User Manual
EUROLineScan

Automated evaluation of membrane-based test systems with EUROLineScan

- **For all EUROIMMUN blot systems: EUROLINE, EUROLINE-WB, Westernblot**
- **For autoimmune diagnostics, infectious serology and allergy (incl. Allergy EUROASSAY)**
- **EUROBlotCamera: digitalization of strips while in the incubation tray**
- **EUROBlotScanner: digitalization of strips using flatbed scanner**
- **Fully automated identification, quantitation and assignment of bands**
- **Option to modify results (changes are automatically documented)**
- **Complete results obtained just a few minutes after finishing the incubation**
- **Fully automated administration and documentation of extensive individual data**
- **Electronic archiving of all images and data (avoids the need to store potentially infectious blot strips)**

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1 General

The program **EUROLineScan** is designed for digital evaluation of EUROLINE test strips from EUROIMMUN for the diagnosis of allergies, autoimmune diseases and infectious diseases. As well as evaluating and printing results, the EUROLineScan program also automatically establishes a patient archive.
Results obtained with the EUROLineScan program can always be checked for their accuracy. EUROIMMUN is only liable for the results obtained with EUROLineScan in accordance with the German law for medical products. Both clinical and serological parameters should be taken into account when making a diagnosis.
The personnel operating the program is required to compare the patterns of the bands of every strip to the reactions shown on the evaluation result screen to assure the identity of the results.
The program **EUROLineScan** has been developed by EUROIMMUN to allow fully automated, quantitative evaluation of membrane-based test systems, to facilitate administration of extensive individual data and to provide detailed documentation of results - tasks which previously took a lot of time. The incubated membrane strips are either scanned onto a protocol sheet using a **flatbed scanner** (**EUROBlotScanner**) or photographed directly in the incubation tray using a **camera system** (**EUROBlotCamera**). EUROLineScan recognizes the position of the strips, automatically correcting minor errors resulting from inaccurate manual placement of the strips. It then identifies the bands and measures their intensity. The automated evaluation can be monitored and the data modified manually, whereby all changes are automatically documented. The results are then saved together with the image data.
It is no longer necessary to archive (potentially infectious) incubated test strips. A separate results sheet can be produced for each patient. EUROIMMUN will help integrate the EURO-LineScan program into an already existing software environment.

System requirements: Computer: Pentium of at least 350 MHz or compatible with Windows XP, Windows Vista or Windows 7, 512 MB RAM, around 1 GB disc space (around 10 MB for installation, the rest for graphics and patient files), graphic resolution 1024 x 768 or higher. **Flatbed scanner:** CanoScan LiDE series, at least 300 dpi (recommended: 600 dpi); **Camera system:** to photograph the membrane strips directly in the incubation tray, only available from EUROIMMUN. **Printer:** a simple commercial printer is sufficient (for results and documentation). **Barcode scanner:** Symbol DS6707 (only for allergy EUROASSAY)

2 License and guarantee

GRANTING OF LICENCE
The license holder may install and use the EUROIMMUN software on multiple computers.

The license holder is not permitted to make changes or allow third parties to do so, to perform reverse engineering, to decompile or dismantle EUROIMMUN software or to try by any other method to obtain the source code.

All titles and intellectual property rights of the EUROIMMUN software (including but not restricted to all images, photos, animations, video, audio, music, text and other components of EUROIMMUN software), the accompanying printed material and all copies of the software belong to EUROIMMUN or distributors for EUROIMMUN.

GUARANTEE
Even after comprehensive testing of the software no guarantee for complete absence of errors can be given. EUROIMMUN AG is obligated to correct software errors that occur within 24 months of delivery of the software. This only applies when EUROIMMUN AG is informed immediately in writing about deficits that have occurred. The term software errors applies only to reproducible deviations of the software from the software description. As long as the obligation to correct a software error exists, EUROIMMUN will fulfill this obligation by updating the software at hand.

EUROIMMUN AG does not assume liability for the compatibility of the software with other hardware or software configurations of the customer. Furthermore EUROIMMUN AG does not take responsibility for damage or disruption caused by unsuitable or improper use, incorrect installation by the customer or changes to or interference with the software by the customer.

3 Installation

3.1 Program Installation / Update

When you insert the EUROLineScan CD a menu will appear where you can choose between **installation** and **program update**. The EUROLineScan setup recognizes automatically if EUROLineScan has already been installed on the system and suggests the appropriate option.

In case the menu does not open automatically, start the program "Splash" on the EUROLineScan CD.
If the automatic recognition of the installation status fails, the update or installation program can also be started manually by the user. To perform the installation, start the “Setup” program in the subfolder “Setup” on the EUROLineScan CD. Accordingly, if you wish to perform an update, select the program “Update” from the “Update” directory.

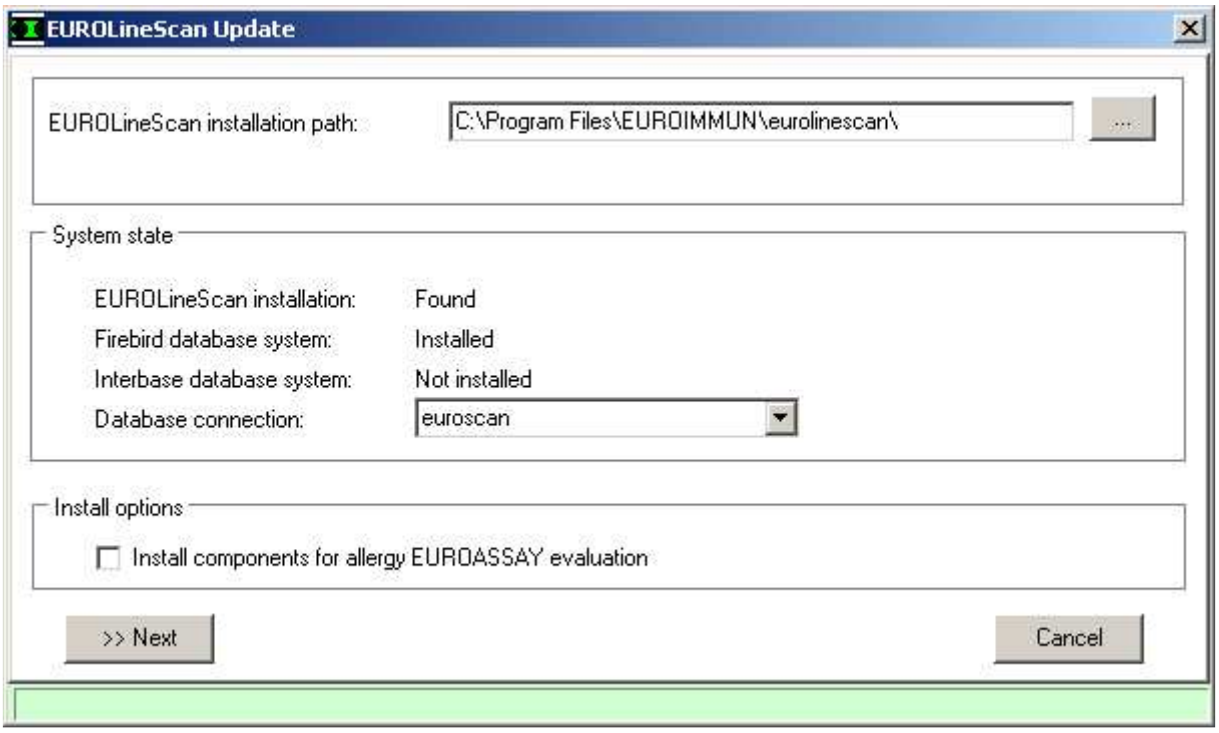
Note: If you update from EUROLineScan version 3.1.24 or lower, you have to deinstall the previous Interbase database system and to replace it with a Firebird database server. To do this, use the option “Exchange databases” in the start menu of the EUROLineScan CD. However, the update program will indicate if it is necessary to perform this function.

You require local administrator rights to perform the installation and to swap database systems. If you do not have the appropriate rights, the system will inform you. In this case, please log in as a user with the appropriate user rights.

Installation:
To perform the installation, click on the button "Install" and follow the instructions of the installation program. If you do not wish to install EUROLineScan under the default installation path, you can select a new location.

During installation the Firebird database system is installed simultaneously. If Firebird is already installed on your system, a warning message may appear. EUROLineScan will try to use the Firebird installation which is already available.

Update:
To update the EUROLineScan installation, click on the “Perform Update” button. The following window will appear:



The input field "EUROLineScan installation path" contains the directory, in which the EUROLineScan installation was found by the update program. Please check if the automatically determined path is correct and, if necessary, change the entry before you proceed with the installation.

The entries in the “System status" field can usually be neglected. However, if you wish to update a different database than the one currently selected in EUROLineScan, you need to select the desired database from the drop-down bar “Database connection”.

Under “Install options”, check the box “Install components for allergy EUROASSAY evaluation” if you are planning to evaluate these tests and the necessary components have not yet been installed. If EUROASSAYs have already been evaluated before the update, you do not need to reinstall the components.

Then proceed with "Next". Please note that the update may take several minutes to complete.

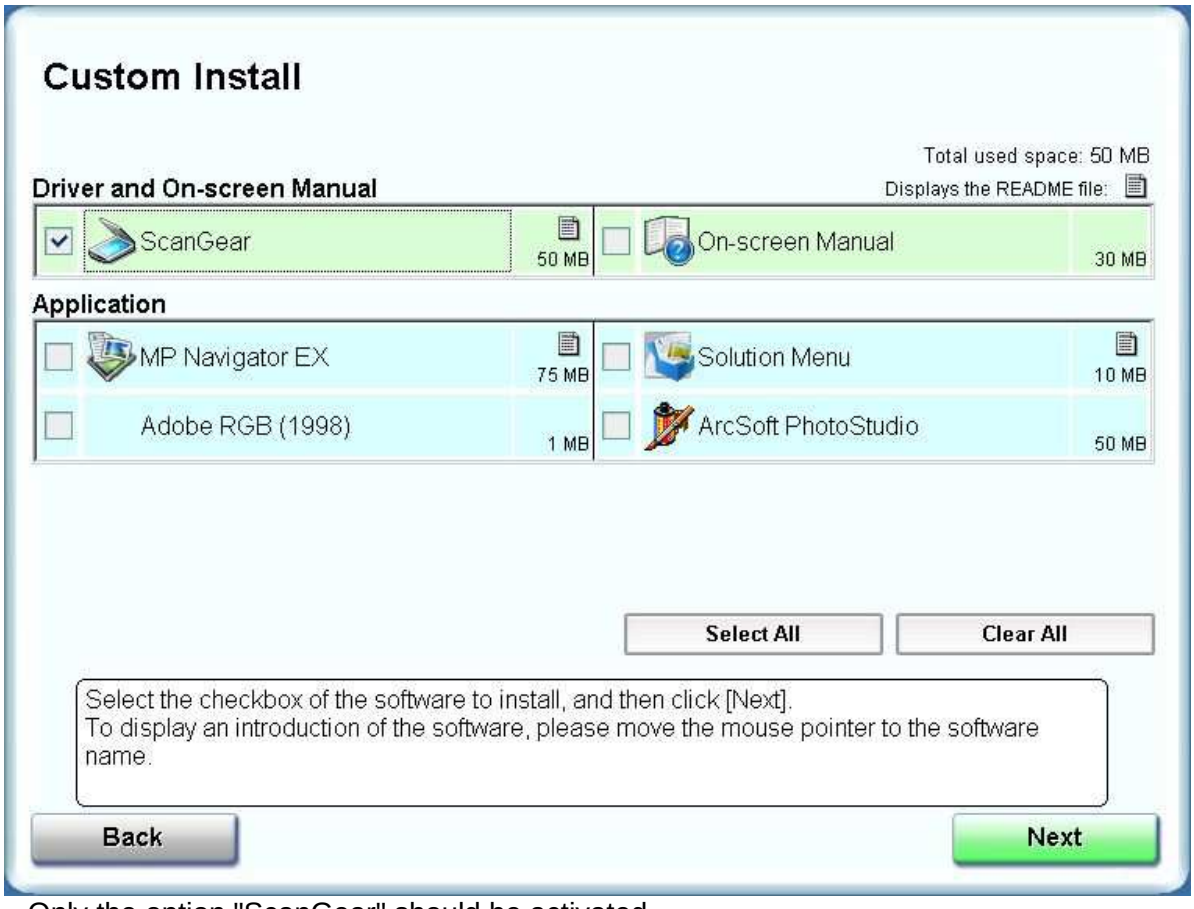
NOTE: For the upgrade to version 3.2.1 or higher EUROLineScan uses a new program database. If you are upgrading from an earlier EUROLineScan version, the program will create a new, empty database. Any previously created protocols will be maintained. To open these protocols, select the database “euroscan_old” under “File -> Databases” in the EUROLineScan program.

3.2 Scanner installation

It is recommended to first set-up the ScanGear software and then to connect the scanner with the computer. In case there was another scanner model installed on the computer, please uninstall the old scanner drivers first.

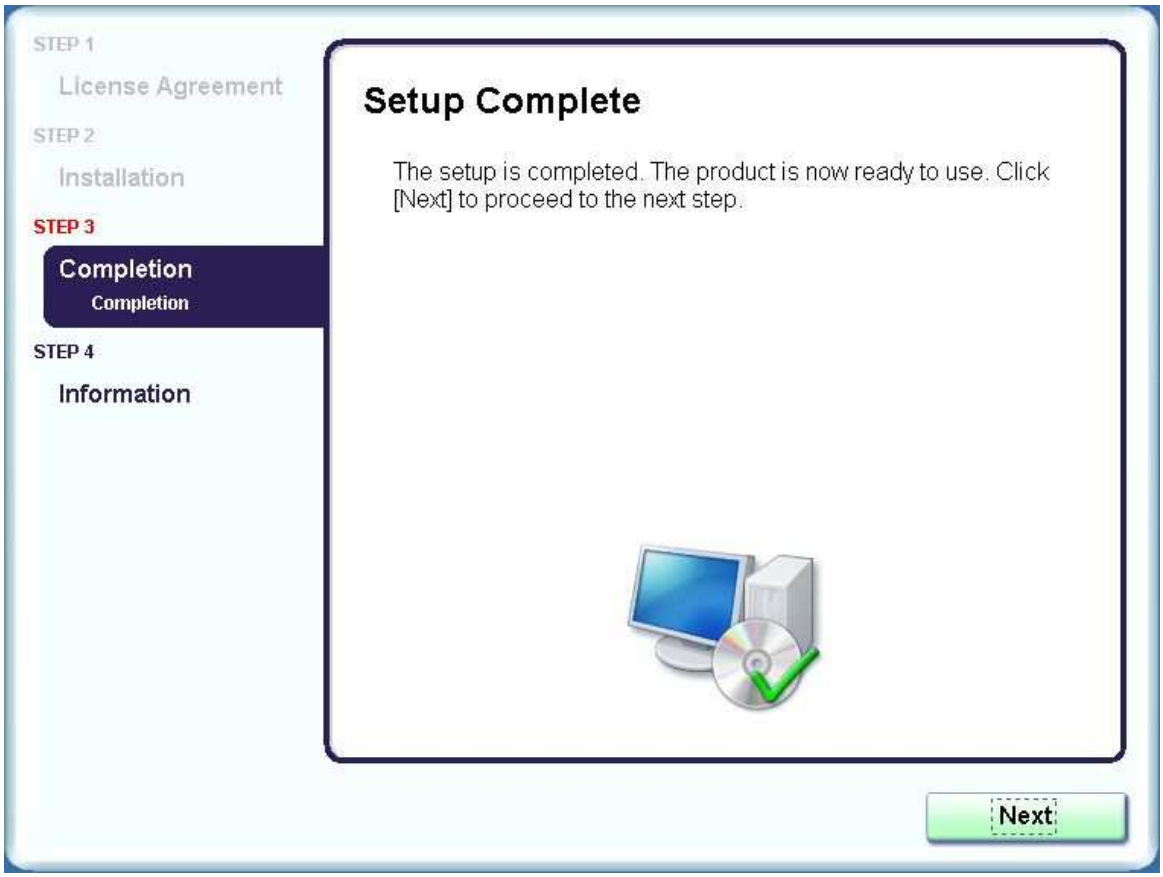
Install the ScanGear software from the enclosed CD. All other software included with the scanner is not necessary. The steps required for the installation are illustrated below (using the example of the CanoScan LiDE 200; the procedure may differ when other scanner types are used).

Select “Custom Install”.

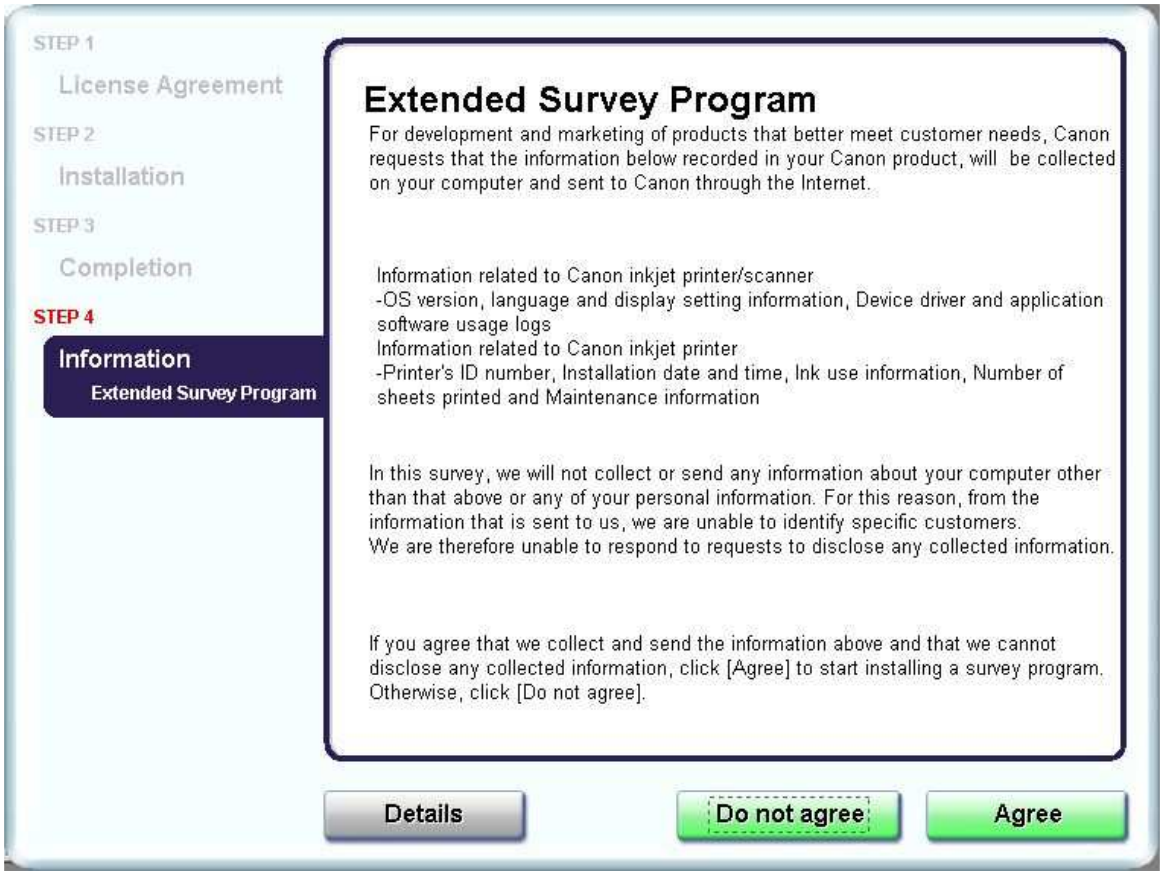


Only the option "ScanGear" should be activated.

Click on “Yes" to accept the license agreement. The installation will start automatically.



Confirm with “Next”.



A participation in the above customer survey is not required to use EUROLineScan. You may close this window with “Do not agree”.

Activate the "Restart the system now (recommended)" option and click on the "Restart" button. Your computer will perform a re-start.

3.3 Open scanner calibration function

To call the scanner calibration function, each scanner software requires a different procedure. Here are some examples:

Canon ScanGear CS 7.7.0.0 (e.g. CanoScan LiDE 35)

Switch to the advanced mode if you have not yet done so. To do this, click on the button “Advanced mode” on the right side of the window. Then activate the tab “Preferences" and click on the "Calibration” button. Please note that the following process may take several minutes to complete.

Canon ScanGear 12.0.0 (e.g. CanoScan LiDE 70) and
Canon ScanGear 13.0.0 (e.g. CanoScan LiDE 90)

Select the tab “Advanced mode” in the right top corner of the window. In the "Image settings" field scroll down to the item "Calibration settings". Next to the item is a button with two down arrows. Click on this button to display the item “Calibration”. Then click on the “Execute” button next to it.

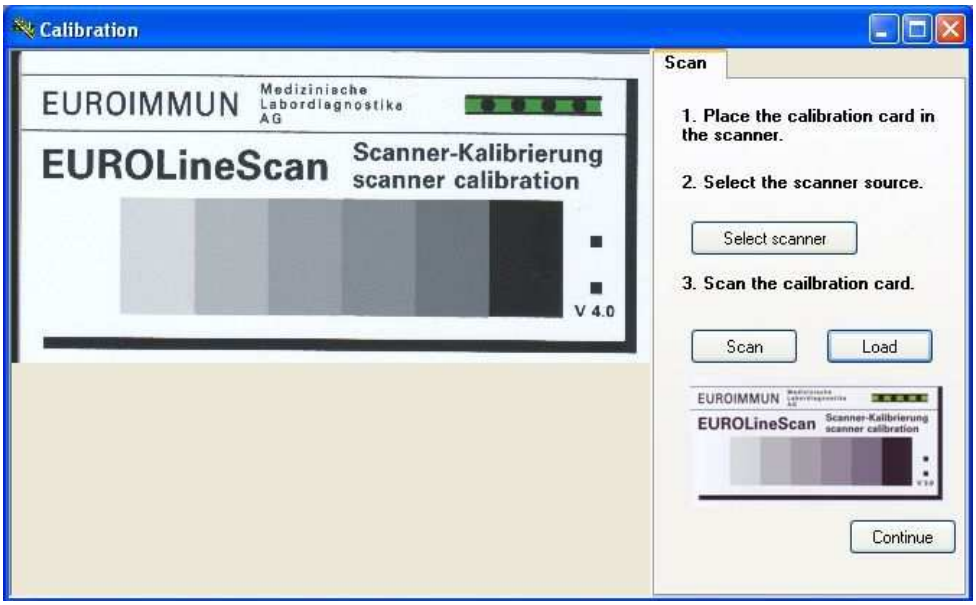
Canon ScanGear 14.0.0 (e.g. CanoScan LiDE 100 or CanoScan LiDE 200)

Select the tab “Advanced mode” in the right top corner of the window. Then click on the “Preferences” button at the bottom of the screen. In the new window click on the tab "Scanner" and then on the button "Execute" in the section "Platen calibration".

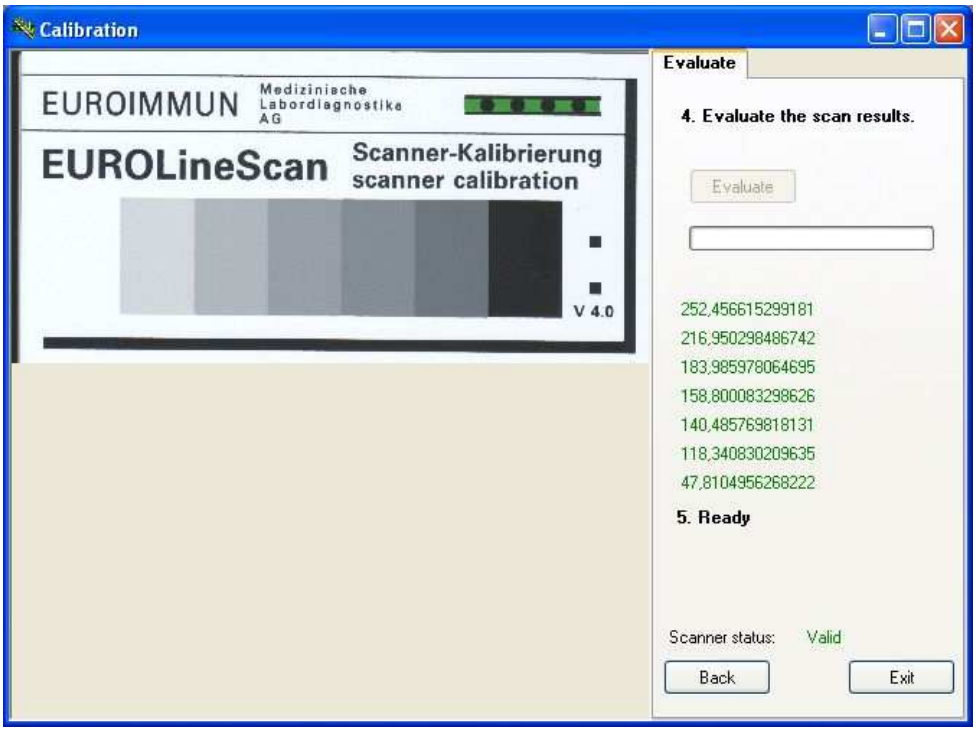
3.4 Calibration

After installation or update of the program the scanner should be validated. By using a calibration card it can be checked whether the brightness values produced by the scanner are still within the expected range.
The calibration function can be found in the menu under "Calibration".

To validate the scanner, place the calibration card onto the scanner and close the cover. Then check if the correct scan source is selected by clicking on the button “Select scanner”.
Click on "Scan" to open the scan interface, which is used to scan the calibration card. The scanned image should only show the card and have a resolution of 600 DPI (at least 300 DPI).
In case there is no scanner connected to the computer, a previously saved image can be loaded for calibration.



After scanning of the image click on “Continue" and then on "Evaluate". This enables EUROLineScan to evaluate the brightness values and compare them with the target values. Values which are within the permitted range are displayed in green. All other values are shown in red.

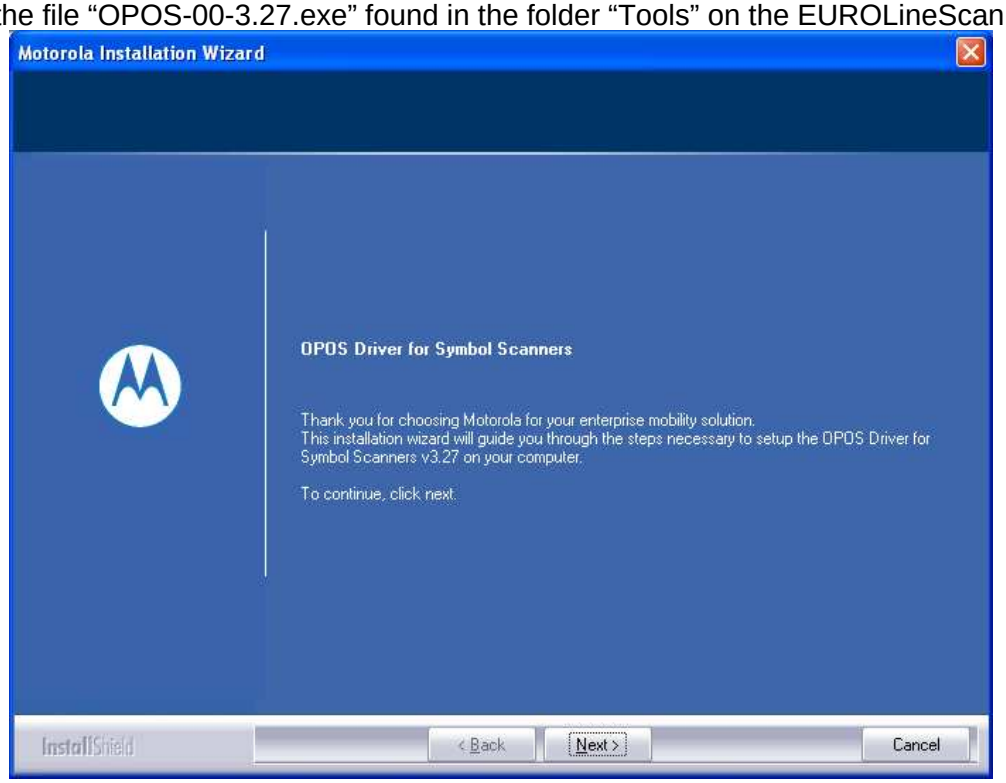


If all brightness levels lie within the specified range, the scanner is considered as valid and can be used with the EUROLineScan program. In this case, close the window by clicking on “Exit”.

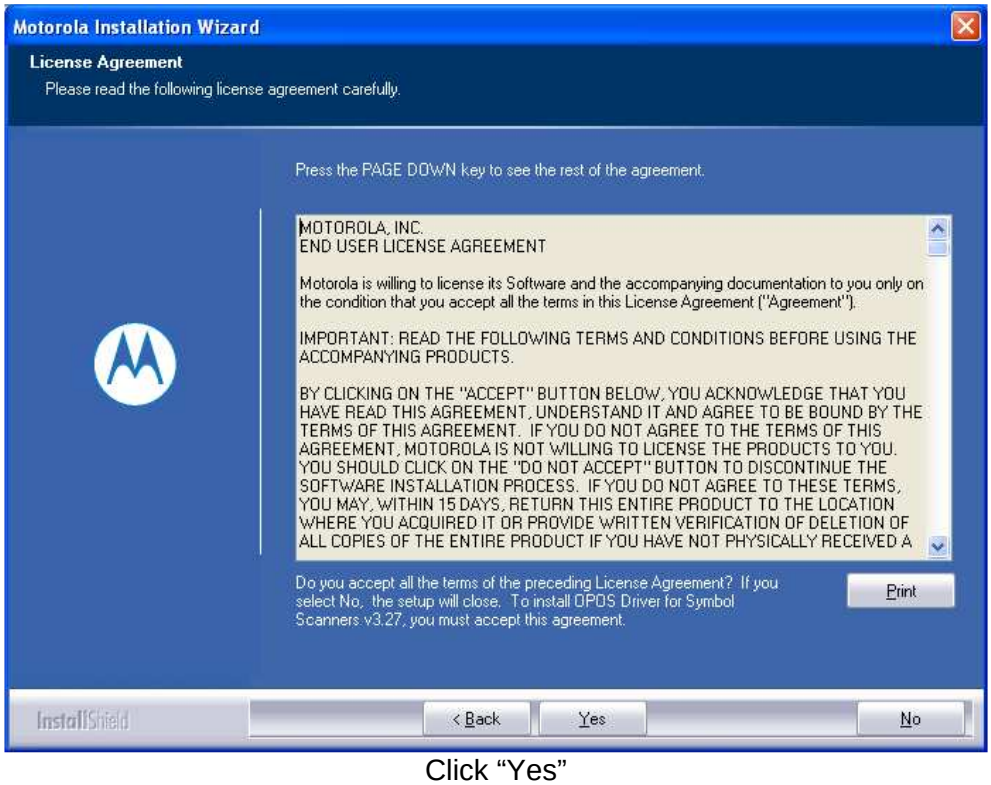
NOTE: If an error message is displayed, compare the view of the image on the left with the smaller version on the right. Ideally, the scanned image should be limited to the calibration card, with the step wedge and the black bar completely visible.
The calibration has to be performed before the first measurement and thereafter in regular intervals (6 months). If the scanner settings have been changed or manipulated (e.g. by using it with a different program), the calibration must be performed again.

3.5 Installation of the Barcode scanner

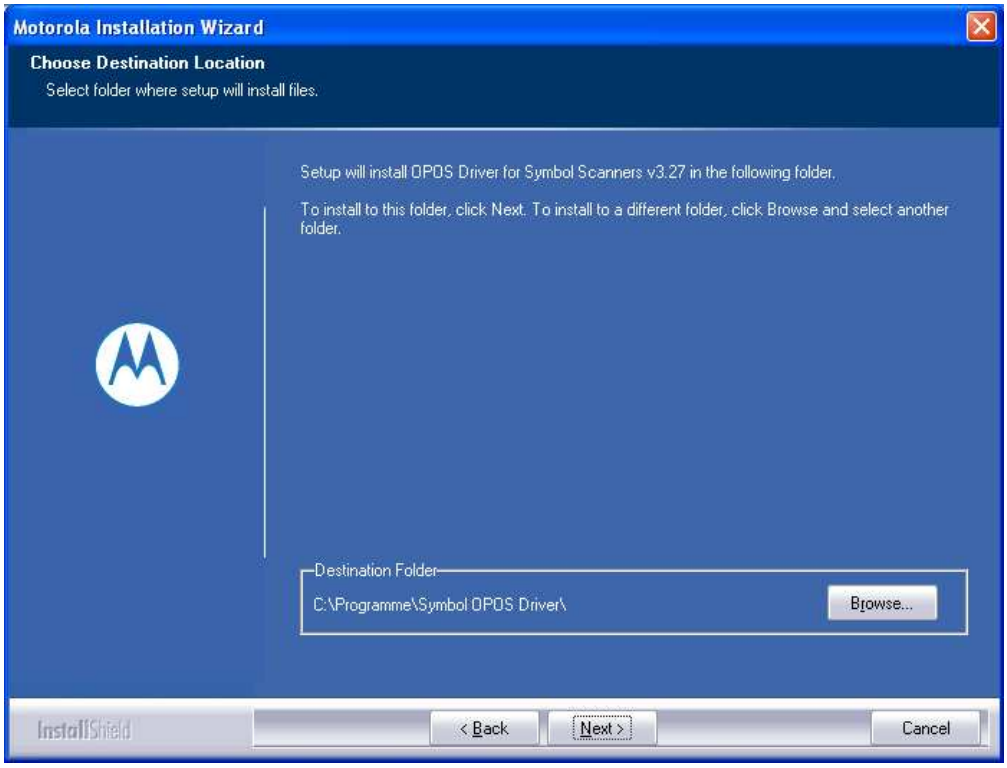
If allergy EUROASSAY slides are to be evaluated with EUROLineScan, optionally a barcode scanner (Symbol DS6707) is included in order to read the two-dimensional barcodes affixed to the slides. Installing the scanner driver is necessary for your system to be able to communicate with the scanner. If you selected the option “Install components for allergy EUROASSAY evaluation” during setup or update, the driver setup will be started automatically. Otherwise, it is possible to trigger the installation manually by executing the file “OPOS-00-3.27.exe” found in the folder “Tools” on the EUROLineScan CD.



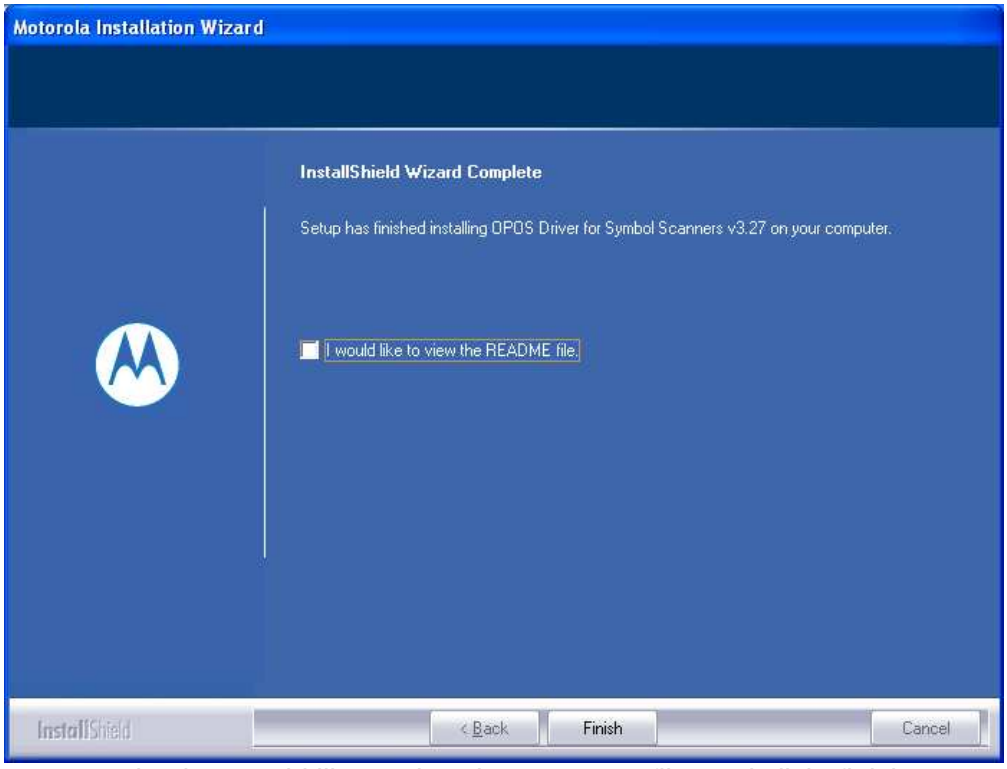
Click “Next” to proceed



Click “Yes”



Click “Next” to start the installation



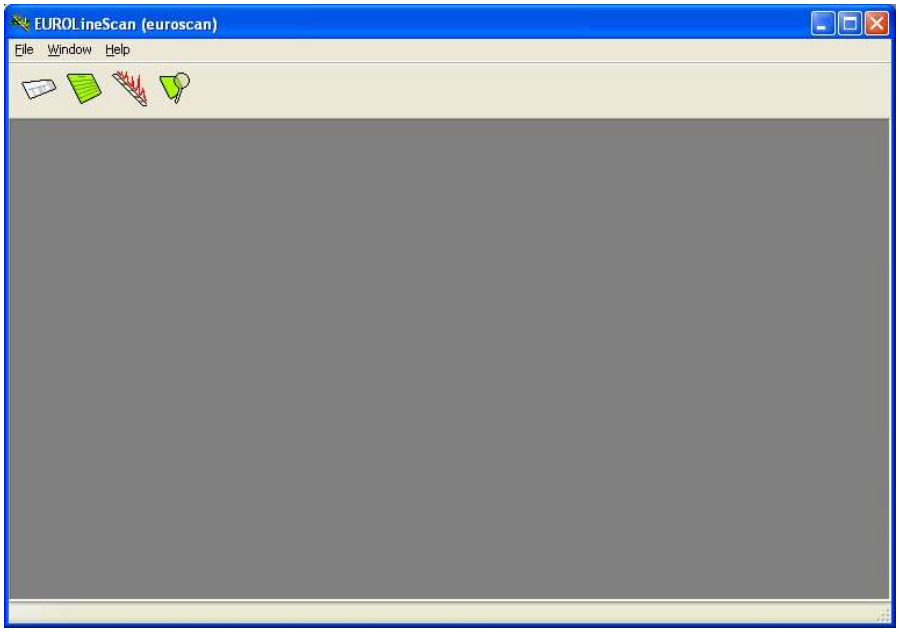
Uncheck “I would like to view the README file” and click “finish”.

4 The program

The normal EUROLineScan program procedure has three steps:

- Scan the evaluation matrix (called “Template” in EUROLineScan) - only applies to Westernblot and Euroline-WB
- Scan protocol
- Evaluation of protocol

These functions are easy to access by using the designated buttons in the main menu. A description of each button can be viewed when holding the cursor for a few seconds on the button. These and other functions can be found in the main menu.



The program is a MDI application (MDI = Multiple Document Interface). This means that all windows are displayed in the main menu (with only a few exceptions). The individual windows can be administered with the option "Window ".

4.1 Reading in the template

For evaluation of the Westernblot strips, the template of a lot (i.e. the evaluation matrix) must first be read into the program. This can be achieved by scanning the template using a normal scanner, by reading it in with a barcode scanner or via download from the internet.
After this, save the data using "Save". Otherwise the settings will be lost when the window is closed.

4.1.1 Scanning the template

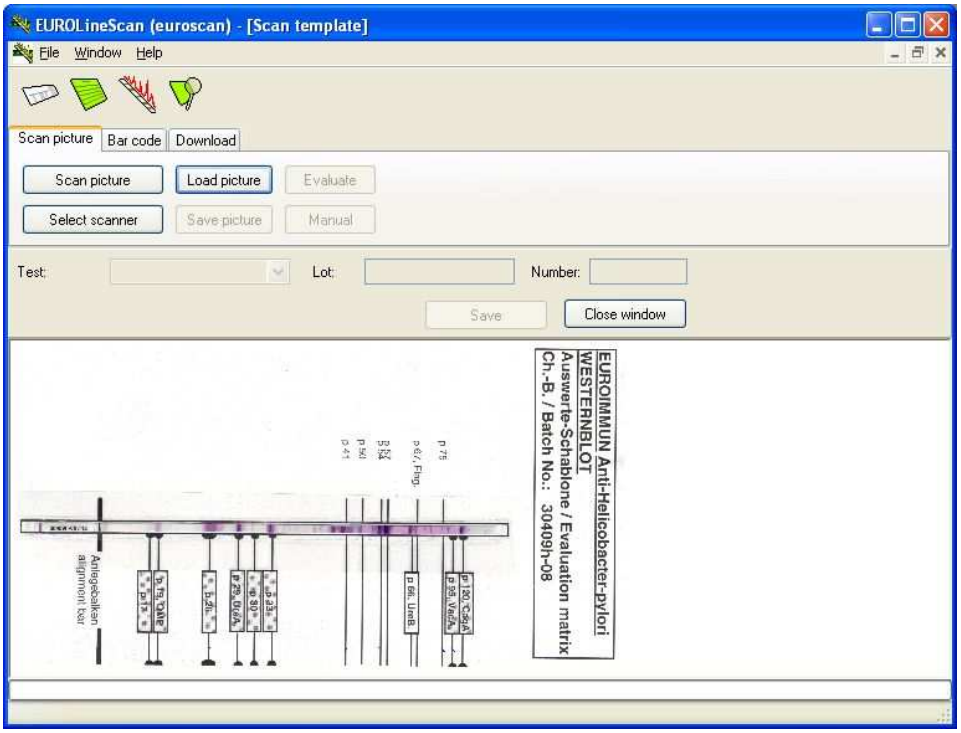
First scan the image of the template with a flatbed scanner by clicking on the button “Scan picture”. If the wrong scanner is being addressed, you can select another scanner by clicking on "Select scanner". If the template is only available as an image file, it can be read in by clicking on "Load image". Here you need to specify how many DPI the scanned picture will have.
The picture should only contain the template and have 600 DPI (at least 300 DPI). The picture is positioned correctly when the strip is horizontal and the text box is on the right.
After this, start the measuring of the band positions using “Evaluate”. In case of an error message, check if the template is positioned correctly on the picture and enter the strip position manually. To do this, first activate the manual mode by clicking on "Manual”. Then click in the picture on the left and right part of the strip box. The measuring of the band positions starts automatically.
If the process was completed successfully, the selection field “Test" also contains the template. Select the desired test and enter the lot number of the Westernblot test strip (see text box on the right) and the number of test strips contained in the test kit into the fields "Lot" and "Number".

4.1.2 Scanning the barcode

For this step you require a barcode hand scanner. Click into the input field “Barcode" on the "Barcode" tab. Then scan in all the barcodes on the template using the hand scanner. The scanning order is unimportant. If the barcode was read correctly, the lot is displayed on the left side. When all barcodes on the template were scanned successfully, the writing on the left will be displayed in green and the input fields below will become editable. Please check if the entries in the test, lot and number fields are correct.

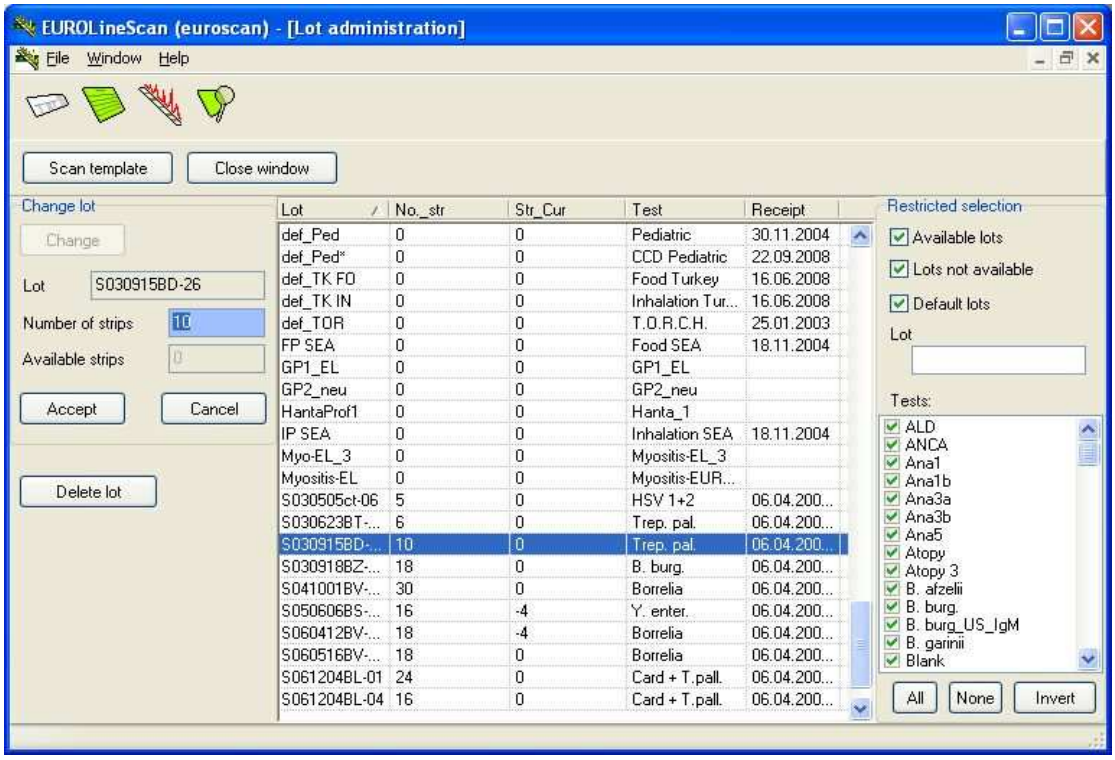
4.1.3 Download from the internet

If you have a PC with internet access, click onto the "Download" tap. Enter the complete lot name into the “Lot” text field. Make sure to enter the lot name correctly. Otherwise you will not be able to exit the input field. When you click on “Download”, the program downloads the required data for this lot. The process only takes seconds. In case of problems, a message will appear. Otherwise the test, lot and number fields will be automatically filled with the respective data. Please check if these are correct.



4.2 Lot administration

The lots can be viewed, edited and deleted in this menu. The table in the middle contains the list of lots, which can be further defined with the settings on the right side.
The definition between "Available lots" and "Lots not available" is the present stock value larger than zero ("Available strips", "Str_Cur"). "Default lots" are special lots that are only used for EUROLINE tests, in which the amount does not change (Allergy, Autoantibodies and Infectious serology).
The order of the list can be changed by clicking the head of each column. Several clicks alters the order upward or downward. The column width can be altered by placing the cursor on the bordering line in the head. Press and hold the left mouse button simultaneously pulling the line to the required width.
If an entered lot does not appear in the selection of a new protocol, the number of available strips must then be set at zero.
The number of used lots is automatically subtracted from the stock when entering into the new protocol.
If a lot number is to be changed select the correct number out of the list and click "Change". The amount for the starting stock "Number of strips" and the present stock "Available strips" can now be changed. By clicking "Accept" the new values are put into the data base, whereas clicking on "Cancel" will delete these values.
If a lot number is not required any longer, it can be deleted out of the data base with "Delete lot".

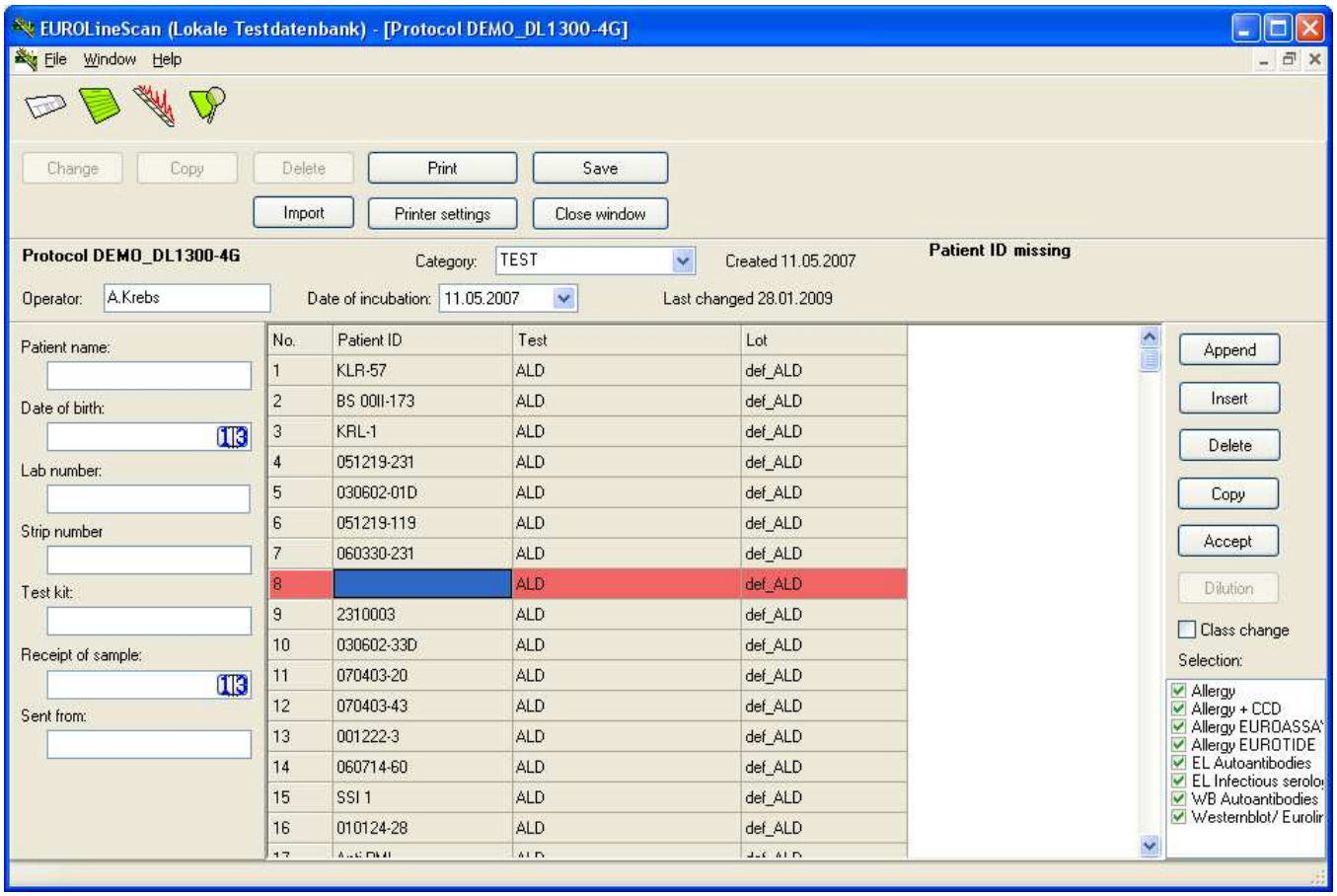


4.3 New protocol

First, select a name for the new protocol. This name must be unique and not previously allocated to another protocol and may only have a maximal length of 32 symbols.
Moreover, the protocol type has to be selected. For Westernblot and EUROLINE strips, use “Standard protocol”, for evaluation of EUROASSAY slides, select “Allergy EUROASSAY”.

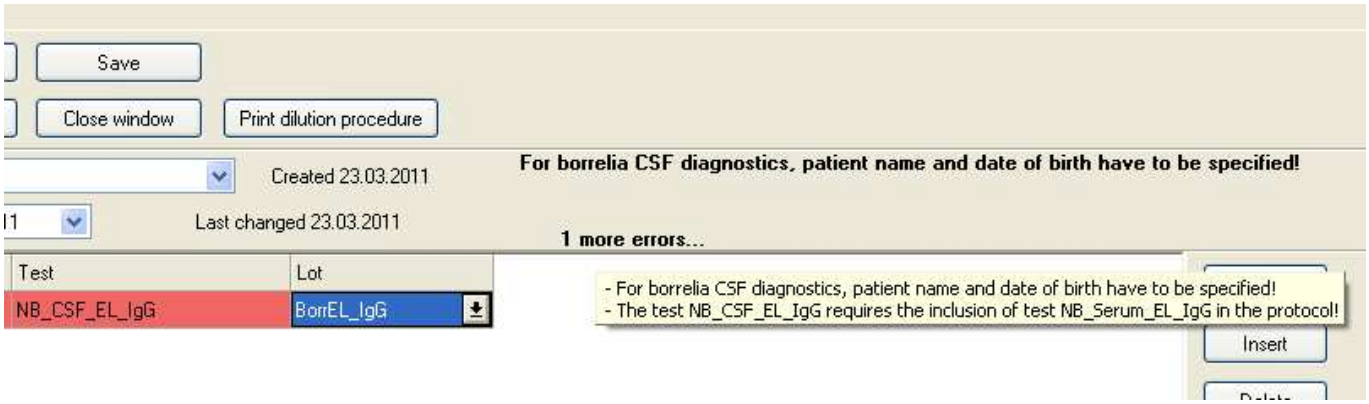
4.3.1 Standard protocol

A window will open for entering the data of the protocol. In the upper area "Category" can be entered or selected from the list. This will help to retrieve the protocol at a later date. The entry for the "Operator" is the same as the user name registered for Windows and is pre-set, which however can be changed if desired. The "Incubation date" of the strip can be entered. The current date is pre-set.



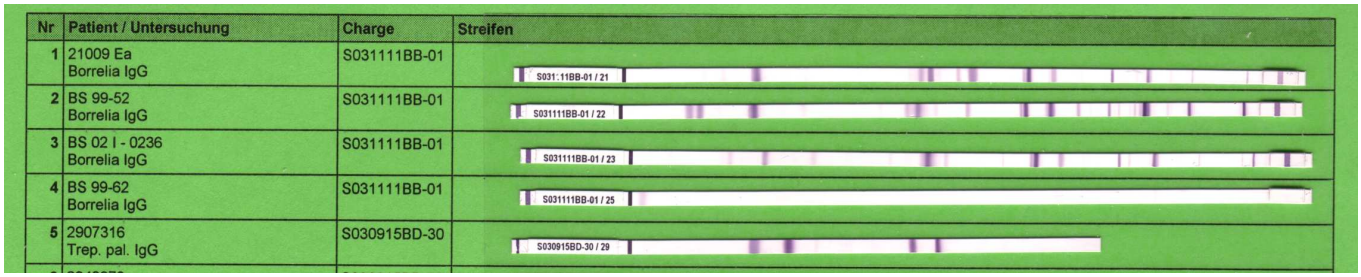
The table lists the three required fields for each strip of the protocol. Any text can be entered into the column "Patient ID". For the column "Test" there is only one choice possible.

Any strip which is missing required information will be hightlighted in red. In this case, select the row in question and the program will display a message outlining the error in the upper right corner of the window.
In case serveral errors occur for that particular strip, a text indicating “X more errors” will appear. Hover your mouse over it to see a complete list of all errors.



TIP: If the list of test selections is too complex, some of the selections can be blanked out. This can be achieved by removing the checks in some of the subordinate groups on the right side in "Selection".

Lot numbers corresponding to the test chosen will appear in the column "Lot" for selection. Westernblot and Euroline-WB strip lot numbers must have a stock value larger than zero (See column "Str. Cur" in lot administration).
Additional data can be entered for each strip on the left side. Only the data pertaining to the selected strip is displayed. If no data entry is required, leave the field empty.
To switch from one field to another use the tab key.
A new strip can be added to the protocol by clicking "Append" or by using the arrow key downwards in the last line of the table. Use "Insert" to add another strip between two existing strips. This is then inserted in front of the marked strip in the table.
When positioning a new strip the test settings of the previous strip are taken over, except if "Class change" on the right side has been chosen. A change between the classes is then possible (e.g., IgG and IgM).
"Delete" will remove the selected strips out of the protocol.
To simplify data entry of protocols, the settings of the last strip can be repeated by using "Copy".
By clicking "Print" all entries of the protocol will be printed on a green worksheet. To select a printer and further printer settings click "Printer settings" (see next page).
After printing, the incubated strips can then be adhered onto this green sheet by applying the adhesive foil to the sheet, placing the strips upon it and waiting for them to dry.

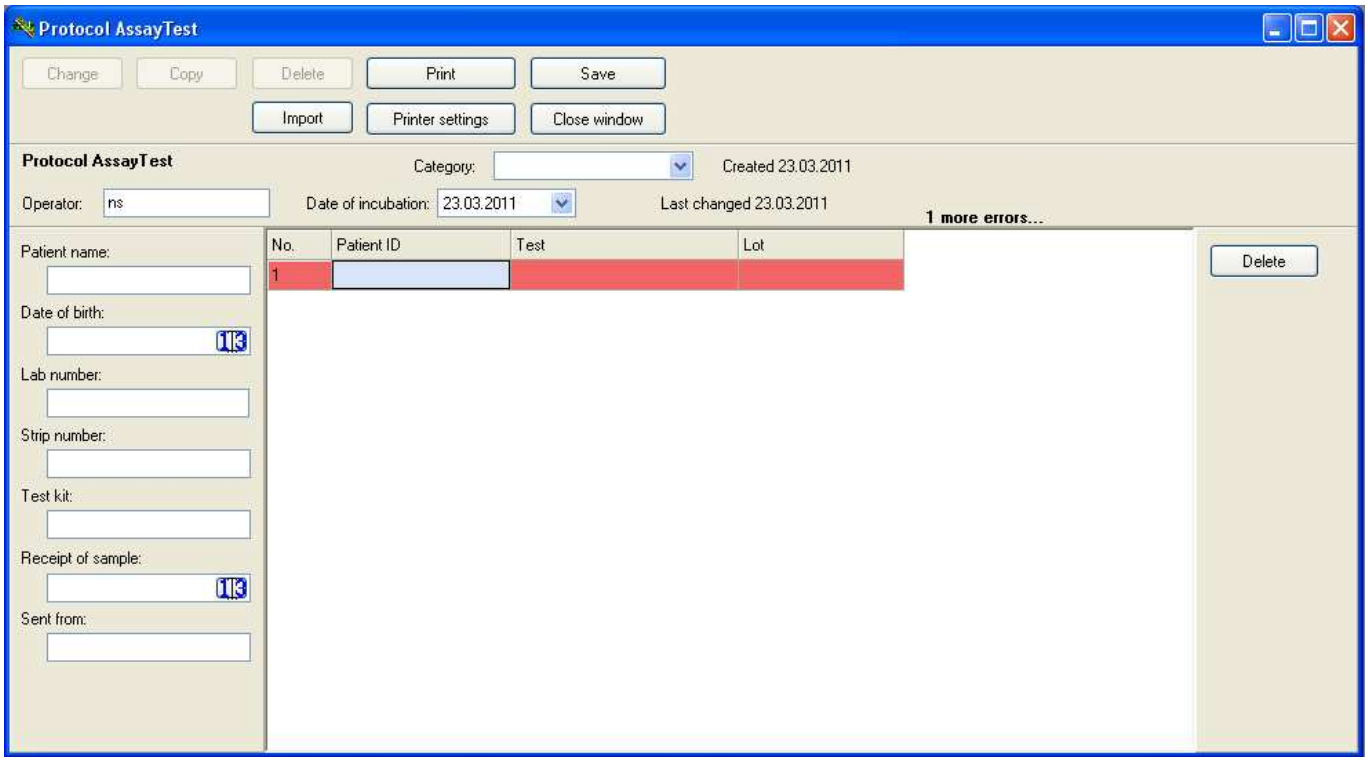


The strips can be placed anywhere within the box and do not need to be aligned perfectly, as long as they are applied face up and the label points toward the left side. Slightly slanted strips (shown in the example above) will also not cause problems.

Data should be saved before closing the window with "Save", otherwise the data will be deleted.

4.3.2 Allergy EUROASSAY protocol

In order to evaluate EUROASSAY slides, select “Allergy EUROASSAY” as the protocol type when creating a new protocol.



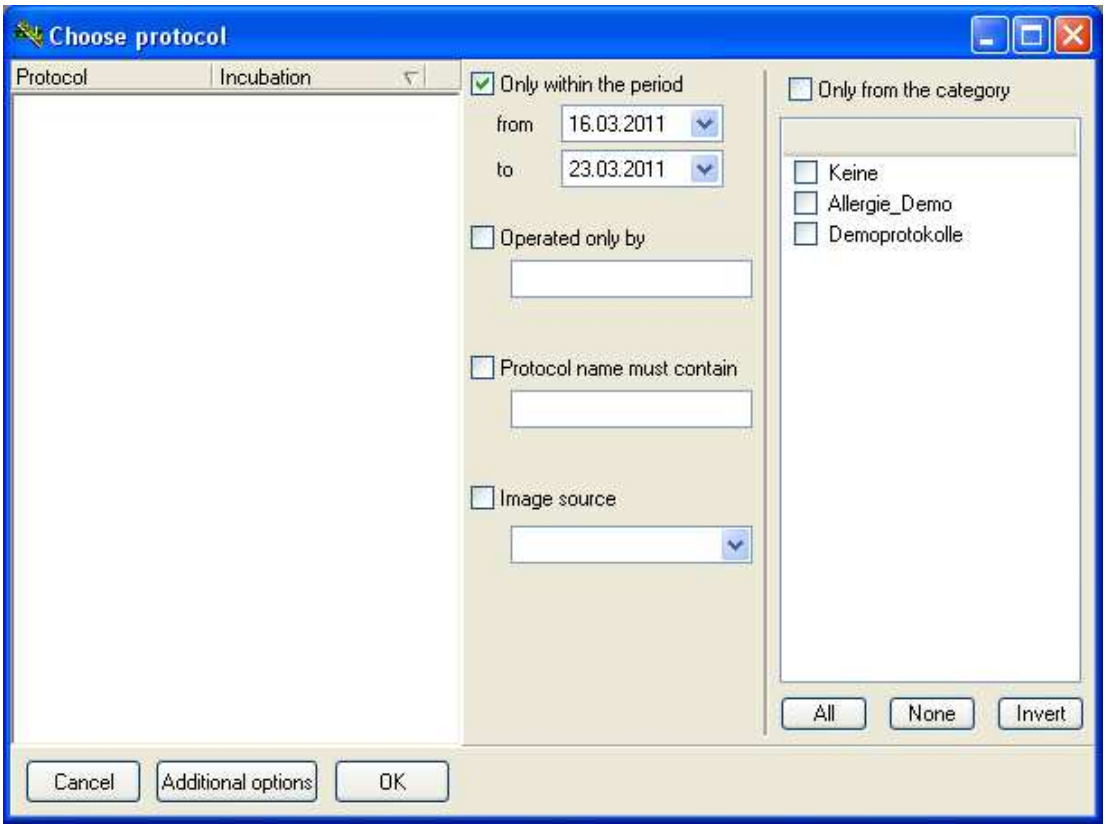
The protocol creation form looks very similar to the one for standard protocols, the main difference being that the test cannot be selected manually. Instead, use the barcode scanner to capture the barcode attached to each slide. A new strip will automatically be appended to the protocol and the information contained in the barcode will be entered into the form. The patient ID has to be filled manually. Scanning the same slide a second time will not cause another strip to be appended; instead, the program will highlight the row in the table associated with the strip in question. Once all slides have been scanned, click “Save” to save the protocol to the database.

Afterwards, prepare the slides for evaluation by inserting them into the green plastic tray. The order and orientation of the slides are irrelevant; EUROLineScan will automatically identify each slide.

NOTE: If the barcode scanner does not work properly or any error messages appear, please refer to section 5 “Troubleshooting” for further instructions.

4.4 Select protocol

All protocols are saved and listed in this database. The order can be defined by clicking the column head. By clicking several times the order can either be directed upward or downward.



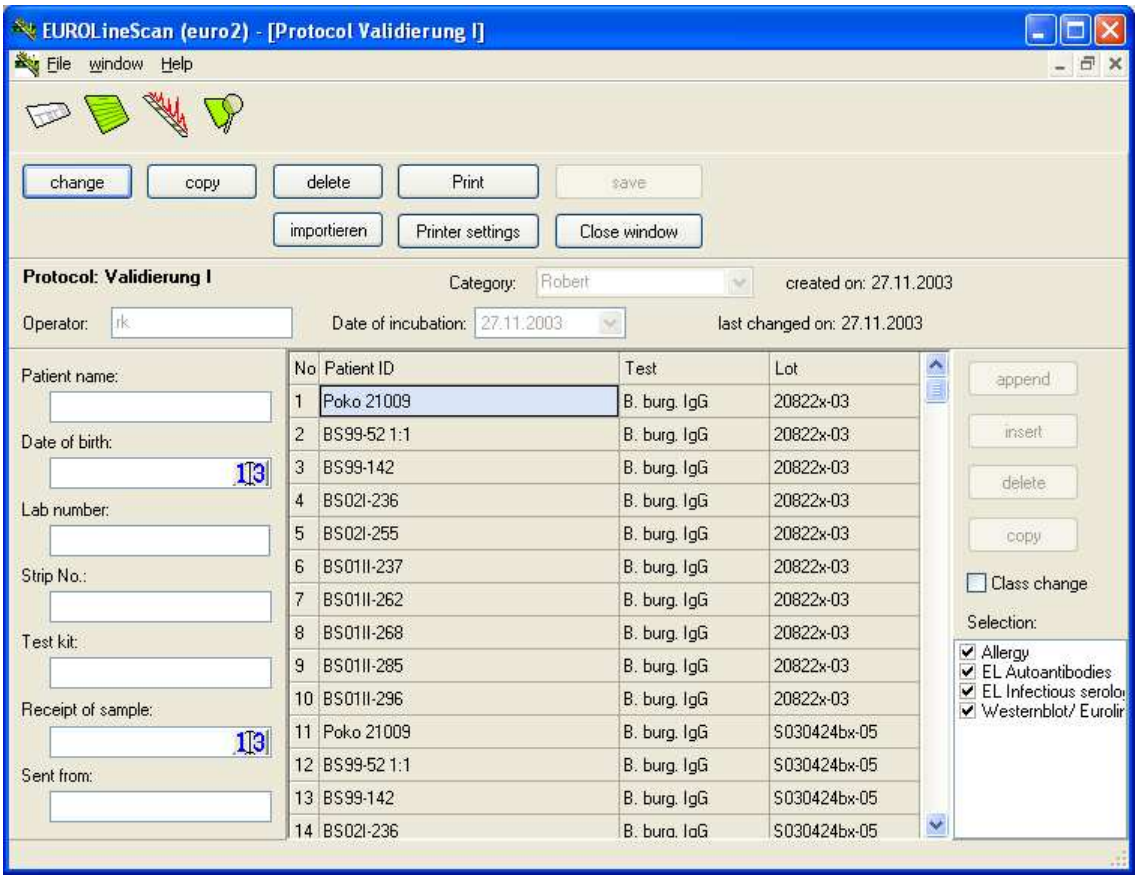
If the list is too extensive, the list of displayed protocols can be refined by applying several filter criteria. Clicking “Additional options” toggles the filter options panel.

Please note that by default, only the protocols created during the last seven days will be displayed. In order to view all protocols, simply uncheck the box “Only within period”.

To select a protocol mark and confirm with "OK" or with double click.

4.5 Display / edit protocol

By using this function you have the possibility to view data from previous protocols. Data can also be edited if these have not yet been evaluated as results.
All possibilities to change the protocol are otherwise blocked.



If you would like to alter the protocol select "Change". For further information to edit a protocol, please refer to the chapter "New protocol". All data should be saved before closing the window, otherwise they will be deleted.
By clicking "Copy" a new protocol with a new name using the same selection of strips as the current protocol opened can be made. To finally delete the protocol from the database use "Delete". This process may also delete any relevant results saved for that protocol. Before deleting a message will appear to validate release of lot numbers from stock of deleted strips.

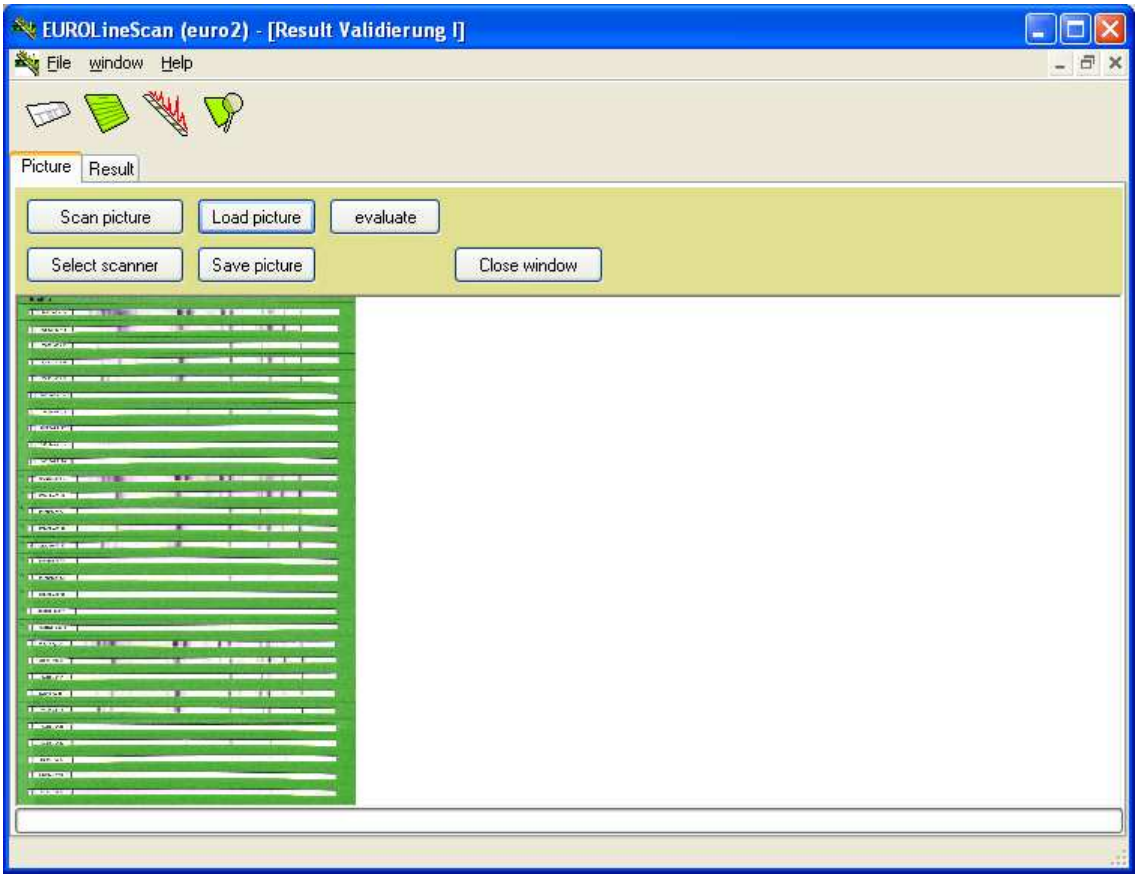
4.6 Test strip analysis

In this window protocols can be evaluated and results that have been previously saved opened. The template "Picture" will appear if no results exist in the database.

4.6.1 Picture

For easy identification this template has a yellow strip with buttons.
The strip pictures can be scanned either with a flatbed scanner or a EUROBlotCamera system. If you are using a flatbed scanner, place the green sheet with the strips (compare section 4.3 “New protocol”) on the scanner; for a EUROBlotCamera system, leave the strips in the incubation tray and put the tray into the Camera’s loading drawer after aspirating the liquid from each channel.

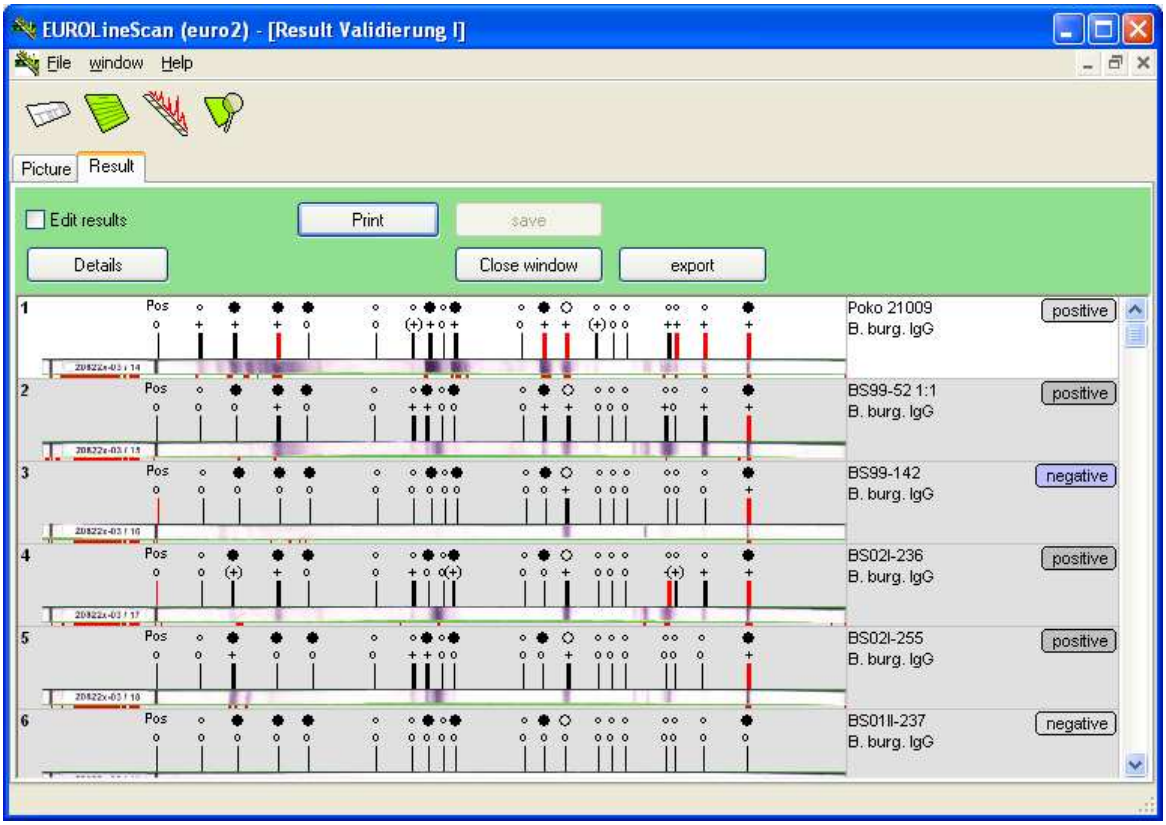
Now the images can be scanned and evaluated. This procedure is identical no matter how the strip pictures have been scanned (flat bed scanner or EUROBlotCamera).



The picture can be scanned in with "Scan picture" or can be loaded from a file in BMP format by clicking "Load picture". If the wrong scanner has been chosen, select the correct scanner (or, if available, the EUROBlotCamera system) with "Select scanner".
When the picture is read in with a flat bed scanner, note that the area to be scanned in should be restricted to the strips without cutting the any part of the strips out. The resolution should be 600 DPI (minimum of 300 DPI).
After successfully scanning in the picture, it can be saved in a designated file by clicking "Save picture". However this is not necessary for the evaluation or for archiving.
The scan source and DPI value is required when loading the picture (with which it was scanned), depending on the setting of the program.
If the picture was correctly scanned the automatic evaluation can be started by clicking "Evaluate". This procedure may take several minutes depending on the capacity of the computer. The present stage of the evaluation can be monitored on the display bar. When the evaluation procedure is completed the program automatically switches to the "Results" template.

4.6.2 Results

This template displays the results in a table. The green strip above the table indicates that no errors occurred during evaluation. However, should errors occur, this will be red. A list of error descriptions will appear by clicking "Display error".



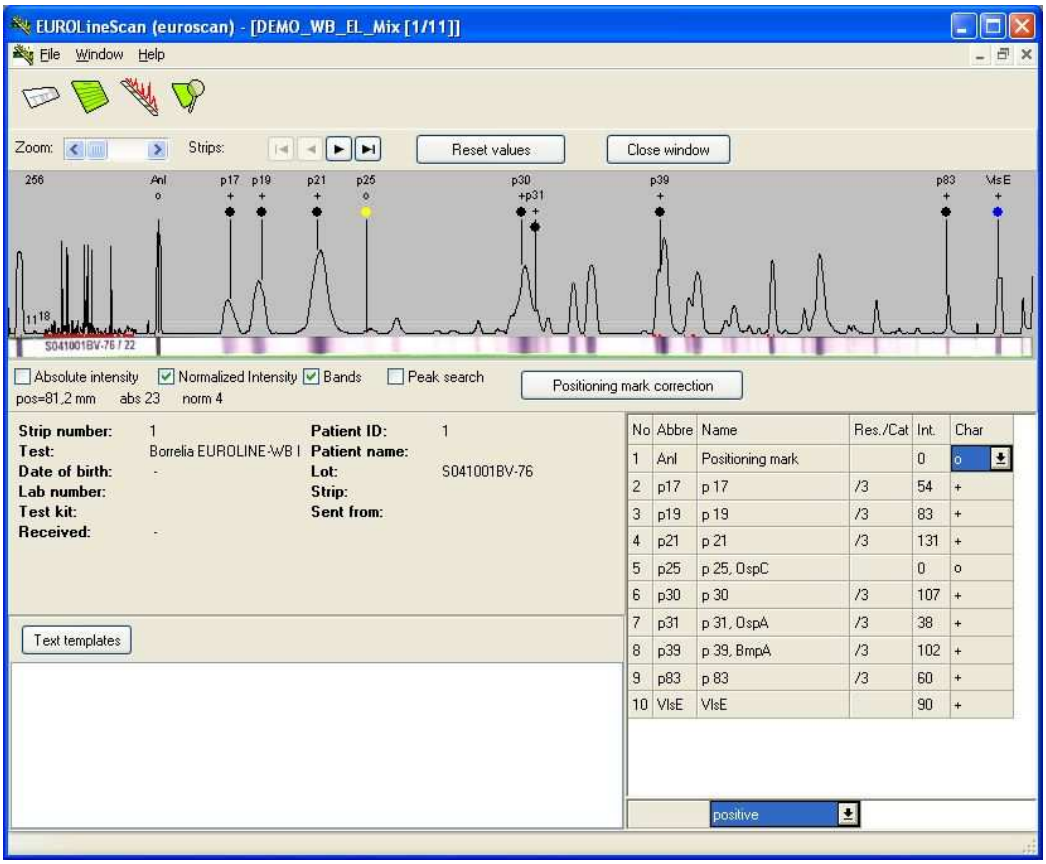
The picture of the individual test strip results is on the left side. The individual bands are marked above the test strip. Further information is available when placing the cursor on the band.
Information and results are listed on the right side of the table. The result can be edited directly in the table if a check has been made in "Edit results". By clicking several times on the individual bands, single result levels can be viewed. An edited band will be highlighted in blue. If the result "Discrepant" appears on the right side, this must be evaluated by clicking on the word (negative, borderline or positive), otherwise the protocol cannot be saved.
By marking a test strip and clicking on "Detail" or by clicking the right mouse button and select "Details" you will have access to further information, which is displayed in another window.
Click the right mouse button on the table and the option "Export" will appear. This converts the evaluation results into a text file and enables the user to import the file into another program (e.g., MS Excel).

Select "Print" to print the results. A window will then appear with the setting options.

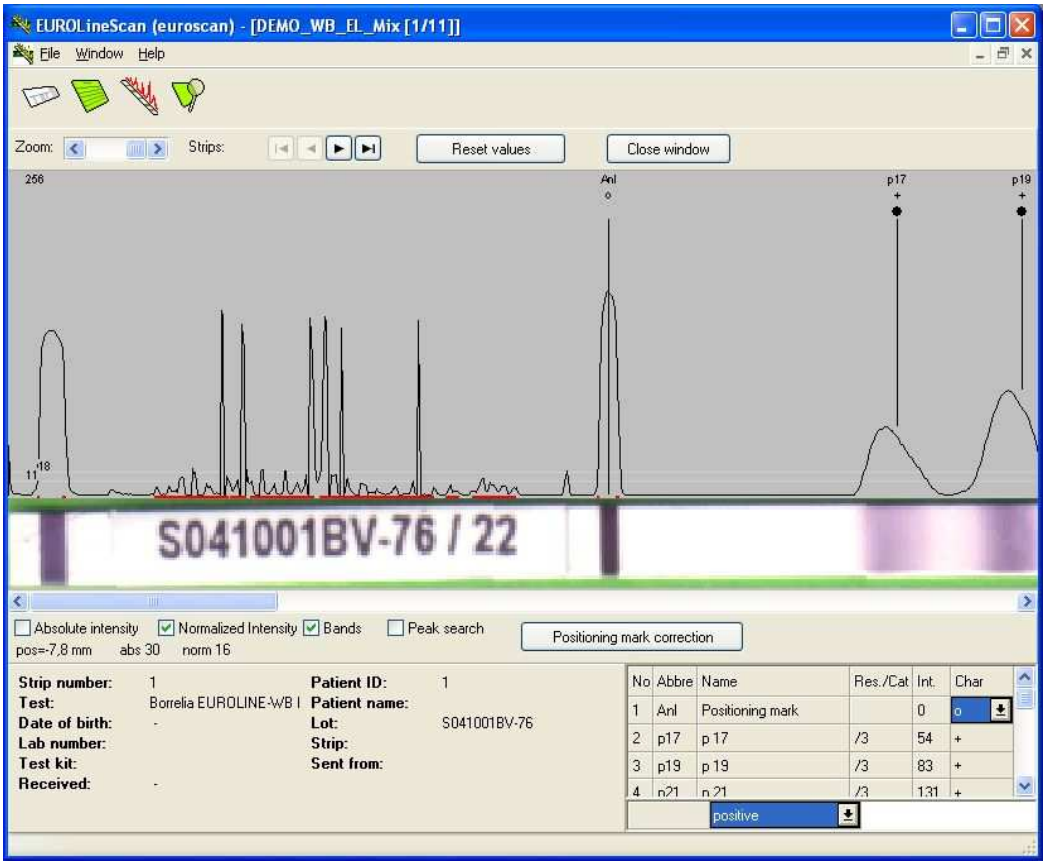
All results and alterations are only saved in the database if "Save" has been utilized. If an error in evaluation has occurred it is not possible to save or to print.
The "Save" button is grey if the data displayed is the same as the saved data.

4.6.3 Details

All data of one strip is summarized in this window.



It is possible to navigate between the individual test strips in the protocol with the arrow key. Below is the picture of the test strip and the intensity curve. The display can be adjusted with "Zoom".

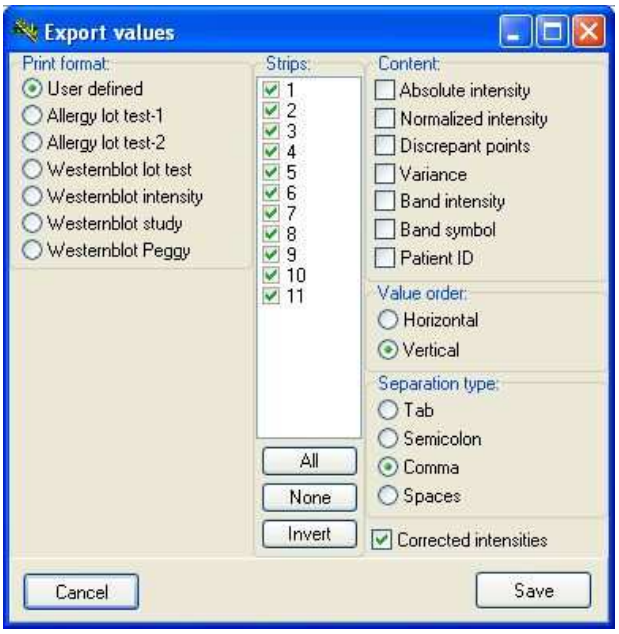


To determine what should appear above the picture place a check in the appropriate box under the image. "Absolute intensity" regulates the intensity curve for the complete test strip. "Normalised intensity" displays the intensity curve, in which background interferences or artefacts have been removed. This curve is used to determine the intensity of the bands. With the button "Band" the plotting function of the bands can be turned on and off. If a band has not been assigned to a near peak in the curve, place a check in "Peak search" to have the area displayed around the band which is being viewed.
The position of the Alignment bar for Westernblot and Euroline-WB (also called “Positioning mark” in EUROLineScan) can be adjusted. In order to do so, click on "Positioning mark correction" and then click on the new position in the graph. A second click on "Positioning mark correction" cancels the procedure. This should be done if the software’s interpretation of the band positions differs from the user’s impression. When moving the positioning mark, all other bands will be repositioned accordingly and the evaluation will be redone. If you are not sure whether an intensity peak is actually a band, please hold the evaluation matrix to the strip as described in the test instruction in order to determine the band positions. If moving the positioning mark does not yield the desired results, the band results can be edited separately (as described below). Doing so will also adjust the strip result.
In the left bottom text field further information is listed. One or two tables are on the right side listing results of individual bands and of the test strips.
Results can be edited by clicking on the bands once or several times in the intensity curve or to choose another result in the table. Edits will be highlighted in blue. All alterations in the strip displayed can be discarded by clicking on "Reset values".

4.6.4 Export values

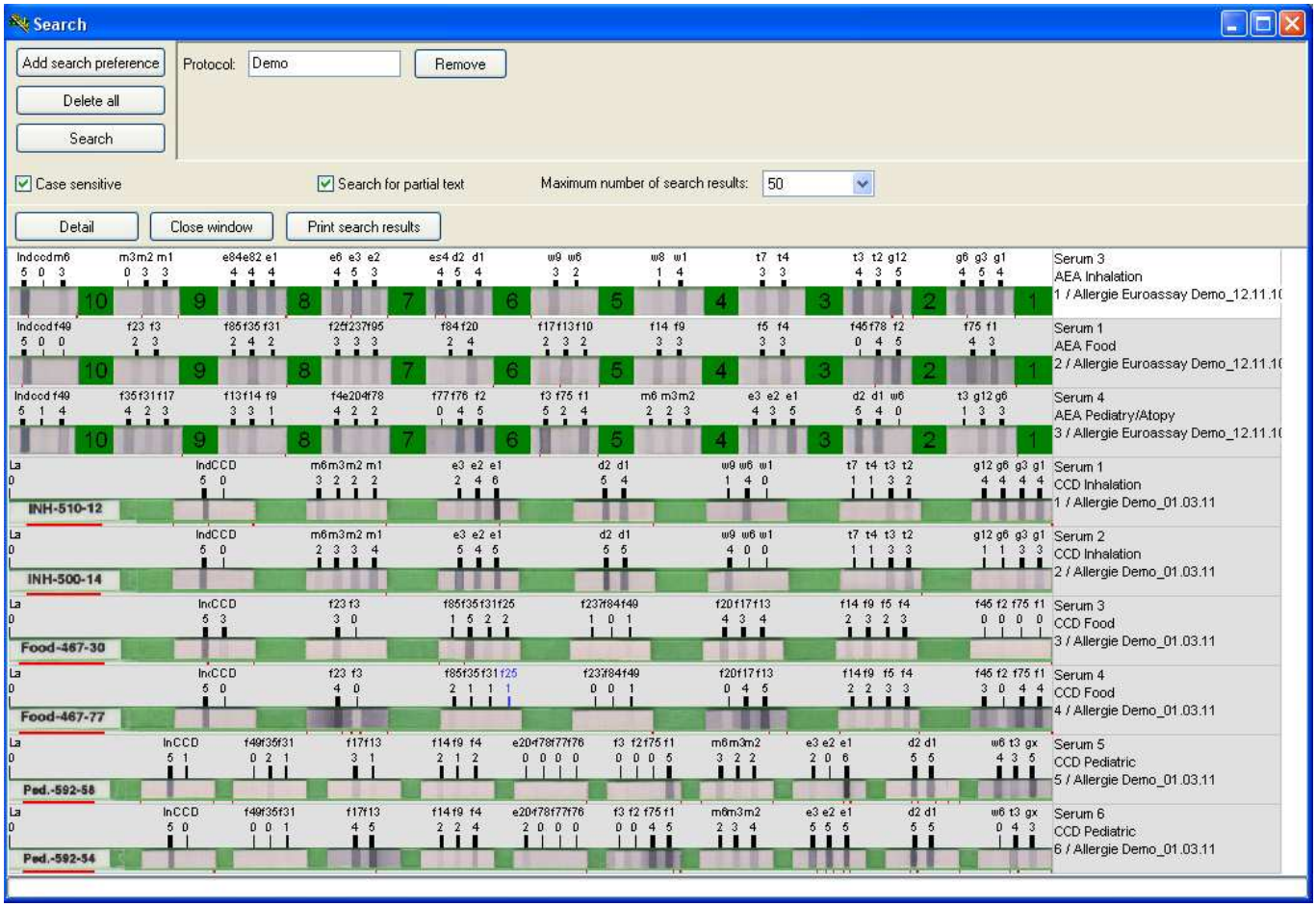
To export the results into a text file the format must first be defined. A selection between predefined and user defined formats can be selected on the left side and the settings can be made on the right. The test strip to be exported can be defined in the middle. When clicking "Contents" data can be selected out of the detailed view of the test strip that are to be exported into the new file. The order of the values are according to the table in a calculation program. In addition, the hyphen between the individual data can be selected to help ensure conformity of the output format into the other program .

When completing the settings selection, click on "Save" to export the data into the new file.



4.7 Patient search

This template enables a flexible search for results of evaluations in the database.



The search has been designed to only display data restricted to the selected test strips. For example, if a search for all test results regarding one patient is required, select "Details", " PatientID". The selection field for details will appear on the right, in which the required patient information can entered. Each entry can be removed from the list by clicking on "Delete" beside each entry field. To restore original view click "Delete all", this will remove all preferences. Additional preferences can also be added to restrict the search even more.

In order to speed up the search process, the maximum number of results is restricted to 50 by default. Any further matches will be discarded and you will see a message advising you to refine your search criteria. If desired, this number can be adjusted using the dropdown list “Maxmium number of search results”.

To start the search press "Search"

In the lower table you will see a list of the test strips corresponding to the preferences. This is set up similar to the test strip analysis, however the values cannot be edited. A detailed view can be achieved using the button "Details" or by clicking with the right mouse button on the table selecting "Details" in the menu.

To print single sheets click with the right mouse button on the test strip and select "Print".

4.8 Settings

In this mode the program can be adjusted to the user requirements. The settings are distributed over several templates. When completing the entries always return to previous template with "OK", otherwise all settings will not be activated.

4.8.1 Program

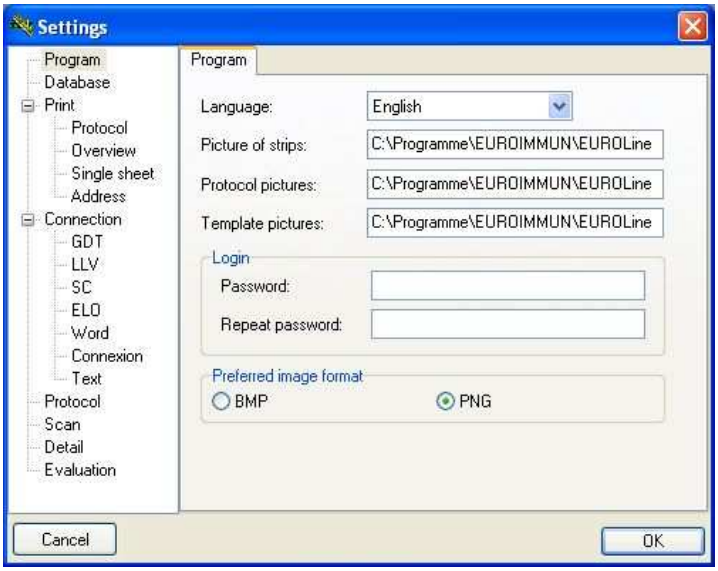
Under this item you can find the general program settings.

You can choose the desired program language from the drop-down bar in the "Language" selection field.

The entries under "Picture of strips", "Protocol pictures" and "Template pictures" depend from the selected data source (see chapter 3.8.2).

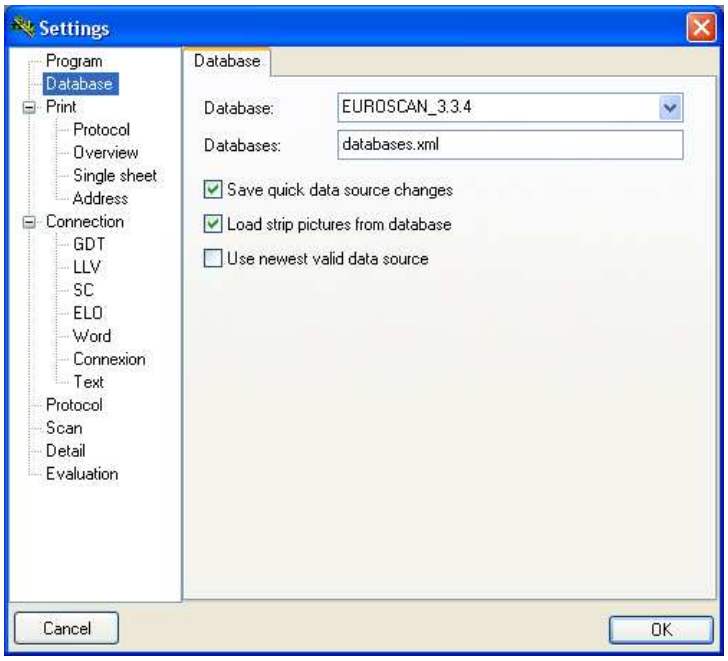
In the "Login" field you can enter the password (to be repeated in the second field), with which you will log in when starting the EUROLineScan program. If the login fails, the program cannot be used.

The item “Preferred image format” indicates the graphic format used by EUROLineScan to save scanned images. The recommended format is PNG.



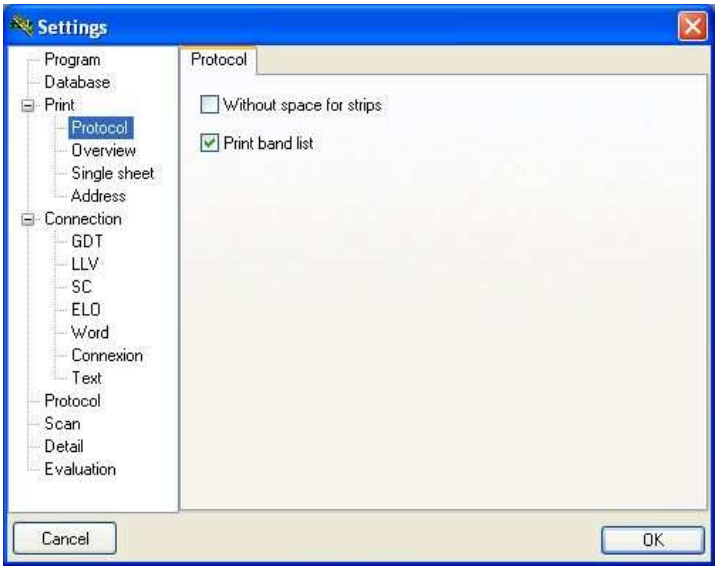
4.8.2 Database

Here you can find database-specific settings. You can select the desired database connection in the selection field "Database". In the input field "Databases" you can enter the file from which the database connection is to be read (default setting is "databases.xml").
If the option "Save quick data source changes" is activated, selected databases are saved via the quick selection menu (Program menu -> „File“ -> „Databases“). Otherwise the chosen connection is only used for the current session and is removed at the next program start.
The option “Load strip pictures from database" determines whether the test strip images will be saved in the database or in the file system.



4.8.3 Printing a protocol

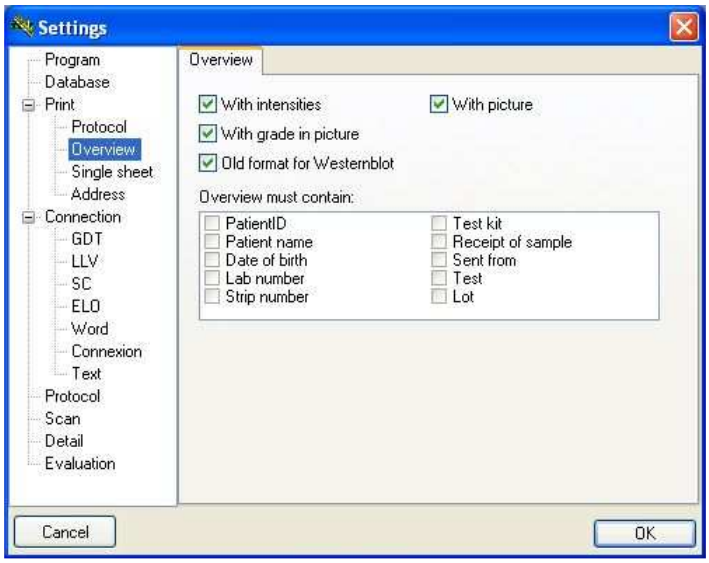
In this window you can define the print settings for unevaluated protocols.
By default each printout contains an empty box, where the incubated test strips can be applied. If you wish to change this, activate the option "Without place for strips".
If the option "Print band list" is activated, the lower part of the protocol printout will show a list of all tests and the corresponding bands contained in the protocol.



4.8.4 Overview printout

Here, the print settings for evaluated protocols can be defined.
If the option “With intensities” is activated, EUROLineScan indicates the exact intensity value measured for each band. Otherwise only the result grade is displayed.
If you select “With picture”, the overview printout will contain the image of the respective test strips.
If “With grade in picture” is selected, the result grade for each test strip is not only shown in the tabular list but is also part of the strip picture itself.
With the option “Old format for Westernblot” the information shown on the single sheet or overview printout is reduced. Only positive and borderline bands are displayed. They are shown in compressed form.

The elements in the “Overview must contain” box indicate which strip information will be printed on the overview printout.



4.8.5 Single sheet printout

In addition to the overview printout, EUROLineScan can print single sheets with detailed information about each strips. On the "Single sheet" tab you can find the following print options:

“Without concentrations”: The standard single sheet printout shows the concentrations required for each class in the description of the individual result classes. If you do not wish the concentrations to be displayed, deactivate this option.

“Without EUROIMMUN logo”: If this option is activated, the EUROIMMUN logo, which can usually be seen on the printout, will be hidden.

“With column intensity / concentration”: With this setting you can determine whether the measured intensity, which is graphically shown on the printout, is additionally displayed as a numeric value in the table column.

“Also contains short name”: If this option is activated, the short name (used, for example, in the caption above the strip images) is printed in addition to the full name of the individual bands on the printout.

“Signature at end of page”: This option determines whether the printout contains a signature field.

“Print with indicator bands”: Here you can specify if those bands which are not directly involved in the evaluation (e.g. the label or indicator bands) will also be shown on the printout.

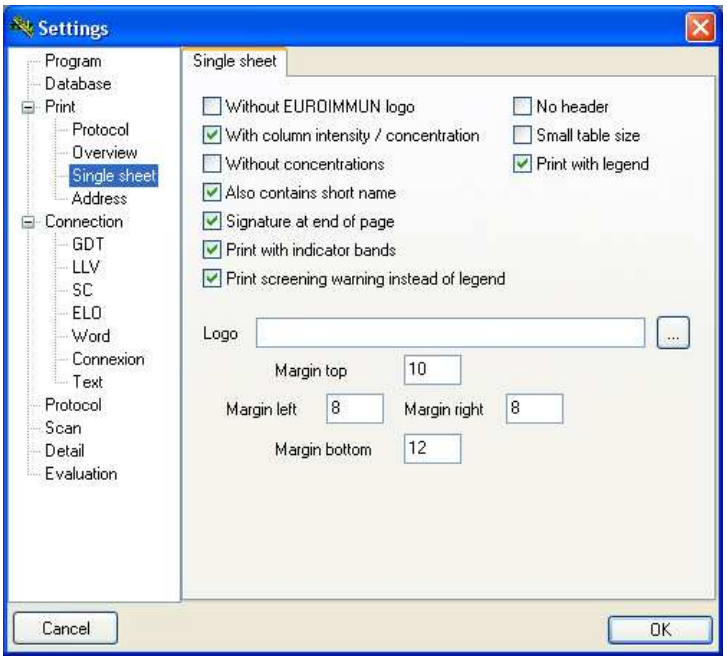
“No header”: With this function the table at the top of the printout, which contains additional information such as the patient ID, the test name and the result date, can be hidden.

“Small table size”: This option is useful for strips with long band lists and minimizes the font size and the line spacing.

“Print with legend”: When this option is activated, a tabular overview of symbols for result grades (e.g. „o“, „+“, „++“) and a short description are shown at the bottom of the printout.

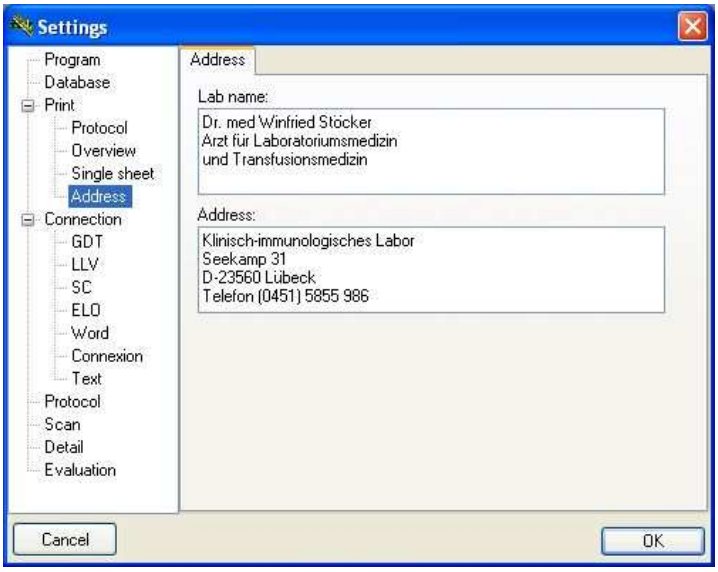
„Logo“: Here a graphic image can be loaded which is displayed on the single sheet printout instead of the EUROIMMUN logo. Compatible file formats are png, bmp, ico, emf and wmf.
Please note that the option "Without EUROIMMUN logo” (see above) must not be activated at the same time.

Margins: In these fields the size of the printout margins can be defined.



4.8.6 Address

The laboratory name and address entered here (left top corner and right top corner) will be displayed on the single sheet printout.

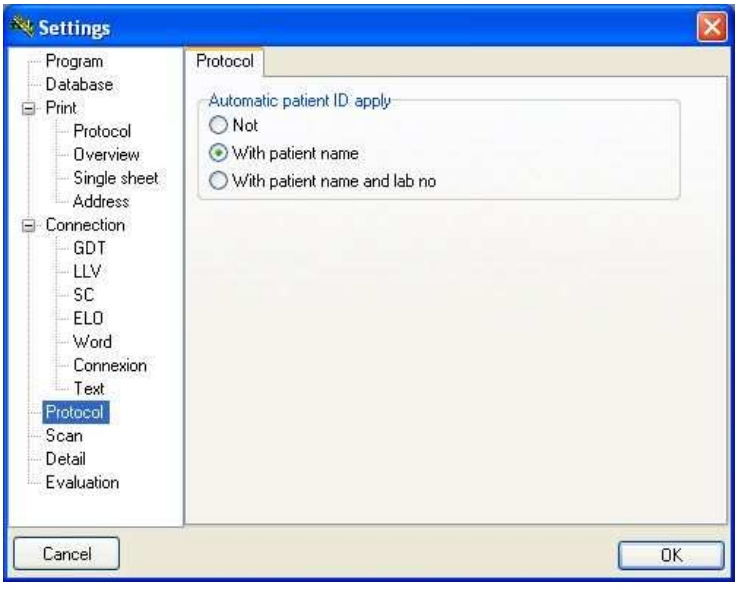


4.8.7 Connection

Here you can define the settings for the data exchange with other programs and file formats. For more information please refer to the Addendum to this manual.

4.8.8 Protocol

When entering a new protocol, the field “PatientID” is automatically filled for each strip depending on the settings defined here. If “With patient name” is selected, the entered name is automatically used as patient ID. If the option "With patient name and lab no" is activated, the laboratory number is added as well.
If you do not wish that the patient ID is entered automatically, select “Not”.



4.8.9 Scanning

Here you can find the settings for image capture using a flatbed scanner. The following options are available:

Use EUROLineScan interface: If this option is activated (recommended), the EUROLineScan form is used for image capture instead of the scanner dialog.
Use Canon specific options: If a scanner from Canon is used, you should select this option. Automatic measures by the scanner (e.g. automatic brightness adjustment), which might affect protocol evaluation, will be deactivated.

Has EUROBlotCamera: If you use the EUROBlotCamera system from EUROIMMUN, you should select this option to make the camera available for the image capture process.

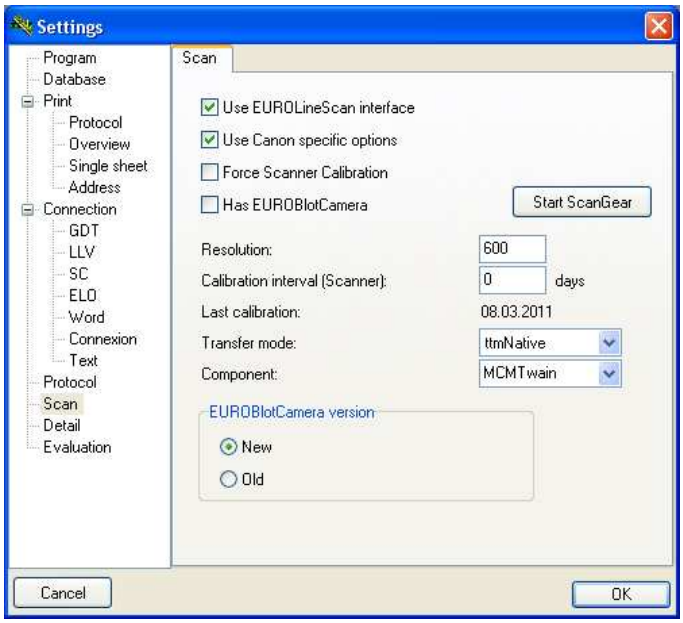
Resolution: Here you can determine the resolution of the scanned images. The recommended resolution is 600 DPI.

Calibration interval [days]: We recommend performing the scanner calibration in regular intervals to ensure correct scanning results. Here you can enter the number of days after which EUROLineScan will remind you to recalibrate before scanning a new image. If you do not wish to be reminded by the program, enter 0.

EUROBlotCamera version: Depending on the EUROBlotCamera version you are using, you can select the way of communication between the camera system and EUROLineScan. This setting should only be determined by a EUROIMMUN service technician.

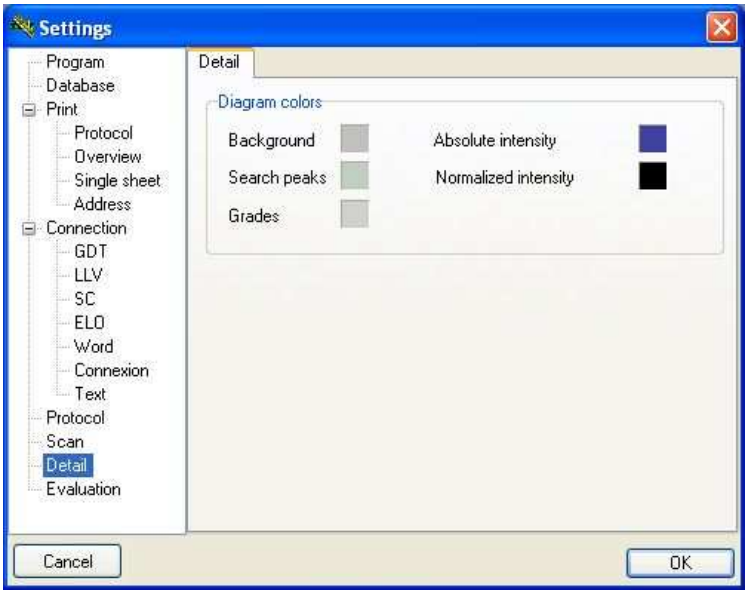
Start ScanGear: If the scanner calibration in EUROLineScan has repeatedly failed, it can be useful to call the scanner calibration function. With this button you can open the scan interface of the scanner. The layout of the interface depends on the scanner type that you are using. Some examples are described in 2.3.

“Transfer mode” and “Component”: These settings define the way the program interacts with the scanner. Usually, it is not necessary to change them.



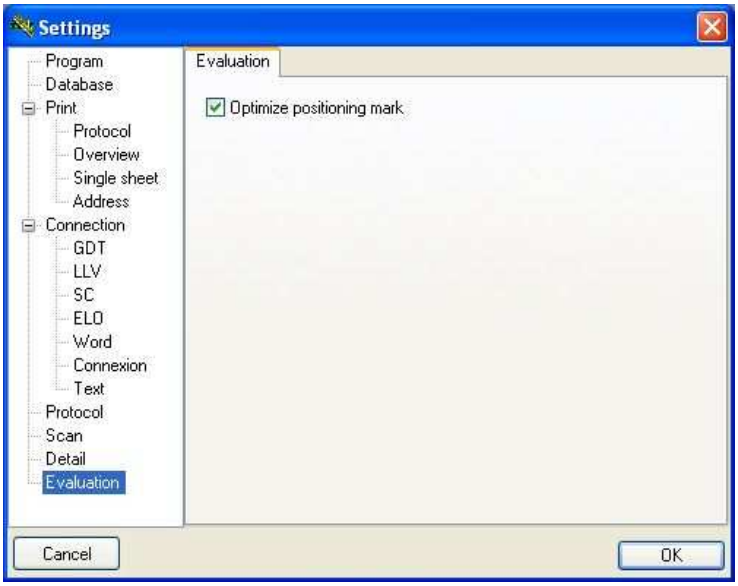
4.8.10 Details

In this window the colour settings for the detail view of a strip can be adjusted. Clicking on one of the coloured fields opens a dialog, from which the desired colour can be selected.



4.8.11 Evaluation

If the option "Optimise positioning mark" is activated, EUROLINEScan will adjust the search position so that the best possible evaluation result is obtained.

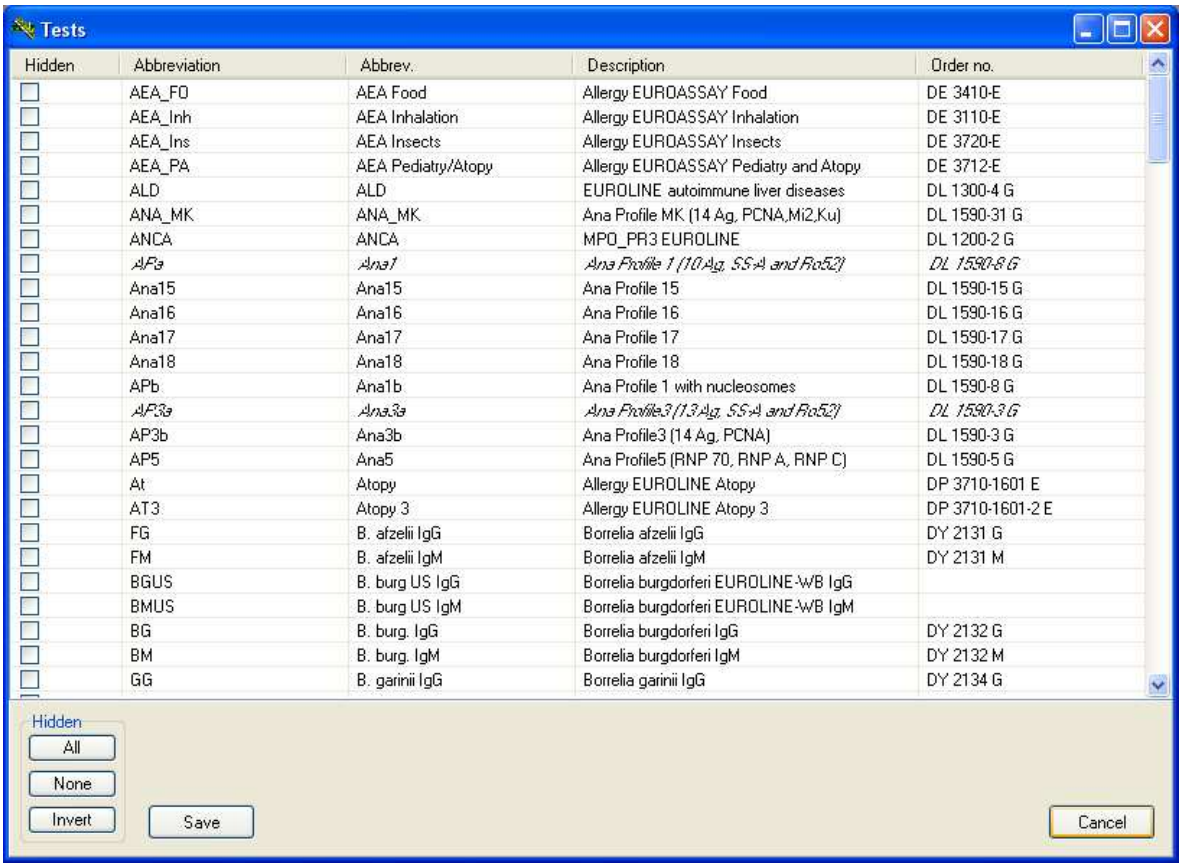


4.9 Info

In the menu click on "Help" you will then find "Info". Information to the program version are then accessable

4.10 Tests

In "Help“ you will find "Tests". This function contains a table with all tests that can be evaluated with this program. The order of the list can be changed by clicking the head of each column. Several clicks will change the upward or downward order. The column width can be altered by placing the cursor on the bordering line in the head. Press and hold the left mouse button simultaneously pulling the line to the required width.
This window can be left open for assistance (it will stay in the foreground) when working in the program. The column “Hidden“ is available from EUROLineScan Version 3.2.1 and can be used to hide tests that are not relevant for you. If you wish to do this, activate the toggle field in the column “Hidden“ next to the corresponding test and click on “Save”. The hidden test is only shown when a new protocol is entered, and no longer appears in the list of tests.
In the column “Order no.“ the EUROIMMUN ordering number of the test kit for the analysis is given.



5 Troubleshooting

This section outlines solutions to some of the problems that might arrise when working with EUROLineScan.

5.1 Installation / Update

When trying to install or update EUROLineScan, I'm told that administator rights are required to continue
This is indeed the case as the setup and update programs have to access parts of the system that are not available to standard users. Please login as a user possessing administrative privileges and repeat the process.

After updating EUROLineScan, my old protocols are gone
Existing protocols may appear to have been deleted after EUROLineScan has been updated from version 3.1.28 or older. In this case, EUROLineScan creates a new, empty database to be used by the new version of the program. Any old protocols can still be accessed by selecting "File" -> "Database" from the EUROLineScan main menu. There, several database connections (usually two) will be listed. By default, the new database will be called "euroscan", while the previously existing one (containing the old protocols) is named "euroscan_old". By simply clicking one of these menu items, you can switch between the database connections.

5.2 Program startup

On starting EUROLineScan, the message "No configuration data found. Using defaults" appears
This can happen after installing or updating EUROLineScan and is completely normal. This message will only appear on starting the program for the first time and is only an information, not an actual error message.

5.3 Protocol creation

When creating a allergy EUROASSAY protocol, the message "Error on initializing barcode scanner! No connection to device" appears.
Make sure that the barcode scanner is connected to your computer and that the device driver is correctly installed (see section 3.5 "Installation of the barcode scanner"). If this does not fix the problem, please refer to the document "Symbol_DS6707_en.pdf", which is contained in the folder "doc" on the EUROLineScan CD. This document contains several configuration barcodes which can be scanned in order to influence the behaviour of the barcode scanner. Print this document and then scan the topmost barcode ("API mode"). Afterwards, restart EUROLineScan and try to create the protocol again.

The test I want to use does not appear in the test list
First of all, please have a look at the test list (EUROLineScan main menu -> "Help" -> "Tests") and check whether the test in question appears in this list (comp. section 4.11 "Tests"). If the box "Hidden" is checked, uncheck it, click "Save" and again try to create the protocol. The test should now be available. If the name appears in italics in the test list, it is considered deprecated; in this case, please contact EUROIMMUN support personnel for further instructions.
If this does not solve the problem, please check the list on the bottom right of the protocol creation window (labelled "Selection"). This list can be used to hide groups of tests. Make sure all the boxes are checked.

5.4 Evaluation

Why doesn´t the EUROLineScan program react during the evaluation?
It is best to give the program more time. Pictures with a high resolution (DPI value) are large files, this can cause a delay in the evaluation if the computer has too little random access memory (RAM). Close all other unnecessary applications during the evaluation. Install additional memory. Scan the picture with a lower resolution.

No strips were found:
If the image was loaded from another file, check if the correct DPI value was entered when opening. Look at the picture closely. Is it in color? Are all the strips recognizable? Was the picture scanned with a zoom of 100%.

Some strips were not recognized. The number of recognized strips does not correlate with the strips entered on the protocol.
Can all the strips be seen on the scanned picture? Make sure that all strips can be completely seen on the picture. Putting the foil on the strips before the evaluation usually disturbs the procedure and should be done after the evaluation. If this has already taken place or cannot be avoided, be sure to remove all bubbles in the foil.
Repeat the scan and select the area to be scanned as precisely as possible without cutting any part of the strips away.
Sometimes it helps to change the scanning resolution or to re-position the protocol on the scanner.

What can I do when a test strip on the protocol cannot be evaluated?
The protocol must be divided into two sections to enable the rest of the test strips to be saved. For this procedure, copy the protocol and delete the upper and lower half of the test strip. Then only scan the upper and lower part of the page.

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