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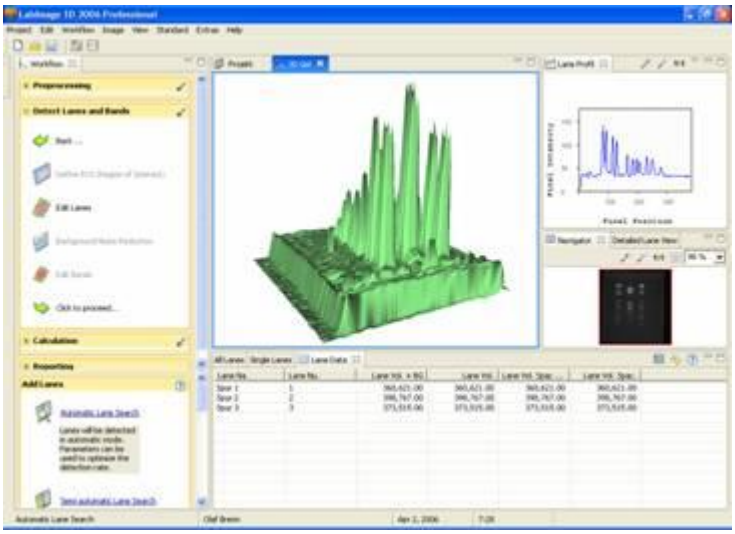
LabImage 1D 2006
Tutorial



Version 1.4, 03.12.2006

Chapter I. Fast introduction

This chapter gives a short introduction in how to use LabImage.

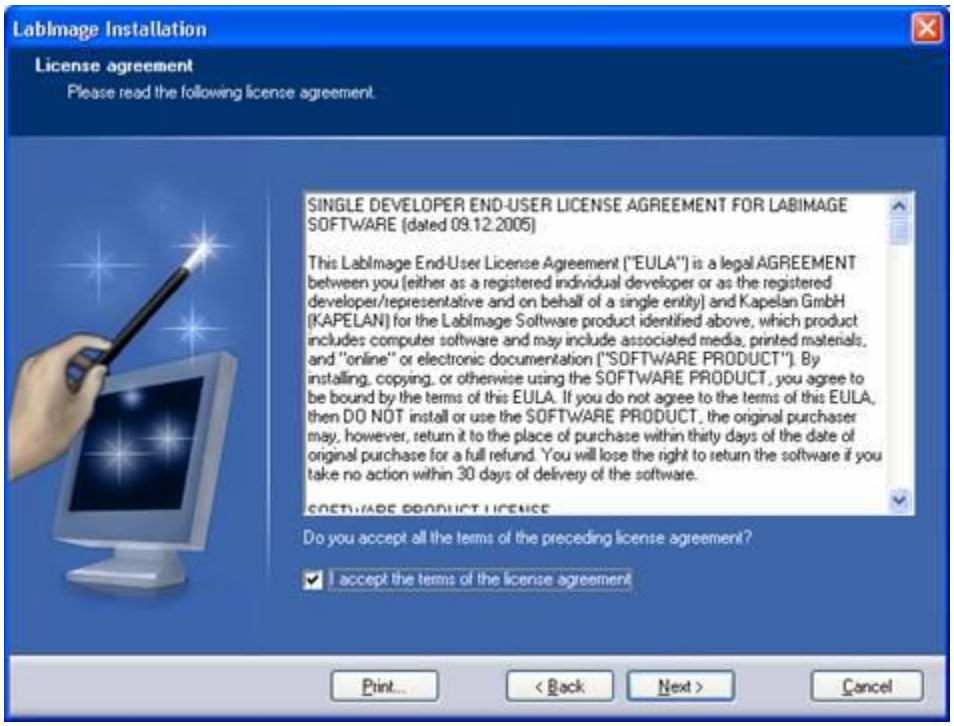
It contains the following topics:

1. Installation

1. Close all Windows-programs.

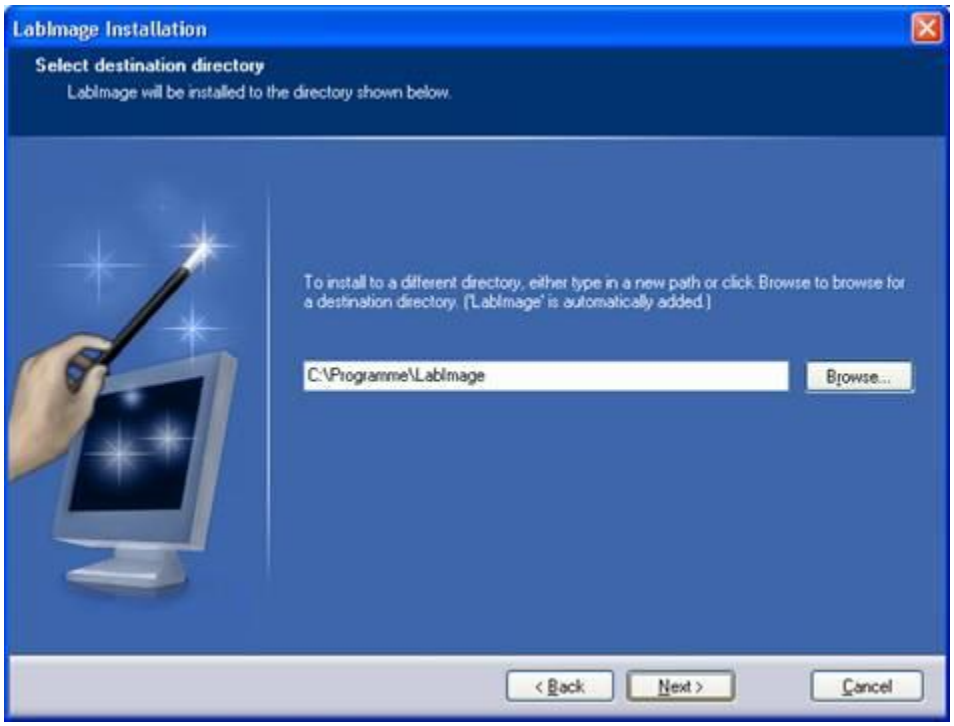
2. Insert the LabImage CD into the CD-ROM drive or if you have downloaded the program from the website www.labimage.net, simply double click **labimage_setup.exe** from where you saved the file on download.,

3. Follow the instructions of the installation wizard, which will appear. After each step click on **Next** to proceed.



Read the license contract carefully and mark **I accept the terms of the license agreement** with a check mark before proceeding.

If you decline the license agreement the installation cannot be completed.



To change the destination directory, click on **Browse** and select the desired path.

Finally click on **Installation** to start the installation process.

LabImage will now be installed.

Mark **Launch LabImage** if you want to start the program right after this dialog.
Click on **Finish** to close the installation wizard.

Continue with **Start**.

2. Start

1. To start running LabImage, please double click on the LabImage Icon that will appear on your desktop after installation.

2. This will open the License Management for the first time you start the program. Please select **Imp. Lic. File** to enter the license key file (**License.lik**) which you received by e-mail or on CD-ROM.

3. Failing a license please e-mail our support team at support@labimage.netor visit our support area on www.labimage.net. See the hardware requirements and the operating system specific requirements as well.

4. The Welcome View of LabImage will appear. Select one of the displayed options – in this case use **New Project** - to start. If start with the project manager select **Create New Project** to create a new project.

5. Select the **Type of Gel** and click on **Next** to proceed. The types are used to classify the type of image. DNA gels usually have light bands on a dark background – proteins gels have usually dark bands on light background. LabImage checks the type if the selection does not fit.

6. Specify your project **name**, its **editor** and its internal **number**. Decide, if the project is for **private use** or for **everyone to see on this computer**. Click on **Next** to proceed.

7. Import the gel image. Depending on the availability of your image choose **Import from File** or **Import from Scanner**.
   Click on **Next** to proceed.

8. Complete the description field **Describe the project** and then click on **Finish** to create the project.
   The project will be created and you will automatically transferred to the **Workflow** perspective where you can proceed with your analysis.

Continue with Preprocessing.

3. Preprocessing

In the first step of your analysis, the **Preprocessing,** your gel image can be optimized for the upcoming analysis.
In the detailed workflow below you can select **Rotate Image**, **Select Image Area**, **Flip Image**, and **Scale Image**.
Having finished the preprocessing, please click on the  icon to proceed.
Preprocessing will be marked with a check mark and **Detect Lanes and Bands** will be opened.
The lanes in the gel images should be aligned widely vertical.

Continue with Lanes and Bands.

4. Lanes and Bands

1. Define the **ROI (Region of Interest)** to which the analysis has to be restricted. Drag a rectangle on your image starting from top left to bottom right by clicking and holding the left mouse button.

2. Click on **Edit Lanes** to search for lanes. Select **Automatic Lane Search** (*available only in LabImage 1D 2006 Professional*), **Semiautomatic Lane Search** (*available only in LabImage 1D 2006 Professional*), or click on **Edit Lanes manually** to add lanes in the gel image by just clicking on them. Delete lanes by right mouse click within the desired lane. In separate views you can see the **Lane Profile** and the **Detailed Lane View** for each marked lane. Use parameters to define the intensity of the lane detection

3. Click on **Background Noise Reduction** to reduce background noise. Choose the method and define if the method or parameter should be applied for all lanes or only for the marked lane. LabImage offers manual and automatic methods.

4. Click on **Edit Bands** to detect bands. Select **Automatic Band Search** (*available only in LabImage 1D 2006 Professional*), or choose **Edit Bands manually** to add bands in the gel image by just clicking on them. Delete bands by right mouse click within the band. The data for bands and lanes will appear in a separate table view. Use the band parameters to adjust the detection.

Click on the  icon to proceed.
Lanes and bands will be marked with a check mark and **Calculation** will be opened.

Continue with Calculation.

5. Calculation

Calibration RF

You can run a RF calibration to correct distorted gels.

1. In the detailed workflow below please type in the reference lane to which the RF values shall refer (**Reference for RF Line**).
2. Click into the gel image - a line will be added representing the RF position according to the value in the appearing box. You can add tie points by clicking on the line and move the line with the mouse.
3. You can snap a line to a band by activating **Snap RF lines to bands**.

4. RF lines can be bend or straight. To use curved lines simply activate **Use curved RF Lines**.

Molecular Weights

Molecular weights for bands can be determined by using one of the supplied standards or by creating one of your own standards as a template.

Select one of the available standards listed in **All Standards** in the detailed workflow below or create a new standard with the help of the Standard Editor (see Create a new Standard Template).

The selected standard will appear with a sample imager and the values beside the gel image.

Deselect values for bands that do not exist in your image. To assign the value of the first band to your gel, please click on the desired band in your gel image. A line will be drawn into the gel image representing the molecular size reference lane. The other bands will be assigned automatically. To adjust this line, click on it and move it while keeping the left mouse button pressed. You can also adjust the reference line to bands by simply clicking on the band you want to assign the molecular weight of the standard to.

Select the matching **Interpolation Method** out of the list. If there are distortions in the gel that were compensated for when creating the lanes, then mark **Use RF Calibration**.
Click on **Process Calculation** to define the molecular weights for all bands. The values will be displayed in the data table below. Please note, that the value molecular weight must be marked with a check mark in the selection box for the data table (see Data Table).

Quantification

This allows you to calibrate bands or lanes on your gel based on known values.

Select the unit and define if the calculation shall be done for **all Lanes** or the **selected Lane.**
Mark if the values shall be allocated to **Bands** or **Lanes**.
Double click on the bands or lanes you wish to calibrate the unknown values against and type in the known values in the box that appears.
Click on **Apply** to allocate this value. Values can be deleted again by right mouse click on the value box.
Select one of the provided curve fittings and click on **Process Calculation**. The calibrated volumes will be displayed in the data table. Please note, that this value (**cal. Vol.**) must be marked with a check mark in the selection box for the data table (see Data Table).

Normalization

The Normalization allows you to calculate relations of one or more selected bands. If actual volumes are not known, set a band or group of bands to a desired value (e.g. 100 %) and calculate unknown bands in relation to this band or group of bands.

First select the value and unit you wish to **Normalize to** and define whether you wish to use the **Average Volume** or **Collective Volume** of the selected bands. Then click on one or several bands to which the entered amount shall be associated to. Bands can be deselected again by right mouse click.

Click on **Create Normalization.** The normalized volumes of all bands will be displayed in the data table. Please

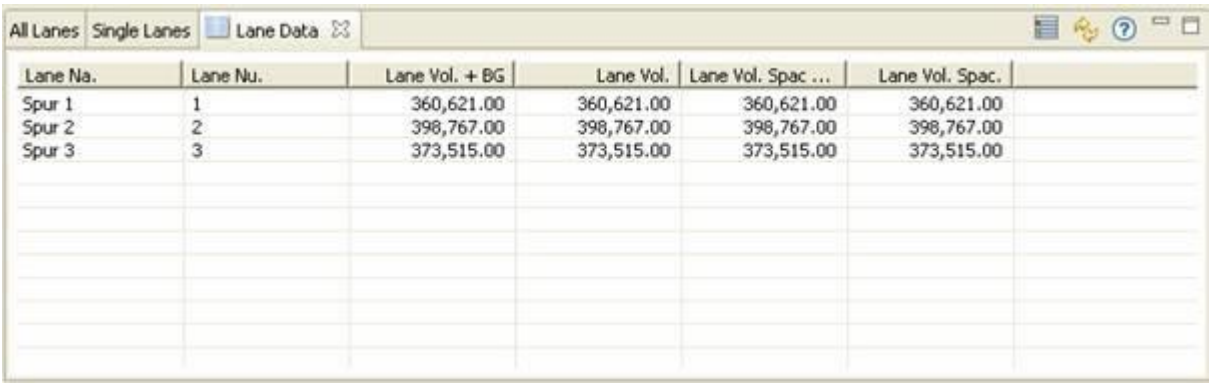
note that this value (**Norm. Volume)** must be marked with a check mark (see Data Table).

Click on the icon to proceed.

Calculation will be marked with a checkmark and **Reporting** will be opened.

Continue with Reporting.

2.3.7. Data Table View



Lane Na.	Lane Nu.	Lane Vol. + BG	Lane Vol.	Lane Vol. Spac ...	Lane Vol. Spac.
Spur 1	1	360,621.00	360,621.00	360,621.00	360,621.00
Spur 2	2	398,767.00	398,767.00	398,767.00	398,767.00
Spur 3	3	373,515.00	373,515.00	373,515.00	373,515.00

The data table displays all calculation data.

The data is split into three different table sheets: **All Lanes** (all lanes and bands in a single table), **Single Lanes** (single lanes in different sheets) and **Lane Data** (lanes only).

The icons in the top right position of this view provide the following options:

	Selection of available values to be shown in the data table. A click on this icon will open a list with all values that can be displayed in the table. Each value can be activated by setting a check mark in the box in front. Taking out the check mark will exclude this value in the data table.
	Updates the data table.
	Option to change the names for lanes and bands.

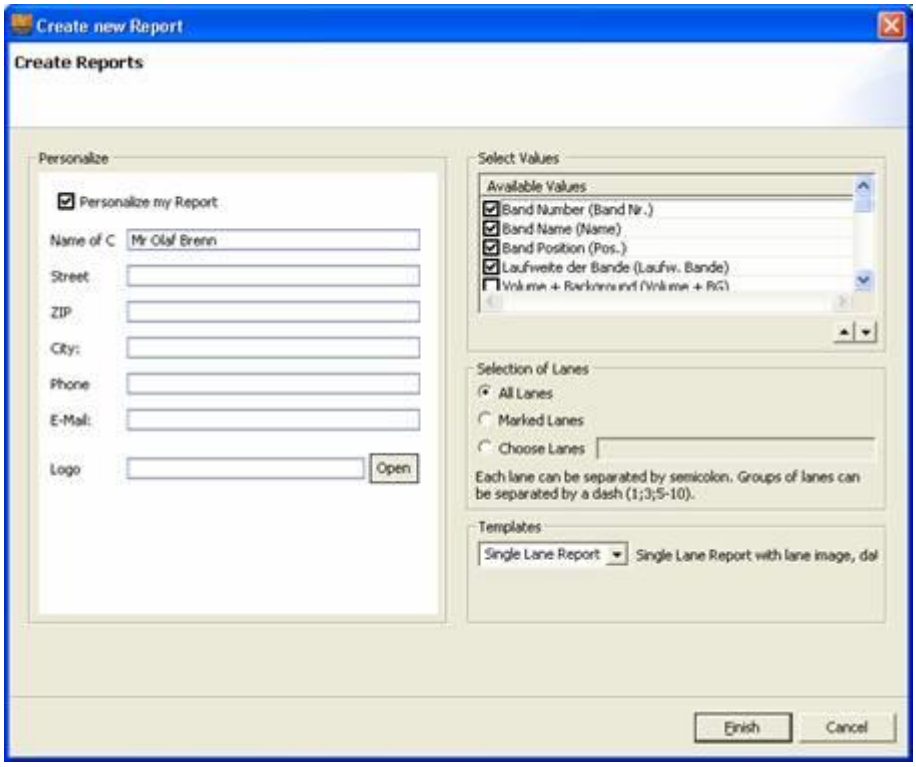
5. Reporting

Export

The export sector provides all data in an appropriate format for further use.
By clicking on the corresponding link in the detailed workflow below you can either export the **Lane Data Table**, the **All Lane Table**, the **View Content** or the **Original Image**.

Alternatively each view can directly be exported or printed by choosing **Edit** in the menu bar.

Generate Report



LabImage provides preconfigured gel reports filled with the particular data. Each report can be personalized entering personal data.

Set a check mark in the box **Personalize my Report** and complete the personal data. Select the desired values out of the list of available values, as well as the lanes of interest and choose the **Template**. LabImage provides the two following templates:

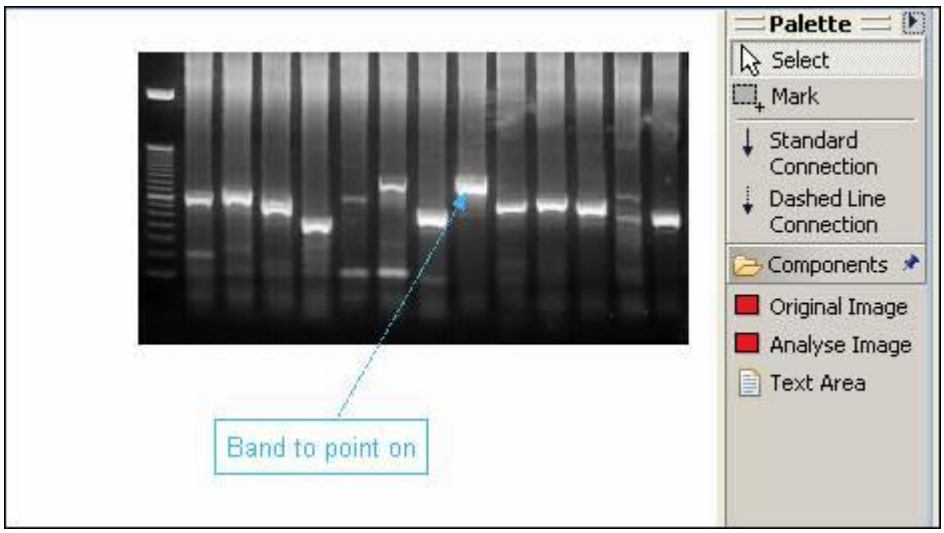
	**Gel report:** Includes the project data, a short analysis data table and the gel image. This report is limited to 3 values. **Single Lane Report:** The lane report includes the project data and the detailed data table including the graphic of one lane and its Lane Profile

.

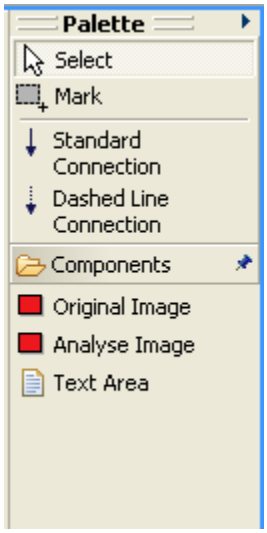
Click on **Finish** to create the report.

Documentation

LabImage 1D Compact	**LabImage** 1D Professional	**LabImage** 1D GLP
	x	**x**



You can create individual and significant gel documentations with the **Documentation**.
Each gel can be extended and documented by text boxes and arrows.
The final documentation will be saved as part of the project and can be exported as a graphic.



Select: Selects the desired object in your documentation by mouse click. A frame will mark it.

Mark: Mark all desired objects in your documentation by dragging a frame over the desired objects using the mouse. All marked objects will be marked by a frame and will be moved together.

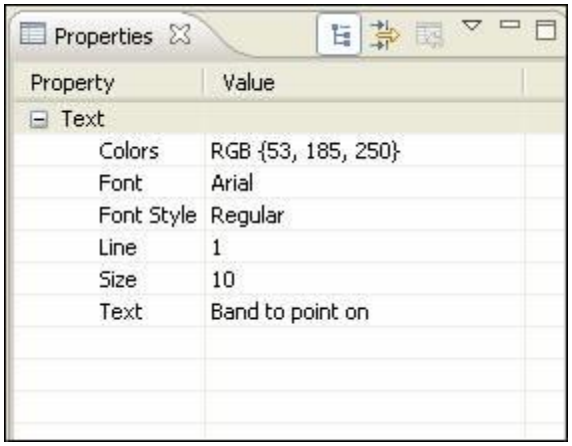
Standard Connection: The connection line between text and image is a continuous standard line.

Dashed Line Connection: The connection line text-image is a dashed

line.

Original Image: Paste the gel image of your analysis in the documentation. The gel image can be adjusted by moving the frame with the mouse.

Text Area: Paste a text box in the documentation.



Text type, text size and text color as well as line thickness and line color can be defined here. Click on the box and choose the desired variable out of the opening pull-down menu.
Each element created in the documentation will be shown in the selection window. By clicking on the desired element it will be marked in the documentation and can be worked with.

5. Reporting

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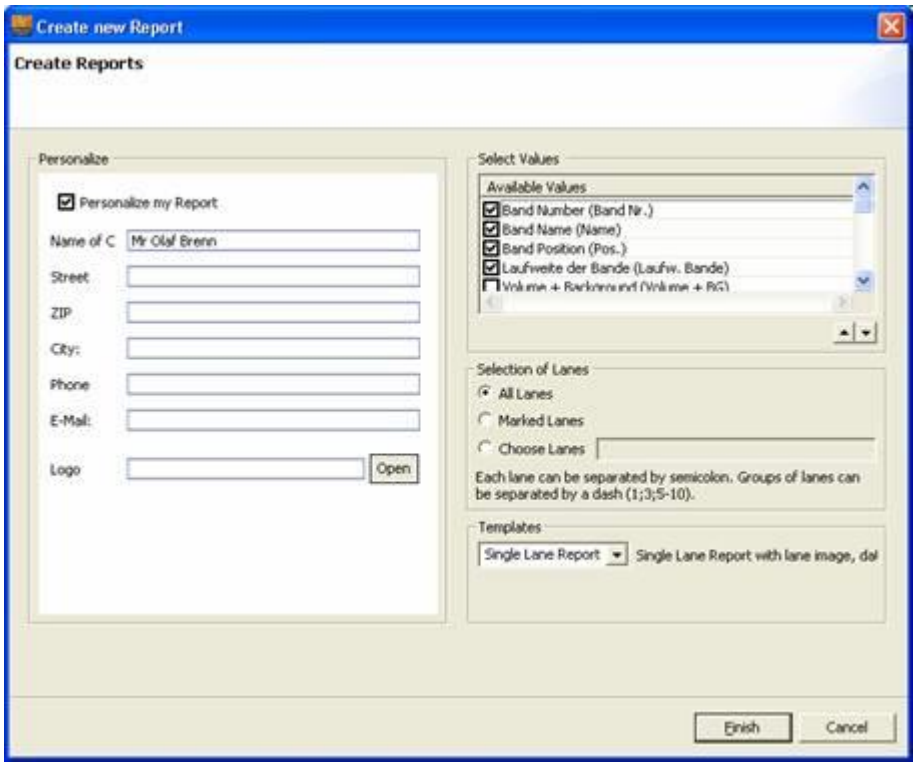

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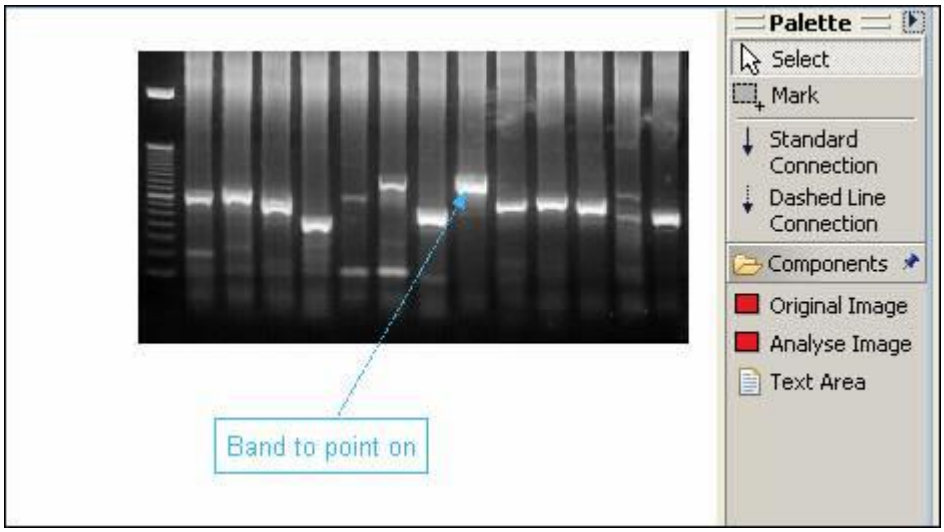

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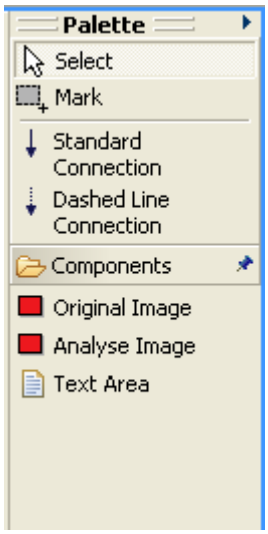

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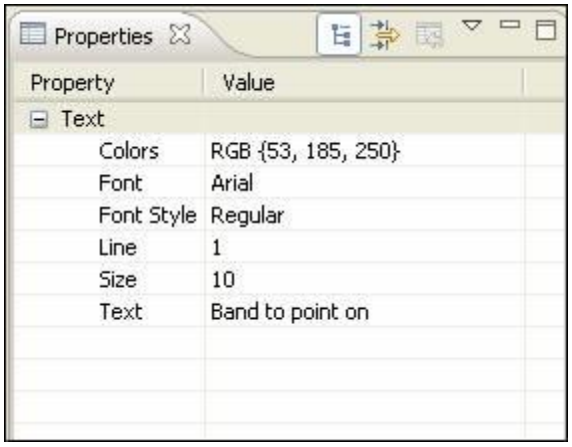

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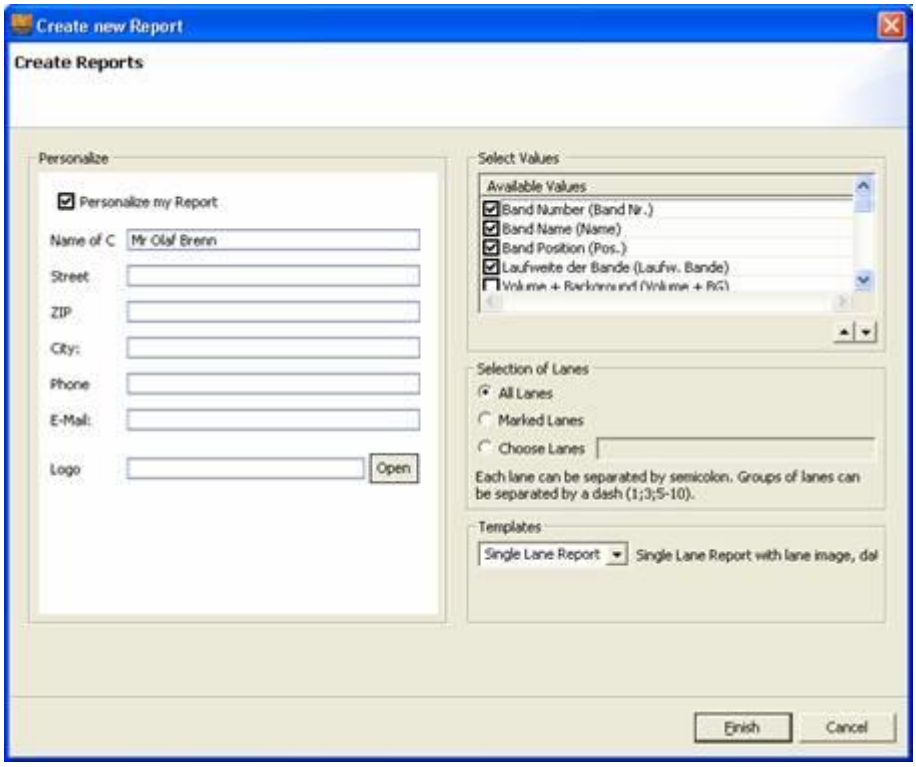

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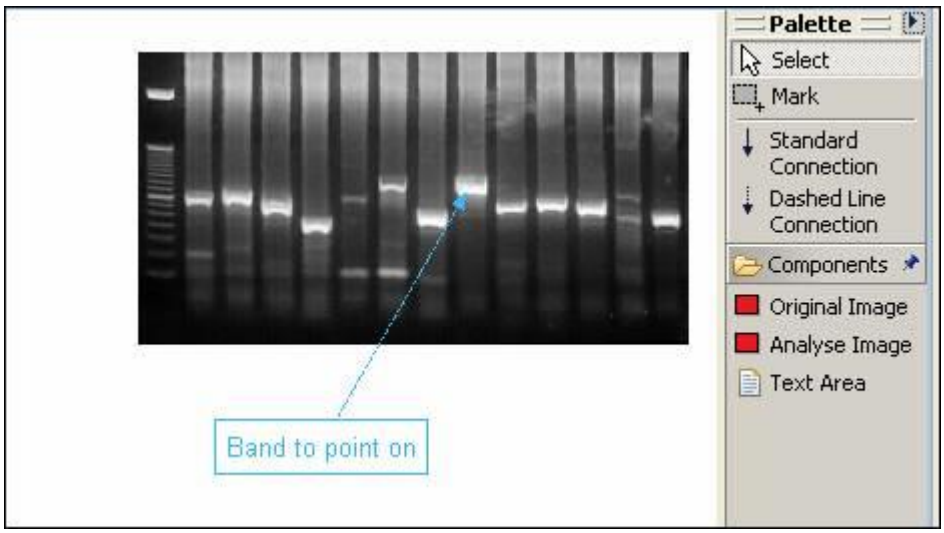
	x	**x**



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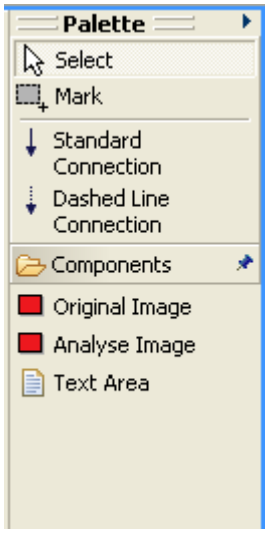

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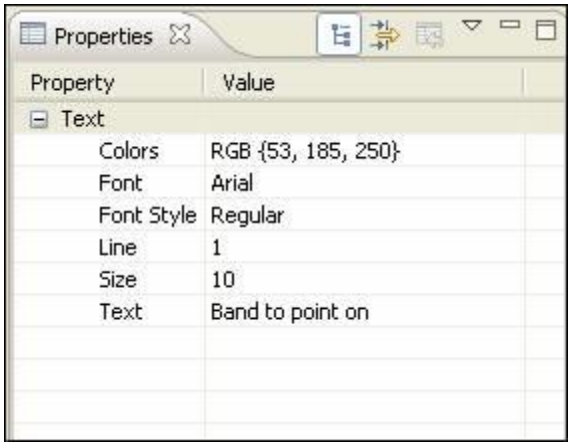
Text Area: Paste a text box in the documentation.



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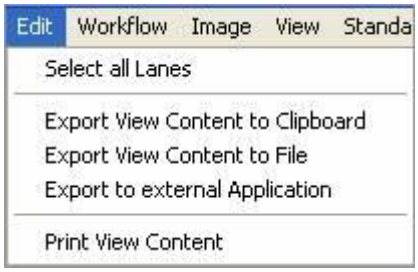
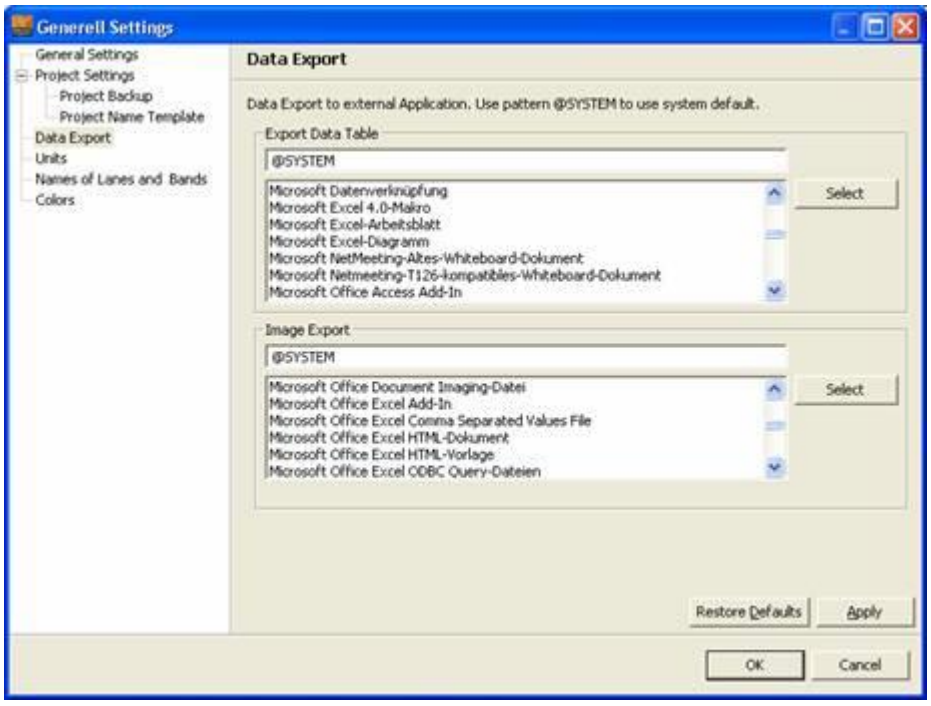
4.2. Edit



This menu can be used to mark all lanes. Furthermore you can export views to either the clipboard, to a file or to an external application specified in the settings (See Data Export).

3. Data Export

LabImage is able to export data tables or images of your analysis in external applications.



Choose the application to which you want to export the **Data Table** or an **Image** of your analysis. The CSV format

can be opened with MS Excel, Star Office or Open Office. Select one of the applications out of the list or type in the executable file of the desired application e.g. "excel.exe". LabImage will automatically find the application and export the table or image.
Alternatively you can use the replacement character "**@SYSTEM**" to assume the basic settings of the operating system.

To accept the settings, it is necessary to click on **Apply**. Click on **Restore Defaults** to restore the basic settings.

Attention:

MS Excel™ or **Open Office** has to be installed separately. This software is not part of LabImage.

2. Deinstallation of LabImage

Choose **Start** > **Settings** > **System Control** > **Software** > **LabImage** and click on **Add/Delete**.

Attention:
The installation process can fail if data is deleted manually. Do not delete any program files manually!

3. Acquire License and Enter License Data

The user license will be sent to you by e-mail or on a storage medium.
The license file **License.lik** contains all necessary information for the release.
Every license is personalized, meaning that your personal data is integrated and listed in the License Details.

Notice:
Licenses are created to be used only once. They cannot be added twice on a computer. So if the adding process fails you will need an update license. Please contact Kapelan or your distributor for it.

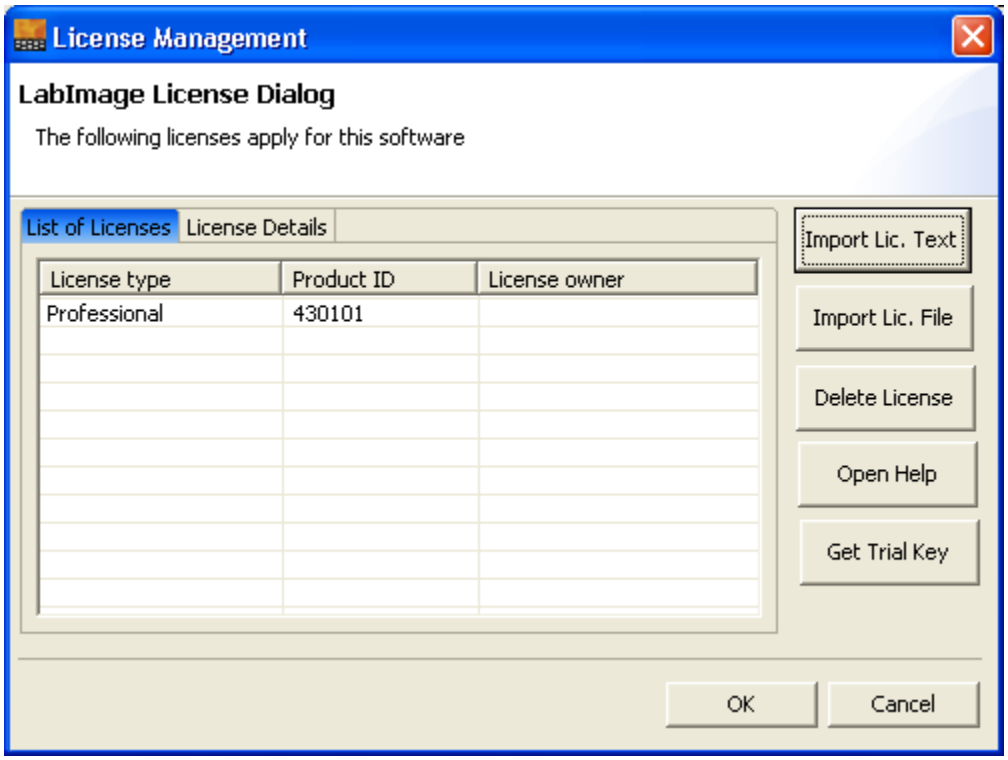
Acquire License

Once you have downloaded or purchased the LabImage Software you will automatically receive the license file on a disk or by e-mail. Trial licenses can be obtained while the download process.
If worked with the demo version so far, just enter the new license file to carry on working with this software without stopping.
Licenses can be ordered from the website www.labimage.net or from your distributor.

Enter License Data

To run the software, you have to enter a license file first.
Select **Import Lic. File** to use the license file you received

by e-mail or from a disk or – if you received the file by e-mail saved on your computer sent to you by e-mail. Alternatively you can choose **Import Lic. Text** to paste the license file by using the clipboard. The content of the license file then can be entered in the opening window.



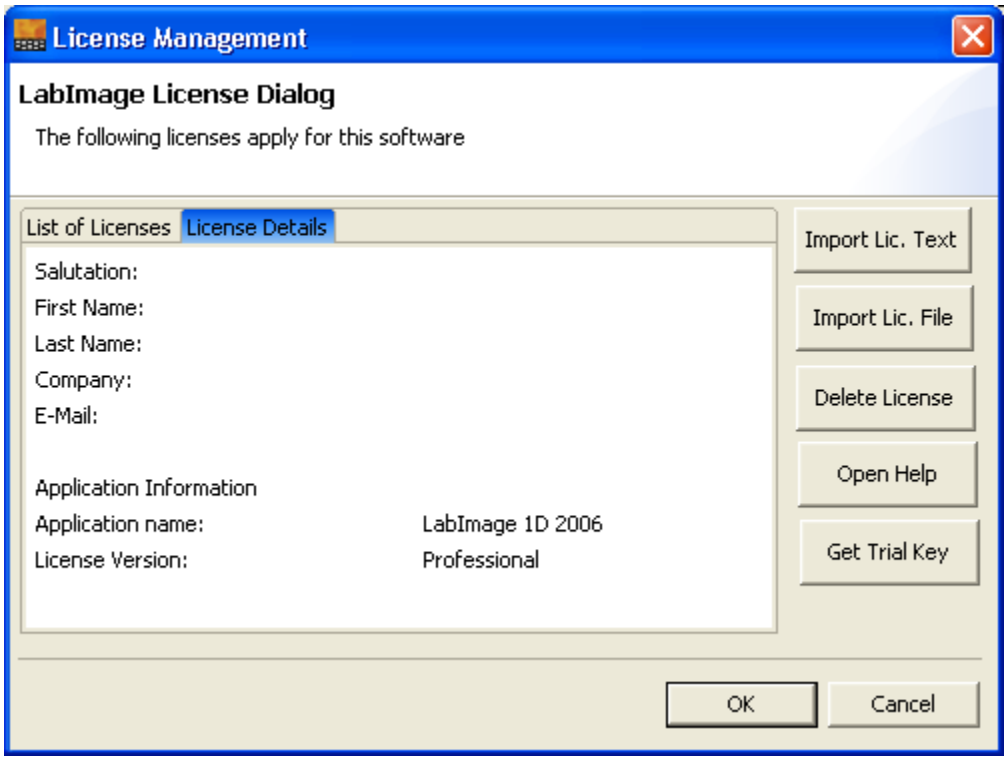
Use a trial license

Click on **Get Trial Key** to receive the license for your demo version. You will be connected automatically to the download area of LabImage from where you can download the trial license for free.

Change/Delete License

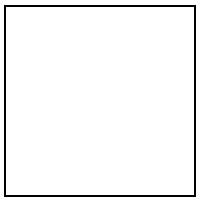
LabImage follows an open concept, based on modules. This allows for activating more functions by updates or license upgrades.

Upgrading the license sometimes requires the deletion of the existing license. For this, mark the existing license in the license management and click on **Delete License**.
Insert the new license as described above. See Enter License Data.



All license details about the currently used license will be listed in **License Details**.

Problems when entering the license
If any problems arise concerning entering the license data please contact our support team on www.labimage.net/support or ask your distributor.



Overview

Download

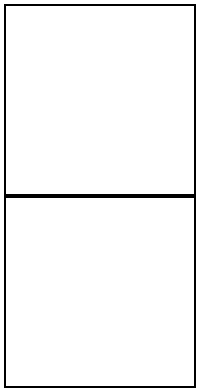
Order

References

Partners

Support

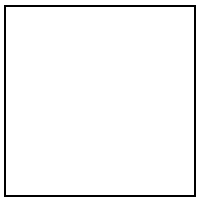
Contact



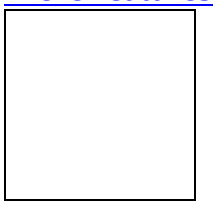
Feature Focus

Molecular weight calibration

Molecular weights can be assigned using the supplied standard library.



More features



About LabImage

LabImage 1D Gel Analysis

LabImage Colony Counting

LabImage 1D Versions

Compare LabImage 1D

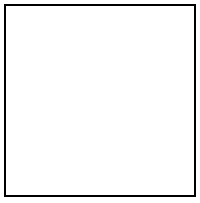
News

Features

Advantages

About the Technology

Events



Latest News

"Bioinformatics meets Life Science" in Munich: Oral presentations "Pathogenesis of inflammatory bowel diseases" and "ICPLTM" at the fourth "Bioinformatics meets Life Science" road show at the Center of Life and Food Sciences Weihenstephan read more

New 1D gel analysis software in molecular biology available: Kapelan Bio-Imaging releases a brand new version of 1D gel analysis software LabImage, prices starting at 399 Euro read more

Product News

LabImage 1D will be released for Mac systems!
Thanks to the Kapelan Bio-Imaging software platform the power of LabImage 1d electrophoresis will support Mac users. LabImage will run on the native Apple Macintosh system without the need for any emulation.

Try it out! Apply here.

The LabImage family will be extended soon by a **new application for Colony Counting called LabImage CC!** Same great software platform, same easy to use interface same analysis power. Soon Kapelan will provide even more tools for molecular biology.

Be the first to try it out! Apply here.

The new LabImage 1D

LabImage 1D is a new type of 1D gel analysis software. Powerful features as step-by-step workflow, strong image analysis algorithms, flexible reporting and data export make LabImage 1D one of the most advanced software solutions in 1D gel analysis.

Our focus was to provide the right set of tools for every demand. Ranging from basic requirements in 1D gel analysis with LabImage 1D L300 up to the complete and full featured LabImage 1D L340 scientist will find the right solution.
Every version is based on the same powerful imaging platform providing the easiest user interface in this segment.
Full 16 bit image processing, flexible licensing and fast and reliable analysis makes LabImage your first choice.

What others say about LabImage

"When comparing 1D software solutions we found out that LabImage is by far the **best software in usability**". Read more.
Tiana Steinhoff, Switzerland

Read more about the features
Take the feature tour
Download 30 days trial version

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About Kapelan Bio-Imaging
LabImage is based on the LabImaging Platform