…

Checks if a newer version of proTize converter is available.

About...

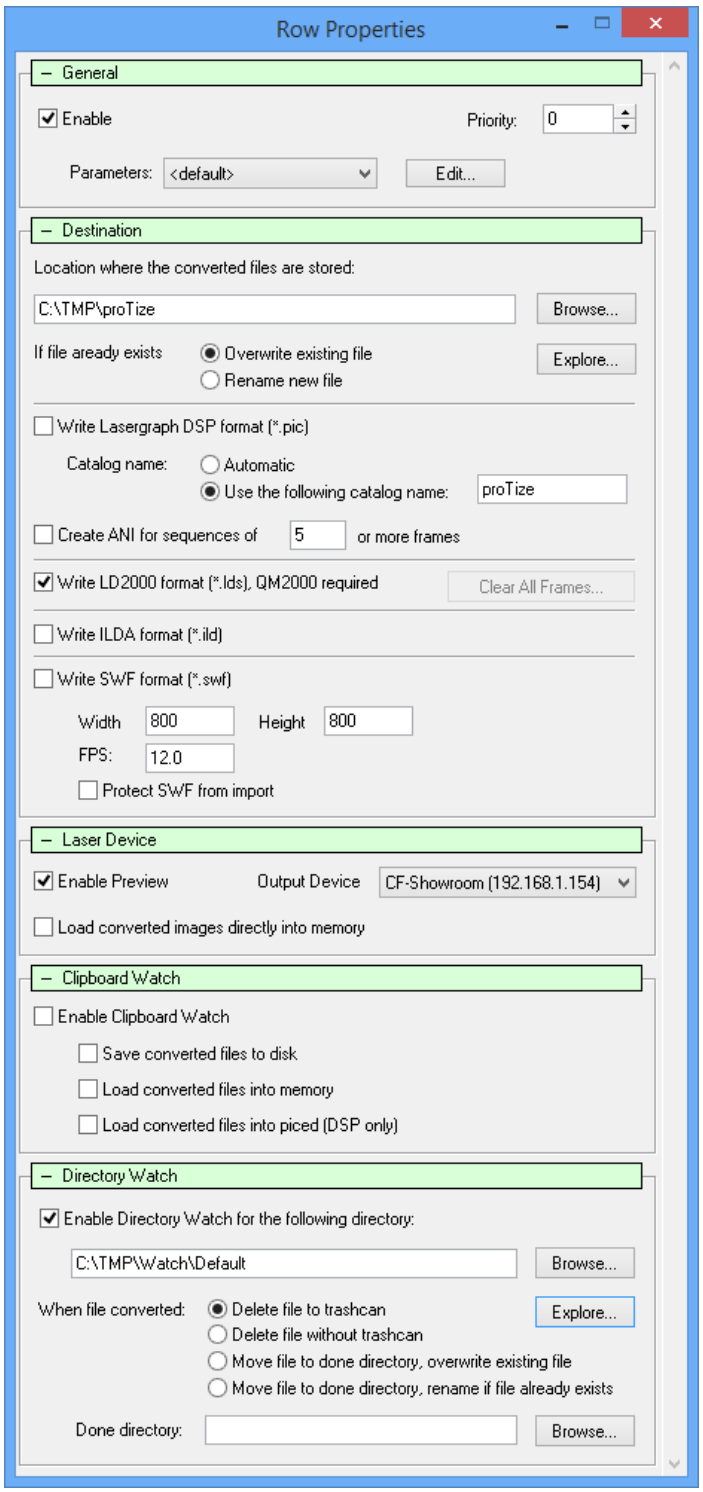
Opens the about dialog that shows version info as well as acknowledgements.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Row Properties Reference

Overview

The row properties define which set of conversion parameters to use, where to store the converted files, whether to display the converted images with a Lasergraph DSP/LD2000 etc.



Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

To access the properties of a row click the row with the right mouse button, then select **Row Properties** from the context menu that opens up. Alternatively activate the row (by clicking onto it with the left mouse button), then press **Ctrl+R** or select **Row Properties** from the main menu.

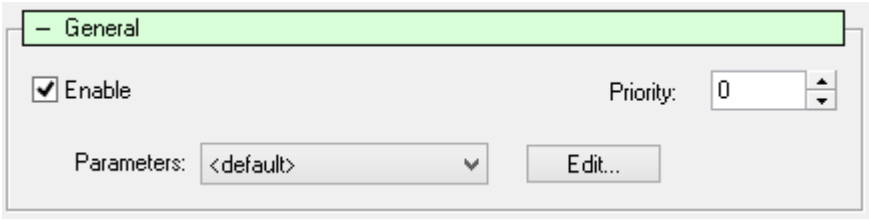
Note: The Row Properties dialog is non-modal like most other dialogs in **proTize converter**. The dialog can be left open without blocking **proTize converter**. All changes will be effective immediately - there is no Cancel. If another row is selected while the Row Properties dialog is open the dialog will be updated to reflect the state of the selected row.

The dialog is divided into 5 sections. Each of the sections can be opened or closed by clicking onto the headline. (Rollup)

LaserAnimation Sollinger GmbH · Crellestr. 19/20 · D-10827 Berlin
Phone +49 (30) 780 963 00 · Fax +49 (30) 780 963 25
Email info@laseranimation.com
Internet http://www.laseranimation.com

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

General Rollup



Enable

Default: checked.
Global enable of this row. Uncheck to halt conversion of all files pending in this row. The conversion can later be restarted for the remaining files by checking this box.
Note: This option is directly accessible in **proTize converter**'s main window.

Priority

Default: 0.
If more than one row is enabled and has files pending, the priority defines which is converted first. Higher priority wins. Having a row with high priority is useful to convert images that are more important than other files.
Note: This option is displayed in **proTize converter**'s main window.

Parameters

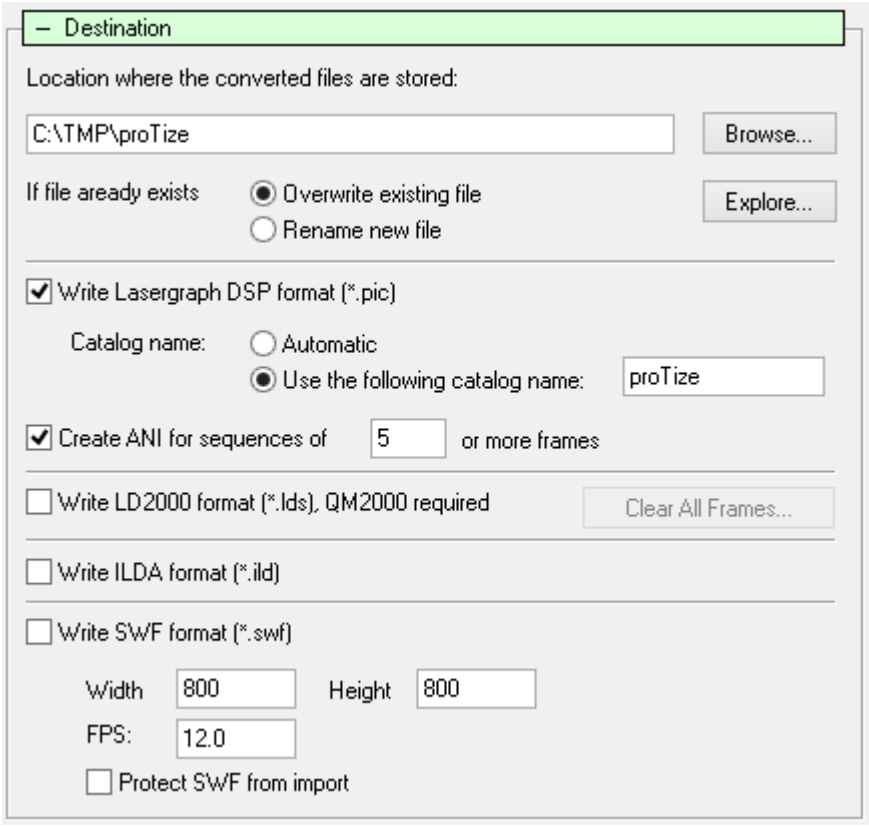
Default: <default>.
The drop down list shows all currently defined conversion parameter sets. Once you find a special combination is suitable for a special application you can assign a name to it. Then it will be available from the list here. See **Conversion Parameters Reference** for details. If the parameters have been changed but have not been given a name yet this field will be empty.
Note: This option is also displayed in **proTize converter**'s main window.

Edit…

Click Edit to change the conversion parameters. This opens the Conversion Parameters dialog. See **Conversion Parameters Reference** for details.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Destination Rollup



As the name implies this defines the destination of the converted files. Once a file has been converted it is saved to disk in the formats and location defined here.

Location where the converted files are stored

Default: <MyDocuments>**proTize**.
This defines the destination directory where the images will be saved in.
"**`Browse`**" allows selecting/creating that directory.
"Explore..." will open the current destination directory in Windows® Explorer.
Note: This option is also displayed in **proTize converter**'s main window.

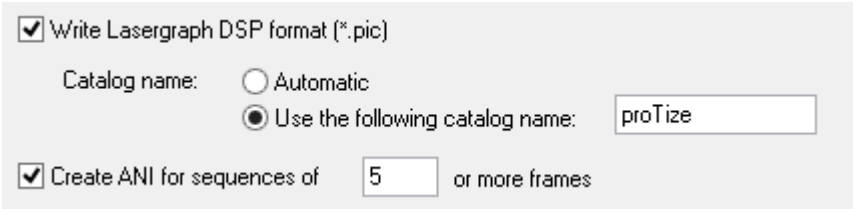
If file already exists

Default: Overwrite existing file.
By default "**`Overwrite existing file`**" is activated. Most of the time this is what you want. This assumes that if you ever convert a file again, you want the new file to replace the old one. If you want to preserve old versions choose "**`Rename new file`**". This will rename the new file if another file with the same name already exists.
E.g., the first time you convert "**`Cool.bmp`**" the resulting file will be saved as "**`Cool.*`**" (extension depends on selected output formats). Later, when you decide to reconvert the image, **proTize converter** will recognize that a file named "**`Cool.*`** " already exists. With "**`Rename new file`**" the old "**`Cool.*`**" will not be overwritten. Instead the new files will be saved as "**`Cool(2).*`**", "**`Cool(3).*`**" etc.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Note: Unless you really want to keep all different version we recommend to leave "**`Overwrite existing file`**" selected.

Write Lasergraph DSP format



Default: checked if no LD2000 system is installed.
Enable this to create images in Lasergraph DSP format. With **proTize converter DSP** this is the only format available.

Catalog name

Default: Use the following catalog name: **proTize**.
As you know, for the Lasergraph DSP images are organized in catalogs. To comply with this rule **proTize converter** will create a catalog (actually a directory with extension "**`CATL`**") and store the converted images into that catalog. There are two main choices: "**`Automatic`**" and "**`Use the following catalog name`**". With "**`Automatic`**" **proTize converter** will create a catalog name based on the name of the converted files. If you convert a sequence of images like "**`cool-0001.bmp`**" .. "**`cool-1234.bmp`**" then **proTize converter** would automatically create a catalog "**`cool.CATL`**". While this might be a good idea for animation sequences this can result in an excessive number of catalogs when converting different images that are not related to each other. In the worst case you will end up with one catalog for each converted image. In such situations it is better to store all images in one catalog.
The default causes all converted images to be stored in a catalog named "**`proTize`**".

Create ANI for sequences of

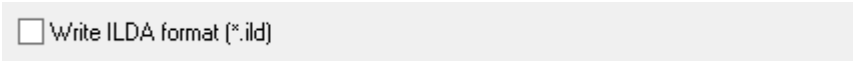
Default: checked, 5 or more frames.
If this is enabled animations are automatically created for sequences of five or more frames. This works if the filenames only differ in a number like with **`Turtle-001.bmp`**, **`Turtle-002.bmp`**. A value of 5 means that at least five consecutive frames must be converted in order to result in an animation being created. If you change this value to 1 you will even get animations for single frames.
If loading of images is enabled the animation will automatically be loaded into the Lasergraph DSP. If preview is enabled too the animation will be played directly when conversion is finished.
Note: When converting files from the clipboard or from watched directories the animation is created after no files are converted for about 10 seconds. This timeout allows combining several files saved into a watched directory or files transferred over the clipboard.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Write LD2000 format

Default: checked if LD2000 is installed.
If checked then files will be created in the native LD2000 format (*.lds). Note: this option is only available if an LD2000 system is installed.
When sequences of files are converted, **proTize converter** tries to combine files that only differ by a number into one file. E.g. converting "**`Turtle-001.bmp`**" ... "**`Turtle-009.bmp`**" will result in a single file "**`Turtle.lds`**" which contains 9 frames. If the sequence starts with number 0 or number 1 the name of the *.lds file will omit the number. If other sequences are converted the name of the *.lds file will reflect the range. E.g. converting "**`Turtle-010.bmp`**" ... "**`Turtle-020.bmp`**" will result in "Turtle-010-020.lds".
If sequences are converted from the clipboard or directory watch, **proTize converter** waits for about 10 seconds before assuming the sequence is complete.
When converting images to LD2000 format some temporary storage in the QM2000 board is required. **proTize converter** will try to find a free block of frames. If not enough slots are available an error message will be displayed. "**`Clear All Frames...`**" will delete **all** frames from the QM2000 board to free up space in such cases.

Write ILDA format



Default: unchecked.
Will create frames in ILDA format. Does not require LD2000 board. So this is the option to choose if you want to create frames for Pangolin® if no QM2000 board is installed.
And this is the format if you have neither an LD2000 system nor a Lasergraph DSP.
When sequences of files are converted, **proTize converter** tries to combine files that only differ by a number into one file. E.g. converting "**`Turtle-001.bmp`**" ... "**`Turtle-009.bmp`**" will result in a single file "**`Turtle.ild`**" which contains 9 frames. If the sequence starts with number 0 or number 1 the name of the ILDA file will omit the number. If other sequences are converted the name of the ILDA file will reflect the range. E.g. converting "**`Turtle-010.bmp`**" ... "**`Turtle-020.bmp`**" will result in "Turtle-010-020.ild".
If sequences are converted from the clipboard or directory watch, **proTize converter** waits for about 10 seconds before assuming the sequence is complete.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Write SWF format

Default: unchecked.
Check this to create Adobe® Flash® files. Useful as a preview if no laser output is available.

Width

Default: 800.
Specifies the width (in pixels) of the Adobe® Flash® movie.

Height

Default: 800.
Specifies the height (in pixels) of the Adobe® Flash® movie.

FPS

Default: 12.
Specifies frames per second of the Adobe® Flash® movie.

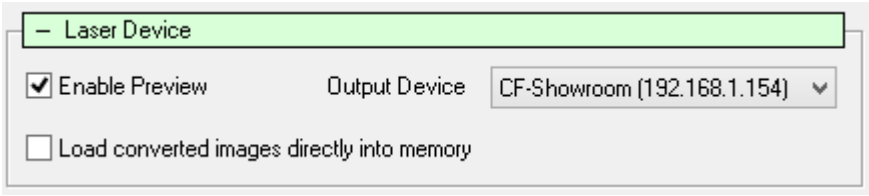
Protect SWF from import

Default: unchecked.
Protects the Adobe® Flash® movie so that it cannot be edited. This is not a secure protection. Some software packages allow editing the files anyway.

When sequences of files are converted, **proTize converter** tries to combine files that only differ by a number into one file. E.g. converting "**`Turtle-001.bmp`**" ... "**`Turtle-009.bmp`**" will result in a single file "**`Turtle.swf`**" which contains 9 frames. If the sequence starts with number 0 or number 1 the name of the SWF file will omit the number. If other sequences are converted the name of the SWF file will reflect the range. E.g. converting "**`Turtle-010.bmp`**" ... "**`Turtle-020.bmp`**" will result in "Turtle-010-020.swf".
If sequences are converted from the clipboard or directory watch **proTize converter** waits for about 10 seconds before assuming the sequence is complete.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Laser Device Rollup



Specify Lasergraph DSP/LD2000 system to use for preview. Optionally images can be loaded directly into the memory of the Lasergraph DSP or LD2000 system.
Note: **proTize converter DSP** needs a Lasergraph DSP to perform any conversions. The standard version of **proTize converter** does not need a Lasergraph DSP or LD2000 system unless preview in laser is required (however an LD2000 system is required for the LDS file format support).

Enable Preview

Default: unchecked.
Check to enable instant display of the converted images by the specified output device (see below).
Note: this option is directly accessible for each row in **proTize converter**'s main window.

For a Lasergraph DSP this works only if the Lasergraph DSP is in Piced or Edit mode (Trickfilm). Depending on the selected color output (default palette, rainbow palette or true color) load **proTize.FILM**, **proTize-R.FILM** or **proTize-T.FILM** on your Lasergraph DSP. These are simple films that will display the images in laser as they are converted by **proTize converter**. The films use a color palette setup that matches the colors as they are created by **proTize converter**. They can be found on the PC in the directory where **proTize converter** was installed. With the standard installation this would be "**`C:\Program Files\proTize converter\DSP-Stuff`**".

If you are using an LD2000 system it is best to close all other programs accessing the QM2000 board to avoid conflicts.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Output Device

Default: LD2000 or <automatic>.
Select the laser output device.
Note: this option is displayed for each row in **proTize converter**'s main window.

LD2000 is the choice if you want **proTize converter** to use the LD2000 system. Otherwise select one of the Lasergraph DSPs in the network. (All are listed in the drop down list.)

Warning: With more than one Lasergraph DSP in the network it is highly recommended to explicitly select which Lasergraph DSP to use. With "<automatic>" proTize converter will choose *any* Lasergraph DSP. This can even dynamically change while proTize converter is operating. Enabling the preview in such a configurations is dangerous.

Loading images into memory will not be supported unless the Lasergraph DSP is explicitly selected (to avoid loading into the memory of the wrong Lasergraph DSP).

For a Lasergraph DSP this works only if the Lasergraph DSP is in Piced or Edit mode (Trickfilm). Depending on the selected color output (default palette, rainbow palette or true color) load **proTize.FILM**, **proTize-R.FILM** or **proTize-T.FILM** on your Lasergraph DSP. These are simple films that will display the images in laser as they are converted by **proTize converter**. The films use a color palette setup that matches the colors as they are created by **proTize converter**. They can be found on the PC in the directory where **proTize converter** was installed. With the standard installation this would be "**C:\Program Files\proTize converter\DSP-Stuff**".

If you are using an LD2000 system it is best to close all other programs accessing the QM2000 board to avoid conflicts.

Load converted images directly into memory

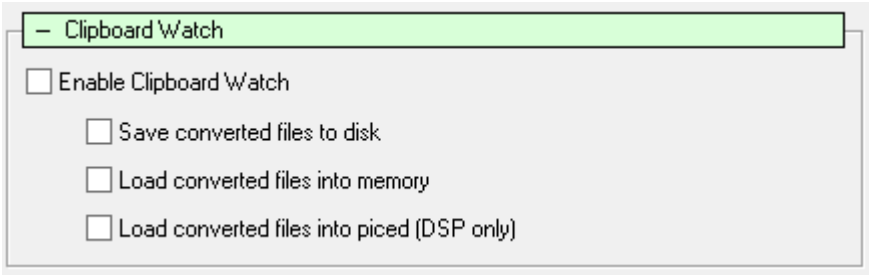
Default: off.
Enable loading images into the memory of the current output device.
Note: this option is directly accessible for each row in **proTize converter**'s main window.

If the current output device is a Lasergraph DSP the converted images are directly loaded into the memory of the Lasergraph DSP. (The animation that might be created will also be loaded.)
This overwrites any images/animations with the same names without asking!
Therefore this only works if a Lasergraph DSP is explicitly specified (not with "**<automatic>**") and if it is in edit mode.

For LD2000 devices the images are loaded into the first block of at least 16 free slots found (the next slot is displayed in the main dialog for each row).

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Clipboard Watch Rollup



One of the rows can be activated to intercept images from the clipboard. This controls how clipboard images are handled. Clipboard watching allows seamless integration of the conversion process with other programs. See **Main Menu Reference** for details about the different clipboard formats supported by **proTize converter**.

Enable Clipboard Watch

Default: disabled.
Enable (check) to allow automatic conversion of images placed on the clipboard. Make sure to double check the preferred format. See **Main Menu Reference** for details. The clipboard watch can only be enabled for one row at a time. Enabling this for one row will disable it for other rows.
Note: This option is directly accessible in **proTize converter**'s main window.

Save converted files to disk

Default: disabled.
Enable this to make sure images converted from the clipboard are saved to disk. By default images from the clipboard are *not* stored on disk.
This is because clipboard watching is mainly intended to be used for preview. Another reason is that files from the clipboard have no name. So **proTize converter** has to create a name. Furthermore, most programs have poor support for the clipboard and the quality that can be achieved by exporting images to files is often higher than the quality of the images placed on the clipboard. We recommend using the clipboard conversion for quick preview, then saving/exporting the image to a directory watched by **proTize converter** for the final conversion.

Load converted files to memory

Default: disabled.
Enable this to load images converted from the clipboard into the memory of the output device. By default images from the clipboard are *not* loaded into the output device, even if "**`Load converted images directly into memory`**" is enabled.
This is because clipboard watching is mainly intended to be used for preview. Another reason is that files from the clipboard have no name. So **proTize converter** has to create a name. Furthermore, most programs have poor support for the clipboard and the quality that can be achieved by exporting images to files is often higher than the quality of the images placed on the clipboard. We recommend using the clipboard conversion for quick preview, then saving/exporting the image to a directory watched by **proTize converter** for the final conversion.

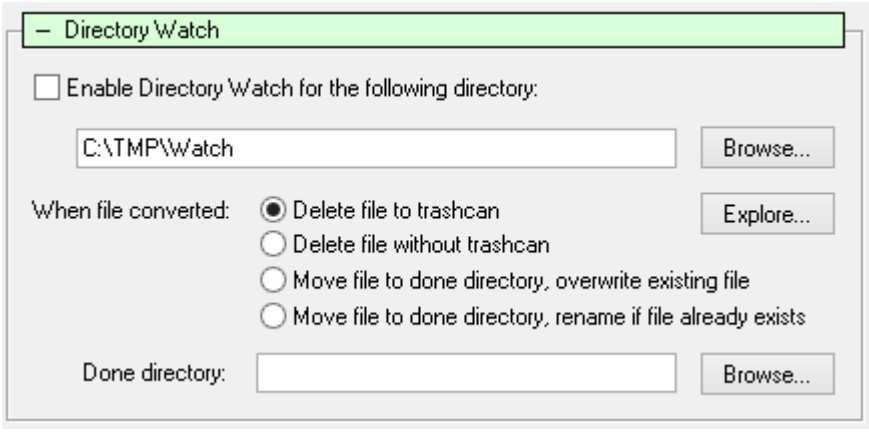
Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Load converted files into Piced (DSP only)

Default: disabled.
Enable this to load images converted from the clipboard directly into the Lasergraph DSP Piced. Not available for LD2000.
Note: There is also an option to explicitly load the last converted image into the Piced (**Ctrl+L**). It is not necessary to enable this option for laser preview. Note that you will discard anything that is currently in the Piced.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Directory Watch Rollup



proTize converter's ability to watch directories and automatically convert images is one of the powerful features. This means you can leave **proTize converter** waiting in the background and convert images by saving them to one of the watched directories. **proTize converter** can watch different directories at once, allowing conversion of images with different parameters by saving them to different directories.

Each row can have an associated directory.

Warning: Please do NOT enable directory watch unless you understand how this works. If you enable watching a directory that already contains files, those files will be converted and then deleted! They will be lost forever...

For this reason any change to the directory names will disable the watch so that accidentally converting (and deleting!) the wrong files is less likely to happen.

Enable Directory Watch for the specified directory

Default: disabled.
Check this to enable watching the specified directory. Once this option is enabled, **proTize converter** will automatically convert all files found in the specified directory. If you enable this for more than one row to allow conversion with different parameters, make sure to set up different directories for different rows, or things get messed up!

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

When file converted

Default: Delete file to trashcan.
The possible options are:

Delete file to trashcan
As soon as the file is converted it will be deleted to the trashcan. As long as the file is in the trashcan it can be restored.

Delete file without trashcan
Once the file has been converted it will be deleted.
Warning: There is *no* way to restore the file!

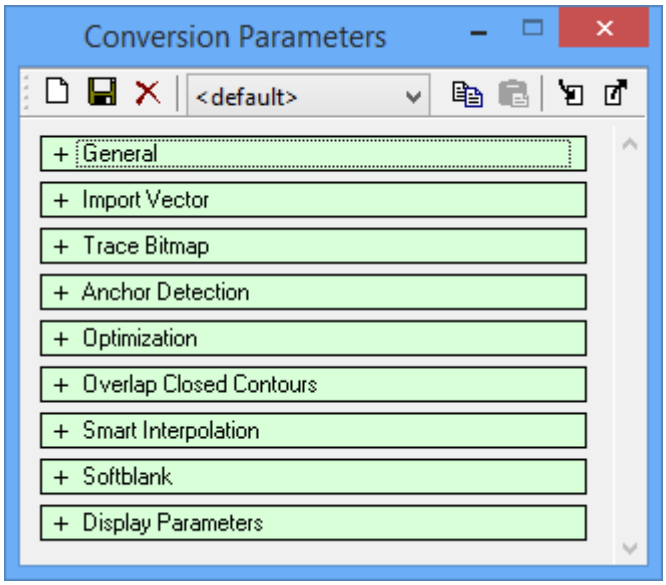
Move file to done directory, overwrite existing file
Each file that has been converted is moved to the done directory. This way the files are preserved. However, only one generation of each file is moved to the done directory. Older versions with the same name will be overwritten.

Move file to done directory, rename if file already exists
This is the "`keep all`" option. Files are moved to the done directory and renamed if required to avoid overwriting other files with the same name. While this is the safe option to make sure nothing gets lost, choosing this will fill up you drive quickly with many versions of all images you ever converted with directory watch.

Recommendation: Watched directories should be considered as a letterbox or as a connection to **proTize converter**, but not a place to store files. Make sure you save you work elsewhere so that it is not lost. Often the file sent to **proTize converter** is an export format. The actual work should be saved in the native format of the application it was created in. E.g., when you create images in Adobe® Flash® you will probably export images/sequences in AI format for conversion by **proTize converter**. But you should save the original data (*.FLA) somewhere in case you need to reconvert or change things later.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Conversion Parameters Reference



Overview

The **Conversion Parameters** control the way **proTize converter** converts images to laser in many different ways. Select **Conversion Parameters** from the **Properties** menu or press **Ctrl+P** to open the **Conversion Parameters** window. Up to three windows can be opened.

The parameters can be named or unnamed. Named **conversion parameters** can easily be selected from the toolbar. A named set of conversion parameters cannot be modified directly. If you select a named parameter from the drop down list the set becomes active. As soon as you change any of the parameters, a copy is created and the current set becomes unnamed. This avoids accidentally deleting the named parameter sets. If you want to change (or create) a named set of parameters, select one from the list, change all the parameters as you want. Then save the set, specifying the same or a new name. This concept was chosen because it is very common to select one set of the list, then change the parameters to adapt for the image currently being converted. It is assumed that most of the time the changes are made because of the features of the current image.

All changes of the parameters will be effective immediately. If required, the current image will be reconverted with the new parameters.

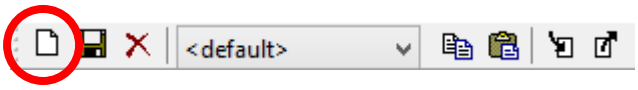
__Tip:__ whenever you are changing parameters you can restore the default values by selecting __Reset Parameters To Default__ from the toolbar. This resets all parameters at once. To reset one parameter individually, activate the parameter and then press __Ctrl+D__. This will reload the default value only for this parameter.
Values that are different from the default are displayed in a different color. That way it is easy to see which parameters have been changed from the defaults.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Toolbar

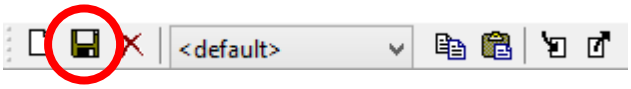
The toolbar is used to reset, save, delete, copy and paste and import or export parameters.

Reset Parameters To Default



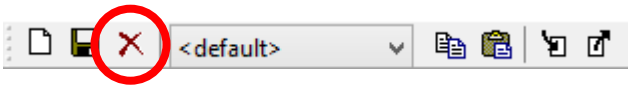
Resets all parameters to the built in default values.

Save Parameters



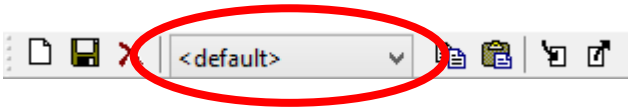
Save the current set of parameters. This creates or overwrites a named parameter set.

Delete Parameters



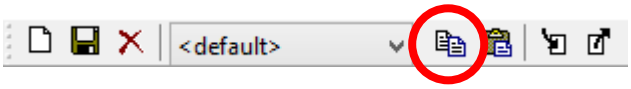
Delete the current set of parameters. This is only applicable to named parameter sets. The default and unnamed sets cannot be deleted.

Parameter set Selection drop down



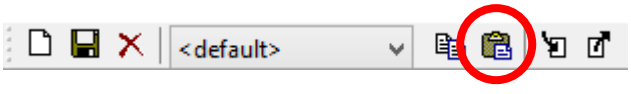
Select one of the named parameter sets.

Copy



Copy the current set of parameters to the clipboard for later use.

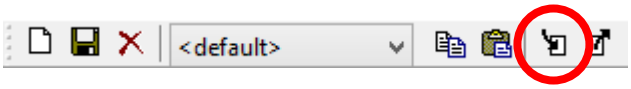
Paste



Paste the previously copied set of parameters.

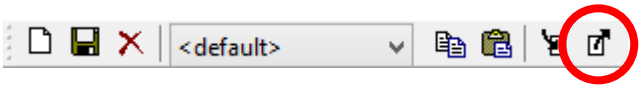
Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Import



Import a parameter set from an external file (***.cvp**). The file must have been previously exported by **proTize converter**.

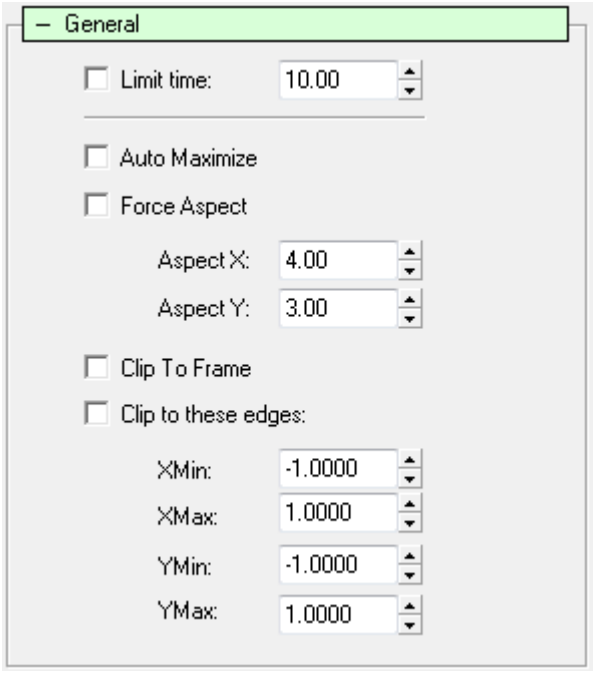
Export



Export the current set of parameters to a file (***.cvp**). Such a file can be transferred over the internet etc. Useful to make a set of parameters available to others.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

General



Limit time

Default: disabled, 10.00.
If enabled this value specifies the maximum time a conversion of an image may take. If the conversion of an image takes longer than the time specified here the conversion of this image is aborted and the converter will proceed with the next pending image.

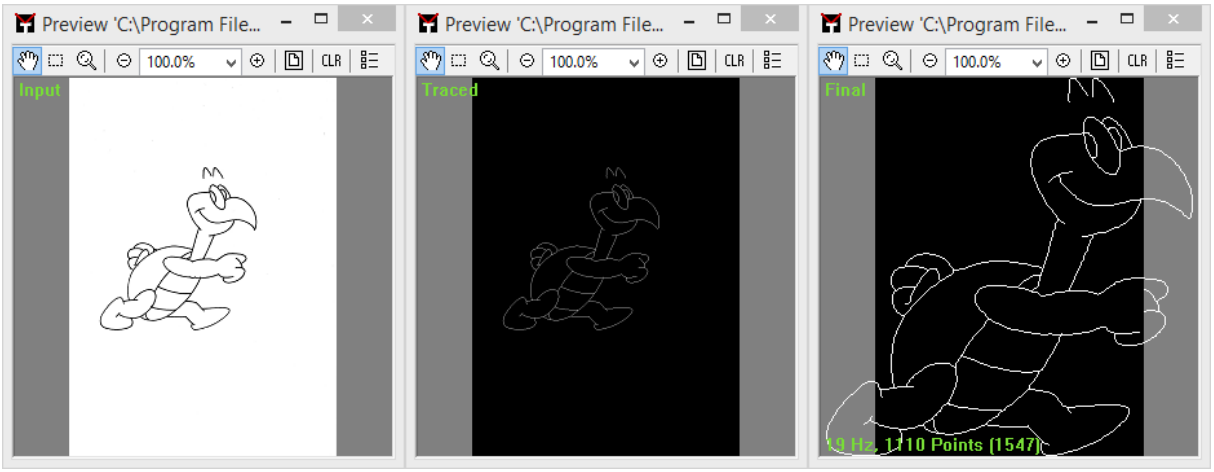
Auto Maximize

Default: disabled.
Allows maximizing the laser images individually.
By default (**Auto Maximize** disabled) the images are scaled by **proTize converter** to keep position and size consistent from frame to frame. This is achieved by maximizing the frame as defined by the converted file, not the contents.
For bitmaps the frame is given by the size in pixels.
With vector images things are more complicated. Whether there is information about the frame at all and if that information is correct depends on the format and on the program that exported the vector drawing. If there is no frame information available **proTize converter** will maximize the contents regardless of **Auto Maximize**.
If frame information is present, **proTize converter** will scale the image to maximize the frame. However, with vector drawings it is possible that parts of the drawing exceed the defined frame. In such cases the image is successively scaled down by 10 to make sure it fits the allowed range.

*Tip: With some programs it is possible to explicitly specify how images should be exported. Look for something like extended options, export options and "**`Export Page`**" vs. "**`Export Objects`**". "**`Export Page`**" is generally to be preferred to make sure the frame information is correct and allows consistent scaling for a sequence of images.*

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Sample of a conversion *without* and *with* **Auto Maximize**:



To the left you see the input bitmap (727x1024 pixels).
The *center* preview shows the turtle *without* **Auto Maximize**. As you see the frame is maximized, not the contents (the turtle).
To the *right* you see the result of the conversion with **Auto Maximize**. You see that the turtle is maximized independently of the original frame of the image.

Force Aspect

Aspect X

Aspect Y

Default: disabled, 4.00, 3.00.
When enabled the final laser image is deformed according to the specified aspect ratio.

Clip To Frame

Default: disabled.
Sometimes images exceed the frame as defined by the file. To remove anything beyond the frame check **Clip To Frame**.

Clip to these edges

XMin

XMax

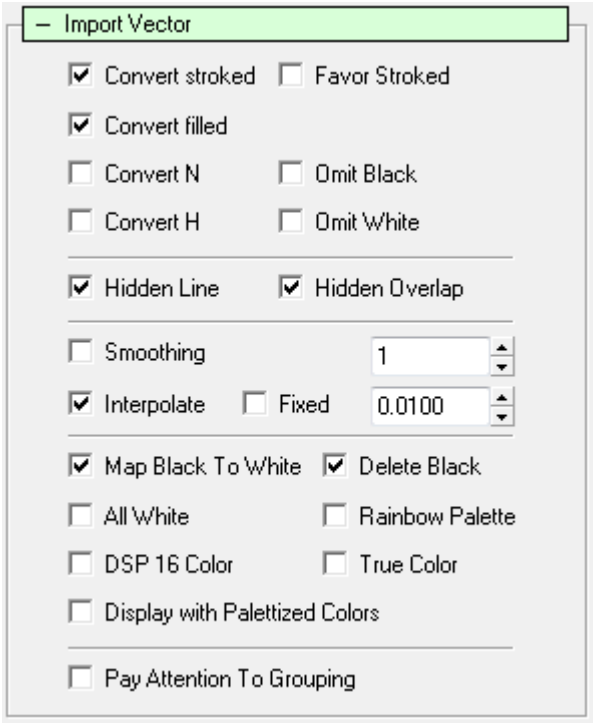
YMin

YMax

Default: disabled, -1.0000, 1.0000, -1.0000, 1.0000.
Explicitly defines clipping edges to remove unwanted parts of an image.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Import Vector



Overview

All options that are dedicated to the conversion of vector data input are grouped into the **Import Vector** rollup. When vector files are imported the options control the way the data is interpreted. If things do not look right when converting WMF, EMF or AI files you might have to check the options available here.

Convert stroked

Default: checked.
Directs **proTize converter** to convert stroked paths.

Convert filled

Default: checked.
Directs **proTize converter** to convert filled paths.

Favor Stroked

Default: unchecked.
By default **proTize converter** uses the fill color of paths that are filled and stroked. Check this to prefer the stroke color if both are present.

Convert N

Convert H

Default: unchecked.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

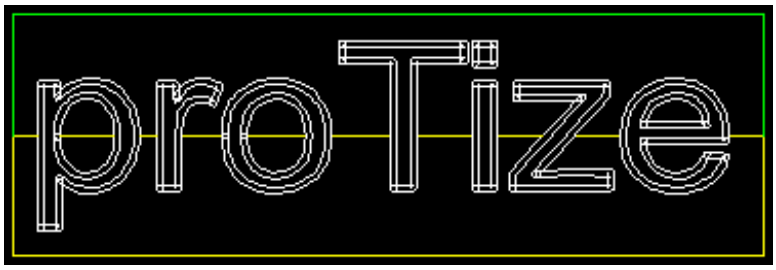
Adobe® Illustrator® files can contain paths that are usually not displayed. Check these options to include such paths in the laser output. Not usually required or recommended.

Omit Black

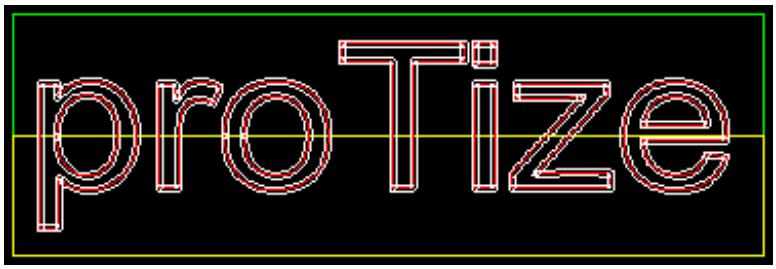
Default: unchecked.
If enabled this directs **proTize converter** to ignore all black from the input. This is often a good way to get rid of strokes that are created by fills.

Here is an example created with Adobe® Illustrator®:

Converting this with **proTize converter** using the default parameters results in this:

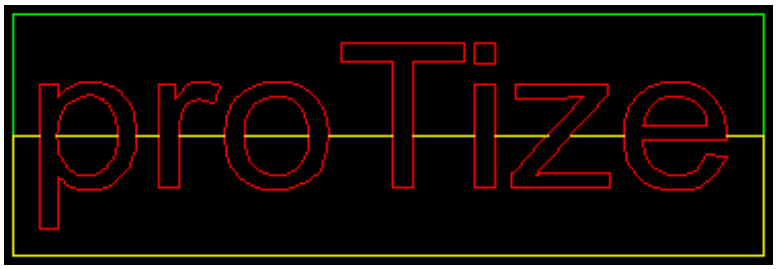


This is obviously not what you would expect. Disabling all strokes does not make a difference. The reason is that Adobe® Illustrator® has chosen to implement the strokes with a fill operation. The black fill occludes the red path of the fill operation. Disabling hidden line removal does not help either:



Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Omit Black is the solution, leave the black fill paths out that are used to stroke the word **proTize** and everything looks right!



Those strokes - which are actually implemented by fill operations - are very common in vector clip arts and therefore you will probably often use the **Omit Black** option when converting clip art.

Note: If there are some black fill paths that you want to keep it might be easiest to recolor these in a vector drawing program.

Omit White

Default: unchecked.
Similar to **Omit Black**, but leaves all white paths out. Less common, but can also improve some images.

Hidden Line

Default: enabled.
Directs **proTize converter** to remove lines that are occluded by upper layer fills. Most of the time you will want to leave this enabled.

Hidden Overlap

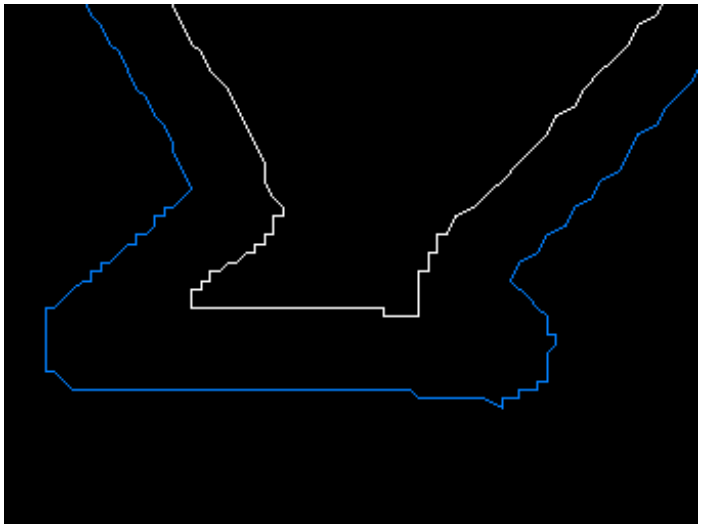
Default: enabled.
When two layers are adjacent and not actually overlapping it is possible that both lines remain visible, even though the upper layer should occlude the lower layer. With **Hide Overlap** some tolerance is allowed in the hidden line removal. Most of the time this results in better output.

Smoothing

Default: unchecked, 1.
Vector images usually are very clear and result in high quality images. However, sometimes the resolution of vector images is low and the quality is worse than you would expect.
This can be the result of poor tracing of vector images. Another reason is that often the quality of the data of clip art CDs was explicitly reduced.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

A sample:



The jagged lines confuse **proTize converter** and the resulting image will be of poor quality. To overcome this, smoothing can be applied to the input data. The result of smoothing 1 looks like this:

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

With a value of 10 the result is even smoother. But some details might also be lost:

Most of the time a smoothing of 1 will be sufficient. Higher values can make the image even smoother, but details are lost too.

Interpolate

Default: checked.
If using smoothing this should also be applied. Otherwise the input data might be messed up by smoothing.

Fixed

Default: enabled, 0.0100.
For WMF and EMF files the interpolation is based on the resolution of the input data by default. Sometimes the resolution is not correctly related to the required interpolation. In cases where Smoothing does not help, or if things are getting even worse, try to enable **Fixed** interpolation. Playing with the value is usually not recommended.

Map Black To White

Default: enabled.
By default this is enabled and causes all black lines to be displayed in white. This makes sense because no one has found a way yet to display black with laser light. If you disable this option, black lines will be displayed in dark gray.

Delete Black

Default: enabled.
If enabled black lines will be deleted.
Note: This option shows no effect if “Map Black To White” is enabled.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

All White

Default: disabled.
To omit all color information enable this. All colors will then be mapped to white.

DSP 16 Colors

Default: disabled.
This allows limiting the generated colors to the 16 default colors used by the Lasergraph DSP. By default **proTize converter** generates the colors to match the palette set up with proTize.FILM. This uses all 4 palettes. This only makes sense for Lasergraph DSP operation. Leave this disabled for LD2000 operation.

Rainbow Palette

Default: disabled.
If enabled the default Rainbow palette of the LD2000 will be used.

Display with Palettized Colors

Default: disabled.
Enable this to display colors on screen as with the Lasergraph DSP standard palette. Should be disabled for true color operation. As LD2000 does not have support for palettized colors leave this disabled for LD2000 mode.

True Color

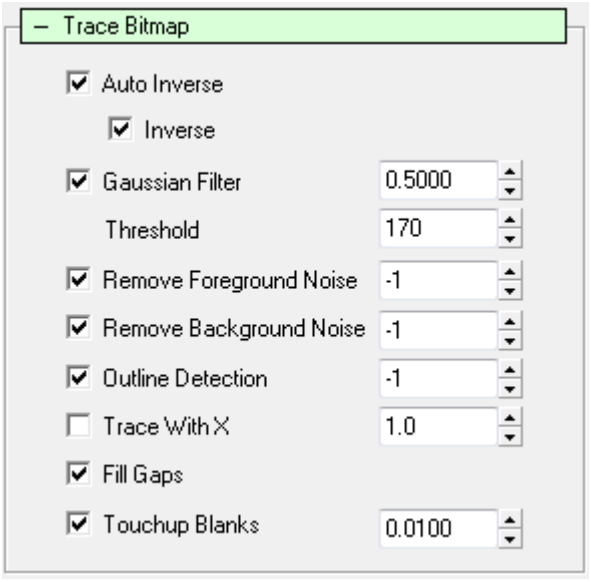
Default: disabled.
Enable this to allow support for true color operation instead of palettized mode. Leave off for LD2000 operation.

Pay Attention To Grouping

Default: disabled.
The grouping information possibly present in Adobe® Illustrator® files is ignored by default. Enable this option to direct **proTize converter** to pay attention to the grouping. This changes the way overlap removal, routing, animation correlation etc. work. With grouping enabled the overlap removal and recombine do not consider lines across groups. Animation correlation treats each group as an object etc.
Sometimes this improves the quality of animations created by other programs in case the grouping properly reflects the objects in a scene.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Trace Bitmap



Auto Inverse

Default: enabled.
When tracing bitmaps **proTize converter** needs to know whether the background is black (dark) or white (bright) in order to determine foreground/background.
With **Auto Inverse** enabled **proTize converter** determines this automatically. You only need to disable this in the rare cases where auto fails.

Inverse

Default: enabled.
With **Auto Inverse** disabled this can be used to manually specify if the image is black on white or white on black.

Gaussian Filter

Default: enabled, 0.5000.
The Gaussian filter can help the tracing of images that contain a lot of "dirt". It actually blurs the image a little bit. This removes unwanted details and often improves the final result. Increase the value up to 1.0 to soften the image. When changing the value the threshold might have to be adjusted too, see below.

Threshold

In order to trace the image the input is thresholded to force a black and white image. For color and gray scale images changing the value might be useful to optimize the result.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Remove Foreground Noise

Default: -1.
A value of 0 disables foreground noise removal. A value > 0 directs **proTize converter** to ignore any dots of N or less pixels. E.g. a value of 10 means all dots of 10 or less pixels are ignored. The default value of –1 automatically chooses a default value that matches the resolution of the bitmap.

Remove Background Noise

Default: -1.
A value of 0 disables background noise removal. A value > 0 directs **proTize converter** to ignore any background areas of N or less pixels completely. E.g. a value of 10 means areas of 10 or less pixels are ignored. The default value of –1 automatically chooses a default value that matches the resolution of the bitmap.

Outline Detection

Default: checked, -1.
Outline detection determines whether an object should be center-line thinned or outlined. A value of 0 disables outline detection. Values > 0 change the threshold for the outline detection. With 1 even pretty thin objects are traced as outlines. With higher values less objects are outlined. The default of -1 chooses a proper value based on the resolution of the bitmap that works in most cases.

Trace With X

Default: disabled.
Enable this to use an alternative routing algorithm for centerline thinned objects. Often this results in more natural traces.

Fill Gaps

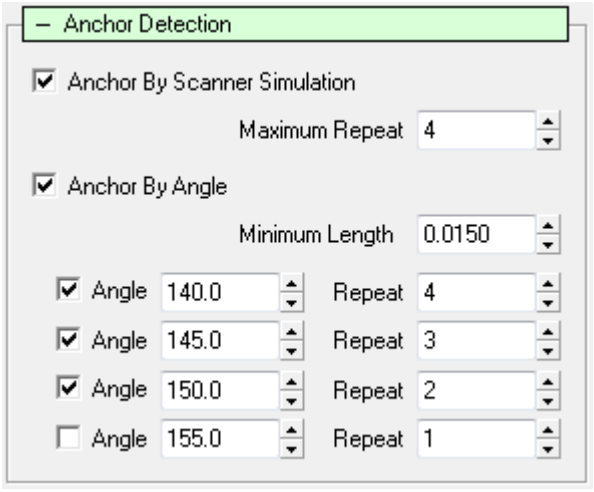
Default: enabled.
Closes some small gaps (one pixel) in the bitmap before tracing is performed.

Touchup Blanks

Default: enabled, 0.0100.
It closes gaps in the vector image after tracing. The value is a measure for the distance to jump over. This should usually be enabled.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Anchor Detection



Overview

Anchor detection is one of the laser specific optimizations required to make the images look right. **proTize converter** has two main algorithms to detect anchors. Detection of anchors based on scanner simulation is a method of estimating the behavior of scanners in software. **proTize converter** can detect required repeat points based on this knowledge.

Another method is the anchor detection based on the angle of two line segments. Obviously two segments joined at a sharp angle need a repeat at the junction to be displayed correctly. **proTize converter** can control the repeat based on angle.

Anchor detection with scanner simulation in combination with the anchor detection by angle is the best choice for most applications. If you want a softer look you should disable anchor by angle first. Try to reduce the maximum repeat of the anchor detect by scanner simulation too.

Anchor By Scanner Simulation

Default: enabled.
This enables (if checked) the algorithm that finds anchors based on deep knowledge of the behavior of scanners.

Maximum Repeat

Default: 4.
This is the maximum repeat that the scanner simulation is allowed to attach to a point. Increasing this number is not recommended for today's scanners. You might consider to reduce the repeat to make the final image look smoother.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Anchor By Angle

Default enabled.
This is the global enable of anchor by angle detection. Below you will find up to four different entries for different repeat/angle combinations. If you want to try out different settings: it is best to disable all but one and then change the angle. That way it is easier to decide which of the points are connected at a certain angle.
The default results in a repeat of 4 if the angle is <= 140, a repeat of 3 is applied if the angle is in range [140, 145], repeat 2 for angles in [145, 150]. For angles > 150 there will be no repeats applied.

Minimum Length

Default: 0.0150.
This is the minimum length a line must exceed to be considered by the anchor detection. A value of 0.0 will enable anchor detection for all line segments, larger values decrease the number of lines considered.

Angle

Default: enabled, 140.0, 145.0, 150.0, 155.0.

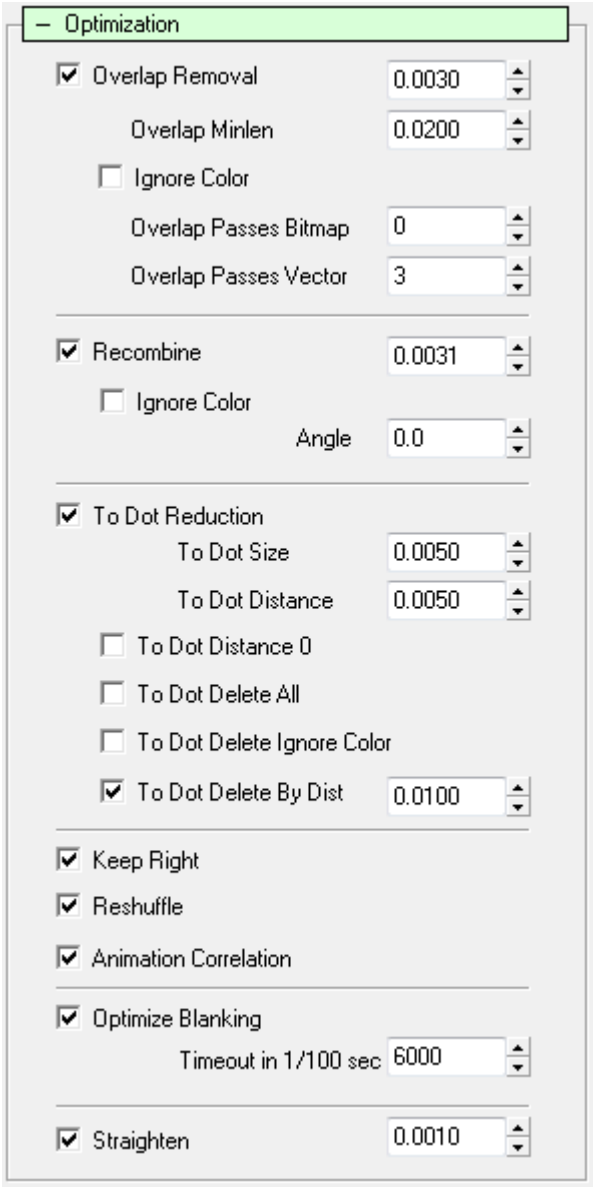
Repeat

Default: 4, 3, 2, 1

For each of the 4 different entries there is an enable check box, a value for the angle and a value for the number of repeats to be applied. If the enable is checked, all segments connected with an angle <= the specified value will have the repeat increased to at least the specified repeat value. E.g. if the value of the angle is 90 and the value of the repeat is 5, then all points where the line segments meet at an angle of <= 90 will have a repeat of at least 5.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Optimization



Overlap Removal

Default: enabled.
This controls the algorithm that tries to get rid of redundant lines that run parallel. This improves the output quality of vector images. Unwanted (often short) line segments close to other contours are removed by this algorithm. Note: Even though this is enabled by default this only applies to vector images because for bitmap images the number of passes has a default of 0 which effectively disables overlap removal for bitmap images.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Overlap Removal value

Default: 0.0030.
This is the maximum distance of lines to be considered for removal. The default value is chosen so that the final output matches the original images as closely as possible. You might want to increase this value a bit if you want more redundant lines to be removed. However, values of 0.0050 or more often cause too many lines to be removed.
Note: If you increase this value, you might have to increase the value of **Recombine** too!

Overlap Removal Minlen

Default: 0.0200.
Overlap removal only considers lines that overlap over a certain length. This helps to avoid breaking up lines just because of a short overlap. The default value results in breaking up for overlap even for pretty short sections. You might increase this value a bit if you think too many lines are broken up by overlap removal.
Note that changing the **Overlap Removal value** will reset **Minlen** to default!

Overlap Removal Ignore Color

Default: disabled.
This enables removal of overlapping lines even if the colors of the lines are different. Sometimes this can reduce flicker. Note that overlap removal works across groups unless **Pay Attention To Grouping** is enabled.

Overlap Removal Passes Bitmap

Overlap Removal Passes Vector

Default Bitmap: 0, default Vector: 3.
This basically controls how hard **proTize converter** tries to find candidates for removal. A value of 1 is less time consuming but might miss some lines that should be removed. A value of 3 is sufficient in most cases. The number of passes can be adjusted independently for vector and bitmap images. The default of 0 for bitmap images actually disables overlap removal. Most of the time overlap removal is not required for bitmap images.

Recombine

Default: enabled.
This should always be enabled. This is the basic routing algorithm that connects the lines found by vector import/bitmap tracing.

Recombine value

Default: 0.0031.
This is a measure for the maximum distance of two points that are considered to be connected. Higher values can help to remove unwanted gaps but can also cause false connections. This should be slightly larger than the overlap removal value to allow reconnecting lines broken up by overlap removal.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Recombine Ignore Color

Default: disabled.
By default lines of different colors are not connected. Sometimes flicker can be reduced by allowing the optimizer to connect lines of different colors. However, Animation Correlation might get confused. Note that this will work across groups if **Pay Attention To Grouping** is enabled.

Recombine Angle

Default: 0.0.
An angle of 0.0 allows all points to be connected, no matter what angles the line segments have. 180.0 will usually not allow any lines to be joined. We recommend not to limit the routing based on angle for normal applications.

To Dot Reduction

Default: enabled.
This algorithm reduces very small objects to a single dot. Very small circles etc. look like a dot anyway.

To Dot Size

Default: 0.0050.
This is the maximum size of an object that is considered to be replaced by a single point. Larger values cause more objects to be replaced by a single dot.

To Dot Distance

Default: 0.0500.
This is the distance an object must have from other objects in order to be considered for replacement by a single point. Often this is not required. Therefore a value of 0.0 can be used to replace all small objects by dots. See **To Dot Distance 0**.

To Dot Distance 0

Default: unchecked.
Checking this box has the same effect as changing **To Dot Distance** to 0.0. Since it is often useful we implemented this checkbox so that this can easily be turned on and off.

To Dot Delete All

Default: disabled.
When this is enabled small objects are not replaced by a dot but removed completely.

To Dot Ignore Color

Default: disabled.
When this is enabled colors are ignored when checking distance to other objects etc.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

To Dot Delete By Dist

Default: enabled, value 0.0100.
Enable deleting small objects (dots) if they are close to other objects (within the given distance). This removes "dirt" close to regular objects.

Keep Right

Default: enabled.
Enabling this helps to keep the path consistent from frame to frame. Use in conjunction with **Animation Correlation**.

Reshuffle

Default: enabled.
Enabling this helps to keep the path consistent from frame to frame. Use in conjunction with **Animation Correlation**.

Animation Correlation

Default: enabled.
This option enables a very powerful algorithm that controls the beam path consistency from frame to frame. Without **Animation Correlation** the order in which the lines are drawn is handled individually for each image. This can result in unwanted weird flickering as the drawing order changes from frame to frame. You can speed up conversion by disabling this if you do not convert sequences of images.

Optimize Blanking

Default: enabled.
Enabling this reduces the length of blanked lines to reduce the flicker rate of the final image. Watch out, in rare cases this can take a long time.

Optimize Blanking Timeout in 1/100 sec

Default: 6000.
This is the maximum time **proTize converter** tries to optimize the blanked lines of an image. 100 is equivalent to a second. The default of 6000 allows up to 60 seconds. For fast conversion (e.g. Clipboard watch) you might reduce the timeout to 100 (one second) or disable optimize blanking completely.

Straighten

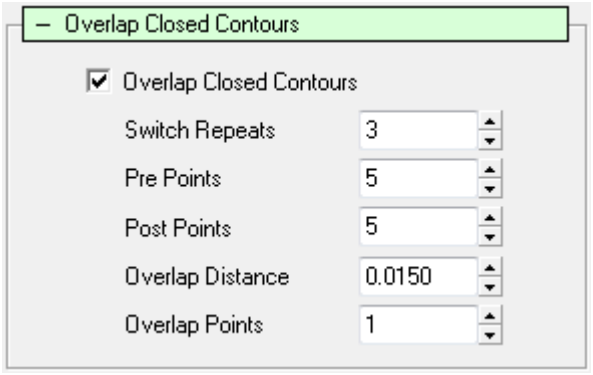
Default: enabled.
This enables removal of redundant points. Should usually be enabled.

Straighten value

Default: 0.001.
This controls how many points are removed. We recommend to leave the value unchanged. Larger values will cause more points to be removed.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Overlap Closed Contours



Overview

Closed contours like circles usually look better in laser with some overlap. The parameters here control how the overlap is applied.

Overlap Closed Contours

Default: enabled.
This should usually be enabled. Controls the generation of overlap for circles and other contours. Overlap looks best with some soft-blanking applied when displayed with the Lasergraph DSP.

Switch Repeats

Default: 3.
The default of 3 means points with repeat 3 or more are corners and not considered for overlap. Only points of repeat 2 or less are considered for overlap.

Pre Points

Default: 5.
This specifies how many points to be drawn blanked at the beginning of overlapped contours, before blanking is turned off. If circles break up, try to increase this value.

Post Points

Default: 5.
This specifies how many points to be drawn blanked at the end of overlapped contours, after blanking was turned on. If circles break up, try to increase this value.

Overlap Distance

Default: 0.015.
This defines the length of the visible overlap (unblanked).

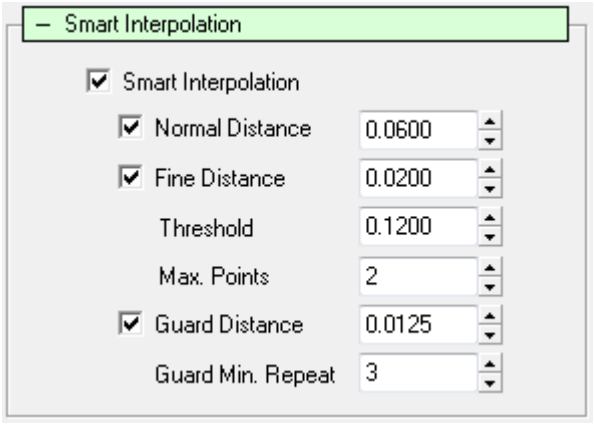
Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Overlap Points

Default: 1.
This defines the number of points of the visible (unblanked) part of the overlap. If you want more overlap you probably also need to increase the Overlap Distance.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Smart Interpolation



Overview

Smart Interpolation adds points to the final laser image to improve the output quality. It is similar to the real-time interpolation applied by the Lasergraph DSP, but has been improved for better display quality.

Smart Interpolation

Default: enabled.
The global enable/disable of all interpolation sub-algorithms. We recommend to keep this enabled.

Normal Distance

Default: enabled, 0.0600.
Enables interpolation with the specified distance. The default value was chosen for best quality. We recommend not to change this value.
The value works similar to "**`maxdist`**" in the Lasergraph DSP scanning parameters. If the distance between consecutive points is larger than defined here, additional points are inserted.

Fine Distance

Default: enabled, 0.0200.
Fine Distance Threshold. Default: 0.1200.
Fine Distance Max Points. Default: 2.
For curved lines (vs. straight lines) this forces more points to be inserted in order to allow scanners to follow curved lines exactly. The distance is equivalent to "**`maxdist`**" in the Lasergraph DSP scanning parameters. The threshold is used to classify lines as being curved or straight. Higher values cause more lines to be treated as curved. **Max Points** limits the number of points inserted. This limits the density.
The default parameters have been selected for best image quality. You might disable the fine distance if it is more important to reduce the flicker while accepting some degradation in quality.

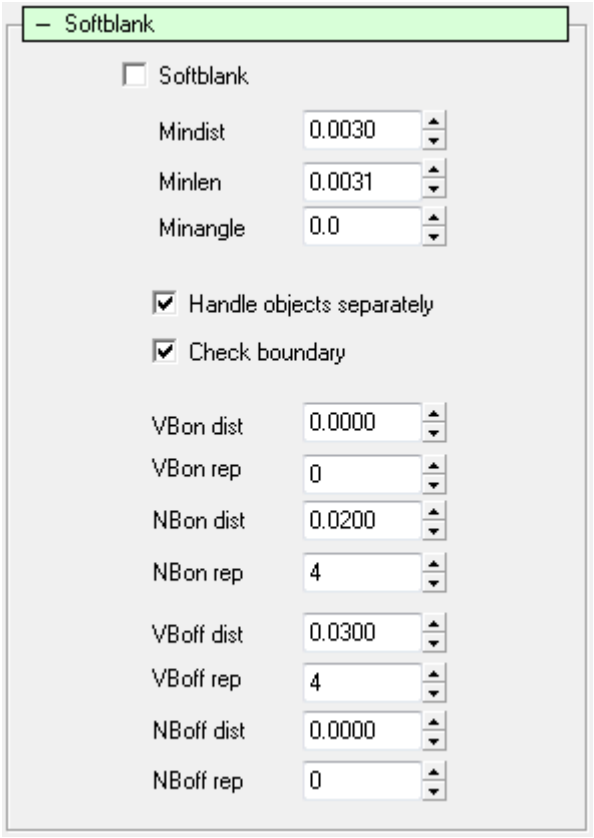
Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Guard Distance

Default: enabled, 0.0125.
Guard Min Repeat: Default: 3.
Guards are placed right before and after corners. All points with a repeat >= Guard Min Repeat are considered to be corners. This helps to improve the image quality. However, it sometimes adds quite some flicker without improving the image significantly. So you might want to disable this if the image is getting complex and you want to reduce flicker.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Softblank



Overview

proTize converter supports automatic generation of softblanking for Lasergraph DSP output. This is not supported for LDS/ILDA output.

Softblank

Default: disabled.
Global enable of automatic softblank generation.

Mindist

Default: 0.0030
Not all line endings will be converted into softblank endings. By default only line endings that do not have other lines in the neighborhood will be considered for softblanking. The value here defines the distance that is considered the neighborhood. Change the value to 0.0 to force all line endings to be softblanked.

Minlen

Default: 0.0031
softblanking works best if lines are not too short. Minlen defines the minimum length a line should have for softblanking.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Minangle

Default: 0.0
By default the neighborhood (see **Minlen**) is only defined by distance. With **Minangle** > 0.0 the angle at which lines meet is also taken into account. A higher Minangle value leads to fewer lines being considered neighbors. (Limit 180)

Handle objects separately

Default: enabled.
Enable considering only lines of the same object neighbors. Disable to consider neighbors no matter what object the line was generated from.

Check boundary

Default: enabled.
Enable considering the boundary of a frame for softblanking. Disable to ignore the boundary.

VBon Dist

Default: 0.0000
Distance of the point before softblank on.

VBon Repeat

Default: 0
Repeat of the point before softblank on.

NBon Dist

Default: 0.0200
Distance of the point after softblank on.

NBon Repeat

Default: 4
Repeat of the point after softblank on.

VBoff Dist

Default: 0.0300
Distance of the point before softblank off.

VBoff Repeat

Default: 4
Repeat of the point before softblank off.

NBoff Dist

Default: 0.0000
Distance of the point after softblank off.

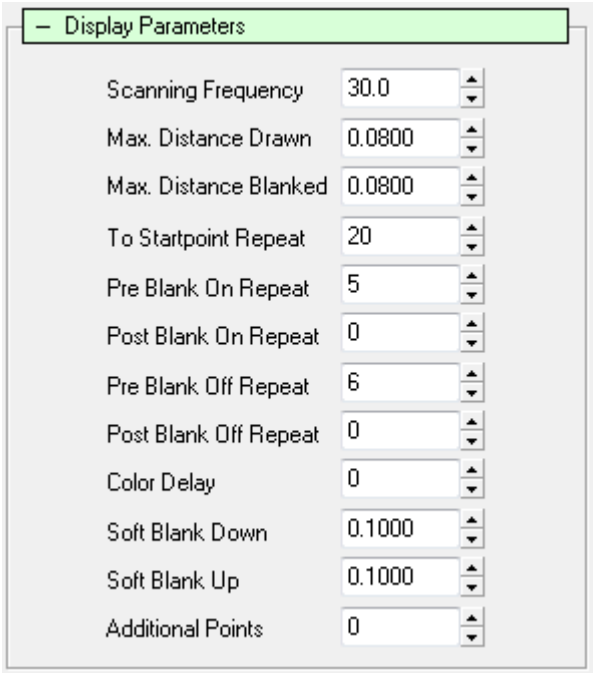
Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

NBoff Repeat

Default: 0
Repeat of the point after softblank off.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Display Parameters



Overview

These parameters are equivalent to the scanning parameters of the Lasergraph DSP. However, the values here are ***not*** used by the Lasergraph DSP to ***display*** the images. The parameters define what **proTize converter *assumes*** for estimation of the frame rate displayed in the preview. If the values here do not match the values actually used by the Lasergraph DSP, the displayed frame rate will not match the real frame rate.

Important: For LD2000 operation and for ILDA output some of these values *are* used in generation of the laser images in order to create "point oriented" frames and thereby change the actual appearance in laser!

And the values *are* used by the Super Preview to create the simulated laser output.

Scanning Frequency

Default: 30.0.
The scanning frequency is used in the estimation of the frame rate. However, the actual frequency used to display the image in laser depends on the display settings of the Lasergraph DSP or LD2000 system. Changing the frequency does *not* change the real output frequency.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Max. Distance Drawn

Max. Distance Blanked

Default: 0.0800.
The Lasergraph DSP automatically adds points if two points would otherwise exceed the distance defined by this parameter. (See "**`Advanced Parameters ⇨ Display Parameters`**" in the Lasergraph DSP). Since points are added by this interpolation, this affects the total number of points displayed and thereby changes the frame rate. **proTize converter** uses this value to correctly estimate the frame rate. However, the generated images are not affected by this parameter. This interpolation is done by the Lasergraph DSP whenever an image is displayed. The value defined here does not change the way the image is displayed by the Lasergraph DSP, but what **proTize converter** *assumes* the Lasergraph DSP will apply.
Important: With ILDA and/or Pangolin® output (*.LDS) this interpolation ***is*** actually applied! It might changes the density for ILDA and Pangolin® output. Note that this is usually superseded by **Smart Interpolation**. But if Smart Interpolation is disabled the interpolation here will still be applied.

To Startpoint Repeat

Default: 20.
This is the number of points added at the beginning of each frame. This value should match the setting of the Lasergraph DSP. The value is used to estimate the frame rate. Changing the value does not affect the way images are displayed by the Lasergraph DSP.
Important: With ILDA and/or Pangolin® output (*.LDS) the points ***are*** added to the frames. So in that case the values really change the way the image is displayed in laser. This is required to create point oriented frames.

Pre Blank On Repeat

Post Blank On Repeat

Pre Blank Off Repeat

Post Blank Off Repeat

Color Delay

Default Pre Blank On: 5.
Default Post Blank On: 0.
Default Pre Blank Off: 6.
Default Post Blank Off: 0.
Default Color Delay: 0.
These values define the number of points added before/after blanking is turned on/off in order to compensate for the inertia of the scanners. As with the other Display Parameters these values do not affect the way images are generated for the Lasergraph DSP, but only determine how many points are added in order to estimate the frame rate.
Important: With ILDA and/or Pangolin® output (*.LDS) the points ***are*** added to the frames. So in that case the values really change the way the image is displayed in laser. This is required to create point oriented frames.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Soft Blank Down

Default: 0.100
This is equivalent to the corresponding Lasergraph DSP parameter. The value is used only for softblanked line endings that are to be displayed in the Super Preview.

Soft Blank Up

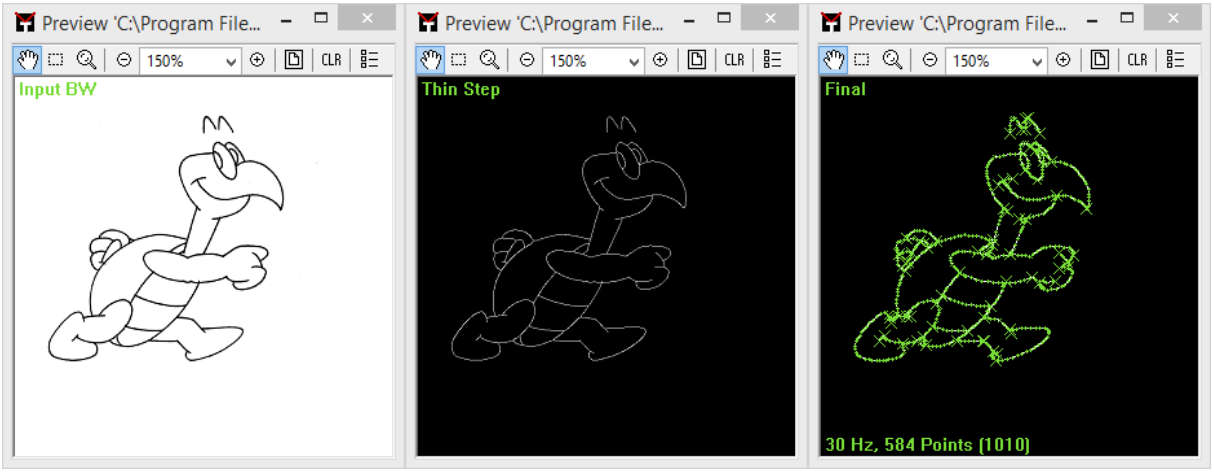
Default: 0.100
This is equivalent to the corresponding Lasergraph DSP parameter. The value is used only for softblanked line endings that are to be displayed in the Super Preview.

Additional Points

Default: 0.
This number allows specifying additional points to be included in the display time estimation. However, no points will be added to the frame. This is useful to reserve time with dynamic rendering for other images or to compensate for inter-track delay in LD2000.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

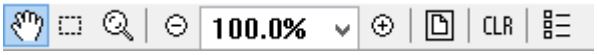
Preview Window Reference



Overview

The preview window allows viewing different states of the conversion process. Up to six preview windows can be opened simultaneously. Each of the preview windows has its own size, position, zoom level, selection of conversion stages to display etc.
To open the default configuration with two preview windows showing input and output select "`Window ⇨ Default Two Windows`" from the **Main Menu**, or press **Ctrl+2**. There is also a default configuration with three windows, adding intermediate stages (**Ctrl+3**).

The Toolbar



The toolbar allows controlling all aspects of a preview window.

Hand Tool

The **Hand Tool** is the default tool. If the **Hand Tool** is active you can drag the window contents with the left or middle mouse button.

Select Tool

Use the **Select Tool** to zoom into a region defined by a rectangle.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Zoom Tool

The **Zoom Tool** allows zooming into a certain point. Drag the mouse, while holding the left button down.

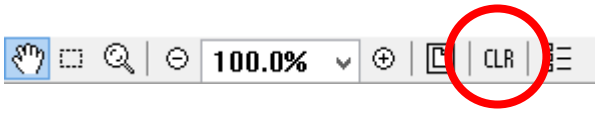
Zoom Out, Type In, Zoom In

Click '-'/'+' to decrease/increase the zoom level. Or type in the desired zoom level.
If your mouse has a wheel the zoom level can be changed with the wheel.

Fit in Window

Reset zoom level to 100%.

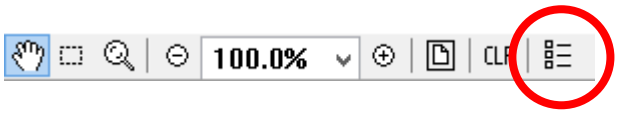
Clear Window



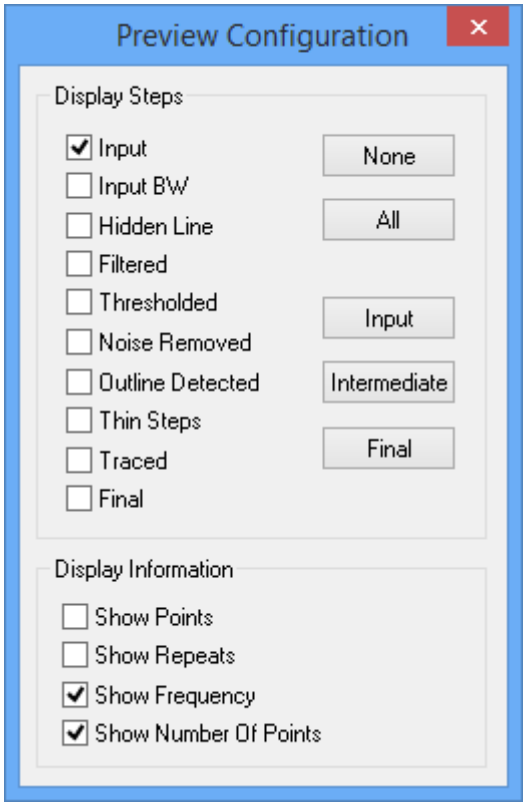
Clear all contents from the window.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

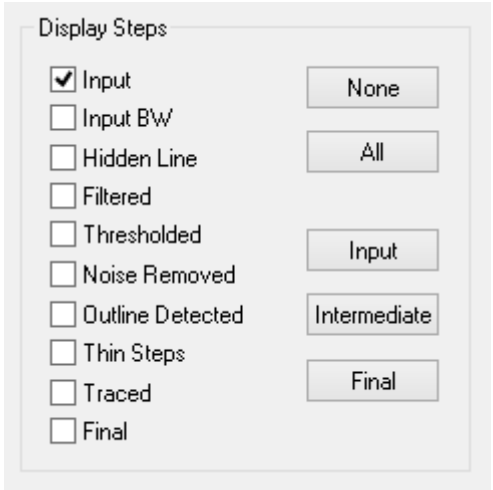
Preview Configuration



This opens the **Preview Configuration** dialog:



Display Steps



Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

The different steps listed here are the stages of the configuration. Each of the stages can be individually checked (enabled) for each of the preview windows. Having different configurations is useful to fine tune various parameters of **proTize converter**.
For instance you are playing with the **Gaussian Filter** and the **Threshold** (**`Conversion Parameters ⇨ Trace Bitmap`**). In this case an extra preview that shows the **Filtered** intermediate state and another one to display the **Thresholded** state can be helpful.
The order of the steps as displayed in the dialog represents the order in which the intermediate results are generated. Some of the intermediate results are only created for bitmap images, others are only available when converting vector images.

Input

The raw input is displayed.

Input BW

Bitmap only. Image converted to gray scale.

Hidden Line

Vector only. Image after hidden line removal.

Filtered

Bitmap only. After applying Gaussian filter.

Thresholded

Bitmap only. After thresholding.

Noise Removed

Bitmap only. After removing foreground/background noise.

Outline Detected

Bitmap only. After detecting outlines.

Thin Steps

Bitmap only. After each step in the thinning process. (Center-line tracing)

Traced

Bitmap only. Traced image, before vector optimizations follows.

Final

Final result.

Button: None

Uncheck all display steps.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Button: All

Check all display steps.

Button: Input

Check **Input**, uncheck all other display steps.

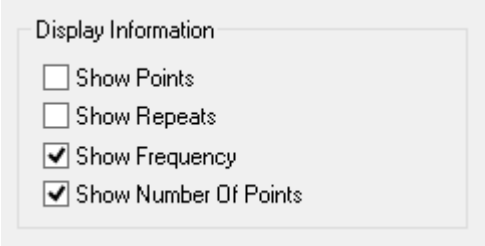
Button: Intermediate

Check all intermediate steps, uncheck **Input** and **Final**.

Button: Final

Check **Final**, uncheck all other display steps.

Display Information



Enable/Disable additional information.

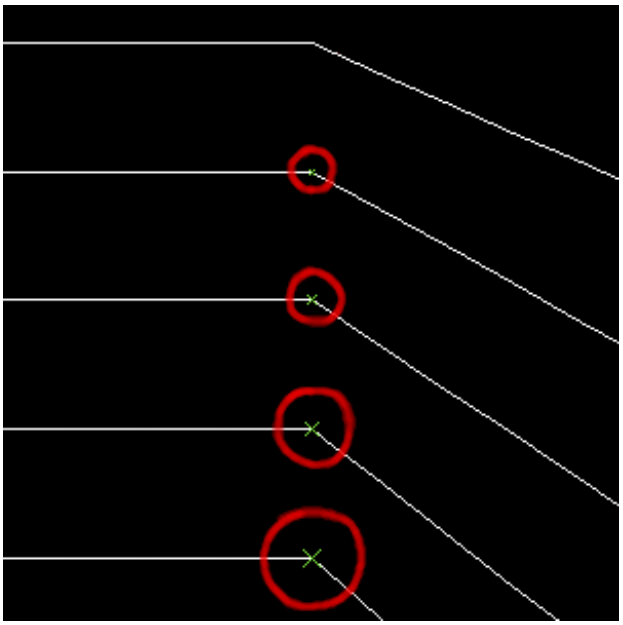
Show Points

Check this to make the actual generated points visible:

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Show Repeats

Check this to display a small green cross for each point that has a repeat. In the example you see repeat 1-4.



Show Frequency

Enable display of the estimated frequency (frame rate):

Show Number Of Points

Enable display of the number of points (in the converted image):

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Super Preview

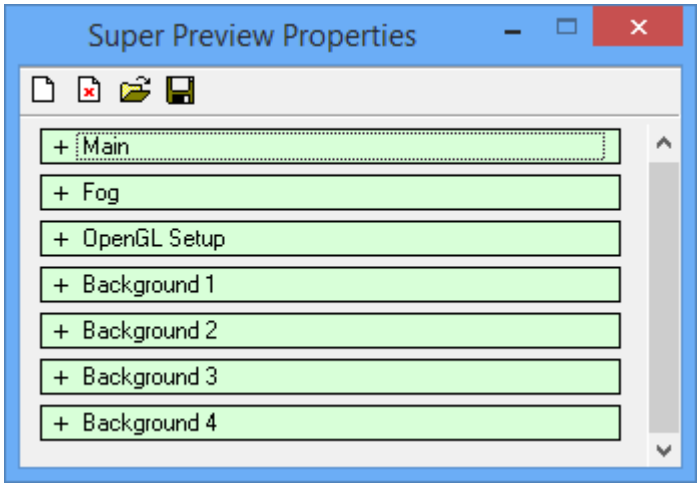
Overview

The Super Preview displays a simulation of the interactive rendering result on the monitor. Even the dynamic behavior of scanners and fog are simulated. This provides a good impression of the final result without any laser hardware attached.

The Super Preview can be opened from the **proTize converter** menu or with **Alt+Ctrl+F**.

Super Preview Properties

The properties window of the Super Preview allows customization of the laser simulation. To open the Super Preview Properties right-click the Super Preview window and select **Properties** from the context menu. With the default keyboard assignments you can also open it with **Alt+Ctrl+G**.



Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Super Preview Properties: Default, Load and Save

"Reset all Parameters to Defaults"
The first icon from the left sets all parameters to the values defined in the Lpv file.

"Reset all Parameters to Defaults (Ignore Lpv Parameters)"
The second icon from the left resets all parameters to the default values. Settings stored in the Lpv file are ignored.

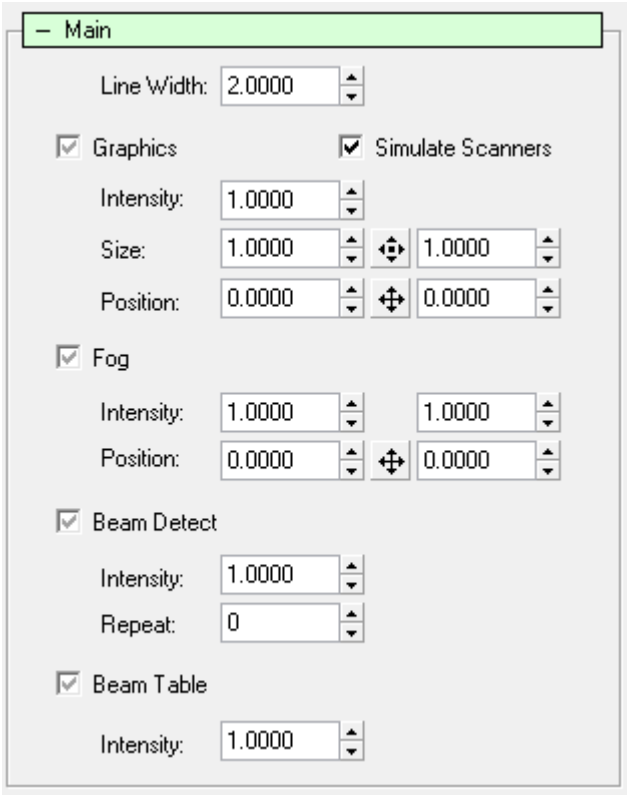
"Load Parameters from File"
Opens the dialog box for opening the current settings. These can be exchanged at will between **LGPreview**, **Lpv Player** and **proTize converter**.

"Save current Parameters to File"
Opens the dialog box for saving the current settings. This way you can reuse a setting later without the trouble of adjusting all values again.

LaserAnimation Sollinger GmbH · Crellestr. 19/20 · D-10827 Berlin
Phone +49 (30) 780 963 00 · Fax +49 (30) 780 963 25
Email info@laseranimation.com
Internet http://www.laseranimation.com

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Super Preview Properties: Main



Line Width

This parameter modifies the width (in pixels) of lines displayed by the Super Preview. The default value of 2.0 usually results in the best quality. With full screen display and high resolution, wider lines may result in a better picture.
Unfortunately not all graphics cards support arbitrary adjustment of the line width.

Graphics

By activating this parameter, the laser picture is displayed as a graphic. If "Enable Fog" is turned off this is equivalent to a graphics projection onto a screen.
Combined with "Enable Fog" the effect is more that of a gauze installed between the point of view and the scanner.
"Intensity" is used to adjust the brightness of the graphic. Higher values result in brighter lines.
"Size" influences the size of the picture, where the X- and Y sizes can be adjusted separately or simultaneously by keeping the mouse button depressed on the "&"-symbol and dragging. With "Position" you determine the position of the picture. Here X- and Y positions can also be set separately or simultaneously with "&".

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Fog

If you activate this parameter, the virtual room fills with fog. The fog with clouds floats through your preview picture. "Intensity" sets the brightness of the fog. The values can range from barely visible fog (0.1) to completely filled areas. With "Position" you determine the position of the scanners. X- and Y positions can be set separately or simultaneously ("&").

Beam Detect

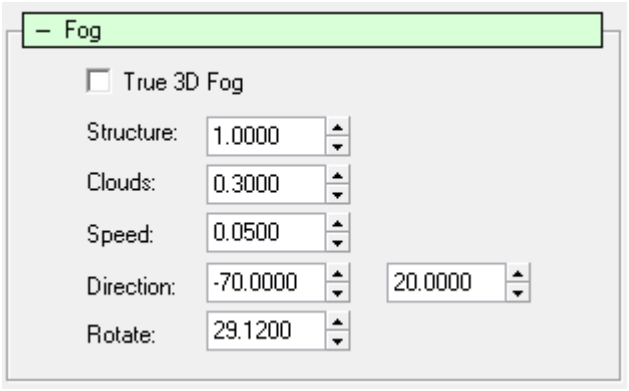
If this parameter is activated, the Super Preview performs an automatic beam detection. This means that points which have one or more repeats will be displayed as bright lines. The "Intensity" of the lines can be set. The parameter "Repeat" determines the number of repeats necessary to display a line as a "beam".

Beam Table

By activating this parameter beams from the beam table will be simulated. Two predefined options are available: a beam table for 8 positions and one for 20 positions.
"Intensity" determines how clearly the beams will be accentuated.
Beam tables can be present in Lpv files.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Super Preview Properties: Fog



Overview

Here you set the details of the fog. These settings are only done on the PC. Please note that you need a fast graphics card with OpenGL support to achieve optimal graphics display.

True 3D Fog

Activating True 3D Fog makes the display of the fog even more realistic. However, this is not supported by all graphics cards. Under certain circumstances it is also possible that even though it does work the calculation is very slow.

Structure

The structure of the fog can be set on a range from unstructured (Haze, 0.0) to a clear, defined, structured display (1.0).

Clouds

Changes the number of clouds from no clouds (0.0) to many, clearly defined clouds (1.0).

Speed

The speed with which the clouds float through your virtual showroom can be set. Here the value 0 means that the clouds do not move.

Direction

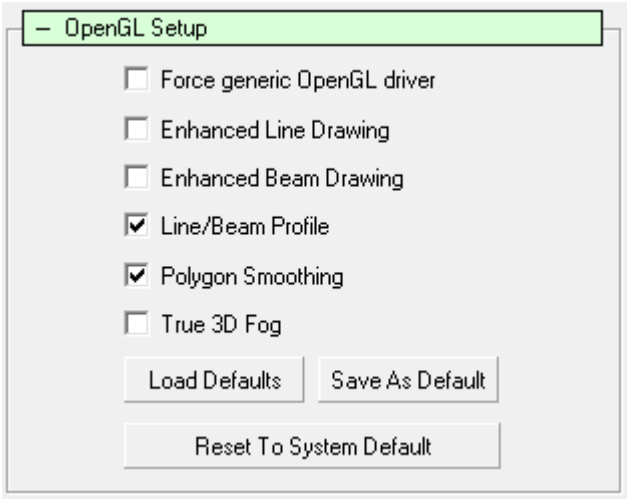
Define the direction in which the virtual clouds will move.

Rotate

This parameter lets the clouds rotate around the Z-axis.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Super Preview Properties: OpenGL Setup



Overview

In this section you have the possibility to set OpenGL parameters. The standard configuration usually leads to the best display. In individual cases it may be possible to improve or accelerate the output by optimizing these parameters for your graphics card. The Super Preview analyses your configuration and tries to determine the optimal settings. These are referred to as System Default. If you find a better configuration, you can save this so that it is automatically activated the next time the Super Preview is started. This is referred to as Default.

Force generic OpenGL driver

This parameter activates the software OpenGL driver by Microsoft® Windows®. Only use this if display errors occur. In practice this driver is very slow.

Enhanced Line Drawing

When this parameter is activated the lines are drawn in a special mode. With some graphics cards this will improve the display.

Enhanced Beam Drawing

When this parameter is activated the lines for beams are drawn in a special mode. With some graphics cards this will improve the display.

Line/Beam Profile

Lines are not cut sharply at the edges, they have a profile. This looks a little more realistic. Only works if "Enhanced Line Drawing" is activated.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Polygon Smoothing

When this option is supported by the graphics card the picture usually looks clearer and so called steps are avoided. This option usually does not make the display slower if it is supported by the graphics card. It is therefore superior to the "Global Scene anti-Aliasing" which you may find in the setup of your graphics card. Here it also depends on the graphics card if the picture is actually improved.

True 3D Fog

Activating True 3D Fog makes the display of the fog even more realistic. However, this is not supported by all graphics cards. Under certain circumstances it is also possible that even though it does work the calculation is very slow.

Load Defaults

Stored default values concerning the OpenGL setup are loaded.

Save As Defaults

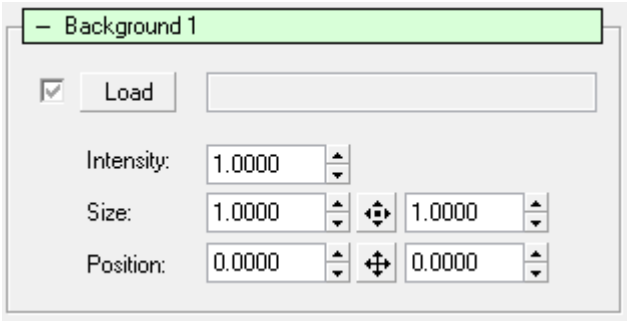
The current OpenGL configuration is saved as default configuration.

Reset To System Default

The OpenGL configuration is reset to its values at delivery.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Super Preview Properties: Background



Overview

You can integrate up to four background pictures, logos or watermarks into your preview. Accepted file formats are JPEG, BMP or PNG (PNG = Portable Network Graphics).

Load

Activate the checkbox to display the specified background picture. Clicking the "Load" button will open a file select box where you can choose a graphic.

Intensity

Specify the intensity / brightness of the background picture. It often makes sense to reduce the intensity of background pictures or watermarks so that they will not interfere with the laser simulation.

Size

Specify the size with this parameter.

Position

This parameter determines the position of the background picture. Usually background pictures will be oriented toward the center. At +/-10 you can also attach the pictures to one of the edges.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Command Line Reference

Overview

Command line parameters can be specified when starting **proTize converter** to control various aspects. In particular when automating conversions by calling **proTize converter** from batch files or other programs this can be very useful. Fully automatic use is possible.

General syntax

proTizeConverter.exe [-?] [-m] [-r <row>] [file list]

All parameters are optional.

Example

proTizeConverter.exe -m -r2 C:\Tmp\Images*.AI

This will start **proTize converter** (if it is not currently running) minimized (tray). Then it will convert all AI files that match the pattern "**`C:\Images\*.AI`**". The second row will be used to convert the files.

Reference

Parameter: -?

This displays a dialog with a small description of all legal options.

Parameter: -m

Specify **-m** to force **proTize converter** to be started minimized. **proTize converter** will only be displayed in the tray. This is useful to start **proTize converter** with a link from **Startup** right when Windows® starts.
If **proTize converter** already runs when this option is given it has no effect.

Parameter: -r <row>

By default **proTize converter** will convert files specified from the command line with the first row. **-r** allows explicitly specifying which row to use.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Acknowledgements

Thanks to the Independent JPEG Group

This software is based in part on the work of the Independent JPEG Group.

Thanks to authors of libpng, zlib

This software is based in part on libpng and zlib.

Thanks to authors of libtiff

The following is the copyright notice for libtiff which is included in this software:

Copyright (c) 1988-1997 Sam Leffler
Copyright (c) 1991-1997 Silicon Graphics, Inc.

Permission to use, copy, modify, distribute, and sell this software and its documentation for any purpose is hereby granted without fee, provided that (i) the above copyright notices and this permission notice appear in all copies of the software and related documentation, and (ii) the names of Sam Leffler and Silicon Graphics may not be used in any advertising or publicity relating to the software without the specific, prior written permission of Sam Leffler and Silicon Graphics.

THE SOFTWARE IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL SAM LEFFLER OR SILICON GRAPHICS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER OR NOT ADVISED OF THE POSSIBILITY OF DAMAGE, AND ON ANY THEORY OF LIABILITY, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Release Notes

Version 2026/09/11

- New: The license-key based version now also supports creating SWF files.
- Bugs and security issues in the 3rd-party libraries have been fixed.

Version 2026/06/11

- New: License-key based version of proTize converter.

Version 2026/04/30

- Bugfix: The shortcut to the manual in the Start menu did not work.
- The 3rd-party libraries have been updated.

Version 2025/11/24

- New: Automatic and manual software updates.
- The 3rd-party libraries have been updated.

Version 2023/09/25

- Bugfix: Under certain circumstances Softblanking with Mindist 0.0000 could cause a crash.
- The DSP version now starts converting significantly faster.
- The 3rd-party libraries have been updated.

Version 2022/09/12

- Bugs and security issues within the 3rd-party libraries have been fixed.
- The driver of the hardware key (dongle) has been updated to work with Windows 11.

Version 2020/06/02

- New: Conversion of SVG files by using Inkscape 1.0.
- Improved compatibility with Windows 10.
- Bugfix: Under Wine (CrossOver) inserting BMPs from the clipboard did not work.
- Some bugs and security issues within the 3rd-party libraries have been fixed.
- The driver of the hardware key (dongle) has been updated.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Version 2018/06/21

- Bugfix: Depending on the name of the file to be converted, it could happen that the conversion failed with the error message "DSP: cannot load into memory!".
- Some bugs and security issues within the 3rd-party libraries have been fixed.

Version 2015/11/24

- The support for TIFF images has been improved.

Version 2015/09/25

- Bugfix: Softblanking did not work since Version 2015/06/18.

Version 2015/07/08

- Some bugs and security issues within the 3rd-party libraries have been fixed.
- The bookmarks in the **proTize converter** Manual were not referenced correctly.

Version 2015/06/18

- Compatibility with Windows® Vista/7/8 improved.

Version 2014/07/15

- Minor changes.

Version 2014/04/10

- New installer solves compatibility issues with the 64-bit editions of Windows®.

Version 2013/04/10

- Some Wine related issues have been solved.

Version 2012/12/03

- Small bug fixes.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.

Version 2011/10/13

- Pictures written in the Lasergraph DSP format can now be used by the Gobo Wizard.

Version 2010/01/18

- Few small bugs were fixed.
- The True Color Trickfilm has been updated.
- The driver of the hardware key (dongle) has been updated. It now works with Windows® 7.

Version 2009/04/24

- Support for Windows® Vista.
- The ILDA export (only available with the dongle version of **proTize converter**) now supports the new true color format.
- The driver of the hardware key (dongle) has been updated. It now works with the 64 Bit edition of Windows® XP.

Version 2008/05/07

- Minor changes.

Version 2005/09/08

- Support for True Color output added for the Lasergraph DSP format.
- Support for the new ILDA format with full RGB support added.
- Import of JPG/TIFF/BMP images improved (more stable with respect to invalid formats).
- AVI import has been improved to support more variants.

Copyright © LaserAnimation Sollinger GmbH. All rights reserved.