# Software for DS550

# USER'S MANUAL

UMDS550 ENG
JAN 2016 V1

# *INSTRUCTION FOR USE*

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## DISCLAIMER

Each device manufactured, marketed and / or otherwise placed on the market - directly and / or indirectly by the manufacturer is made in accordance with the provisions and regulations in force in their user manuals contain the necessary information to ensure intended use and to identify the manufacturer, whilst taking into account the training / experience and knowledge of its intended users.

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For data security, please refer to the management of Windows security. It is recommended to enter a password to access the account used.

Before performing an upgrade of the application or the archive, and / or at least before any maintenance operation, we advise to make a backup of the complete patient database. It is also recommended you periodically (every week at least) make a backup on a different medium of the one normally used (e.g. CD-ROM or DVD). The manufacturer srl bears no liability for loss of data due to improper handling of the archive.

All measured data, calculated and interpreted and subsequently displayed to the user must be considered subject entirely to customer's responsibility. The manufacturer remembers that any data and / or information arising from the use of the above software must necessarily be compared and verified with results from other devices in order to verify the exact calibration of the instruments and their proper functioning according to the specific parameters provided by the customer.

The manufacturer does not assume any responsibility for damage of any kind howsoever arising and especially the application of the results of the Summary of Cataract in the software, including those arising from an incorrect calculation of the IOL. The user of the program must verify by plausibility considerations that the proposed values do not contain gross mistakes.

The manufacturer assumes no responsibility and makes no guarantee of accuracy, calibration and / or exact measurements provided by the Products and / or software with which they operate even if provided by the manufacturer itself.

Consequently, the manufacturer will not and cannot be held responsible in any way or for any reason for any direct, indirect, consequential in general, of image, or profit loss, or moreover of any kind or species whether they are persons, property or other equipment or products that the customer complaints as a direct or indirect consequence of the use of our products and our software.

# 1 INSTALLATION AND START-UP

## 1.1 First installation

Pass to chapter 1.3 if the AnaEyes software has just been installed.

Insert the CD and wait for the installation procedure to start:
If Framework 4.0 is not installed on the PC, the next screen will be displayed.
Accept the licensing conditions and click Accept.

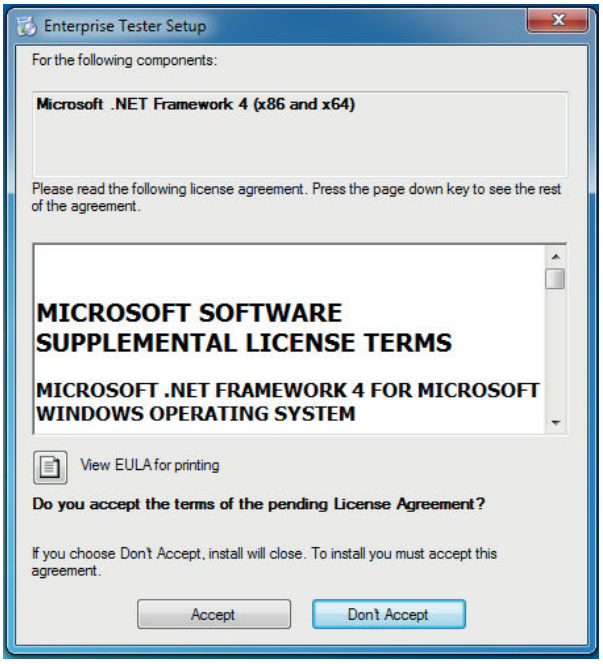



Figure 1-1: Accept installation of framework

Wait until the component is installed.

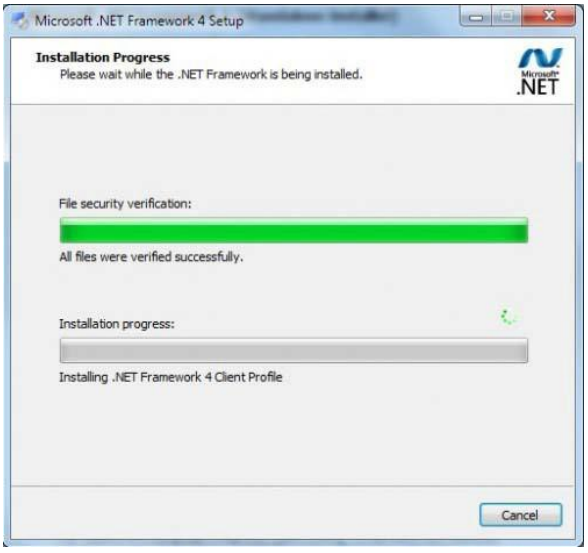



Figure 1-2: Framework installation

Upon completion of the procedure outlined below or if Framework is already installed, click Next to begin installing AnaEyes.

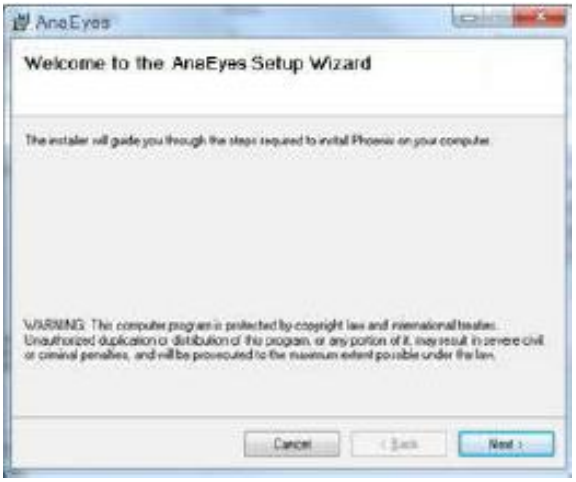



Figure 1-3: AnaEyes Installation

Select the file path for software installation and click Next.
We recommend not changing the default file path displayed.

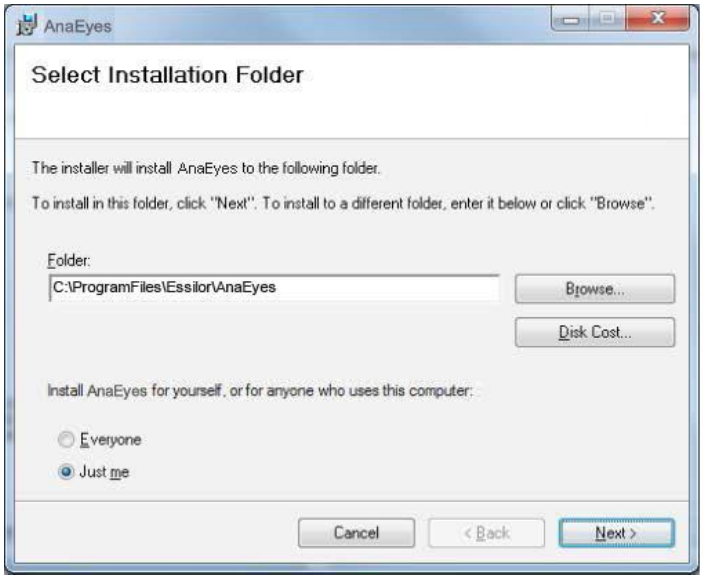



Figura 1-4 Installation directory

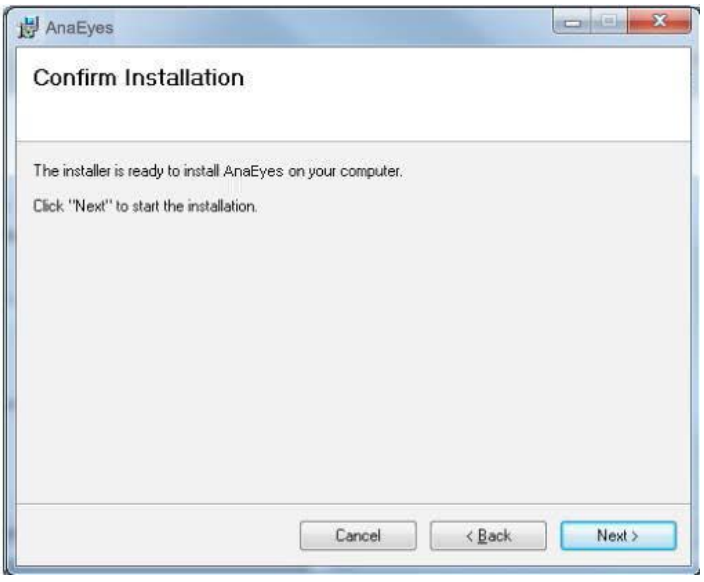



Figura 1-5 Confirmation installation

Click Next to complete installation; Click Close at the end of installation.

The following screen appears. Click OK to confirm and proceed installation of a demo database, Cancel in case of an upgrade.

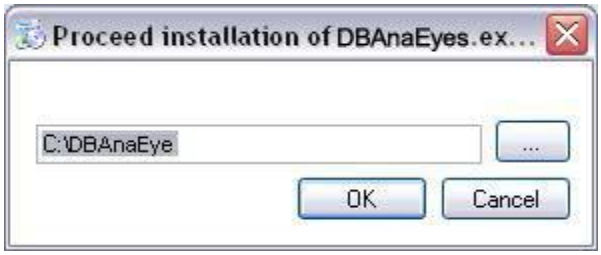
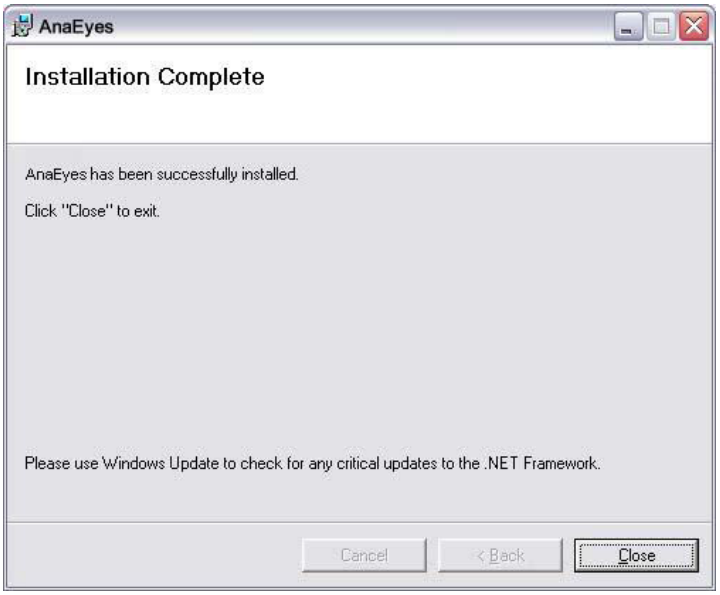
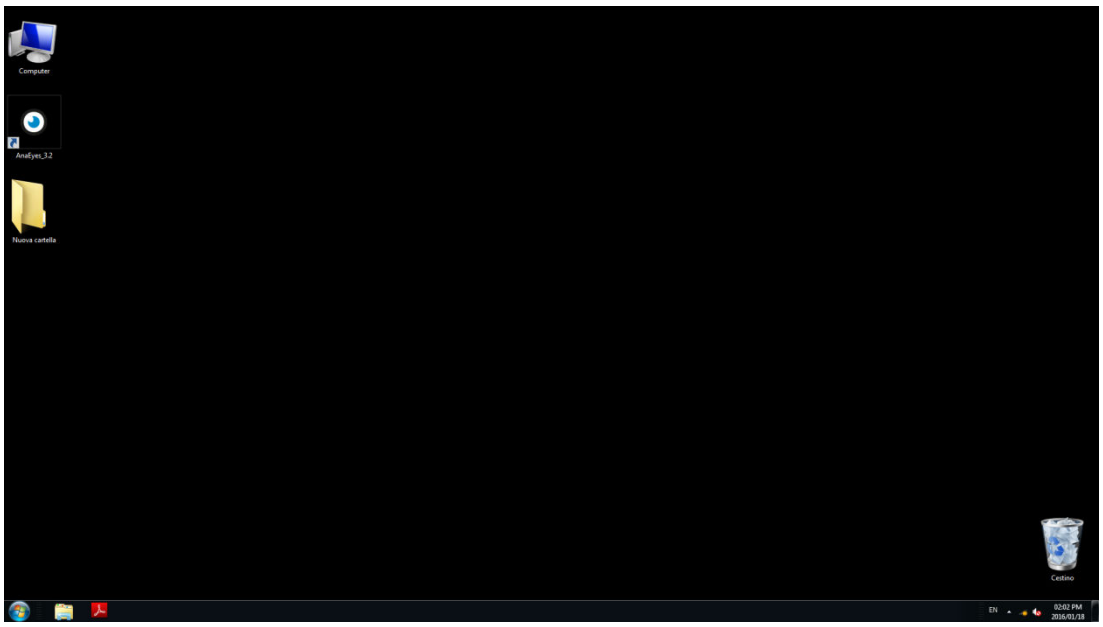



Figura 1-6 - Install DB




The “AnaEyes” icon will appear on the desktop.



## 1.2 Upgrade

In case of an upgrade of the AnaEyes software (i.e. an installation of the AnaEyes software on a system where an older version already was installed), the following message might appear upon uninstalling the old version:

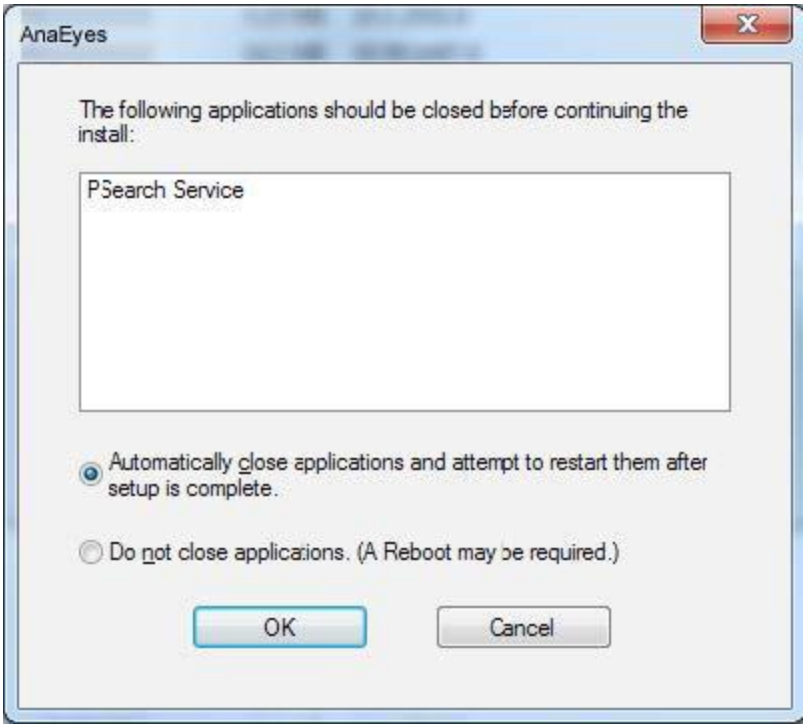
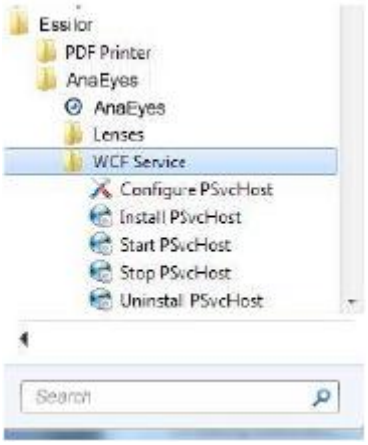



Figura 1-7 - Service active

This means the WCF service menu has been used to install the Web Service interface for AnaEyes. Please make sure to uninstall the service, following Start Menu -> All Programs -> Essilor -> AnaEyes -> WCF Service-> Uninstall PSvcHost




After this, the uninstall will correctly complete. See the appendix for more information on the installation of the WCF Sercvice.

### 1.3 AnaEyes Program Start-up

Regarding Windows 8 users: after having installed AnaEyes on the Operating System Windows 8, it is necessary to start the program with an elevated level of privilege. We advise to choose the setting from properties like below:

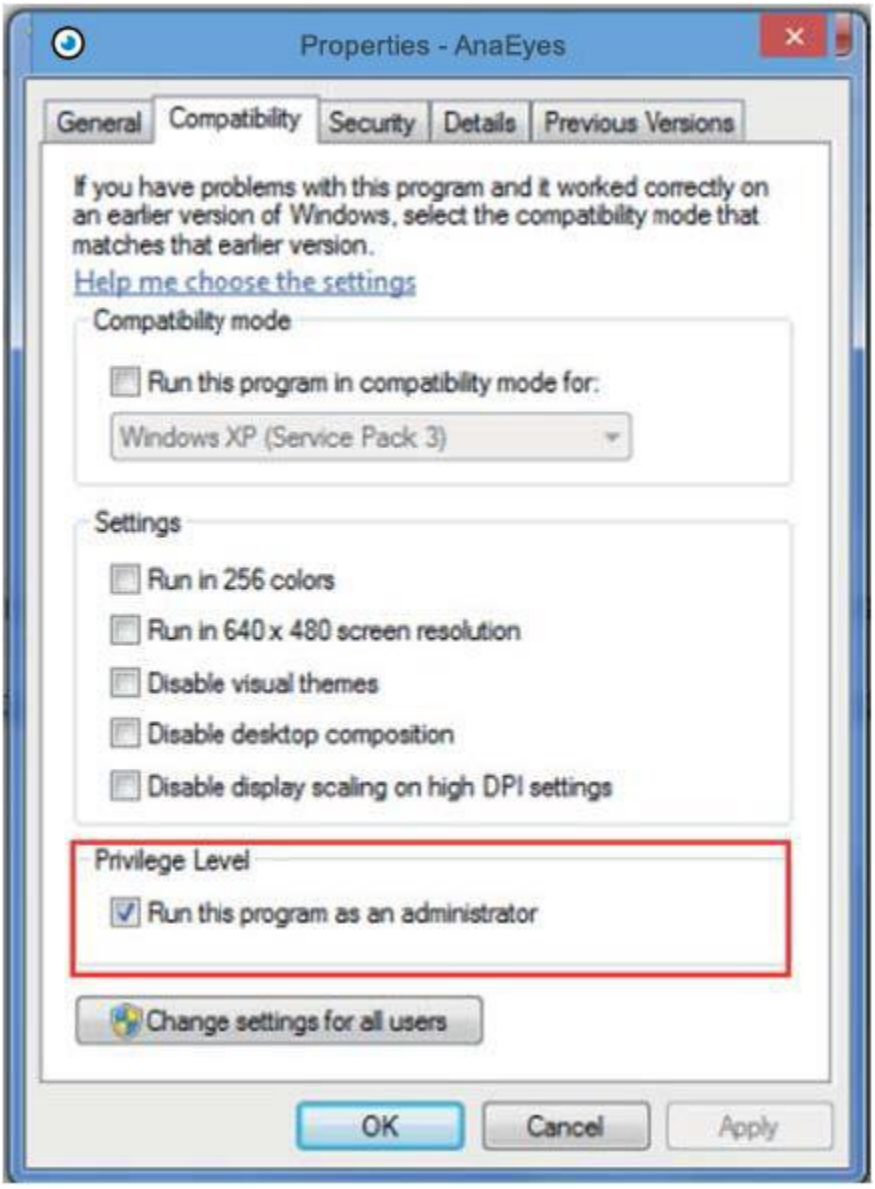



Figure 1-8 Set the privilege level

Click the AnaEyes icon on the desktop. The screen shown below will appear, asking the user to send an e-mail containing the code for unlocking the software.

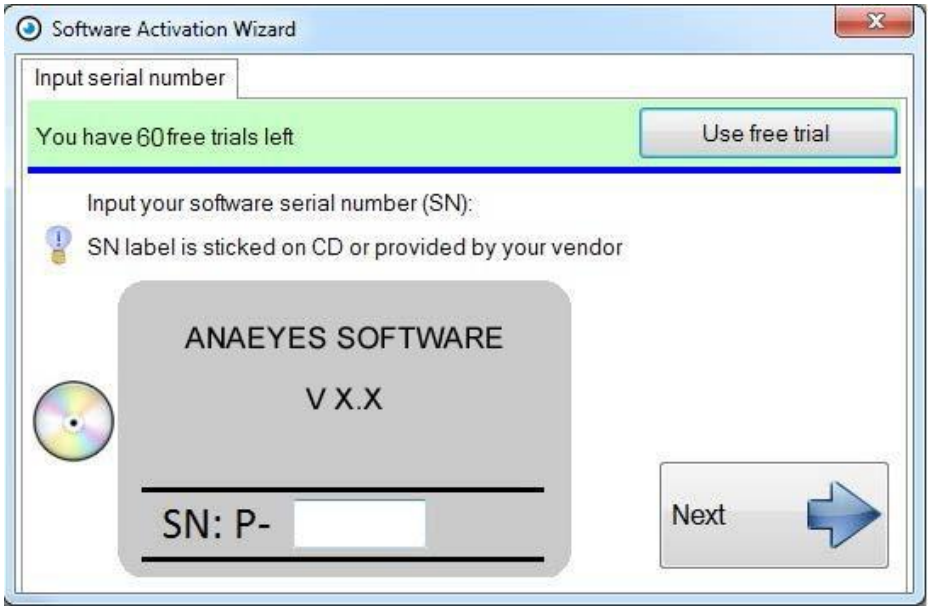



Figure 1-9: Registration Screen

You need to connect the database when you open the first time the software. Press OK if the database has been created during the installation and AnaEyes is ready to use.

If the database is just present, press browse button and select AnaEyes.mdb. You need to connect the root.cso file contents in the same database folder. Open the Miscellaneous menu in the settings and check if the Image root file is complete. Otherwise search the root.cso that will be in the database AnaEyes.mdb folder (see 4.4).

Figure 1-10: Database connection

Confirm pressing OK. The main screen will open.

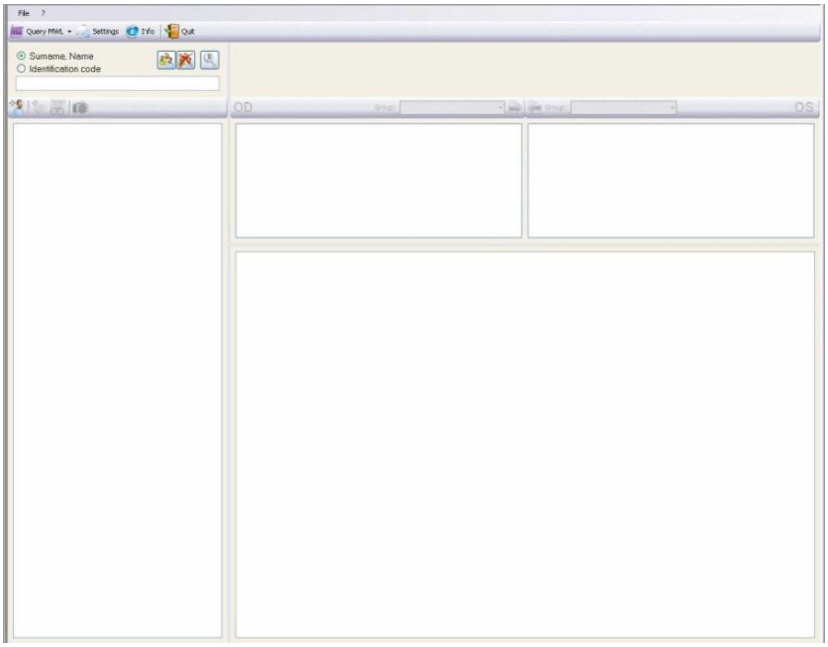


Figure 1-11: Main Screen of the AnaEyes Program

This first screen allows the user to manage the database of patients and the examinations associated with each. It is made up of various sections and menus.

When the program is launched, all the windows are empty.

## 1.4 File Menu

Settings

Allows the user to select the software language, manage groups and instruments, and make other settings (see Chapter 4). This menu may be accessed only if the patient list is not displayed. If patients are displayed in the list,click Clear Patient List] to enable the Settings function.

Esc (Exits and closes the program).

Figure 1-11: Confirm Exit from Program

Selecting the suitable box on the Settings/Other menu (see Chapter 4), displays a request for confirmation of exit from program. Click Yes to exit or No to continue using the program.

All data measured, calculated and successively displayed to the user are to be considered subject to the user's full responsibility. SL/DS550shall use its best endeavors in order to ensure that all the data displayed in the software is complete and accurate. Nevertheless the instrument's manufacturer bears no liability for any consequential damages and will not accept claims that result from incorrect data, and successive incorrect interpretations. Data obtained from the software should always be compared and scrutinized with results of different instruments.

## 2. PATIENTS DATABASE

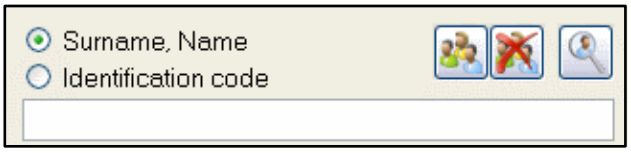



Figure 2-1: Search Panel

Each patient is identified by Last Name, First Name, and an Identification Code that is automatically generated by the program.
To locate a patient in the Database, type the Last Name and First Name in the Patient Box or type the Identification Code.

To select a search criterion, click the button alongside Last Name, First Name or alongside the Identification Code.

To view a patient, type his/her Last Name, First Name (or Identification Code) in the Patient Box. As the letters or numbers are typed, the pull-down list will display patients meeting the criteria. If the typed characters do not yield any results, a warning icon will appear . The warning icon is also displayed in the case an excessive number of results is returned.

Once a patient is selected, his/her Last Name, First Name (with Identification Code and date of birth) will be displayed in large type in the top portion of the screen.

Fill Patient List

Displays all the patients entered in the database.

Empty Patient List

Empties the contents of the window in which the patient list is displayed but does not delete the patients from the database.

Search

Permits searching patients in the database by gender, date of birth, check-in number, examination date, patient age, referring physician, instrument, or group (see Paragraph 2.5).

To enter a new patient in the database, click the icon on the main screen to open a new window Enter the patient data in the window: last name, first name, date of birth, and gender. Typing a Last Name, First Name pair in the Patient Box automatically opens the window for entering the data for the new patient.

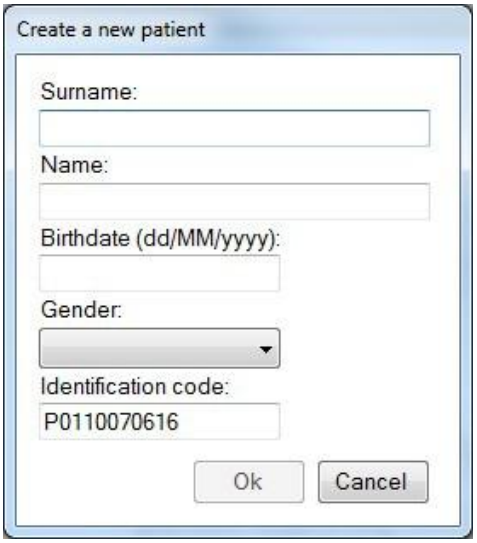



Figure 2 2: New Patient Data Window

Date of birth must be entered in the form: two digits for the day, two digits for the month, and four digits for the year. Entering an invalid datum will cause a warning icon to be displayed

Entering a patient whose data are identical to those of a patient already contained in the database will likewise open a window containing a warning message.

The identification code is automatically entered by the system unless a different option is selected from the DICOM Settings menu. See Chapter 4.4.

To confirm new patient entry, press the Enter key or click the [OK] button. To cancel, click [Cancel].

Whenever a new patient is created, an examination associated with that patient is also created. A window for selecting the examination type then opens (See New Exam below).

## 2.1 Patients List

Any new patient entered is displayed in the patients list window on the left-hand side of the screen. To view the list of all the patients entered, click the button. To empty the contents of the patients list from the main screen, click the button.

## 2.2 Patient data

When a patient is selected, the entered data will be displayed on the main screen (red rectangle).

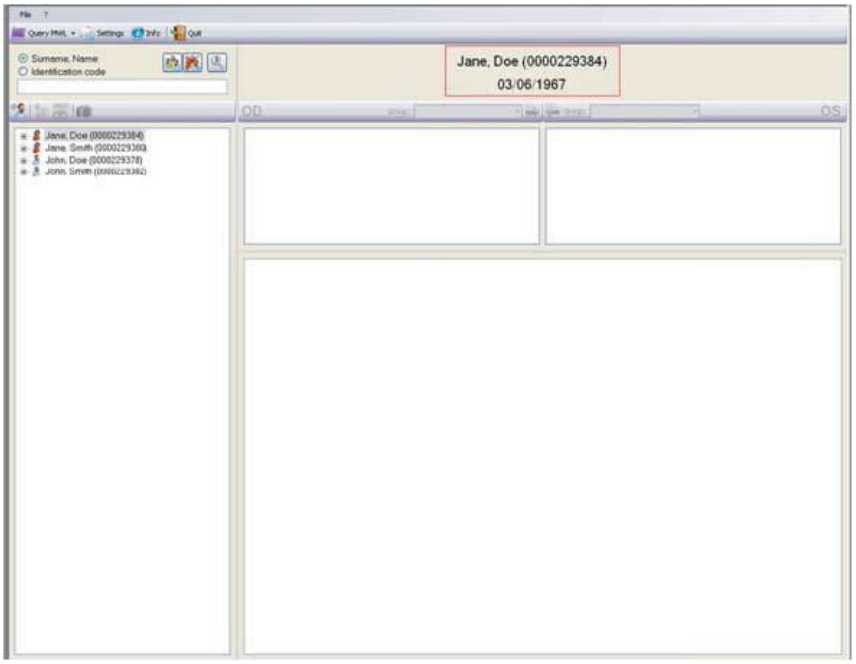



Figure 2 3: Patient Data

## 2.3 Editing Patient data

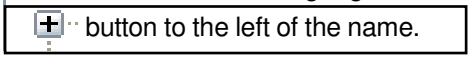
To edit the patient data, move the mouse pointer to the patient name and right-click.

Select

, which reopens the patient data window for editing the last name, first name, date of birth, and/or gender. Click OK after having made all required changes.

## 2.4 Selecting a Patient

A patient already listed in the database can be selected in a number of different ways:

- Type a last name and fi name in the Patient Box. In order to insert the last name and name correctly you must type: Last Name comma First Name, without spaces. If the typed name does not correspond to any patient already present in the database, press Enter to open the window for entering a new patient.
- Click the button and use the ↑ ↓ keyboard keys to scroll the patients list or select a patient directly from the list. With the Patient Box empty, press Enter or double-click the highlighted patient name. A patient archive may be opened by clicking the 

- Type in a portion of the Last Name, First Name string to display a list of patient names meeting the criteria. To select a particular patient, proceed as described in the previous point. For instance, you may display all the patients whose names begin with a given letter, or who have the same last name, or who have the same last name and the same first-name initial, etc.

When a patient is selected, the list of associated examinations opens automatically (see Chapter 3: Examina- tions Database).

## 2.5 Advanced Search

Click the button to access the advanced search function.

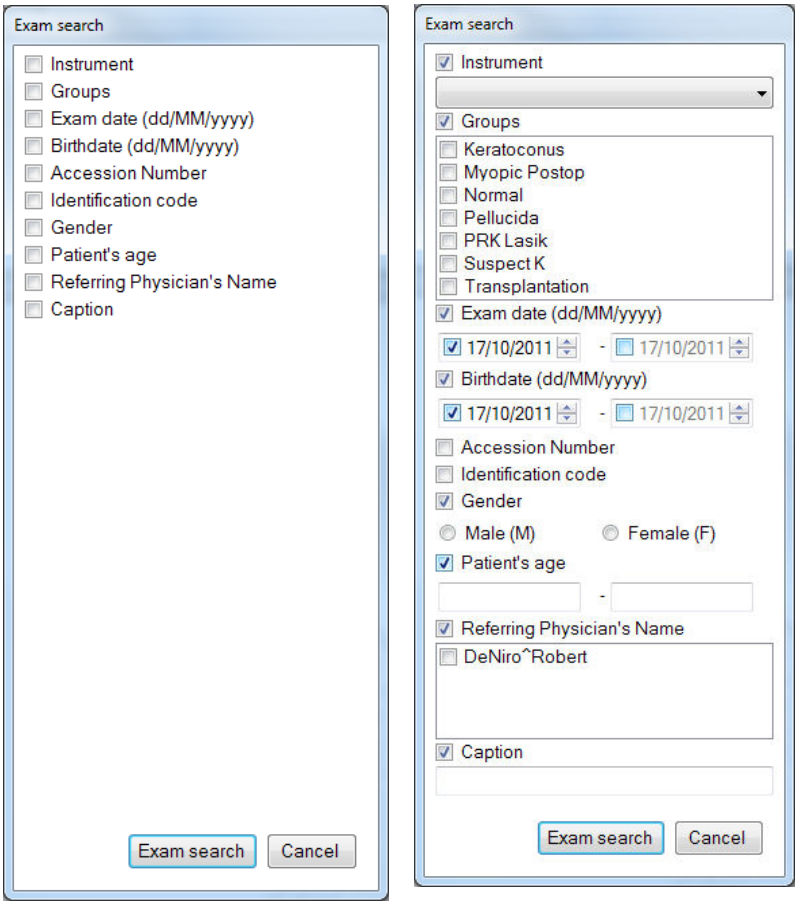



Figure 2-4: Advanced Search

For each of these categories, clicking the , button so as to check (select) it , visualizes the boxes for entering search criteria:

- by gender: male or female
- by date of birth: start and end dates of the interval to be searched
- by check-in number: a box for entering the number; refer to the automatic completion function
- by examination date: start and end dates of the interval to be searched
- by patient age: minimum and maximum age
- by referring physician: a box in which to type the physician's name
- by instrument: a list of possible examination capture instruments (for example, Fundus camera, kerato scope, pupillographer, Scheimpflung camera, slit lamp biomicroscope)
- by group: a list of the groups created via the Settings function (see Chapter 19)
- by caption: the caption added to a single acquisition is used as a search parameter

Select the boxes that permit establishing the search criteria. Click [Search] to display the search results.

### 2.6 delete Patient

To delete a patient name, right-click the patient, select

and then confirm the deletion request warning message.

**Warning**: deleting a patient also deletes all the examinations associated with that patient and the relative images.

## 3. EXAMINATIONS DATABASE

An unlimited number of examinations may be associated with each patient; the examinations are defined on the basis of the instrument used and the date of creation.

### 3.1 New Exam

After a new patient is created, an examination will also be created.

To create a new examination for an existing patient, click the button.

If working with a single instrument, the image capture mode will be automatically accessed. Otherwise, if at least two instruments are used, the window shown below will open. Select the instrument to be associated with the current examination. After selection, the capture mode is accessed.

Figure 3-1: Instrument Selection

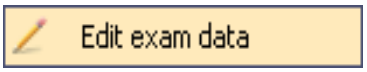
Each examination is filed by date of creation and instrument type. It is also possible to attribute a pathology group [Group ]. Classifying the examinations by codified groups is useful for conducting searches. The groups list may be edited from the Settings menu (see Paragraph 4.3).

### 3.2 Selecting an Examination

Once a patient has been selected, click the button or press Enter or double-click with the mouse to access the Examinations Database.
Clicking the + symbol to the left of the patient name opens the list of examinations associated with that patient. The + symbol becomes a – . Click the – symbol to close the list.
Alternatively, open the list by pressing the → arrow key on the keyboard and close it by pressing the ← arrow key.

To select a previously-stored examination, use the mouse or scroll with the ↓↑. keyboard arrows to highlight one examination after another and, for each, view the relative images in the window on the right-hand side of the screen.

### 3.3 Editing Examination data

To edit the data for an examination, select the exam, right-click, and select the 

command [Edit Exam Data].

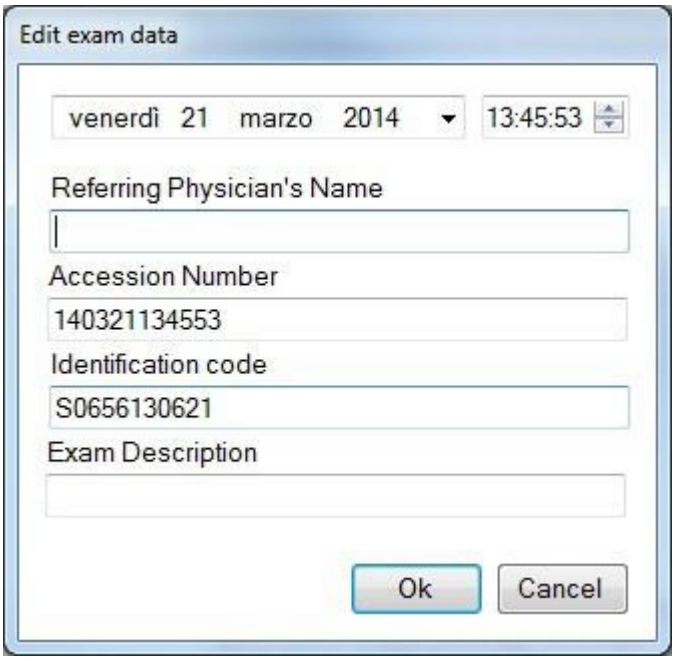
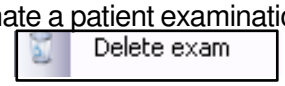



Figure 3-2: Editing Exam Data

This action opens a window in which the user may edit the date and time of the exam, enter the name of a referring physician and add a description of the exam. Click OK to confirm the changes; otherwise, click Cancel.

### 3.4 deleting an Examination

To eliminate a patient examination from the database, select the examination to be deleted by right-clicking, then clicking 

and confirming the deletion request warning message.

**Warning**: deleting an examination also deletes all the images associated with it.

### 3.5 refraction

When an exam is selected, the *(Refraction) icon goes active. Selecting the Refraction icon opens a window from which to enter the patient refraction data.*

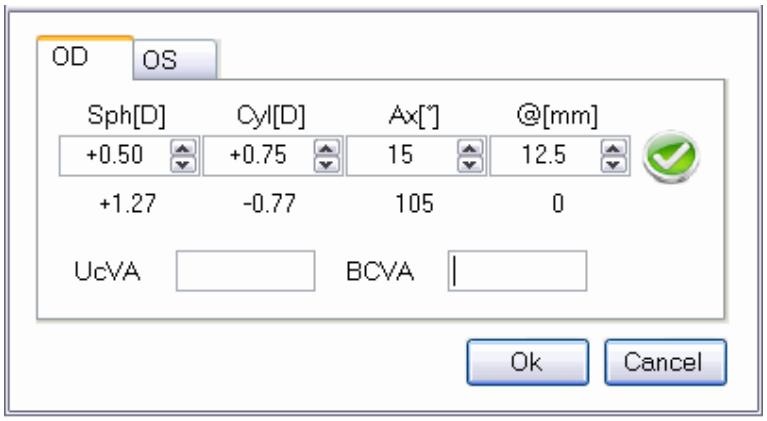



Figure 3-2: Entering Refraction Data

Two labels permit opening the right eye (OD) or left eye (OS) chart. If the refraction value entered is the value measured on eyeglasses and the corneal apex-to-lens distance is entered in the box for that purpose, the system calculates the refraction at the corneal vertex. Enter the values of the sphere in diopters (Sph), the cylinder in diopters (Cyl), the cylinder axis in degrees (Ax), and the distance to test eyeglass in mm (@) in the relative fields. If the data is incomplete, the warning icon . will appear. If the data are correctly entered, the icon will be displayed

The patient's natural visual acuity is entered in the UCVA (Uncorrected Visual Acuity) box; the maximum visual acuity attainable with correction is entered in the BCVA (Best Corrected Visual Acuity) box.

The [Cancel] button closes the window without saving the changes. To save the entered data, click the [OK] button or press [Enter].

### 3.6 Capture

The *Capture icon goes active when a new exam is created or when an empty exam is selected. It permits selecting the instrument with which to capture the exam and accessing the capture environment.*

## 3.7 Image gallery

When an exam previously stored as described above is called up, the Gallery window on the right-hand side of the main screen will show the images relative to each exam as it is selected.

The images are subdivided by OD (right eye) and OS (left eye).

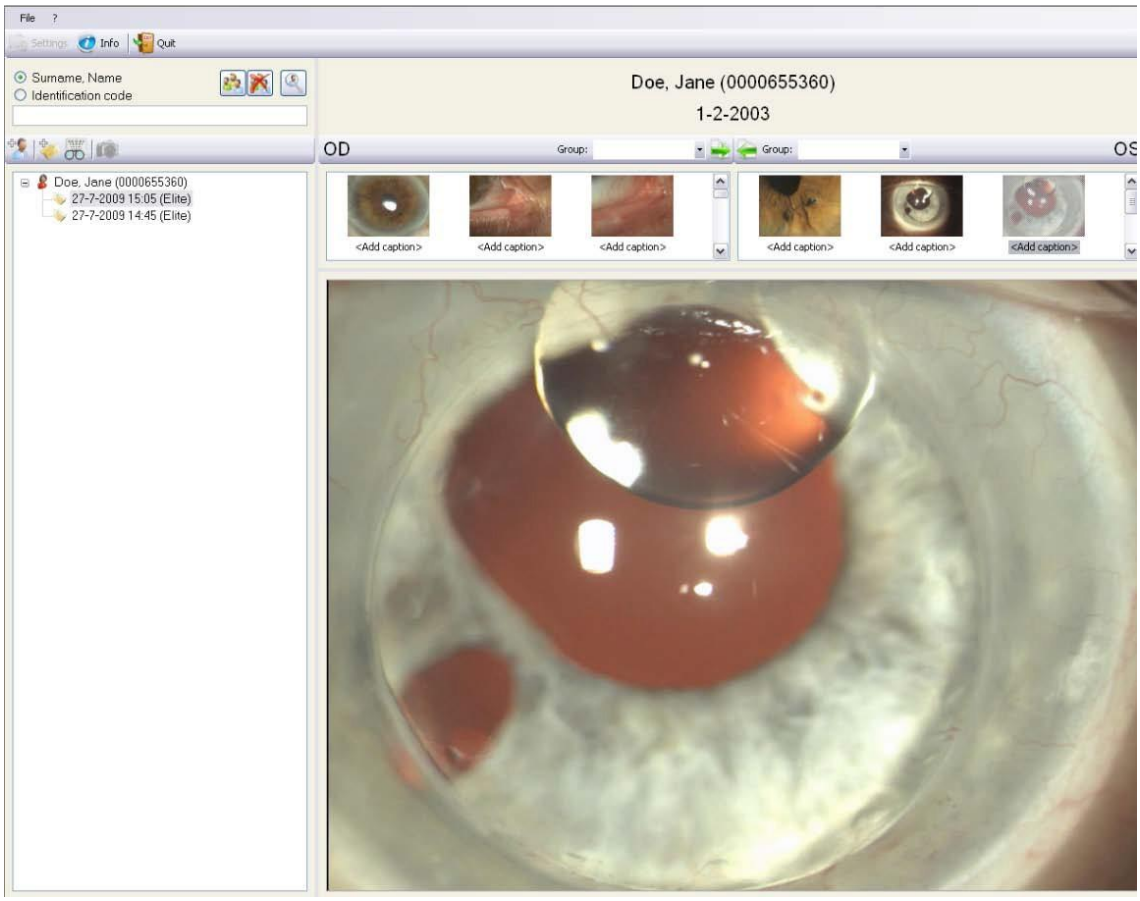



Figure 3-3: Image Gallery

A type group may be defined for each eye in order to facilitate future searches.

Figure 3-4: Groups

Click the button to open the pull-down menu of the groups entered in the Settings/Groups menu (see Chapter 19). To enter the eye being examined in a yet-to-be-defined group, select <new group> to open a box in which to enter the name of the new group.

Select a group. The buttons permit associating the right eye group with the left, and vice-versa.

You can filter the list of thumbnails in the gallery by selecting one of the filter elements from the dropdown menu:

All (default choice), only images, only reports, only movie frames, only lenses or only mosaics.

Clicking an image displays a preview of the summary of the selected examination in the lower portion of the screen.

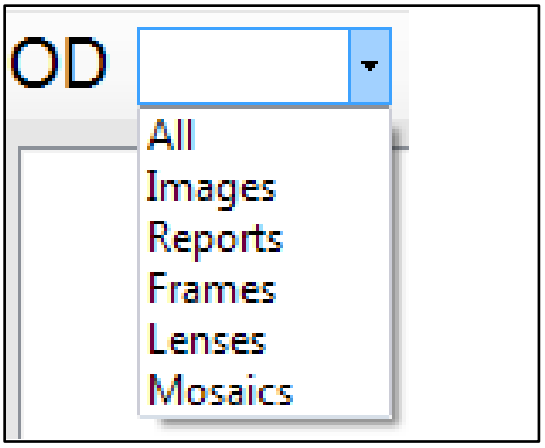
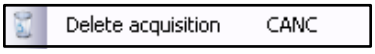



Figure 3-5: Filter

Double-clicking an image opens the processed image summary (Chapter 5).

Right-click a gallery image and select

to add a brief description.
To eliminate an image, click 

.

To open an image, double-click with the left mouse key or press Enter:

- If the selected image is a previously-processed map, the topographic maps viewing environment will open.
- If the selected image is a still-to-be-processed Scheimpflug capture, the image is first processed and the summary environment is then opened
- If the selected image is pupillographic, the pupillography examination will open.
- If the selected image is an image acquired with the slit lamp, the image viewing environment will open.

## 4. SETTINGS

The Settings menu may be accessed only if the Patients List is not displayed on the main screen. Click the button to empty the patients list. Then click

or open the File menu and select Settings.

### 4.1 Language

After selecting Settings, the menu for setting the system language will open.

Figure 4-1: Settings

Select the language to be used by the software and click [OK].

### 4.2 Instruments

Clicking the Instruments label accesses the section for managing the instruments to be used.

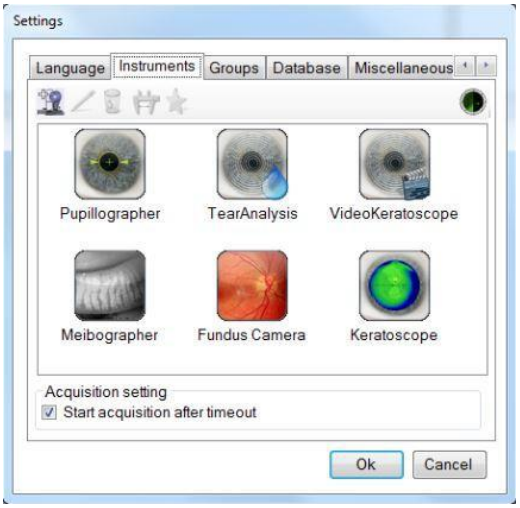



Figure 4-2: Instruments Management

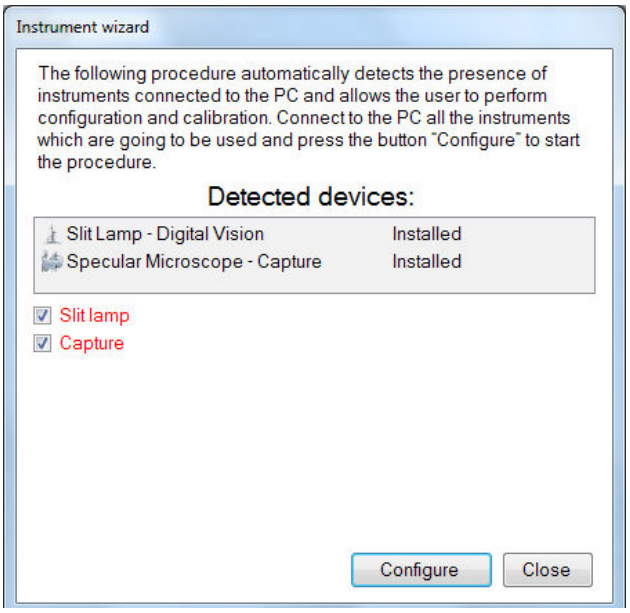



Figure 4-3: Installed instruments

Connect all the instruments to use and press the Instruments wizard button .
You will see the next window with the instruments installed.

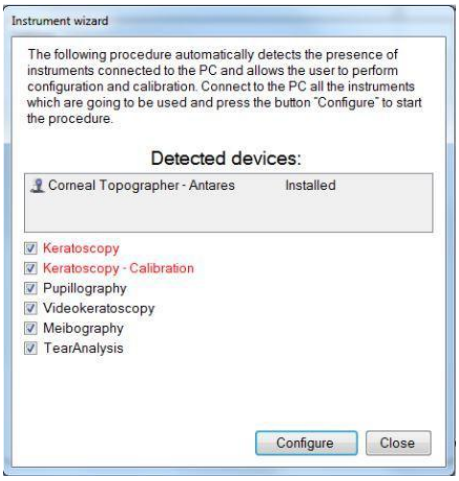



Figure 4-4. Installed Instrument

Press the Configure button to modify the settings.

The button permits inserting manually a new instrument for use. The instruments must be inserted using the wizard.

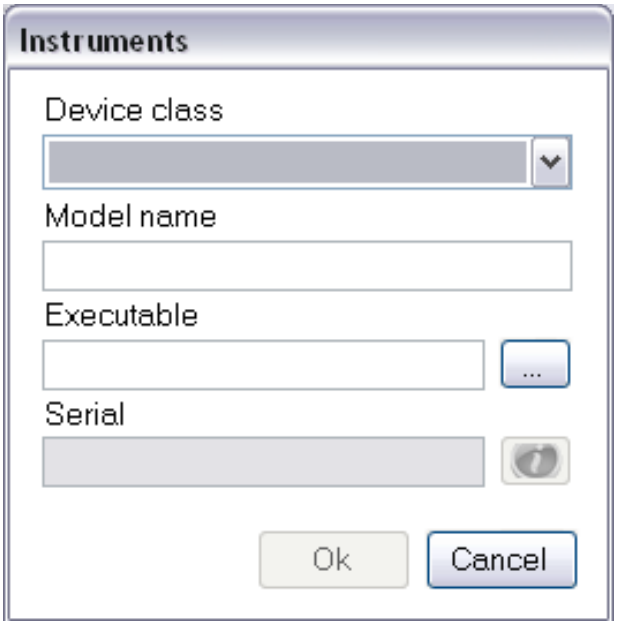



Figure 4-5: Inserting a New Instrument

Enter the model name (reported alongside the exam) and an Executable File (select the SCLive executable File), then select the class from the pull-down window shown in Figure 4 4. When done, click [OK].

After the system has automatically installed the instruments Scheimpflug camera and topographer, it will start the first calibration, (see the next paragraph).

The button permits editing an existing instrument.

To eliminate an instrument from the list, select it and click

Click the button to calibrate the instrument. For calibrating, see next paragraph.

In the following setting, you can choose whether to set a timeout in choosing the instrument (5 seconds), after which the instrument's live application will be launched automatically. When not checked, the acquisition choice screen will be shown until the user makes his choice.

### 4.3 groups

For creating, editing, or deleting groups of examinations.

Cataloguing the examinations by homogeneous type groups (for example: keratoconus, PRK myopia, PPK hypermetrophy, trauma, etc.) is useful as a search aid.

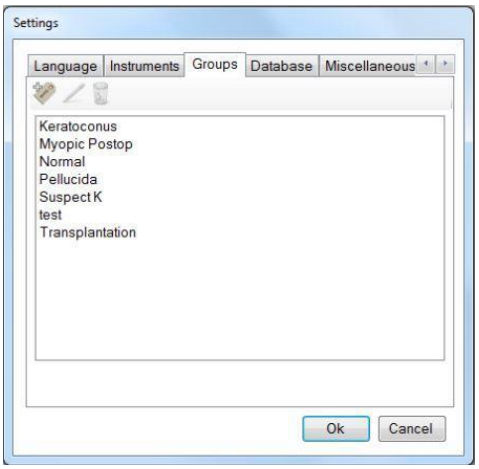



Figure 4-6 : Groups Menu

Click the button to insert a new group.

The button can be used to edit pre-existing groups. This button goes active when a group is selected for editing.

The button is instead used to delete a group. It goes active when a group is selected for deletion.

## 4.4 Database

Clicking [Database] accesses the window shown below:

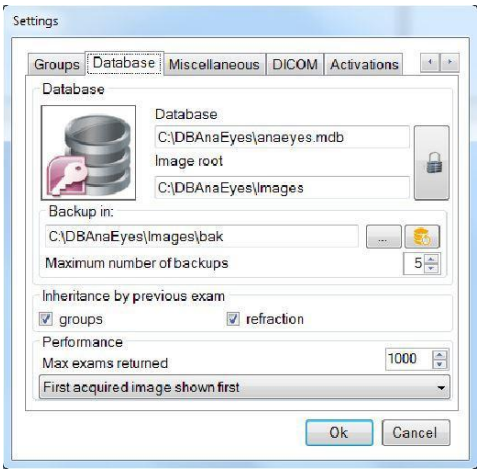



Figure 4-7 : Database Information Menu

Click the unlock button to change image root and Database.

***Image root:*** Clicking the button in this section selects the image management file called root.cso.

***Database:*** Using the button to select a file from the database AnaEyes.mdb.

***Backup in:*** Using the button you can choose the destination folder folder backup files You can choose the maximum number of backups to perform.

**Inheritance by Previous Exam**

- When the Groups and Refraction option boxes are selected, each new exam will be attributed the group and the refraction data of the last exam created.

## 4.5 Miscellaneous (Other)

Clicking [Miscellaneous] accesses the window shown below:

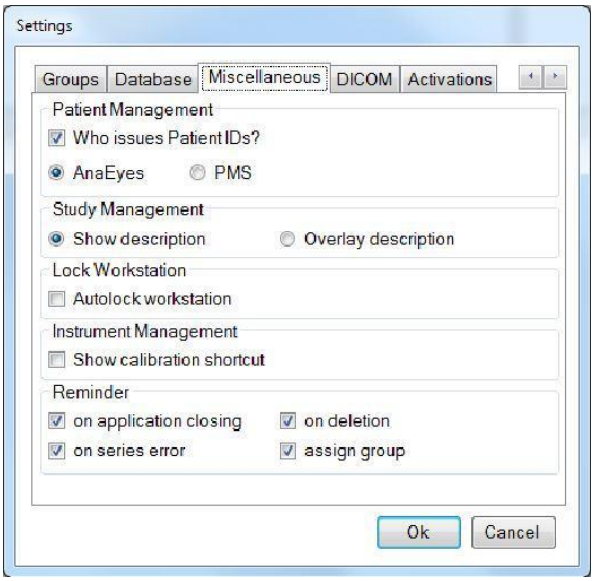



Figure 4-8: Other Information Menu

Patient Management
Deselecting Patient ID (external option box) also deselects the other two options (mode and PMS) and it will be possible to insert the ID code at the moment a patient is created.
If this option box is instead selected, it will not be possible to enter the ID code manually. Select one of the following two options:

- AnaEyes: the ID code is automatically assigned by AnaEyes when a patient is created.
- PMS: The ID code and relative personal data will be crossloaded to AnaEyes from an external database.

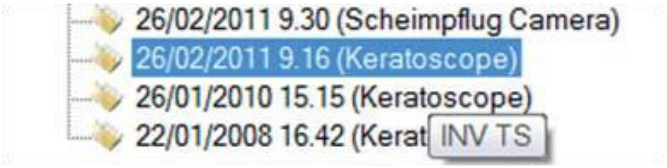
The ID of the agency or institution providing the data must be entered in the field alongside the PMS item.

Note that in the latter case, the di inserimento paziente è disabilitata.

Study Management

- When 'Show description' is selected, the study description will be shown in the main patient tree.

- Otherwise the description will be visible in overlay (meaning, that when the mouse passes over the examination, the description will be visible as a tooltip



**Reminder**

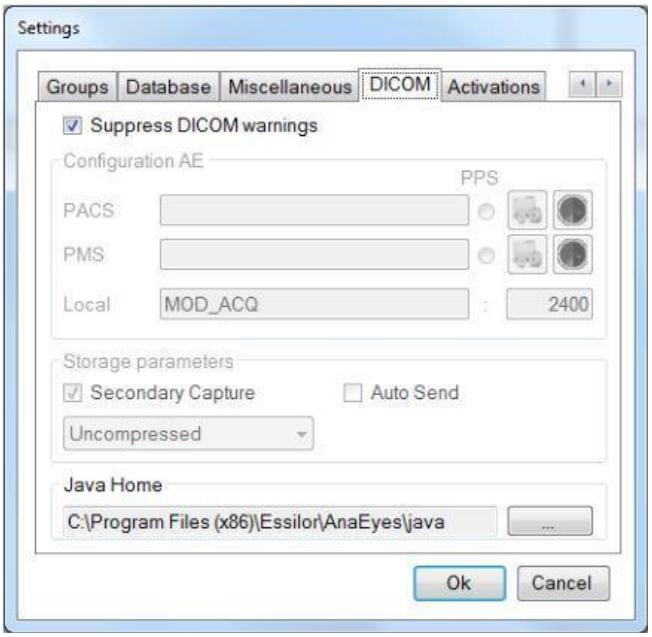
The user may select among the following options:

- On application closing: displays the message requesting confirmation to close the application.
- On deletion: displays the message requesting confirmation to delete an image from the gallery.
- On series error: this warning is given when traces of images erroneously moved to other folders or files remain in the examination in question.
- Assign group: after performing an acquisition a reminder is presented for classification (group assignment) of the assigned series.

## 4.6 DICOM (digital Imaging and Communications in Medicine)

DICOM is a medical computer standard adopted by many health agencies and hospitals in all parts of the world, which permits medical operators to exchange images and other information via computer systems adopting this standard.

Deselect the “Suppress DICOM messages” box to show any errors that do not interfere with image capture.




If DICOM is instead selected, the remaining menus must be used.

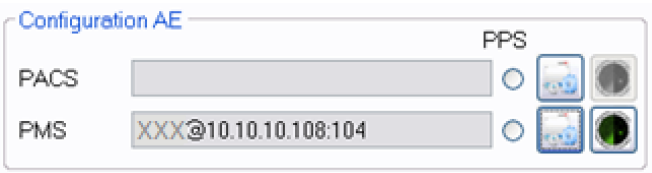



Figure 4-9: AE Configuration

Click the PACS or PMS button to open the following windows:

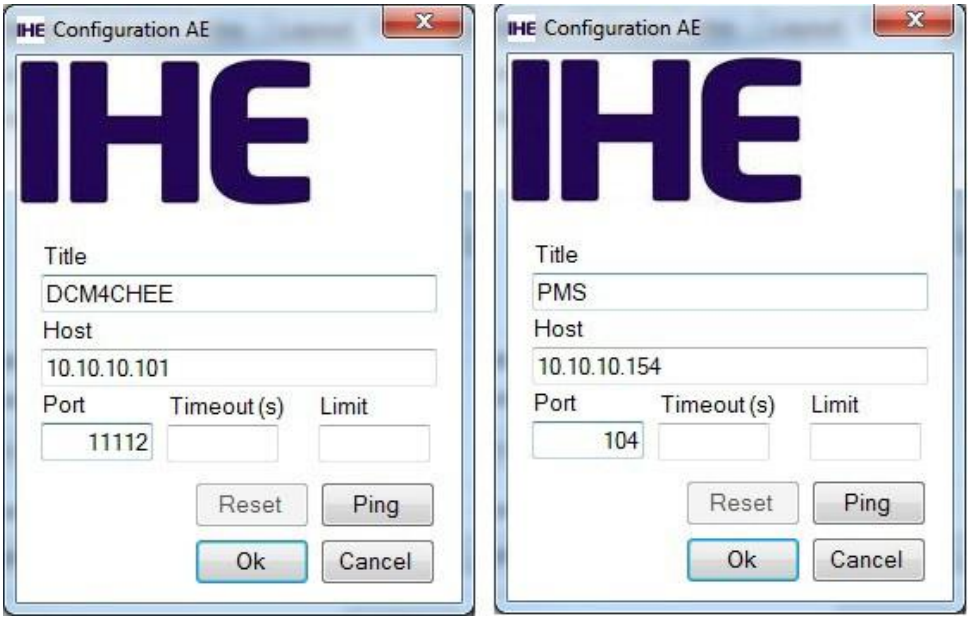



Figure 4-10: PACS and PMS Configuration

This window allows the user to identify the PACS system that will receive his information or the PMS system from which information may be requested.

In the relative fields enter:

- Title: PACS/PMS ID.
- Host: PACS/PMS IP address.
- Port: PC port to which PACS/PMS is referred.
- Timeout(s): maximum waiting time before disconnecting a call.
- Limit: for PMS configuration only, identifies the maximum number of exams that may be received. If the field is left blank, any number of exams may be received.

Clock [OK] to save the settings as entered; otherwise click [Cancel]. Click [Ping] to initiate a call to the

PACS/PMS system. Click [Reset] to remove PACS/PMS Setting

Under local you can configure the local Application Entity name and port.

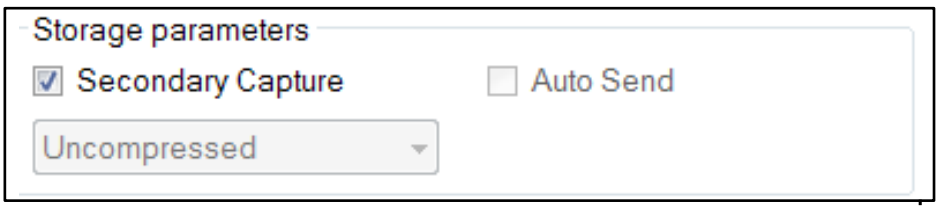



Figure 4-11: Save Parameters

The Storage Parameters allow the user to specify several data storage options:

- Secondary capture: by choosing this checkbox, the secondary capture will be sent, instead of the original acquisition. This is in fact the image that is shown in the gallery, created in a second moment, after original acquisition.
- Auto-send: by choosing this checkbox, AnaEyes will be configured to send images immediately after acquisition. This option is not available when secondary capture is chosen.
- Lossless: select this box to select the type of compression used for sending, in a 5% to 100% ratio in 5% steps, in .jpeg format. Otherwise, the files are sent in the original, uncompressed format. Note that this principal is based on a best-fi algorithm: when images are originally acquired uncompressed, all compression options can be performed; when the image is acquired lossless, it can be forwarded also lossy, but not uncompressed; finally , when the image is acquired lossy, it can't be forwarded other than lossy. This option is not available when secondary capture is chosen.

Figure 4-12: Java Runtime Environment

This parameter, defining the environment required for using the functions offered by DICOM, is configured at end of software installation.

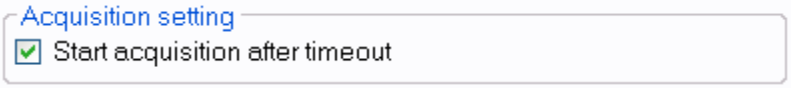



Figure 4-13: Choice time-out

## 4.7 Activations

In this section it is possible to upgrade the license of the software.
In the section Export it is possible to enable the data export to external applications.

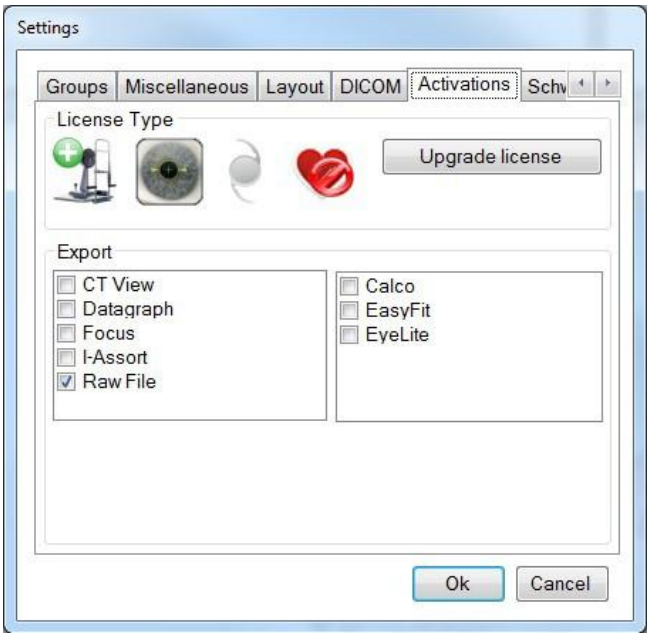



Figure 4-14: Activation settings

For a number of external applications it is possible to configure the export on the main gallery. The default can be chosen from the combo box. Check the reminder if you want a reminder message for exporting both eyes contemporarily to the external application.

### 4.8 Schwind

In the 'Schwind' section the user may configure some settings solely for Schwind exports. The back-up folder for schwind exports and the export file name format.

## 5. CAPTURE

The Capture icon goes active when a new exam is created or when an empty exam is selected. This function allows the user to select the instrument with which to capture the examination and to access the capture environment.

**Capture Screen Toolbar**

| BUTTON | SHORTCUT | ICON | FUNCTION |
|---|---|---|---|
| Laterality | - | | Automatic OD–OS recognition |
| Area of Interest | - | | Selecting only a part of image that want to view during the acquisition |
| Magnification 2X | - | | Allows to magnify 2X the acquisition screen |
| Screen resolution | - | | Sets image resolution to screen resolution. The options to fi image resolution to screen width or screen height are also selectable |
| Photo | Photo/Video button | | "Snapshot" capture mode |

**on video camera**

| | | | |
|---|---|---|---|
| Video | Photo/Video button on video camera | | "Video" capture mode |
| Settings | - | | Accesses video camera settings |
| Reset exposure grid | - | | It allows to insert the exposure grid during LIVE |
| Esc | - | | Exits the Capture screen |

Figure 5-1: Toolbar Buttons Summary

The screen shown below will open.

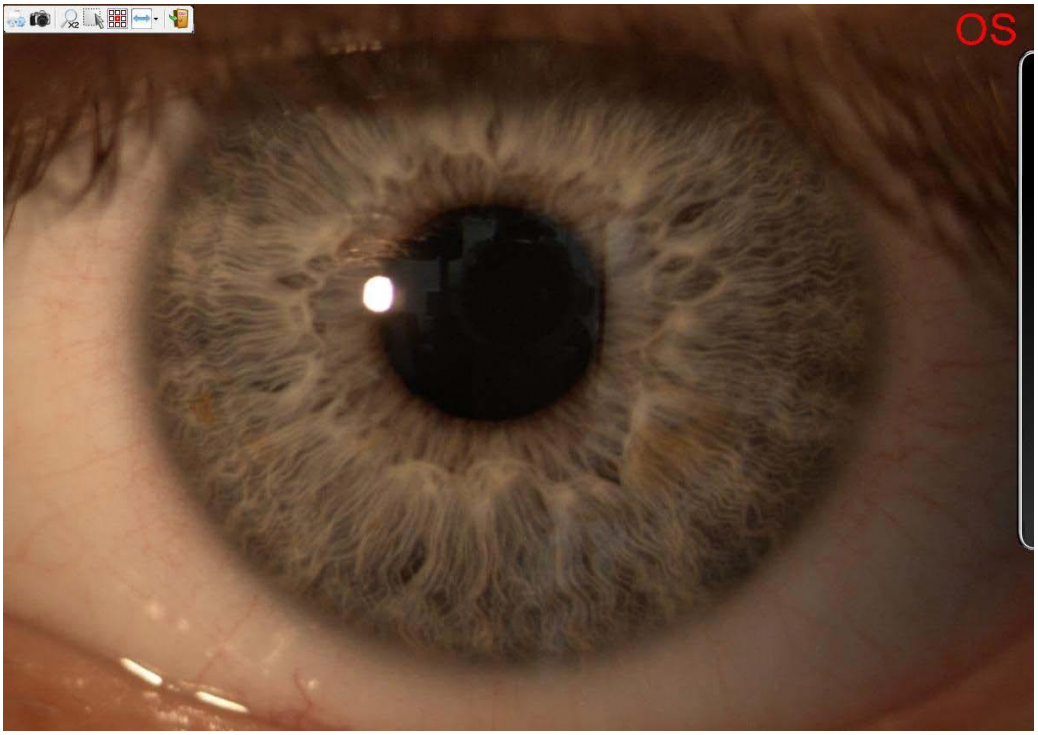



Figure 5-2: Capture Window

You can see  9 interest zones when you open the capture window. The exposure has been adjusted for the center area. To use an other zone select it with the mouse.

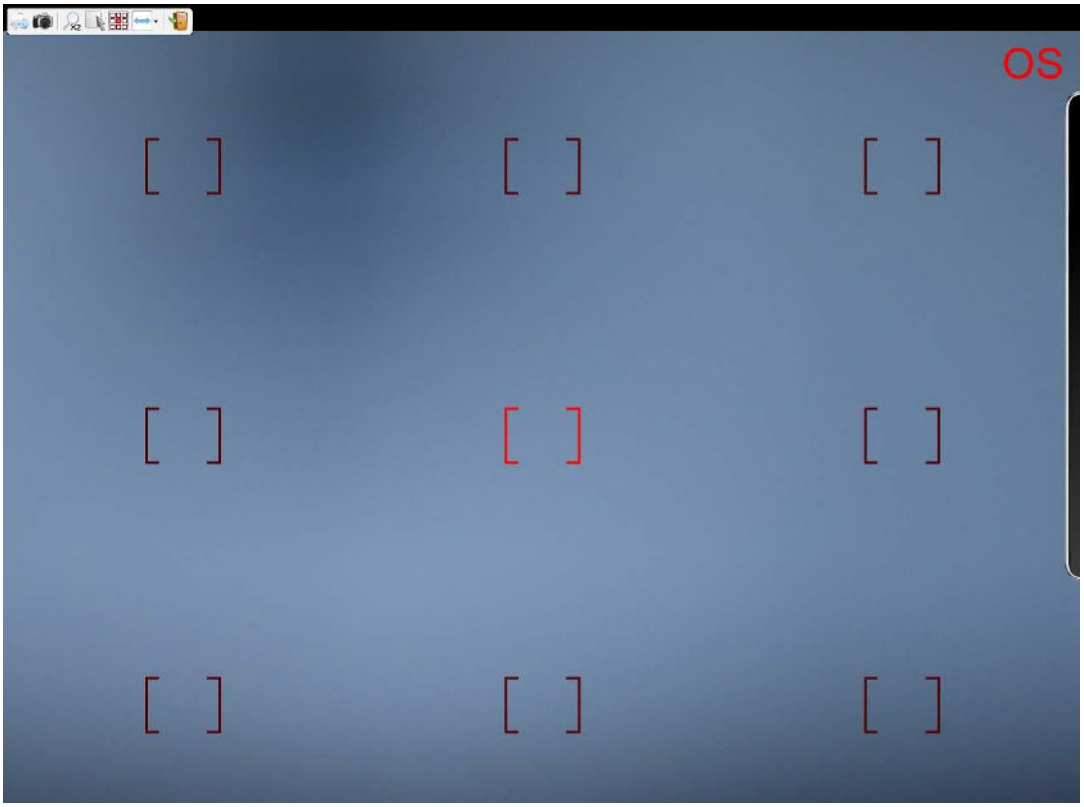



Figure 5-3: Interest zones

Click the on the right bar to view the commands relative to video camera parameters, on the right side of the screen.

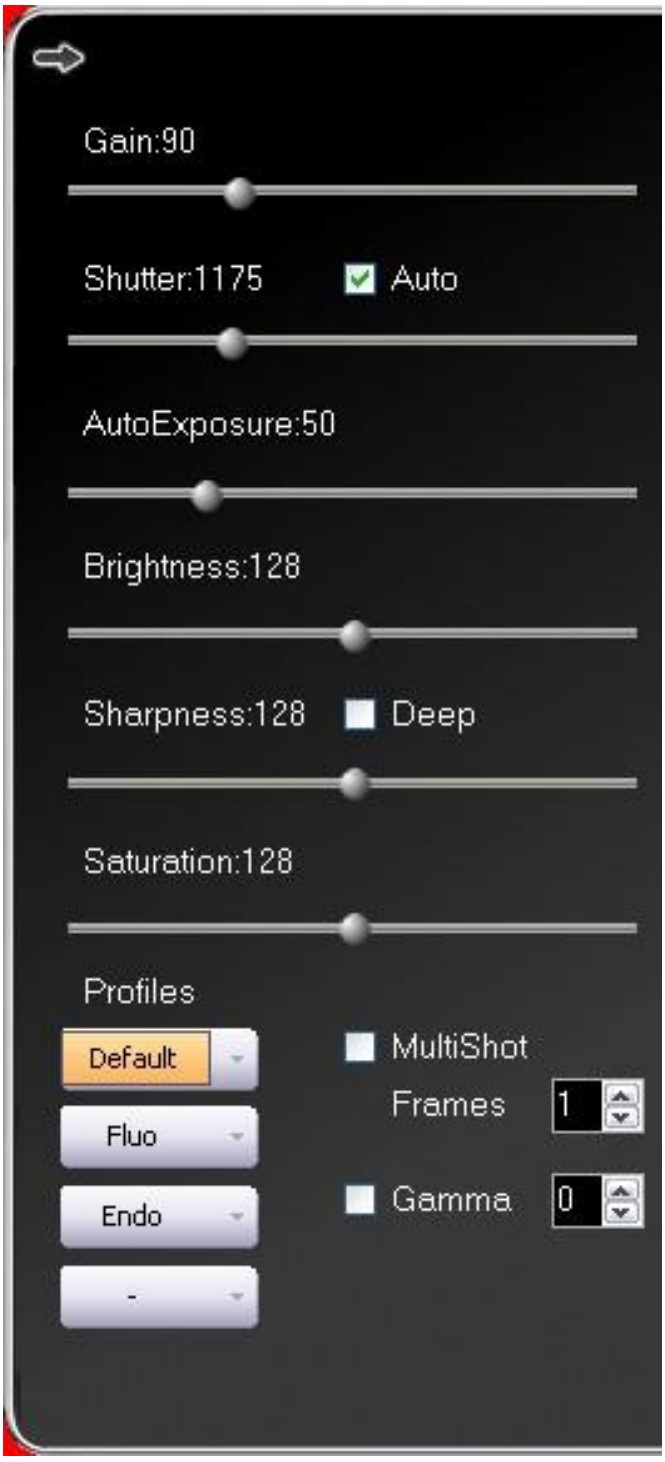



Figure 5-4: Settings Window

This panel is used for setting the video camera Gain and Shutter. If Auto is selected, the software will take automatic control of these parameters.

AutoExposure sets the average brightness for the image as a whole. In the Auto mode, the video camera tends to adjust Gain and Exposure in such a manner as to bring the AutoExposure value to the preset value. It goes without saying that there are situations in which the interplay of light and dark areas in the image can lead to excessive brightness in the lighter areas.

Figure 5-5: Profiles

You could enable a profile pressing REGS on the digital camera or clicking with mouse on the box.

To modify the configuration you need to open the menu and save or rename the modified done.

After you have selected the profile, edit the image parameters and press save.

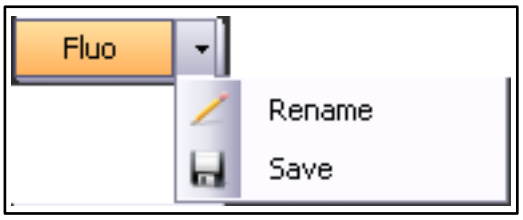



Figure 5-6: Rename or save profile

The user may create and save four different camera setting configurations.
The Profiles button on the digital separator panel activates one or another of these configurations

LIVE from the acquisition will be possible to retrieve the saved configuration by clicking the appropriate button and the camera will set the settings associated with the button.

The default profile contents the original settings of the camera and it cannot be modified

After you have modified and saved one of the three profiles, a small icon will be viewed.

Figure 5-7: Modified profile

In the menu will be added a new link “Restore” to return to default settings.

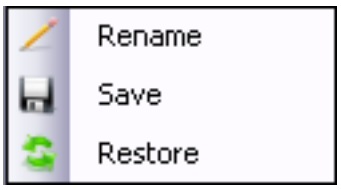



Figure 5-8: Restore default value

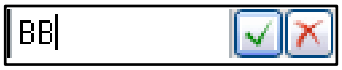



Figure 5-9: Set Configuration

The Multishot mode permits enabling capture of a number of images by a single joystick click. In this case select the numbers of images between 1 and 7.

Figure 5-10: Mutlishot

Selecting the Gamma check-box, enable the gamma correction modifying the value.

Figure 5-11: Gamma correction

Selecting the Deep check-box you can use the max value of sharpness to obtain a good definition.

Figure 5-12: Gamma correction

## 5.1 Capture settings

Press the button to open the capture setting.

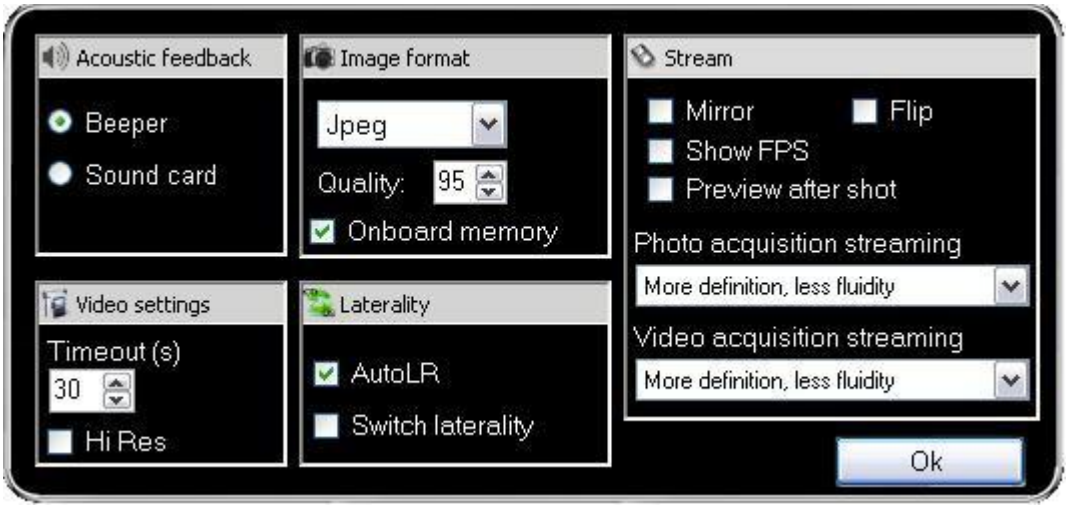



Figure 5-13: Capture settings

**Acoustic feedback**

It allows to select the acquisition acoustic feedback.

**Image format**

You can choose the image extension, Tiff, Png or Jpeg.

The Quality cursor is enabled only for Jpeg, so you can choose the level of image quality.

The “Onboard memory flag” allows better photo acquisition

**Video settings**

Timeout(s) is the maximum duration of a movie.

Hi-res flag enables hi-res videos at 1280x960, anyway a fast cpu is required in order to reduce the loss off luidity.

**Laterality**

Selecting Auto LR it is possible the automatic laterality L – R. Unable the Auto LR, you can choose the laterality

during the acquisition pressing the laterality button

and then acquire using the joystick. Switch laterality allows to invert the laterality.

**Stream**

Choose Mirror to switch left and right on the camera’s sensor

Choose Flip to switch up and down on the camera's sensor  Choose

Show FPS to show the camera's frame rate while in live

Preview after shot shows the acquired photo on-screen just after being shot

Photo acquisition streaming and Video acquisition streaming provide for combo boxes where you can choose for both acquisition modes whether the streaming should be in full resolution
(more definition, less fluidity or lower framerate) or reduced resolution)
(less definition, more fluidity or higher framerate)

### 5.2 Photo Capture

Before beginning photo capture, first check that the correct toolbar icon is active: .

Press the joystick button to capture the image. The eye in question (left or right, OS – OD) will be automatically detected. Up to 24 images may be captured for each examination.

### 5.3 Video Capture

To capture videos, press the Photo/Video button on the camera. The toolbar icon will switch to .
Selection may also be accomplished by simply clicking the toolbar icon.
Press the joystick button to start filming (video capture); press again to stop.
If video capture does not stop for any reason, the capture mode will close automatically at the end of the preset Timeout time.

## 6. IMAGE GALLERY MANAGEMENT

Double-click any image in the gallery to open the image management and processing screen.

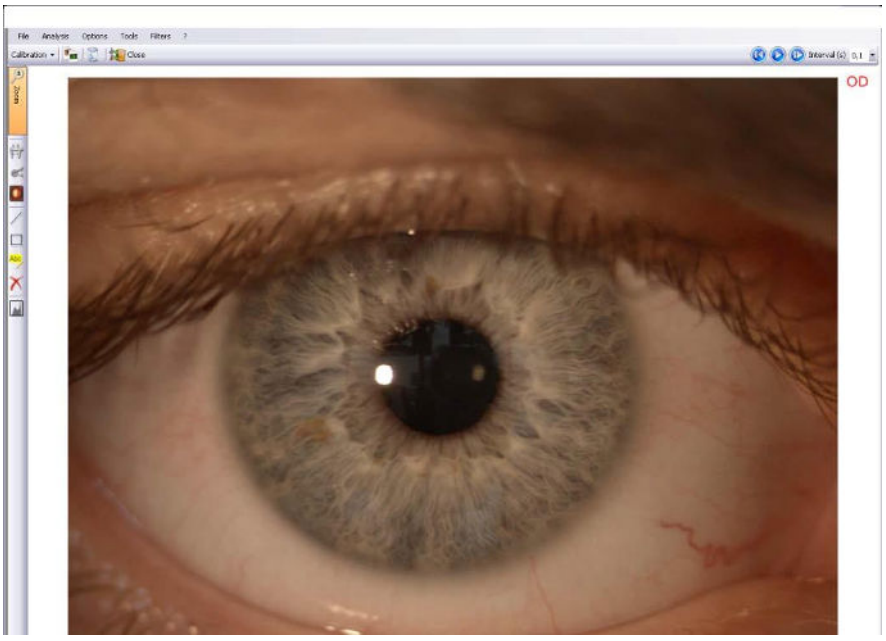
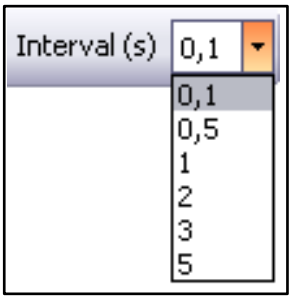


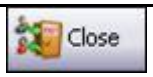

Figure 6-1: Image Management Window

The and buttons may be used to view the gallery images.

The button may be used to scroll all the images at selected time intervals, varying from 0.1 to 5 second.




### 6.1 Toolbar buttons Summary

| BUTTON | KEYSTROKE SHORTCUT | ICON | FUNCTION |
|---|---|---|---|
| Compare | - | | Compares two or more mages from the gallery. |
| Full screen | F11 | | Adapts to full screen the elaboration window |
| Delete | CANC | | Deletes the displayed image. |
| Calibration | - | | Creates and assigns new calibrations. |
| Close | - |   | Closes the image management screen and returns to the gallery. |
| Zoom | - | | Shows the image enlargement percentage with respect to original image size. |
| View measure buttons | - | | View the toolbar for the measurements |
| Distance | - | | Measures distances in pixels or mm. |
| Angles | - | | Measures angles, in degrees. |
| Cup to disc ratio | - | | Calculates ratios between two circular areas defined by the user in terms of surface area and diameter. |

| | | | |
|---|---|---|---|
| Line | - | | Draws a line on the image. |
| Rectangle | - | | Draws a rectangle on the image |
| Text | - | | Allows the user to overwrite the image with a line of text. |
| Delete | - | | Removes the graphics and text added to the image. |
| Scroll Back | PgDn | | Scrolls backwards through the gallery images. |
| Scroll forward | PgUp | | Scrolls forward through the gallery images. |
| View Series | - | | Scrolls and displays the gallery images automatically, at the time interval set by the user |

## 6.2 Menu bar

The menu bar at the top of the main screen lists the following menus:

Figure 6-2: Image Management Menu

### 6.2.1 file

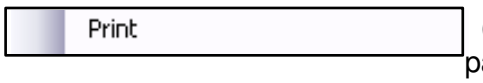
The File menu is composed of 6 submenus, as described below:

(Save screen as image) Takes a snapshot of the current screen.

(Save image) Saves an image in a user-selected format: (JPEG, BITMAP, GIF, PNG, TIFF).

(Close) Returns to the main window.

(Print screen) Prints the screen containing the image.




(Print) Prints up to 4 images chosen by the user, on a single page (see Section 7, Printing);

(Esc) Exits the program.

### 6.2.2 analysis

The Analysis menu allows the user to access the Comparison feature for comparing up to six different images and then returning to single-image display.

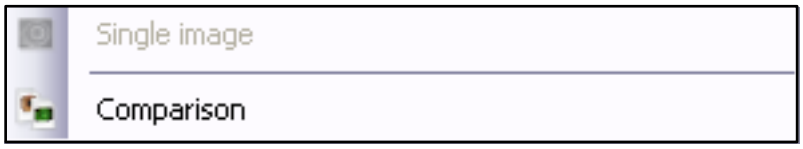



Figure 6-3: Analysis Menu

When a single image is displayed, the relative menu item is not enabled.
Select Compare to access the screen that permits selecting images for comparison.

The comparison screen may also be accessed by clicking the button on the toolbar.

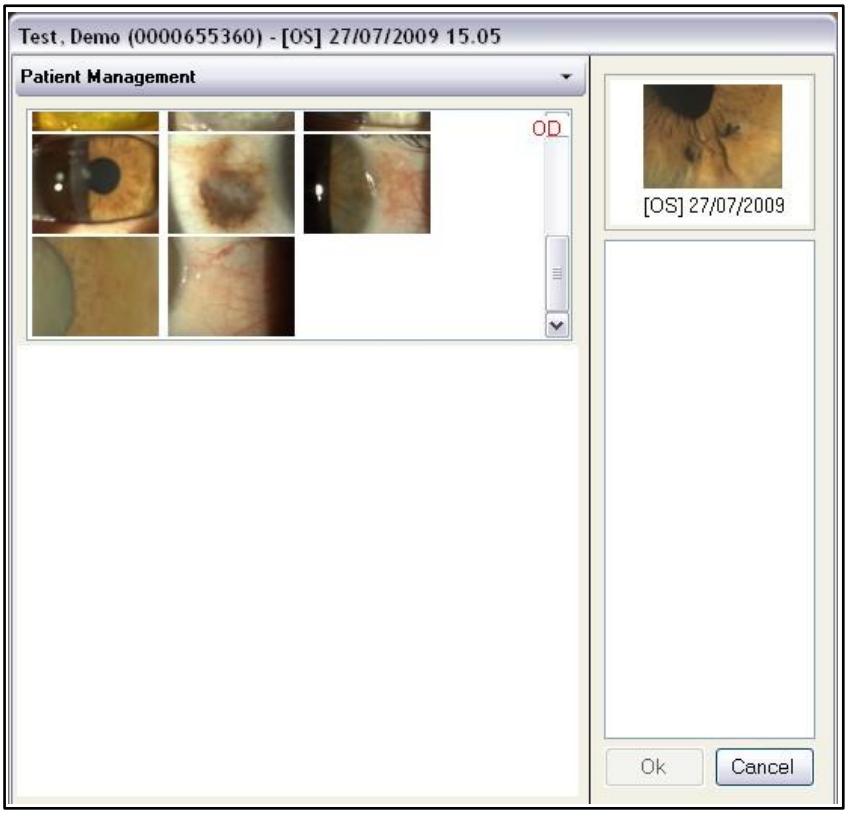



Figure 6-4: Selecting Images for Comparison

Double-click gallery images to display them in the right-hand column before they are displayed all together in a single screen view.

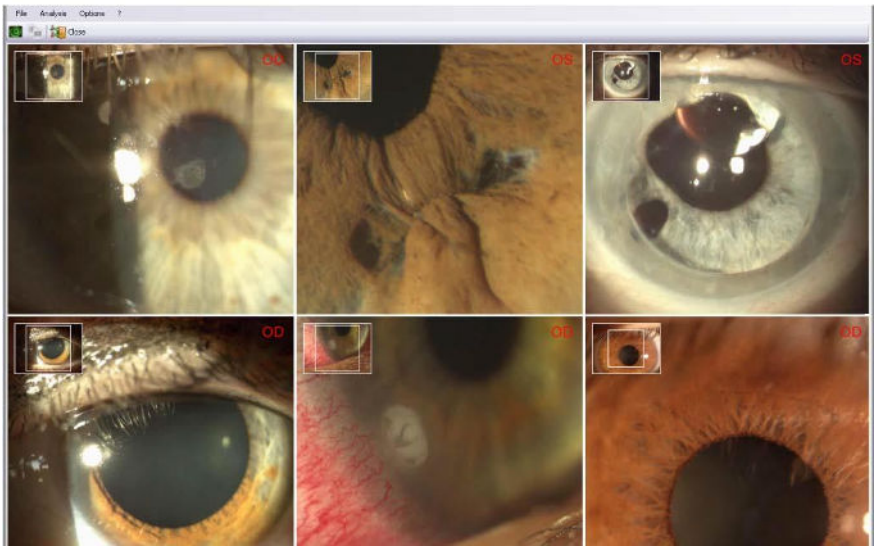


Figure 6-5: Image Comparison

The File menu in this screen reiterates the same functions described in Section 6.2.1.
The Analysis menu disables Compare and re-enables Single Image.

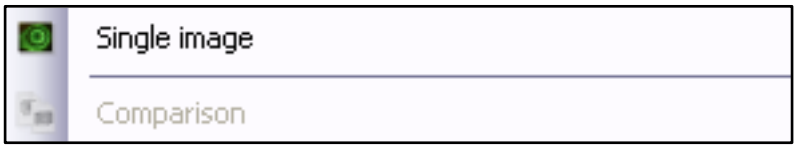



Figure 6-6: Single Image

### 6.2.3 Options

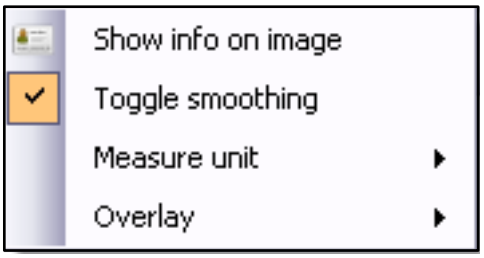
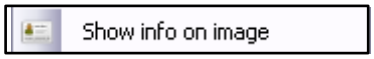
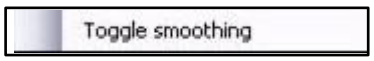



Figure 6-7: Options Menu

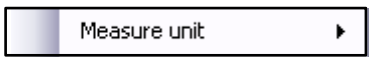
The Options menu contains 4 submenus:




Displays general information on the patient and the examination in question.




Eliminates the pixelating effect that appears when the image is greatly enlarged.




Allows the user to choose the measurement units for linear measurements, expressed in mm or microns.

Opens two submenus for:

- changing the text font
- changing the width of the line used for drawing (line size).

### 6.2.4 Tools

See Section 6.1 for the Tools menu functions.

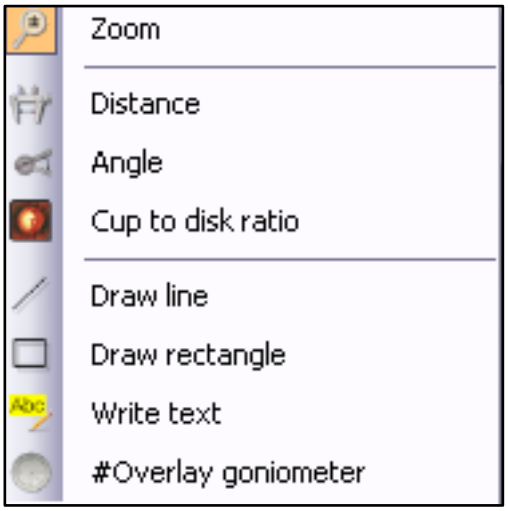



Figure 6-8: Tools Menu

Overlay goniometer

Select this option to put a goniometer clicking in the image.

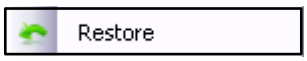
### 6.2.5 filters

This menu allows the user to modify the image color and brightness characteristics:

These three submenus permit the user to modify the image brightness, contrast, and correction range: simply select a function and scroll the mouse wheel.

Select a color to vary the percentage of red, green, or blue in the image.

Opens two submenus for inserting a yellow or a cyan filter over the image.

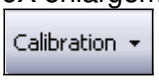


Restores the original values present in the image as captured.

## 6.3 Calibration

### 6.3.1 Creating a new calibration

The user may create a calibration set based on the enlargement ratio, for facilitating linear measurements.

Use a grid paper as your slit lamp target (for example, graph paper with 1-mm divisions). Capture an image of the target at 15X / 16X enlargement and save it in the gallery. Open with double click with the mouse the image and press the 

toolbar button.

Select

(calibrate with this image).

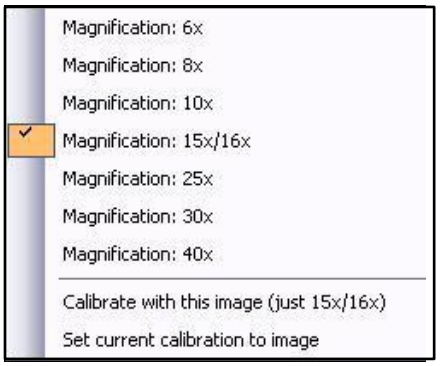



Figure 6-9: Calibration Menu

The screen shown below will appear. On this screen, the user must make the red grid coincide with the squares on the graph paper. Drag the white squares at the corners of the red grid until it coincides with the real measurement of the graph paper. Each red square measures 1 mm x 1 mm.

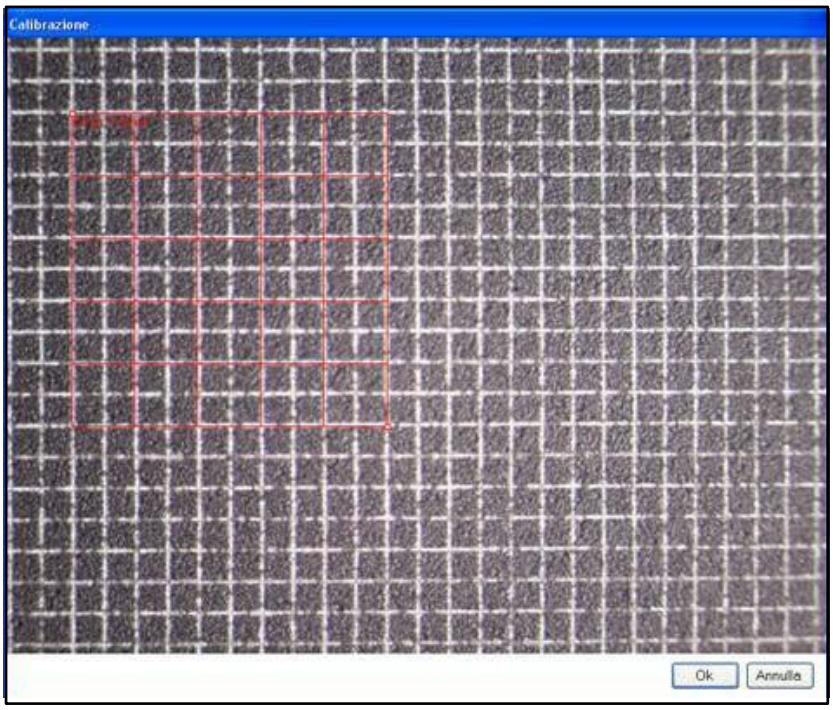
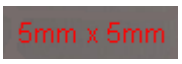



Figure 6-10: Millimeter Grid

Figure 8-9 shows capture of a calibration target divided into squares of 0.5 mm x 0.5 mm size.

The 

message box reports the measurement of the grid as a whole.

If need be, the whole-grid measurement may be modified by scrolling the mouse wheel. When the grid is correctly positioned, click the OK button.
To assign the calibration thus obtained to all the images contained in the examination in question, click YES.

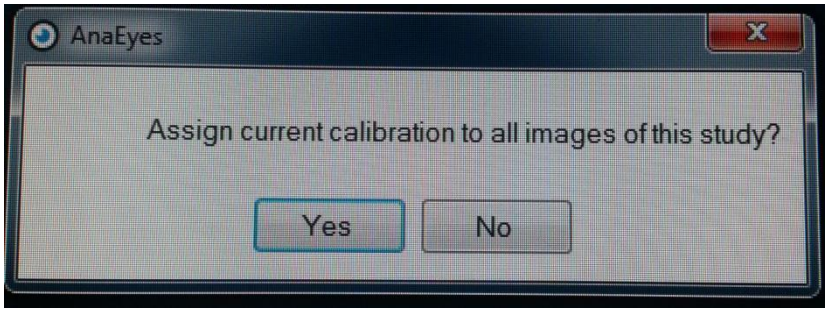



Figure 6-11: Assigning a Calibration

### 6.3.2 Measurements

Open the image, press the calibration button and select the magnification of the image captured.

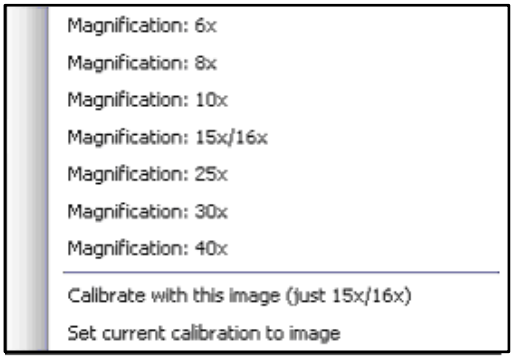



Figure 6-12: Select the magnification

After having associated a calibration with an image, the user may make linear measurements by clicking the

button on the toolbar.

Measurements may be made in mm or in microns (Options menu, 6.2.3).

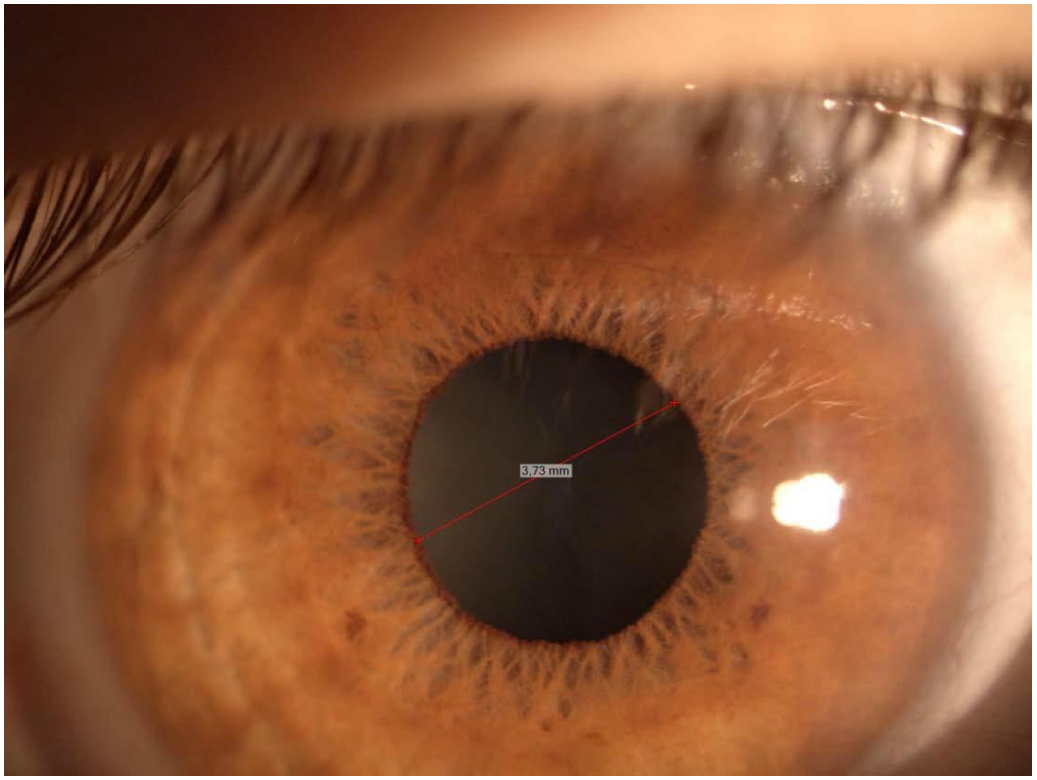



Figure 6-13: Measurement in Millimeters

Before to perform the linear measurements, We advice to check if the calibration is good or not. Capture more images of the grid paper using different magnification and check if the measurements are correct.

**warning: The measurements supplied by the software are subject to many variables. for this reason they must be considered as purely indicative. Evaluation of any measurement should be entrusted to competent medical personnel. CSO declines any responsibility for damages/injuries caused by use of the measurements.**

### 6.4 Playing video

Clicking on the gallery image you will play the video.

To save the video, open the menu with right-click of the mouse and select save. The video will be saved in the selecting path.

With double-click of the mouse you will see the video management (using Windows Vista this function is disabled).

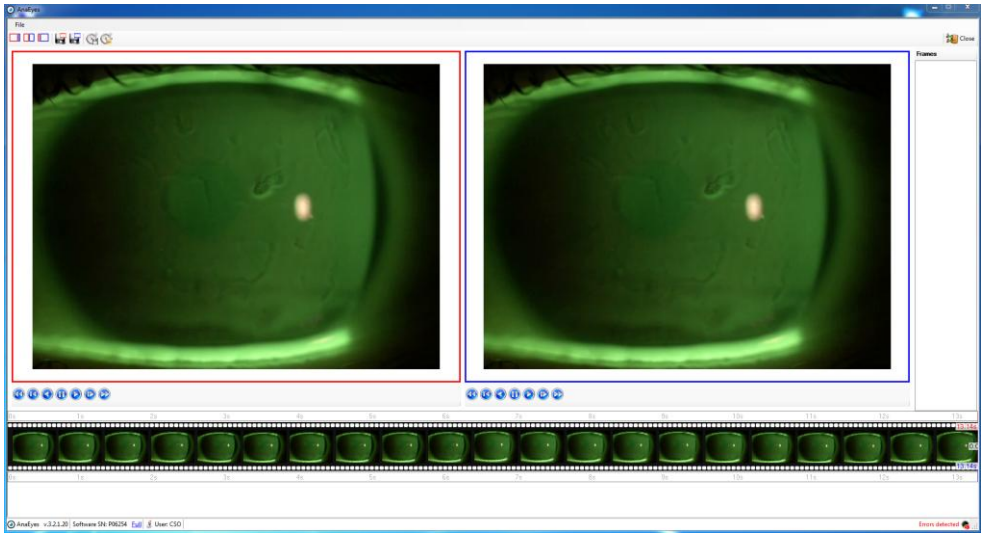


Figure 6-14: Video management

In the gallery you will see the frames of the video. It is possible to see two different frames together in the same window. The red square regards the first frame and the blue square regards the last frame.

You can see all the frames using the toolbar . You can see the time between 2 frames.

Shows the red square image.

Shows the blue square image.

Shows the 2 images.

Allows to save the red square frame.

Allows to save the blue square frame.

Saves the time range.

Loads the time range.

The frames were saved in the right vertical gallery.

(Save screen as image) Takes a snapshot of the current screen.

(Close) Returns to the main window.

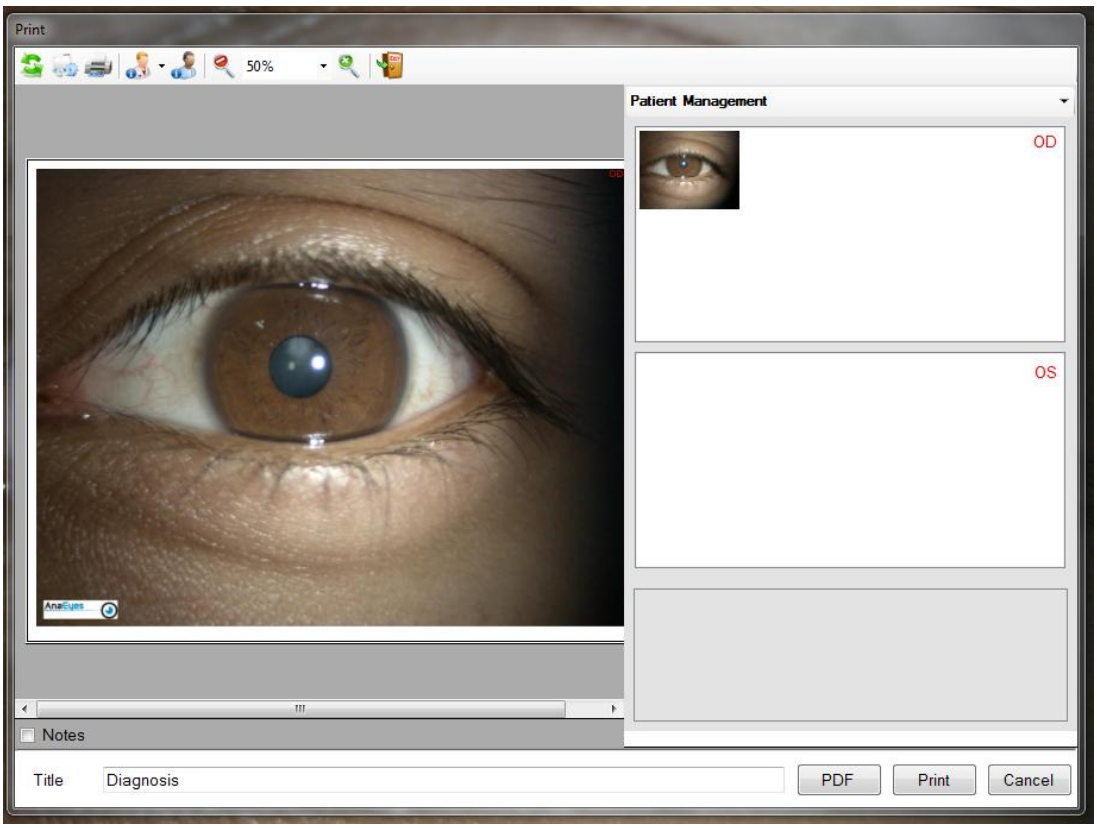
(Print screen) Prints the screen containing the image.

(Esc) Exits the program.

## 7. PRINTING

The user may print a single image or multiple comparison images.

Select Print 6.2.1 from the File menu to open the screen for selecting the images to be printed.



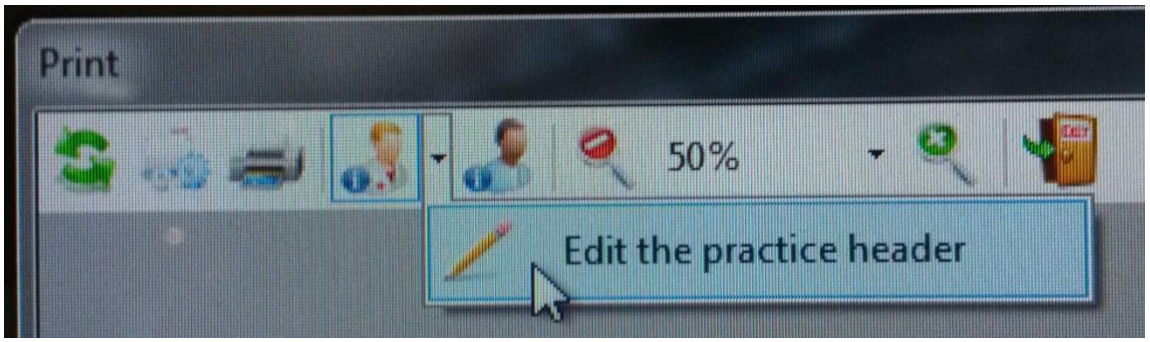




Figure 7-1: Selecting Images for Printing

Select the images to be printed by double-clicking images in the gallery on the right-hand side of the screen. The selected images will be copied into the lower right-hand corner of the screen.
Printing is possible only if a printer is connected to the instrument.

The image/s may be printed on paper (Print button) or converted to PDF format (PDF button).

In the first case, the PC must be connected to a printer.

In the second, the user may choose the file destination: desktop or gallery.

Click Yes or No.

### 7.1.1 Printing Toolbar

| | |
|---|---|
| Update | Refreshes the print preview image to show modifications. |
| Options | Permits changing the print settings. |
| Print | Prints the page shown in the Preview. |
| Enlarge – Reduce Preview | Enlarge – Reduce Preview (%) of the image. |
| Show/Hide Heading | Displays or hides the heading (if inserted) and relative logo. |
| Edit Heading | Permits changing the text of the heading and the logo: click the button to show the heading data entry/change form (Figure 7-2). |
| Patient header | Print the patient header |
| ESC | Exits the Printing window. |

## APPENDIX A.

## IMPORT-EXPORT EXAMS

### a. Exporting an examination

Exporting an examination or a patient, select with right-button of the mouse on the examination and click export.

Figura 8-1: Export examination

You will see the editing screen of the anagrafic data to be exported.

Edit the data if you want and select OK.

It will be exported the file.zcs.

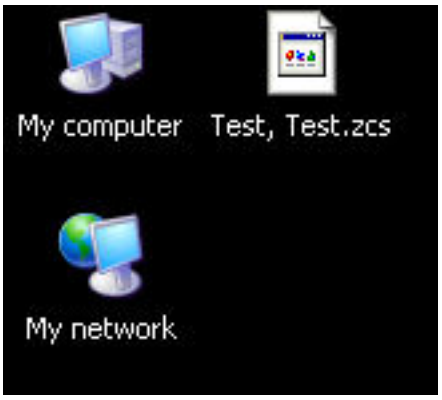



Figura 8-2: File esportato

### b. Importing an examination

To import a previously exported file.zcs, you must open the archive containing the file, and drag the column occuped by the patient list, as shown in the next window :

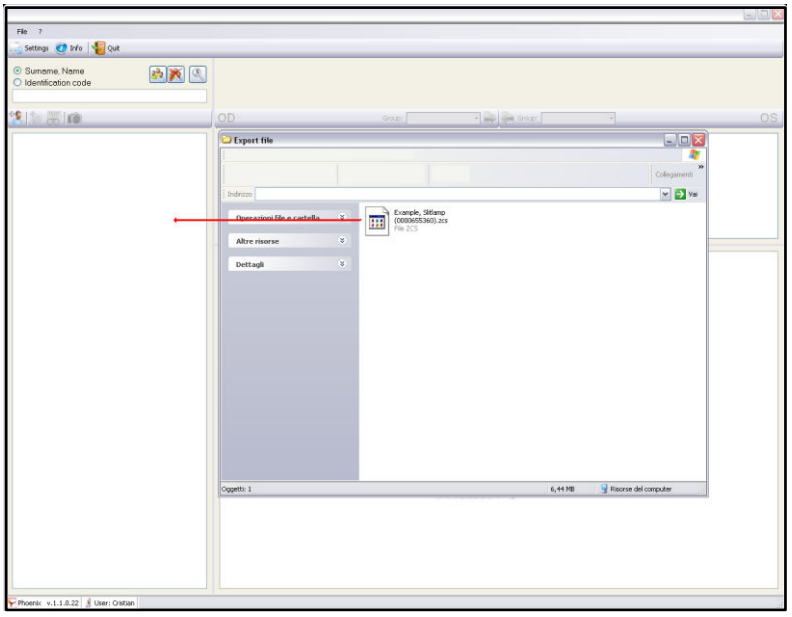



Figura 8-3: Import file

Wait a few seconds and the patient will appear in the list.

## APPENDIX B .SAFETY

For data security, please refer to the management of Windows security.
It is recommended to enter a password to access the account used.

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