



IMAGEnet i-base

USER MANUAL

This manual is based on i-base advanced.
It will be mentioned if other licenses are required.

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Topcon Europe Medical B.V.
11- 2908 LJ Capelle a/d IJssel
The Netherlands


C € 0344

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Start IMAGEnet i-base

Login

To startup IMAGEnet ibase double click the shortcut icon  on your desktop. The IMAGEnet ibase login window will appear.(Fig.1)

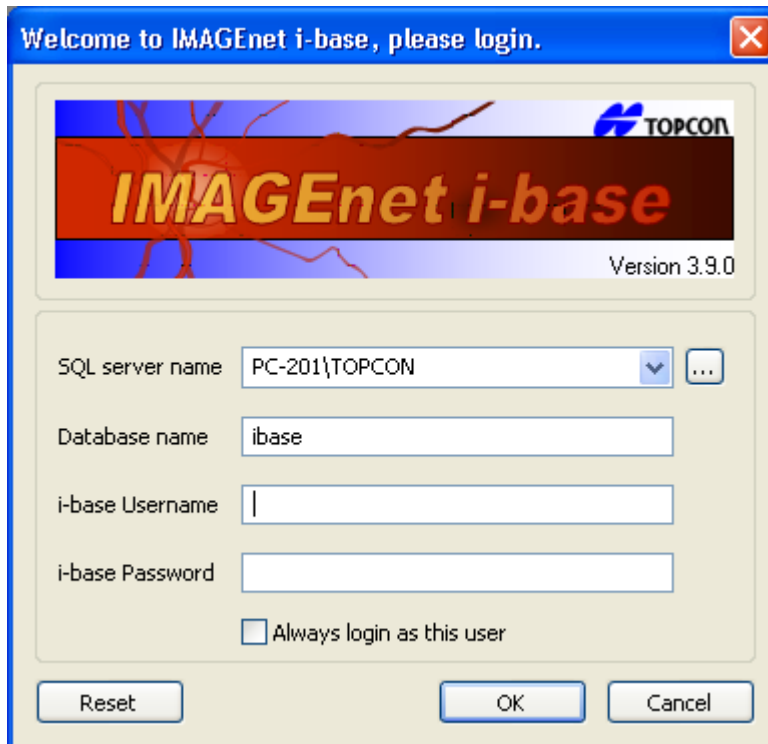


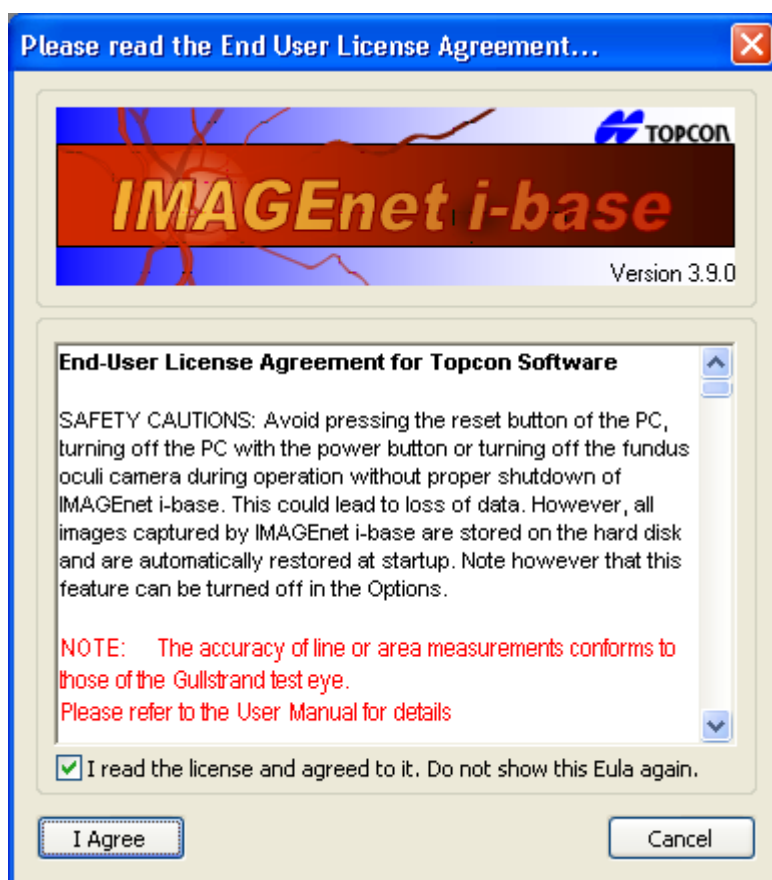
Fig.1

If only one IMAGEnet i-base user is active on this pc, you can mark “Always login as this user”

After filling in all necessary fields as displayed in Fig.1 click→**OK**

As Default the database name is “ibase” username and password are “ibaseAdmin”. If these parameters are not correct to login please contact your dealer.

Agree license agreement

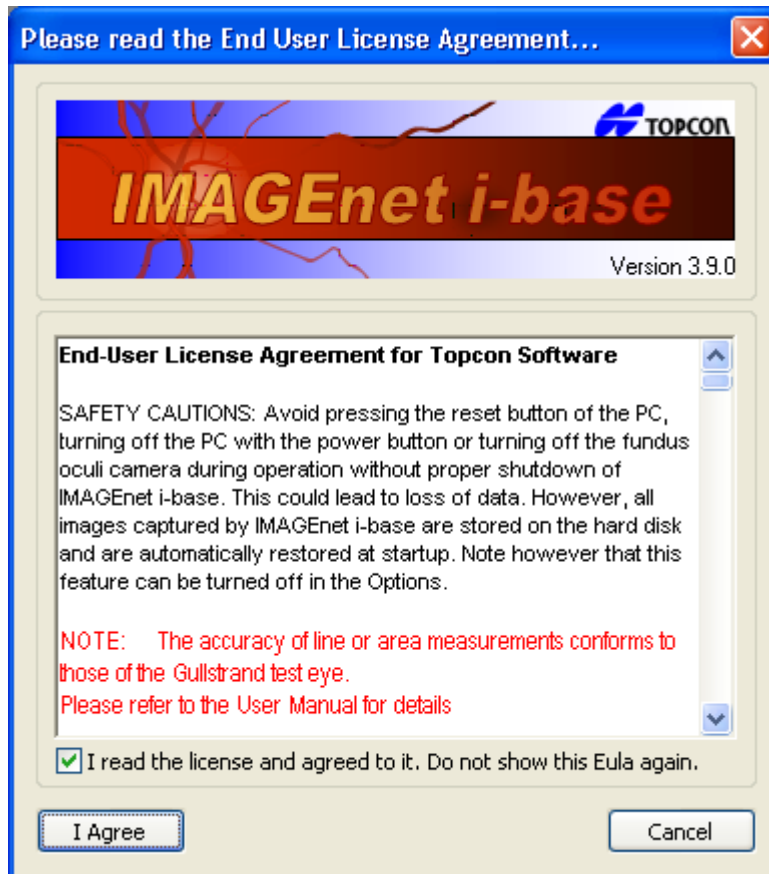


Read the end user license agreement for Topcon software and Press “**I Agree**” to continue with ibase.

Risk controls related to the instructions for use


The end-user is notified at start-up of the software with the text-box as shown below. This text-box will always show after start-up of the application.

The EULA and Notifications will be shown to all (new) users until they agree to it.



Measurements in fundus images

The accuracies for all measurements are estimated to be 10 %

| | |
|--|--|
|  CAUTION | The accuracy of line or area measurements conform to those of the Gullstrand test eye. |
|--|--|

Measurements in OCT datasets

The measurement function on the OCT images – caliper function – is enabled for Posterior Segment images and can be used for Cornea Thickness measurements on Anterior segment images.

The following table gives an overview of the applied measurement function:

| | Vertical measurement | Horizontal measurement |
|----------------------------|------------------------------|------------------------------|
| Anterior | Applied for Cornea Thickness | Applied for Cornea Thickness |
| Posterior (Hand-held lens) | Applied | Not applied |
| Posterior (FV-1L) | Applied | Applied |

Posterior measurements

In case of Posterior Segment images the vertical axis i.e. depth axis or z axis is always enabled and independent of the optics used. The horizontal component of the measurement function strongly depends on the magnification of the optics, and on the alignment of the components in the optical system. Since the alignment can not be guaranteed for hand-held lenses, the horizontal component is only enabled when the Fundus Viewer FV-1L is used.

A combination of vertical and horizontal component allows the user to measure free-forms on the OCT images.

The system tolerances of the measurement components are:

Vertical Measurement is a summation of pixels where the size of each individual pixel is 4.2 μm with an error < 2%.

Horizontal Measurement is a summation of pixels where the size of each individual pixel depends on the optical magnification. The error of the measurement component is <10% for the central region of the retina. The central region of the retina is defined as an area with a radius of approximately 4 mm around the fovea.



CAUTION

The horizontal component of the measurement function depends on the relation between the optics settings i.e. magnification of the slitlamp and hand-held lens AND the settings selected in the application plug-in. The horizontal measurement function is not reliable if this is not set correctly by the user.



CAUTION

The accuracy of the horizontal component of the measurement function is based on the Gullstrand Eye conditions.




Anterior Top of Cornea measurement

In case of Anterior Segment images the vertical axis i.e. depth axis or z axis is always enabled and independent for the optics used. The horizontal component of the measurement function strongly depends on the magnification of the optics, and on the alignment of the components in the optical system. Since the alignment can not be guaranteed for all the possible variation of the position of the Slitlamp in relation to the position of the anterior segment of the eye, the horizontal component is only intended to be used as part of the measurement of the Cornea Thickness, where the error contribution of these effects are limited.

In order to perform this measurement take an image by aiming at the centre of the pupil and adjust the SL SCAN-1 alignment until you find the optical reflex, that will be clearly visible as a bright vertical line in the SL SCAN-1 image. Usually this is done by moving the slitlamp up or down a little.

When you find the optical reflex, press the trigger to take an image. You will need to save this image to be able to measure on it. Measurement will need to be done just next to the optical reflex.

Top of Cornea measurement is a summation of pixels where the size of each individual pixel depends on the optical magnification. **The error of the measurement component is < 5% for the central region of the cornea.** The central region of the cornea is defined as an area with a diameter of approximately 4 mm around the centre of the pupil.

| | |
|--|--|
|  CAUTION | Anterior measurement is intended for central cornea thickness measurement only. |
|  CAUTION | The horizontal component of the measurement function depends on the relation between the optics settings i.e. magnification of the slitlamp AND the settings selected in the application plug-in. The measurement function is not reliable if this is not set correctly by the user. |
|  CAUTION | The accuracy of the Top of Cornea measurement function is based on comparison to OCT 2000 FA plus and measurement of glass plates of known thickness. |

IMAGEnet i-base layout's

Move and dock windows and bars in i-base

To show the different windows, toolbars and other menu's you can select and de-select all option from the View menu in the windows tool bar.

Within ibase you can move and dock bars and windows by selecting and hold with the mouse pointer a bar and drag it to the top, bottom, left and right of you window. By double click with the mouse you can dock and undock the bars. Example of the view layout (Fig.2)

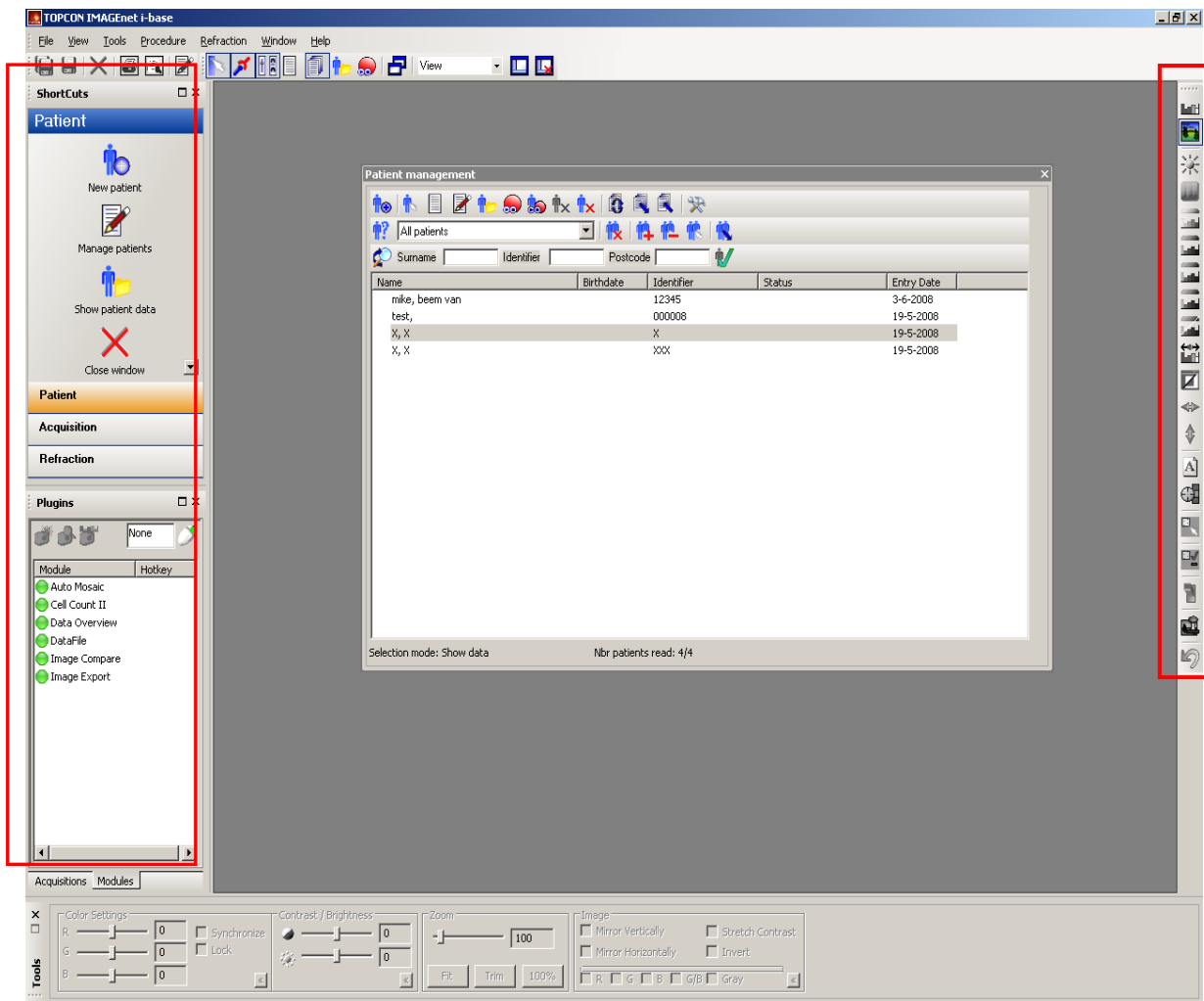


Fig.2

Note ! IMAGEnet i-base will remember his last created overview

Create the default i-base layout

Change the layout and select “Save current layout as the default layout” from the menu bar → View → Save current layout as the default layout (Fig.3)

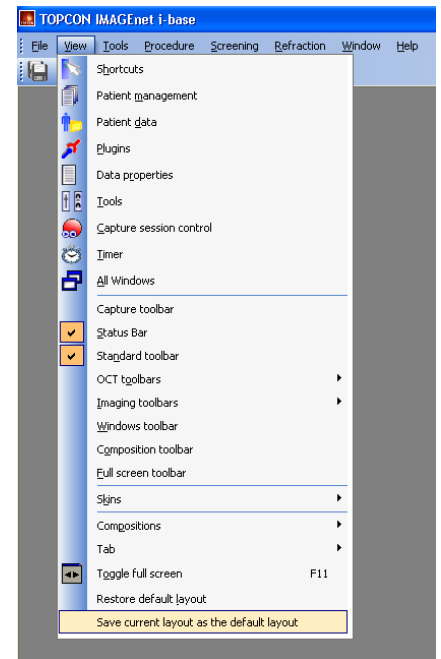


Fig.3

Select the default i-base layout

To start with a default layout, go to the general options from the menu bar → File → Options. Enable the option “Always startup i-base with the default layout” (Fig 4).

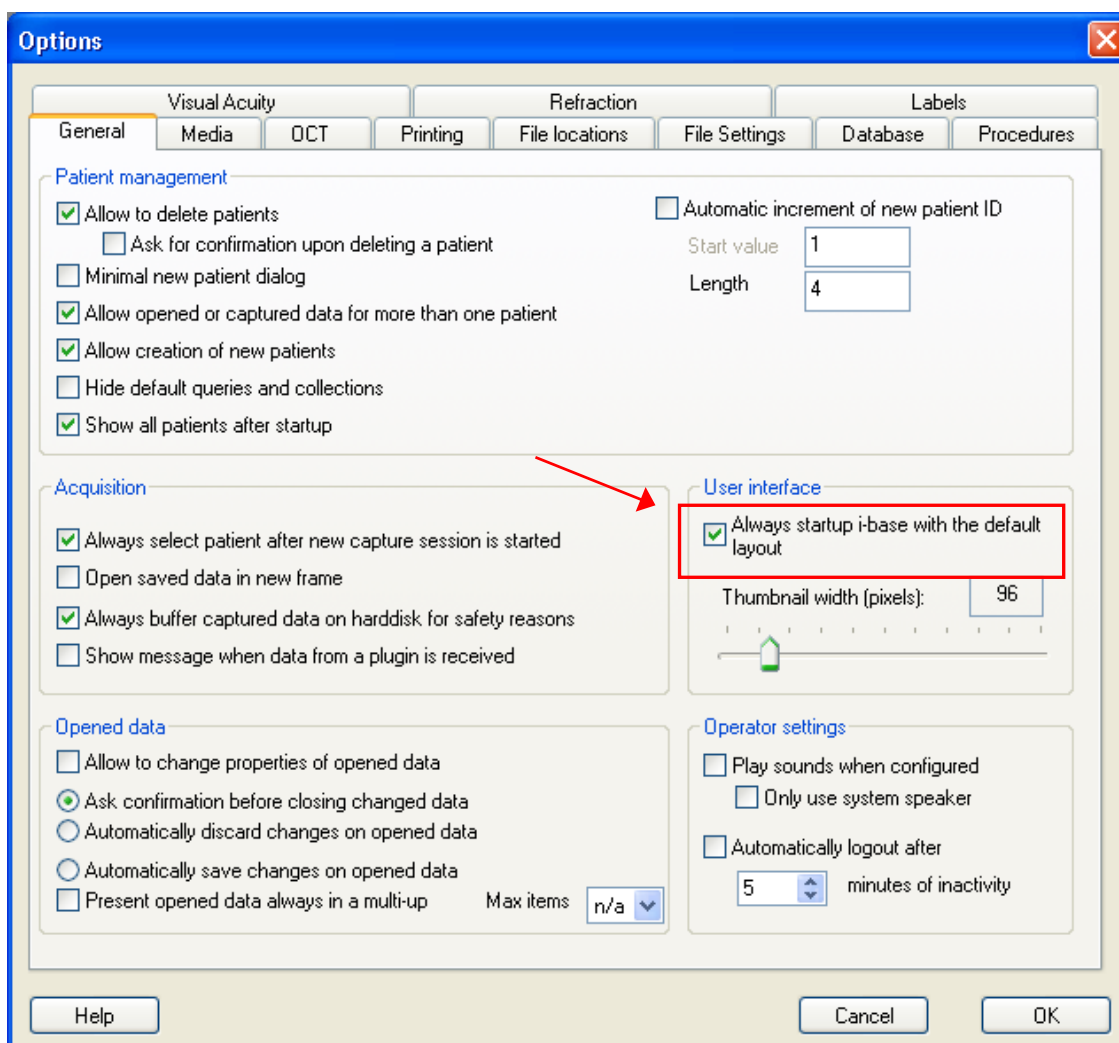


Fig 4

Create your own layout

To personalize your own layout you need at least some standard windows, for example we will create a layout for Capture sessions.

We need the following bars and windows:

1. standard tool bar
2. windows tool bar
3. image process tool bar
4. status bar
5. capture session control window (only with eyedoctor license)
6. Shortcuts window

To save your layout type a name (Capture) in the windows toolbar layout menu and press the save button next to it. (Fig.5)

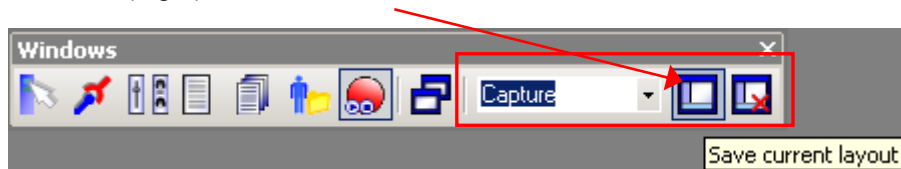


Fig.5

To create a layout for viewing images or data, we need at least the following bars and windows:

1. standard tool bar
2. windows tool bar
3. image process tool bar
4. Patient management window
5. Plugin bar

To save your layout type a name (View) in the windows toolbar layout menu and press the save button next to it. (Fig.6)

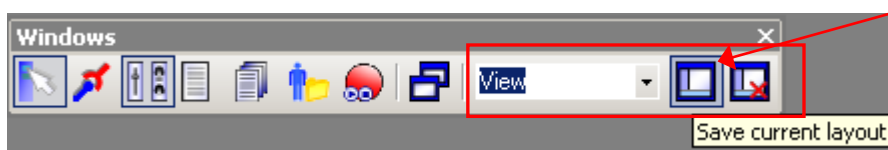


Fig.6

To switch between different layout use the dropdown menu and select the layout you prefer. (Fig.7)

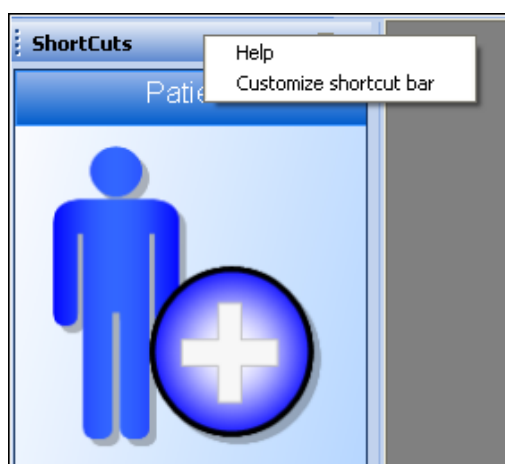


Fig.7

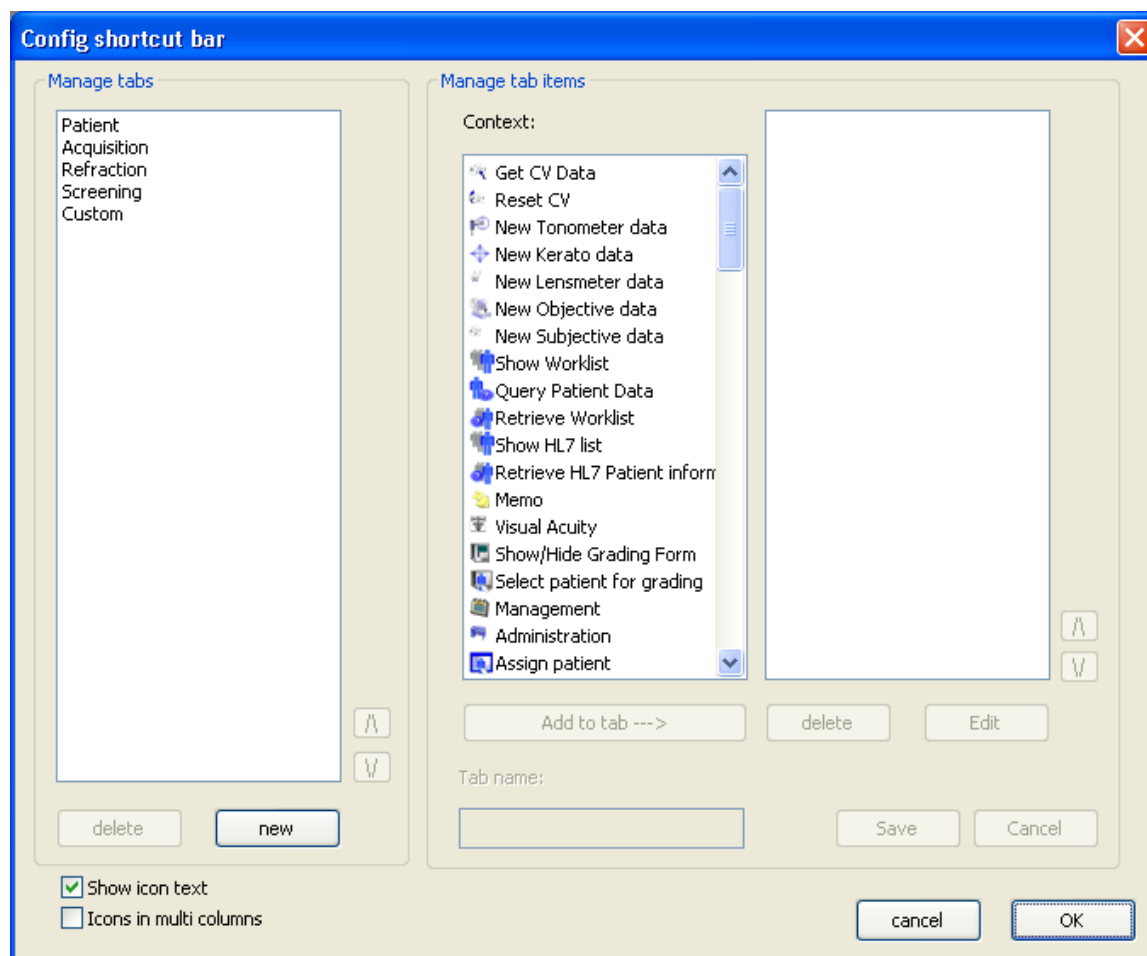
Shortcuts Window

If you want to make the buttons smaller or bigger in the Shortcuts windows, just hold down the Control key on your keyboard and click one time in an empty space on the Shortcuts window. Now scroll with your mouse wheel while still holding the control key.

To customize the shortcut bar right click on the shortcut bar and click "Customize shortcut bar".



A screen appears to configure the tabs:

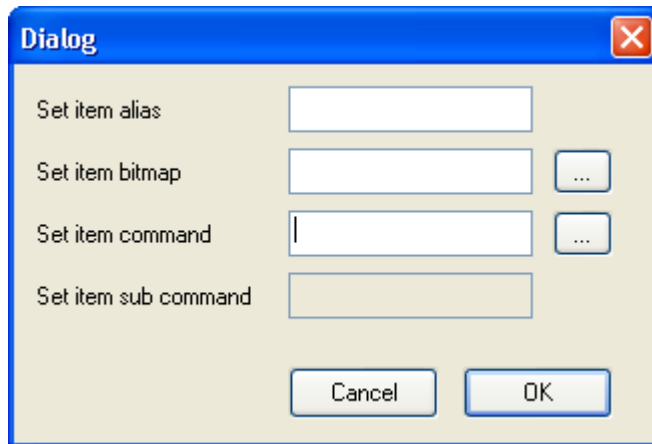


Add a tab

To add a new tab press "new" and enter the name of the tab. Add item(s) by clicking an item and then the button "Add to tab --- >" or double click the item. Press "Save" when you are satisfied with the new tab.

Modify a tab

To modify a tab, just select the tab name you want. Now it is possible to add, delete or modify the items in this tab. Modifying of the items in tab can be done with the "Edit" button or double click. A new dialog appears where it is possible to change the text and the icon of the item. Press "Save" when you are done.



Delete a tab/item

To delete a tab/item select the tab/item name you want to delete and press the "delete" button. The tab with all the items will be removed from the shortcut bar and the item will be removed from your tab. Press "Save" when you are done.

Start an external file

To start from i-base an external program or open a file.
Examples:

To open a MS Word document:

| | |
|---------------|---------------------------|
| alias: | Open my file |
| bitmap: | choose here a picture |
| commando: | browse to WINWORD.EXE |
| sub commando: | the file you want to open |

To start Excel:

| | |
|---------------|-----------------------|
| alias: | Start Excel |
| bitmap: | choose here a picture |
| commando: | browse to EXCEL.EXE |
| sub commando: | leave it empty |

Start/Config a plugin:

To start or config a plugin.
Example:

To Start the Cell Count module :

| | |
|---------------|----------------------------|
| alias: | Start Cell Count |
| bitmap: | choose here a picture |
| commando: | Cell Count |
| sub commando: | Cell Count (automatically) |

Capture Session Procedure

(only with eyedoctor license)

Select capture layout

Select the created Capture layout from the drop down menu of the windows tool bar see example of a capture layout (Fig.8)

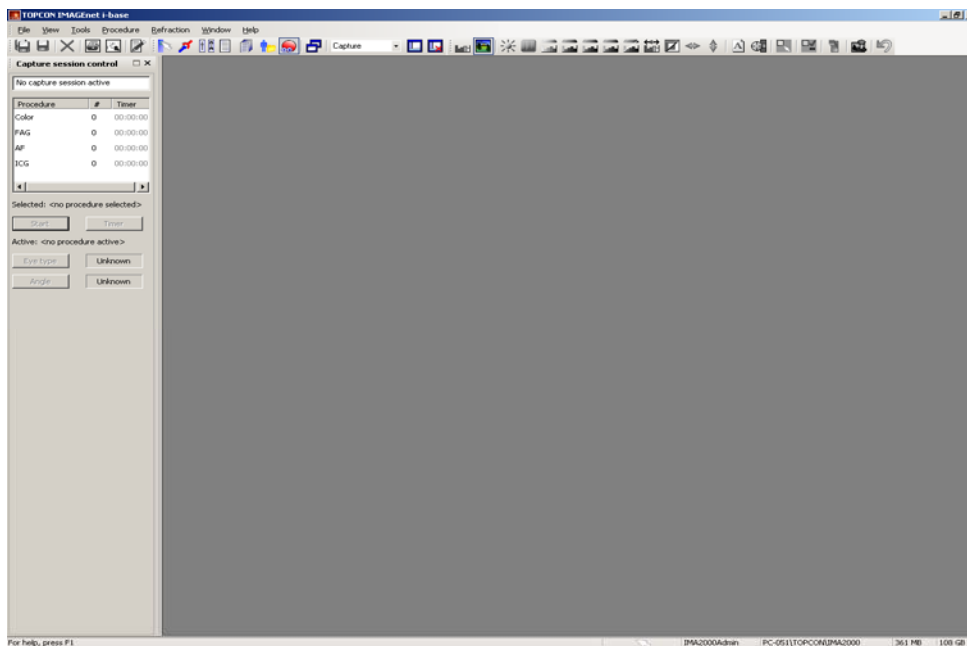
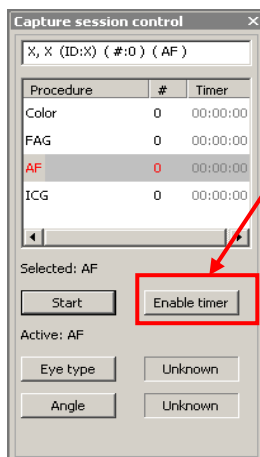


Fig.8

Start a capture session

From the capture session control window you can select the different capture procedures. In this menu you can start a new procedure by double click or select a procedure and press the "start" button with the mouse pointer.



Note, When you select for example "FAG" procedure, a black capture session window will come up. IMAGetnet I base is now ready to receive images.

Note, To enable timer press the "Enable timer" button. The time information will be red colored and is in standby mode.

Note, By grabbing the first image automatically the timer will start. When prefer to start the timer manually press the "start timer" button, that's appear when you enable the timer.

Note, The images will be shown in your capture window, below the capture window there is a thumbnail overview of the images. (Fig.9)


Note, The thumbnails size can be modified from:
File→options→General→Thumbnail size.

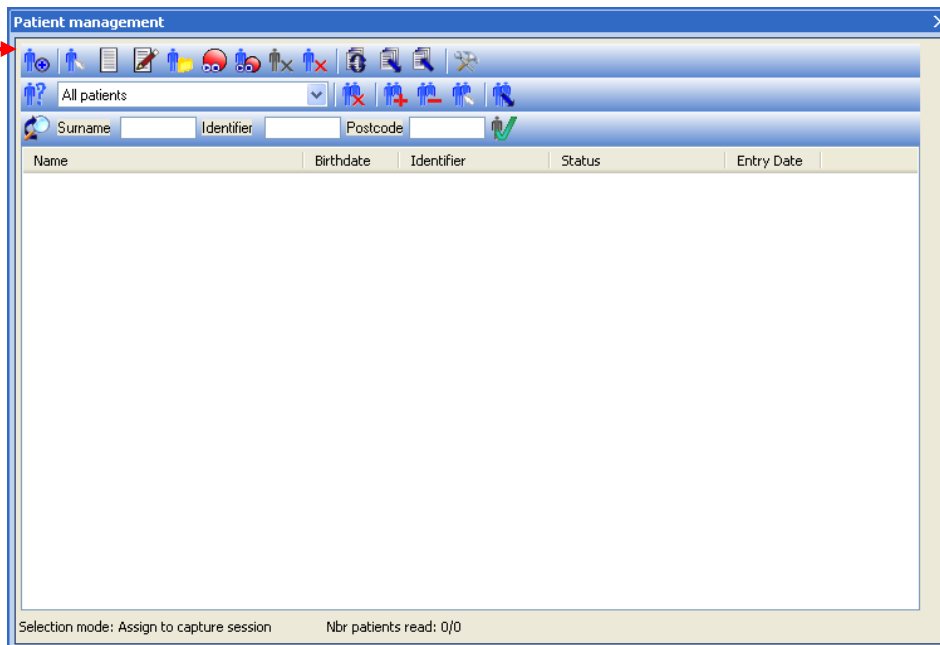
You also can hold the control key and scroll with your mouse wheel.

Add a new patient or Select a patient

When starting a new capture session, we need to add patient information to this capture. IMAGEnet i-base patient management window will pop up automatically every time when you start a new capture session. We can add a new patient or select an existing patient from the patient list.

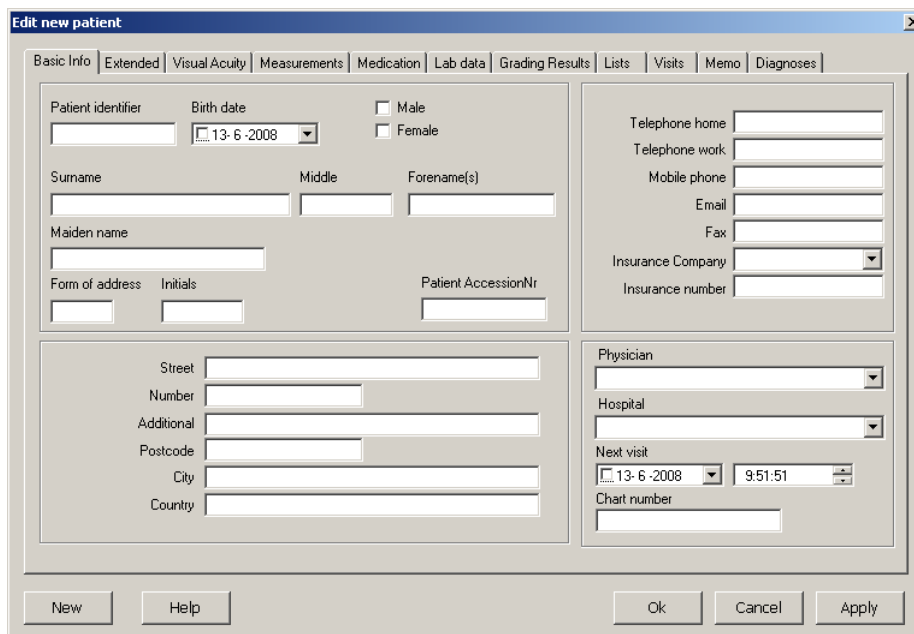
Add a new patient

From the patient management window we select the new patient button  from the action bar.



The screenshot shows the 'Patient management' window. It has a toolbar at the top with various icons. A red arrow points to the 'New patient' button (a blue circle with a white plus sign) in the toolbar. Below the toolbar is a search bar with 'All patients' selected. There are input fields for 'Surname', 'Identifier', and 'Postcode'. Below these is a table with columns: Name, Birthdate, Identifier, Status, and Entry Date. The table is currently empty. At the bottom, it says 'Selection mode: Assign to capture session' and 'Nbr patients read: 0/0'.

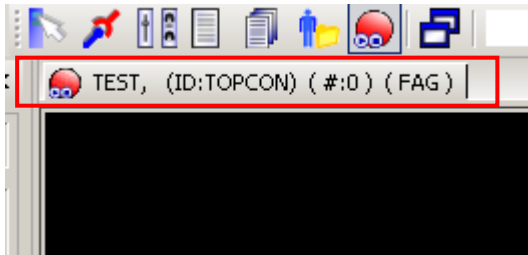
Fill in all necessary patient information, basic information as Patient ID and Surname are required.



The screenshot shows the 'Edit new patient' window. It has a tabbed interface with tabs: Basic Info, Extended, Visual Acuity, Measurements, Medication, Lab data, Grading Results, Lists, Visits, Memo, and Diagnoses. The 'Basic Info' tab is selected. It contains several input fields: Patient identifier, Birth date (with a calendar icon), Male/Female checkboxes, Surname, Middle, Forename(s), Maiden name, Form of address, Initials, Patient AccessionNr, Telephone home, Telephone work, Mobile phone, Email, Fax, Insurance Company, Insurance number, Street, Number, Additional, Postcode, City, Country, Physician, Hospital, Next visit (with a calendar icon), and Chart number. At the bottom are buttons for 'New', 'Help', 'Ok', 'Cancel', and 'Apply'.

Press OK to return to the capture session window.

Patient information is now also available in your capture session window.

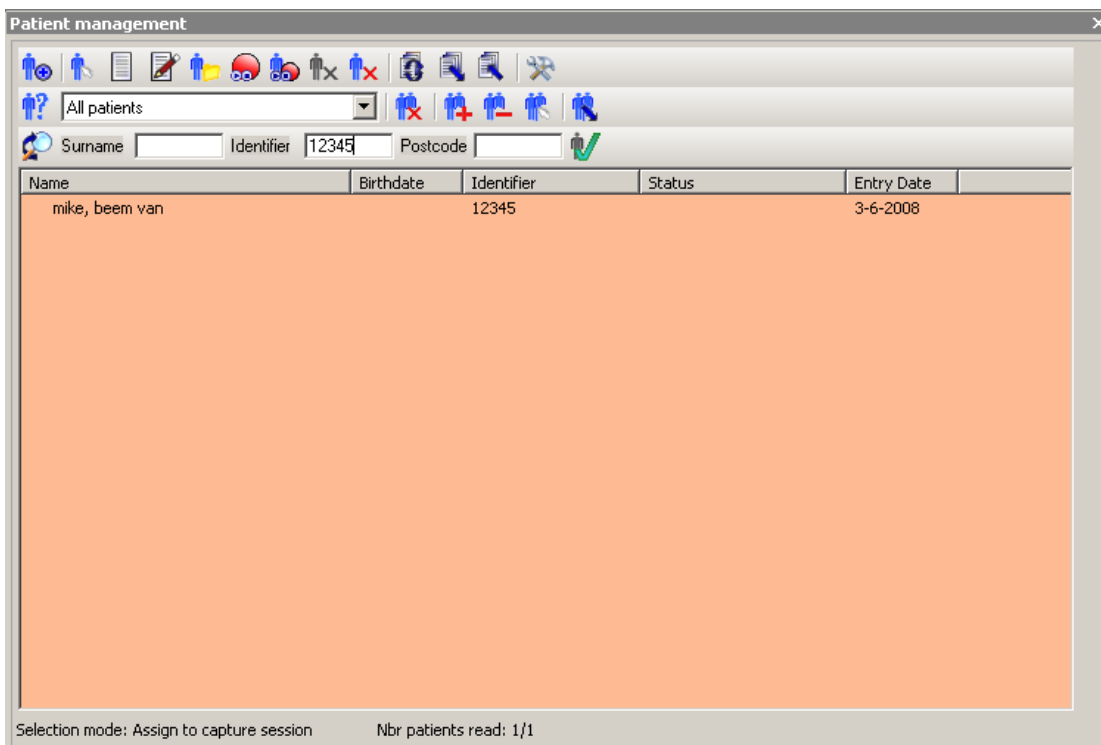


Patient name = TEST
Patient ID = TOPCON
"#" amount of captured images
FAG = procedure name

Note, There is also a simple patient management window available in the option menu → general → patient management “minimal patient dialog”

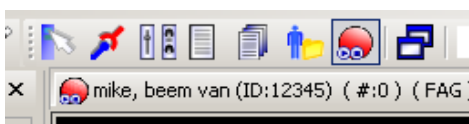
Select a patient

The patient management window will start automatically when a new capture session starts. Now we will select a patient from the patient list. From the query bar we can filter patient on surname, patient ID and postcode. To start the capture for this patient double click on the patient name.



Note, The background of the patient list will be colored Tan when a query is active.

Capture window ready to capture images

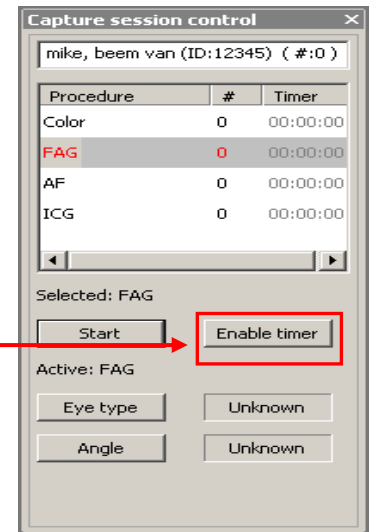


Check if procedure and patient information are correct when capture session window is open.
Now you are ready to start grabbing images.

Start Timer

To enable the timer press the “Enable timer” button.
The timer information will be red colored and is in standby mode.

By grabbing the first image automatically the timer will start.
When you prefer to start the timer manually press the “Start timer” button.
“Start timer” button appear when you enable the timer.



Delete images during capture

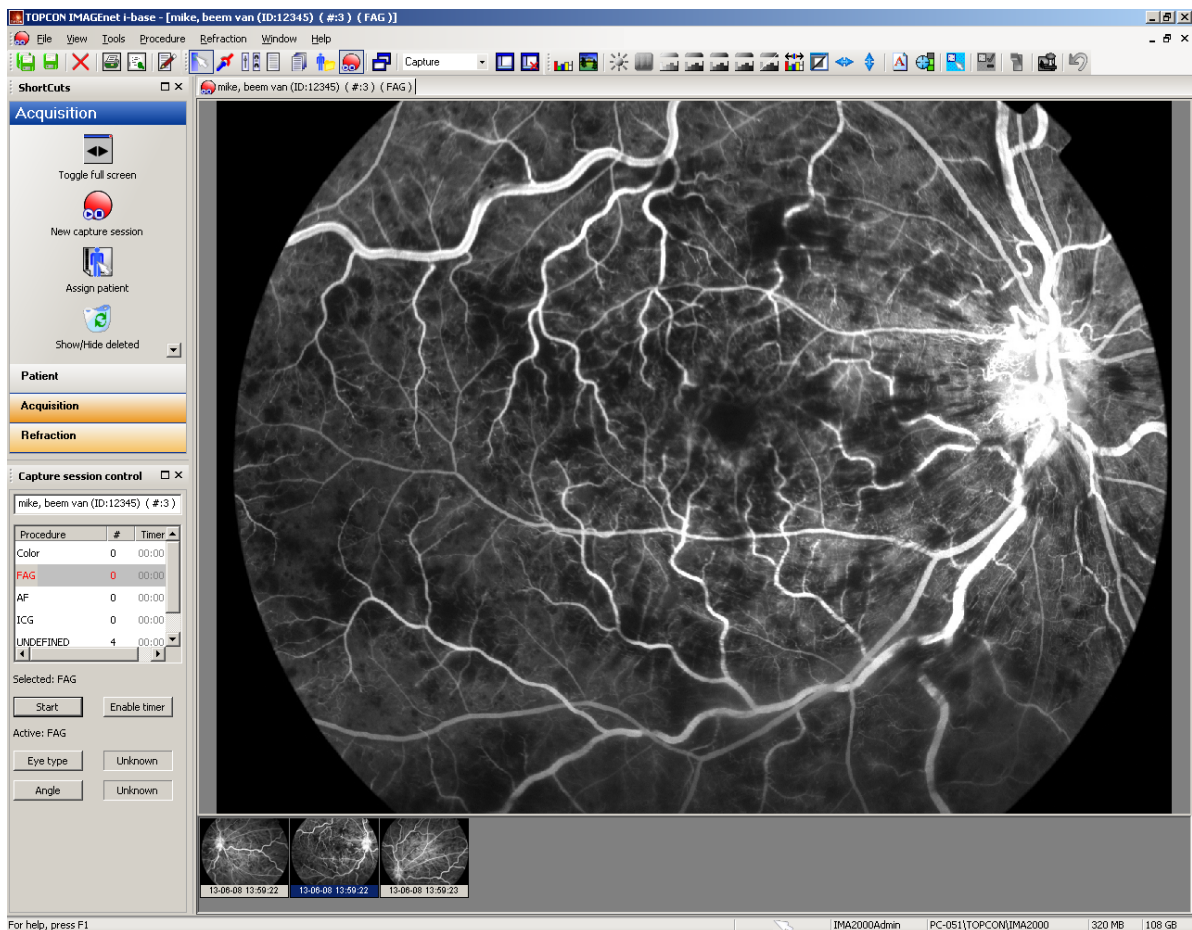


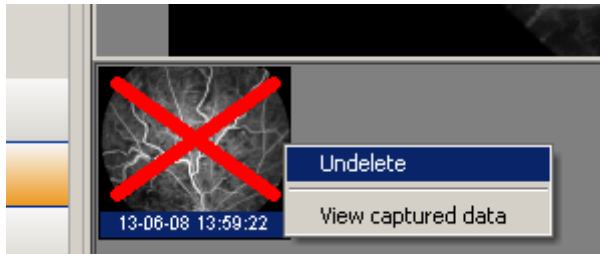
Fig.9

During the capture you can scroll back through the thumbnails and view the captured images by making the thumbnail active. Images that are not correct you can delete by selecting 1 or more (with shift or ctrl) thumbnails and use the delete key or with the right mouse on a thumbnail and select “delete selected”

Undelete images during capture

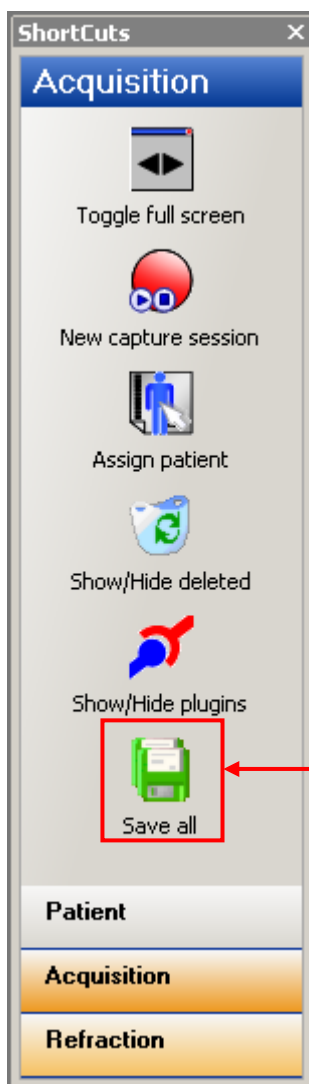
Restore of deleted images can be done through the shortcuts window → acquisition and use the recycle bin button “show/hide deleted”.

Right mouse on the thumbnail and use undelete option.



Note, images that are deleted you can only be restored when the capture session is active

Save captured images



To save all the captured images you can use the “Save all” button from the shortcuts window or the “Save all” button in the standard tool bar



Button to save all images




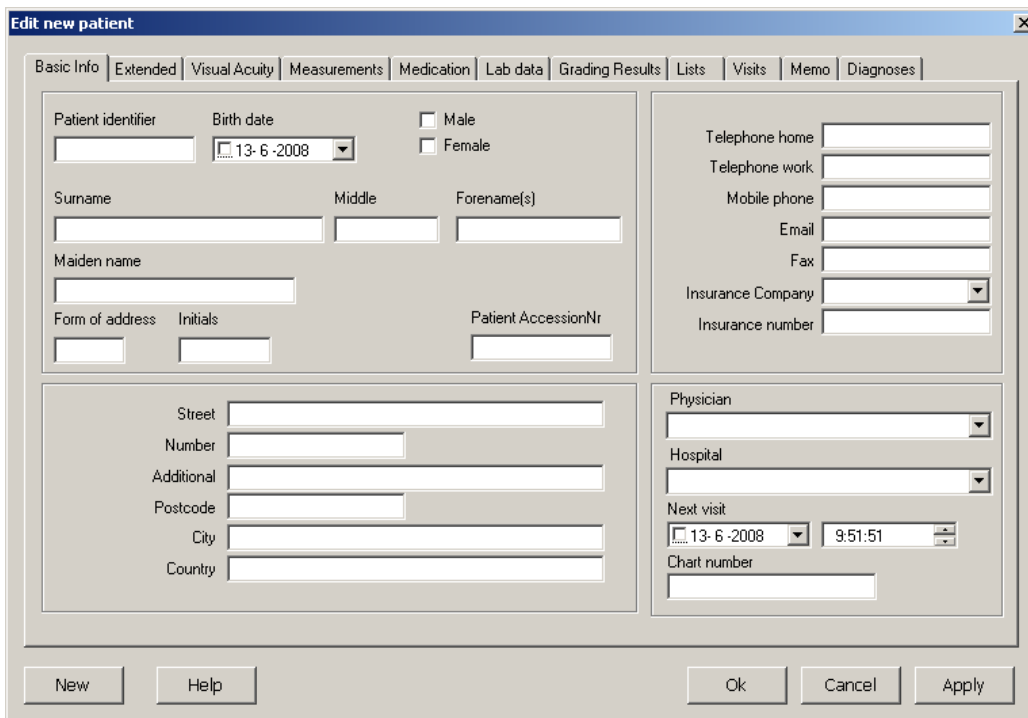
Button to save selected images

Patient Management / Data

From the shortcuts bar → Patient, you can add a new patient, edit the patient and show the patient data.

Add new patient

From the patient management window we select the new patient button  from the action bar or from the file menu from the windows tool bar select “new patient” and fill in all necessary patient information.

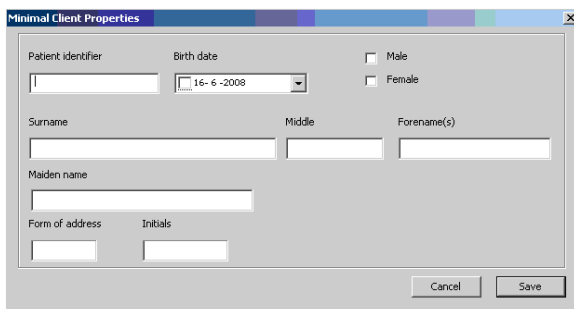


Basic information as Patient ID and surname are required, press “OK” and the patient will be added to the patient list and the patient management window will close.

Press “New” your patient is added to your patient list, but you are able to continue adding new patient.


Press “Apply” your patient is added to your patient list, now you can add also other information from the different tabs in the patient properties window.

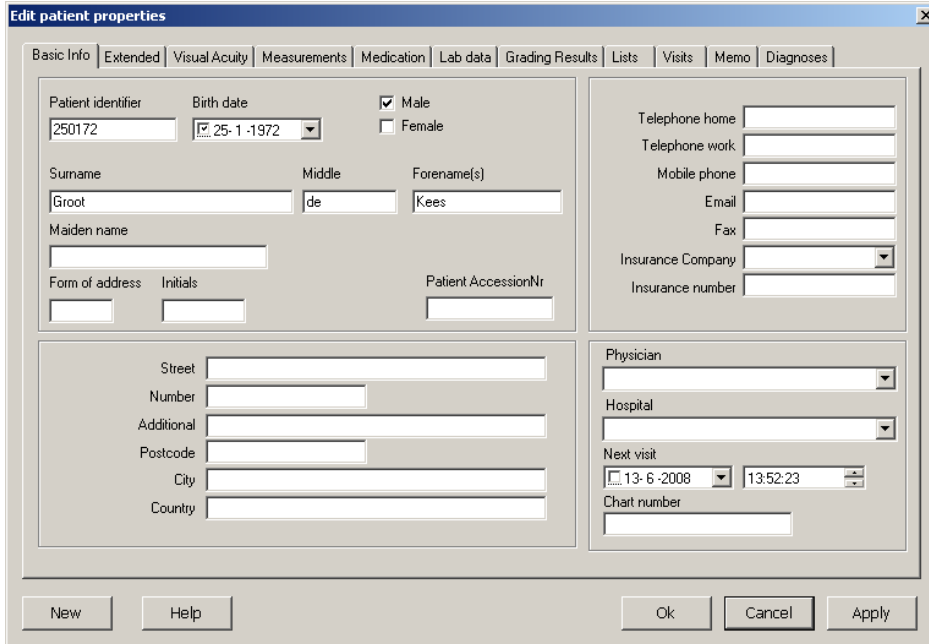
Note, there is also a simple patient management window available in the option menu → general → patient management “minimal patient dialog”



Edit (manage) patient information

From the shortcuts bar select "Manage Patient", now you are in the edit patient mode.


Select a patient and press the "edit properties" button  or double click on the patient name. The edit properties window will appear, now you are able to edit patient information. Press the OK button to save your changes.

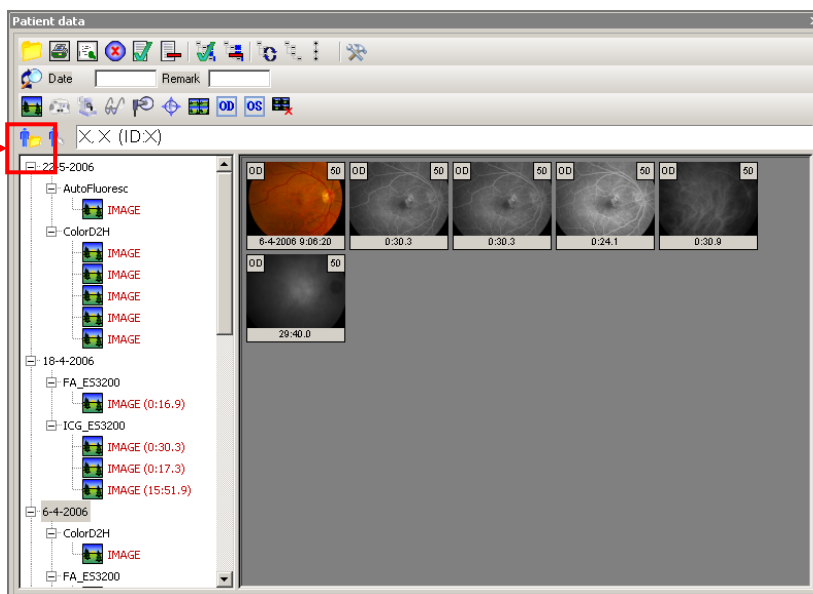


The "Edit patient properties" window is a multi-tabbed interface. The "Basic Info" tab is active, showing fields for Patient identifier (250172), Birth date (25-1-1972), Sex (Male), Surname (Groot), Middle (de), Forename(s) (Kees), Maiden name, Form of address, Initials, Patient AccessionNr, Telephone home, Telephone work, Mobile phone, Email, Fax, Insurance Company, Insurance number, Street, Number, Additional, Postcode, City, Country, Physician, Hospital, Next visit (13-6-2008 13:52:23), and Chart number. The window includes "New", "Help", "Ok", "Cancel", and "Apply" buttons.

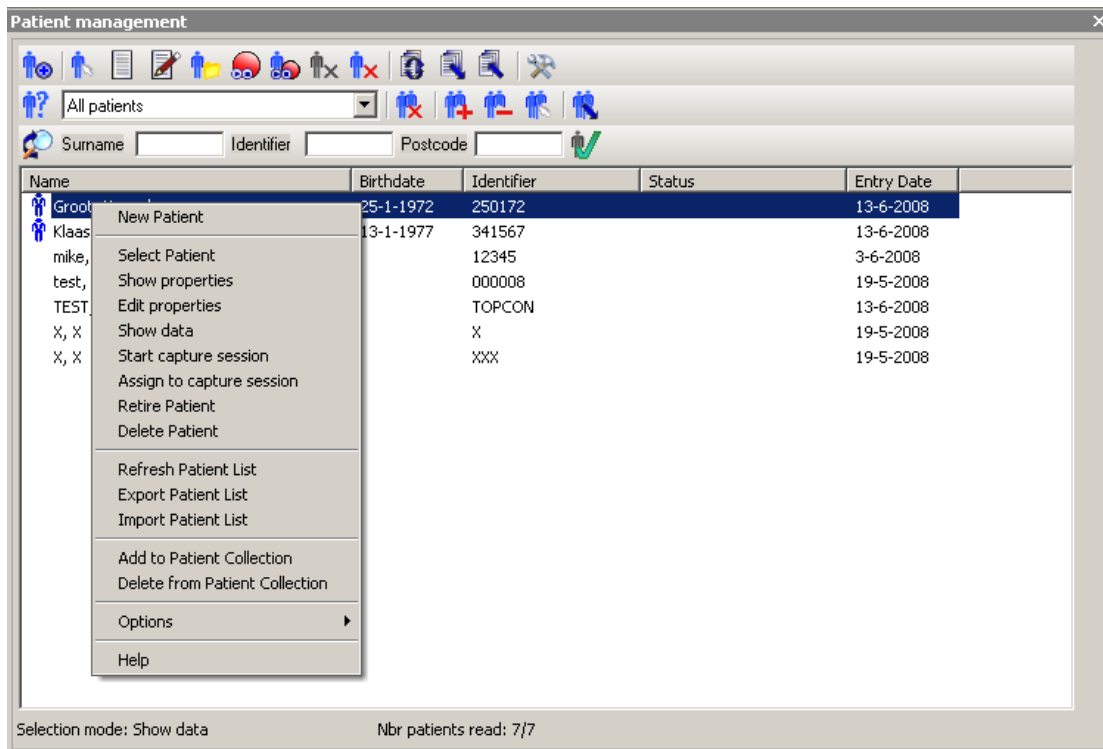
Show Patient data

From the shortcuts bar select "show patient data"

Select a patient and press the "show data" button  or double click on the patient name. The patient data window will shown, now you are able to view patient data.

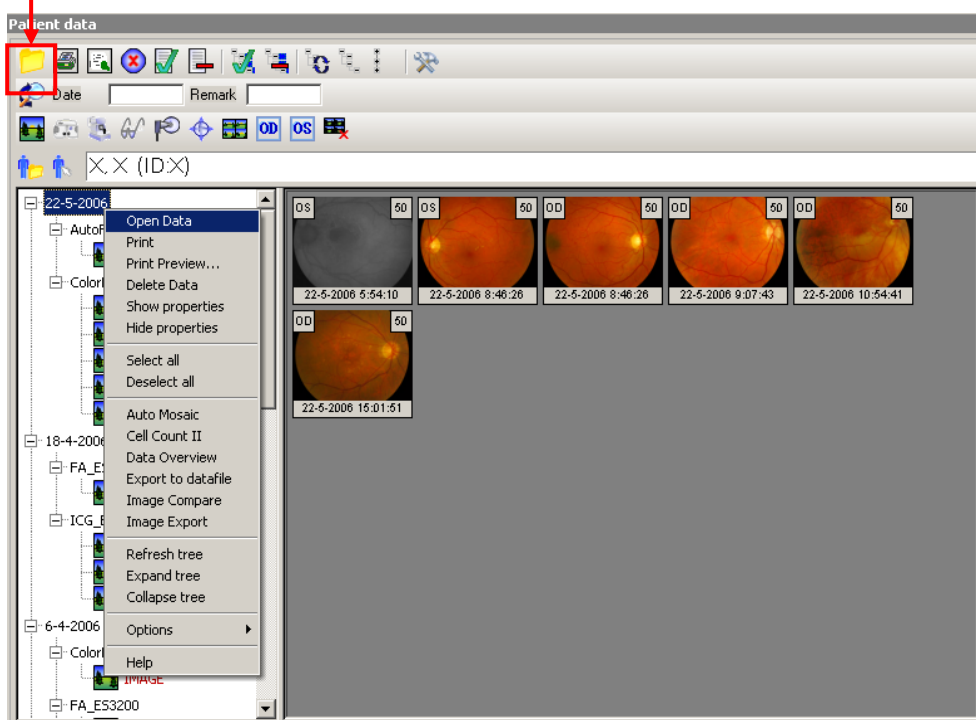



Note, from the patient management window you can also select new, edit, show data etc with the right mouse button.

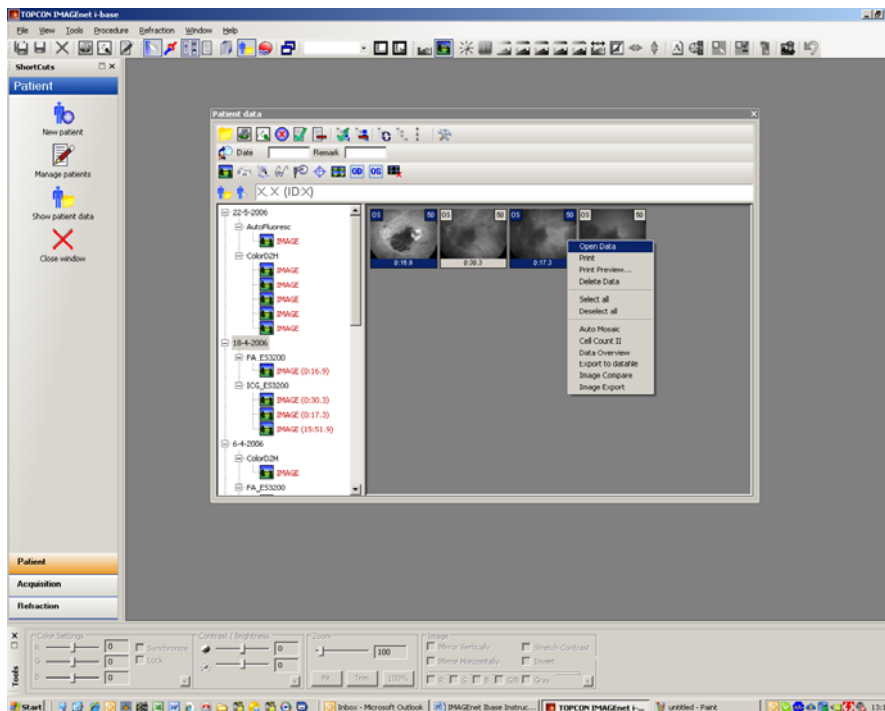



Open patient data

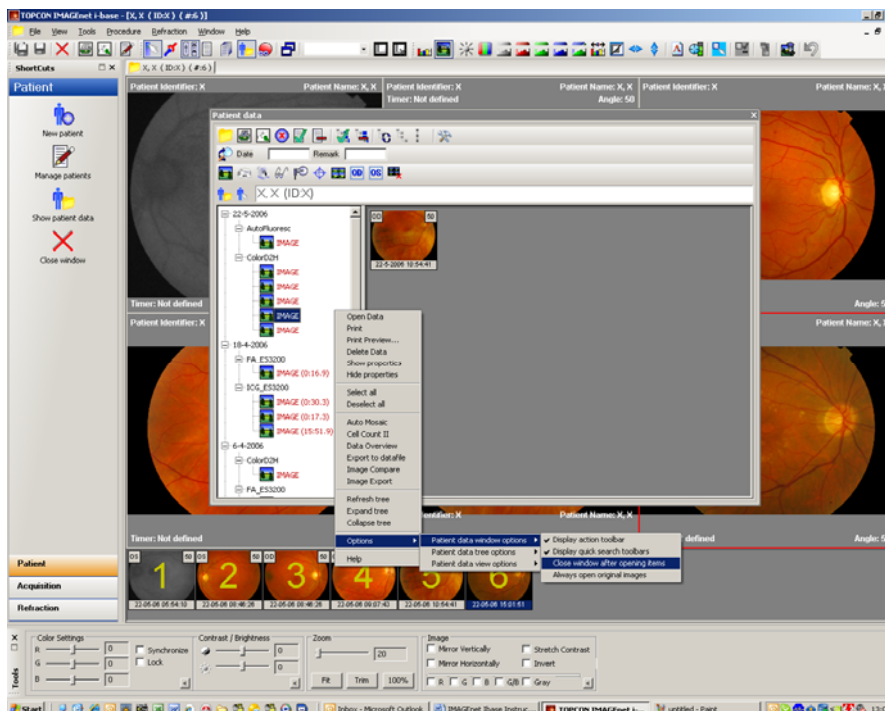
To open data or images use the open data button  or select a visit or procedure and use right mouse button to select open data. If you only want to open one image, you can double click the image.



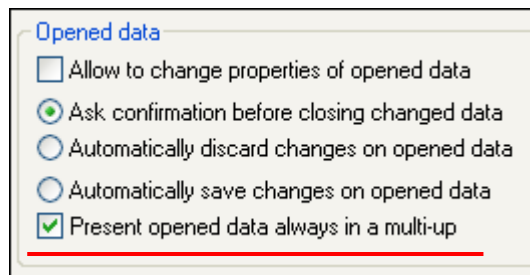
You can also make a selection of images (ctrl + left mouse button) and use the open data button  or use right mouse button to select open data.



Note, to close the patient data window after opening images or data, select in options  from the patient data window "Close window after opening items" or use the right mouse button and go to options.



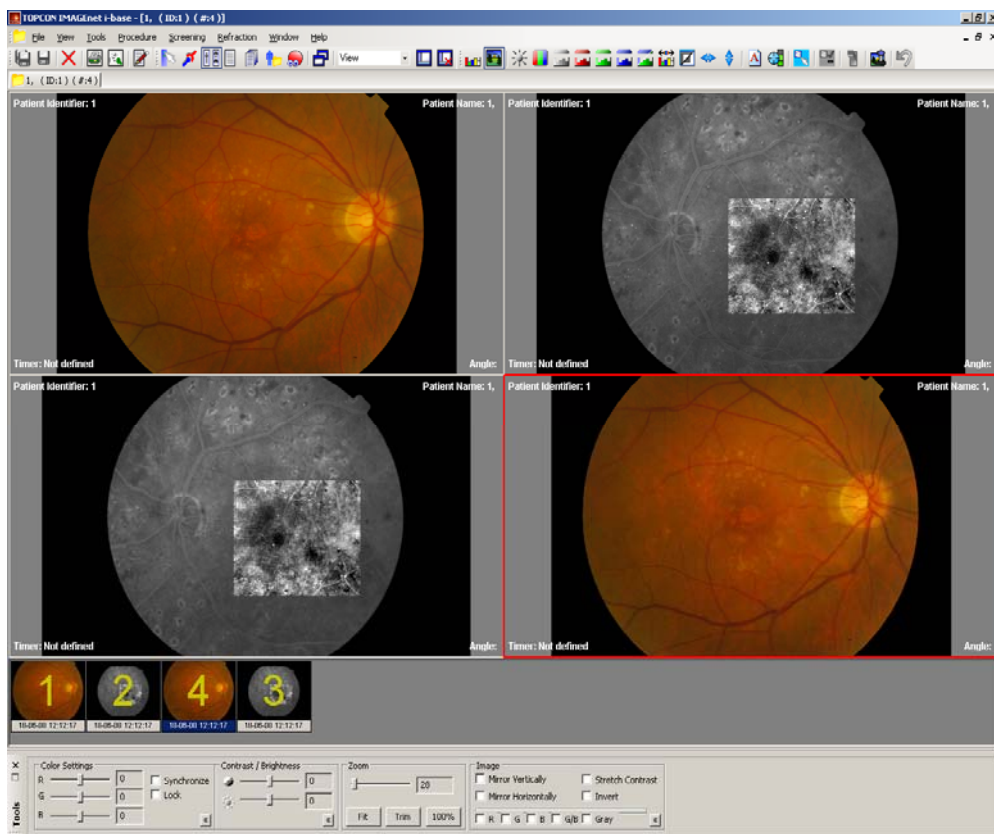
Note, to open data or images directly in a multi-up window, select from File → options → general → opened data, “Present open data always in multi-up”



Working in a multi-up

Open data in a multi-up view is by default disabled, you can work manually by opening images and double click on the first image, a 4 up will be displayed. By selecting images from the thumbnail bar you can add, removed or swap (hold ctrl key) images.

By double click in the 4-up you will be switch again to your single-up

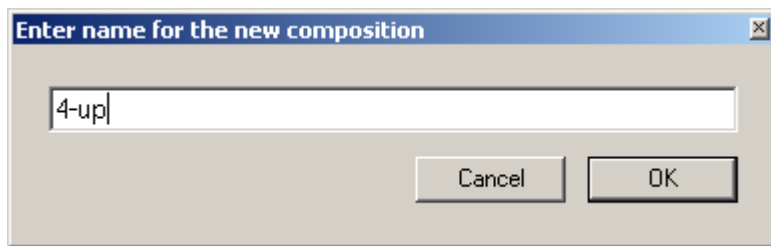


Composition Tool Bar

The composition toolbar provides fast access to several composition functions.



To save the current views in the selected acquisition or viewing tab as a composition select the “Save button”. A dialog pops up where you can enter the composition name, press OK to Save









Note, to open data or images directly in a multi-up window, select from File → options → general → opened data, “Present open data always in multi-up”

Fitting images by zoom

The image zoom toolbar provides fast access to several zooming functions.



| | | |
|---|------------------|---|
|  | Normal size: | zoom the image or movie to the original size. |
|  | Trim zoom: | zoom the image so that the black background is hidden. |
|  | Zoom fit: | zoom the image or movie to fit the view. |
|  | Rectangle zoom: | when this option is enabled, you can draw a rectangle in the image to zoom in to. |
|  | Zoom glass: | with this option you get a zooming glass, which you can use to zoom into the image (this option is only available in the EyeDoctor and EyeViewer modules). |
|  | View pan window: | shows a window with a thumbnail of the currently viewed image and the current 'Zoom rectangle'. Within this 'Pan window', you can drag the 'Zoom rectangle' with the mouse to pan over the image. |

To fit open your images as default in your window fully visible you have to set some media options. Select File → Options → Media → and fill in as shown in Fig.10

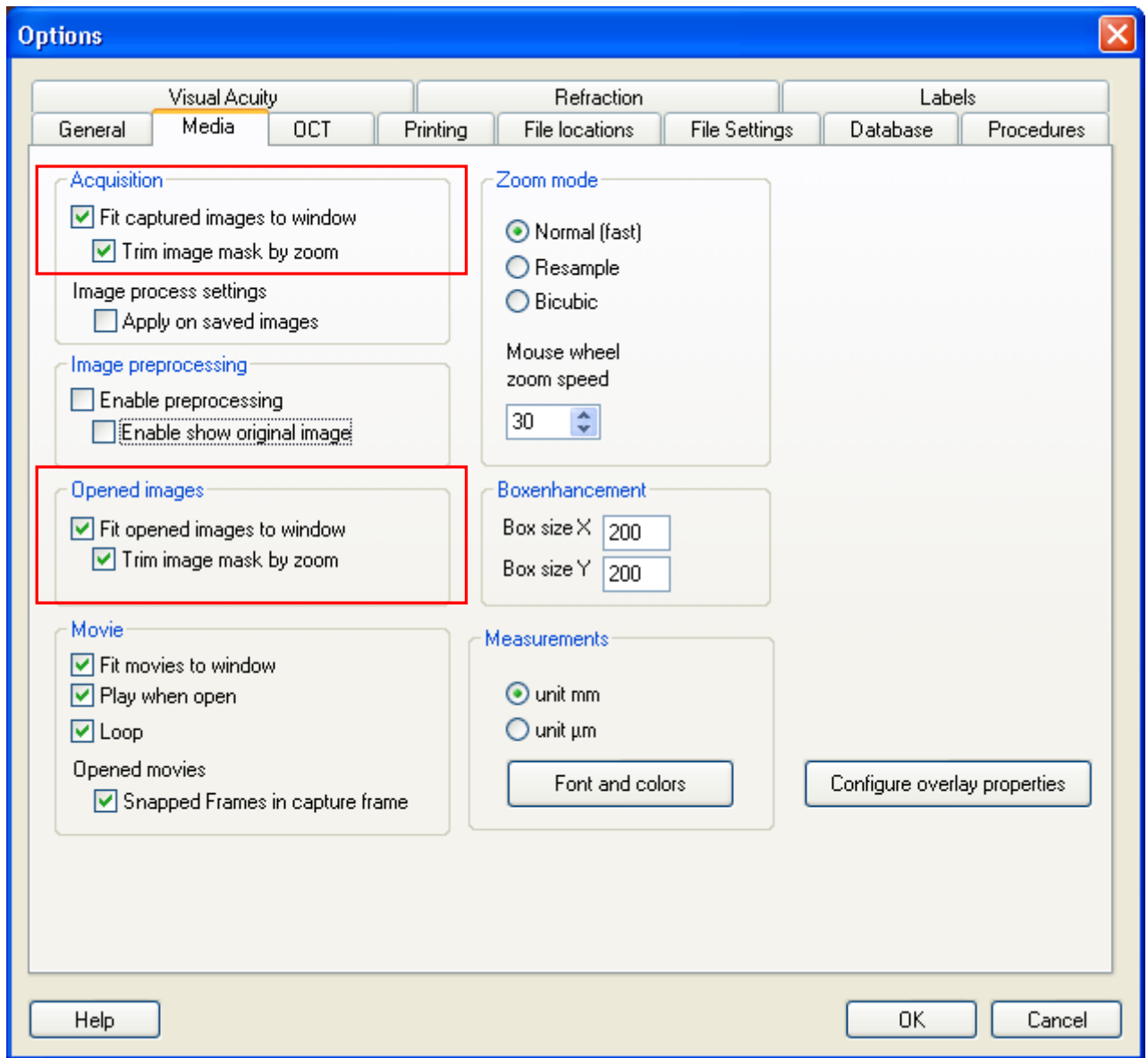


Fig.10

Image Process

When select a image you can adjust manually or automatically with help of the Image process bar.



Shows color histogram



Shows Image properties (you also can use the F8 key)



Contrast and brightness adjust



Adjust color balance



Separate colors- 8 bit grey, red, green and blue free.



Shows red free image



Auto stretch contrast



Invert



Mirroring



Annotate



Sharpening



Box enhancement



Show / hide box enhancement



Open original image



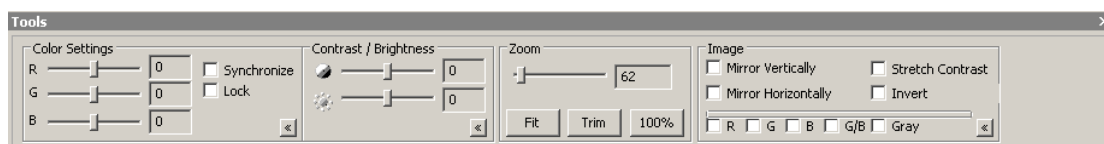
Apply adjustments in new image



Undo

Tools window

To show this tool window please go to view and then select tools.



This tool can be used as an easy and fast way to process opened or captured images. For captured images this tool can only be used for viewing. Captured images can never be changed. For opened images this tool can be used for viewing, but if needed you can also apply the changes in a new image

with 'Apply in new image' from the Tools menu or with the 'Apply in new image' button in the Image process toolbar. Now a new image is created and saved. Original captured images can never be changed.

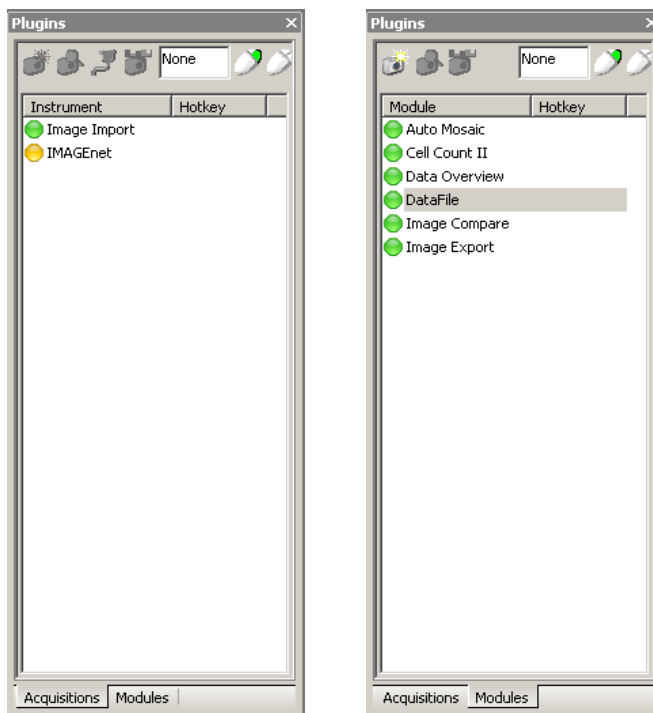
Plugin Window

From the plugins window the installed plugins can be managed.

Two types of plugins are available within IMAGEnet i-base: 'Acquisition' plugins and 'Module' plugins. The two types are separated in the plugins window with two tabs. When you select a tab you get a list of the installed plugins of that type.

Acquisition plugins can send data from external sources (for example a digital camera) to IMAGEnet i-base.

Module plugins can receive data and patient information from IMAGEnet i-base and optionally send data back to IMAGEnet i-base.



Note, A plugin can have three statuses:

green: available

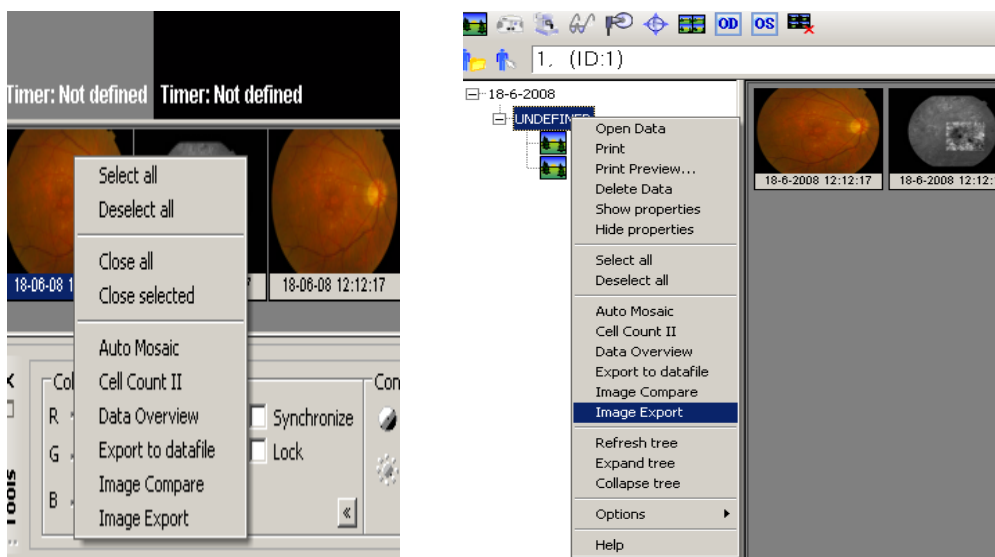
yellow: not available

red: not loaded

start the selected plugin; for acquisition plugins this usually means trigger the camera; for module plugins this usually means start the module with the selected data items.

To setup a plugin just right-click on it.

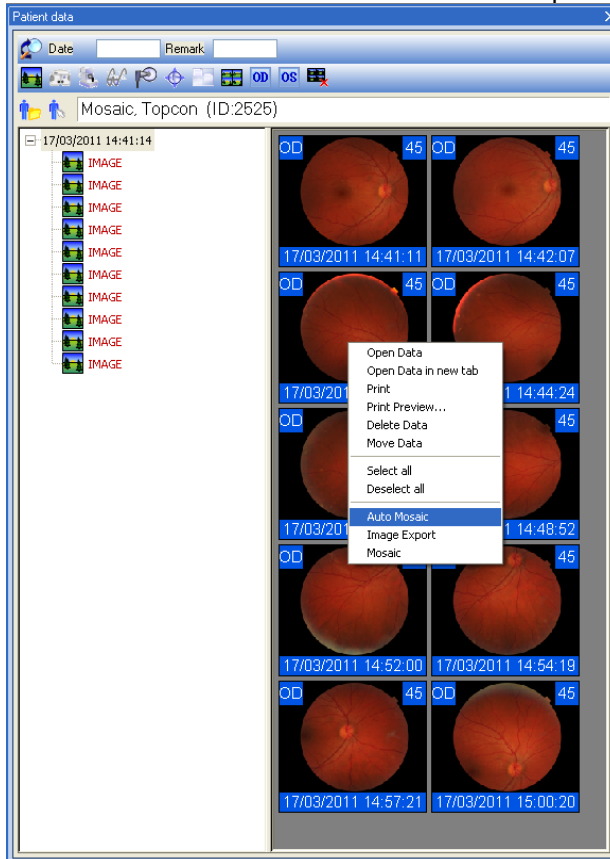
Modules you can start by double click, you can also start the module through the thumbnail view in the patient data window or select data from the patient management window.



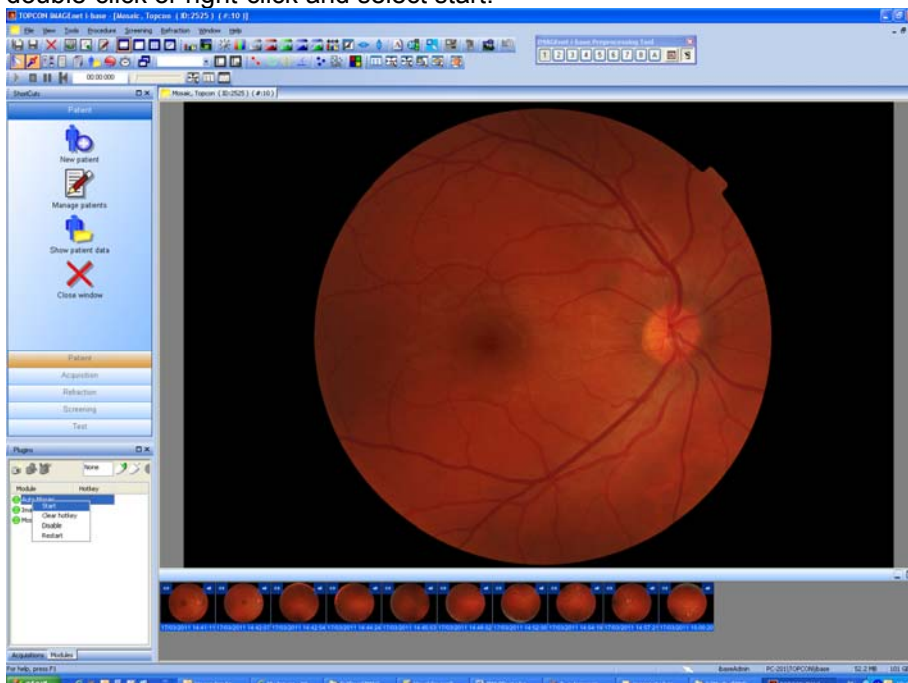
Modules

Example Automosaic:

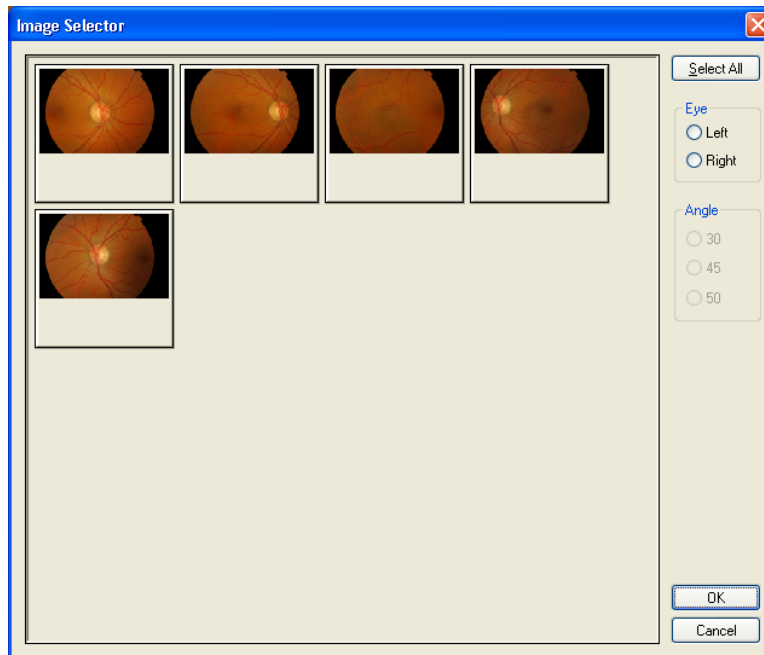
Select all your mosaic images in the Patient data window and right click on one image, now select Automosaic and the Automosaic window will open.



You can also open all images, select the thumbnails, and start Automosaic from the plugin window by double-click or right-click and select start.



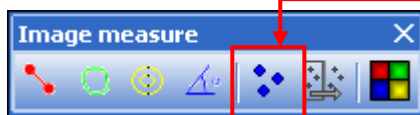
If there is different information about eye and angle in the selected images, this screen will open first:



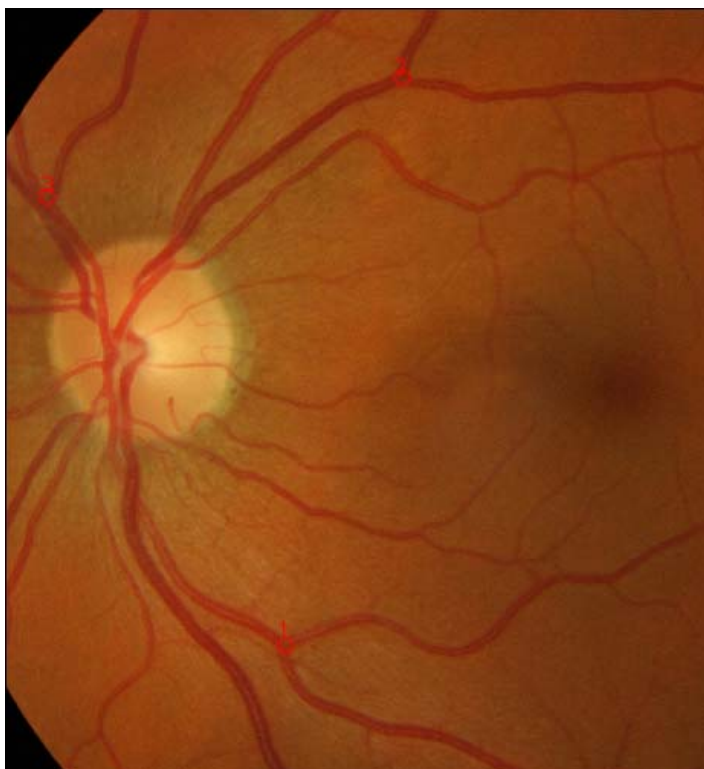
Here you can select eye and angle. Only the images that meet the selection are going to the Automosaic module.

Example Image Compare:

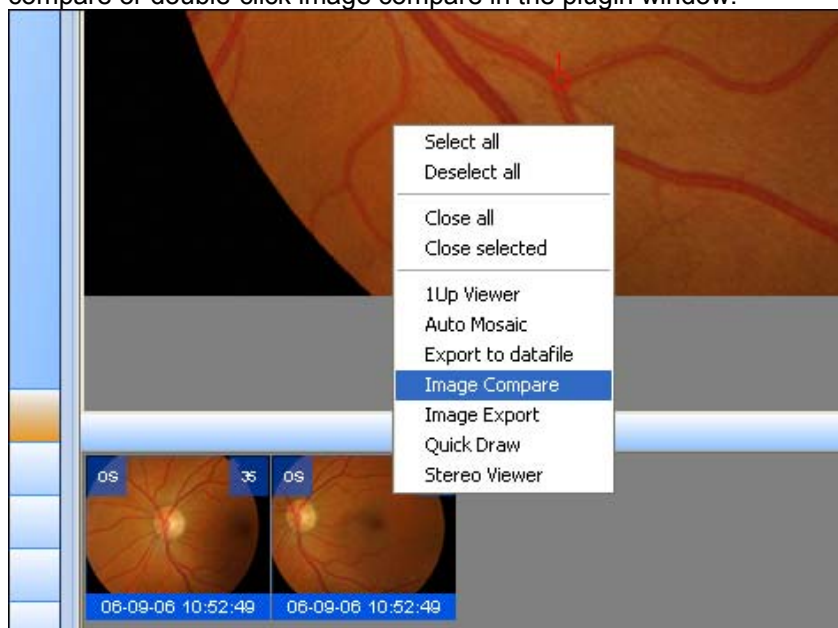
If you want to use Image Compare, you first have to make some registration points on the 2 images. You have to make 3 registration points at least and save the images with the registration points.



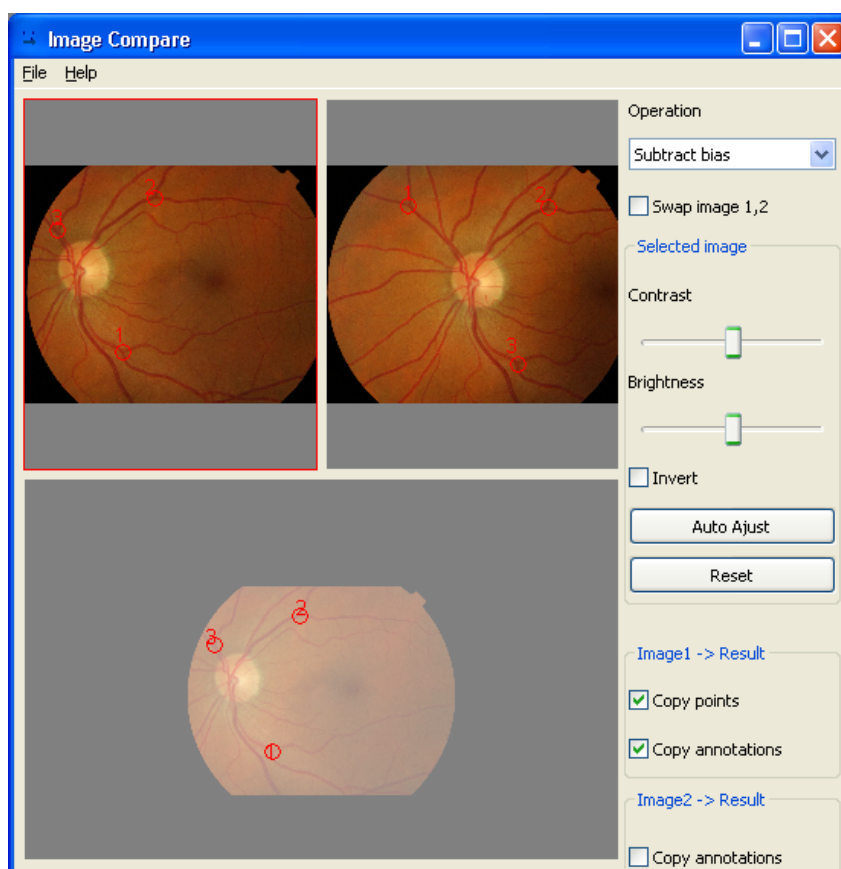
registration points you will find on the Image measure toolbar.



After saving the images you have to select the 2 thumbnails and right-click on them and select image compare or double-click image compare in the plugin window.

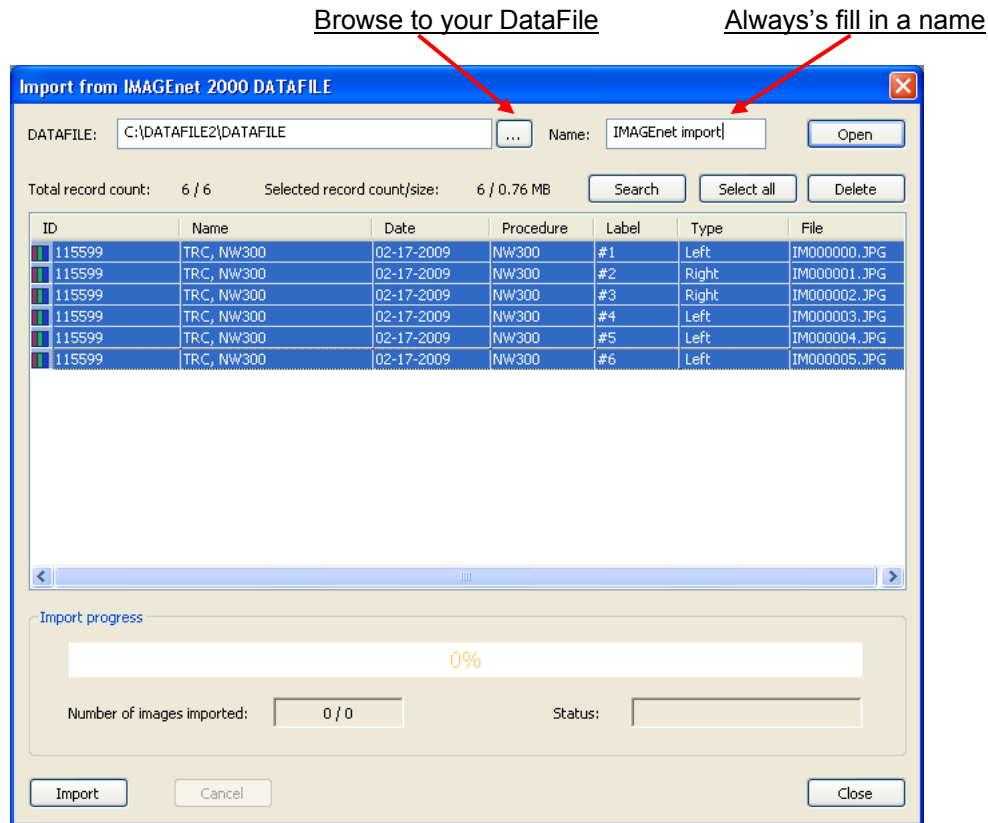


Now this window will open and you can start comparing:



Example DataFile:

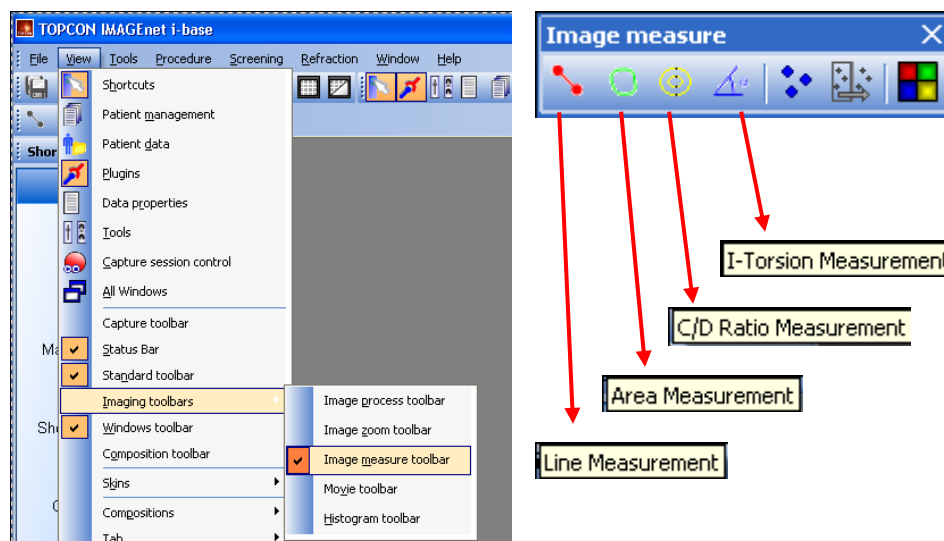
To Import a DataFile please double-click the DataFile module in the plugins window or right-click and select start. Now this window will open:



Now click Import and your Selected Patients and images will be imported.

Measurements

To make a measurement on an Image you select the measurement toolbar:



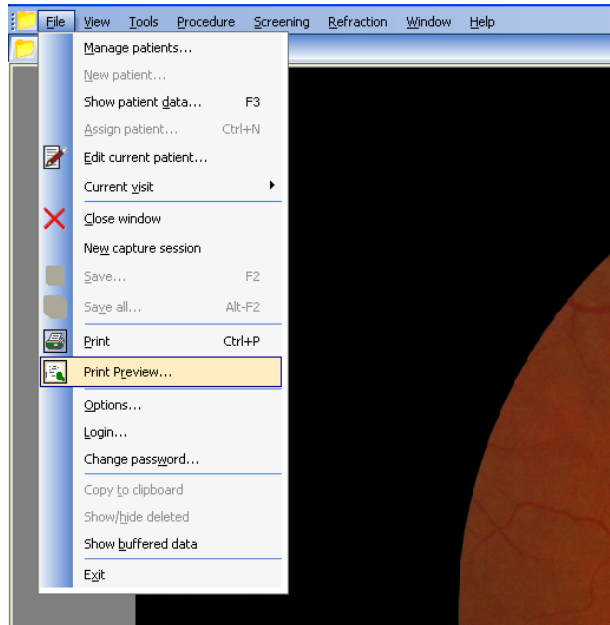
Note, The Image measure toolbar is only active with opened data.

Print patient data

The print function to print patient data and/or properties within IMAGENet i-base is based on templates. A default portrait and landscape template are installed.

There are several ways to print patient data:

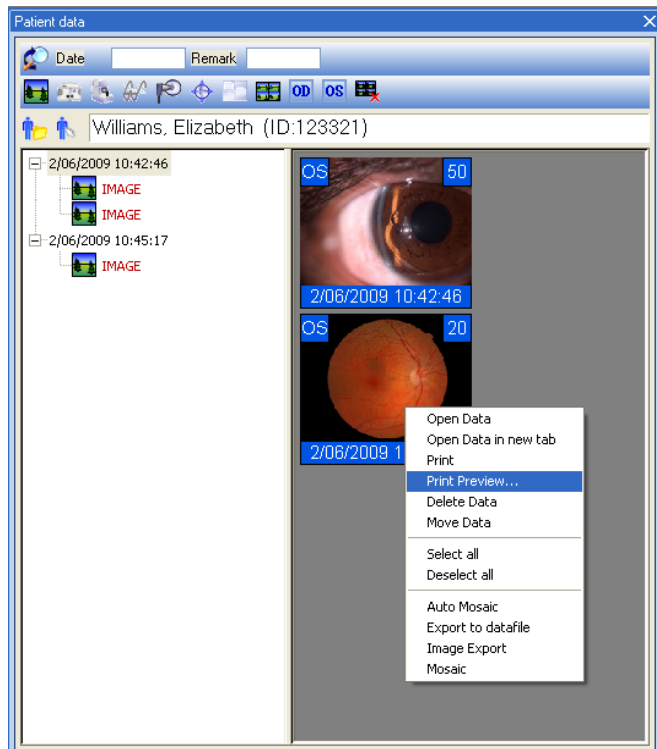
From the File menu



From the standard toolbar



From the Patient data window



Print Preview

Print Preview shows a print preview of the selected acquisition or viewing tab.

The preview window is setup with the default print settings as set in printing options. These settings can be changed in this window.



Mask image: Mask the selected images

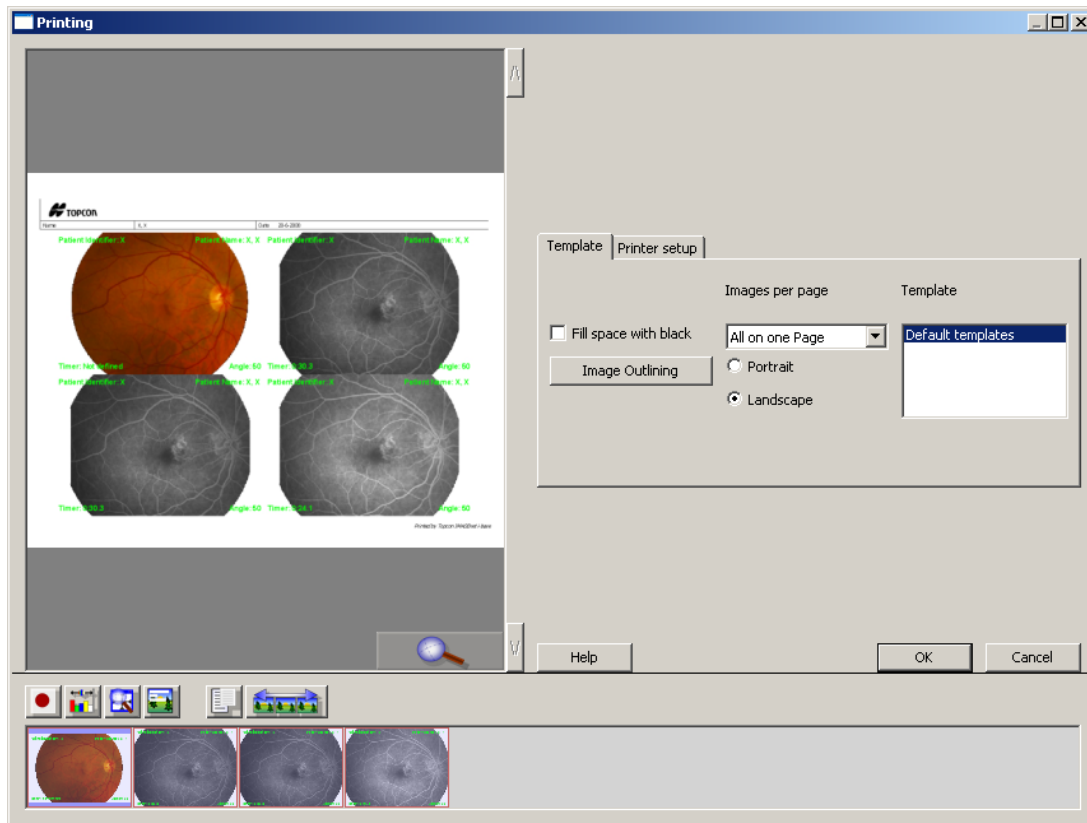
Contrast stretch image: Stretch the selected images

Trim zoom: Trim the selected images

Show/hide properties: Put the overlay properties in the selected images

Configure "show/hide properties": Set here the overlay properties. Use the button 'Overlay' to put the overlay properties in the selected images.

Select all the images in the thumbnail list



Press OK to print, print preview will closed after print task is given.