



DENTALEYE

OPERATING MANUAL

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Table of Contents

Introduction	3
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General Information

Database Handling	3
Patient Handling	5

Buttons & Tools

About the General Toolbars Button	7
About the Imaging Toolbar	9
Customize the Toolbar	12
Image Capture	12
Working with Templates	16

Main Menus

File Menu	20
Edit Menu	23
Image Menu	34
System Menu	47
Tools Menu	55
Window Menu	58

Introduction

DentalEye handles and manages images in the modern dental practice. It integrates with all digital sources, offers advanced image manipulation and optimisation, as well as simple and efficient image management. These pages are designed to help you understand the program, its many functions and how to use them.

General Information

DentalEye is an open architecture 32-bit, Windows based system providing compatibility with main brand digital sensors and intraoral cameras. The software allows integration with existing systems and can be connected to almost any database and database engine. DentalEye comes with a set of ready-made templates but the user can also make custom templates to suit individual requirements. The software offers a comprehensive range of tools for image manipulation, cosmetic imaging as well as advanced optimizing features such as compensation for exponential X-ray attenuation and a colour scale specially developed for use in dental radiology.

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Database handling

Create new database

Selecting System | Create new database will take you to a dialogue for this purpose.

The dialogue has the following options:

- Select database type - Select Microsoft SQL-server if you have either Microsoft SQL server 7, Server 2000, Server 2003 or MSDE (Desktop edition) installed in your system and intend to use it for your Dentaleye database. Select Microsoft Access if you want to use this type of file based database. Access is suitable for networks up to about 5 concurrent users while SQL is recommended for use in larger networks. It is possible to convert an Access format database to a SQL database later if needed. As the SQL database is more complicated to install we recommend that it is only installed by experienced staff.
- Depending on your database type choice you will be presented options for this type: For SQL you must provide a Server name

(the name of the computer where SQL is installed) and a Database name of your choice. For Access you must provide Path and file name for your database file.

- Image store path - this is the folder where your images will be stored. It does not need to be the same as where your database resides.
- Copy demo database from CD - if you check this option some patients, templates, images and anatomic descriptions will be added to your new database.
- Add default templates - if you check this option some basic templates and anatomic descriptions will be added to your new database.

When clicking OK the database will be created and selected as your default choice. If you intend to use this database from all workstations in your network you must select the database on each one of them. Make sure that you have a backup system covering the folders that you selected before you start using the system. If you run SQL you must make sure that the database files are backed up properly. Consult your network supplier if you're not sure how to do this.

Local database info

Selecting System | Local database | Local database info; will open a window with information about the currently selected database. You will see where the database is located and what version it is. You can also see how much free space you have in your Image stores. Some statistics from the database is also presented including number of patient, images and templates.

Setting database

Selecting System | Setting database will open a dialogue where you choose your active database and edit the image store settings. Most likely you will only use this function when installing the system. When creating your database on one workstation you will have to use Setting database to select the newly created database on the other workstations.

The dialogue has the following options:


- Select database type - Here you have to choose the same type of database used when creating it.
- User name/Password - Here you provide the login information for your SQL server. For Access databases this is currently not relevant.
- Depending on your database type choice you will be presented options for this type: For SQL you must provide a Server name (the name of the computer where SQL is installed) and then choose Database name from the list. For Access you must provide the Path and file name of your database file.
- Image store(s) for database - This is where you can administrate your image stores. An image store is a folder where images are stored. You can have more than one image store but only one

selected as active. The active image store is where new images will be saved. The others are only used for retrieving old images. Please note: Currently you need read and write permissions both in the active and the non active image stores. It is possible to Add new image stores, Delete image stores with no images in them and Change path (...) to an image store.

The database selection is saved as default for the currently logged in user only. If you log in with a different username you will have to use Setting database for that user too. This is useful in the case where 2 users wanting different databases but work on the same PC.

Patient Handling


Register a new patient in DentalEye

When DentalEye is used independently of the PM system, DentalEye will use its own internal patient management system to register and edit patients. In order to add a new patient to the database click the new patient icon  choose **Patient >New Patient** from the menu. Fill out the form. Use TAB or left-click to move to the next field. NI or Social Security numbers are required in order for patient to be registered.

Integration with Practice Management systems

DentalEye can bridge to or integrate with any Practice Management system. This is normally done with a link which the manufacturer of the PM system connects to. Select a patient in the PM system, then click the icon (normally) which opens DentalEye and brings up the patient. If the patient is new it will be added automatically. If there are any changes on the patient it will be updated.

Find patient

Open the **Find patient** window by clicking the find patient icon  or choose from the menu **Patient >Find patient** In **Search for**, the last setting used is preselected. To select other alternatives, left-click on the drop down list. In **Beginning with/Containing**, write what you are looking for. DentalEye has two different search criteria:

- A continuous string anywhere in the field. This is used in **First name, Address** and **Comments**. For example, when searching by address you could write the place name.
- From the beginning of the field. Used in all other fields.
- With wildcard % or * in the beginning followed by a part of the number or name.

- Free text search finds a the string wherever it is in the patient-file. E.g. the street-name or a part of the name or a part of the first name.

The search result can be sorted by any of the columns by clicking the title above the column.

The most common way to search is:

Last name or number. You begin by writing the last name and the results will appear similar to a phone book. When you see the right name in the list select it by using left-click or double-click, or use the arrow keys and press <Enter>.

When you only remember a part of the patients name use the wildcard and type the string you remember e.g. *von.

Edit patient information

All but the NI or Social Security number can be changed.

Open the Edit patient info from the menu **Patient >Edit patient info**

Use TAB or left-click to move to the next field.

About the General Toolbar buttons

To activate a command click it's toolbar button or press function keys, or combination keys. The menu toolbar buttons are enabled or displayed corresponding to where you are in DentalEye. For example with no patient selected there are only three buttons enabled, namely **New Patient**, **Find Patient** and **Work with Templates**. As soon as a patient is selected all the other buttons are enabled, except for **Work with templates** and **Add image frames to templates**.

The menu Bar contains the following buttons:



Find Patient (<F4>)

Search for Patients in MedicalEye



New Patient (<F2>)

Register New Patients in Medical Eye



Edit Patient (<Ctrl>+E>)

Change and edit patient info such as name address etc.



Print (<Ctrl>+P>)

Printing Images and Image Cards



Save (<Ctrl>+<S>)

Save new template/image card or updated information



Save As

Save as is used when you want to save your template or image card as a copy preserving the original. Save is automatically redirected to Save As with newly created unsaved image cards and templates.



Undo

Undo is used to retract your last action



Redo

Redo makes the last Undo action undone.



New (<Ctrl>+<N>)

The New Button is used to clear the work area i.e. when creating a new template or a new image card.



Show/Edit image info (<Ctrl>+<I>)

For every image there is a collection of data and image information



Find Images (<F3>)

Searching for a patient's images.



Delete ()

Delete images, image cards and templates. Requires permission



Presentation Overview

Show images from clipboard in a presentation view.



Show/Hide List

An On/Off button to show the image card without the image list



Show/Hide Grid

An On/Off Button to show the grid on the image card



Show Template

The selected template is displayed on the image card

About the Image Toolbar

The tools are activated one at a time by a mouse click and will affect the selected image on the image card. Alterations to the image will transfer between the two image card views, but will not appear in the image card list, as this can only contain original images. Altered images are saved on the image card and the originals remain in the image list. You can toggle between viewing and hiding the toolbar by left clicking on the **Image toolbar button**, or right clicking on the bar and choosing the toolbar from the menu, or choosing **Customise**.

The Image **toolbar** contains the following tool buttons.



Reset

Resets the pointer to the normal state where you can move and resize images on the imagecard. Deactivates other selected tools.



Revert to rotated/mirrored original

The image is reverted back to its original except for rotation and mirroring.



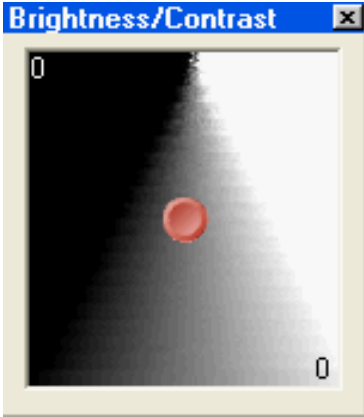
Mirror

Flips the image to a mirror image of the Image. Mirror is also available as an auto filter in System - Preferences - Capture.



Show/Hide Brightness/contrast tool

A clickable on/off combination tool in the shape of a moveable red spot. The spot is moved by drag and drop, controlling contrast vertically and brightness horizontally. Right-clicking in the frame gives you the numerical values. The red spot is also controlled by Ctrl + arrow keys.



Another way to change the brightness and contrast on an image is to hold down the Ctrl-key on the keyboard, press down the left mouse key and move the mouse in the same way as on the tool.

Note: if this tool does not work you probably forgot to turn off the annotation



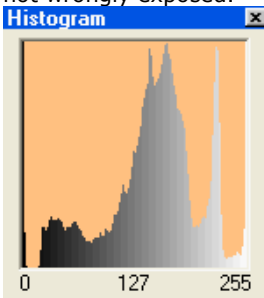
Soften/sharpen filter

The tool Soften/Sharpen is used to either soften or sharpen edges in the image. When clicking the tool button a slide-bar appears. Drag the slider and the image and the image is changed correspondingly. If you want to remove noise use the Noise reduction tool instead.



Histogram, show/hide

Is an on/off button for the histogram showing the amount of different grey shades in the image. For example, with the histogram you can tell if an image is under- or overexposed. The image below shows that the greyscale is well spread over the 0-255 range and that the X-ray seems to be well inside the borders and not wrongly exposed.



Stretch histogram



This is a tool to enhance certain greyscale levels in the image. It is important to know that the area outside of the enhanced area will be neglected.

Invert



Replaces black with white and vice versa, producing a negative of the image. Makes it easier to spot changes in the bone-area.

Equalization



Opens a magnifying glass in the image which enhances the area viewed, roll the mouse wheel to enlarge the magnifying



Edge enhance

Increases contrast to make the edges in the image clearer.



Optimize brightness and compensate for X-ray attenuation

- This tool does two things to enhance the whole image based on the values in an area of interest.



Magnifier

This tool is a magnifying glass. Left-click on the tool button and the mouse pointer changes.

Colorize



Turns the grey scale into a colour scale that is scientifically proven to enhance the ability to determine between different shades of grey. This tool lets you benefit from the fact that it is easier for the eye to distinguish colour changes than greyness changes.

Customize the toolbars

All functions are available as icons, but not displayed with the default settings. In order to customize the toolbars do as follows:


- 1 Right click in the grey area besides the icons.
- 2 Choose customize from the menu
- 3 Choose the Tools tab.
- 4 In order to add an icon/button to the toolbars press the left mouse button and drag it to the desired position drop the icon by releasing the mouse button.

To remove a button from the toolbar act as above but drag it from the toolbar and drop it inside the customize window.

Image acquisition


When a hardware device and it's plug-in is installed, a continuous group of tools will be added to the toolbar. A new menu item will also be added to the Tools menu. DentalEye allows you to work with images, image cards, series and templates. It is important that you understand the difference between these and how DentalEye is set up to work.



The group  belongs to an X-ray sensor.

A click on  activates the Plug-in

A click on  deactivates the Plug-in


A click on  shows the Plug-in settings.

When using DentalEye with hardware plug-ins it is necessary to firstly open the correct patient and then activate the hardware through the icon on the top right hand side of the toolbar that corresponds with the desired device, active by clicking upon this icon, the icon should change from red to green and you are ready to start saving images. Before randomly saving images it is however necessary to chose how you would like to save these images. This is explained in the next couple of pages.

Too capture a bite-wing series

The sensor is probably auto activated and the red/green dot on the sensor

plugin is green.  If not activate the sensor with the

Activate button .

Check that the right template is selected, the default is the last used template.

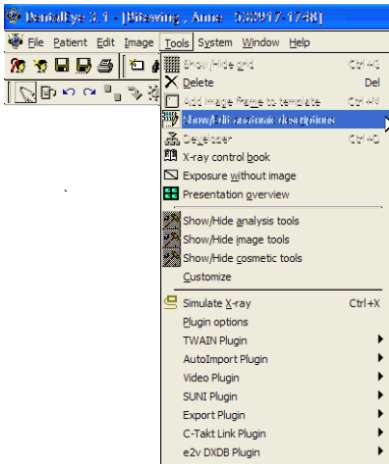


(Rem: in System - Preferences - Capture you may assign a standard template to an image device.)

1. Position the sensor for the first X-ray, go out and trigger.
2. Check the image with a quick glance at the computer screen.
3. Reposition the sensor, go out and trigger, repeat until the series is ready.

Anatomic descriptions

DentalEye works with an index of anatomic descriptions, which every clinic can organize, reflecting their own procedures and requirements. The idea behind this feature is to make it easy to define a particular area on your images. DentalEye uses the anatomic descriptions when a template is used while capturing images. The anatomic descriptions will be assigned to the image automatically. Thus making the anatomic descriptions searchable e.g. search for all BW molar right from the last 3 years. Furthermore since the teeth in an anatomic description are assigned to the image, a particular tooth can be searched for independently of the type of anatomic description it belongs to. E.g. search for all canine upper left from the last 3 years. To start with, DentalEye provides you with a set of anatomic descriptions, including specific teeth, which are used by many dentists. Go to the menu bar and choose **Tools > Show/Edit anatomic descriptions**.



- To create a new anatomic description, press the **New** button. The text NEWAD (new anatomic description) is shown at the bottom of the list and in the **Name** field.
- Enter the name of the new anatomic description and indicate the teeth concerned by clicking them on the tooth chart. The teeth will be marked blue and will be included in the anatomic description. You can choose between adult and milk-teeth by clicking the radio buttons.
- To remove an anatomic description, you select it in the list with a mouse click, then press the **Delete** button. If an anatomic description has been used for an image or a template frame that

is stored in the database, you cannot remove that anatomic description.

- To change the contents for an anatomic description, you select it in the list with a mouse click. Then edit the contents on the tooth chart.
- In the **Comments** box, you can write information concerning the selected anatomic description. The comment will only be visible in Show/edit anatomic description. For instance, you might want to enter the date a new anatomic description was introduced into the system.
- For convenience, arrange an order that will be easy for you to follow. You can change the order by selecting an anatomic description, then pressing the big arrow buttons below the list box, to move the anatomic description up or down, one step at a time. It is advisable to keep an anatomic description without any teeth at the top of the list. This one will be used as default and is needed for images that do not correspond to any anatomic description. Obsolete groups should be placed at the bottom of the list.

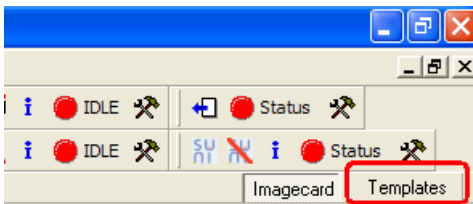
The list of anatomic descriptions will appear at certain points e.g. in the Template manager

Create and edit templates


A template is created by the arrangement of one, or several image frames, on an image card. Check teeth contents for the tooth groups that are to be included in the template. If they do not suit your needs go to Show/Edit anatomic description and make necessary changes. (If you have special settings for this particular template, you can reset the tooth group list, once the template is ready. This will not affect the newly created template.)

Create new templates

1 Open the **Template manager** window with a click on the Templates tab.

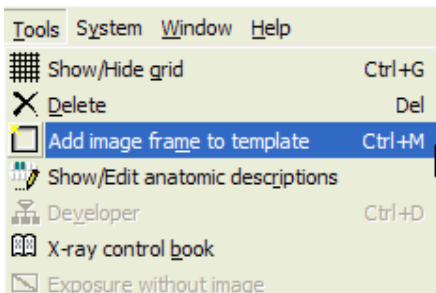


An empty work space named New Template is opened as default. If you prefer to use an existing template to create a new template click on the template in the Taskpane, in order to keep the used original template


click on the Save as icon  and give the the template a new name.

2 Add frames

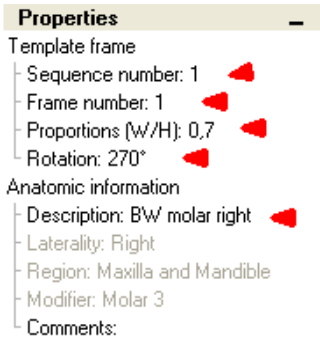
In the Tools menu **Add image frame to template** or use <Ctrl>+<M> for the number of frames needed in the template. The frames will appear on top of each other at the top left corner.



3 Once the series of frames is completed, place the frames (*drag and drop*) in the way you want the resulting image card to look. Size can be adjusted one frame at a time, by dragging any corner. To display a grid

that will help to place frames evenly click on the grid icon  In many cases it is simpler to take the images in the size they come and place them in the desired arrangement against the upper left corner. Resizing can then be done collectively by moving the edges of the image card towards the frames.

4 Now change the properties to your needs, mark the frame you are to change.




Sequence number X tells DentalEye that the X:d captured image shall be placed in this frame and get the properties for this frame.


Frame number is just DentalEye:s way to number this frame.

Proportions designates the relation between width and height for the image. An image that is displayed in landscape (horizontal) mode normally has 0,7 as the proportion.

Rotation - Set the **Rotation** for correct presentation of the images on the screen. If you are unsure of the required rotation, leave the field as is and perform a test run as described under the topic Test run. Intraoral sensor images are normally displayed right (rotation 0°) when the cord is aiming down.

Anatomic description - chose the right anatomic description from the list made up in Show/edit anatomic description.

5 Save the new template by clicking the icon **Save as**  or if the

template already has a name **Save** .

The window **Save template** appears suggesting a name for the template. Choose an instructive name containing relevant information, i.e. "BW 4 horizontal" (*Bitewing series of 4 images using a sensor horizontally.*) The template list is updated with the new template.

Edit templates


1 Select by clicking on a template in the Template list

2 To add a new frame, click the **Add image frame to template** button or **<Ctrl>+<M>**.


3 To make changes within a frame, click the frame and make desired changes

4 Click the **Save** or the **Save as** button (Look at step 5 above).


Delete frames/template

Template frames as well as the self-made templates can be deleted, there are some templates marked  that cannot be deleted.

Delete frames

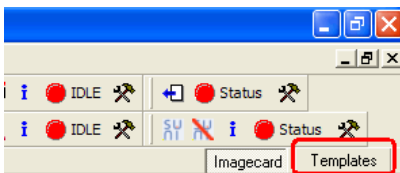
- 1 Select the frame to be deleted by clicking it.
- 2 Click the Delete button  (or)
- 3 A dialogue box appears asking 'Are you sure?'
- 4 Click Yes and the frame disappears.

Delete Templates

- 1 Select the template in the template list by clicking it.
- 2 Click the Delete button  (or)
- 3 Click Yes in the dialogue box and the frames as well as the template name disappears instantly

Work with templates

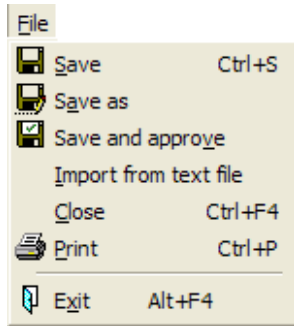
The template is a flexible tool and can be used for several purposes. It is therefore important to understand the different functions. You enter the Template manager at the very right of the lowest icon-bar.



A template consists of **frames** arranged on an **image card**. Each frame contains five properties with **guiding functions** for the image that will end up in the frame. The frame properties will be used to add properties to a captured image and based on the image properties the image will be positioned, sized, rotated and assigned the right Anatomic description. There are some default Templates that you may not delete but they may be hidden by clicking on Hidden in the properties list and select Yes.



File menu



Save (<Ctrl>+<S>)

Save a new template/image card or any updated information. Saves the information in the current name.



Save as

Save as is used when you want to save your template or image card as a copy preserving the original. Save is automatically redirected to Save As with newly created unsaved image cards and templates. Tip: in order to be able to edit an image card, bring up the original series (which cannot be changed) and save as a new name. The newly created image card is now open for new images and can be edited.



Save and approve

Saves and approves the image. Rem: approve is used if personel without right to approve images are capturing images and needs to save in the database for later approval by qualified personel. The save function can be set up to approve when save if this is not needed.



Import from text file

Internal import is used when another DentalEye user has exported a text file with patient and image information. The file can either have been sent as an e-mail or on a disc. DentalEye gives a default name to the files, **DEExport.txt** and **DE1.cmp**, **DE2.cmp...** (.cmp is the image file

format that DentalEye uses). If you have received an e-mail with multiple files, it is not necessary to know which of them that belongs to the text file. The images may be previewed as in the external import case, but for the import as such the procedure is different. The choice of patient has no bearing.

Go to the menu bar and choose **File | Import from text file Browse for the received file (DEExport.txt)**.

- Click the **Open** button. A window will display the content of the package.
- Click the **OK** button in the window.

The import is now completed and includes patient and image information as well as the images. The images are now stored in your database in the same condition as your own images.



Close

Closes current patient.



Print (<Ctrl>+<P>)

Brings up the Print window where you select what and how to print. Images and image cards can be selected and arranged for printing in different ways. Go to the menu bar and choose **File | Print**, or click on the tool



bar , or **<Ctrl>+<P>**

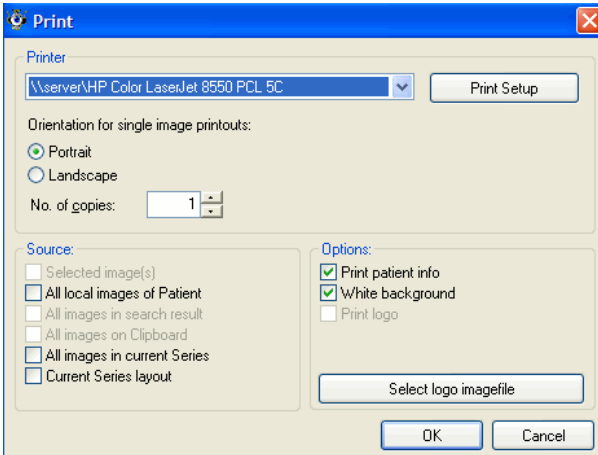
A **Print** window appears containing following items:

- Select the printer of your choice from the printer list.
- Click on **Print Setup** to go to printer settings.
- Under Source you find a number of ways to select images and image cards. The check boxes are open according to your selection in the image list or on the image card. To select more than one image from the taskpane hold down the ctrl button and click on the second image and so on. To select a number of images at once click the one placed highest and hold down the shift key while clicking on the one at the bottom, all images between will be marked.

Current series layout - Prints what you see on the active image care/series on the screen.

- Under **Options** you find some options for the printout display. White background is there to save ink if you have a coloured background.

Print logo requires that a logo is selected, the selection is done with the button below.



Individual images will be printed maximized one on each page. If you want more than one image on a page, create an image card with the layout of your choice and then select Current image card only in Source of the Print dialogue.

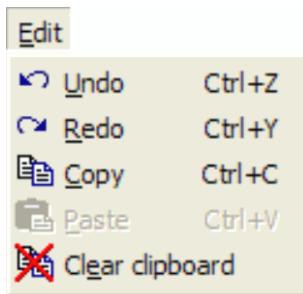
When printing image cards the paper orientation will be selected automatically depending on the proportions of the image card. The printer and the paper usually limit the quality of the printouts.



Exit

Exit DentalEye.

Edit menu



Undo is used to regret the last actions. You may step back and undo one action at the time.



Redo makes the last Undo action undone. In case you undid to many actions it is possible to redo actions step by step.



The clipboard is a list containing copied images. The images can be copied from different patients and from the image list, Search results, Image cards and from the Clipart list. The clipboard content is preserved when moving to a different patient. The clipboard can contain a maximum of nine (9) images at the same time.

Images can be copied from a patient's image list, Search result as well as from Image cards. It is also possible to copy images from the Clipart list. To copy images do one of following:

- From the menu Edit | Copy
- Right-click and select copy from the pop-up menu
- Press <Ctrl>+<C>



The clipboard images can be handled in the same way as images in general. However there is a special function for pasting images from the

Clipboard to the Image card. To paste images from the Clipboard to an image card do one of the following:

- From the menu **Edit | Paste** the last image on the Clipboard is pasted
- Press **<Ctrl>+<V>** also pastes the last image.
- Mark all images on the clipboard (**<Ctrl>+ left-click**) and select **Edit | Paste**.



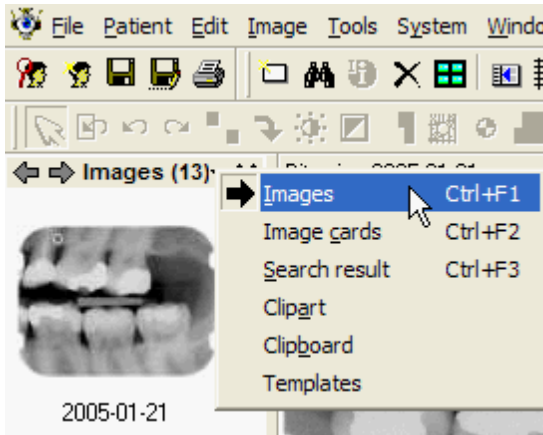
Clear clipboard

To delete all images from the clipboard use the function Edit | Clear Clipboard. If you just want to remove a single image you can use the normal procedure: select the image and click Delete. How does Images, Image cards, Series and Templates work

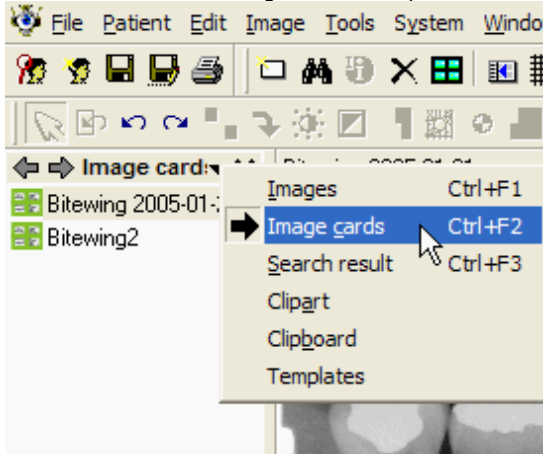
DentalEye allows you to work with images, image cards, series and templates. It is important that you understand the difference between these and how DentalEye is set up to work.

To start with we will explain the different functions and the terminology and then some examples on how to setup DentalEye for different preferences. With version 3.1 the term Series has been added, a Series is an original imagecard that may not be altered. A Series will always be presented as it was when approved and saved meaning that the original will always be there if you need to get back to it. This new feature has been introduced to add even more security and quality assurance to DentalEye and it is also a requirement from the Dicom standard. A series is marked with a black ikon and an imagecard with a green icon in the imagecard list.

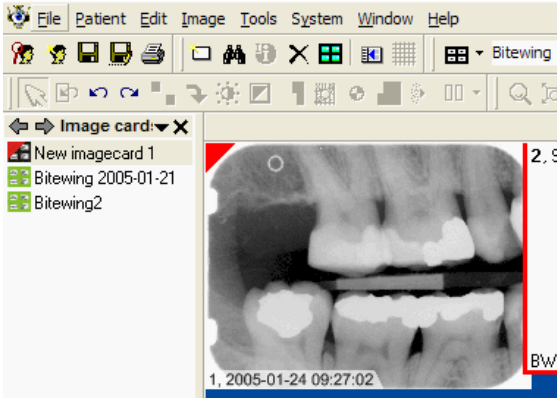
Images are always stored in the patient file, the individual images on an image card are saved at the same instant as the image card is saved. By changing the view in the Task-pane to Images (down arrow beside the title in the Task-pane) all images stored on the patient file will be displayed.



The Imagecard is the result when images has been exposed with a template. An image card may also be built manually e.g. a case presentation that is built with an existing image card as a base and then added to with other images from the patient file.

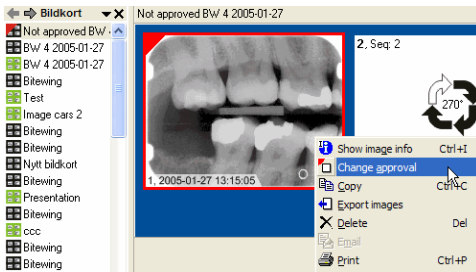


A Series is an original image card saved as exposed, such a series is always saved. A Series is marked with a black icon beside the name in the Task pane. As the Series is an original it is not open for editing. (The reason for this is the demands from the Dicom standard.)



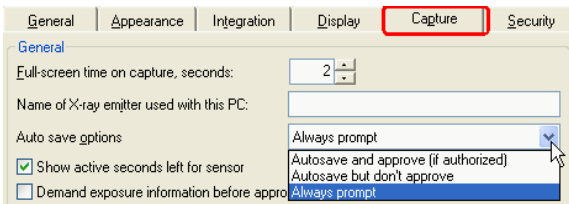
Approved or non approved

An approved Series cannot be altered or added to. However if needed the approval can be changed, provided that the user rights permits changing approval (System - Preferences - Security). The approval is changed by rightclicking on each image in a Series (or Imagecard) and choose "Change approval" from the menu. A Series will be opened for changes when all images in the Series are non approved. A non approved image has a red mark in the upper left corner as in the example below.



Save automatically or manually

A Series may be saved automatically as soon as it is captured or you may setup DentalEye to prompt you to save and have the opportunity to save with or without approval thus making the new Series to remain open for alterations and new images.



In order to eliminate the extra effort to have Series and Image cards mixed you may turn off the display of Series. Go to System - Preferences - General and mark "Hide approved original series in imagecard list". At the same instant as the Series is stored and hidden an exact copy is saved as an image card, which is fully open for manipulation and editing. However the original Series is always there if needed and can be displayed by unmarking the "Hide approved original series in imagecard list".

General

National settings

Language: English

National Insurance number mask: None

Hide images

Hide approved image(s) in image list and hide image card(s) with all images approved

Hide non approved image(s) in image list and hide image card(s) containing any non approved image(s)

Sort order in image list

Descending Ascending

Path to clipart library:

C:\Program Files\31\Clipart

Preset image comments

Edit

Imagecard list options

Hide approved original series in imagecard list

Templates are used to make the images to fit in a layout and to assign preferences to images. Templates may be changed or added to suit your work flow, some Templates are installed with the software, but the idea is that every user shall be able to work exactly as preferred.

How to move images

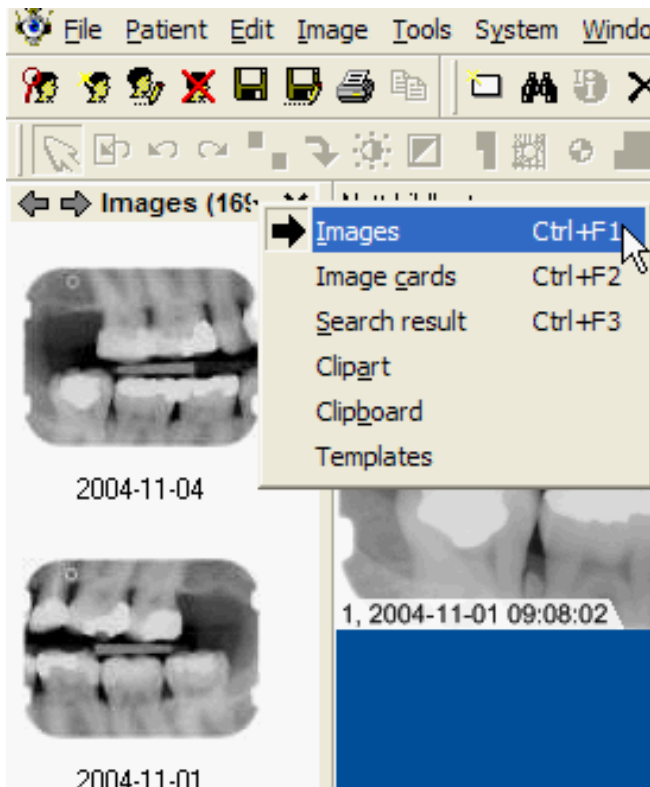
See a presentation on how to move images.

If by accident images has been captured in the wrong patient-file, there is a way to copy the images to the right patient and then go back and delete them from the wrong patient. However since this is a very delicate operation we have choosen to make it a bit cumbersome and very restricted.

Performing this operation copy and deleting images requires Delete-permission of the user. You might have to ask your Administrator to do the operation.

Start in the patient-file where the images are.

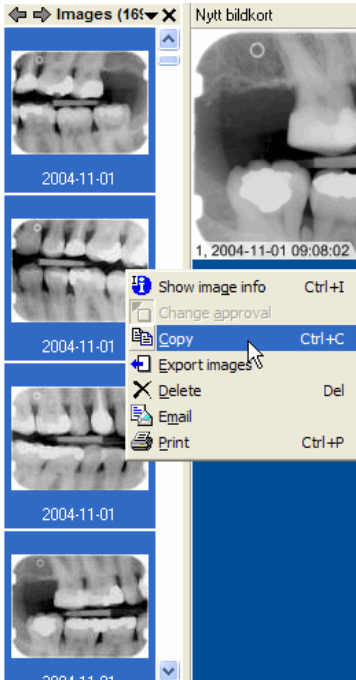
Change the taskpane view to show Images by clicking the down-arrow to the right of the taskpane title, select images from the menu.



Select the images to copy.

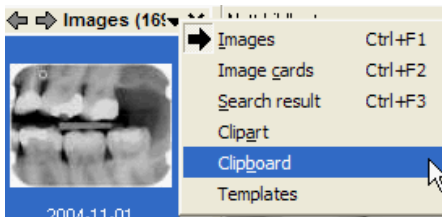
If you only need to copy one image click on it and the background becomes blue.

DentalEye supports the Microsoft standard of selecting more than one object. To select several images either click on the first and hold down the ctrl-button and click the next, this way the 2-9 images may be selected. Or if the images are in squence click on the first and then go to the last hold down the Shift-key and click on the image, all images between should not be marked by showing a blue background. To copy right click on the marked area and choose Copy from the menu.



Now the taskpane view should be changed to Clipboard, and on the Clipboard the copied images should be visible.

REM: if you need to start over again the Clipboard must be cleared from old images, go to the Edit menu and select Clear Clipboard. The copied images will reside in the Clipboard as long as DentalEye is active.





Go to the patient the images belongs to.



Bring up a new empty image card.

Drag and drop the images from the Clipboard view in the taskpane onto the empty image card. Place and rotate the images in the image card.

SAVE the image card under a name.

Now the images are copied to the right patient, the final step is to go back to the wrong patient and delete the images.

Go to the wrong patient. Change the task pane view to image cards. Mark the image card that contains the images that does not belong to this patient. Click on the Del-key on the keyboard. You will not see the change until you press F5 to update the patient or close the patient and go bac

How to view images and image cards

Some practical tips and tricks about how to view images and image cards in DentalEye.

When a patient file is brought up the latest exposed image card is displayed as a default. The images are real images and may be diagnosed directly from the image card. (Most other systems only bring up thumbnails which are low res copies.) Use the Magnifying glass and move it from image to image on the image card.

In order to see more double click on the first image on the image card to view it in single image view, use the TAB key on the keyboard to go to the next image directly, Shift-TAB brings you back to the previous image.

Compare image cards in two different ways:

1. Hold down the ctrl button and click on the image cards you want to bring up in the Taskpane view. (Rem. if the images becomes small when they are displayed together the background from old image cards is the problem. Go to the image card and drag the border of the background (default color is blue) to just cover the area with the images, save.)
2. Use Find images, in the Find images window mark the Active box and select a template that fits the search e.g. Bitewing x 3. Click the Search button and all images that fits in to the selected Active template will be displayed in the template. The Bitewing x 3 template consists of three rows with 4 images, each row has the same 4 image names therefore the three latest generation that fits in to the template will be displayed.

X-ray image from an Image plate scanner (PSP scanner) with the Developer

The Developer is used in a network where one image source is connected to a computer that is shared by several users. Such as a centrally placed X-ray scanner that is accessed from several treatment rooms.

The purpose of the Developer is to make capturing images with a shared X-ray equipment as easy as possible.

Set up the system in System - Preferences - Network

The computer with the shared equipment is set up as a Developer server with a certain ID number. The computers in the different treatment rooms are set up as Clients to a Developer with the same ID number as the Developer server.

It is possible to have more than one Developer server set on the same ID number. This way several image sources can be shared in the same practice. In larger systems with several workgroups having their own shared equipment, it will be practical with different ID numbers for each workgroup.

Go to a presentation of the Developer.

Color Image from Video device


When the required hardware is installed, a continuous group of tools will be added to the toolbar under the menu bar.



The group belongs to the video source. A click



on activates the video and the red dot turns green. Rem. you may

set up the video plugin to launch automatically. A click on  shows the video plugin settings. This is usually done at installation and is not explained here. Go to a presentation of the installation procedure of the Video plugin.

Color Image from a Digital camera (Autoimport plugin)


There is a plugin available that makes it possible to automatically import images from any drive that can be reached from the computer, it may be a harddrive on a computer with a digital Panoramic device or a digital camera or image card reader. The purpose is to simplify the often cumbersome handling of images in digital form. The Autoimport plugin can be setup to import and clear the images from the source without a single keystroke.

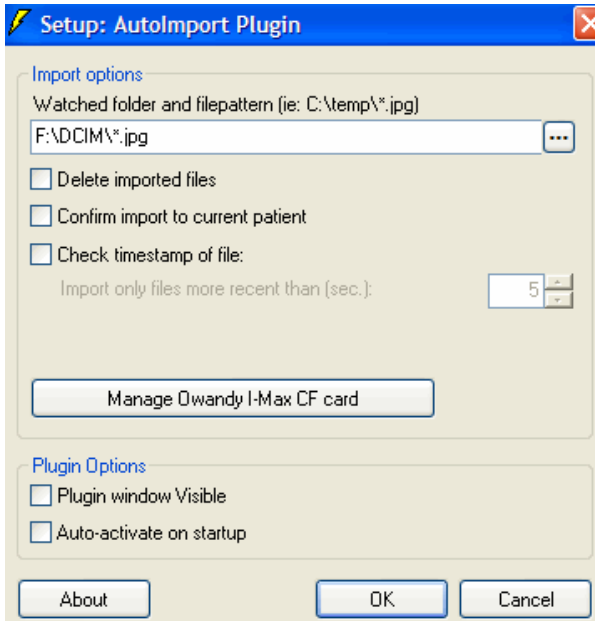


The group belongs to the Autoimport



plugin. A click on activates the plugin to import the images. The

button  is available if the plugin needs to be manually deactivated. A setup window is reached from .



Watched folder - is the full path to where the images will be situated.
 Delete imported files - This option actually clears the source of the images that has been imported and thereby makes the memory card in the digital camera fully available for the next patient.
 Confirm import to current patient - Gives you a second chance to check that the right patient is selected before the images are imported.
 Check timestamp of file (together with the window for seconds) - Makes it possible to setup so that only the most recent images are imported. The images in the source will not be deleted.
 Plugin visible - Shows a plugin window on the screen while it is activated.
 Auto-start capture - When DentalEye is launched the sensor is automatically activated. Rem: under Preferences - Capture you may setup the plugin to activate automatically as soon as a new patient is selected.

Every image in DentalEye is accompanied by an image info file. You can view this file by right-click on an image and click the [Show/Edit image](#)


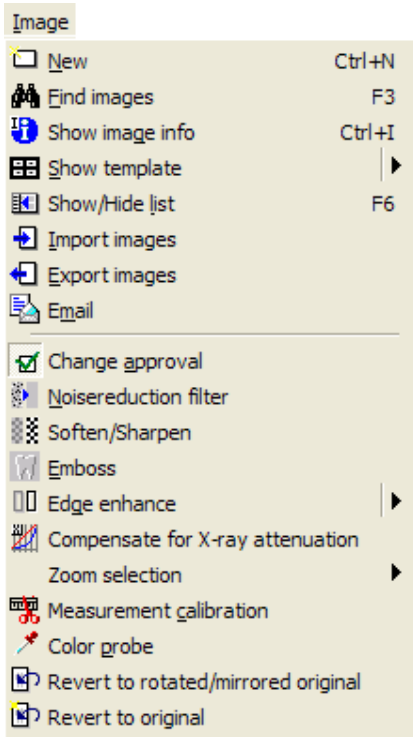
[info](#) toolbar button .

Image menu



New (<Ctrl>+<N>)

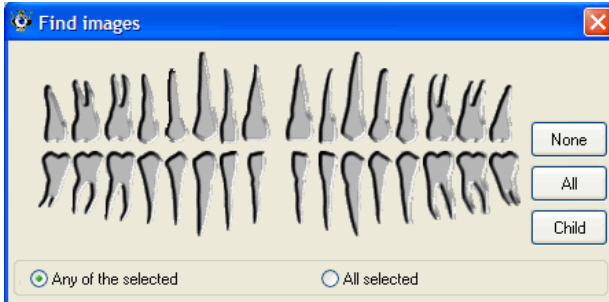
The New button is used to clear the work area i.e. when creating a new template or a new image card.



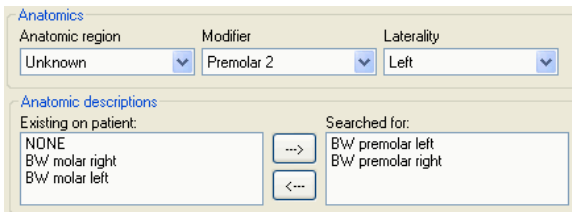
Find images (<F3>)

Searching for a patient's images. Brings up the Find images window. Note that you may add more than one criteria to filter out the images that you are looking for.

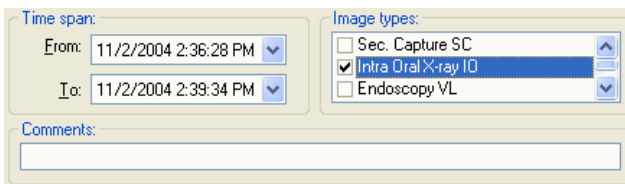
At the top you may select one or more tooth to search for. Just click on the tooth/teeth you want to search for, one more click and the tooth is unselected. You can select to search for images with all selected teeth present or images with any of the selected teeth below. Mark all or no teeth is to simplify the marking. Click Child to bring up a child tooth-set.



In the next segment it is possible to select the Anatomic to search for or to use the Anatomic descriptions from the image properties. Select Anatomic descriptions by marking a description and the click the right arrow to add it to the search, remove from the search by marking it in the right box and click on the left arrow.



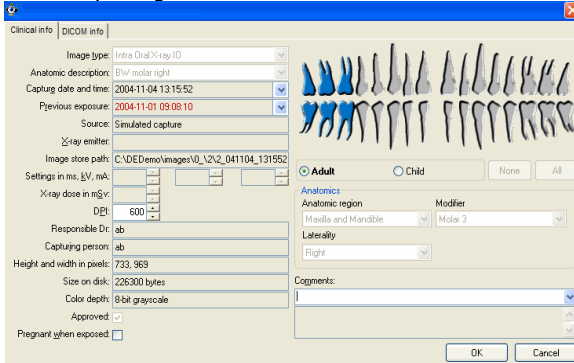
You may also add the time span when the image searched for was captured. Or select only to search for particular Image types. There is also an option to search for a comment that has been added to images, for instance to find all images on objects treated with method XXX.



A very swift way to search is to just mark Active, meaning all images that relates to the specified template. In the example below a template with 3 generations of bitewing series is selected. This selection will result in an image card with 3 rows of bitewings, the images will be the last 3 series of the selected type.

Show/Edit image info (<Ctrl>+<I>)

For every image there is a collection of data and image information.



Show template

The selected template is displayed on the image card. Select a template from the template window in the center of the toolbar. The last used template will be the default template until a new is selected.

This function is useful when only a few images are going to be captured. When the template is displayed mark the frame that relates to the image that is going to be captured and the preferences, layout and rotation will automatically be assigned to the new image. If more images are to be captured even though not in sequence it is easy to mark the frame and capture.

Show/Hide list (<F6>)

An On/off-button to show the image card without the image list. The idea is to provide a bit more space for the image card.

Import images

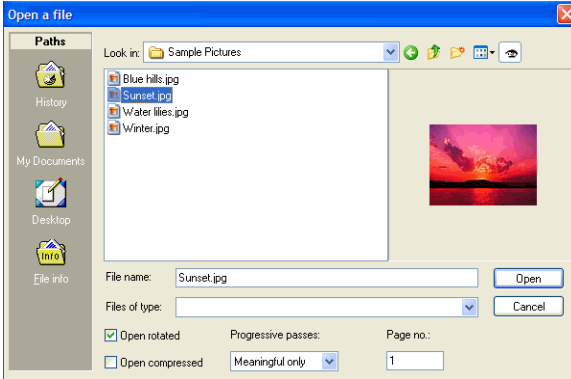
DentalEye stores image files in different file-formats, that can be setup in System - Preferences - File format. Imported image files will be converted to the selected file format.

Import contains two different functions, **External import** and **Internal import**.

External import

- Select the directory or external media at Look in:

- Select one or more files, hold down the ctrl button to select more than one image.
- Click on the Open button.



In the next window the imported images may get priorities assigned to them.

- Destination: New series means that the images will be treated as an original series and locked for editing. Imageview means that the images will end up on a imagecard to be edited and saved.
- You may save all images with the same properties.
- The anatomic description may be assigned by choosing it here.
- The teeth on the image may be assigned to the images by selecting them here.
- Acquire means that a twain source is selected e.g. a scanner. (This is also available as a plugin.)

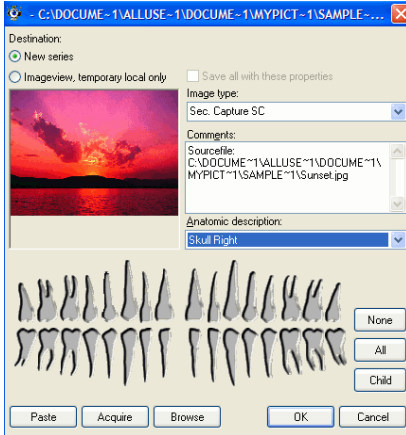


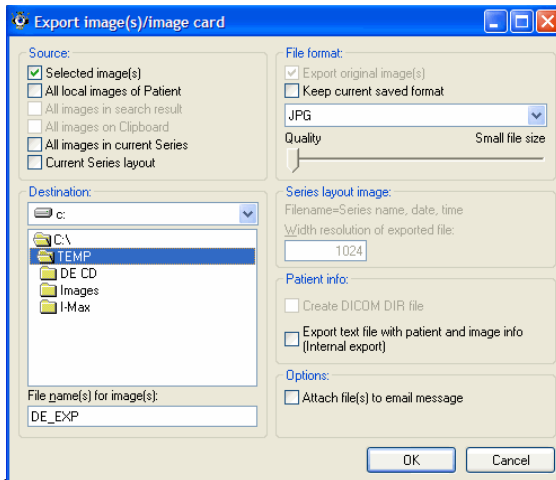
Image files are imported and the following information is automatically transferred to **Show/Edit image info**:

- Capture date and time will be retrieved from **Modified** (not **Created**) in the source file.
- **Source** will be "**Imported File**".
- **Path** will be chosen according to image storage.
- **DPI** (dots per inch) will be taken from the source file if available.
- **Approved** will be **True**. **Height and width in pixels** will be retrieved from the source file.
- **Size on disk** will be set according to image storage.



Export images

There are a number of ways to export images from DentalEye. The Export image window shows up when the Export images button is clicked.



Source:

Depending on what was marked when the Export button was clicked different alternatives are available.

Selected images - The images that was marked before clicking the Export images button. Mark images in the taskpane, press down the ctrl key in order to select more than one image.

All local images of Patient - All images that belongs to the active patient.

All images in search result.

All images in current series/image card.

Current Series layout - captures a picture of the series/image card with the layout and annotations.

Destination:

Browse to the drive and directory where the images should be copied to.

File name for images:

The name may be changed.

File format:

May be kept as the original format or changed to a common file format from the list. The compression/quality of the exported files can be altered.

Export text file with image and patient information - Creates a package consisting of image files and a text file containing information about the images such as the patient data and image properties. This is meant for export to another DentalEye system.

Attach files to an E-mail - Makes an E-mail of the selected images to export and launches the E-mail software installed on the computer.



E-mail

Mark one or more images and choose E-mail and the E-mail software will be launched with the selected images attached.



Change approval

If you have not approved images that are saved while saving them you may mark the image and click Change approval to make them approved. If an image is saved as approved it can be altered back to non/approved the same way. When an image is un-approved it has a red mark at the top right corner.



Noise reduction filter

Reduces the noise in an image by smoothing out the contrast.



Soften/sharpen filter

The tool Soften/Sharpen is used to either soften or sharpen edges in the image. When clicking the tool button a slide-bar appears. Drag the slider and the image and the image is changed correspondingly. If you want to remove noise use the Noise reduction tool instead.



Emboss

Emboss applies a three dimensional effect to the image making it looked embossed. Could be useful in presentation situations.



Edge enhance

Increases contrast to make the edges in the image clearer. The down arrow on the right opens a menu where you can select from 10 strength levels. When you select a level it will be applied directly and that level will be remembered and used as default next time. Just clicking the icon will apply the edge enhancement with the previously selected strength level. This tool is also available as a autofilter in System | Preferences | Capture.



Optimize brightness and compensate for X-ray attenuation

This tool does two things to enhance the whole image based on the values in an area of interest, for instance while searching for caries, mark an area where caries could be found and the whole image will be enhanced for caries detection.

Compensate for X-ray attenuation

The first algorithm compensates the image for the problem caused by the fact that the X-ray beam deteriorates exponentially through thicker materia, which causes the grayscale in the image to have unequal steps in darker and brighter areas.

Compensate the grayscale to optimize diagnosis

This algorithm places the selected area in the middle of the gray scale where visual perception is optimal. Note that this optimized viewing is for

the selected area only. If you want to check another area, you should repeat the procedure there.

The tools was developed by professor Ulf Welander and his research team at the Karolinska Institute.

- Click the button and move the mouse pointer to the area of interest.
- Press the left mouse button and by dragging draw a circle in the healthy part of the tooth, close to the suspect area.
- Release the mouse button.
- The whole image will now be adjusted. If you want to check another area, repeat the procedure.

Zoom selections:



Magnifier

This tool is a magnifying glass. Left-click on the tool button and the mouse pointer changes to I the magnifying glass is used on an image card you will have to release the mouse button as you move from one image to another.

You may also zoom in an image by using the mouse wheel.



Zoom

This tool is used to select an area to zoom in to either by dragging a rectangle with the mouse or just to click on the spot you want to enlarge.



Fit image to frame

To see the full image within the window click this icon and the image will change to fit inside the window.



Fit image to screen resolution

Changes the image size to one image pixel = one screen pixel. The optimal resolution is reached by displaying one pixel in the image on one pixel of the screen. Since the image becomes larger than the window you will need to scroll to view hidden parts of the image.



Measurement calibration

Used to calibrate the Ruler annotation. Click the tool, draw a line with the left mouse button over an object in the image with a known length, type the length in millimeters and click OK. The DPI (Dots per inch) value of the

image is changed. The DPI value is used for all measurements. Please note that the calibration is for this image only. Normally X-ray images have the DPI set from the size of the X-ray sensor/image plate and this is usually good enough. Use the calibration if you want to be sure of a correct measurement.

If you for some reason want a new DPI value set to all new images from a certain source, do like this:

Take the resulting DPI value from your calibration as seen in Image information. Go to System | Preferences | Capture, select the source you want to modify, Put a check in "Override DPI with this value" and enter the new DPI value.



The Color probe

Use the Color probe tool to check the average intensity level of a selected area in an image.

Click in the Image menu to enable the tool. Click and hold the mousebutton in the centre of the area in the image that you want examine. Drag the mouse so that you have a circle covering the are and release the mouse button. A message will be shown telling you the average intensity level, the intensity range of the image and the total number of unique intensity levels found in the area.

The tool is especially useful to check the consistency of X-ray equipment. If you do your consistency checks by exposing the same object with the same settings at the same distance you should get similar values every time. (if your equipment is consistent).

For 8-bit greyscale and 24-color images the range is 0-255.

For 12-bit greyscale images the range is 0-4095.

For 16-bit greyscale images the range is 0-65535.



Revert to rotated/mirrored original

The image is reverted back to its original except for rotation and mirroring.



Revert to original

The image is reverted back to its original

Image quality in X-ray

The image quality depends on a number of variables, the important thing is not that a certain variable is impressively high but rather that the combination of variables gives you an image which is appropriate for the task at hand.

Gray scale

Each pixel captures one shade of gray, the image is made up of all those small dots each representing a shade of gray. The measure used here is called bit depth meaning how many shades of gray a pixel can contain. 8 bits/pixel = 256 shades of gray per pixel. This is what standard monitors can show.

12 bits/pixel = 4096 shades of gray per pixel.

16 bit/pixel = more than 60 000 shades of gray per pixel.

When the image is captured it seldom fills out the whole spectrum of grayscales available therefore it is important to at least initially use as much bitdepth as possible. In the process of capturing an image it is normally enhanced so that it is distributed over a wider grayscale and thereby easier to diagnose or determine between shades of gray.

Show/edit image information – under the heading **Color type** you'll see what kind of image it is, i.e. 12 bit gray scale, 24 bit color etc. Try the button Show/hide Histogram to see how well distributed the image information is over the grayscale. In the **Histogram** the scale changes as the number of gray scales increases.

The image shown on the screen is, due to the screen's limitations, merely an 8-bit gray scale.

When manipulating an image, DE will work from the 16-bit original, and round off the screen image to 8 bits.

To take full advantage of the 16-bit gray scale, it is recommended that you use the **Colorize and Stretch Histogram functions**.

Images are saved in 12/16-bit gray scale. Images that are manipulated using tools such as Stretch Histogram are converted to 8-bit gray scale after the tool has been used.

Special tools to enhance an X-ray image

The tool does two things to enhance the whole image based on the values in an area of interest, for instance while searching for caries, mark an area where caries could be found and the whole image will be enhanced for caries detection.

Compensate for X-ray attenuation

The first algorithm compensates the image for the problem caused by the fact that the X-ray beam deteriorates exponentially through thicker materia, which causes the grayscale in the image to have unequal steps in darker and brighter areas.

Compensate the grayscale to optimize diagnosis

This algorithm places the selected area in the middle of the gray scale where visual perception is optimal. Note that this optimized viewing is for the selected area only. If you want to check another area, you should repeat the procedure there.

Patient window

The window that is opened when a patient is selected contains the following:

The Task pane

The Task pane shows the active patients:

Images - all images stored in the archive for the patient.

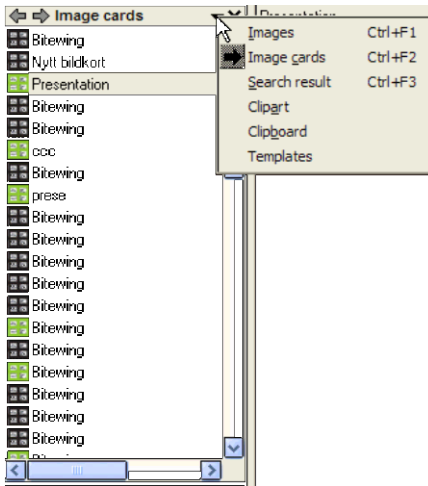
Image cards - all image cards (marked green) and original series (marked black).



Search result - the result from find images

Clipart - a collection of smile images either purchased or from your own collection

Clipboard - the clipboard is used for copy and paste within DentalEye (e.g. when an image needs to be moved from one patient to another). The clipboard is not related to a particular patient and has a limit of 9 images.



Properties list

Below the Task pane the properties of the selected object (an image, an image card/series or a template) are displayed. On an original series the properties of the images can not be edited, but on an image card some properties can be edited. Many of the properties displayed are required by the DICOM standard.

Properties —

Image

- Image type: Intra Oral X-ray IO
- Date: 2004-10-15 13:48:54
- Responsible Dr: ab
- UID:
 - 1.2.840.114257.3.6.32.32.559799

Anatomic information

- Description: BW molar right
- Laterality: Right
- Region: Maxilla and Mandible
- Modifier: Molar 3

Exposure



- Prev. exp.: 2004-10-15 12:04:21
- Voltage (kV): 0
- Current (mA): 0
- Exposure time (ms): 0
- X-ray dose in mSv: 0

Series

- Image number: 1
- Frame number: 1

Image card/series area.

The contents can be updated by using Update patient <F5>. This is useful in a network environment where two workstation may have the same patient shown. (i.e. when using the Developer function).

An original series  Bitewing is stored as an original and can not be changed, an image card  Presentation is open for editing.



The disposition of the patient window can be changed:



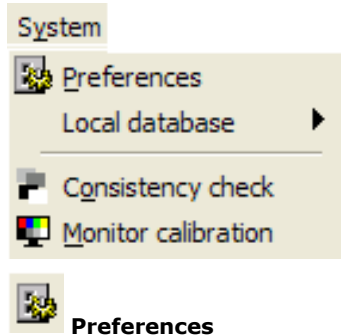
Show/hide list - from the icon or in the image menu makes the task pane and properties visible or invisible. The proportions between the list and the image card/series area can be altered by dragging the border to the left or right.



Place task pane on opposite side - from the icon or from the Window menu you can change side for the task pane and the properties so that they appear on the left or right side of the screen.

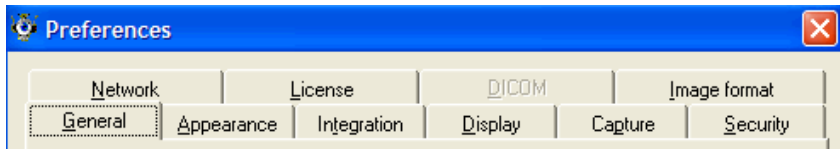
By double clicking on an image it will be presented in a singleimage view. DentalEye can be setup to either display the single image in the window or to display the single image in a size were one pixel in the image will be represented with one pixel on the screen (which gives the optimal resolution). Another double click on the image or Esc takes you back to the image card/series view.

System menu



DentalEye is designed to adapt to the needs of the user. Consequently, the user has to supply the system with a certain number of parameters before starting. Go to the menu bar and choose **System > Preferences**

The **Preferences** window appears containing following tabs:



General

In **Language** you choose in which language you want all text and information to appear.

If the checkboxes for the items **Hide images**, approved or not approved, are set the images will not appear in the Patient image list. Options for **Sorting order in Image list** can be set. The option Descending is the default selection.

If the module Clipart is in use you can see and edit in what folder the Clipart images are stored.

In Preset image comments you can Edit the preset comments that later can be selected in the Image information dialogue.

"Hide approved original series in imagecard list" - hides the original series that always are saved when capturing new images. At the same instant DentalEye makes a copy of the hidden series to an image card which is fully editable. The original series is always saved (automatically) and may be brought up by unmarking the "Hide approved original series in imagecard list" box. The reason for the original is demands from the Dicom standard, but as a private practitioner without these demands the series is not really more of a quality assurance and therefore the option to hide it makes the work easier and more straight forward.

General

National settings

Language: ▼

National Insurance number mask: ▼

Hide images

Hide approved image(s) in image list and hide image card(s) with all images approved

Hide non approved image(s) in image list and hide image card(s) containing any non approved image(s)

Sort order in image list

Descending Ascending

Path to clipart library:

...

Preset image comments

Imagecard list options

Hide approved original series in imagecard list

Appearance

You can choose wallpapers (background images) for different parts of the program. There are some background colors available as bmp files under the ... \DentalEye\Images directory. It is easy to make a new background color with the Windows software Paint.

If you check "Reset menu and toolbars to default settings..." your toolbar customizations will be reset to the default and all wallpaper settings are cleared. If something has gone wrong with your toolbar this is the function that brings it back to the standard.

Appearance

Main background:

...

Image card background:

...

Main toolbar background:

...

Reset menu and toolbars to default: setting next time DentalEye is started

Integration

This is where a bridge/link/integration from a Patient Management software is setup. The idea is to use the patient data from the PM software in DentalEye and to make it easy and fast to go to the patients images from the PM system.

Display

Tools for the visual impression.

Gamma correction: Mark the check box **Enable gamma correction** and you can choose between the alternatives **Standard gamma curve** and **Perceptual gamma curve**. The default Gamma value is set at 2.35. If you know the gamma value of your screen you can change the value by clicking the set button (...).

There are some General settings available for Single view mode, zoom scaling method and whether date and time of capture shall be displayed on the images as a tag.



A mark in the checkbox **Compensate exponential X-ray attenuation**, will automatically run an algorithm on all X-ray images opened on imagecards. It will give a *linear* representation of the X-ray absorption-capacity for the material in question. The purpose is to give an intuitively correct impression of thickness/density.

Display

Gamma correction

Enable gamma correction

Standard gamma curve
 Perceptual gamma curve

Gamma value:

General

Single view zoom default

Zoom scaling method

Show info label on images

Compensate for X-ray attenuation

Capture

Set the time that an image shall be displayed full screen when captured. Set to 0 seconds to disable the full screen show. the idea is that immediately after the capture check the image quality on the full screen size, if the image failed just click on the frame just exposed and do a retake.

Write the name of the x-ray emitter used with this PC. This is used as default for the **x-ray emitter** field in image info when an x-ray image is captured on this PC.

Auto save options makes it possible to set up DentalEye so that an image will be automatically saved either as approved or as non-approved.

Show active seconds left for sensor. Some sensors have a limited active time. If that time has elapsed when the exposure is done no image will be produced. With this box checked the remaining time will be displayed. Demand exposure information before approving image: If the x-ray control book is in use, exposure data is needed in image info. With this box checked an image cannot be approved until this data is provided.

The screenshot shows the 'Capture' settings dialog box. The 'General' section includes the following options:

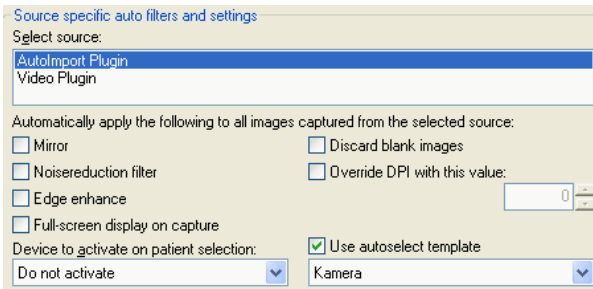
- Full-screen time on capture, seconds: 2
- Name of X-ray emitter used with this PC: (empty text field)
- Auto save options: Autosave and approve (if authorized)
- Show active seconds left for sensor
- Demand exposure information before approving image

Source specific auto filters and settings

For each image source choose if:

- the image shall be mirrored automatically (some image sources deliver mirrored images. That can be corrected here)
- noise reduction should be applied automatically.
- edge enhancement should be applied automatically. Please note: Edge enhancement with the currently selected level will be applied.
- the freshly captured image shall be displayed full screen when received.
- the device shall activate automatically when a new patient is selected. With sensors that needs to be manually activated this makes the activation automatically as soon as a new patient is selected.

- blank or bad images should be discarded. If a bad image is received and this option is checked you will be notified with a message box, but the image is discarded.
- it should override DPI with a selected value. This is useful when an image source always gives the wrong value and you know the correct one. See also [Measurement calibration](#).
- a certain template always will be used when capturing from this source. Put a check in the checkbox and select a template from the list. This choice will override the default template selected on the main toolbar. Useful when alternating between video and X-ray captures. If you select a certain general template for the video plugin here, you don't have to change default template everytime you switch between video and X-ray.

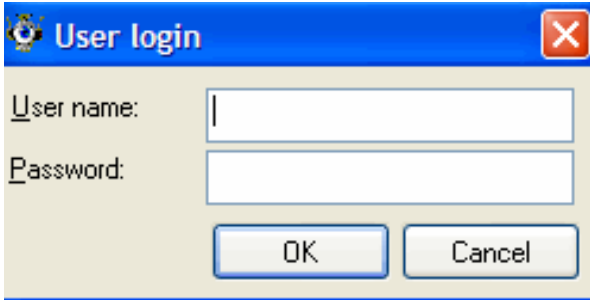


Security

This tab contains a list of users and options to give users different security permissions.

The first alternative is Use Windows login, which automatically adds the users that logs in to Windows. This is the default option. The list of users is automatically created from all Windows login names that has used the current database. The list always contains a "Default user" wich is a template, meaning that all new users are given it's permissions. After installation the "Default user" has access to all permission levels, except "Delete images".

The other alternative is to Use application login, which means that users has to be added manually and that each user who logs in to DentalEye will be prompted for a password. When this alternative is preferred the Add user and Change user buttons will be activated. Adding a user opens up this window:



A user with "Administrate security" can edit the permission of users, including the Default user. If you remove "Administrate security" permissions from "Default user", no new users will be able to change permissions.

Deleting a user can only be done by users having administrate permissions. You cannot delete yourself.

The "Delete images" permission also allows you to move images to other patients and to delete templates.

If the administrative user has, for some reason, lost administrator rights there is a **Force Administration mode button**. This procedure is password protected and requires the cooperation of your supplier.

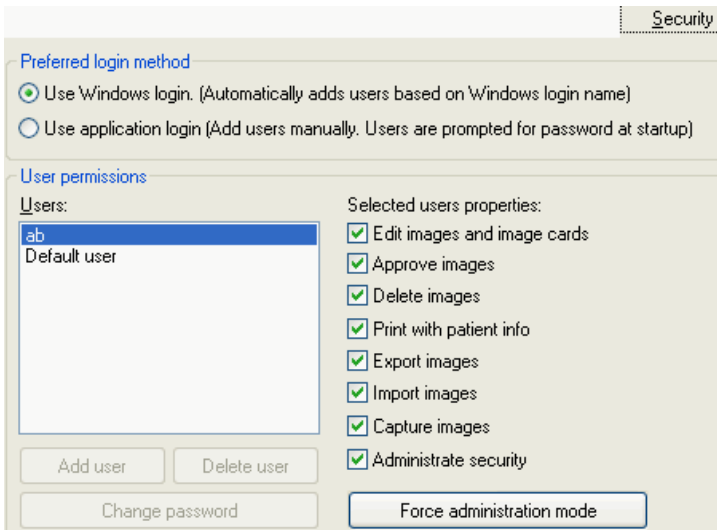


Image format

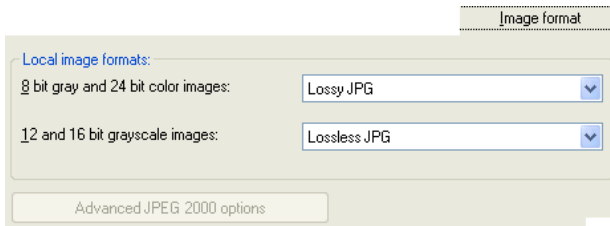
The image format can be setup for two types of images:

8-bit gray and 24-bit colour images, with the options: Lossless jpg, lossy jpg and lossy cmp.

12- and 16-bit grayscale images, with the only option lossless jpg. Lossy means that the image has lost some details when it is compressed, the size of the image file is a lot smaller.

On an intraoral X-ray image a typical size could differ like this:

- Lossy cmp 153 kB
- Lossy jpg 202 kB
- Lossless jpg 1124 kB
-



Consistency check

This is a tool for documentation of regular checks of the x-ray equipment. System > Consistency check. This opens a patient named 'Consistency check' with no patient info form available. Images can be captured and stored as well as series/image cards. Images from exposures done in a specified manner at regular times can be saved and compared in order to document the consistency (or deterioration) of the equipment. Use the Color probe tool to check the average intensity level in test images. If you record this value as a comment on the image you will be able to compare this the next time you check consistency.


Template list

The created and saved templates are sorted numerically and alphabetically in a **Template list**. To get your own order give the templates names beginning with numbers when saving. E.g. 1 in front of the template name you want at the top of the list. To Rename a Template use the Save As function.


Test run template

Once the template is ready it should be tested and corrected. If you are uncertain of the rotations, start with 0 (zero) in the rotation fields. The test run will determine the values you need to put in. Sensors placed vertically will either work fine with 0 or require 180 degrees rotation. Horizontal placement will require 90 or 270.

1 Find a patient and select the template to be tested from the "Default template" listbox on the main toolbar.

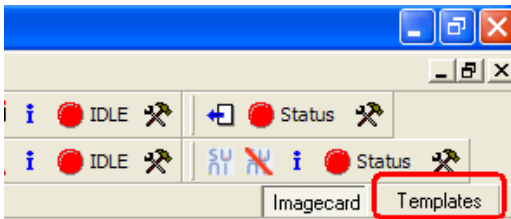
2 Click the **Show template** button  to display the template on the image card.

3 Capture images and left-click the image that hasn't appropriate rotation.

4 Click the toolbar button  **Rotate 90 degrees clockwise** and rotate each image until it is correct.

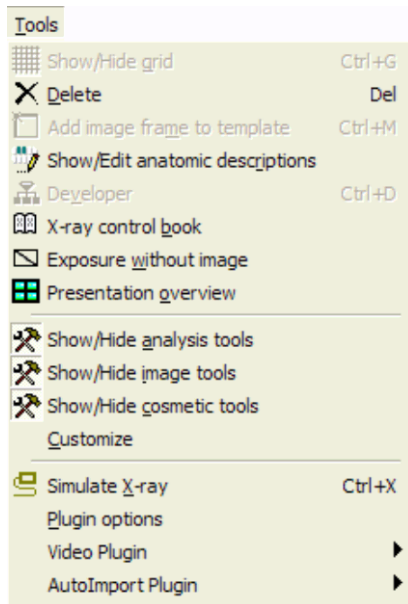
5 Make a note of which rotation was required. This value is to be applied to the corresponding frame in the template.

6 Exit this patient and enter the Template manager by clicking on the Templates tab.



7 Select the Template and mark the frame, change the properties as explained in Create and edit Templates. Don't forget to save the changes.

Tools menu



Show/Hide grid (<Ctrl>+<G>)

Only available in Template mode.
An On/Off-button to display a grid on the template to make it easier to align the frames.



Delete ()

Delete images, image cards and templates. Requires user permissions.
See a presentation on how to move and delete images.



Add image frame to template

Only available in Template mode.
Adds a new image frame to the template at the top left corner. Rem. if you add more than one frame they will get stocked above each other.



Show/edit anatomic descriptions

DentalEye works with an index of anatomic descriptions, which every clinic can organize, reflecting their own procedures and requirements. See Anatomic descriptions.



Developer

The Developer is used in a network where one image source is connected to a computer that is shared by several users. Such as a centrally placed X-ray scanner that is accessed from several treatment rooms.

The purpose of the Developer is to make capturing images with a shared X-ray equipment as easy as possible.

Set up the system:

The computer with the shared equipment is set up as a Developer server with a certain ID number. The computers in the different treatment rooms are set up as Clients to a Developer with the same ID number as the Developer server.

Control book

X-ray exposure documentation

The X-ray control book reports the X-ray dose for one patient or all patients together for a selected time span.

Tools>X-ray control book. Click **Show list** to the right at the bottom.

When an exposure is done it can yield one of the following cases:

1 An image is captured and approved.

Before approval the image info dialog will be displayed. The responsible person is supposed to check data, the check is confirmed with a click on the OK button.

2 An image is captured and temporarily left as non approved.

When images are saved without approval, the image info dialog is not displayed automatically. If non approved images are saved straight on, the temporary values for ms, kV, mA, and mSv are deleted. In the x-ray control book the image is displayed with zero in these fields. **Therefore it is strongly recommended that the capturing person opens the image info dialog and confirms data for all images before saving.**

3 An image is captured and later on deleted.

Before deleting the image you have to open the info dialog and note the content of fields: Capture date and time (the time part may be omitted), previous exposure (date), x-ray emitter, values for ms, kV, mA, and mSv, capturing person, and pregnant when exposed. **Tools > Exposure without image.** An image info dialog is displayed with some default information. Edit the fields till you have the correct info from the image to be deleted. Click OK. Delete the original image.

4 No image is captured.

DentalEye will not receive any information about the event. The capturing person is responsible for the documentation. **Tools**
> **Exposure without image.** An image info dialog is displayed with some default information. Edit the fields till you have the correct info for the exposure. Click OK.



Exposure without image

This function makes it possible to register an exposure (a radiation dose) on a patient in the "control book" when the image fails or is deleted.



Presentation overview

Show images from clipboard in a presentation view. The procedure is to right click on the images to display and then choose copy. Then click the Presentation overview icon and the images will be displayed on a full screen with a black background. To empty the clipboard go to Edit - Clear clipboard.



Show/hide analysis tools

To hide or show the particular group of tools.



Show/hide image tools

To hide or show the particular group of tools.



Show/hide cosmetic tools

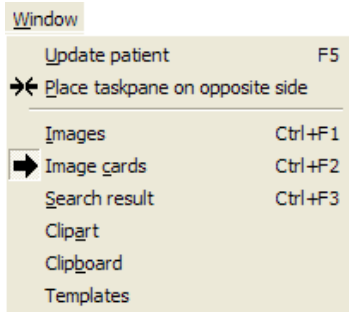
To hide or show the particular group of tools.



Simulate X-ray

To simplify the learning of the image capture procedure, DentalEye is equipped with 4 archive images and a simulator function. Press <Ctrl>+<X> to activate the X-ray simulator and "expose" one image

Window menu



Update patient

If there are changes on a patient file made from another computer they might have to be updated on current computer by Update patient or F5.

Place taskpane on opposite side

To shift places between the Task pane and the Image card, choose from the menu Window. Do it again to get back to the default position.

Images

Displays the patients images in the taskpane.

Image cards/Series

Displays the patients images in the taskpane.

Search results

Displays the search result in the taskpane.

Clipart

Displays the Clipart directory in the taskpane.

Clipboard

Displays the images in the Clipboard in the taskpane.

Templates

Displays the Templates in the taskpane and opens a clear area to work with Templates.

Window features

DentalEye is a Windows-based program. Thus all handling of windows with tool buttons, mouse and keyboard is according to Windows standard. The first window level is the **main window**, which can be resized. At the side of the screen you will find the [Task pane](#) a window containing a list of image cards/series, images, search results, Clipart, Clipboard or Templates.

Resize Image card area

The Image card (for both images and templates) has a special feature. When the mouse pointer comes to the right or lower edge of the image card it turns into a double arrow. Then you can press the left mouse button and move the edge. As long as you keep the button pressed the window behaviour is normal, but when you release the button an automatic adjustment takes place.

The image card keeps its proportions (length to width ratio) and expands till it hits one of the borders. That is the same as **Fit image to frame**. Images or template frames on the image card follow the expansion. Thus you can increase but not decrease image/frame size by changing image card size.

When the edge of the image card is close to the edge of the window (always the case on at least one edge), it may be hard to distinguish if the double arrow belongs to the window or the image card. Move the mouse pointer slowly and study the changes.

Single view

Single view is a third window level. You get to it by double-clicking an image on the image card (not in the image list). The single view window is placed on top of the image card

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