

ONIS VIEWER 3.0.3

User Guide

Caution: Federal law restricts this device to sale by or on the order of a physician.

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1 Introduction

1.1 Scope of the document

This document represents the user guide of ONIS Viewer. This manual was produced for the software version 3.0.3 of ONIS Viewer.

1.2 Purpose of the software

ONIS Viewer makes it possible to visualize medical images of numerous modalities such as CT, MRI and PET. It also works as a DICOM server and can distribute images from its local database to any authorized DICOM PACS workstation. It is fully compliant with the DICOM3 standard for image communication.

ONIS Viewer also functions as an “on-demand” viewer. Since it does not require storage to download images from any DICOM servers, it eliminates the long waiting time hitherto required to view the images.

ONIS Viewer is a full multi-thread application that allows users to open and view series of images simultaneously while others are being downloaded or uploaded.

Since lossy compression can create image artifacts that can lead to diagnostic errors, ONIS Viewer uses only reversible image compression (lossless). Images that have been compressed with loss can still be displayed but must not be used for primary diagnosis or interpretation.

1.2.1 Intended medical indication

ONIS Viewer is a client component of ONIS-PACS is a software device intended to be used by healthcare personnel and intended for viewing, reviewing, performing measurements/quantification and reporting of medical images and data acquired from DICOM compliant medical imaging systems. Images and data can be stored, communicated, processed and displayed within the system or across computer networks at distributed locations. Lossy images and digitized film images must not be used for primary diagnosis or interpretation.

The ONIS-PACS is made of the following interrelated software components:

- *ONIS Viewer* is a desktop application that makes it possible to visualize medical images of many different modalities and perform measurements/quantification. Basic and advanced tools are provided for manipulating and processing images, including multi-planar reconstruction and 3D volume rendering. The software also includes a Local Server service running in the background that can send and receive DICOM images and can respond to DICOM queries. The ONIS Viewer and the Local Server applications must run on the same computer.
- *ONIS Remote* is a desktop application identical to the ONIS Viewer, except that it runs without the Local Server. It must connect to a Site Server to retrieve the studies to be displayed and processed.

- *WebONIS* is an ActiveX component loaded into an HTML page that provides the same functionality as the ONIS Remote application. It can only be used with the Microsoft Internet Explorer browser. The browser must connect to a web server to load the ActiveX component, and the latter then connects directly to an ONIS Site Server or an ONIS Organization Server.
- *ONIS Site Server* is a server application that supports the storage and retrieval of a wide range of DICOM Storage objects. It also supports the storage and retrieval of graphical annotations and reports when connected to ONIS client applications (ONIS Viewer, ONIS Remote, and WebONIS).
- *ONIS Organization Server* is a server that provides a single access point to multiple Site Servers.

Feature	Components
Query, upload, retrieve DICOM images	ONIS Viewer, ONIS Remote, WebONIS
Image layout, Hanging Protocols	ONIS Viewer, ONIS Remote, WebONIS
Image mouse tools (W/L, pan, zoom, rotation, etc.)	ONIS Viewer, ONIS Remote, WebONIS
Image operations (flip, rotation, scale, etc.)	ONIS Viewer, ONIS Remote, WebONIS
Annotation and Measurement	ONIS Viewer, ONIS Remote, WebONIS
Synchronized stacking	ONIS Viewer, ONIS Remote, WebONIS
Reference lines	ONIS Viewer, ONIS Remote, WebONIS
Image export	ONIS Viewer, ONIS Remote, WebONIS
Cine	ONIS Viewer, ONIS Remote, WebONIS
Image calibration	ONIS Viewer, ONIS Remote, WebONIS
Window Level, Color LUT, Opacity Table, Convolution Filter presets	ONIS Viewer, ONIS Remote, WebONIS
Printing (DICOM and standard printers)	ONIS Viewer, ONIS Remote, WebONIS
Support of multiple monitors	ONIS Viewer, ONIS Remote, WebONIS
Conversion to DICOM files	ONIS Viewer, ONIS Remote, WebONIS
Multi-planar Reconstruction	ONIS Viewer, ONIS Remote, WebONIS
Volume Rendering	ONIS Viewer, ONIS Remote, WebONIS
Reporting	ONIS Viewer, ONIS Remote, WebONIS
Store, send, distribute DICOM images	ONIS Viewer

1.2.2 Contraindications

- Use with unsupported imaging data (see DICOM Conformance Statement) and data in-compliant with the DICOM standard.

- Use hardware unspecified as supported by the manufacturer.
- Diagnostic reading or therapy decisions by using inappropriate medical displays.
- Primary PET/CT reading.

1.3 Warning and precautions

- The application does not replace the skills and judgment of qualified physicians. Users must read and fully understand the documentation provided.
- Diagnostics must be done using calibrated displays to ensure their quality. The displays must be regularly (re)calibrated by qualified personnel. Using non-calibrated displays can lead to misdiagnosis.
- Incomplete DICOM3 image data or incorrect compressed data can cause incompatibility, delay, or misdiagnosis. As it is not always possible to ensure that the data can be displayed correctly, it is imperative to do integration tests with all image sources used (modalities, PACS servers, etc.) before clinical use.
- Images converted to DICOM format may not be of sufficient quality for diagnosis. They may be stored with a bit depth different from the original one, may be rotated or flipped, and may contain bad annotations. They may also have been attached to the wrong patient or study. The same notice remains valid for secondary capture images.
- Missing images or inaccurate image data can lead to misdiagnosis. The user must ensure that the images received are of sufficient quality for diagnosis and that the studies are complete.
- Lossy compression can create image artifacts that can lead to diagnostic errors. When such images are used, warning messages appear indicating that they have been compressed with loss. These messages are also visible when streaming images from the server until streaming is complete.
- The editing module allows to modify the information of patients, studies, series and images. It also allows the reattachment of studies, series and images. As this may lead to misdiagnosis, these operations should only be performed if strictly necessary and should be done by qualified personnel.
- The application allows you to hide some images manually or by automatically skipping some of them. Hiding images may result in erroneous or incomplete diagnostics and should be used with caution.
- The application is subjected to extensive validation and verification procedures by the manufacturer, it is nevertheless possible that unforeseen issues occurs. In that case, please refer to the known issues of application. If your issue is not listed, please contact the manufacturer or the reseller.

- The software must be used on hardware compatible with the system requirements. Otherwise, performance problems may be encountered and images of inadequate quality for diagnosis may be displayed. This can lead to misdiagnosis.
- To avoid the risk of crash or malfunction of the application, only system administrators should be able to change the configuration settings. The directories and files of the application must not be modified, destroyed or moved. Permanent or temporary data loss may occur in the event of a crash if the software is not properly administered. It is strongly recommended not to use the software with a windows administrator account.
- A sudden power failure can result in loss of data. It is highly recommended to use an uninterruptible power supply (UPS) and configure it to close the application properly.
- Compatibility problems with other DICOM software are possible (use of the same DICOM port for example). To avoid the unavailability of the application, it is strongly recommended not to install another DICOM software on the same computer.
- To ensure the protection of patient data, it is highly recommended to use SSL with valid certificates for exchanging data between site servers and clients, or to use a virtual private network (VPN).
- Likewise, it is the user's responsibility to prevent unauthorized access to patient data by using the protection mechanisms provided by Windows such as firewalls and user accounts. It is also strongly recommended that you use up-to-date antivirus software and regularly install all Windows security updates.
- The application is not designed to work with Touch Screens but with a pointing device and keyboard. Using the software with Touch Screens has not been validated by the manufacturer.

1.4 System requirements

The hardware requirements are described in the following tables, some are mandatory and others optional. It is worth noting that the minimum capacity of the hard drive is the one that allows the software to install and be functional. To handle a large number of studies or images, a larger disk capacity may be required.

No	Item	Mandatory	Remarks
1	CPU	Yes	x86/64 multi-cores recommended
2	Memory	Yes	4 Go Minimum
3	HDD	Yes	512 Mo Minimum

No	Item	Mandatory	Remarks
4	CD/DVD	No/Yes	Only mandatory for reading or writing studies from/to an optical drive
5	Network	No/Yes	Only mandatory for communication with PACS servers, modalities or site servers
6	Operating Systems	Yes	Microsoft Windows 7 Service Pack 1 Microsoft Windows 8 Service Pack 1 Microsoft Windows 10 Professional Service Pack 1 Microsoft Windows 2008 Server Standard Microsoft Windows 2012 Server Standard

2 Installation and Configuration

2-1 Installing and Configuring the Service

2-1-1 Installing

To install ONIS Viewer 3.0.3, double-click the installation file to access the installation wizard:

- « ONIS Viewer 3.0.3 x64 Setup.msi » for 64-bit Windows PC
- « ONIS Viewer 3.0.3 x32 Setup.msi » for 32-bit Windows PC

Simply follow the instructions of the installation wizard.

2-1-2 Security

As stated in the Warnings and Precautions section:

- To ensure the protection of patient data, it is highly recommended to use SSL with valid certificates for exchanging data between site servers and clients, or to use a virtual private network (VPN).
- It is the user's responsibility to prevent unauthorized access to patient data by using the protection mechanisms provided by Windows such as firewalls and user accounts. It is also strongly recommended that you use up-to-date antivirus software and regularly install all Windows security updates.

2-1-3 Configuring the service

ONIS Viewer 3.0 comes with a local server, which works as a service and will allow you to perform the following:

- Import images from other DICOM devices or local disks (i.e. Hard drives, USB Drives)
- Query other DICOM devices such as workstations, CTs, MRIs and Servers
- Visualize any series of images you have imported (offline mode) or from any online PACS servers (online mode) and make measurements/quantifications.
- Use your ONIS Viewer as a mini PACS

- Design report templates for customized reports

Configuration of the local server is done in two steps:

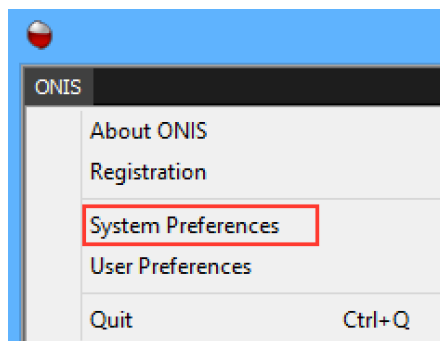
1. Configure the Service
2. Configure the Server

The local server runs as a service. It is installed when you setup ONIS Viewer onto your computer. This service runs automatically when your computer starts. Normally you wouldn't need to configure the service on your own. However, there are two situations in which manual configuration may be necessary:

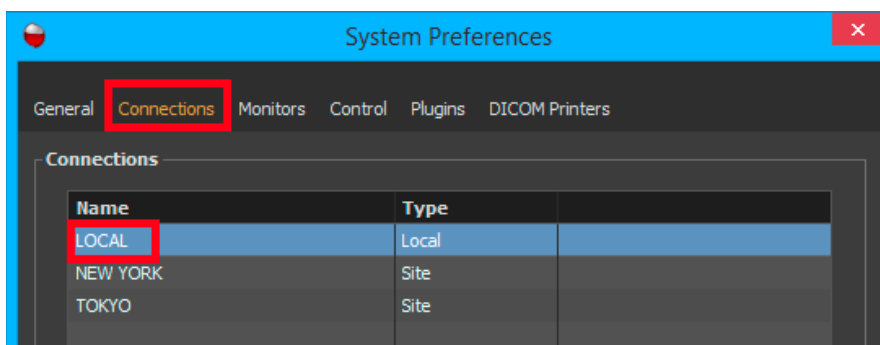
- When you want to customize the ports used by the service
- When the default ports are already used by other applications

To configure the service:

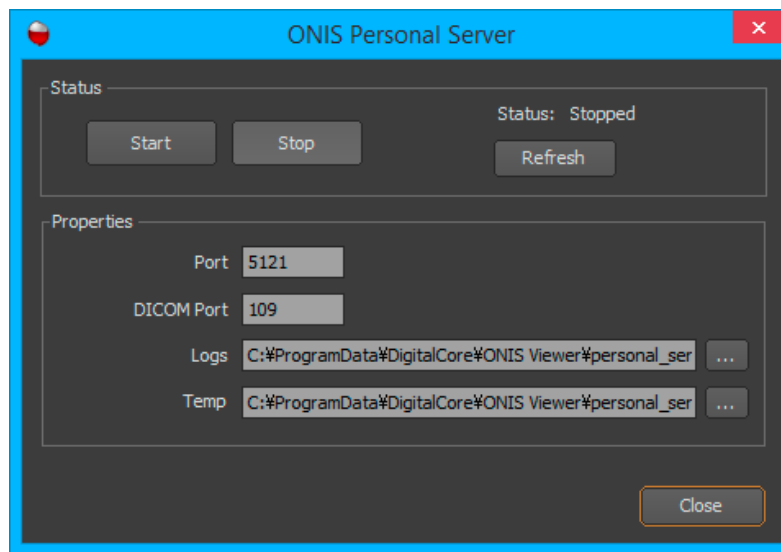
1. Open the System Preferences panel (choose 'System Preferences' in the 'ONIS' menu).



2. Select the 'Connections' page.
3. In the list of connections, double click on the 'Local' connection. This will open the Local Service Configuration panel. To configure the service, you need to have administrative privileges. You may be asked to input a Windows Administrator account login and password.



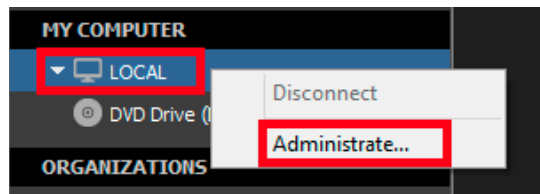
- To configure the local server, the service must be stopped. If the service is running, you need to click on the 'Stop' button (check the 'Status' information to determine whether or not the service is running).



- Adjust the settings you want to change:
 - Port:** The port number of the local server.
 - DICOM Port:** The DICOM port number of the local server. This port is necessary to be able to query/retrieve images from a DICOM device and also to use your viewer as a mini PACS. If you don't want to open a DICOM port, set this value to "0".
 - Temp Folder:** The folder where the local server will create temporary files when necessary.
 - Logs Folder:** The folder where the server will store the log files. Log files will be created daily and will be automatically deleted after 5 days.
- Start the local server by clicking on the 'Start' button. Make sure that the status of the server has changed to 'Running'. If the server does not start, this is probably because the server port or the DICOM port is already used by another application. Change the conflicting port and try again.

2-2 Configuring the Server

The configuration can be done through the Administration panel of the local server. To open this panel, select the 'Local' source in the source bar of the database window and right click on it. Choose 'Administrate' in the context menu.



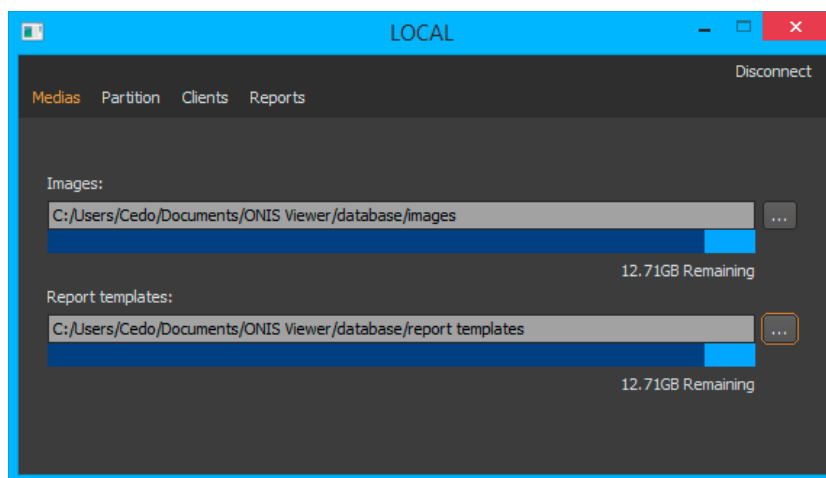
You will find the following four pages in the Administration panel:

- **Media:** The page where you can choose where the DICOM images and the report templates will be stored.
- **Partition:** The page where you can set the various parameters of the server.
- **Clients:** The page where you can specify the AE title of your DICOM server and the list of DICOM clients that can connect to it.
- **Reports:** The page where you can specify the report templates that can be used for writing reports.

When you are done configuring the server, simply click on the 'Disconnection' button to close the window.

2-2-1 Media

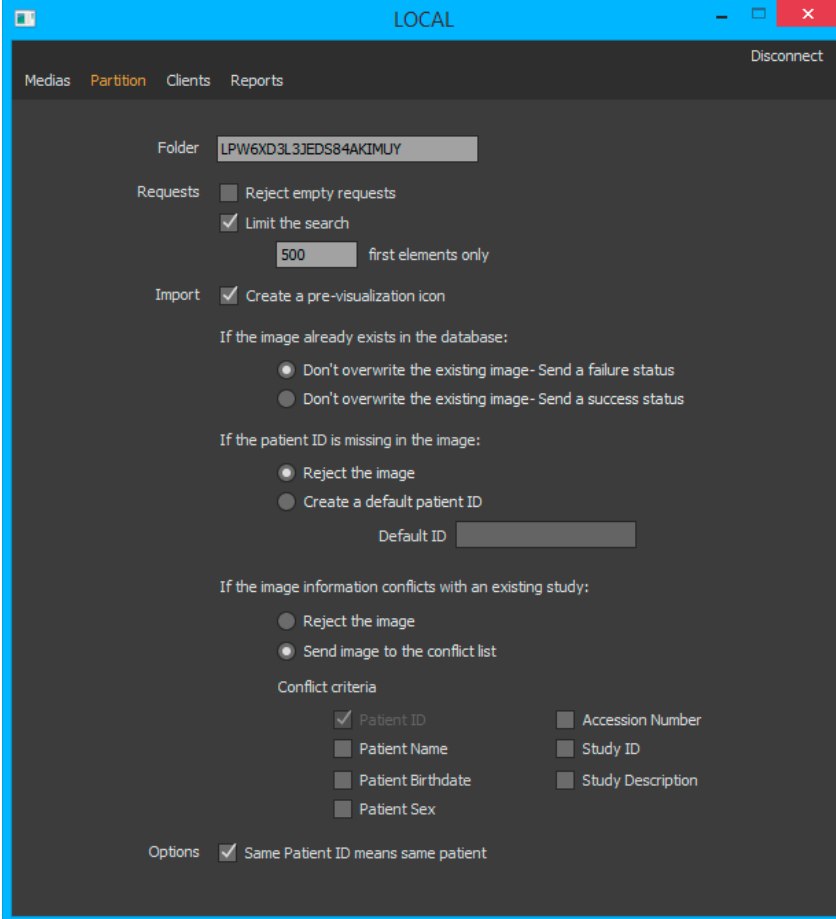
In this page, you can choose where the DICOM images and report templates will be stored. The default locations are your 'Documents' folder, under the 'ONIS Viewer/Database/Images' for all images and 'ONIS Viewer/Database/Report Templates' for all report templates.



You can simply relocate the folders by clicking on the corresponding buttons.

2-2-2 Partition

When you import a DICOM image into your local database, this image will be stored in what is called a 'partition'. A partition groups a set of patients, studies, series and DICOM SOP Instances. Partitions can be useful to separate your research and teaching studies from your clinical data. However, the local server is limited to only one partition. If you wish to have the benefit of using multiple partitions, contact DigitalCore and you will introduce some server products.



The screenshot shows the 'LOCAL' application window with the 'Partition' tab selected. The interface includes a 'Folder' field with the value 'LPW6XD3L3JEDS84AKIMUY'. Under 'Requests', there are checkboxes for 'Reject empty requests' (unchecked) and 'Limit the search' (checked), with a '500' value and 'first elements only' text. Under 'Import', 'Create a pre-visualization icon' is checked. There are three sections for handling existing data: 'If the image already exists in the database:' with radio buttons for 'Don't overwrite the existing image - Send a failure status' (selected) and 'Don't overwrite the existing image - Send a success status'; 'If the patient ID is missing in the image:' with radio buttons for 'Reject the image' (selected) and 'Create a default patient ID' (with a 'Default ID' input field); and 'If the image information conflicts with an existing study:' with radio buttons for 'Reject the image' and 'Send image to the conflict list' (selected). A 'Conflict criteria' section has checkboxes for 'Patient ID' (checked), 'Patient Name', 'Patient Birthdate', 'Patient Sex', 'Accession Number', 'Study ID', and 'Study Description'. At the bottom, 'Options' includes 'Same Patient ID means same patient' which is checked.

You can configure the partition to direct the behavior of the server when a DICOM image needs to be added:

- **Pre-visualization icon**

Check on this option if you want a small icon for the incoming DICOM file. Icons are useful to quickly identify a series when you browse the database.

- **Duplicate image policy**

You can set a policy for the partition on how to deal with duplicating images. You can instruct the server to take one of the following two actions:

- Ignore the new image and send back a failure response
- Ignore the new image and send back a successful response

- **Conflict policy**

When a DICOM file is imported, some of its tags are extracted and stored into the local database,

such as the Patient ID, Study UID, Study Description, and Accession Number. When a new image arrives and recognizes a pre-existing study (i.e. the new image possesses the same Study UID), the local server will perform a comparison to check if it conflicts in any way with the existing study. In this situation you can choose either to reject the image or to import it anyway. Note that the image will not be available until all conflicts are resolved. You can customize here what attributes will be compared (i.e. Patient ID, Patient Name, Patient Sex, Patient Birthdate, Accession Number, Study Description).

- **Lacking Patient ID policy**

When a new image arrives but lacks the Patient ID information, you can choose between two follow-up actions: reject the image and send back a failure response; or ask the server to create a new, unique Patient ID automatically. If the server creates a Patient ID, it will use the current date and time combined with a random sequence of characters to give it a unique ID. You can also ask the server to prepend a specific string to the newly created Patient ID.

Also, you can configure the partition to dictate how the server should behave when a browsing request arrives:

- **Reject empty requests**

Your partition may contain a huge number of studies. If a client tries to retrieve all of the studies (i.e. when you retrieve studies without using any filters), the server may take a while to respond and may use up a lot of resources. To prevent this, you can enable this option. The server will not transmit any existing study information.

- **Limit the search**

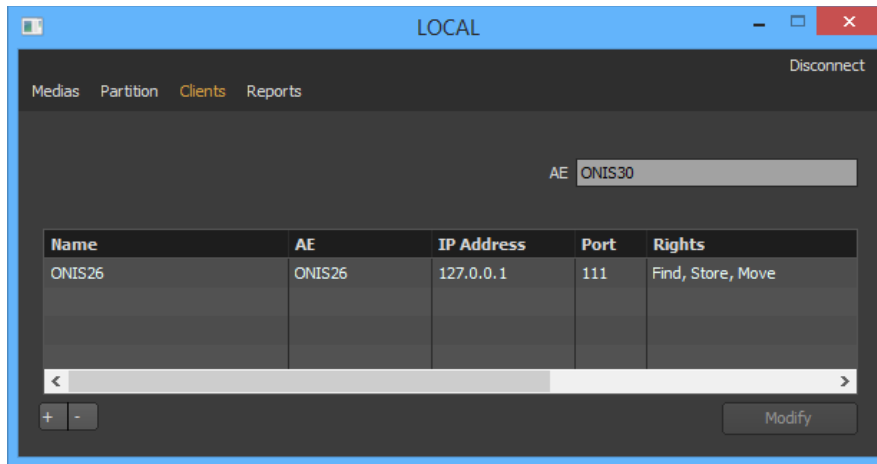
If a client tries to retrieve a big number of studies (poor filtering), the server may take a while to respond and may use a lot of resources. To prevent this, you can check on this option and set the maximum number of studies that can be send back to the client. For example, if you set this value to 500 and if a client tries to retrieve all the CT exams, the server will pick up only the first 500 ones. If the request is done from ONIS Viewer or ONIS Remote, the user will get a warning telling him that all the studies were not sent.

- **Same patient ID means same patient**

Usually a specific Patient ID matches a single patient. When you open a study with ONIS, the full history of the patient will be retrieved and displayed in the viewer. If you enable this option, all the studies matching the selected Patient ID will be retrieved and included in the history. If you disable this option, only the studies matching the Patient ID, the Patient Name, Birthdate and Sex will be retrieved and included in the history.

2-2-3 Clients

In this page, you can assign an AE Title for your viewer and also define the list of DICOM devices that are allowed to communicate with it. Other DICOM devices are considered as the 'Clients'.

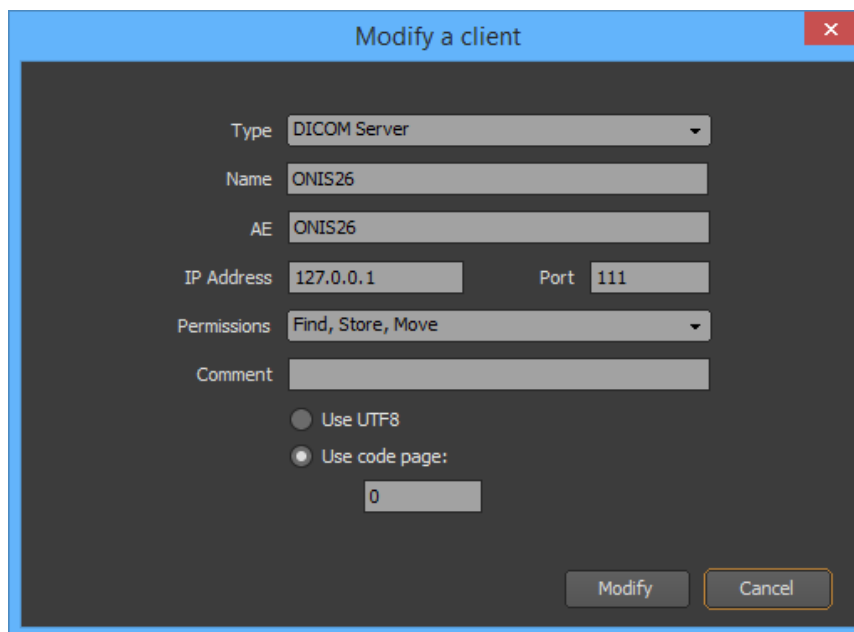


2-2-3-1 Assigning an AE Title

To assign an AE Title for your viewer, type it into the AE Title box. Your AE Title must contain at least one character (up to 16 characters maximum). If you use the software through multiple user accounts, you need to ensure that the AE Title is unique for each account (for more information, please refer to the 'Multiple User Accounts' section).

2-2-3-2 Adding a Client

To register a new client, simply click on the '+' button. A window will open that will allow you to input the client information. Click on the 'OK' button to register the client or the 'Cancel' button to close the window.



Below are the parameters that need to be defined for the new client:

- **Type:** This is the client type of DICOM node, which can be a DICOM server, a DICOM client (a viewer for example) or a Modality. If you choose the 'DICOM Server' type, a source will be added in the Database page of the viewer (to allow you to browse the server).
- **Name:** This is the friendly name for your client and can be whatever name you wish.
- **AE:** This is the AE title of the DICOM node that you want to communicate with.
- **IP Address and Port:** You must set the client IP address and its port number.
- **Permissions:** You have to set the rights for the client. The local server works as a mini DICOM server. You can set any combination of the following three types of privileges:
 - **Find:** The client will be allowed to process certain query requests (i.e. the viewer will respond to CFIND DICOM requests coming from this client). This allows the client to know which studies and series are stored in your viewer local database.
 - **Store:** The client is allowed to store new studies, series or images to your viewer local database.
 - **Move:** The client is allowed to retrieve studies, series or images from your local database using the CMOVE DICOM protocol.
- **Comment:** You can input a comment for your client here. This field may be left blank.
- **Code Page:** You can set the default code page that should be used to communicate with the client. ONIS has been designed to be language independent. All the data are stored in the local database using the UTF8 format. To communicate with a DICOM client, ONIS needs to know which language is used by this client to communicate properly. If the client communicates with UTF8 characters, you can enable the UTF8 check box. Otherwise, you can set the code page used by the client. On Windows, you can find out the right code page to use in the Regional and Language options of your computer. A value of "0" means the default code page of your computer.

2-2-3-2 Modifying a Client

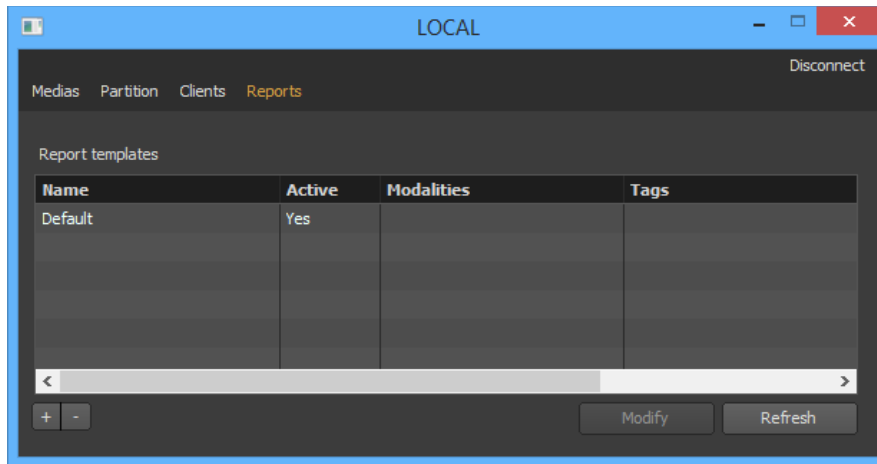
To modify a client, double-click on it or select it and click on the 'Modify' button. A window will open where you can modify the client information. Please refer to the previous section for an explanation of each parameter.

2-2-3-3 Deleting a Client

Select the client you want to delete from the list of clients. Multiple clients can be selected by clicking while holding down the 'Shift' key. Then click on the '-' button. A confirmation window will appear. Click 'Delete' to confirm the deletion.

2-2-4 Reports

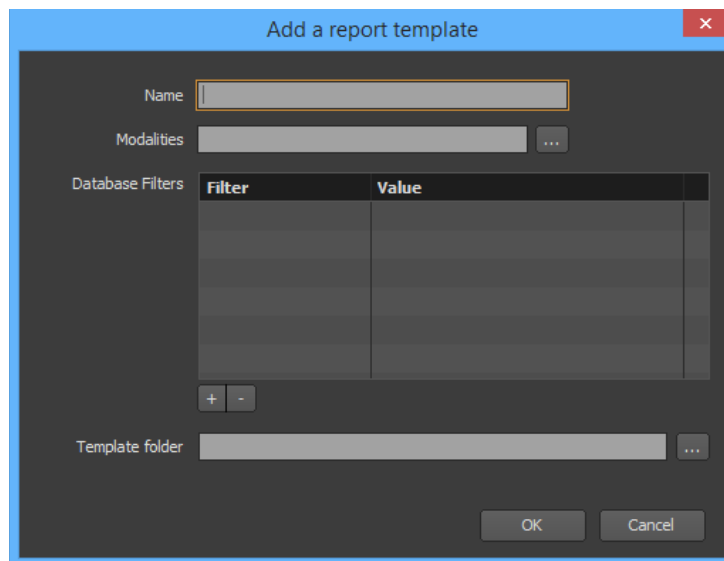
In this page you can upload your report templates and define the selection criteria.



2-2-4-1 Adding a Template

To add a new report template, you first need to prepare a folder that will contain your HTML files. This folder has a specific structure. Refer to the 'Report' section to understand how to build a new report template.

If you have a folder already prepared, just click on the '+' button. A window will appear allowing you to upload your folder and define the selection criteria:



1. Choose a name for your report template.

2. Click the ‘...’ button, select the folder containing your template and click on the ‘OK’ button. Your folder will be analyzed and an error will be reported if the folder structure is wrong.
3. Define the selection criteria.
 - **Modality Filters:** You can choose to only assign this report template to specific modalities.
 - **Database Filters:** You can choose to assign this report template to specific patients or studies, such as studies that fit a specific description. To add a filter, click on the ‘+’ button, choose a filter and assign a value by double clicking its corresponding cell in the ‘Value’ column. To remove a filter, select it and click on the ‘-’ button.
4. Finally click on the ‘OK’ button to add your new report template. Your template version will be assigned to ‘1.0.0.0’.

2-2-4-2 Modifying a Template

To modify a template, simply double-click on it or select it and click on the ‘Modify’ button. A window will open, allowing you to modify the template information. Please refer to the previous section for an explanation of each parameter.

If you only need to modify the criteria, you don’t need to select your template folder again (no need to click on the ‘...’ button). Once you click on the ‘OK’ button you will only be able to modify the criteria and name. The version of your template will not change.

However, if you have modified your template files, then you will need to upload your template folder again. There is also a very important point you should be mindful of. If you upload your template folder, the version number of the template will change. All of the existing reports that are based on this template will be modified and will use the new version of the template. This means that your new template must be compatible with the older one. If it is not compatible, you must define a new template and should not modify an existing one.

For example, if you change, add or remove an HTML Tag ID in your new template, this will make it incompatible with the previous template. In such an instance, you will need to create a new template. You can delete the previous template if you don’t need it anymore (your existing reports will not be affected).

If in your new template you only change the logo image file, your template will still be compatible.

2-2-4-3 Deleting a Template

Select the template you want to delete from the list of report templates. Multiple templates can be selected by clicking while holding down the ‘Shift’ key. Then click on the ‘-’ button. A Confirmation window will appear. Click ‘Delete’ to confirm the deletion.

If you delete a template, the template will still exist in the database, but you will not be able to use it to write a new report.

2-2-4-3 Template Specifications

You need to prepare a root folder containing at least two folders, one named 'edit' and the other one named 'read'. Both of these folders should contain one 'index.html' file.

The 'index.html' file from the 'edit' folder is the template that will be displayed when a report is in 'Edition' status; it is referred to as the edition template. For any other status, the 'index.html' file of the 'read' folder will be used, which is referred to as the reading template.

You can add folders, sub-folders and files anywhere within the root folder and everything will be uploaded to the server as part of the report template.

Edition Template:

The edition template contains editable HTML elements that users can use to fill information into the reports. Some elements can be automatically filled from the patient, study and series information. To be recognized by ONIS, the HTML elements must be assigned one unique ID.

The following table displays the IDs you should use to automatically fill the HTML inputs from the information of the patient, study and series:

ID	HTML Element	Value
OSDBP_ID	input text	Patient id
OSDBP_FNAME	input text	Full patient name
OSDBP_NAME	input text	Patient name group
OSDBP_IDEOGRAM	input text	Patient ideogram group
OSDBP_PHONETIC	input text	Patient phonetic group
OSDBP_BDA	input text	Patient birthdate
OSDBP_BDT	input text	Patient birthdate with time
OSDBP_SEX	input text	Patient sex
OSDBST_MOD	input text	Modalities in study
OSDBST_ACCNUM	input text	Acquisition number
OSDBST_STUDYID	input text	Study ID
OSDBST_DESC	input text	Study description
OSDBST_BODY	input text	Study body parts
OSDBST_DA	input text	Study date
OSDBST_DT	input text	Study date with time
OSDBSR_MOD	input text	Series modality
OSDBSR_SRNUM	input text	Series number

ID	HTML Element	Value
OSDBSR_DESC	input text	Series description
OSDBSR_BODY	input text	Series body part
OSDBSR_DA	input text	Series date
OSDBSR_DT	input text	Series date with time

Example:

```
<input type="text" readonly id="OSDBP_ID"/>
```

The template will display an edit box initialized with the patient ID.

For other inputs that need to be filled manually (i.e. the findings and the conclusion), you must give an ID that starts with 'OSELT_'. The field will initially be blank unless you assign it a value in the HTML template. These elements are referred to as "custom inputs".

Each custom input can be of one of the five following HTML elements:

- input text
- input checkbox
- input radio
- img (can receive an image from a view)
- select (drop-down list)

Example:

```
<input type="text" readonly id="OSELT_CONCLUSION"/>
```

```
<img id="OSELT_IMAGE1"/>
```

When you save a report, the content of each custom and auto-filled input will be retrieved from the HTML file.

Read Template:

The reading template is constructed in the same way as the edition template and follows the same rules. When you save a report, the content of each custom and auto-filled input of the editing template will be retrieved from the HTML file and saved. When the reading template is used, its auto-filled and custom inputs will be filled with the data saved from the edition template. There will be a matching ID pattern. Normally, you should have the same IDs in the reading and the edition templates.

Advanced ID Construction:

HTML IDs must be unique. For custom inputs, you can define the ID as you wish after the prefix ('OSELT_'), making sure that they are unique. However, for auto-filled inputs, you may want to use the same ID twice, which is not possible. For example, you might want the Patient ID to be displayed in two different locations. In this case, you can append a number to the HTML Element ID. For example, the IDs 'OSDBP_ID_1' and 'OSDBP_ID_2' are equivalent and will auto-fill the HTML corresponding inputs with the Patient ID.

You also can combine texts and auto-fill IDs to make a complex string. The elements must be separated by the '|' character and each portion will be evaluated separately. For example the ID 'id: |OSDBP_ID| name: |ODDBP_FNAME' will display in the input 'id: 0123 name: John Doe' if the Patient ID is '0123' and the name is 'John Doe'.

Image Settings:

When an image is inserted in the template from a view, the template can specify how the image capture should be done. This is done by adding HTML tags in the body element of the index.html file (editable templates only).

The following element can be added:

onis_image_size	
Description	Use this element to define the dimensions of the images. You can set one or two values (separated by the ' ' character). The first value defines the width of the image and the second value the height. If you use only one value, it will be used for both width and height. If this element is not defined, the width and height will be fixed to 256 pixels.
Values	<ul style="list-style-type: none">- original: it will use the original dimension of the DICOM image.- view: it will use the dimension of the view.- auto: it will use the dimension of the image html element.- an integer value in the {32-8192} range. This value unit is in pixel.
Examples	<pre><body onis_image_size="512 256"> <body onis_image_size="original view"> <body onis_image_size="auto"></pre>

onis_image_type	
Description	Use this element to define how the image should be drawn. If this element is not defined, the value will be considered as 'fit'.
Values	<ul style="list-style-type: none">- snapshot: the rendered image will be a snapshot of the image in the view (same camera position, rotation and zoom values)

onis_image_type	
	<p>view (same camera position, rotation and zoom values).</p> <ul style="list-style-type: none"> - fit: the camera will be reseted (center position and no rotation) and the zoom will be calculated for the image to fit.
Examples	<pre><body onis_image_type="snapshot"> <body onis_image_type="fit"></pre>

onis_image_flags	
Description	Use this element to define which overlays should be drawn on the rendered images. If this element is not defined, the three overlays (dicom annotations, rulers and graphic annotations) will not be drawn.
Values	<ul style="list-style-type: none"> - auto: it will use the overlay visibility of the view - any combination of the following flags: <ul style="list-style-type: none"> - rulers: will draw the rulers - dicom: will draw the DICOM annotations - annotations: will draw the graphic annotations <p>if a flags for an overlay is missing, it will use the visibility of the overlay from the view.</p>
Examples	<pre><body onis_image_flags="annotations dicom ruler"> <body onis_image_flags="dicom"> <body onis_image_flags="auto"></pre>

onis_image_font_size	
Description	Use this element to specify the font sizes to use when drawing the overlays. if this element is not defined, it will be considered as an 'auto' value. You can set one or two values (separated by the 'l' character). The first value defines the font size for the DICOM annotations and the second value for the graphic annotations. If you use only one value, it will be used for both DICOM and graphics annotations.
Values	<ul style="list-style-type: none"> - auto: it will use a font size based on the font size used by the view. - an integer value in the {1-72} range.
Examples	<pre><body onis_image_font_size="8 12"> <body onis_image_font_size="auto 12"> <body onis_image_font_size="auto"></pre>

Example:

```
<body onis_image_type="fit" onis_image_size="auto" onis_image_flags="annotations|dicom|
rulers" onis_image_font_size="8|12">
```

Javascript Callback:

After the HTML page loads and the elements initialized, you may wish to do an additional initialization in javascript. If this is the case, you can add the following javascript function in your HTML files:

```
function onis_on_load() {}
```

This function will automatically be called after all of the elements have been assigned.

2-3 Multiple User Accounts

The local server configuration is stored in the database file located in your 'Documents' folder. Therefore, if you have multiple user accounts on your computer, each user will have his or her own database. This means that each user cannot share the same studies.

You should not try to copy the database file from one user to another. One unique identifier is assigned per partition and must be globally unique to avoid any conflict. If you copy the database file, you will end up with partitions owning the same identifier. This may create conflict internally and cause you to lose some DICOM files.

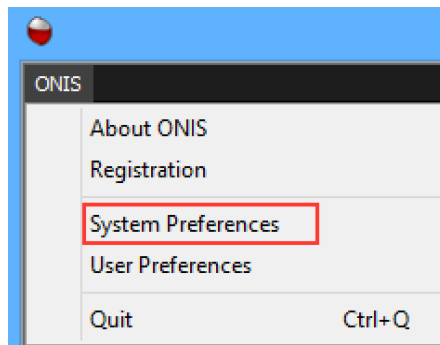
The DICOM server is running as a service and is not attached to one specific user account. During the association request, it will use the called AE Title to determine what database of which user account it should use to process the request. For this reason you must appoint a different AE Title for each user account. Also note that the association can succeed only if the user is logged in.

3 Monitor Configuration

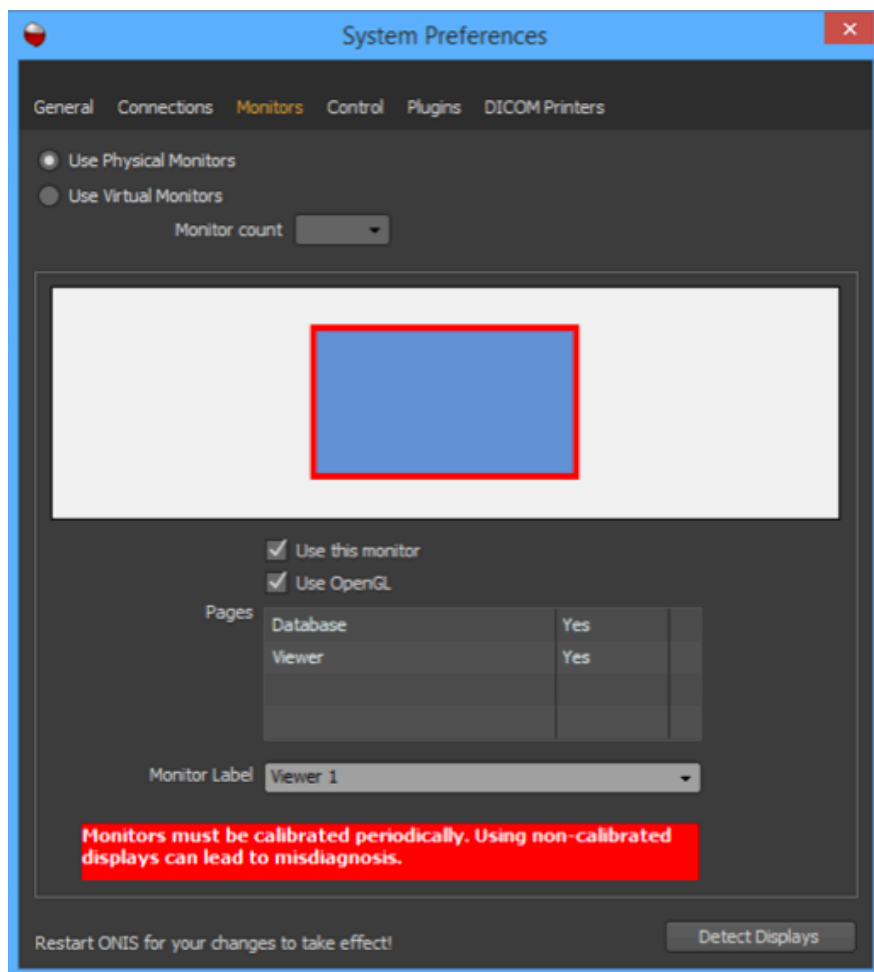
ONIS uses your main monitor by default. If you have multiple monitors, you can specify which one ONIS should use. If you have a single monitor, you can create up to 10 virtual monitors on it.

To configure the monitors:

1. Open the System Preferences panel (Choose 'System Preferences' in the 'ONIS' menu).

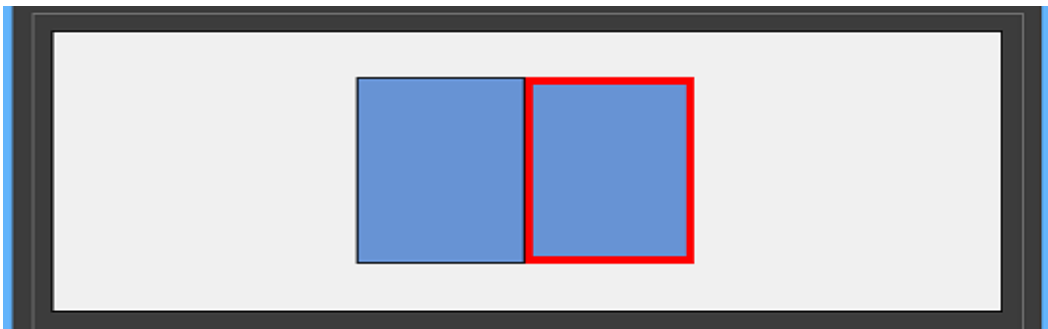


2. Select the 'Monitors' page.



3. Choose "Use Physical Monitors" if you would like to use your existing monitors attached to your computer. Or choose "User Virtual Monitors" if you only have one physical monitor but would like to simulate up to 10 monitors.
4. If you have selected "Use Virtual Monitors", select the number of virtual monitors you would like ONIS to simulate using the appropriate drop down list. All of the virtual monitors will be horizontally aligned.

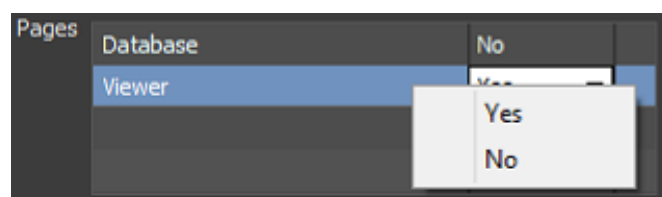
Beneath those settings, you will find a graphic representation of your monitors. If you are using physical monitors, you can update this representation by clicking on the button "Detect Displays". You may need to click this button if you have connected or disconnected one or more monitors from your computer, or if you have changed the position of the monitors from your operating system.



Below this graphical representation, you will find the properties of the selected monitor. The selected monitor is the one surrounded by a red border. To select another monitor, simply click on the desired one.

For each of the monitors, you can define:

- Whether or not it should be used by ONIS. If you check off the option ONIS will ignore the monitor and will not create a window on it. ONIS must create at least one window on one monitor. If you check off this option for all monitors, ONIS will automatically resort to the first available monitor when the software restarts.
- Whether or not the monitor supports OPENGL acceleration. It is recommended to render images with OPENGL as it is much faster. If you are unsure of whether or not your computer supports OPENGL, turn on this option. If the images do not appear correctly or if the system becomes unstable, you can disable this option later.
- Which pages should be displayed. Typically when you use multiple monitors, you would want to assign the database page to one monitor and the viewer pages to the other monitors. To specify whether or not a page should be displayed, double-click on its corresponding cell in the list and select "Yes" or "No". Please note that the Database page should be unique and must be displayed on one of the monitors.



- The label of the viewer. This option is only available if you display the viewer page on the monitor. This label permits you to target a specific monitor when you create hanging protocols.

Please note that you will need to restart ONIS for your changes to take effect.

4 Extensions

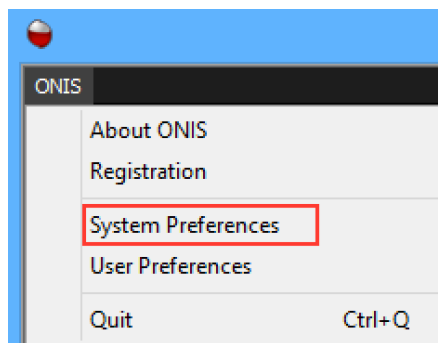
Additional plugins allow you to expand the functionality of the ONIS software. ONIS Viewer 3.0 comes with the following default extensions:

- Server Connection: This extension permits ONIS to connect to a site or an organization server.
- Non-DICOM Converter: This extension enables the conversion of BMP, JPEG and PNG files into DICOM files.

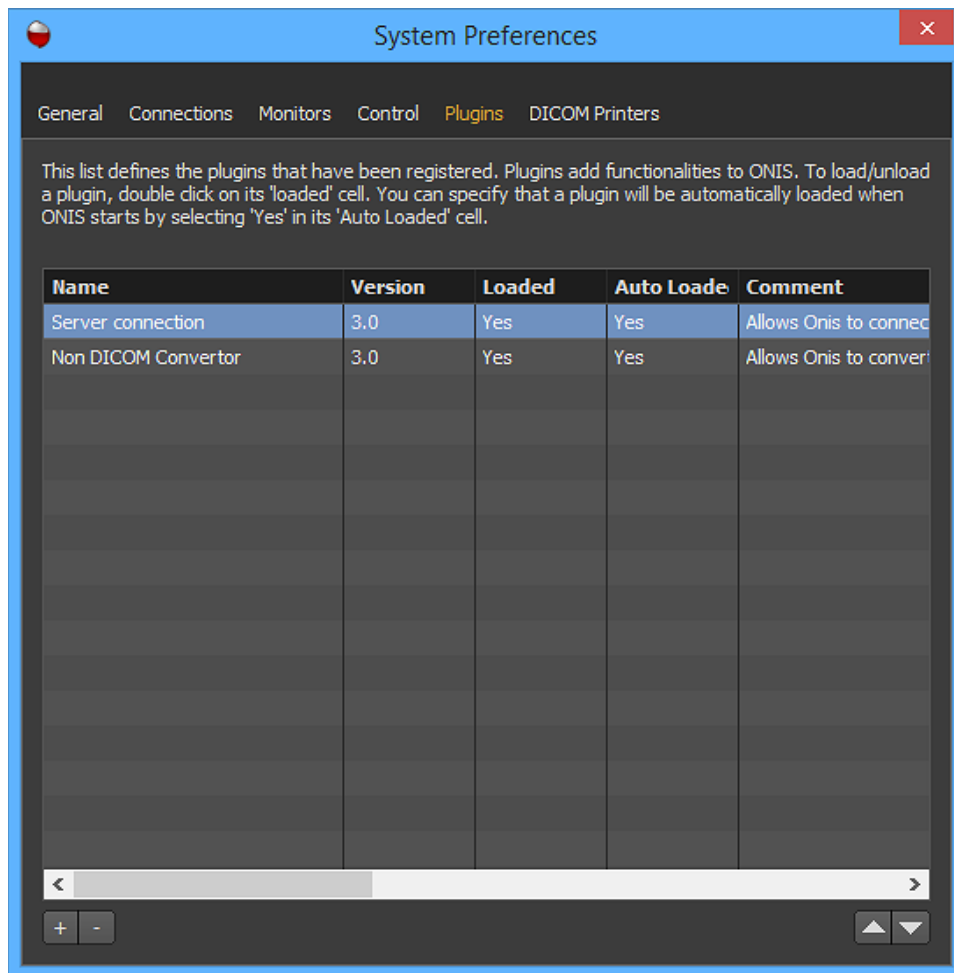
Eventually, additional extensions will also be made available via our website or third party companies.

To manage your extensions:

1. Open the System Preferences panel (Choose 'System Preferences' in the 'ONIS' menu).



2. Select the 'Plugins' page.



4-1 Adding an Extension

To add an extension, click on the "+" button. In the window that pops up, select the file representing the extension and click on the "OK" button.

If the extension is valid, the extension information will be added into the list of registered plugins. To load the plugin, double click on its "loaded" cell and select "Yes" from the popup menu.

If you also want the extension to load automatically when ONIS starts, select "Yes" on its "Auto Loaded" cell.

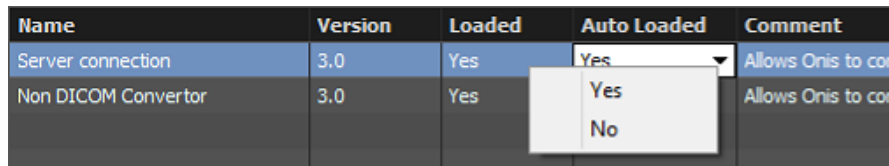
4-2 Removing an Extension

This function is useful when you want to permanently remove an extension or prevent the automatic loading of plugins whenever ONIS starts.

To permanently remove an extension, select it and click on the "-" button and confirm the deletion. Please note that some plugins cannot be removed if they are currently in use. If this is the case, you

will need to delete it in two steps. First, set its Auto Loaded property to False (see next section) then restart ONIS to delete it.

To prevent an extension from loading automatically when ONIS starts, select it in the list and double-click on its "Auto Loaded" cell. Select "No" in the drop down list.



The image shows a table with five columns: Name, Version, Loaded, Auto Loaded, and Comment. The 'Auto Loaded' column for the 'Non DICOM Convertor' row has a dropdown menu open, showing 'Yes' and 'No' options. The 'Server connection' row is highlighted in blue.

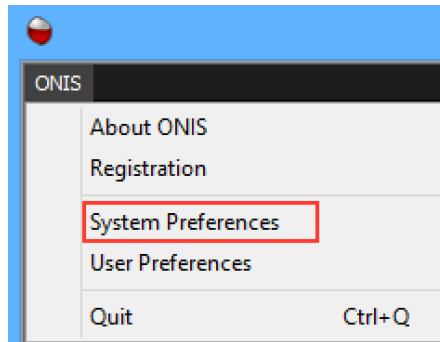
Name	Version	Loaded	Auto Loaded	Comment
Server connection	3.0	Yes	Yes	Allows Onis to con
Non DICOM Convertor	3.0	Yes	Yes	Allows Onis to con

5 DICOM Printers

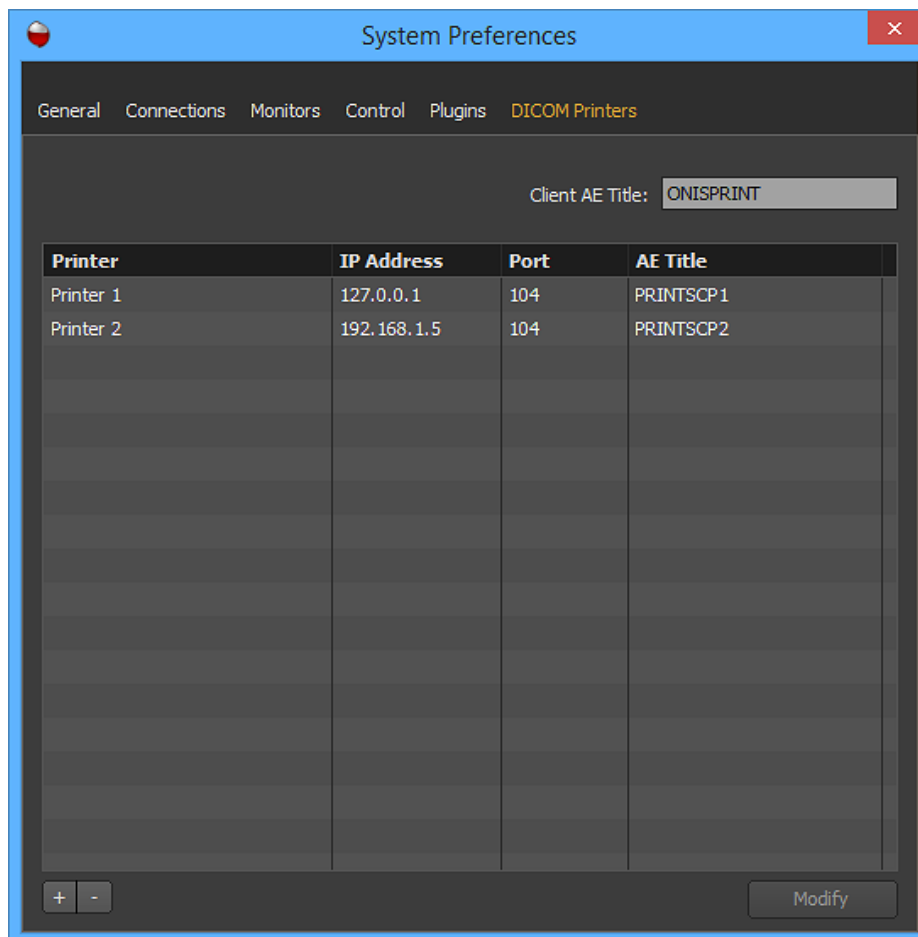
You will need to register your DICOM Printers first before using them for printing images.

To manage your DICOM Printers:

1. Open the System Preferences panel (choose 'System Preferences' in the 'ONIS' menu).



2. Select the 'DICOM Printers' page.



5-1 Adding a Printer

To add a printer, click on the "+" button. A window will open that will let you define the properties of the printer. You need to set the name of the printer (this is a friendly name, which can be anything you wish), the IP and Port of the printer and its AE Title. Then you can define the Session and Density properties (please refer to your DICOM printer information to know what settings are available). Click on the "OK" button to register your printer in ONIS.

Printer Properties

Printer DICOM Server

Name: Printer 3 IP: 127.0.0.1 Port: 104
AE Title: PRINTSCP3

Session

Medium: Blue Film Destination: MAGAZINE
Orientation: Portrait Film: 14INX17IN
Zoom: Bilinear Trim: No
Priority: Medium

Density

Border: Black Empty region: Black
Minima: 0 Maxima: 65535

OK Cancel

5-2 Modifying a Printer

To modify the properties of a DICOM printer, select it in the list and click on the "Modify" button. You can also double click on the printer you want to modify.

A window will open that will let you modify the current properties. Modify the properties as you want and click on the "OK" button when you are done.

5-3 Removing a Printer

If you want to remove a printer, simply select it and click on the "-" button. In the confirmation window that opens, click "Yes" to delete the printer. It will be removed from the list.

6 Layout

In ONIS Viewer 3.0, you have two main pages:

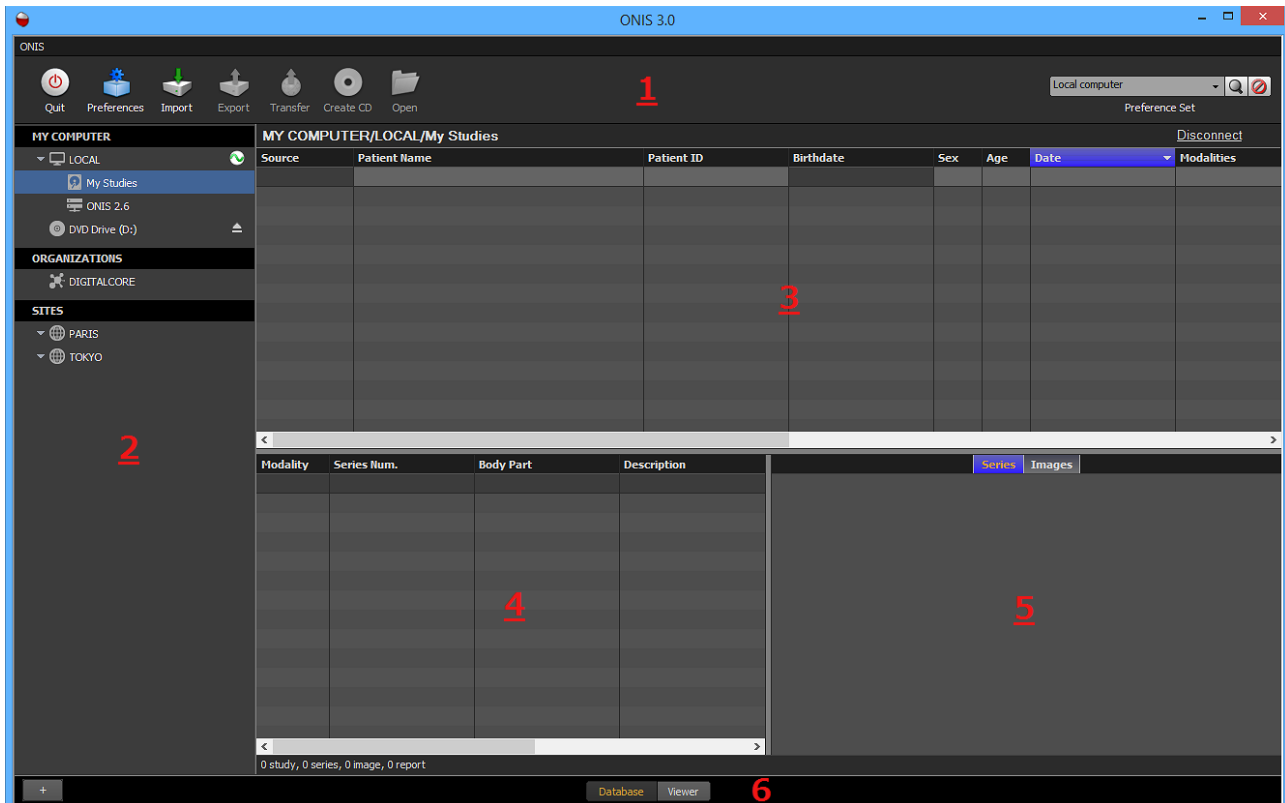
- The Database page
- The Viewer page

In the Database window, you can browse, import, export, transfer, modify and open studies from various sources. When you open a study, it will be displayed in one of the available Viewer pages. From a Viewer page, you will be able to view the images and use tools to help you to perform a diagnostic and write reports.

7 The database page

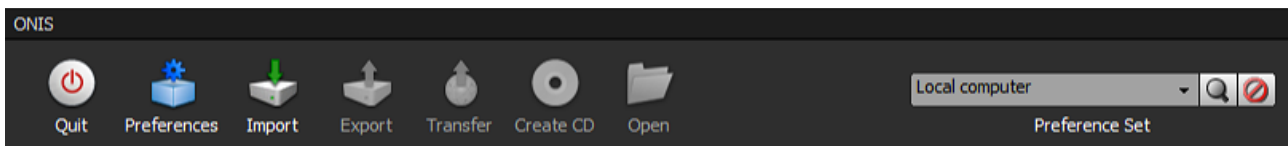
7-1 Layout

The image below shows the default Database page of ONIS Viewer:



1. Toolbar of the Database page
2. Source bar
3. List of studies matching the search criteria
4. List of series belonging to the selected study
5. Icons of series or images

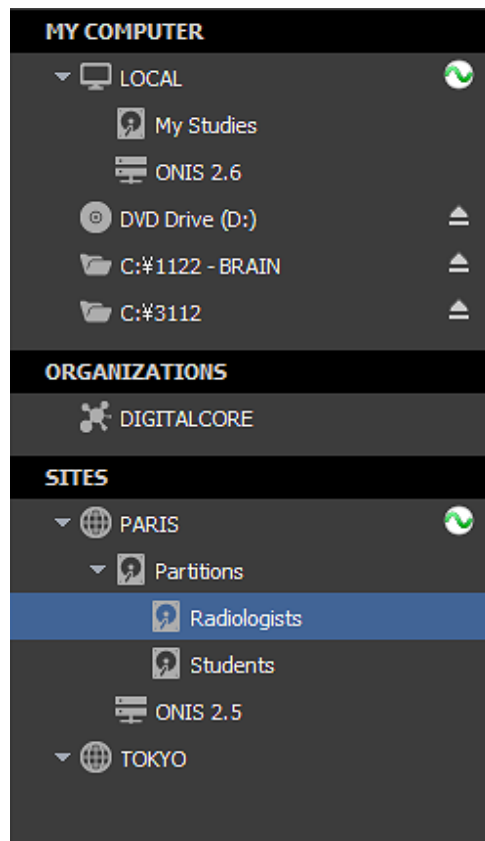
7-1-1 Toolbar of the Database Page



- **Quit:** Click on this button to quit ONIS.
- **Preferences:** Click on this button to open the User Preferences panel. In this panel, you will be able to edit your hanging protocols, window level presets, color preferences and many others features.
- **Import:** Click on this button to import DICOM files from your local disk into the selected source.
- **Export:** Click on this button to export the selected studies, series or images in a folder. You can export the images in various formats, such as DICOM or JPEG.
- **Transfer:** Click on this button to transfer the selected studies, series or images to a different location.
- **Create CD:** Click on this button to export the selected studies, series or images and burn them onto a CD or DVD.
- **Open:** Click on this button to open selected studies for analysis in the Viewer page.
- **Preference Set:** Use this drop down list to select which set of preferences you would like to use.
- **Search Icon:** Click on this icon to start searching for studies. You need to be connected to a source for the search to start.

7-1-2 Source Bar

The source bar gathers the different locations where you can browse your studies from.



By default, the sources are organized into three sections:

- **MY COMPUTER**

This section normally gathers the sources located on your computer or on your local network. There are four types of sources:

- **Your Local Database:** This source, named "My Studies" is your local database and is attached to your local Windows account.
- **DICOM Servers:** If you have some DICOM servers accessible from your local network, you can register them (Refer to the section 2.2.3). Each registered DICOM server will be represented by a source.
- **Optical Drives:** ONIS automatically detects the optical drives attached to your computer and will add a source representing each of them.
- **Folders:** You can add one or more local or shared folders to the list of sources. Those folders will be reloaded automatically when you restart ONIS.

- **ORGANIZATIONS**

This section lists the organizations you have registered. This section is related to the "Server Connection" extension of ONIS. To learn how to register an organization, please refer to the plugin user guide.

- **SITES**

This section gathers the sites you have registered. This section is related to the "Server


Connection" extension of ONIS. To learn how to register an organization, please refer to the plugin user guide.

To browse a source, you need to select it first. To select a source, simply click on its name. The current selected source is the one highlighted with a blue background.

7-1-3 Study, Series and Image Lists

Source	Patient Name	Patient ID	Birthdate	Sex	Age	Date	Modalities
Radiologists	Anonymous 002	TEST002	01/01/1970	Male		05/05/2014 13:55:31	XC
Radiologists	Anonymous 001	TEST001	10/11/1978	Female		13/02/2011 10:57:20	CR
Radiologists	Anonymous 003	TEST003	19/06/1940	Female		21/07/2010 14:52:00	CR
Radiologists	Anonymous 004	TEST004	07/12/1988	Female		01/02/2010 09:02:58	CR
Radiologists	Anonymous 005	TE		Other		06/12/2004 11:50:11	CR
Radiologists	Anonymous 006	TE		Male		19/07/2001 18:07:26	CR
Radiologists	Anonymous 007	TE		Male		29/05/2001 12:07:21	CR
Radiologists	Anonymous 008	TEST008	07/05/1964	Male		13/10/1999 14:40:14	CR
Radiologists	Anonymous 009	TEST009	19/01/1952	Female		03/09/1997 10:03:00	CR

Modality	Series Num.	Body Part	Description
CR	1004	LOW_EXM	
CR	1001	CHEST	
CR	1002	UP_EXM	
CR	1003	UP_EXM	
CR	1005		
CR	1006		
CR	1007		



9 studies, 17 series, 22 images, 0 report

7-1-3-1 studies and series list

7-1-3-1 Studies and Series Lists

Two lists are used for displaying the studies and series matching your criteria:

- Studies List
- Series List

The List of Studies displays all of the studies matching your criteria. When you select one study in this list, the List of Series will display all of the series attached to it. The List of Series will be empty in the following situations: when you don't select any studies; when you select multiple studies; when the selected study does not contain any series.

The List of Studies will display the following information for each study matching your criteria:

Name	Type
Source	Text
Patient ID	Text
Patient Name	Text
Birthdate	Date
Sex	Text
Age	Text
Study Date	Date
Modalities	Text
Body Parts	Text
Accession Number	Text
Study ID	Text
Description	Text
Number of series attached to the study	Number
Total number of images in the study	Number
Number of reports attached to the study	Number
Online status (online, deleted or in conflict)	Text
Import date	Date
Study UID (unique identifier)	Text

The list of series will display the following information:

Name	Type
Modality	Text
Series Number	Text
Body Part	Text
Description	Text
Series UID (unique identifier)	Text
Series Date	Date
Total number of images in the series	Number
Online status (online, deleted or in conflict)	Text
Import date	Date

The displayed information can be customized through the User Preferences in the 'Database' page.

7-1-3-2 Series and Image Icons

The Lists of Series and Images that match your search criteria will appear as folder icons on the bottom right corner of your display. The default icon will display one of the images from the enclosed series, but if there are no images available then a generic icon will appear in its place.

If you would like to display the image icons of a series, select a series and click on the 'Images' button.

The following table indicates the displayed information for each level (Series or Image):

Series Level	Image count / Series description / Modality
Image Level	Image resolution / Instance number

7-1-3-3 Basic operations

To change the column width:
 1) Bring your cursor over the vertical partition between two column titles.
 2) Hold down the left mouse button and drag the partition horizontally to expand or shrink the column width.

Click on one of the column titles to reorganize your list in a different order. When you click on a column title, that title cell will turn blue and a triangle will appear on the right (as shown). You can choose to list the contents in ascending or descending order, which will be represented by the direction that the triangle is pointing.

The screenshot displays a medical imaging software interface. The top section is a table with columns: Source, Patient Name, Patient ID, Birthdate, Sex, Age, Date, and Modalities. The 'Date' column title is highlighted in blue with a downward-pointing triangle. Below this is a detailed view of a study. On the left, a table lists series with columns: Modality, Series Num., Body Part, and Description. On the right, there are two tabs: 'Series' and 'Images'. The 'Images' tab is active, showing a grid of six X-ray image thumbnails. A red arrow points from the 'Images' tab to the 'Images' button. Another red arrow points from the 'Date' column title to the 'Date' column in the patient list table.

Click once on a study to select it and to display the list of its series. You can select multiple studies in succession by clicking while holding down the "Shift" key, or you can select multiple studies individually by holding down the "Ctrl" key.

Click on the "Images" button to see all of the images that belong to the selected series.

7-2 Query for studies

In order to view a series of images, it is necessary to conduct a query for studies. You will need to follow these steps:

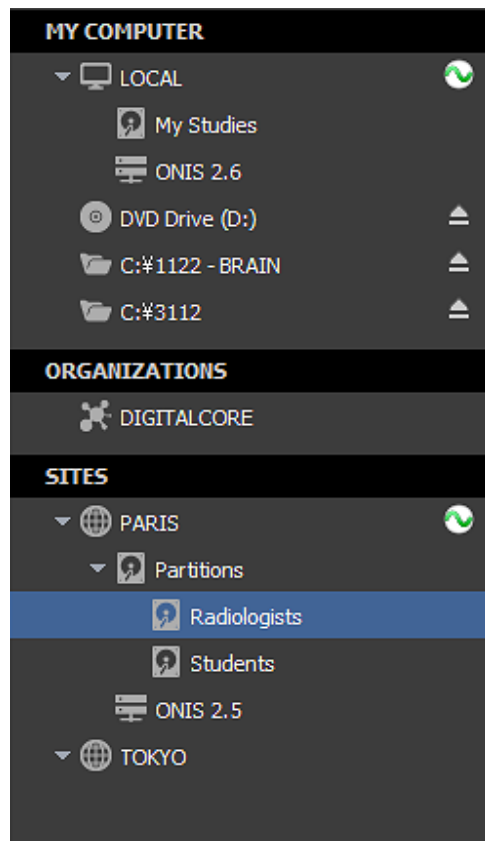
1. Select the source.
2. Define your search criteria
3. Execute the query
4. See the results

7-2-1 Select the source

7-2-1 Selecting the Source

Studies can be localized on different sources. For example, they can be stored on your local database, a DICOM server, a folder, a CD or a USB disk.

The source bar displays all of the available sources from which you can query for studies. To select a source simply click on its name. A blue background will highlight the source you have selected.



7-2-2 Defining Your Search Criteria

You can use multiple criteria to search for studies. The criteria can be a combination of the following:

Name	Type
Patient ID	Text
Patient Name	Text
Sex	Combo
Age	Text

Name	Type
Study Date	Combo
Modalities	Combo
Body Parts	Text
Accession Number	Text
Study ID	Text
Study Description	Text
Online Status	Combo
Import Date	Combo

You can input your criteria in the edit boxes that are located just under the study list header. For performing text searches, two wildcard characters are supported:

- The asterisk (*) stands for any combination of letters ('m*' refers to all patient names that begin with the letter m for example).
- The question mark (?) matches any single letter character.

The criteria for the online status can be one of the three following values:

- Online: This will select only the studies that are available for analysis.
- Deleted: This will select only the studies that have been deleted (not permanently). The images were not physically destroyed. They cannot be opened into the viewer for analysis but they can still be exported.
- In Conflict: This will select only the studies that were imported but not online due to a conflict with some existing studies. A reconciliation is necessary for the study to go online.
- Any: All existing studies (online, deleted and in conflict) will be retrieved.

The snapshot below shows the search for the studies that match the following criteria:

- The Patient Name begins with 'An'
- Male Patients only

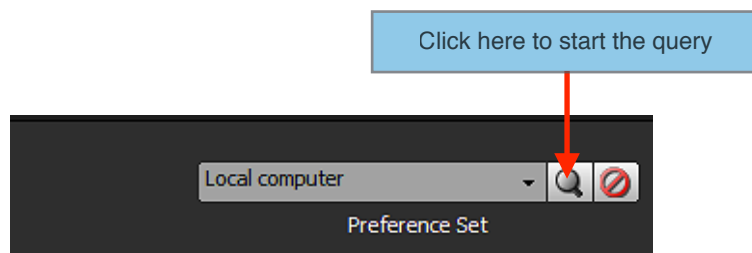
Type your criteria here

Source	Patient Name	Patient ID	Birthdate	Sex	Age
	An*			Male	
Radiologists	Anonymous 002	TEST002	01/01/1970	Male	
Radiologists	Anonymous 006	TEST006	25/02/1975	Male	
Radiologists	Anonymous 007	TEST007	26/08/1970	Male	
Radiologists	Anonymous 008	TEST008	07/05/1964	Male	

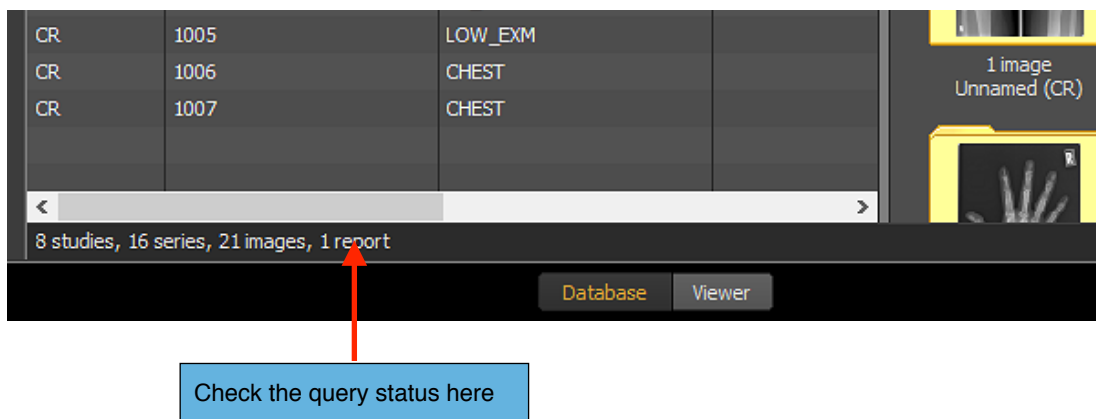
To reset a criteria, just click on it and erase its value.

7-3-3 Execute the query

You can start the query by clicking on the ‘Search’ icon from the database toolbar. When you input a text criteria, you can also send the query by hitting the ‘Enter’ key of your keyboard. For criteria using a menu (i.e. date, sex, online status), the query will start automatically when you update the value.



You can check the current status of the query by looking at the status bar located under the series list.



7-3-4 Results

The studies matching your criteria will be displayed in the study list. If the query does not produce any results, you can check for errors in the status bar. If you are unable to draw any errors even after these measures, there are two possible explanations for why the list remained empty:

- The source does not have any studies matching your criteria. In this case, adjust your criteria and try again.
- You didn't input any criteria so the source rejected your request and did not send back any results. Some servers can be configured to behave like this when they store a huge amount of studies in order to avoid taking up too many resources.

By default, ONIS will display only the first 500 studies returned by the source. This is to prevent the interface from becoming non-responsive. This limitation can be modified in the configuration file but it is advised not to do this on your own as tampering with your software may cause the system to stop reacting.

You may also encounter cases wherein you get fewer responses than expected. This might be because the source is limiting the number of replies in order to keep the server responsive.

The search may also retrieve deleted studies, which will appear with the text struck through, as shown in the following snapshot:

Source	Patient Name	Patient ID	Birthdate	Sex	Age	Date
Radiologists	Anonymous 007	TEST007	26/08/1970	Male		29/05/2001 13
Radiologists	Anonymous 004	TEST004	07/12/1988	Female		01/02/2010 09
Radiologists	Anonymous 006	TEST006	25/02/1975	Male		19/07/2001 18
Radiologists	Anonymous 005	TEST005		Other		06/12/2004 13
Radiologists	Anonymous 008	TEST008	07/05/1964	Male		13/10/1999 14
Radiologists	Anonymous 009	TEST009	19/01/1952	Female		03/09/1997 10
Radiologists	Anonymous 003	TEST003	19/06/1940	Female		21/07/2010 14
Radiologists	Anonymous 001	TEST001	10/11/1978	Female		13/02/2011 10
Radiologists	Anonymous 002	TEST002	01/01/1970	Male		05/05/2014 13

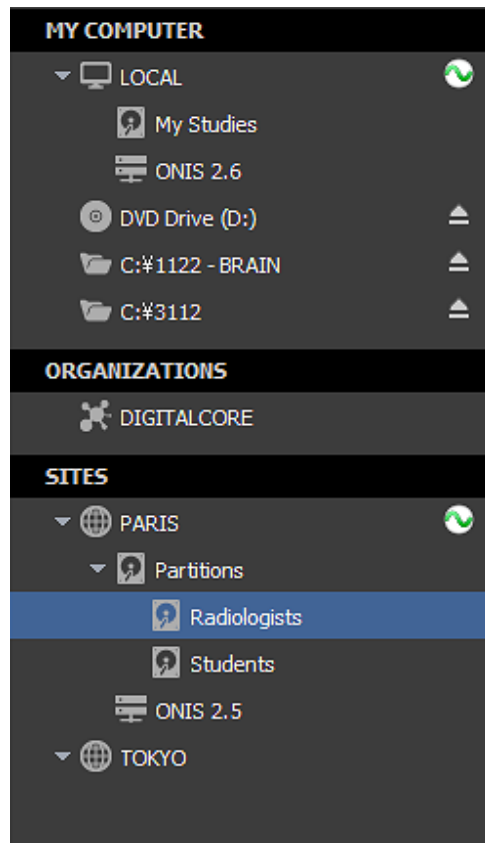
7-3-5 Auto-refresh

In the 'Database' page of the User Preferences panel, you can set the list to periodically update itself automatically. However, the list will not refresh itself if it runs the risk of using up too many resources. If you want to ensure that it updates properly, you should set the study date criteria within 3 months.

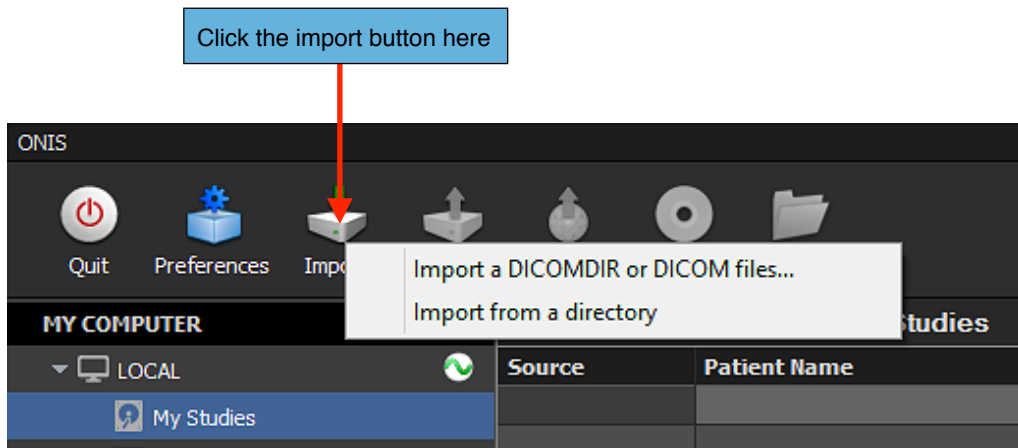
7-3 Importing DICOM Images

This section explains how to import DICOM images located on your hard drive, CD or any other local media.

First you need to select the source where you would like the DICOM files to be imported into. For example this can be your local database or a DICOM server. To select a source, simply click on its name. The current selected source is the one highlighted with a blue background.



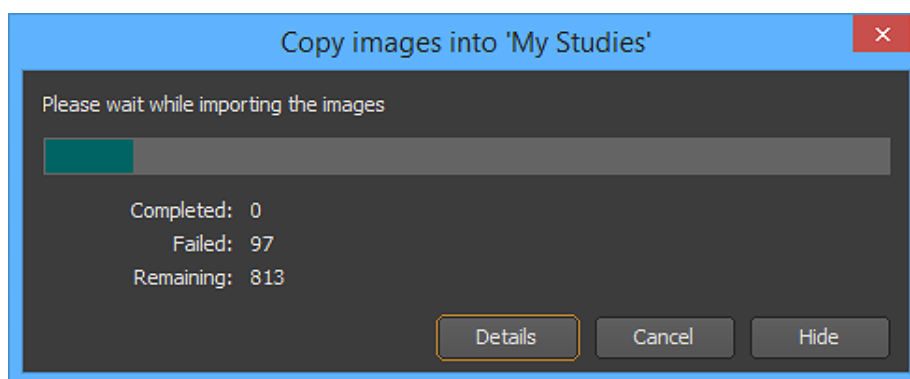
Then click on the 'Import' icon from the Database toolbar. A menu will pop up letting you choose between the file selection or an entire directory. If the 'Import' button is disabled, this means that you cannot import any DICOM files onto it (this is the case for non-writable sources, such as CD-ROMs).



If you chose the "Import a DICOMDIR or DICOM files..." option, you will need to select the files you want to import. You can select multiple files by clicking while holding down the "Shift" key. Click on the "Open" button to start importing the selected images or DICOMDIR.

If you chose to import all files contained in a directory and its sub-directories, you need to select the targeted folder and click on the "OK" button. All DICOM files under this folder and all of its sub-folders will be searched. If the search takes a while, a window will appear displaying the current status of the search. You can see the number of DICOM files that were found so far and which folder is currently being analyzed. You can cancel the search anytime by clicking on the "Cancel" button, and then none of the DICOM files will be imported.

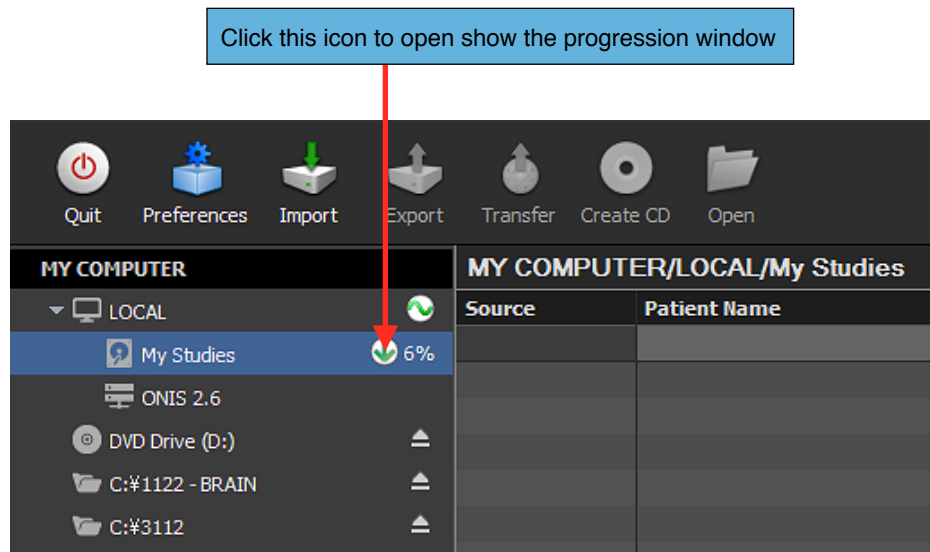
When the importation starts, a window will open to show you its progress.



You can stop importing images anytime by clicking on the "Cancel" button.

You also can see how many images have been successfully imported so far, how many failed, and how many images are remaining. Once all images are successfully imported this window will close automatically.

You can hide this window any time by clicking on the "Hide" button. The import process will continue running in the background. You can bring up this window again anytime by clicking on the import icon located on the right side of the source name in the source bar.

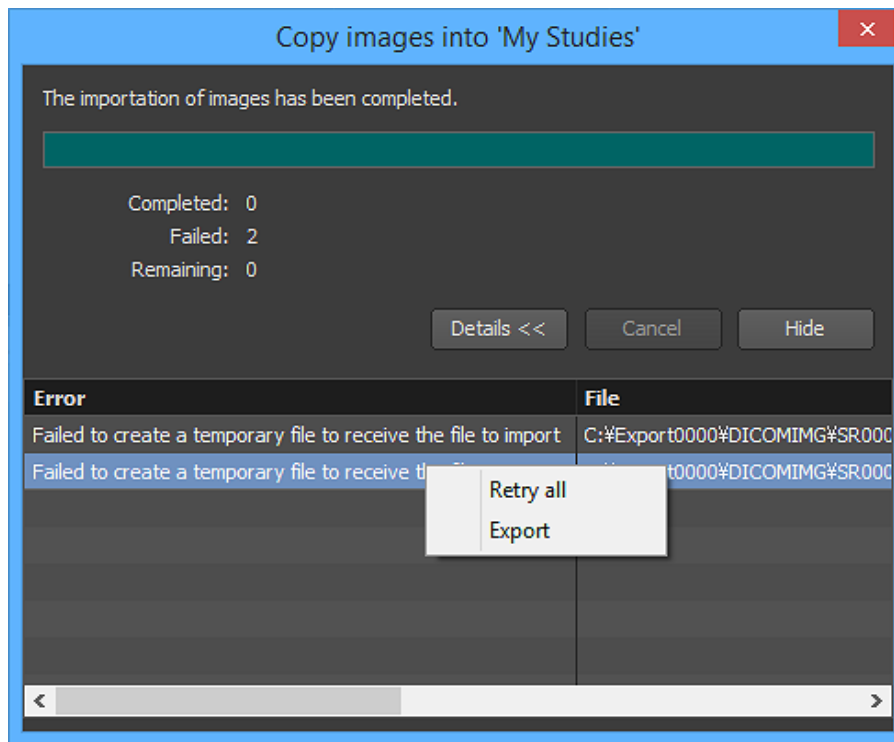


After the importation completes, you will be notified of any errors that display in the Error List.

Every file that fails to import will show the path of the image and a string explaining the error. You will also be given two options:

- Retry importing all of the images that have failed
- Export all of the images that failed to import into a directory

To access these options, bring your cursor above one of the errors and right click on it. A popup menu will appear letting you choose between the two options. If you choose to export the images, you will be asked to select a folder where the images should be copied to.

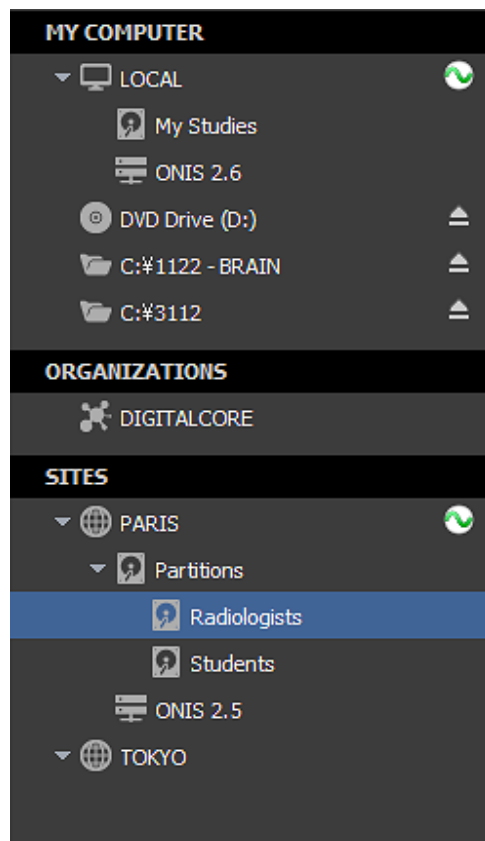


7-4 Exporting Images

This section explains how to export images from a source into a local or a shared folder. You can export the images as DICOM files or as general image formats like BMP or JPEG.

7-4-1 Selecting the Source

First you need to select the source from which you would like to export images. For example, this can be your local database or a DICOM server. To select a source, simply click on its name. The current selected source is the one highlighted with a blue background.



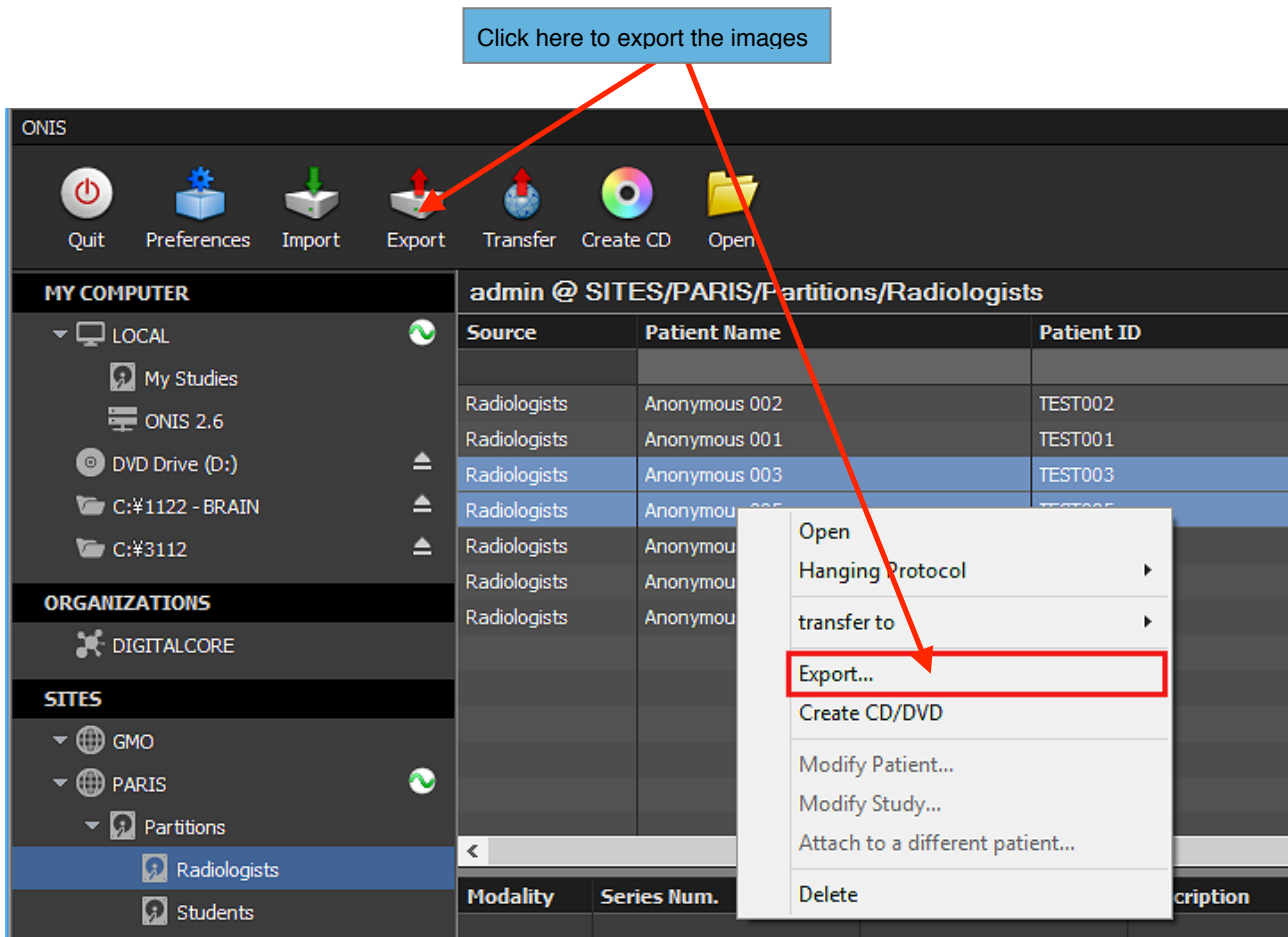
7-4-2 Selecting the Images to Export

You need to select the images you would like exported. You can export:

- All images of one or multiple studies
- All images of one or multiple series of a specific study
- One or multiple images of a specific series

You need to query the selected source for the studies you want to export images from. Please refer to the 'Query for Studies' section for that.

If you would like to export all images of one or multiple studies, select them from the List of Studies and click on the 'Export' button on the toolbar. You can also choose the 'Export...' menu from the context menu of the List of Studies. To open this menu, bring your cursor above one of the selected studies and right click.

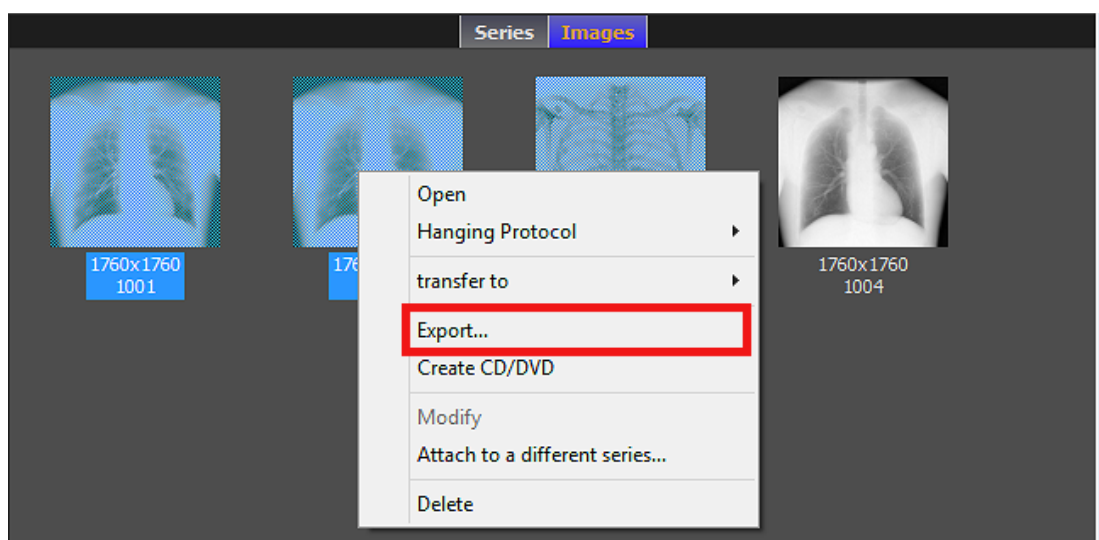


If you would like to export all images of one or multiple series of a study, select the study in the List of Studies. The series belonging to the selected study will be displayed in the List of Series. Select the series you would like to export and click on the 'Export' button on the toolbar. You can also choose the 'Export...' menu from the context menu of the List of Series. To open this menu, bring your cursor above one of the selected series and right click.

Modality	Series Num.	Body Part	Description
CR	1	SKULL	
CR	2		

<	7 studies, 15 series, 20 images, 1 report		
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If you would like to export one or multiple images of a series, select the study the series belongs to in the list of studies. In the List of Series, select the series you would like to export the images from. In the List of Icons, click the 'Images' button to display the images of the series. Select the images you would like to be exported. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a noncontiguous selection. You can unselect an image by clicking on it while holding the 'Ctrl' key. Finally, click on the 'Export' button on the toolbar. You can also choose the 'Export...' menu from the Context menu of the Icon List. To open this menu, bring your cursor above one of the selected images and right click.



After clicking on the export button, a window will open letting you choose your options for exporting the images.

7-4-3 Choosing the Export Options

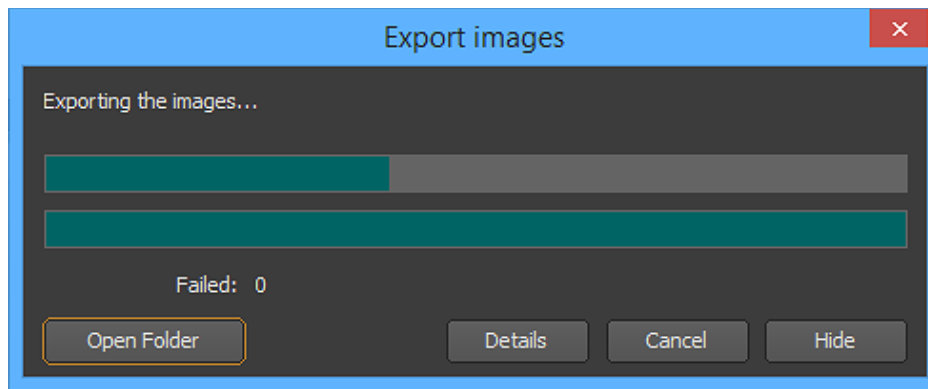
Customize your export options with the following:

- **Format:** You can choose to export the file in DICOM, BMP, JPEG or PNG formats. However, the images having a movie transfer syntax (MPEG2 or MPEG4) will be exported in the same movie format (with MPG or MP4 extensions) even if you choose the BMP, JPEG or PNG formats.
- **All Frames:** If you enable this option, then whenever a multi-frame DICOM file is exported in a BMP, JPEG or PNG format, all of the frames will be exported. Leave this option unchecked and only the first frame will be exported.
- **Create a Root Folder:** Enable this option if you would like to create a root folder that will contain the exported images. The root folder will be named 'ExportXXXX', where XXXX will be replaced by a unique number.
- **Add a DICOMDIR:** Enable this option if you would like a DICOMDIR to be added. This option is only available when you export the images in the DICOM format.
- **Compression:** If you export images in the DICOM format, you can ask ONIS to modify the transfer syntax of the files. You can choose either to keep the original format, to compress the files to the JPEG transfer syntax (only for the uncompressed files), or to uncompress the files (except for the multi-frames images or MPEG transfer syntaxes).
- **Application:** If you export the images in the DICOM format, you can add the 'ONIS Preview' application also. This application is a light version of ONIS that permits you to display the exported DICOM files. Additionally, you can copy the existing annotations that was saved for the images (only if you export a whole study or a whole series) and you can also copy your user preferences if you would like to keep your hanging protocols, window level presets and others.

When ready, click on the 'Export' button to start exporting the images. You will be asked to select the output directory. Select it and click on the 'OK' button. The progression window will open.

7-4-4 Progression

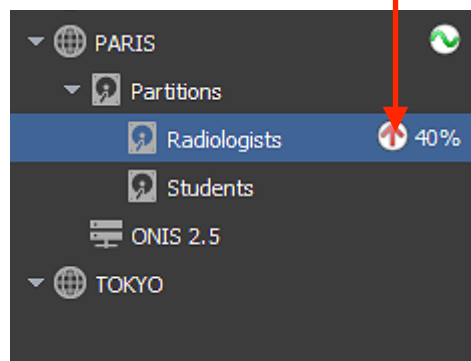
When the export starts, a window will open to show you its progress.



You can stop the export anytime by clicking on the "Cancel" button.

You can hide this window any time by clicking on the "Hide" button. The exportation process will continue running in background. You can display this window again anytime by clicking on the export icon located on the right side of the source name in the source bar.

Click this icon to open show the progression window



After the exportation completes, you will be notified of any errors that display in the Error List. You can show or hide the Error List anytime during the process by clicking on the 'Details' button.

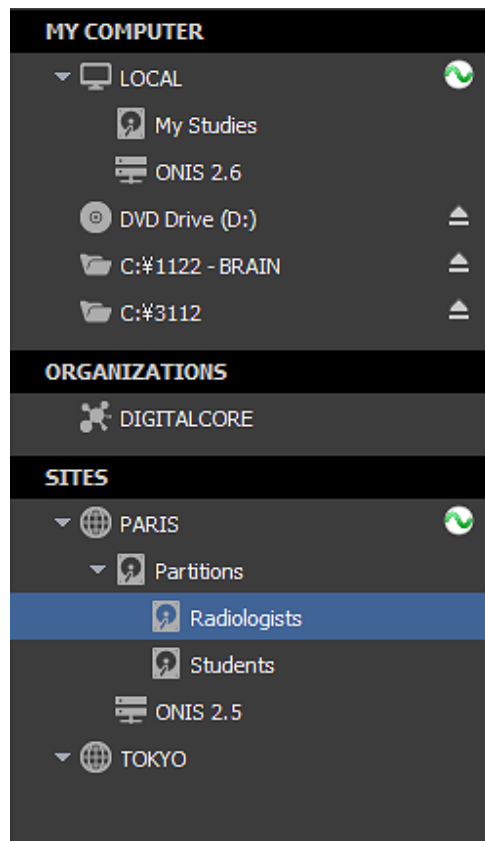
You can open the output folder anytime by clicking on the 'Open Folder' button.

7-5 Burning onto CD or DVD

This section explains how to burn images from a source onto a CD-R or a DVD-R media. You can burn the images as DICOM files or in general image formats like BMP or JPEG.

7-4-1 Selecting the Source

First you need to select the source from which you wish to burn your images (i.e. your local database or a DICOM server). To select a source, click on its name. The current selected source is the one highlighted with a blue background.



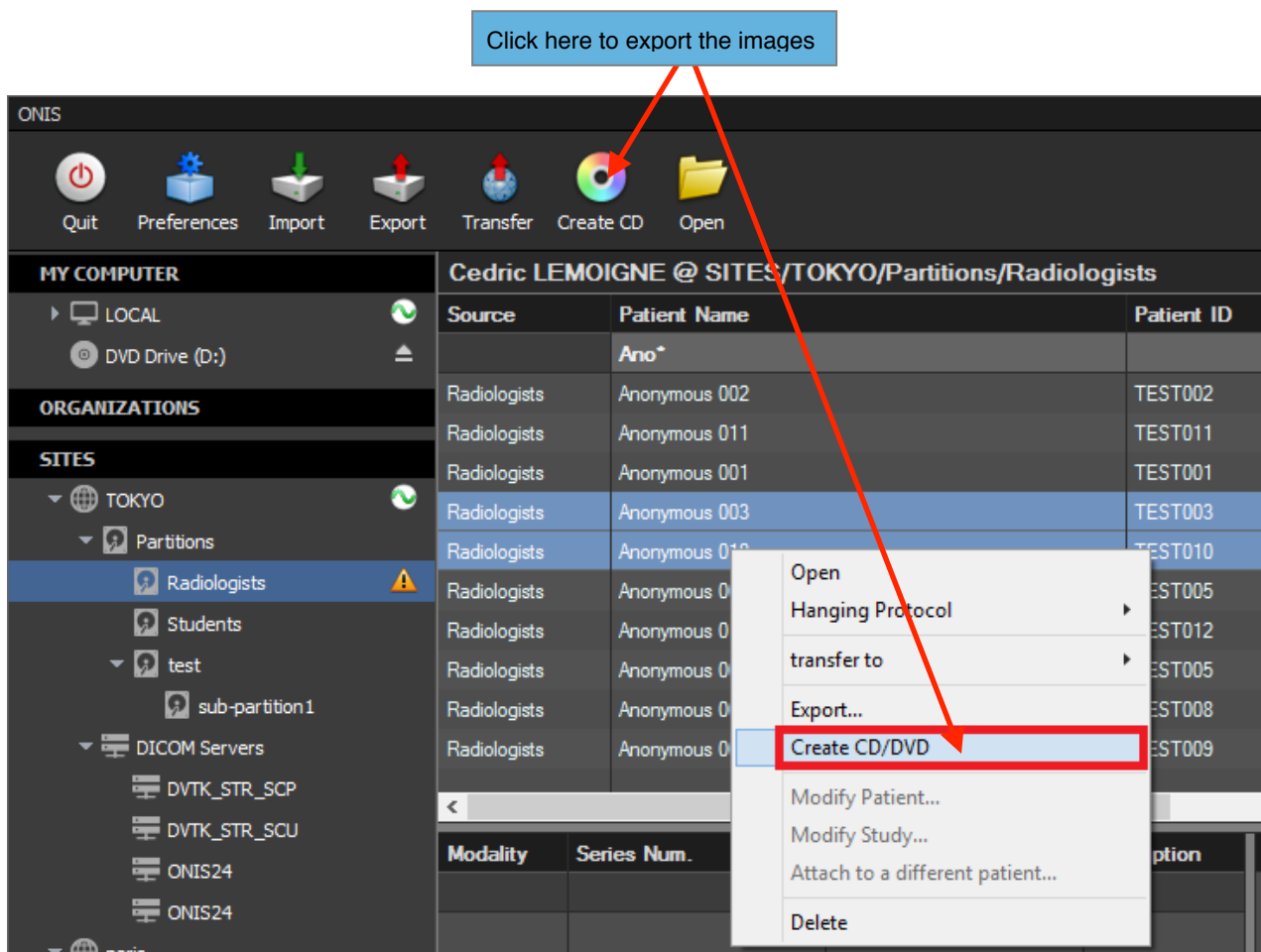
7-4-2 Selecting the Images to Burn

You need to select the images you would like to be burn. The following are capable of being burned:

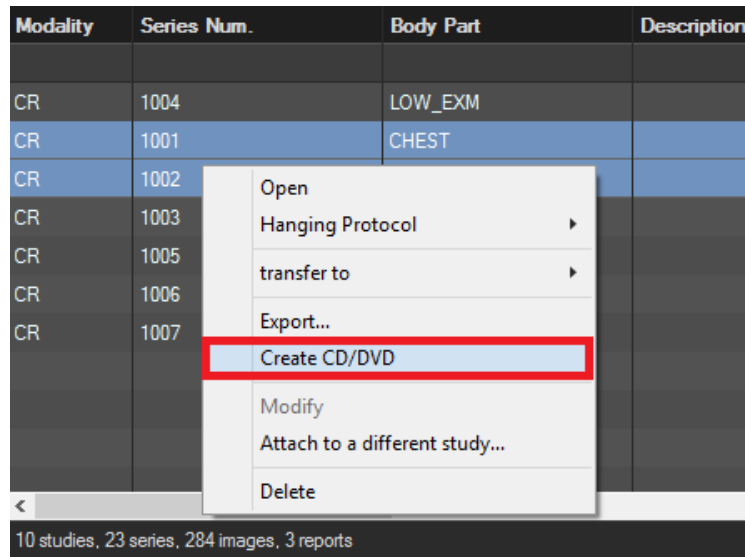
- All images of one or multiple studies
- All images of one or multiple series of a specific study
- One or multiple images of a specific series

You need to query the selected source for the studies you want to burn images from. Refer to the 'Query for Studies' section for that.

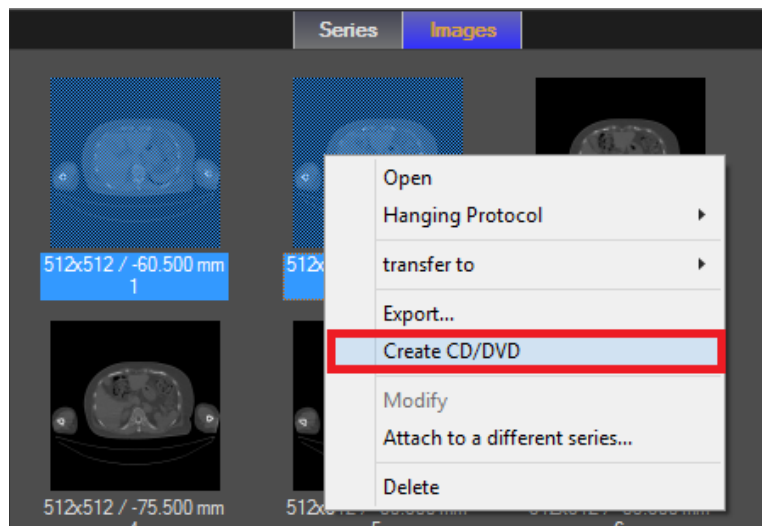
If you would like to burn all images of one or multiple studies, select them from the list of studies and click on the 'Create CD' button on the toolbar. You can also choose the 'Create CD/DVD...' menu from the context menu of the List of Studies. To open this menu, bring your cursor above one of the selected studies and right click.



If you would like to burn all images of one or multiple series of a specific study, select the study in the list of studies. The series belonging to the selected study will be displayed in the List of Series. Select the series you would like to export and click on the 'Create CD' button on the toolbar. You can also choose the 'Create CD/DVD' menu from the context menu of the List of Series. To open this menu, bring your cursor above one of the selected series and right click.

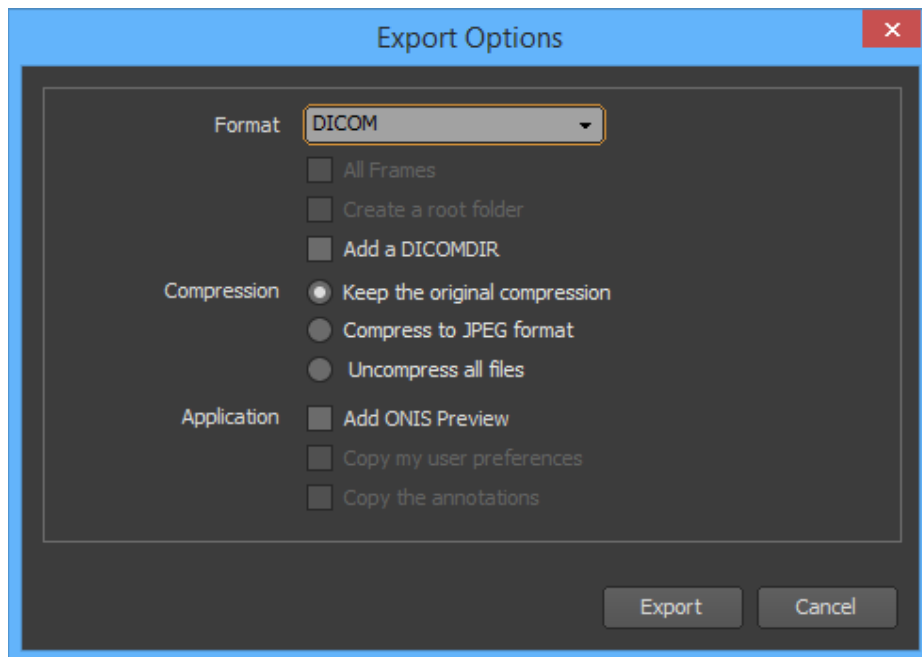


If you would like to burn one or multiple images of a series, select the study the series belongs to in the List of Studies. In the List of Series, select the series you would like to burn the images from. In the icon list, click on the 'Images' tabulation to display the images of the series. Select the images you would like to be burned. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a noncontiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. Finally, click on the 'Create CD' button on the toolbar. You can also choose the 'Create CD/DVD' menu from the context menu of the icon list. To open this menu, bring your cursor above one of the selected images and right click.



After clicking on the 'Create CD' button, a window will open letting you choose your options for burning the images.

7-4-3 Selecting the Burning Options



Customize your burnt options with the following:

- **Format:** You can choose to burn the file in DICOM, BMP, JPEG or PNG formats. However, the images possessing a movie transfer syntax (MPEG2 or MPEG4) will be exported in the same movie format (with MPG or MP4 extensions) if you choose the BMP, JPEG or PNG formats.
- **All Frames:** If you enable this option, then whenever a multi-frame DICOM file is burned in a BMP, JPEG or PNG format, all of the frames will be burned. Leave this option unchecked and only the first frame will be burned.
- **Create a Root Folder:** Enable this option if you would like to create a root folder that will contain the burned images. The root folder will be named 'ExportXXXX', where XXXX will be replaced by a unique number.
- **Add a DICOMDIR:** Enable this option if you would like a DICOMDIR to be added. This option is only available when you burn the images in the DICOM format.
- **Compression:** If you burn the images in the DICOM format, you can ask the ONIS to modify the transfer syntax of the files. You can choose either to keep the original format, to compress the files to the JPEG transfer syntax (only for the uncompressed files), or to uncompress the files (except for the multi-frames images or MPEG transfer syntaxes).

- **Application:** If you burn the images in the DICOM format, you can add the 'ONIS Preview' application also. This application is a light version of ONIS that permits you to display the burned DICOM files. Additionally, you can copy the existing annotations that was saved for the images (only if you export a whole study or a whole series) and you can also copy your user preferences if you would like to keep your hanging protocols, window level presets and others.

When ready, click on the 'Export' button to start exporting the images. You will be asked to select the output directory. Select it and click the 'OK' button. The Progression window will open.

7-4-4 Progression

Before burning, all the images will be exported to the windows burning folder. A progression window will appear displaying the progress.

You can stop the export anytime by clicking on the "Cancel" button.

After the exportation completes, you will be notified of any errors that display in the Error List. You can show or hide the Error List anytime during the process by clicking on the 'Details' button.

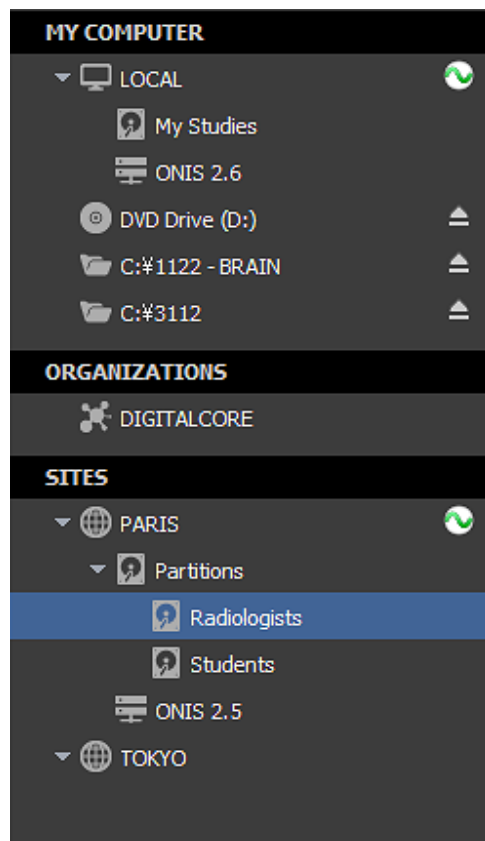
The Windows application will automatically open after the export. Follow the instructions to start burning onto the CD-R or DVD-R.

7-6 Transferring Images

This section explains how to transfer DICOM images from one source to another.

7-6-1 Selecting the Source

First you need to select the source containing the images you would like to transfer. For example this can be your local database or a DICOM server. To select a source, click on its name. The current selected source is the one highlighted with a blue background.



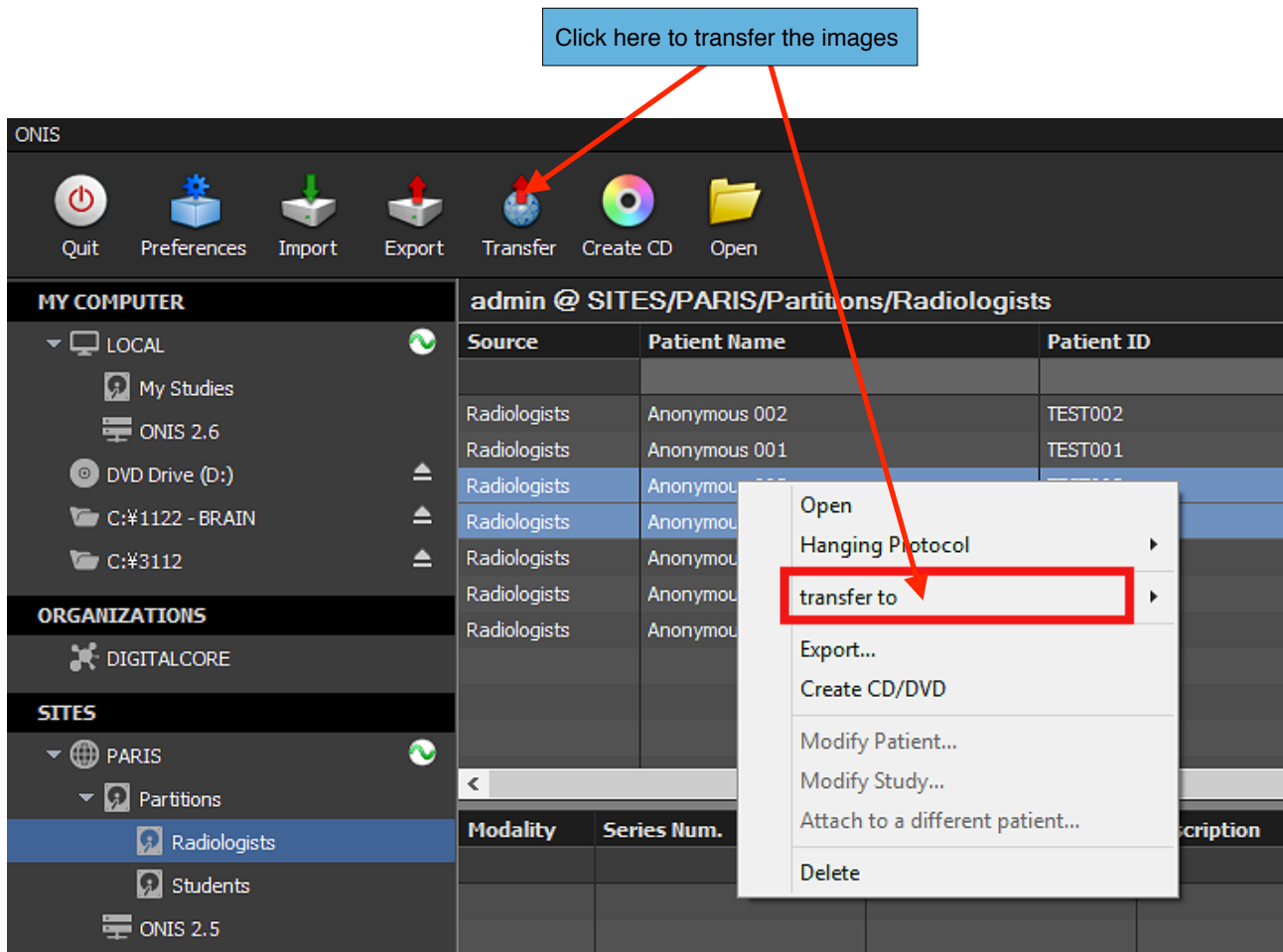
7-6-2 Selecting the Images to Transfer

You need to select the images you would like transferred. You can transfer:

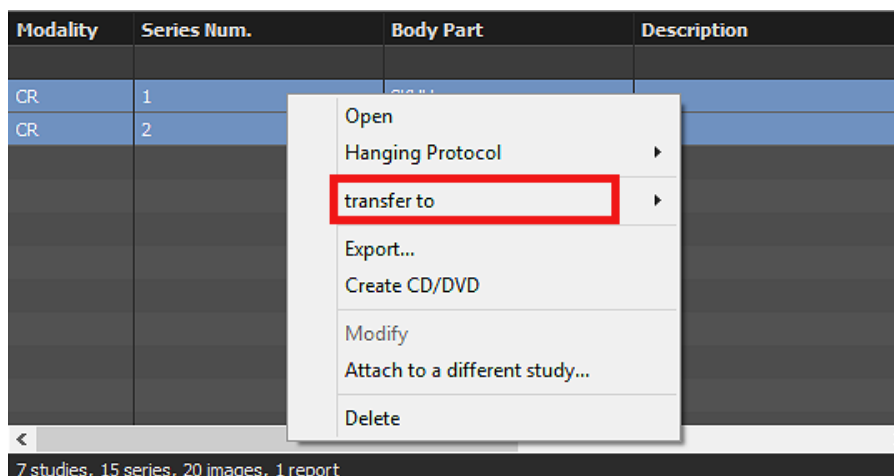
- All images of one or multiple studies
- All the images of one or multiple series of a specific study
- One or multiple images of a specific series

You need to query the selected source for the studies you want to transfer images from. Please refer to the 'Query for Studies' section for that.

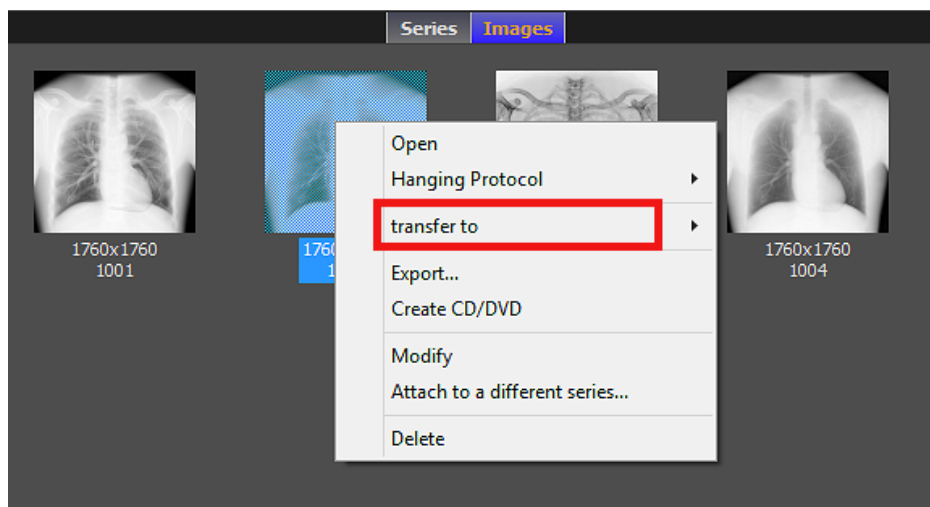
If you would like to transfer all images of one or multiple studies, select them from the List of Studies and click on the 'Transfer' button on the toolbar. You can also choose the 'Transfer to' menu from the context menu of the study list. To open this menu, bring your cursor above one of the selected studies and right click. Alternatively, you can drag and drop the studies to the destination source in the source bar.



If you would like to transfer all images of one or multiple series of a study, select the study in the List of Studies. The series belonging to the selected study will be displayed in the List of Series. Select the series you would like to transfer and click on the 'Transfer' button on the toolbar. You can also choose the 'Transfer to' menu from the context menu of the List of Series. To open this menu, bring your cursor above one of the selected series and right click. Alternatively, you can drag and drop the series to the destination source in the source bar.



If you would like to transfer one or multiple images of a series, select the study the series belongs to in the List of Studies. In the List of Series, select the series you would like to export the images from. In the icon list, click on the 'Images' tabulation to display the images of the series. Select the images you would like to be transferred. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a noncontiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. Finally, click on the 'Transfer' button on the toolbar. You can also choose the 'Transfer To' menu from the context menu of the icon list. To open this menu, bring your cursor above one of the selected images and right click. Alternatively, you can drag and drop the images to the destination source in the source bar.

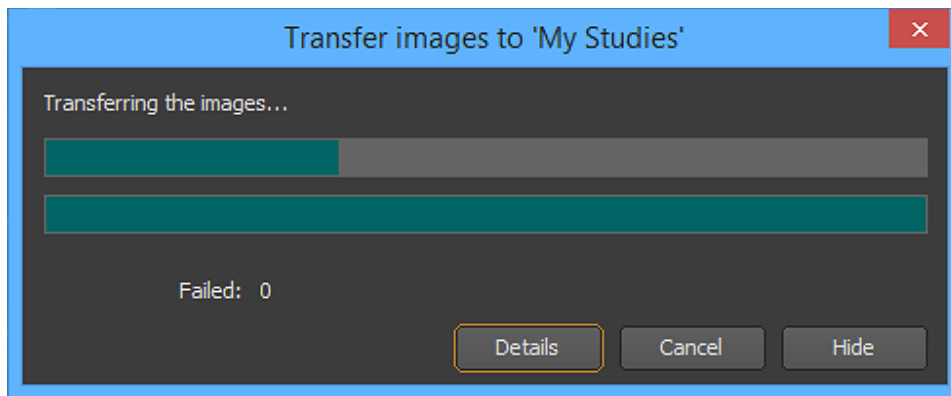


When you click on the 'Transfer' button on the toolbar or select 'Transfer To' from the context menu, a popup menu will appear letting you choose the destination for the images. Choose the destination from this menu. If your destination does not appear in this menu, it means that this destination cannot receive new images. This is the case for a CD-ROM for example, but it might be because you don't have the privileges to process this operation (in which case you would need to contact your administrator).

After you have selected your destination from the popup menu or dropped the items on the destination in the source bar, a window will pop up to let you see the transfer progress.

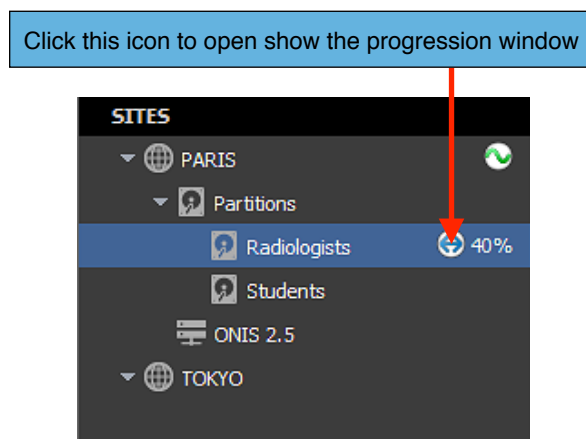
7-6-3 Progression

When the transfer starts, a window will open to show you its progression.



You can stop transferring the images anytime by clicking on the "Cancel" button.

You can hide this window anytime by clicking on the "Hide" button. The transfer process will continue running in background. You can display this window anytime by clicking on the Transfer icon located at the right side of the source name in the source bar.



After the transfer completes, you will be notified of any errors that display in the Error List. You can show or hide the Error List anytime during the process by clicking on the 'Details' button.

7-7 Folder Source

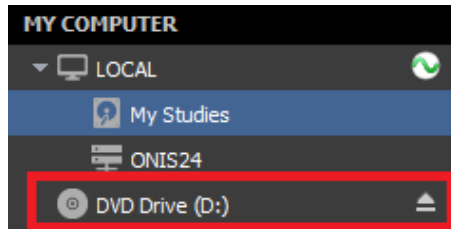
You can load a folder as a source in ONIS to browse the studies it contains:

1. Click on the '+' button located at the bottom left corner of the Database page.
2. In the popup menu, choose 'Find DICOM files from a folder'.

The folder and all of its subfolders will be scanned to search for the DICOM files. Then the folder will be added in the source bar. This source can be used like any other source and you can browse and open studies directly from it.

7-8 Optical Source (CD/DVD)

The optical drives connected to your computer are automatically detected when the application starts. For each drive, a source node will appear under the ‘MY COMPUTER’ section.



Select the corresponding node and insert a media into the drive. The media will automatically be analyzed for DICOM files.

7-9 Connecting to a Site

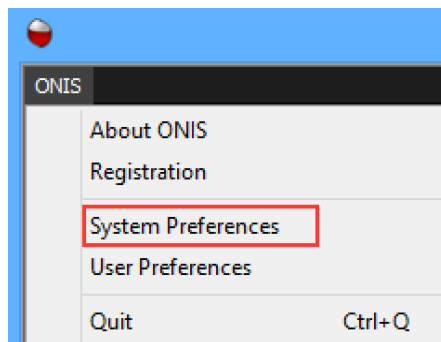
When you connect to a site, you have access to all of its resources (partition and DICOM Servers) depending on your user account permissions.

7-9-1 The Plugin

You can connect to a site through the ‘Server Connection’ plugin. This free plugin free is installed automatically when you setup the ONIS Viewer or ONIS Remote Application.

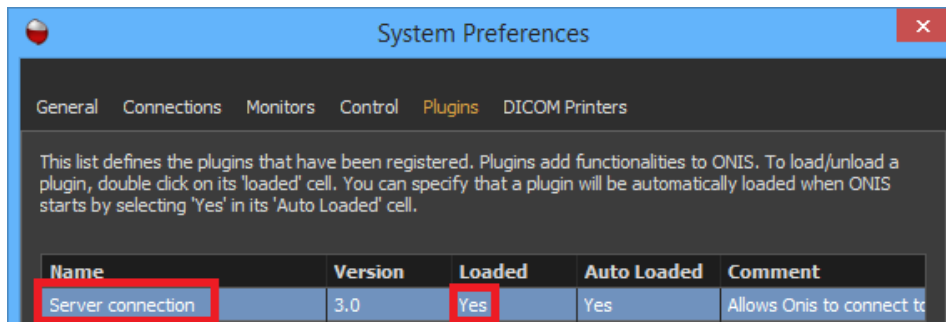
To make sure that the plugin is still available and loaded follow the instructions below:

1. Start ONIS Remote or ONIS Viewer.
2. Open the System Preferences panel (Choose ‘System Preferences’ in the ‘ONIS’ menu).



3. Select the ‘Plugins’ page.

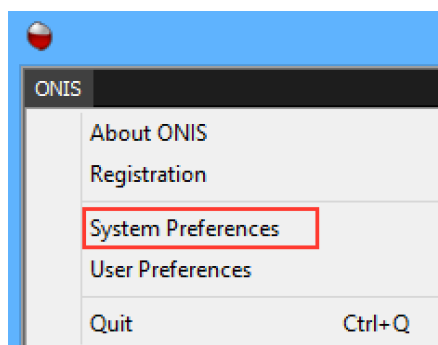
4. In the list of plugins, make sure to find the one named 'Server Connection'. It should be loaded. If not, double click on the corresponding 'Loaded' cell and select 'Yes' in the popup menu. Set the 'Auto Loaded' value to 'Yes' to make sure that the plugin automatically loads when the software starts.



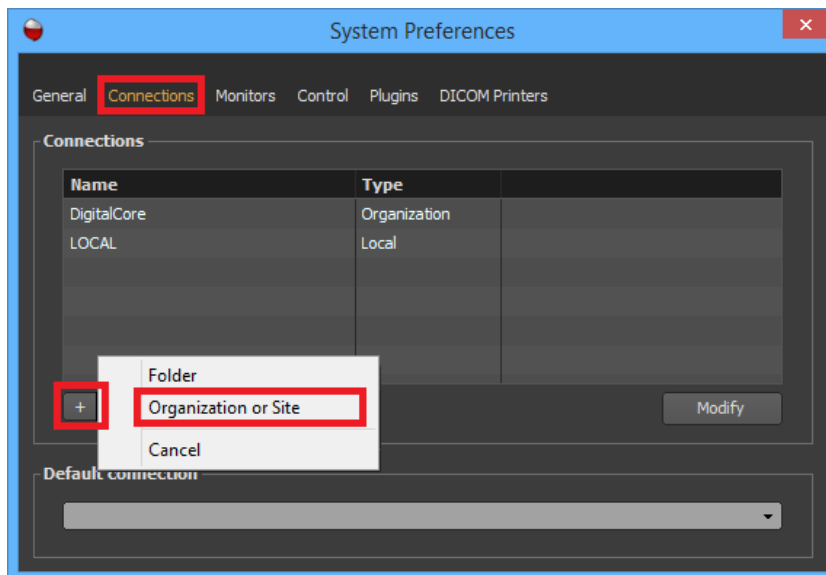
7-9-2 Registering a Site or an Organization

In order to connect to a site, you need to first register either the site itself, or the organization it belongs to.

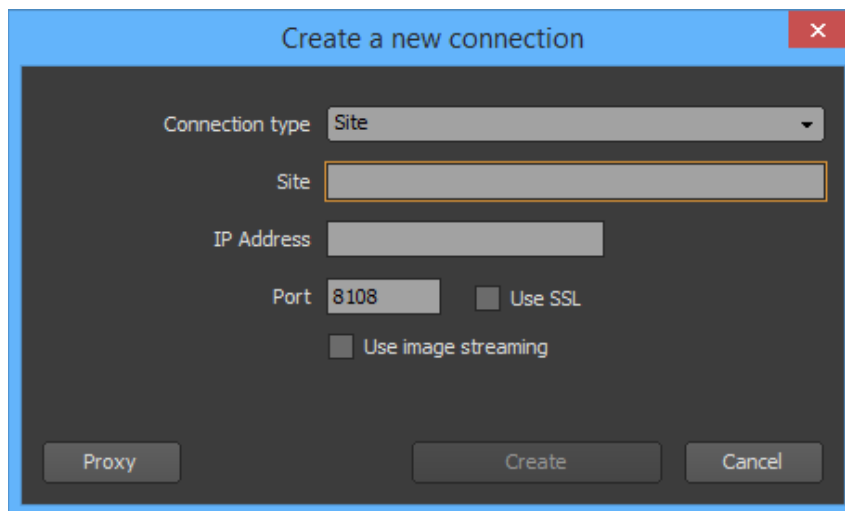
1. Start ONIS Remote or ONIS Viewer.
2. Open the System Preferences panel (Choose 'System Preferences' in the 'ONIS' menu).



3. Select the 'Connections' page.
4. Click on the '+' button and choose 'Organization or Site' in the popup menu.



5. Fill the information requested in the Connection window and click the 'Create' button when completed.

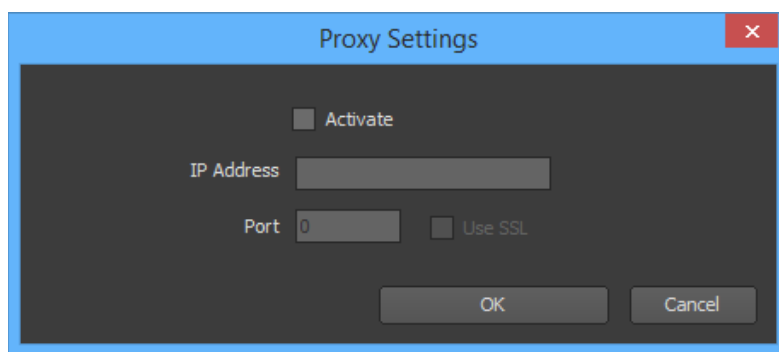


- **Connection Type:** Choose 'Site' to connect to a site server directly or 'Organization' if you want to connect to a site that belongs to an organization.
- **Site:** Type in the name of the site you would like to connect to. This can be any name you want but try to choose a name that helps you to easily identify the site you are connecting to. It will be useful in the long run if you register several sites.
- **Organization:** Type in the name of the organization you would like to connect to. This name should be the precise name of the organization.
- **IP Address:** Type in the IP address of the computer that site server is running on.
- **Port:** Type in the port number used by the site server. If this port is the SSL port, enable the 'Use SSL' check box.
- **Use Image Streaming:** Enable this option if the site server connection is slow, usually when accessing it from the internet with a low bandwidth network. In this case, when opening a

study, the images will stream from the server with multiple resolutions using JPEG 2000 (only for images coming from a partition or a sub-partition). For LAN, it is recommended to leave this check box off.

Depending on your network configuration, your computer may not be able to reach the IP address of the site server or the organization server. In this case, you may reach this address through DigitalCore's proxy server. The proxy server must be reachable from your computer, and the proxy server must be able to reach the the site server address. This proxy server can be used to bridge the communication from your computer to the site server. If you need to use the proxy server, follow the instructions below:

6. Click on the 'Proxy' button.
7. Fill in the requested information:

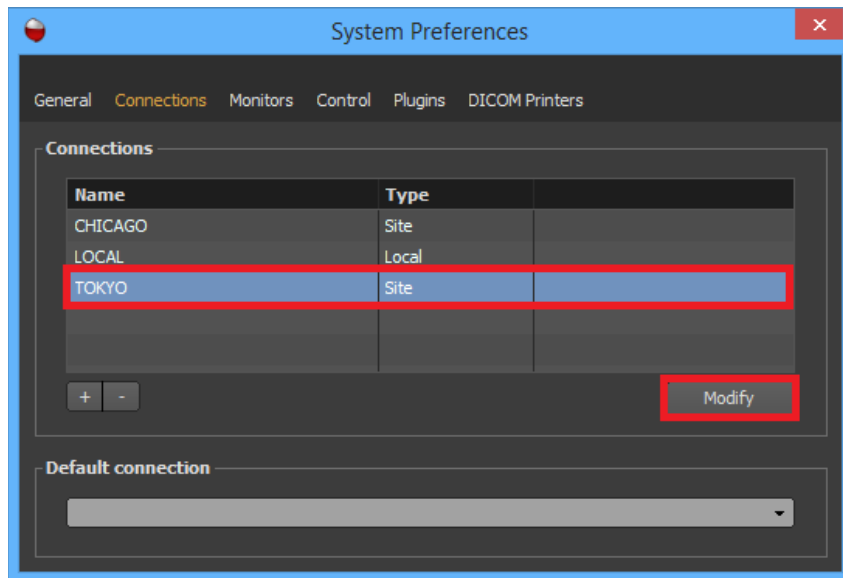


- **Activate:** Enable this option to use the proxy server to bridge your request to the site server. Otherwise, check it off.
- **IP Address:** Type in the IP address of the computer that the proxy server is running on.
- **Port:** Type in the port number used by the proxy. If this port is the SSL port, enable the 'Use SSL' check box.

8. Click on the 'OK' button to complete the settings.

7-9-3 Modifying a Connection to a Site or an Organization

To modify a connection, simply double click on it or select it and click on the 'Modify' button. A window will open where you can modify the connection information. Please refer to the previous section for an explanation of each parameter.



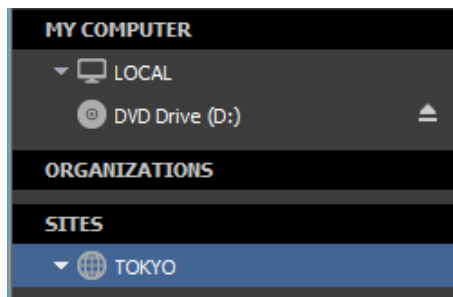
7-9-4 Removing a Connection to a Site or an Organization

Select the connection you want to remove from the List of Connections. Multiple connections can be selected by clicking while holding down the ‘Shift’ key. Then click on the ‘-’ button. A Confirmation window will appear. Click ‘Delete’ to confirm the deletion.

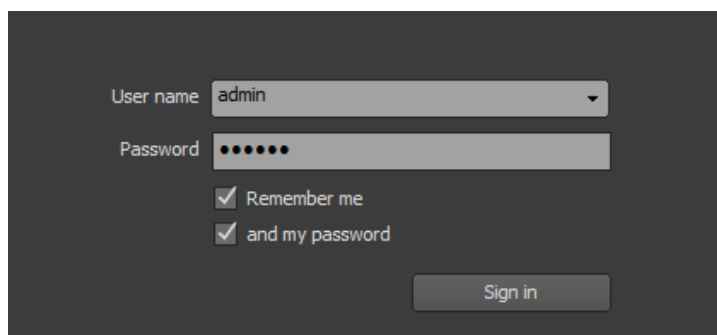
7-9-5 Logging Into a Site

If you were provided a user account for a site, follow the instructions below to log into your account:

1. Make sure that the site server is already registered (refer to the sections 7-8-1 and 7-8-2 of this manual).
2. In the Database page, select the site you want to log into within the source bar (it should be listed under the ‘SITES’ section).



3. Type your login and password in the login box. Check the ‘Remember Me’ if you want your user name to be listed in the ‘User Name’ combo box the next time you start the software. Check the ‘and my password’ check box if you want your password to be remembered as well.



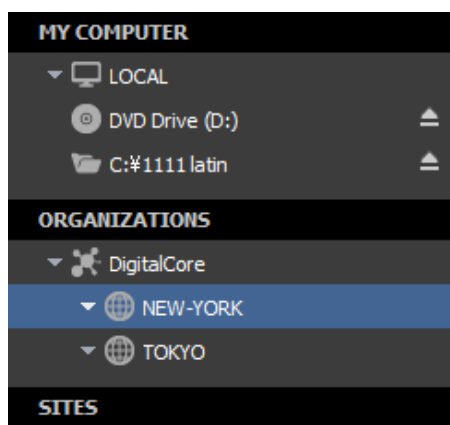
4. Click on the ‘Sign in’ button.

If your authentication succeeds, the list of partitions and DICOM servers you have the permission to access will be listed under the site node.

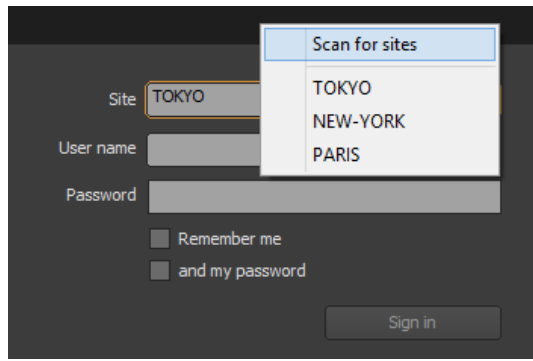
7-9-6 Logging Into a Site that Belongs to an Organization

If you were provided a user account for a site that belongs to an organization, follow the instructions below to log into your account:

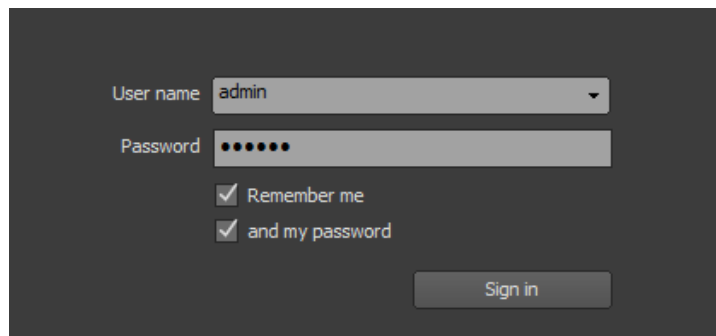
1. Make sure that the organization server is already registered (refer to the sections 7-8-1 and 7-8-2 of this manual).
2. In the Database page, locate the site you want to log into within the source bar, under the Organization node (it should be listed under the ‘ORGANIZATIONS’ section). If you can’t find it, select the organization the site belongs to.



3. Once you have selected the organization, choose the site you want to connect to within the ‘Site’ combo box. If the site is not listed, choose ‘Scan for Sites’ to reload the list of sites belonging to the organization.

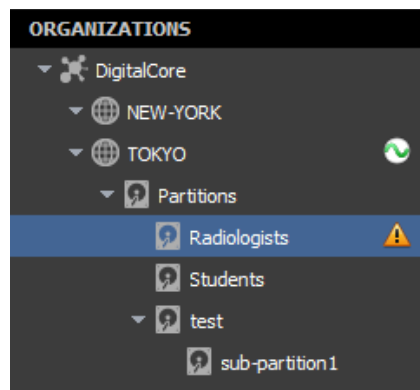


4. Type your login and password into the login box. Enable the 'Remember Me' if you want your user name to be listed in the 'User Name' combo box the next time you start the software. Check the 'and my password' check box if you want your password to be remembered as well.



5. Click on the 'Sign in' button.

If your authentication succeeds, the list of partitions and DICOM servers you have permission to access will be listed under the site node. Below is an example of what it could look like:



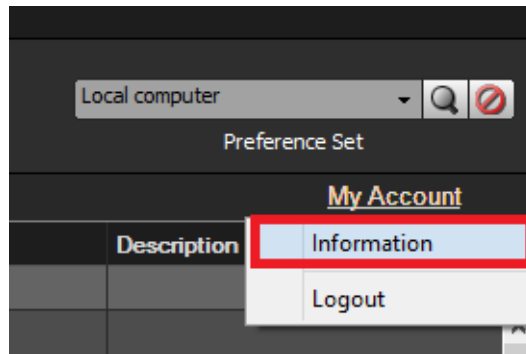
Select one of these nodes to start working with your studies.

7-9-7 Account Properties

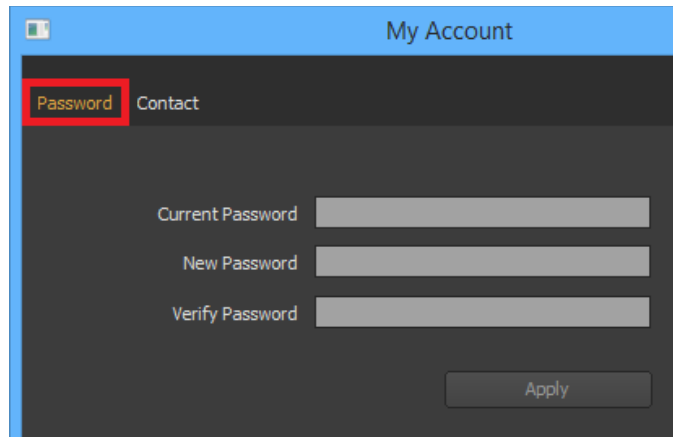
After you have signed in, you can edit your contact information and modify your password:

1. In the source bar, select one of the source nodes of the site you have logged into.

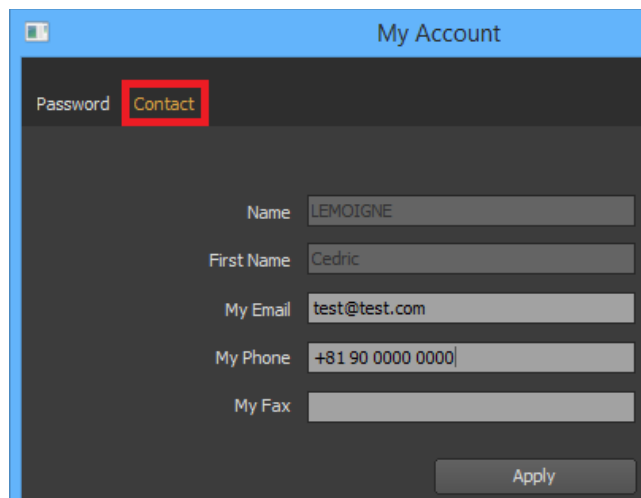
- Click on the 'My Account' link located at the top right corner of the Study List window and select 'Information' in the context menu.



- In your account property window:
- Select the 'Password' tabulation to modify your password. You need to provide your current password and your new one. Click on the 'Apply' button to register your new password.

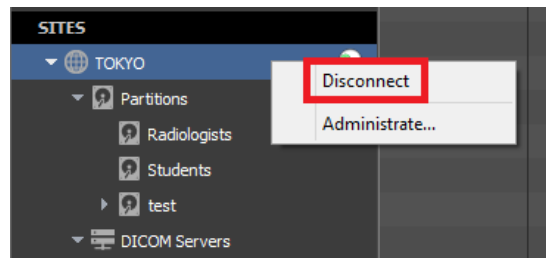


- Select the 'Contact' tabulation to modify your contact information. You can provide your email address, phone and fax number. Click on the 'Apply' button to modify your information.

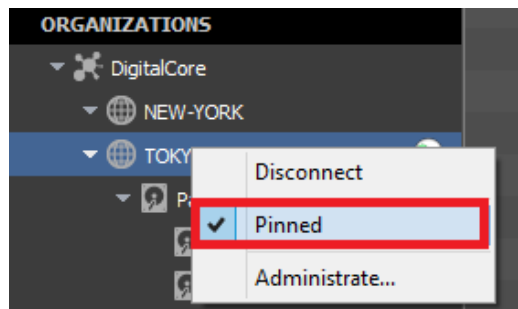


7-9-8 Logging Out

To close your session and disconnect from a site, bring your cursor above the site node and right click. In the popup menu, choose 'Disconnect'.



If the site belongs to an organization, its node might be removed from the source bar. If you want it to be kept visible in the source bar, you can pin it. Before disconnecting from the site, bring your cursor above the site node and right click. In the popup menu, choose 'Pinned'.



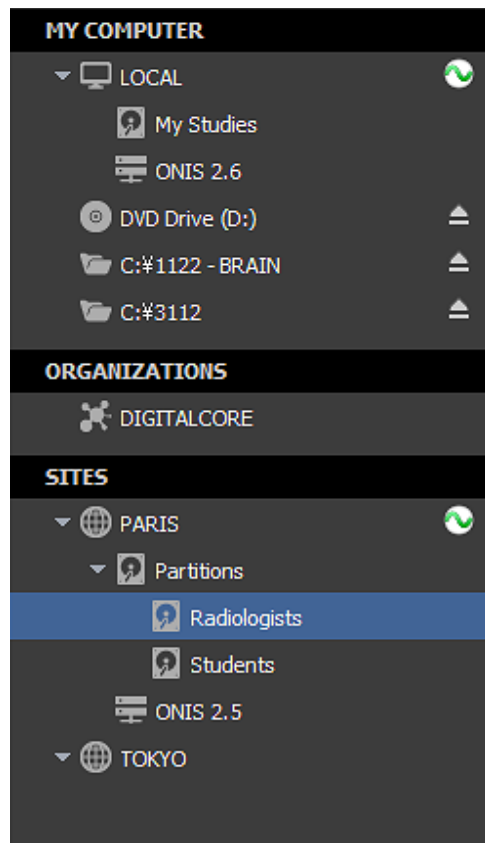
7-10 Editing

7-10-1 Modifying a Patient

This section explains how to modify the patient information of a study. You may use this to correct a patient's information or make it anonymous. However, this procedure does not allow you to modify the Patient ID. If you want to change the Patient ID, see the section 'Attaching One or More Studies to a Different Patient'.

7-10-1-1 Selecting the Source

First you need to select the source containing the study of the patient information you wish to modify. For example, this can be your local database or a partition on a site. To select a source, click on its name. The current selected source is the one highlighted with a blue background.



7-10-1-2 Selecting the Study

To retrieve the desired study containing the patient information you wish to modify, you will need to first conduct a query for the study on the selected source. Refer to the ‘Query for Studies’ section for this procedure.

Bring your cursor above the study and right click. On the popup menu that appears, choose ‘Modify Patient...’. The modification window will open. If the menu is disabled, it means that either the source does not support this operation or you do not have the privilege to modify the information.

Source	Patient Name	Patient ID	Birthdate	Sex	Age	Date
Radiologists	Anonymous 002	TEST002	01/01/1970	Male		05/05/2014 13:5
Radiologists	Anonymous 001	TEST001	10/11/1978	Female		13/02/2011 10:5
Radiologists	Anonymous		19/06/1940	Female		21/07/2010 14:5
Radiologists	Anonymous			Other		06/12/2004 11:5
Radiologists	Anonymous		25/02/1975	Male		19/07/2001 18:0
Radiologists	Anonymous		07/05/1964	Male		13/10/1999 14:4
Radiologists	Anonymous		19/01/1952	Female		03/09/1997 10:0

Modality	Series Num.	Series	Images

- Open
- Hanging Protocol
- transfer to
- Export...
- Create CD/DVD
- Modify Patient...**
- Modify Study...
- Attach to a different patient...
- Delete

7-10-1-3 Modifying the Information

The modification window is filled with the current patient information of the study. You can modify the following information:

- Name of the Patient: You can modify the three name groups supported by the DICOM specifications (name, ideogram and phonetic). Each group contains five values (Family name, Given name, Middle names, Prefix and Suffix). The first group should contain only single byte characters and each group should not exceed 64 characters in total). If you do not comply to these rules, a warning will appear when you will try to validate the changes.
- Patient Sex (male, female or other)
- Patient Birth Date
- Patient Birth Time

Patient ID: TEST001

	NAME	IDEOGRAM	PHONETIC
Family name	Anonymous 001		
Given name			
Middle names			
Prefix			
Suffix			

Sex: Female
 Birth Date: 10/11/1978
 Birth Time: 23:19:58

Buttons: Modify, Cancel

Change the information you would like to modify and click on the ‘Modify’ button. If the new information contains characters that does not belong to the current character set used by the patient, a window will pop up to ask you to confirm the character set you would like to be used. You can either confirm the suggested character set or choose the correct character set from the drop down list.

Character set confirmation

You need to confirm the character set that will be used for the patient information.

Name: Anonymous 001
 Ideogram: あいうえお
 Phonetic:

Character set to use: Japanese

Buttons: Continue, Cancel

7-10-1-4 Result

Once you click on the 'Modify' button, the modification request will be transferred to the source.

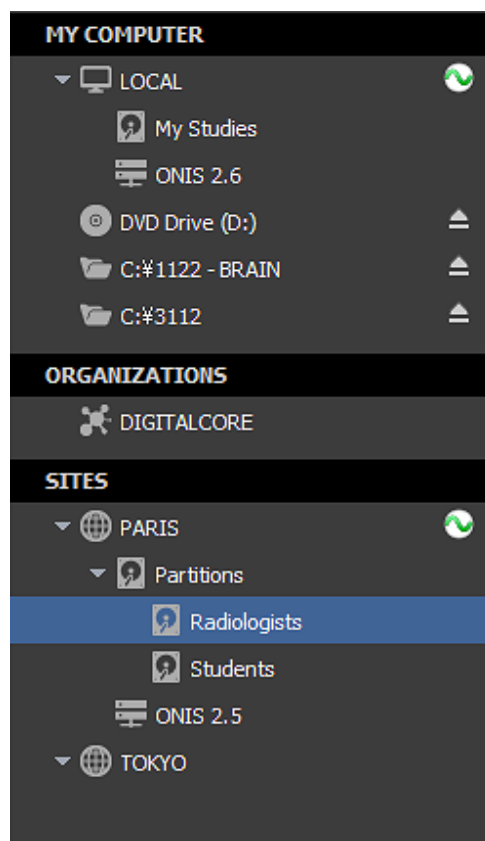
If the modification is successful, the database will be adjusted to match the new information and all of the DICOM files associated with the patient will be modified as well. The default character set in the files may be modified if necessary. Please note that the patient may have several studies and all of the DICOM files related to those studies will be modified.

7-10-2 Modifying a Study

This section explains how to modify the information of a study. This may be useful when you need to correct the study information because of a human error.

7-10-2-1 Selecting the Source

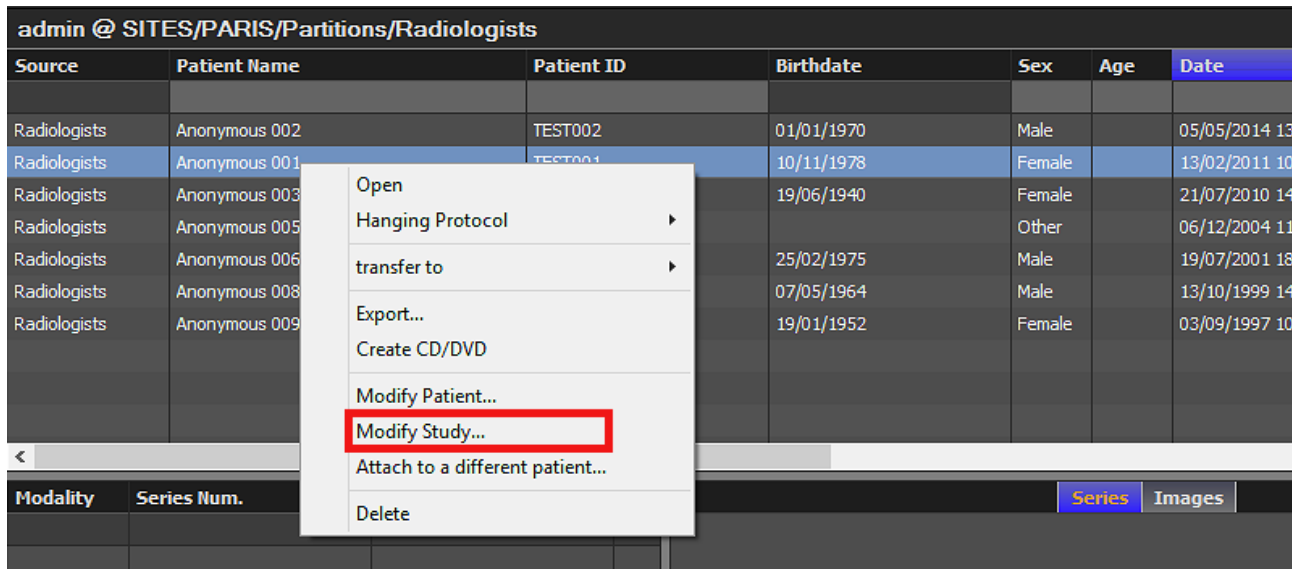
First you need to select the source containing the study you would like to modified. For example this can be your local database or a partition from a site. To select a source, simply need to click on its name. The current selected source is the one highlighted with a blue background.



7-10-2-2 Selecting the Study

You need to query the selected source for the study you want modify. Refer to the ‘Query for Studies’ section for that.

Bring your cursor above the study and right click. On the popup menu that appears, choose ‘Modify Study...’. The modification window will open. If the menu is disabled, this means that either the source does not support this operation or you do not have the privilege to modify the information.



7-10-2-3 Modifying the Information

The modification window is filled with the current information of the study. You can modify the following information:

- Study Date: Disable the corresponding box to remove the study date.
- Study Time: Disable the corresponding box to remove the study time
- Study ID
- Accession number
- Description

Modify Study

Study Instance UID 1.2.392.200036.9125.2.811621716678.64609527439.540168

Study Date 13/02/2011

Study Time 10:57:20

Study ID

Accession Number

Description

Modify Cancel

Change the information you would like to modify and click on the ‘Modify’ button. If the new information contains characters that does not belong to the current character set used by the study, a window will pop up to ask you to confirm the character set you would like to used. You can either confirm the character set that is proposed to you or choose the right character set from the drop down list.

7-10-2-4 Result

When you click on the ‘Modify’ button, the modification request will be transferred to the source.

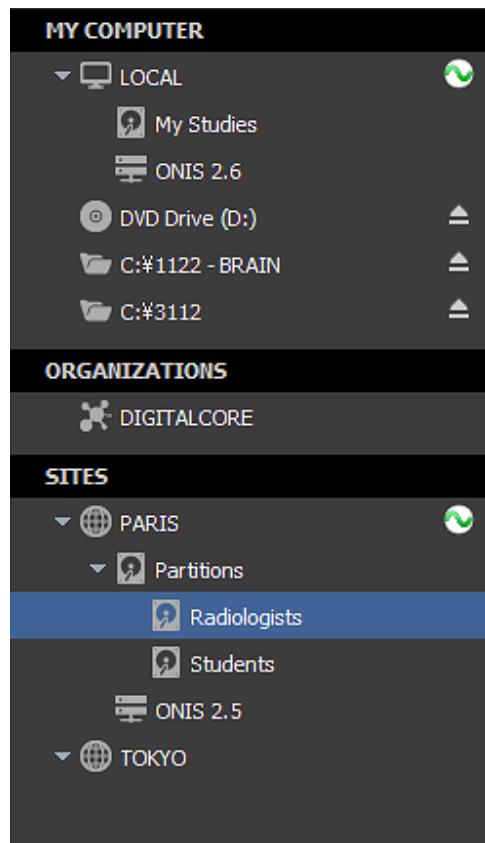
If the modification is successful, the database will be adjusted to match the new information and all of the DICOM files related with the study will be modified as well. The default character set in the files may be modified if necessary.

7-10-3 Modifying a Series

This section explains how to modify the information of a series. This may be useful when you need to correct the series information because of a human error.

7-10-3-1 Selecting the Source

First you need to select the source containing the series you would like to modify. For example, this can be your local database or a partition from a site. To select a source, click on its name. The current selected source is the one highlighted with a blue background.



7-10-3-2 Selecting the Series

To retrieve the desired study containing the series you wish to modify, you will need to first conduct a query for the study on the selected source.. Refer to the ‘Query for Studies’ section for this procedure. Select the study that contains the desired series out of the list of studies. In the list of series, select the series you would like to modify.

Bring your cursor above the series and right click. On the popup menu that appears, choose ‘Modify’. The modification window will open. If the menu is disabled, this means that either the source does not support this operation or you do not have the privilege to modify the information.

Modality	Series Num.	Body Part	Description
CR	1001	CHEST	images
CR	1002		movies

Open
Hanging Protocol ▶
transfer to ▶
Export...
Create CD/DVD
Modify
Attach to a different study...
Delete

< 7 studies, 15 series, 20 images, 1 report >

7-10-3-3 Modifying the Information

The modification window is filled with the current information of the series. You can modify the following information:

- Series Date: Disable the corresponding box to remove the series date.
- Series Time: Disable the corresponding box to remove the series time.
- Series Number
- Body Part
- Description

Modify Series

Series Instance UID 1.2.392.200036.9125.3.811621716678.64609527440.540169

Series Date 13/02/2010

Series Time 10:58:40

Series Number 1001

Body Part CHEST

Description images

Modify Cancel

Change the information you would like to modify and click on the ‘Modify’ button. If the new information contains characters that does not belong to the current character set used by the series, a window will pop up asking you to confirm the character set you would like to used. You can either confirm the suggested character set or choose the correct character set from the drop down list.

7-10-3-4 Result

Once you click on the ‘Modify’ button, the modification request will be transferred to the source.

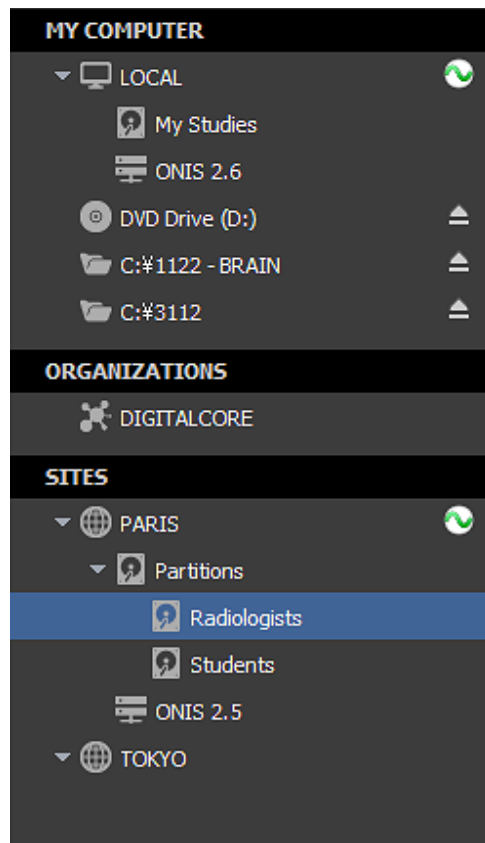
If the modification is successful, the database will be adjust to match the new information and all of the DICOM files associated with the series will be modified as well. The default character set in the files may be modified if necessary.

7-10-4 Modifying an Image

This section explains how to modify the information of an image. This may be useful when you need to correct the image information because of a human error.

7-10-4-1 Selecting the Source

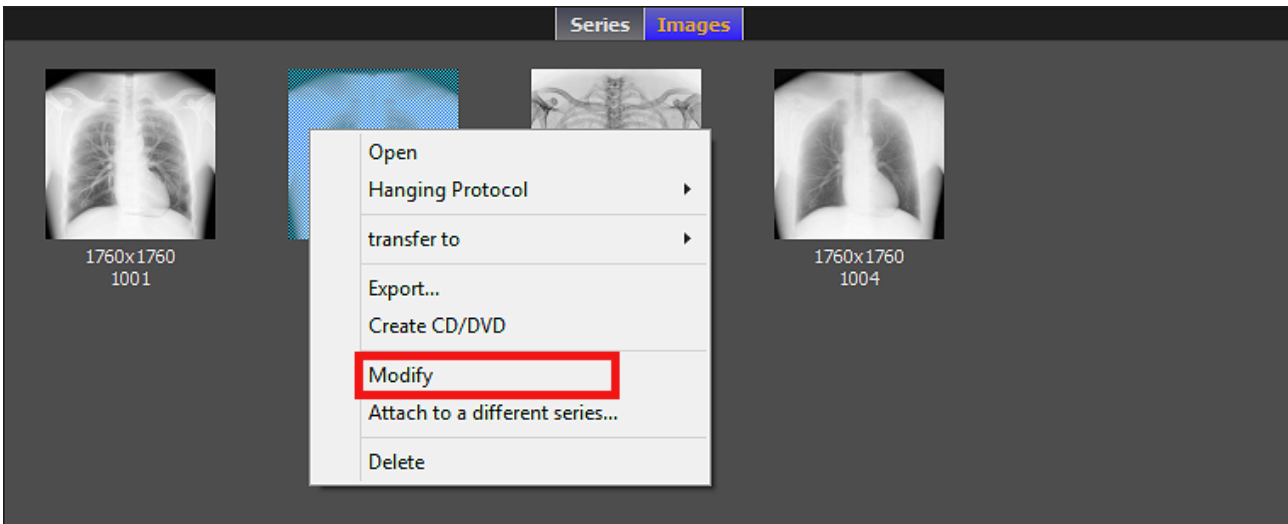
First you need to select the source containing the image you would like to modify. For example this can be your local database or a partition from a site. To select a source, click on its name. The current selected source is the one highlighted with a blue background.



7-10-4-2 Selecting the Image

To retrieve the desired study containing the image you wish to modify, you will need to first conduct a query for the study on the selected source. Refer to the ‘Query for Studies’ section for this procedure. Select the study that contains the desired image out of the list of studies. In the list of series, select the series the image belongs to. In the icon list, click the ‘Images’ button to display the images of the series. Select the image you would like to modify.

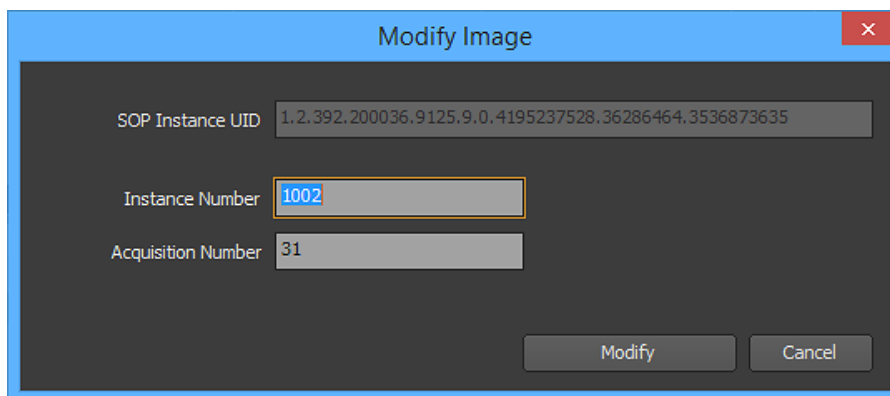
Bring your cursor above the image and right click. On the popup menu that appears, choose ‘Modify’. The modification window will open. If the menu is disabled, this means that either the source does not support this operation or you do not have the privilege to modify the information.



7-10-4-3 Modify the information

The modification window is filled with the current information of the image. You can modify the following information:

- The instance number
- The acquisition number



Change the information you would like to modify and click on the 'Modify' button.

7-10-4-4 Result

Once you click on the 'Modify' button, the modification request will be transferred to the source.

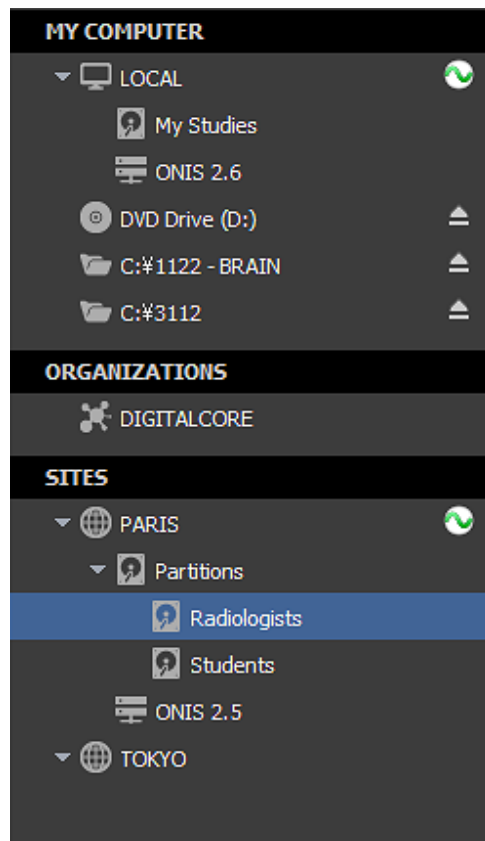
If the modification is successful, the database will be adjusted to match the new information and the DICOM file associated with the image will be modified as well.

7-10-5 Attach a study to a different patient

This section explains how to attach a study to a different patient or a new patient. This might be used to correct the study information from a human error. This procedure can be used also to change the patient ID of a patient.

7-10-5-1 Selecting the Source

First you need to select the source containing the study you would like to attach to a different patient. This can be for example your local database or a partition on a site. To select a source, you simply need to click on its name. The current selected source is the one drawn with a blue background.

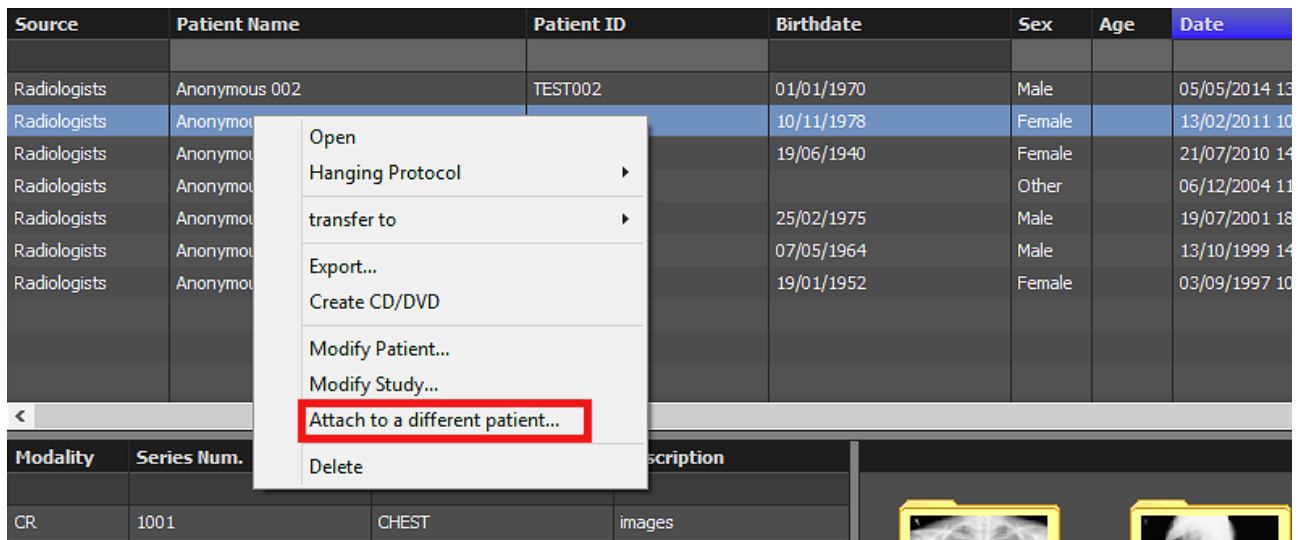


7-10-5-2 Selecting the Study

You need to query the selected source for the study you want reattach. Refer to the ‘Query for Studies’ section for that.

Bring your cursor above the study and right click. On the popup menu that appears, choose ‘Attach to a different patient...’. The modification window will open. If the menu is disabled, this means

that either the source does not support this operation or you do not have the privilege to process this operation.



Source	Patient Name	Patient ID	Birthdate	Sex	Age	Date
Radiologists	Anonymous 002	TEST002	01/01/1970	Male		05/05/2014 13
Radiologists	Anonymous 002	TEST002	10/11/1978	Female		13/02/2011 10
Radiologists	Anonymous 002	TEST002	19/06/1940	Female		21/07/2010 14
Radiologists	Anonymous 002	TEST002	19/06/1940	Other		06/12/2004 11
Radiologists	Anonymous 002	TEST002	25/02/1975	Male		19/07/2001 18
Radiologists	Anonymous 002	TEST002	07/05/1964	Male		13/10/1999 14
Radiologists	Anonymous 002	TEST002	19/01/1952	Female		03/09/1997 10

Modality	Series Num.	Description
CR	1001	CHEST images

7-10-5-3 Attachment Guide

Follow the step-by-step instructions from the window that has opened.

The following explains the general procedure:

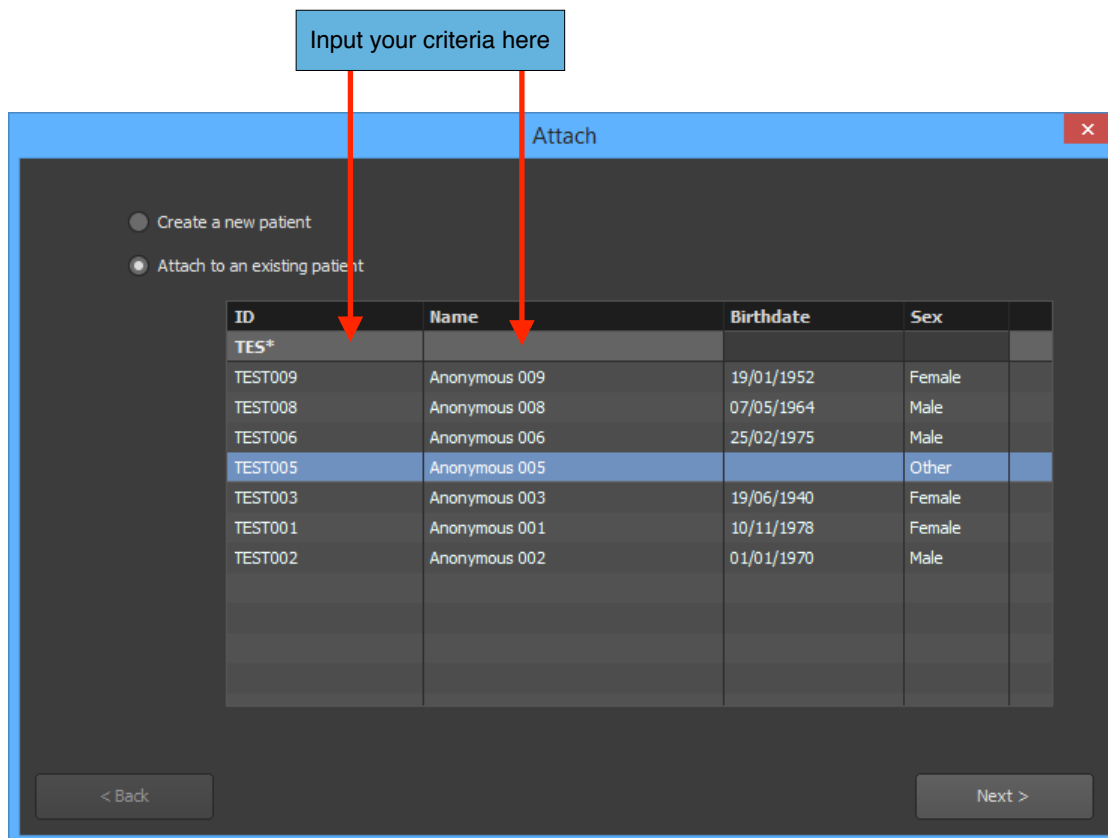
1. Choose if you would like to attach the study to a new patient or to an existing one and click on the 'Next' button.
2. If you chose to attach the study to a new patient, fill the patient information as described below and click on the 'Next' button.
 - Patient ID: This should be a new ID that has not yet been used in the database..
 - Patient Name: You can fill in one or more of the three name groups supported by the DICOM specifications (name, ideogram and phonetic). Each group contains five values (Family name, Given name, Middle names, Prefix and Suffix). The first group should contain only single byte characters and each group should not exceed a total of 64 characters).
 - Patient Sex (male, female or other)
 - Patient Birth Date
 - Patient Birth Time

The screenshot shows a software window titled "Attach" with a subtitle "Creation of a new patient". The form contains the following fields:

- Patient ID: [Empty text box]
- NAME:
 - Family name: [Text box containing "Anonymous 001"]
 - Given name: [Empty text box]
 - Middle names: [Empty text box]
 - Prefix: [Empty text box]
 - Suffix: [Empty text box]
- IDEOGRAM: [Empty text box]
- PHONETIC: [Empty text box]
- Sex: [Dropdown menu showing "Female"]
- Birth Date: [Dropdown menu showing "10/11/1978" with a checkmark]
- Birth Time: [Text box showing "02:30:33"]

Navigation buttons: "< Back" and "Next >"

3. If you chose to attach the study to an existing patient, you need to query the database to retrieve the patient information. You can use the edit boxes that are located underneath the list header to input your criteria (Patient ID or Name). Select the patient you wish to attach the study to and click the 'Next' button. You are also able to use the following two wildcard characters to perform text searches:
- The asterisk (*) stands for any combination of letters (i.e. 'm*' refers to all Patient Names that begin with the letter 'm').
 - The question mark (?) matches any single letter character.



4. Click the 'Attach' button to execute the study attachment.

Please note that if the new information contains characters that does not belong to the current character set used by the current patient, a window will pop up to ask you to confirm the character set you would like to use. You can either confirm the suggested character set or choose the right character set from the drop down list.

7-10-5-4 Result

When you click on the 'Attach' button, the request will be transferred to the source.

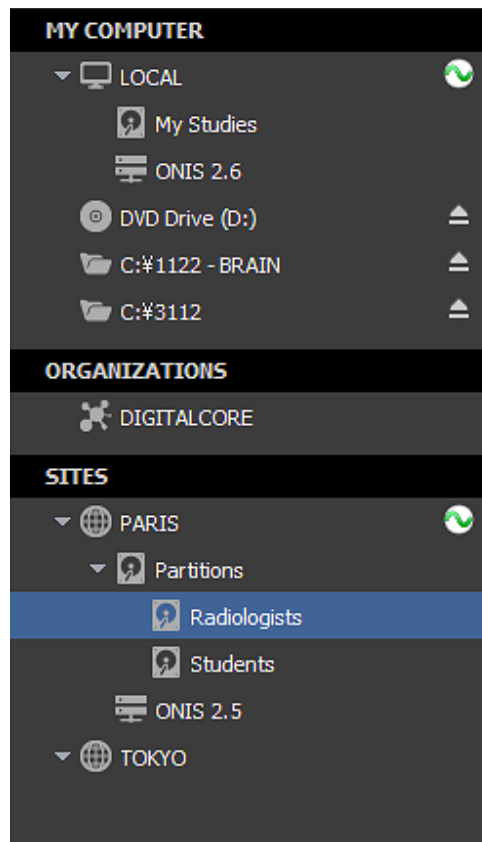
If the attachment is successful, the database will be adjusted to match the new information, and all of the DICOM files associated with the study will be modified as well. The default character set in the files may be modified if necessary.

7-10-6 Attaching One or More Series to a Different Study

This section explains how to attach one or more series to a different or new study. This may be useful when you need to correct the series information because of a human error.

7-9-6-1 Selecting the Source

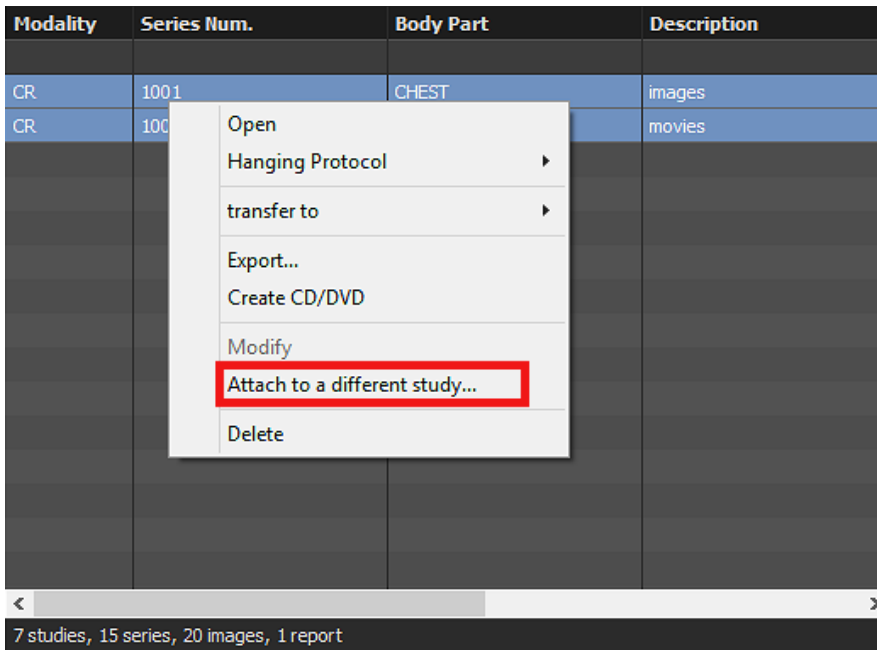
First you need to select the source containing the series you would like to reattach. For example, this can be your local database or a partition from a site. To select a source, click on its name. The current selected source is the one highlighted with a blue background.



7-10-6-2 Select the series

To retrieve the desired study containing the series you wish to reattach, you will need to first conduct a query for the study on the selected source. Refer to the 'Query for Studies' section for this procedure. Select the study that contains the desired series out of the list of studies. In the list of series, select the series you would like to reattach.

Bring your cursor above the series and right click. On the popup menu that appears, choose 'Attach to a different study...'. The modification window will open. If the menu is disabled, this means that either the source does not support this operation or you do not have the privilege to process this operation.



7-10-6-3 Attachment guide

Follow the step-by-step instructions from the window that has opened.

The following explains the general procedure:

1. Choose if you would like to attach the series to a new patient or to an existing one. By default, it will be attached to the current patient of the series.
2. If you chose to attach the series to a new patient, click on the 'Next' button and fill the patient information as described below. Then click again on the 'Next' button.
 - Patient ID: This should be a new ID that has not yet been used in the database..
 - Patient Name: You can fill in one or more of the three name groups supported by the DICOM specifications (name, ideogram and phonetic). Each group contains five values (Family name, Given name, Middle names, Prefix and Suffix). The first group should contain only single byte characters and each group should not exceed a total of 64 characters).
 - Patient Sex (male, female or other)
 - Patient Birth Date
 - Patient Birth Time

Attach

Creation of a new patient

Patient ID

	NAME	IDEOGRAM	PHONETIC
Family name	Anonymous 001	<input type="text"/>	<input type="text"/>
Given name	<input type="text"/>	<input type="text"/>	<input type="text"/>
Middle names	<input type="text"/>	<input type="text"/>	<input type="text"/>
Prefix	<input type="text"/>	<input type="text"/>	<input type="text"/>
Suffix	<input type="text"/>	<input type="text"/>	<input type="text"/>

Sex

Birth Date 10/11/1978

Birth Time 02:30:33

In the next panel, you will be asked to fill the study information as described below. Then click again on the 'Next' button.

- Study Date (check off the corresponding box to remove the study date)
- Study Time (check off the corresponding box to remove the study time)
- Study ID
- Accession Number
- Study Description

Attach

Creation of a new study

Study Date 13/02/2011

Study Time 10:57:20

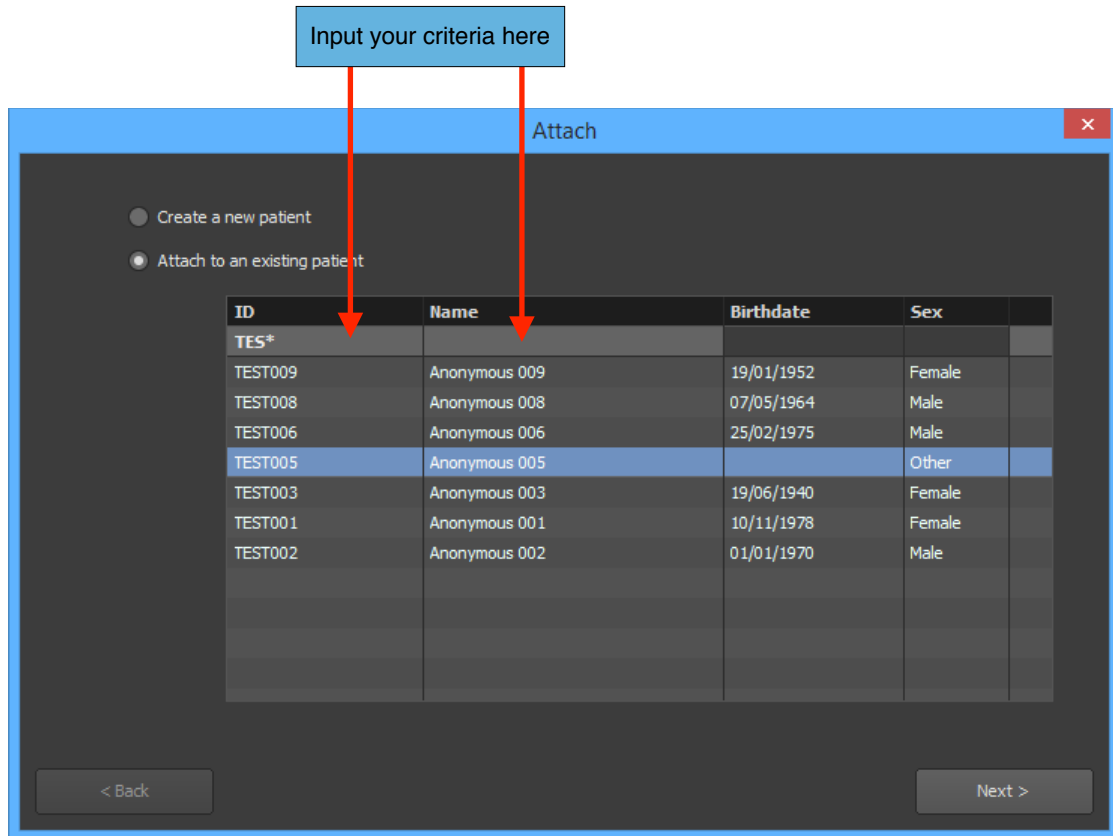
Study ID

Accession Number

Description

3. If you chose to attach the series to an existing patient, you need to query the database to retrieve the patient information. You can use the edit boxes that are located underneath the list header to input your criteria (Patient ID or Name). Select the patient you wish to attach the series to and click the 'Next' button. You are also able to use the following two wildcard characters to perform text searches:

- The asterisk (*) stands for any combination of letters (i.e. 'm*' refers to all Patient Names that begin with the letter 'm').
- The question mark (?) matches any single letter character.



In the next panel, choose if you would like to create a new study or if you would like to attach the series to an existing study.

- A. If you chose to create a new study, fill the study information as described below. Then click again on the 'Next' button.
- Study Date (check off the corresponding box to remove the study date)
 - Study Time (check off the corresponding box to remove the study time)
 - Study ID
 - Accession Number
 - Study Description

The screenshot shows a software window titled "Attach" with a subtitle "Creation of a new study". The window contains the following fields and controls:

- Study Date:** A dropdown menu with a checkmark icon and the value "13/02/2011".
- Study Time:** A dropdown menu with a checkmark icon and the value "10:57:20".
- Study ID:** A text input field.
- Accession Number:** A text input field.
- Description:** A text input field.
- Navigation:** A "< Back" button at the bottom left and a "Next >" button at the bottom right.

B. If you chose to attach the series to an existing patient, you need to select the study you want to attach the series to from the list. Then click again on the 'Next' button.

4. Click the 'Attach' button to execute the series attachment.

Please note that if the new information contains characters that does not belong to the current character set used by the current series, a window will popup to ask you to confirm the character set you would like to used. You can either confirm the suggested character set or choose the right character set from the drop down list.

7-10-6-4 Result

When you click on the 'Attach' button, the request will be transferred to the source.

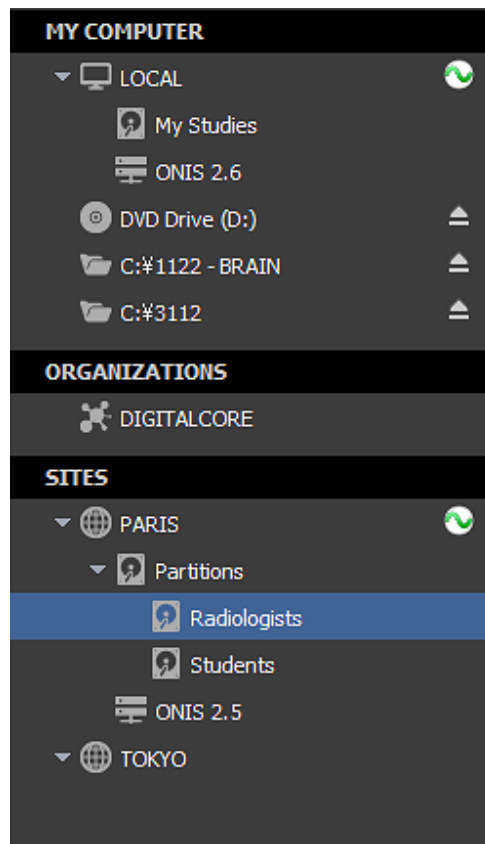
If the attachment is successful, the database will be adjusted to match the new information, and all of the DICOM files associated with the series will be modified as well. The default character set in the files may be modified if necessary.

7-10-7 Attaching One or More Images to a Different Series

This section explains how to attach one or more images to a different series or to a new series. This might be used to correct the series information from a human error. You can use also this tool to split series in two.

7-10-7-1 Select the source

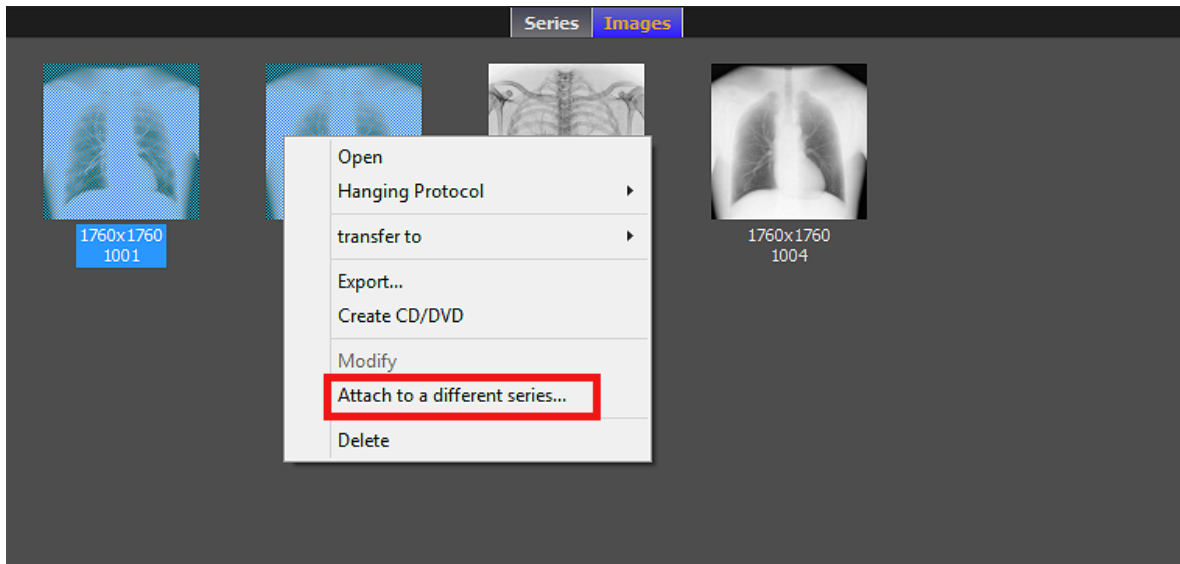
First you need to select the source containing the images you would like to reattach. For example this can be your local database or a partition from a site. To select a source, click on its name. The current selected source is the one highlighted with a blue background.



7-10-7-2 Selecting the Images

To retrieve the desired study containing the images you wish to reattach, you will need to first conduct a query for the study on the selected source. Refer to the ‘Query for Studies’ section for this procedure. Select the study that contains the desired images out of the list of studies. In the list of series, select the series the images belongs to. In the icon list, click the ‘Images’ button to display the images of the series. Select the images you would like to reattach.

Bring your cursor above the images and right click. On the popup menu that appears, choose ‘Attach to a different series...’. A window will open. If the menu is disabled, this means that either the source does not support this operation or you do not have the privilege to process this operation.



7-10-7-3 Attachment Guide

Follow the step-by-step instructions from the window that has opened.

The following explains the general procedure:

1. Choose if you would like to attach the images to a new patient or to an existing one. By default, it will be attached to the current patient of the images.
2. If you chose to attach the images to a new patient, click on the 'Next' button and fill the patient information as described below. Then click again on the 'Next' button.
 - Patient ID: This should be a new ID that has not yet been used in the database..
 - Patient Name: You can fill in one or more of the three name groups supported by the DICOM specifications (name, ideogram and phonetic). Each group contains five values (Family name, Given name, Middle names, Prefix and Suffix). The first group should contain only single byte characters and each group should not exceed a total of 64 characters).
 - Patient Sex (male, female or other)
 - Patient Birth Date
 - Patient Birth Time

Attach

Creation of a new patient

Patient ID

	NAME	IDEOGRAM	PHONETIC
Family name	Anonymous 001	<input type="text"/>	<input type="text"/>
Given name	<input type="text"/>	<input type="text"/>	<input type="text"/>
Middle names	<input type="text"/>	<input type="text"/>	<input type="text"/>
Prefix	<input type="text"/>	<input type="text"/>	<input type="text"/>
Suffix	<input type="text"/>	<input type="text"/>	<input type="text"/>

Sex

Birth Date 10/11/1978

Birth Time 02:30:33

< Back Next >

In the next panel, you will be asked to fill the new study information as described below. Then click again on the 'Next' button.

- Study Date (check off the corresponding box to remove the study date)
- Study Time (check off the corresponding box to remove the study time)
- Study ID
- Accession Number
- Study Description

Attach

Creation of a new study

Study Date 13/02/2011

Study Time 10:57:20

Study ID

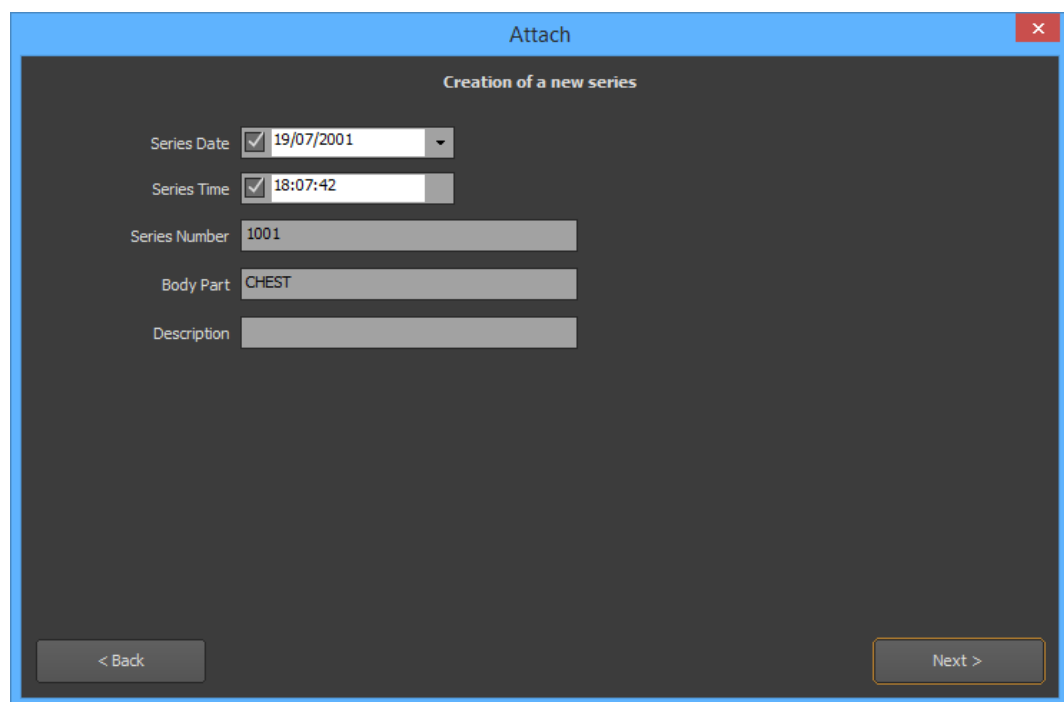
Accession Number

Description

< Back Next >

In the next panel, you will be asked to fill the series information as described below. Then click again on the 'Next' button.

- Series Date (check off the corresponding box to remove the series date)
- Series Time (check off the corresponding box to remove the series time)
- Series Number
- Body Part
- Series Description



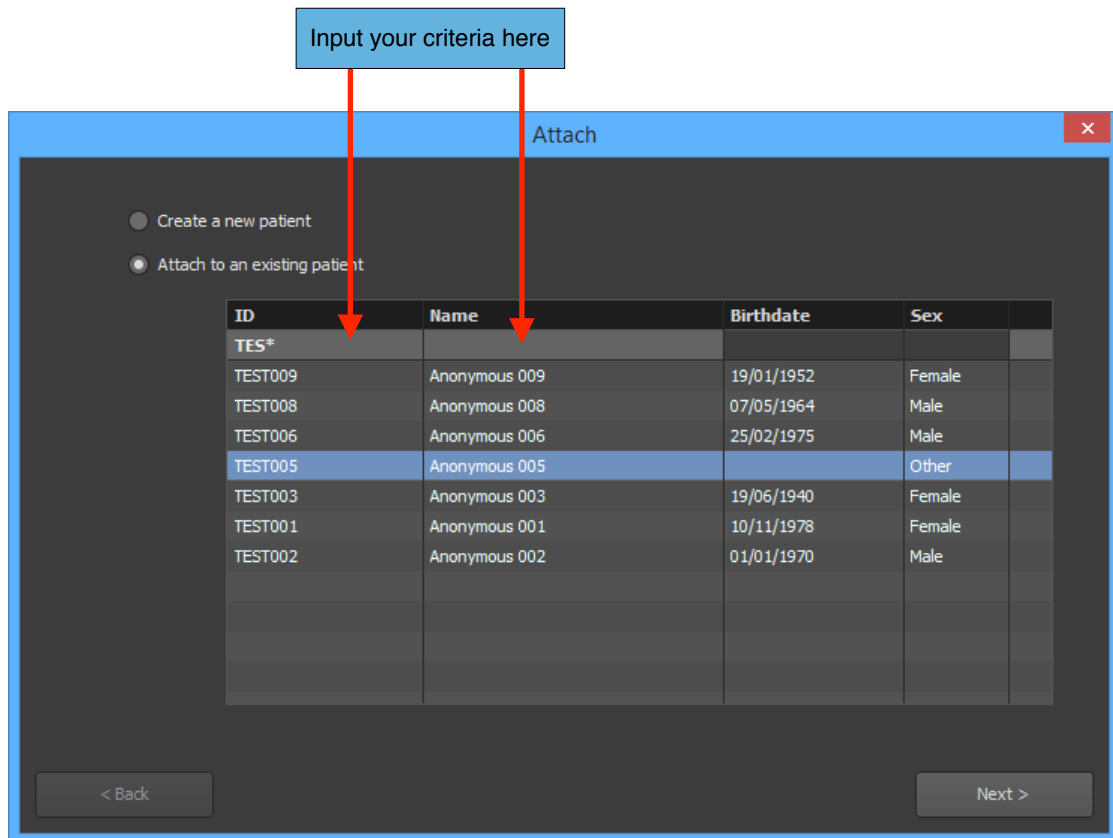
The screenshot shows a dialog box titled "Attach" with a close button (X) in the top right corner. The main content area is titled "Creation of a new series" and contains the following fields:

- Series Date:** A checkbox is checked, and the date "19/07/2001" is displayed in a dropdown menu.
- Series Time:** A checkbox is checked, and the time "18:07:42" is displayed in a dropdown menu.
- Series Number:** A text input field containing "1001".
- Body Part:** A text input field containing "CHEST".
- Description:** An empty text input field.

At the bottom of the dialog, there are two buttons: "< Back" on the left and "Next >" on the right.

3. If you chose to attach the series to an existing patient, you need to query the database to retrieve the patient information. You can use the edit boxes that are located underneath the list header to input your criteria (Patient ID or Name). Select the patient you wish to attach the series to and click the 'Next' button. You are also able to use the following two wildcard characters to perform text searches:

- The asterisk (*) stands for any combination of letters (i.e. 'm*' refers to all Patient Names that begin with the letter 'm').
- The question mark (?) matches any single letter character.



In the next panel, choose if you would like to create a new study or if you would like to attach the images to an existing study.

- A. If you chose to create a new study, fill the study information as described below. Then click again on the 'Next' button.
- Study Date (check off the corresponding box to remove the study date)
 - Study Time (check off the corresponding box to remove the study time)
 - Study ID
 - Accession Number
 - Series Description

The screenshot shows a software window titled "Attach" with a close button in the top right corner. The main content area is titled "Creation of a new study". It contains the following fields:

- Study Date: A dropdown menu with a checkmark icon and the value "13/02/2011".
- Study Time: A dropdown menu with a checkmark icon and the value "10:57:20".
- Study ID: A text input field.
- Accession Number: A text input field.
- Description: A text input field.

At the bottom of the window, there are two buttons: "< Back" on the left and "Next >" on the right.

In the next panel, you will be asked to fill the series information as described below. Then click again on the 'Next' button.

- Series Date (check off the corresponding box to remove the series date)
- Series Time (check off the corresponding box to remove the series time)
- Series Number
- Body Part
- Series Description

The screenshot shows a software window titled "Attach" with a close button in the top right corner. The main content area is titled "Creation of a new series". It contains the following fields:

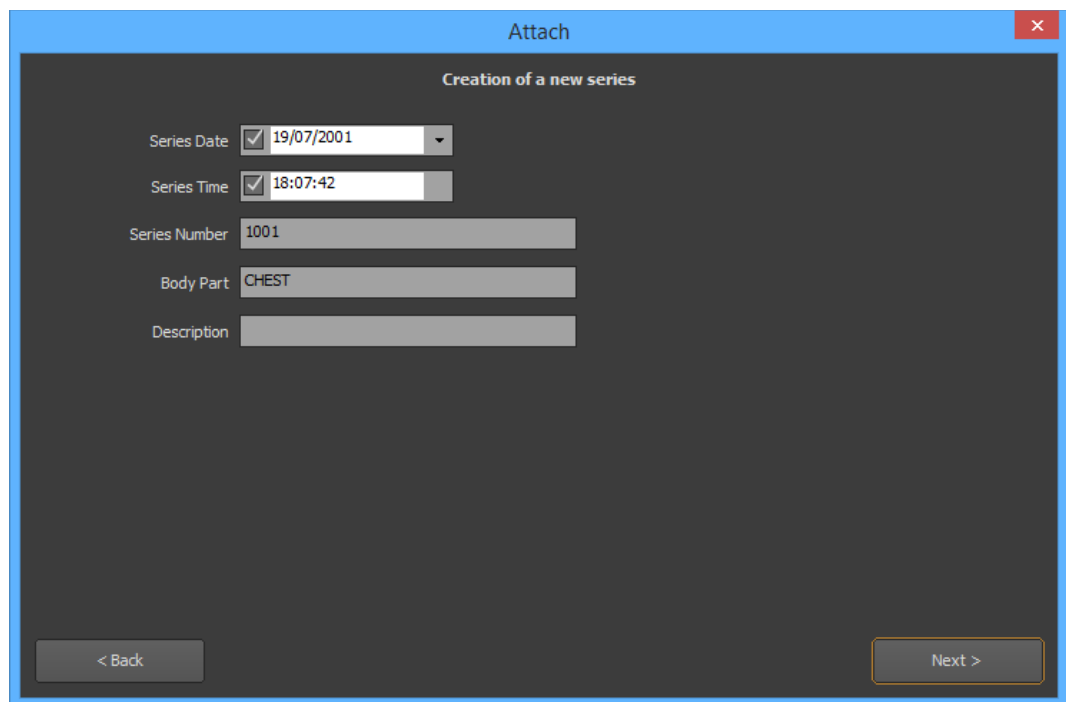
- Series Date: A dropdown menu with a checkmark icon and the value "19/07/2001".
- Series Time: A dropdown menu with a checkmark icon and the value "18:07:42".
- Series Number: A text input field containing the value "1001".
- Body Part: A text input field containing the value "CHEST".
- Description: A text input field.

At the bottom of the window, there are two buttons: "< Back" on the left and "Next >" on the right.

- B. If you chose to attach the images to an existing study, select the study you want to attach the images to from the list. Then click again on the 'Next' button.

In the next panel, choose if you would like to create a new series or if you would like to attach the images to an existing series.

- If you chose to create a new series, fill the series information as described below. Then click again on the 'Next' button.
 - Series Date (check off the corresponding box to remove the series date)
 - Series Time (check off the corresponding box to remove the series time)
 - Series Number
 - Body Part
 - Series Description

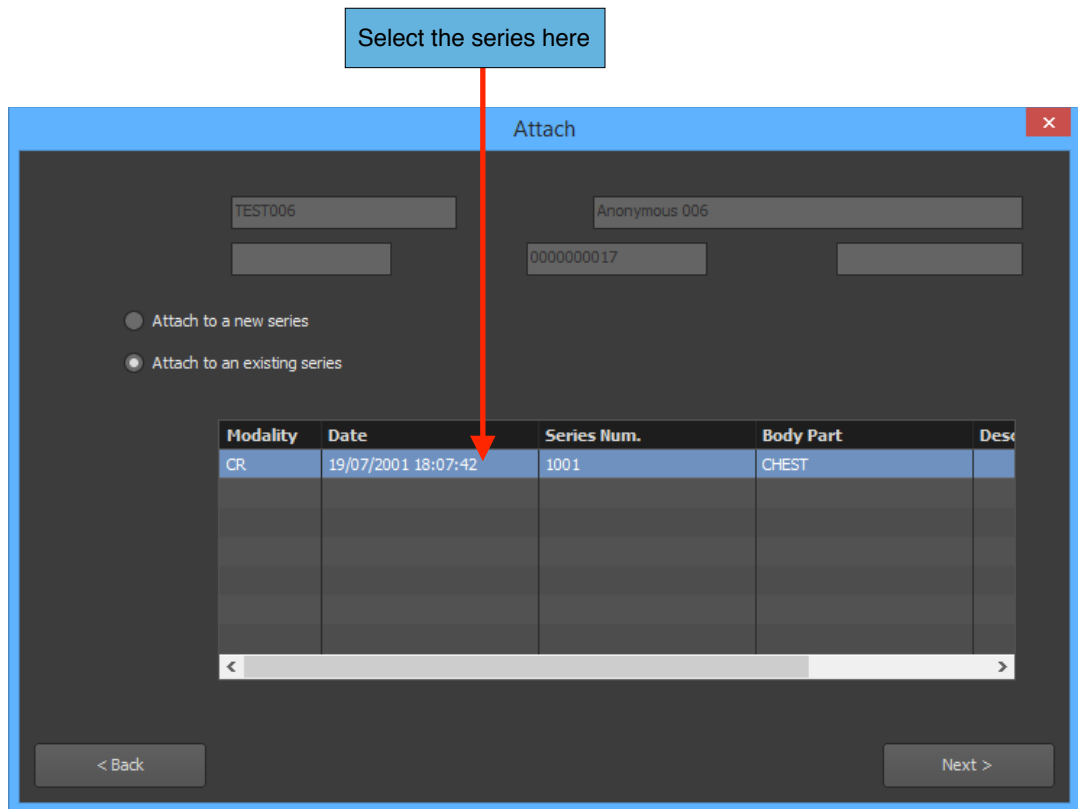


The screenshot shows a window titled "Attach" with a close button (X) in the top right corner. The main content area is titled "Creation of a new series" and contains the following fields:

- Series Date: A dropdown menu with a checkmark icon and the value "19/07/2001".
- Series Time: A dropdown menu with a checkmark icon and the value "18:07:42".
- Series Number: A text input field containing "1001".
- Body Part: A text input field containing "CHEST".
- Description: An empty text input field.

At the bottom of the form, there are two buttons: "< Back" on the left and "Next >" on the right.

- If you chose to attach the images to an existing series, select the series you want to attach the images to from the list. Then click again on the 'Next' button.



4. Click the 'Attach' button to reattach the images.

Please note that if the new information contains characters that does not belong to the current character set used by the current images, a window will popup to ask you to confirm the character set you would like to used. You can either confirm the suggested character set or choose the right character set from the drop down list.

7-10-7-4 Result

When you click on the 'Attach' button, the request will be transferred to the source.

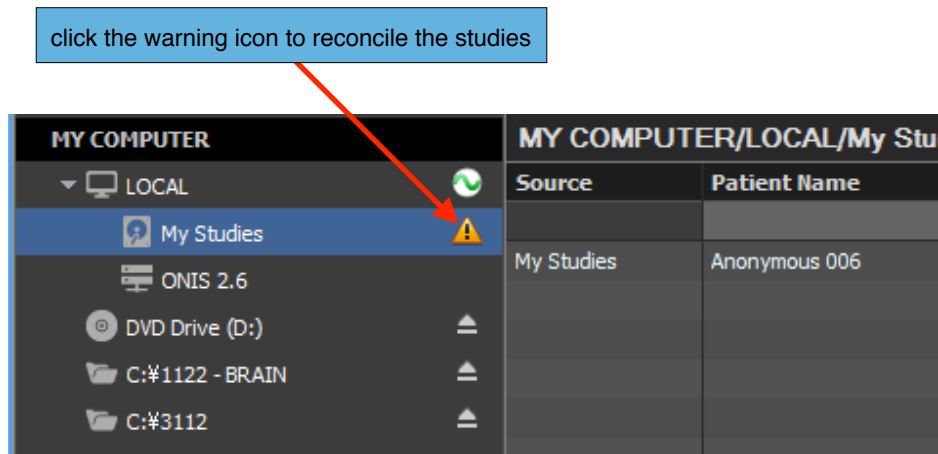
If the attachment is successful, the database will be adjusted to match the new information, and all of the DICOM files associated with the images will be modified as well. The default character set in the files may be modified if necessary.

7-11 Study Reconciliation

When a DICOM file is imported, some of its tags are extracted and stored into the database, such as the Patient ID, Study UID, Study Description, and Accession Number. When a new image arrives and is recognized as a pre-existing study (i.e. the image has the same Study UID), the server will perform a comparison to check if it conflicts in any way with the existing study. If this is the case, the image will be imported anyway but it will not be available until the conflict is resolved. You can customize what aspects should be compared (i.e. Patient ID, Patient Name, Patient Sex, Patient Birthdate, Accession Number, Study Description) from the Administration panel of the server.

7-11-1 Search for a Study to Reconcile

If you have one or multiple studies in conflict in a partition, a warning icon will appear in the source bar in front of this partition.



To reconcile the studies in conflict, simply click on the warning icon. A window will open listing all the studies that are in conflict in the partition.

If you have plenty of studies to reconcile, you can use certain criteria to search in the list. The available search criteria are the following:

Name	Type
Patient ID	Text
Patient Name	Text
Study Date	Combo
Accession Number	Text
Import Date	Combo

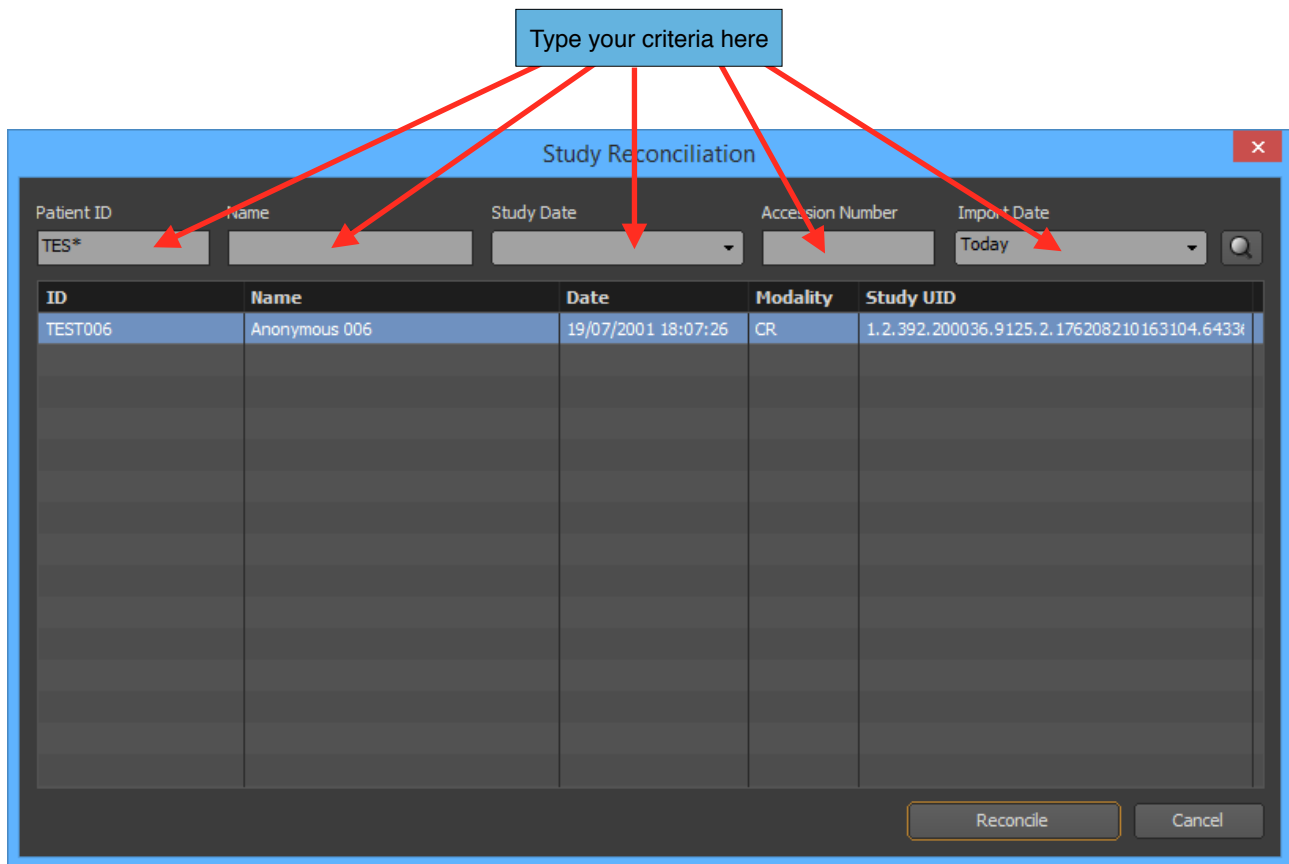
You can use the edit boxes that are located just under the study list header to input your criteria. For performing text searches, two wildcard characters are supported:

- The asterisk (*) stands for any combination of letters ('m*' refers for all patient name that begin by the letter m for example).
- The question mark (?) matches any single letter character.

The snapshot below shows the search for the studies that match the following criteria:

- The Patient ID begins with 'TES'

- The study was imported today



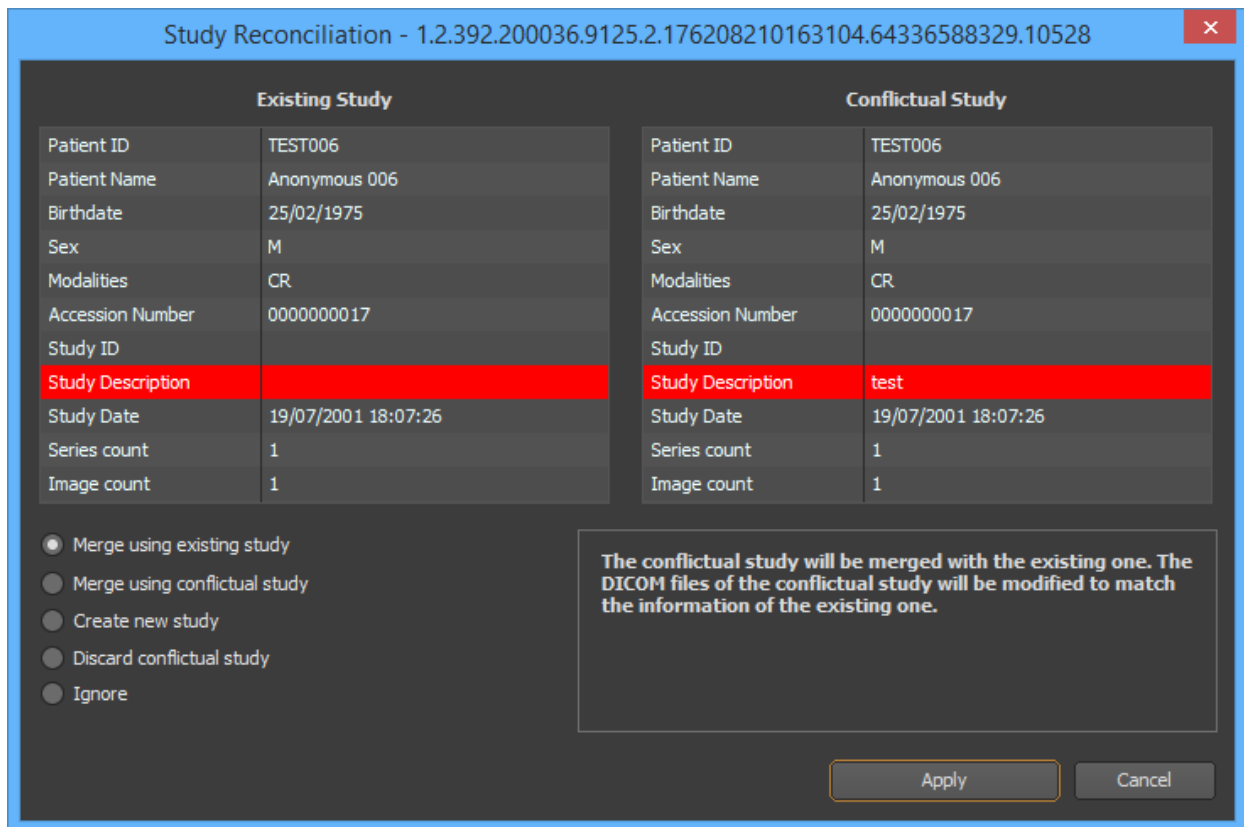
To reset a criteria, just click on it and erase its value.

You can start the query by clicking on the 'Search' icon located at the top right of the window. When you input a text criteria, you can also send the query by hitting the 'Enter' key of your keyboard. For criteria using a menu (such as the study date), the query will start automatically when you update the value.

Finally, select the study you would like to reconcile now and click on the 'Reconcile' button. You also can double click on the study directly. This will open the reconciliation window.

7-11-2 Reconcile a Study

On the left side of the reconciliation window, you will find the information about the existing study and on the right side the information about the study that is conflicting. What is conflicting is marked in red. On the snapshot below, the existing study has no description but the incoming one has one.



You need to specify how you would like to solve this conflict, by choosing one the five following options:

- **Merge using existing study:** The study in conflict will be merged with the existing one. The DICOM files of the study in conflict will be modified to match the information of the existing one.
- **Merge using conflictual study:** The study in conflict will be merged with the existing one. The DICOM files of the existing study will be modified to match the information of the one in conflict.
- **Create new study:** A new study will be created. The Study UID, Series UID and SOP UID of its DICOM files will be modified accordingly.
- **Discard conflictual study:** The study in conflict and all of the series and images associated with it (including the DICOM files) will be permanently deleted.
- **Ignore:** The study in conflict will be merged with the existing one. The DICOM files of the study in conflict will not be modified.

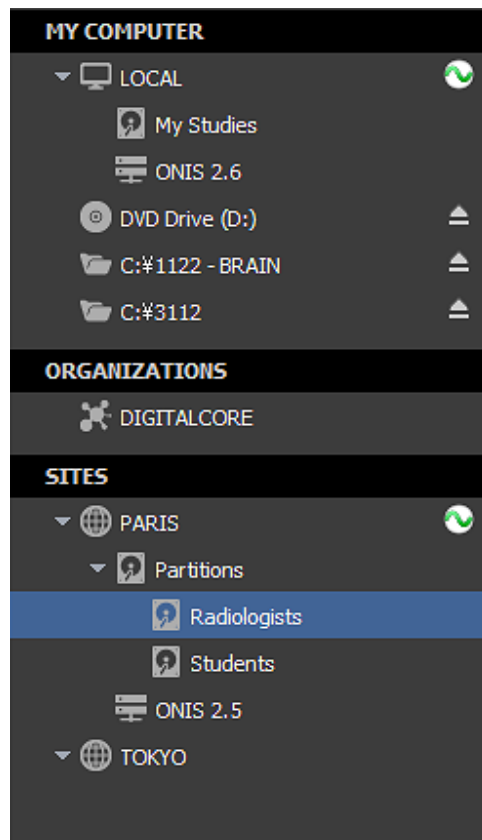
When ready, click on the 'Apply' button. The reconciliation request will be sent to the server. If the request is approved, then the study will be removed from the conflict list and will go online.

7-12 Deleting Studies, Series and Images

This section explains how to remove some studies, series or images for your local database or a partition from a site.

7-12-1 Selecting the Source

First you need to select the source containing the elements you would like to delete. For example this can be your local database or a partition from a site. To select a source, simply need to click on its name. The current selected source is the one highlighted with a blue background.



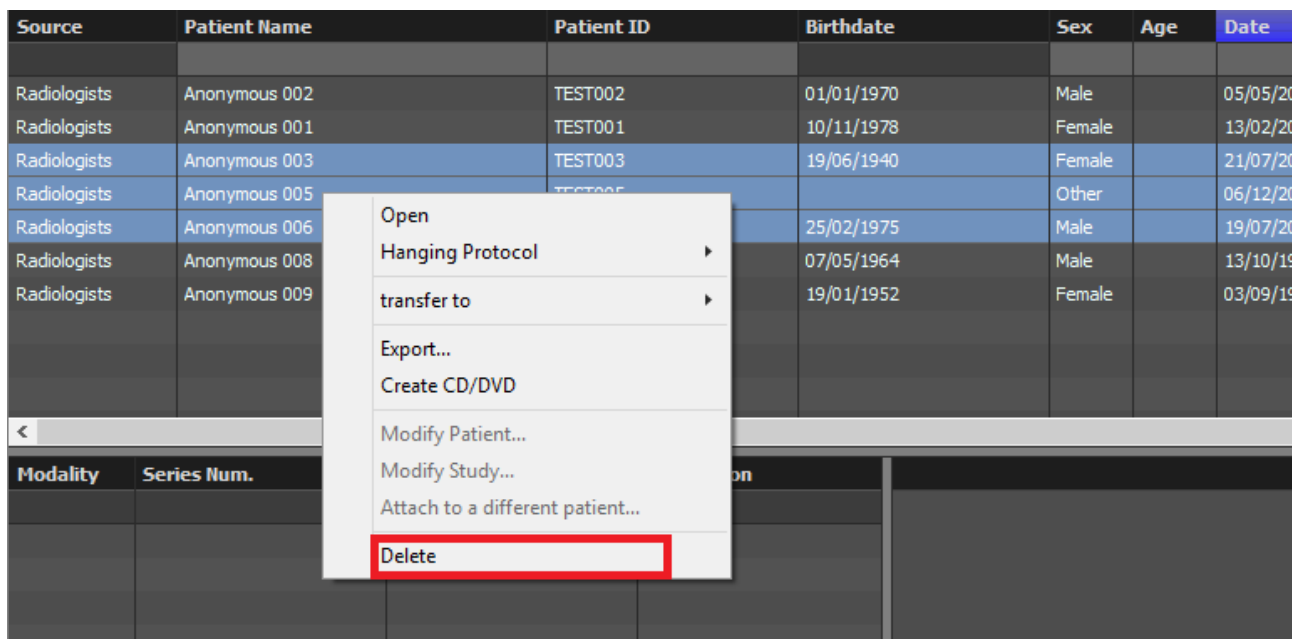
7-12-2 Selecting the Elements to Delete

You need to select the elements you would like to delete. You can delete:

- One or multiple studies
- One or multiple series of a study
- One or multiple images of a specific series

You need to query the selected source for the studies you want to delete elements from. Refer to the 'Query for Studies' section for that.

To delete one or multiple studies, select them from the list of studies and choose the 'Delete' menu from the context menu of the study list. To open this menu, bring your cursor above one of the selected studies and right click. If the menu is disabled, it means that either the source does not support this operation or you do not have the privilege to delete studies.

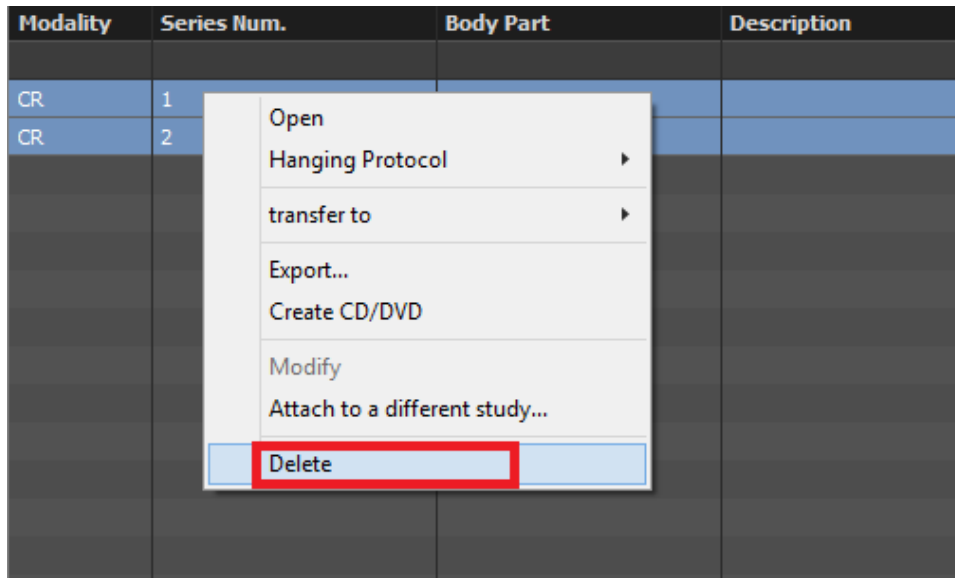


Source	Patient Name	Patient ID	Birthdate	Sex	Age	Date
Radiologists	Anonymous 002	TEST002	01/01/1970	Male		05/05/20
Radiologists	Anonymous 001	TEST001	10/11/1978	Female		13/02/20
Radiologists	Anonymous 003	TEST003	19/06/1940	Female		21/07/20
Radiologists	Anonymous 005	TEST005		Other		06/12/20
Radiologists	Anonymous 006		25/02/1975	Male		19/07/20
Radiologists	Anonymous 008		07/05/1964	Male		13/10/19
Radiologists	Anonymous 009		19/01/1952	Female		03/09/19

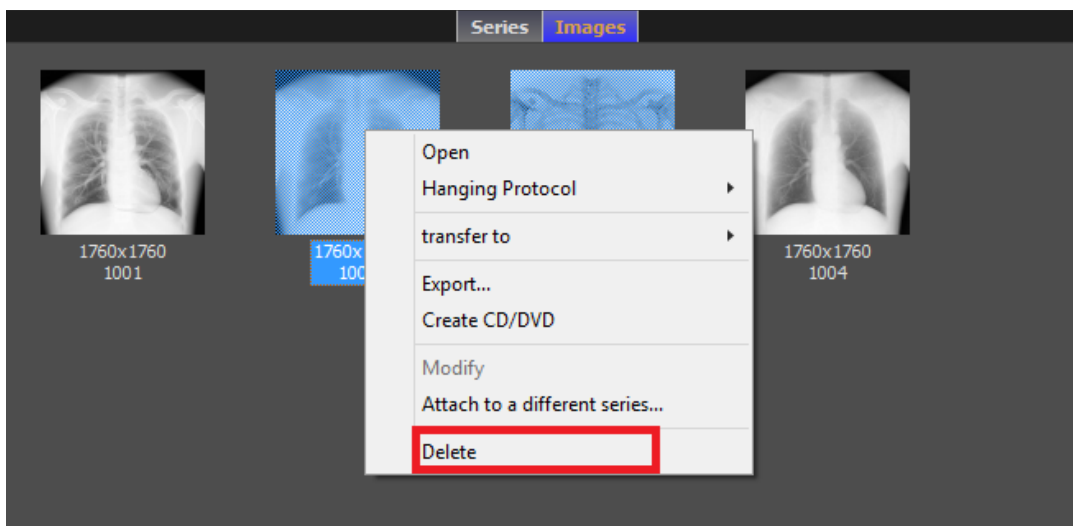
Context Menu:

- Open
- Hanging Protocol
- transfer to
- Export...
- Create CD/DVD
- Modify Patient...
- Modify Study...
- Attach to a different patient...
- Delete**

To delete one or multiple series of a study, select the study in the list of studies. The series belonging to the selected study will be displayed in the series list. Select the series you would like to delete and choose 'Delete' from the Context menu of the series list. To open this menu, bring your cursor above one of the selected series and right click. If the menu is disabled, it means that either the source does not support this operation or you do not have the privilege to delete series.



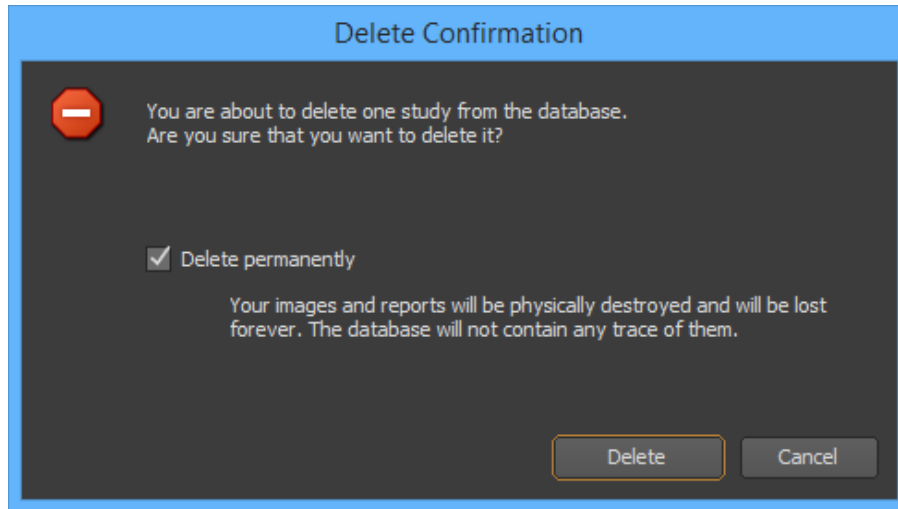
To delete one or multiple images of a series, select the study the series belongs to out of the list of studies. In the list of series, select the series you would like to export the images from. In the icon list, click the 'Images' button to display the images of the series. Select the images you would like to delete. You can select multiple images by clicking while holding down the 'Shift' key for a continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. Finally, choose the 'Delete' menu from the context menu of the Icon List. To open this menu, bring your cursor above one of the selected images and right click. If the menu is disabled, it means that either the source does not support this operation or you do not have the privilege to delete images.



7-12-3 Delete Confirmation

After selecting 'Delete', a confirmation window will appear. Click on the 'Delete' button to delete the elements. Depending on the source, you may be asked whether or not you wish to delete the

elements permanently or just have them marked as 'deleted'. If you choose to delete the elements permanently, the image and associated report files will be physically destroyed. Otherwise, the elements will still exist in the database but will be marked as 'deleted' (the image and report files will not be destroyed). If no options are proposed, your elements have been permanently destroyed.

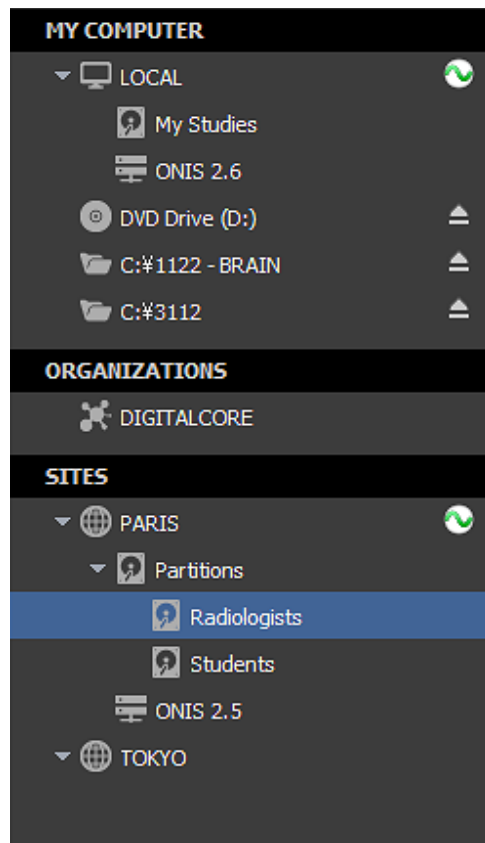


7-13 Opening Studies

This section explains how to open studies from a source for analysis.

7-13-1 Select the source

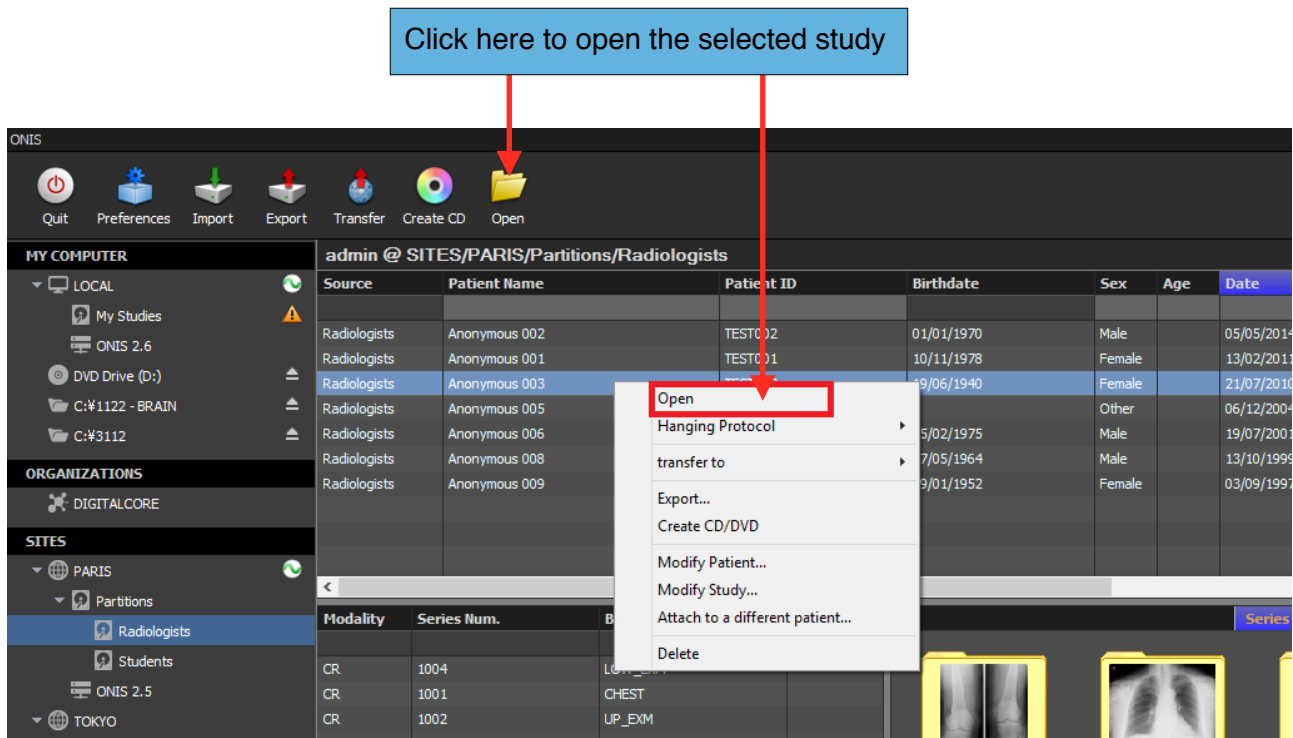
First you need to select the source from which you would like to open some studies. For example this can be your local database or a partition from a site. To select a source, simply need to click on its name. The current selected source is the one highlighted with a blue background.



7-13-2 Selecting the Studies to Open

You need to query the selected source to retrieve the desired studies. Refer to the ‘Query for Studies’ section for that.

Select one or multiple studies from the list of studies and click on the ‘Open’ button on the toolbar. You can also choose ‘Open’ from the context menu of the list of studies. To open this menu, bring your cursor above one of the selected studies and right click.



7-13-3 Behavior

When you hit 'Open' (either via the icon or from the context menu), the whole history of the patient related to the study will be retrieved from the source. The first hanging protocol that matches the study will be selected and the series of the study will be displayed accordingly. If there are no protocols available for display, the first series of the study will appear in the first available Viewer Page.

If you open multiple studies pertaining to multiple patients, the history of each patient will be retrieved and only the first patient will be displayed. You will be able to switch patients on the viewer page.

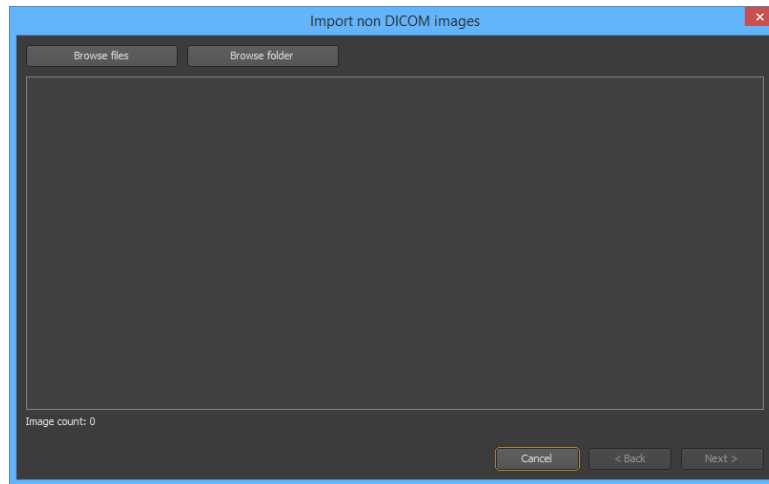
When you open a study, all of the studies that were previously open will automatically close. If you don't want them to close, you have to hold down the 'Shift' key while clicking 'Open' (either the icon or from the context menu).

If you want to open a study using a specific hanging protocol, you can choose the 'Hanging Protocol' menu instead and select the hanging protocol you want.

7-14 Importing Non-DICOM Images

You can convert BMP, JPEG or PNG files to the DICOM format and import them into any source (as long as the source supports the storage of new images and you have the privilege to conduct this operation):

1. Select the source from which you wish to import images on the source bar.
2. Click on the '+' button at the bottom left corner of the Database Page.
3. In the popup menu, choose 'Import JPEG, BMP or PNG files'. This will open the Converter window.



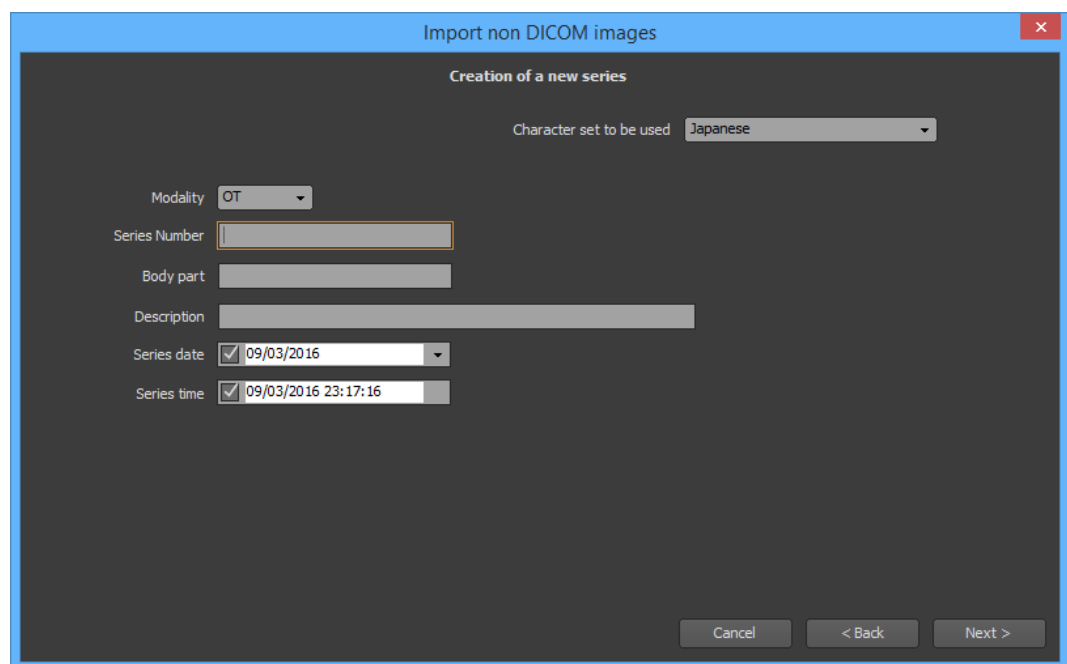
4. Click on the 'Browse Files' button to select one or multiple files to convert, or click on the 'Browse folder' button to scan a folder for JPEG, BMP and PNG files. The images will appear in the list.
5. Remove one or numerous images by selecting them and hitting the 'Del' key of your keyboard.
6. Click on the 'Next' button.
7. Choose if you would like to attach the images to a new or existing patient.
8. If you chose to attach the images to a new patient, click on the 'Next' button and fill in the patient information as described below. Then click again on the 'Next' button.
 - Select the character set you wish to use for the patient information. If you are using plain English, choose 'Default'.
 - Patient ID: This should be a new ID that has not yet been used in the database.
 - Patient Name: You can fill in one or more of the three name groups supported by the DICOM specifications (name, ideogram and phonetic). Each group contains five values (Family name, Given name, Middle names, Prefix and Suffix). The first group should contain only single byte characters and each group should not exceed a total of 64 characters).
 - Patient Sex (male, female or other)
 - Patient Birth Date
 - Patient Birth Time

In the next panel, fill in the study information as described below and then click on the ‘Next’ button.

- Select the character set you wish to use for the study information using the drop down list. If you are using plain English, choose ‘Default’.
- Study ID
- Accession Number
- Study Description
- Study Date (disable the corresponding box to remove the study date)
- Study Time (disable the corresponding box to remove the study time)

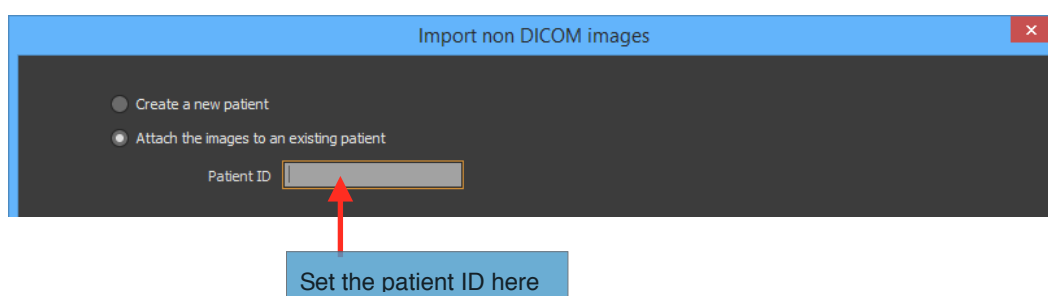
In the next panel, fill in the series information as described below and then click on the 'Next' button.

- Select the character set you wish to use for the series information using the drop down list. If you are using plain English, choose 'Default'.
- Modality
- Series Number
- Body Part
- Description
- Series Date (disable the corresponding box to remove the series date)
- Series Time (disable the corresponding box to remove the series time)



The screenshot shows a dialog box titled "Import non DICOM images" with a close button (X) in the top right corner. The main heading is "Creation of a new series". Below this, there is a dropdown menu for "Character set to be used" with "Japanese" selected. The form includes several fields: "Modality" with a dropdown menu showing "OT"; "Series Number" with an empty text input field; "Body part" with an empty text input field; "Description" with a long empty text input field; "Series date" with a checked checkbox and a dropdown menu showing "09/03/2016"; and "Series time" with a checked checkbox and a dropdown menu showing "09/03/2016 23:17:16". At the bottom right, there are three buttons: "Cancel", "< Back", and "Next >".

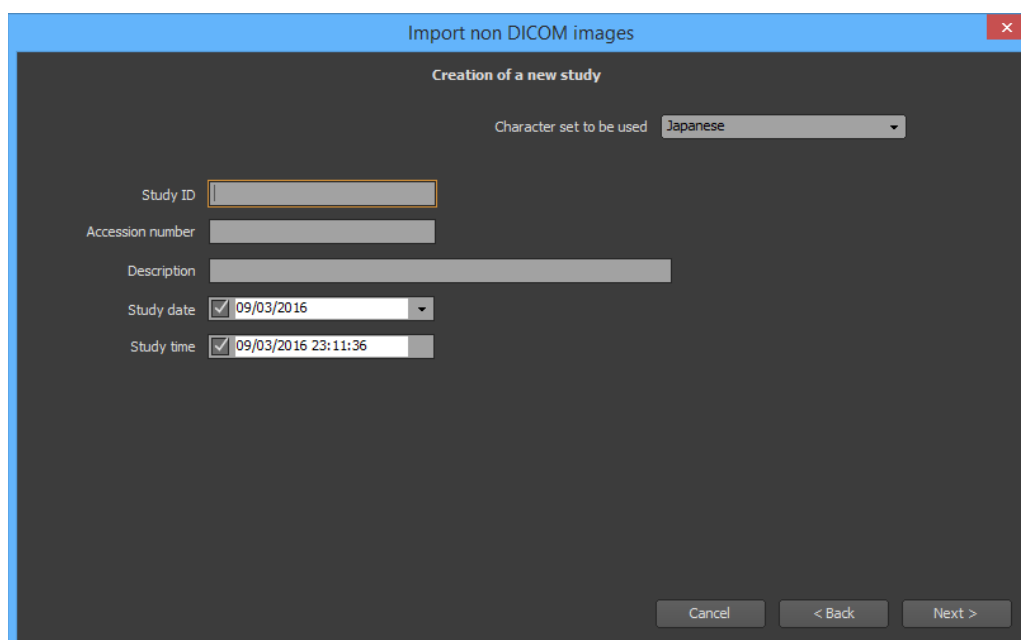
9. If you chose to attach the images to an existing patient, input the Patient ID and then click on the 'Next' button.



The screenshot shows the same dialog box, but with the "Attach the images to an existing patient" radio button selected. Below the radio buttons is a "Patient ID" label followed by an empty text input field. A red arrow points from a blue callout box below to the input field. The callout box contains the text "Set the patient ID here".

In the next panel, choose if you would like to create a new study or if you would like to attach the images to an existing one.

- A. If you chose to create a new study, fill in the study information as described below. Then click on the 'Next' button.
- Select the character set you will use for the study information. If you are using plain english, choose 'Default'.
 - Study ID
 - Accession Number
 - Study Description
 - Study Date (disable the corresponding box to remove the study date)
 - Study Time (disable the corresponding box to remove the study time)



The screenshot shows a dialog box titled "Import non DICOM images" with a close button (X) in the top right corner. The main title is "Creation of a new study". Below the title, there is a dropdown menu labeled "Character set to be used" with "Japanese" selected. The form contains several input fields: "Study ID" (text box), "Accession number" (text box), "Description" (text box), "Study date" (checkbox checked, dropdown menu showing "09/03/2016"), and "Study time" (checkbox checked, text box showing "09/03/2016 23:11:36"). At the bottom, there are three buttons: "Cancel", "< Back", and "Next >".

In the next panel, fill in the series information as described below and then click on the 'Next' button.

- Select the character set you wish to use for the series information using the drop down list. If you are using plain English, choose 'Default'.
- Modality
- Series Number
- Body Part
- Series Description
- Series Date (disable the corresponding box to remove the series date)

- Series Time (disable the corresponding box to remove the series time)

Import non DICOM images

Creation of a new series

Character set to be used Japanese

Modality OT

Series Number

Body part

Description

Series date 09/03/2016

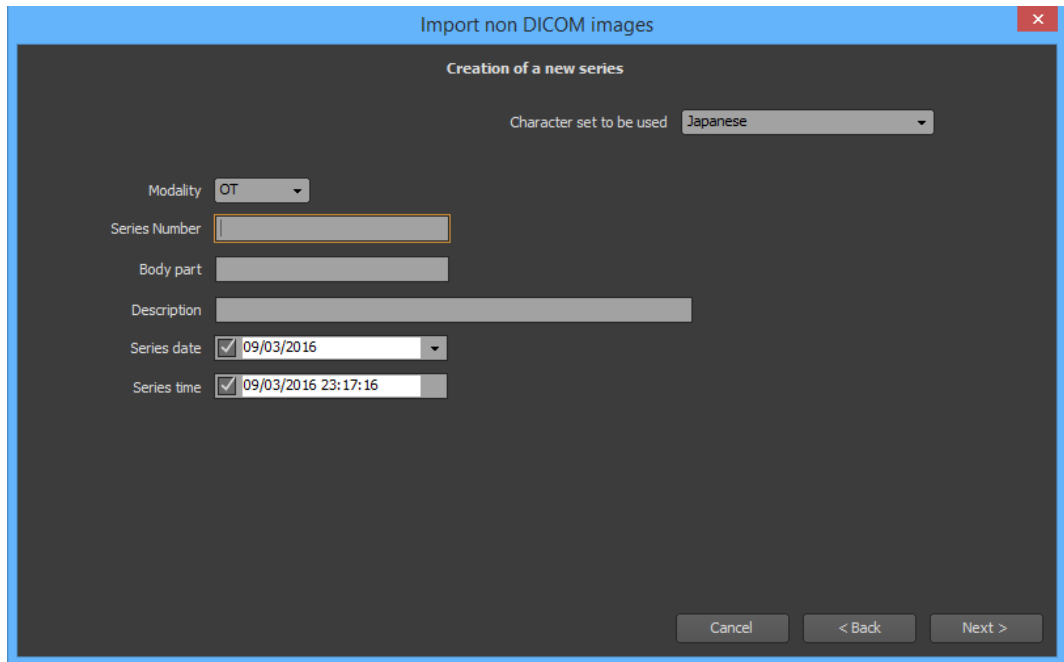
Series time 09/03/2016 23:17:16

Cancel < Back Next >

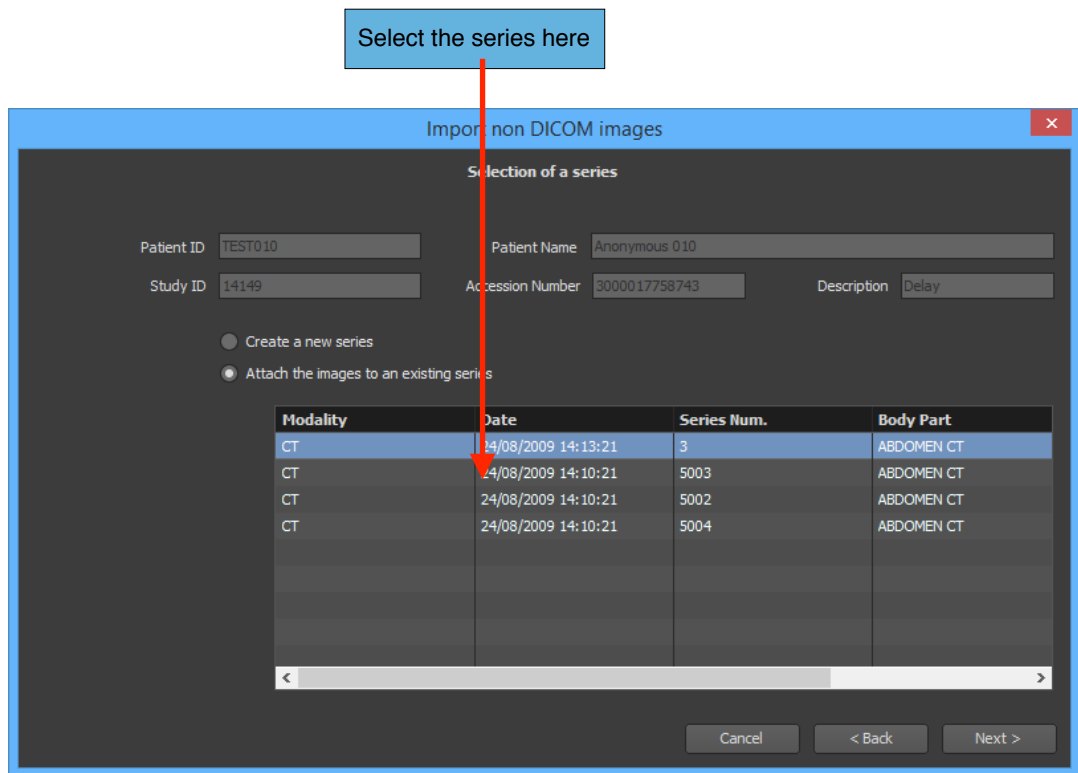
- B. If you chose to attach the images to an existing study, select the study from the list and click on the 'Next' button.

In the next panel, choose either to create a new series or to attach the images to an existing series.

- If you chose to create a new series, fill in the series information as described below and click on the 'Next' button.
 - Select the character set you wish to use for the series information using the drop down list. If you are using plain English, choose 'Default'.
 - Modality
 - Series Number
 - Body Part
 - Series Description
 - Series Date (disable the corresponding box to remove the series date)
 - Series Time (disable the corresponding box to remove the series time)



- If you chose to attach the images to an existing series, select the series from the list and on the 'Next' button.



10. Click on the 'Import' button to start converting and importing the images.

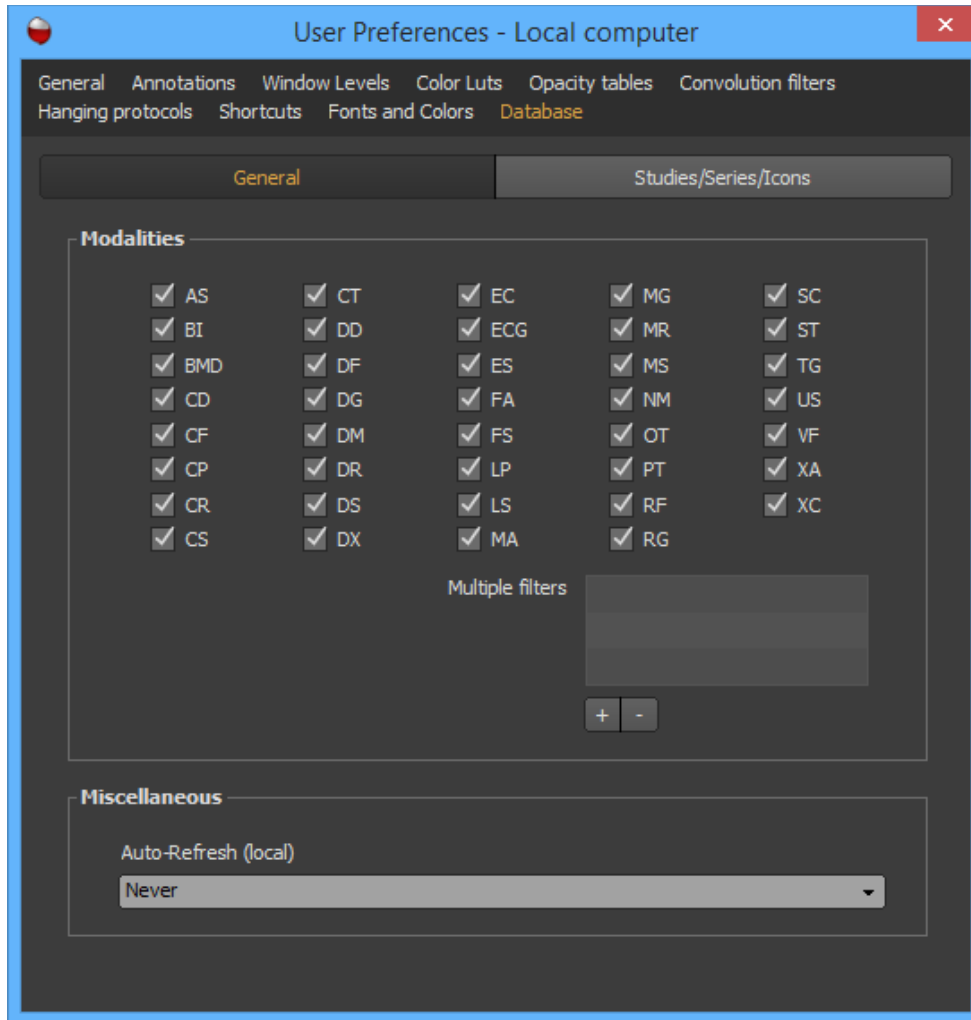
7-15 User Preferences

Certain parameters on the Database page can be customized, such as the visible columns of the Study and Series Lists.

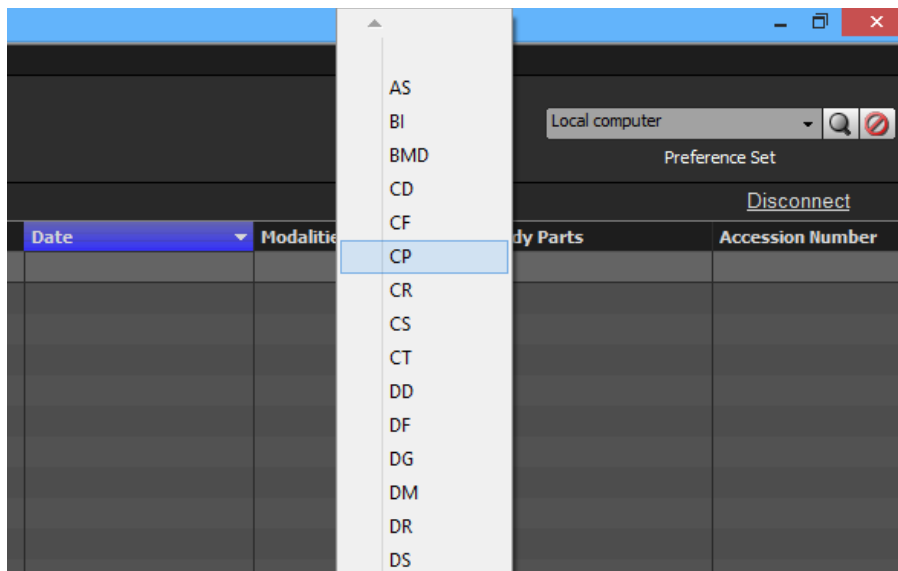
To open the preference panel, click on the 'Preferences' button of the toolbar and select the 'Database' page.

7-15-1 General

7-15-1-1 Modalities



When you conduct a query on a source for certain studies, you can define specific criteria to help enhance your search (Refer the 'Query for Studies' section). You can use modalities as one of your criteria. When you set this as a criteria, a popup menu will appear with a list of modalities to choose from (examine the snapshot below).

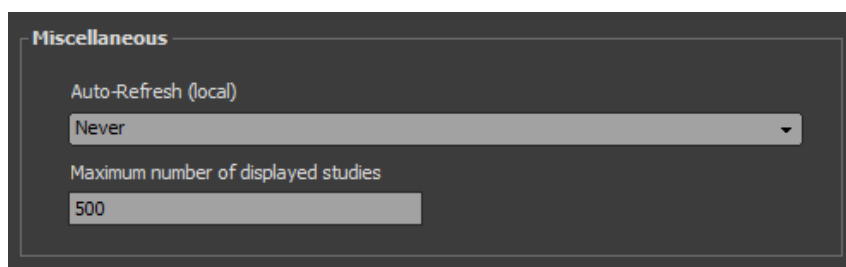


You can specify which modalities should be listed in this popup menu on the General page. Only the modalities that have checked boxes by them will be display on the list (note that all modalities are checked on by default).

Sometimes, you may want to input multiple modalities in your criteria. For example, you may want to query for MR and CT modalities simultaneously. In this case, you can add a modality criteria in the Preference panel. Click on the '+' button of the multiple filters, select two or more modalities in the list and click on the 'OK' button. To remove a filter, select it and click on the '-' button.

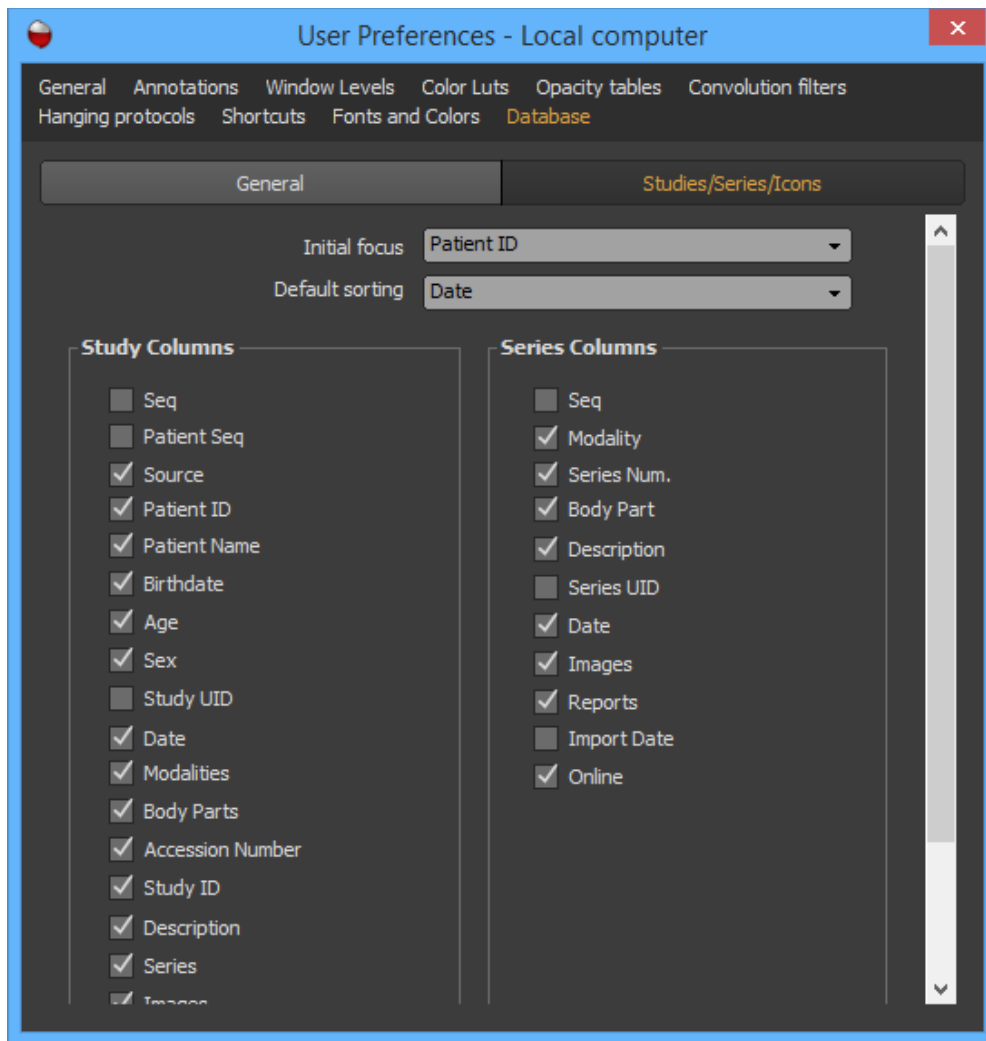
7-15-1-2 Miscellaneous

You can specify which list of studies will be automatically updated periodically. Use the drop down list to choose the refresh frequency, from one minute to one hour.



You can also limit the number of studies that you want displayed in the list. Displaying a huge number of studies may take up a lot of resources and cause the process to slow down. The default value is set to a cap of 500 studies.

7-15-2 Studies/Series/Images



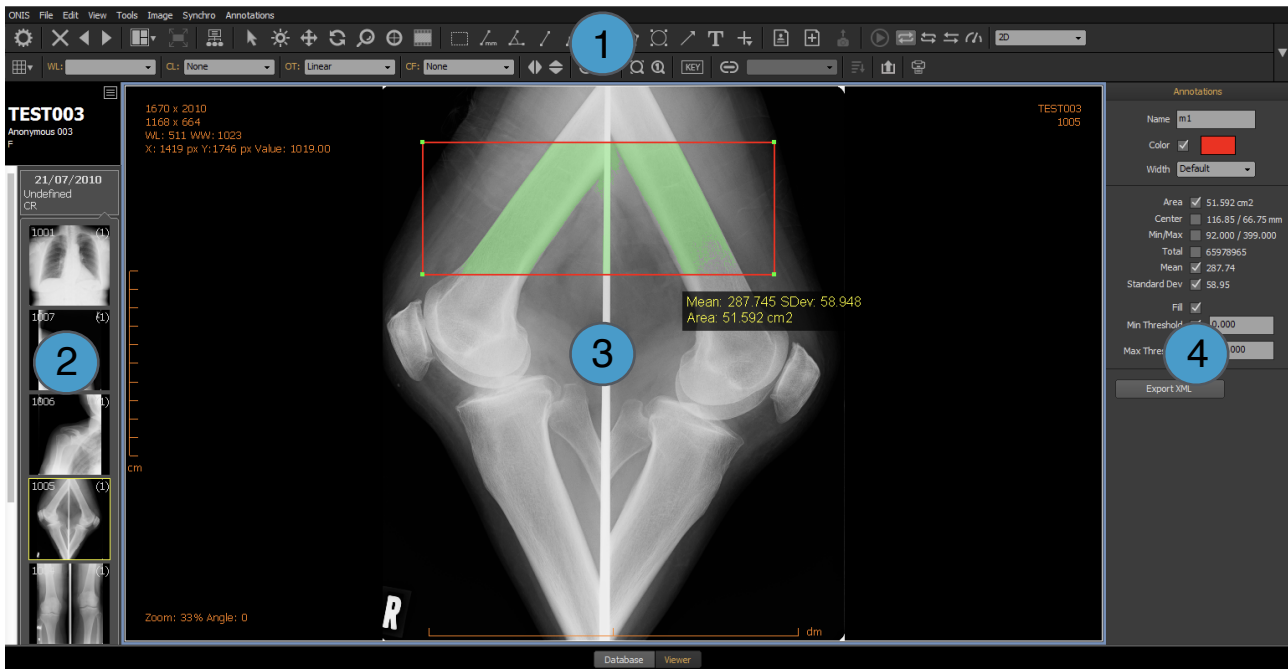
From this page, you can select which columns are visible in the Study List and the Series List. Check on a column to make it visible; check it off to hide it.

You can also choose the default sorting column when ONIS starts.

When you select a source in the source bar, you can specify that the keyboard focus will go directly on column criteria when the page become visible. This let you the possibility to directly type your criteria as soon as a source is selected.

8 The viewer page

8.1 Layout



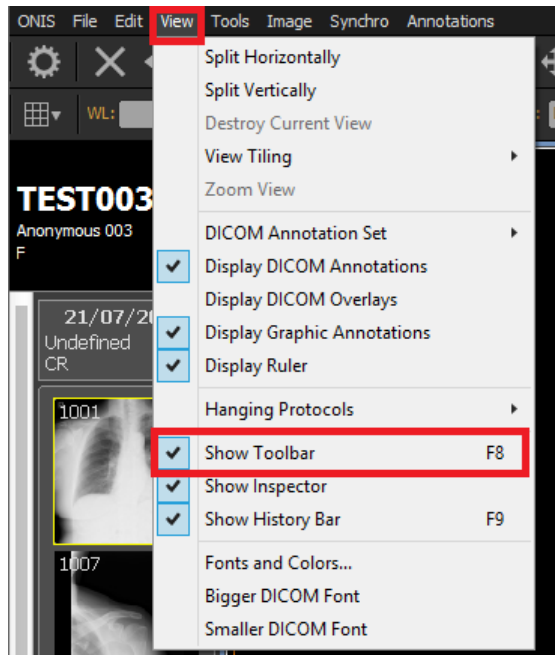
1. Toolbar
2. History bar
3. View
4. Inspector

8.1.1 Toolbar

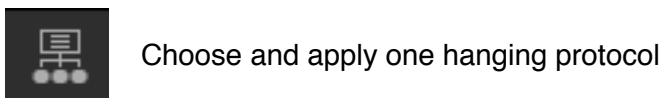
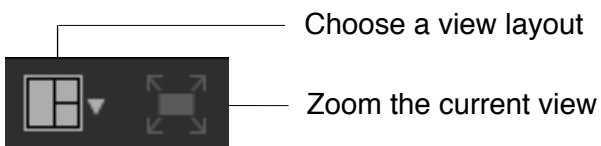
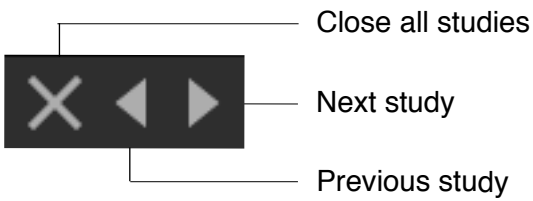
The toolbar of the viewer page gives you quick access to basic functions like defining a layout, choosing a tool, creating annotations, etc.

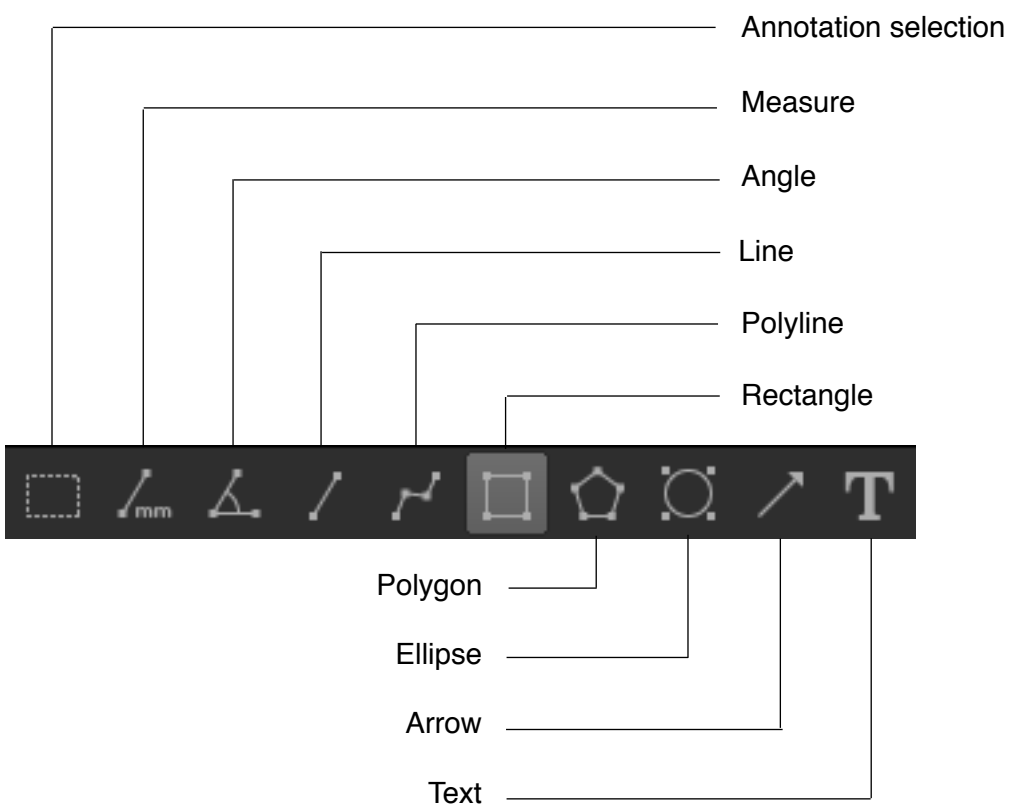
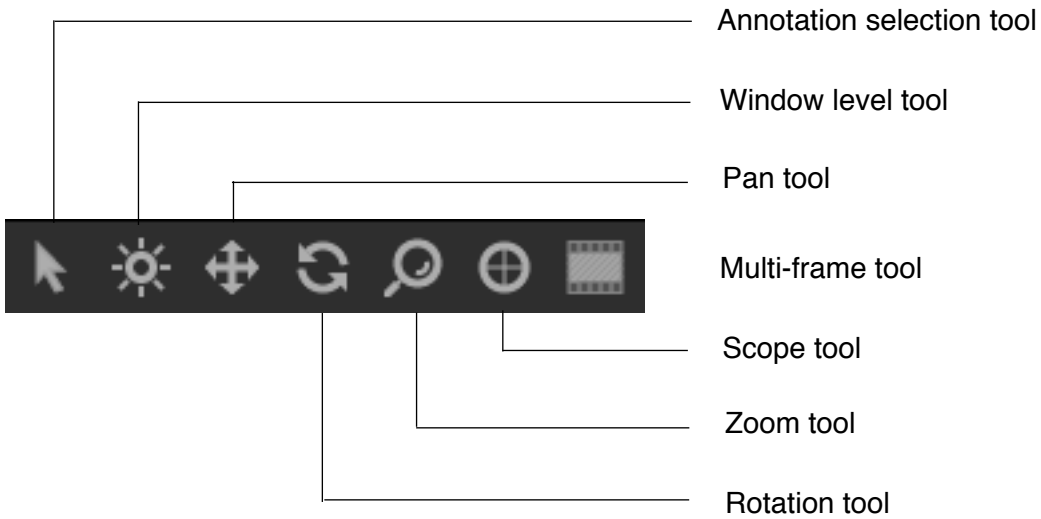
The toolbar is comprised of two rows. The top row contains the common tools that are used for general functions. The bottom row of tools alter in accordance with the active view that is presently displayed..


You can show or hide the toolbar anytime by clicking on 'Show Toolbar' under the 'View' menu.

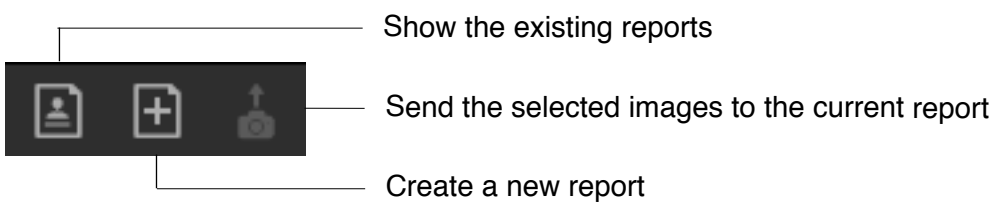


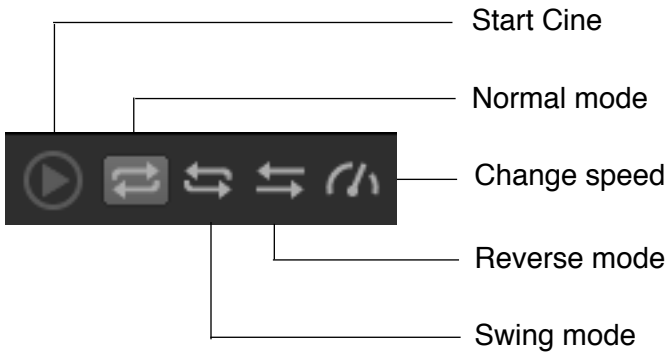
8.1.1.1 Toolbar: General Row





 Actions on the selected annotations



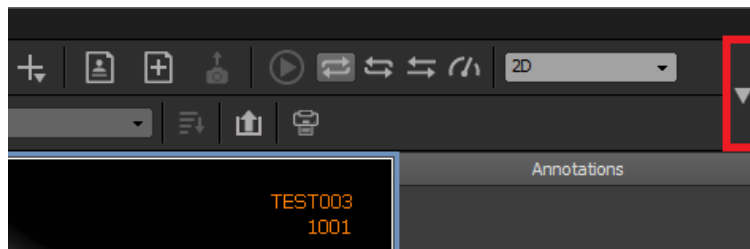


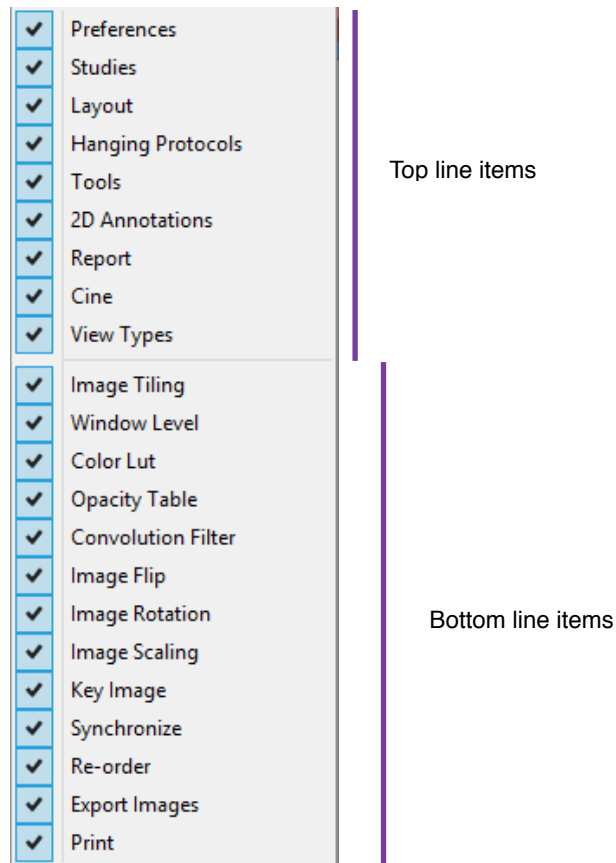
8.1.1.2 Active view

The bottom row of the toolbar allows you to quickly access functions of the active view. Refer to the section related with the active view for a detailed explanation of the toolbar items.

8.1.1.3 Show / Hide toolbar items

If your monitor resolution is not high enough to display all of the toolbar items or if you would like to display only few of the tools, you can specify the visibility of each item by clicking the downward-facing arrow located on the righthand side of the toolbar. A menu will pop up letting you show or hide any items. The items of the top row and bottom row are separated by a line.





8.1.2 History Bar

When you open a study from the Database page, the full history of the patient will be downloaded from the source of the study. You can see the full history of the patient in the history bar.

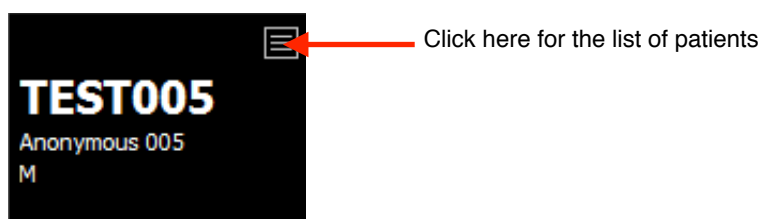
The history bar is made of two areas:

- The patient information
- The studies and series information

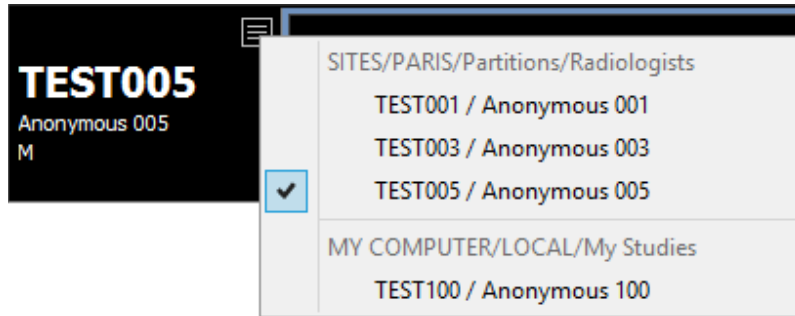
You can show or hide the history bar anytime by clicking on ‘Show History Bar’ under ‘View’.

8.1.2.1 The Patient Information

In the patient information area, you will find the Patient ID in large characters, followed by the Patient Name and Sex (‘M’ for male, ‘F’ for female and ‘O’ for others).



The history bar displays one patient at a time. If you have more than one patient open, you can switch from one patient to another by clicking on the Patient List icon. A menu will pop up letting you choose the patient you would like to view the history of.



You may open several patients from different sources on the Database page. Each patient history is related to a single source. The popup menu will sort the opened patients by source. You can see an example of this in the snapshot above. A check mark appears in front of the patient currently being displayed on the history bar.

8.1.2.2 Studies and Series Information

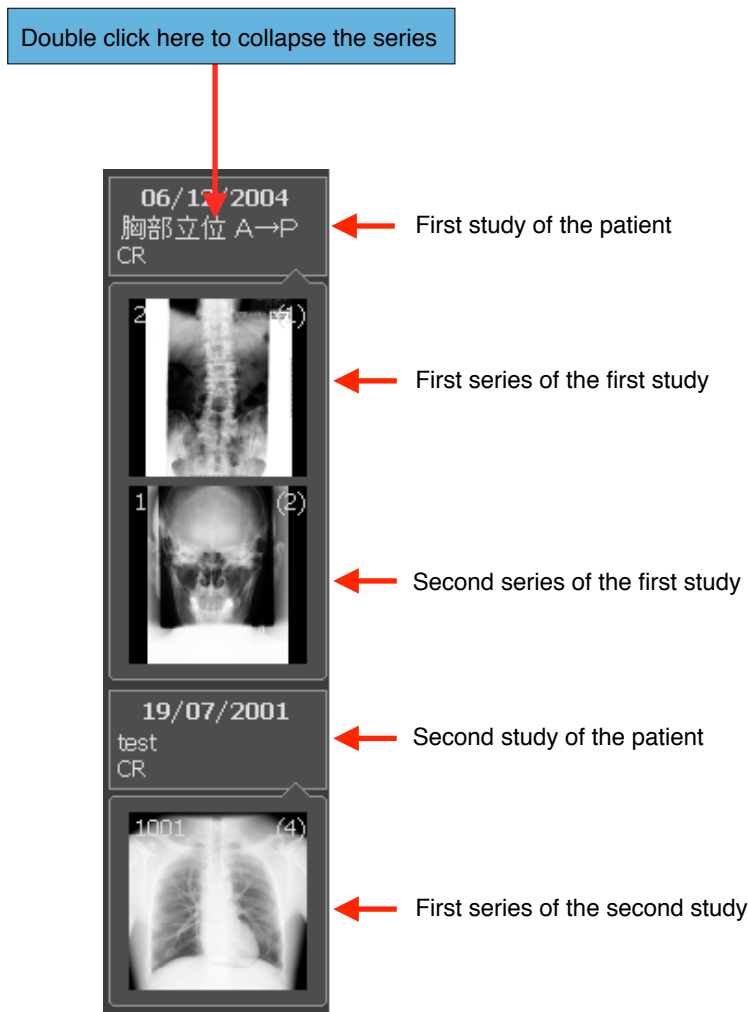
You can find the list of studies and series belonging to the patient under the patient information.

For each study, the following information is displayed:

- The study date
- The study description
- The modalities

Beneath the study information, you will find the information of the series associated with this study. For each series, the following information is displayed:

- A series icon
- The series number
- The number of images inside the series

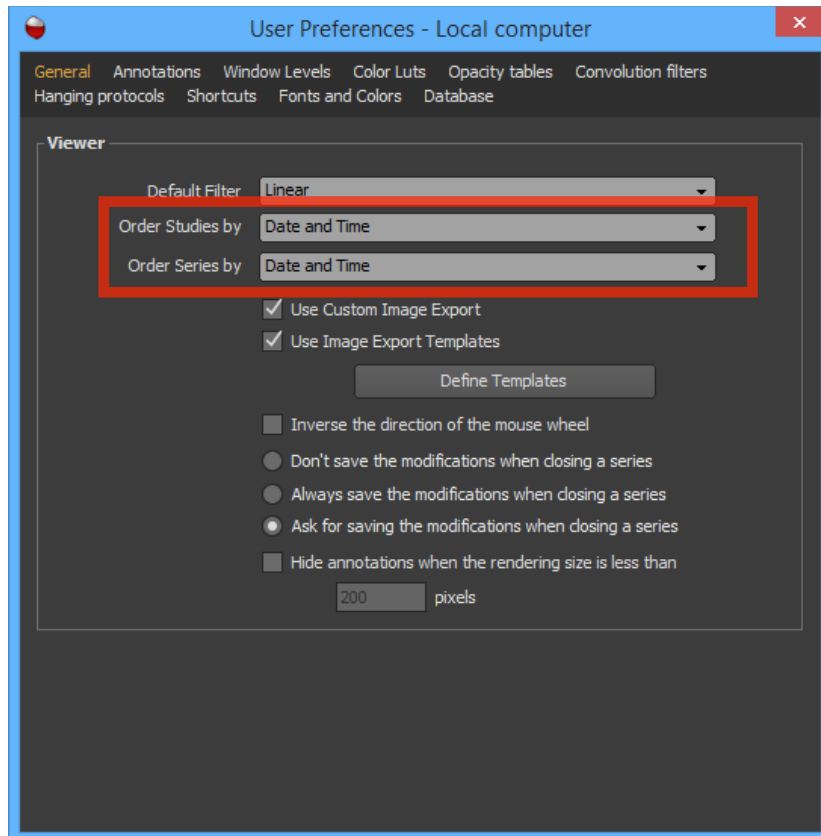


You can hide a study's series information by double clicking anywhere on the study information area. To show the series, simply double click again.

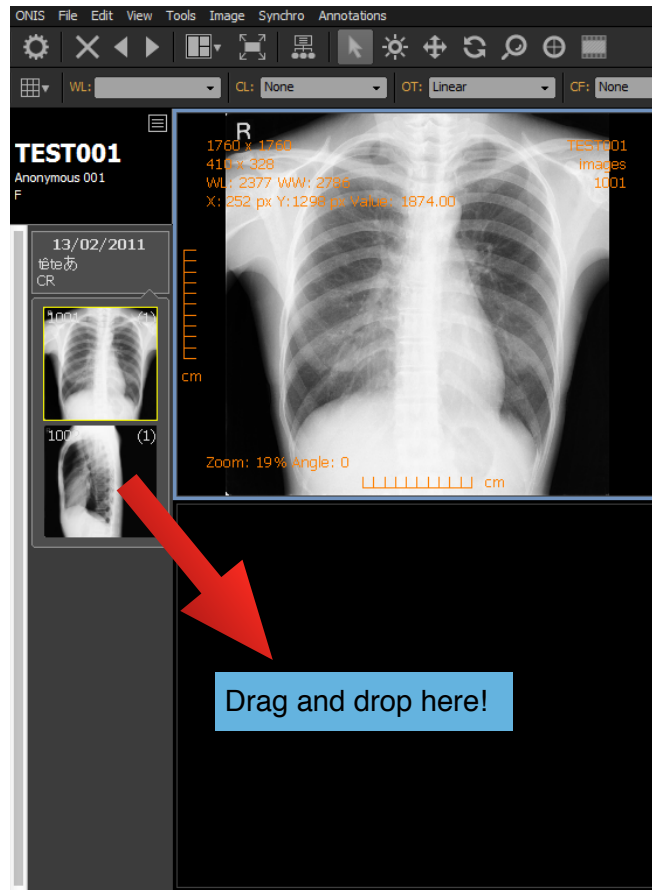
Some sources may not provide an icon for each series. In such cases, the icon area will remain black until the series downloads. The number of images may be set to 0 if the source cannot provide this information as well.

You may also notice some colored frames surrounding the icon area. If the frame is yellow, this means that the current active view is displaying the enclosed series. If the frame is green, it means that the series is displayed but not in the active view. These color codes only pertain to the monitor displaying the history bar.

By default, the studies and the series are in order of most recent to least recent. It is also possible to reorder the studies by accession number and the series by series number. You can find these parameters in the User Preference panel in the 'General' page.



Usually, you would organize the layout through hanging protocols. However, you can also manually assign a study or a series to a view. You can do this with a simple drag and drop: place your cursor over a study or a series in the history bar; while holding down the left mouse button, drag your mouse above a view; drop your selection by releasing the left mouse button.



8.1.3 Views

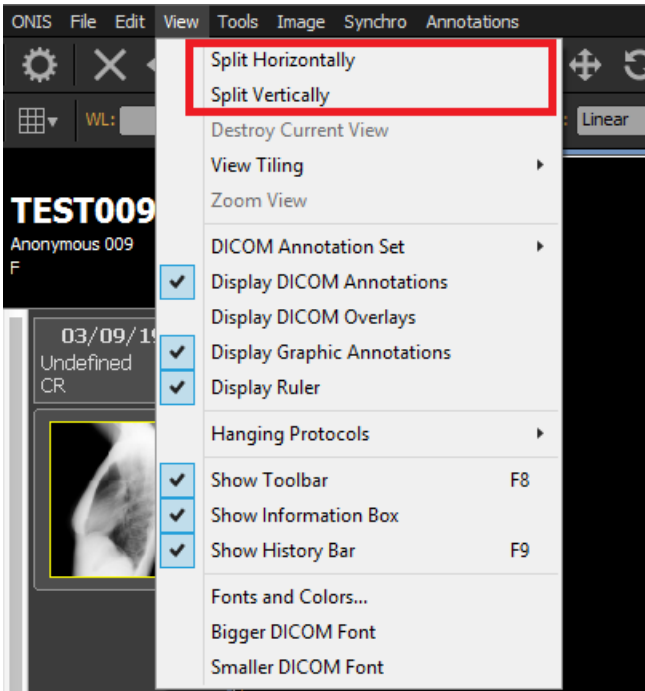
A *view* refers to the area where the images are displayed. Each view has a *type*, and this type defines how the images are displayed within the view. ONIS Viewer 3.0 supports two types of views (both of them will be explained in detail later in this manual):

- **2D:** Images of one or multiple series from a study are displayed in a grid
- **MAMMO:** Mammography images are displayed using specific layouts

A viewer page can display as many views as you want. Usually, you will rely on the hanging protocols to arrange the views for you, but you can also adjust the arrangement manually anytime.

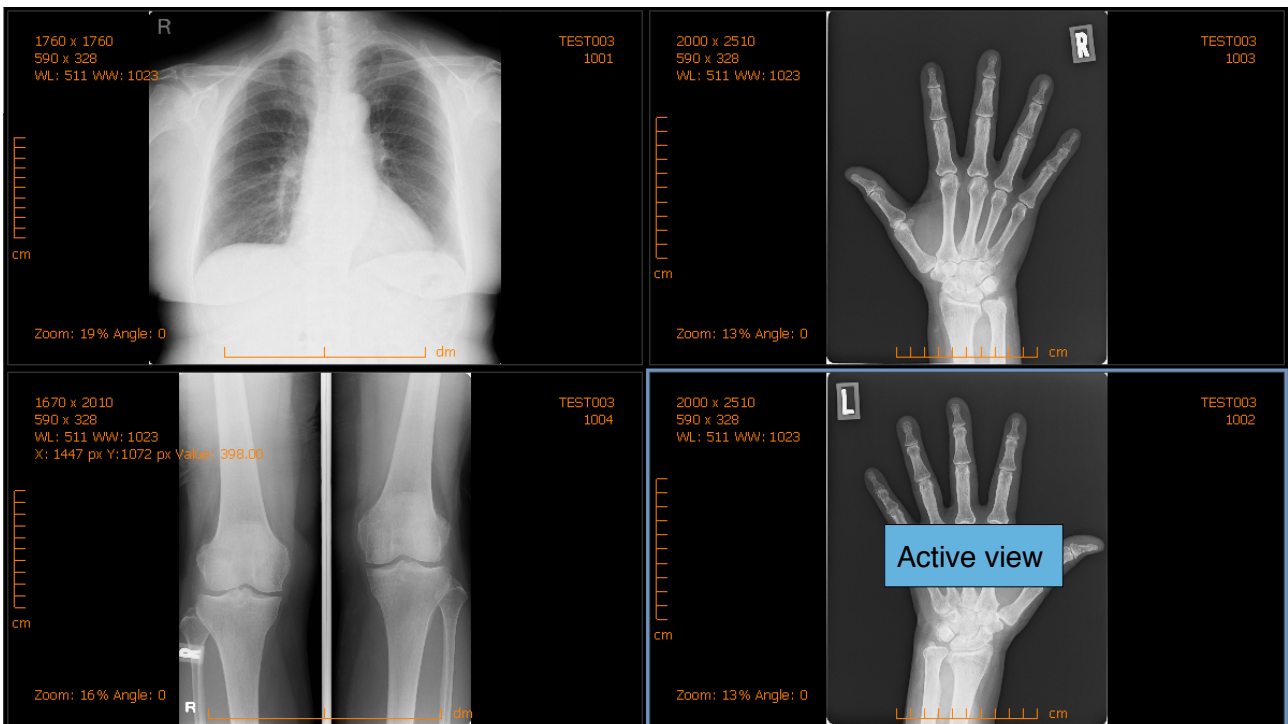
8.1.3.1 Creating a View

To create a view, you can use the 'View' menu and select 'Split Horizontally' or 'Split Vertically'. The former will split the current view horizontally in two, leaving the current view at the top and producing a new view below; the latter will split the current view vertically, leaving the current view on the left and adding a new view on the right. The newly created view will be a '2D' type by default.



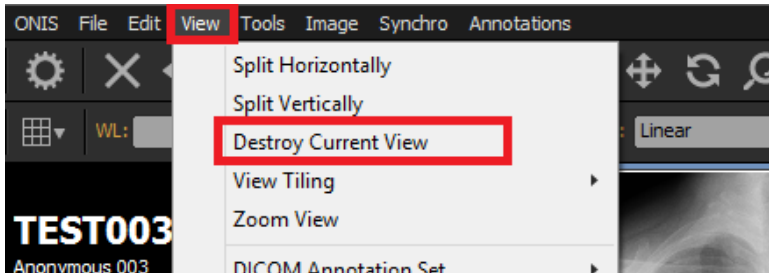
8.1.3.2 Activating a View

The active view is the one that is surrounded by a blue frame. All toolbar or menu actions will be applied to the active view only. To activate a view, simply click anywhere inside it with your cursor.



8.1.3.3 Deleting a View

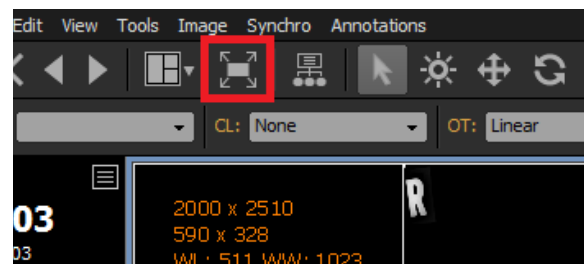
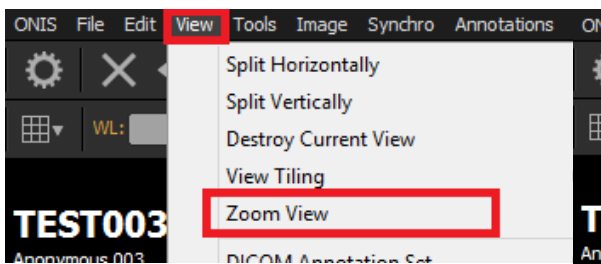
To delete a view, activate it by clicking anywhere inside it. The active view is the one surrounded by a blue frame. Click on 'Destroy Current View' under the 'View' menu and the active view will be destroyed.



8.1.3.4 Zoom a View

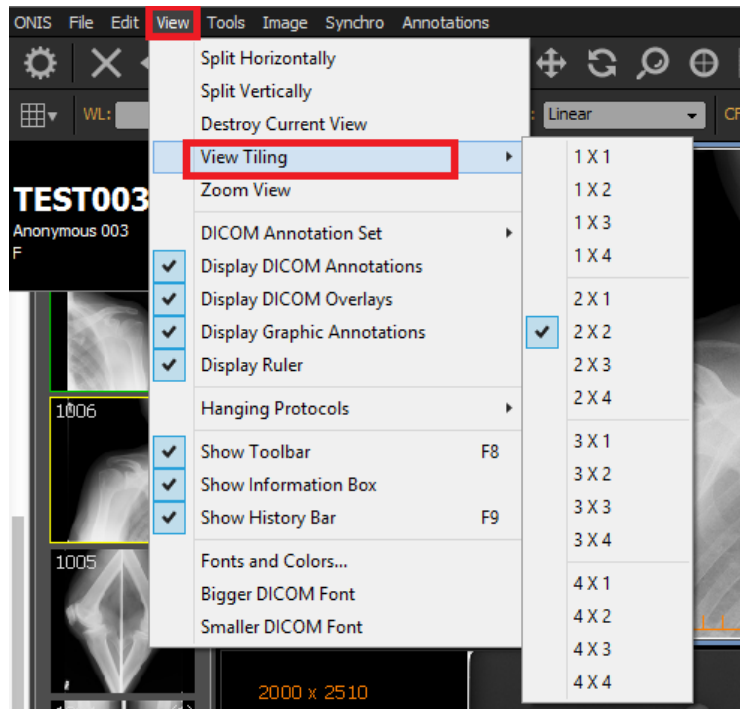
The more you have views, the more little they are. You can enlarge a view to fill the whole viewing area by choosing 'Zoom View' under the 'View' menu. Repeat the same process to make all of the existing views visible again. A check mark in front of the 'Zoom View' menu item (see snapshot below) will indicate that you are currently zoomed into a view.

Alternatively, you can also zoom into a view by using the toolbar item (see snapshot below). It is also possible to assign a keyboard shortcut.

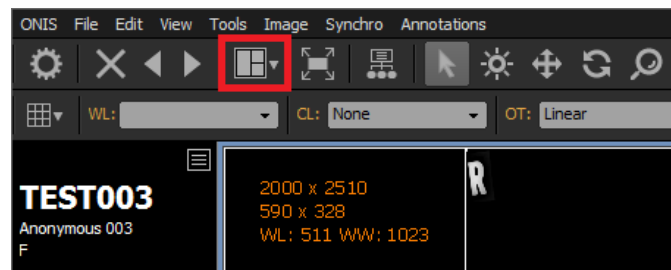


8.1.3.5 View Tiling

You can easily create a grid of views by selecting 'View Tiling' under 'View'. This will allow you to create up to 16 views with a single click.



Alternatively, you can also use the toolbar shortcut to create the views.



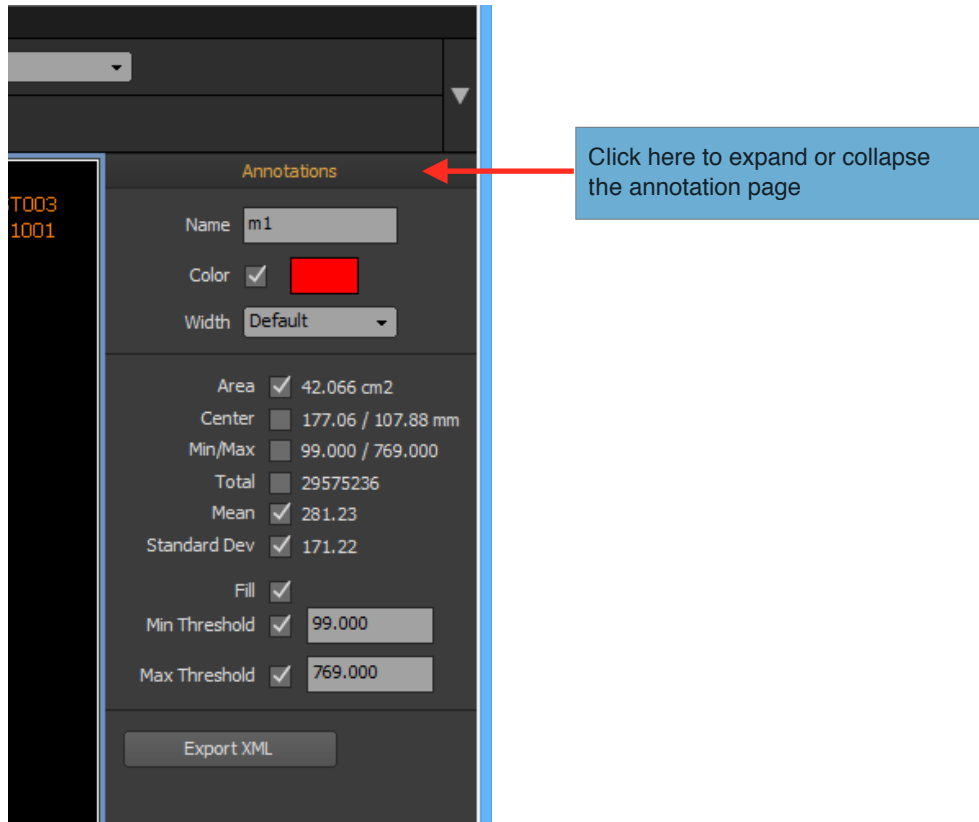
8.1.3.6 Switching View Types

You can change the type of the current view using the drop down list in the toolbar (see snapshot below). The selected view type will use the currently displayed series as input for initializing itself.



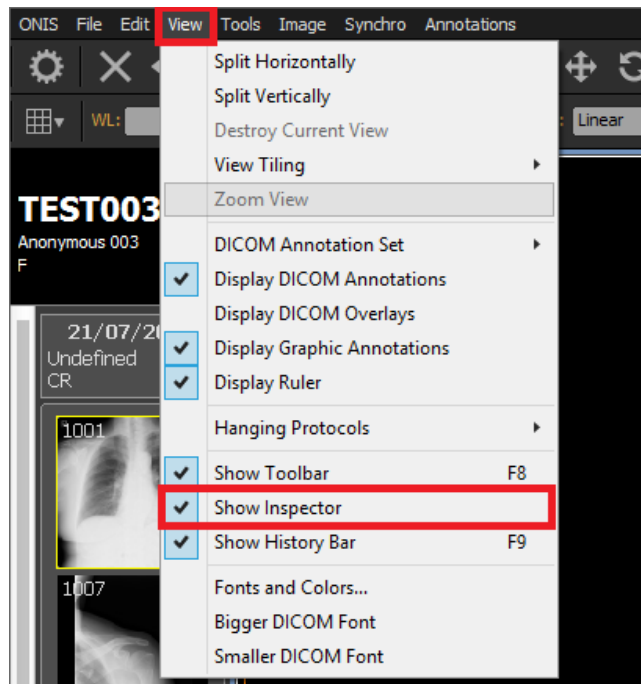
8.1.4 Inspector

The inspector bar is located on the righthand side of the Viewer Page. It is designed to support multiple pages that can be expanded or collapsed. To expand or collapse a page, you just need to click on the page title. A page is expanded when the color of its title is orange.



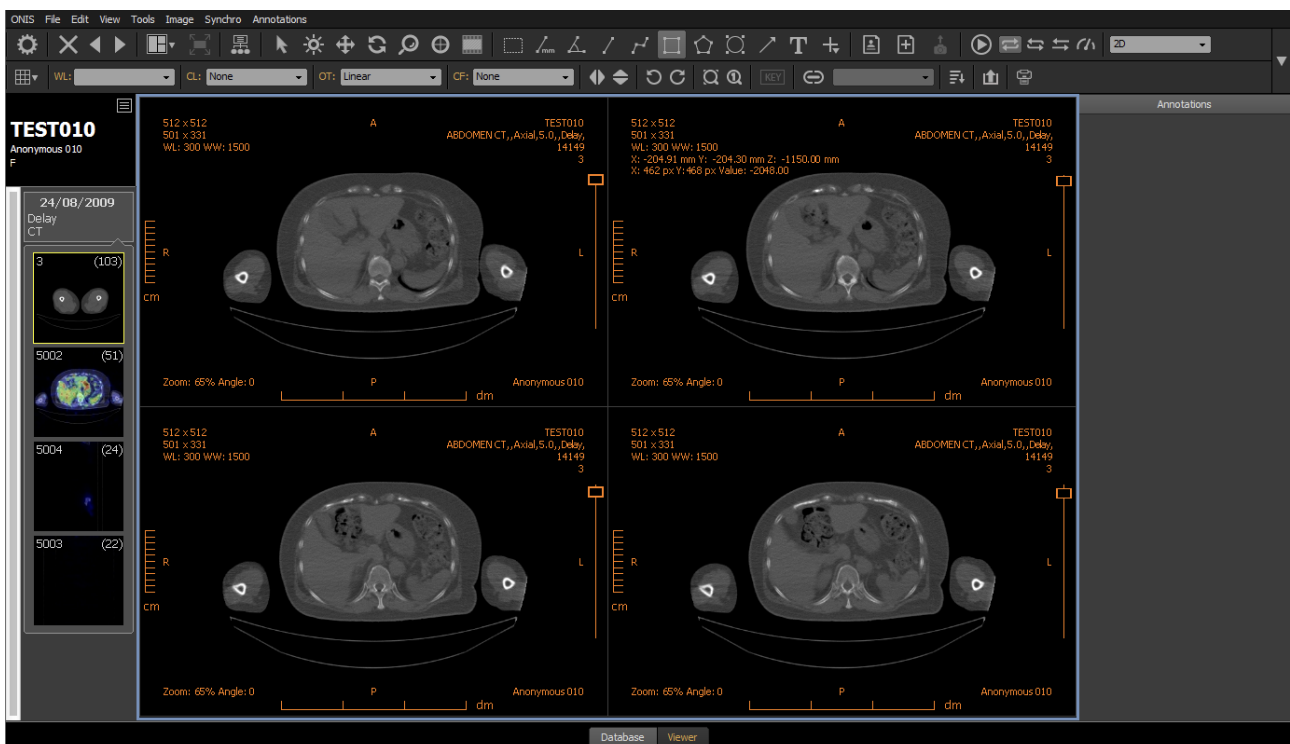
ONIS Viewer 3.0 has only one page by default, the 'Annotations' page, but you can add new pages with additional plugins. The 'Annotations' page is used to display and modify the selected Annotation properties. These properties will be explained in further detail later in this manual.

You can show or hide the inspector bar anytime by clicking 'Show Inspector' under the 'View' menu.



8.2 2D View

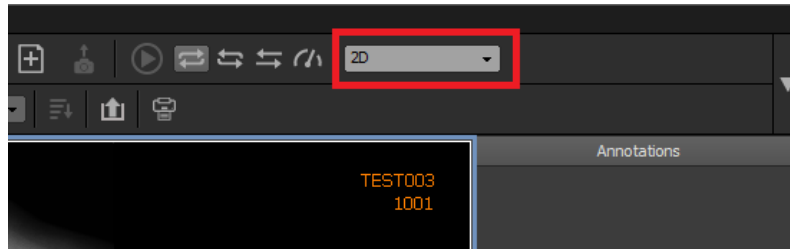
The 2D View type is the default view type. Views of this type display the images of one or more series of a study in a grid.



8.2.1 View type selection

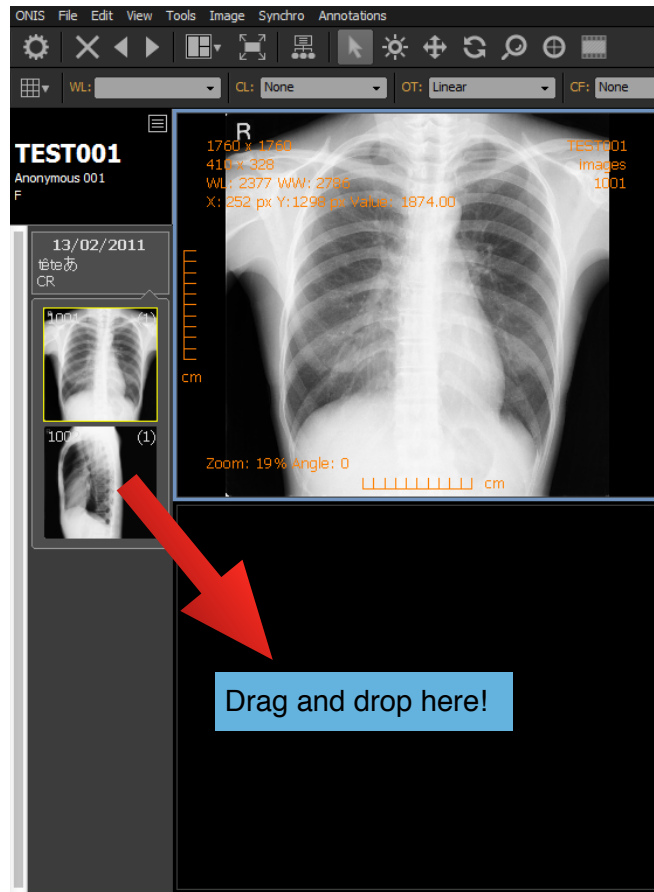
To assign the 2D type to a view:

1. Activate the view by clicking inside it. The active view is the one surrounded by a blue frame.
2. Select the '2D' view type using the appropriate drop down menu located in the toolbar.

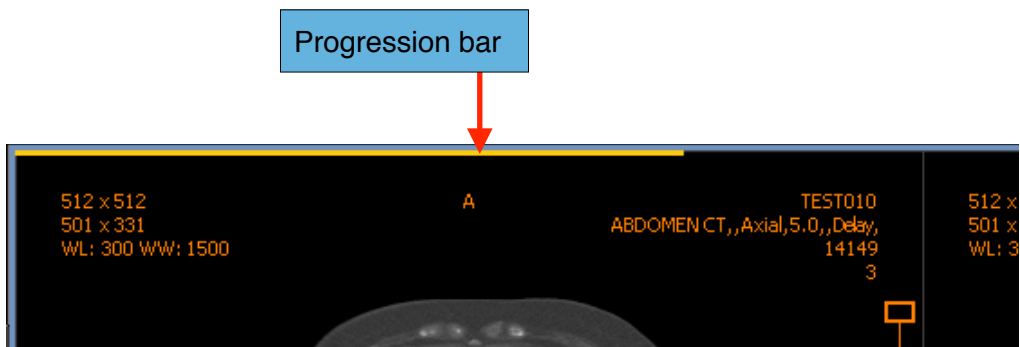


8.2.2 Assigning one or more series

You can assign one or multiple series to a 2D view automatically using hanging protocols. Refer to the 'Hanging Protocol' section to learn the procedure. However, you can also assign series to a 2D view manually using the history bar with a simple drag and drop: place your cursor over a study or series in the history bar; while holding down the left mouse button, drag your mouse above a view; drop your selection by releasing the left mouse button.



If you drop a series, the current content of the view will be replaced by the series. If you drop a study, the current content of the view will be replaced by all of the series in the study. If necessary, the images of the series will be downloaded from the source, in which case a yellow progression bar will appear at the top of the view letting you see the progress of the download. When the yellow bar reaches the right edge of the view, it will disappear indicating that the download has completed. The yellow progression bar may also appear if the images are being loaded into memory in order for the software to be more responsive.

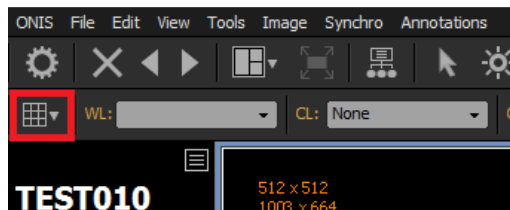


If you already have one or multiple series displayed in a view and would like to add one more, you can drag and drop the series you wish to add from the history bar while holding down the 'Shift' key. If you perform this drop process on a study, then all of its series will be dragged into the view.

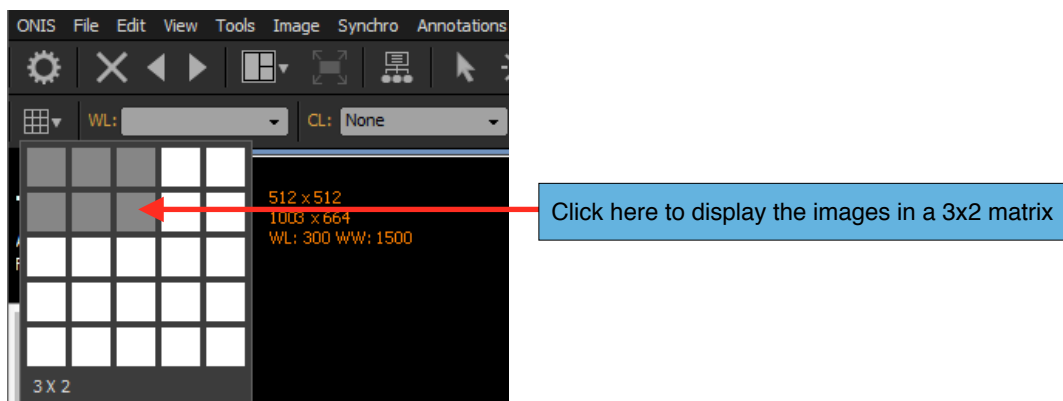
8.2.3 Image grid

In a 2D view, you can display up to 100 hundred images at a time. To modify the grid size, follow the instruction below:

1. Click on the grid button.

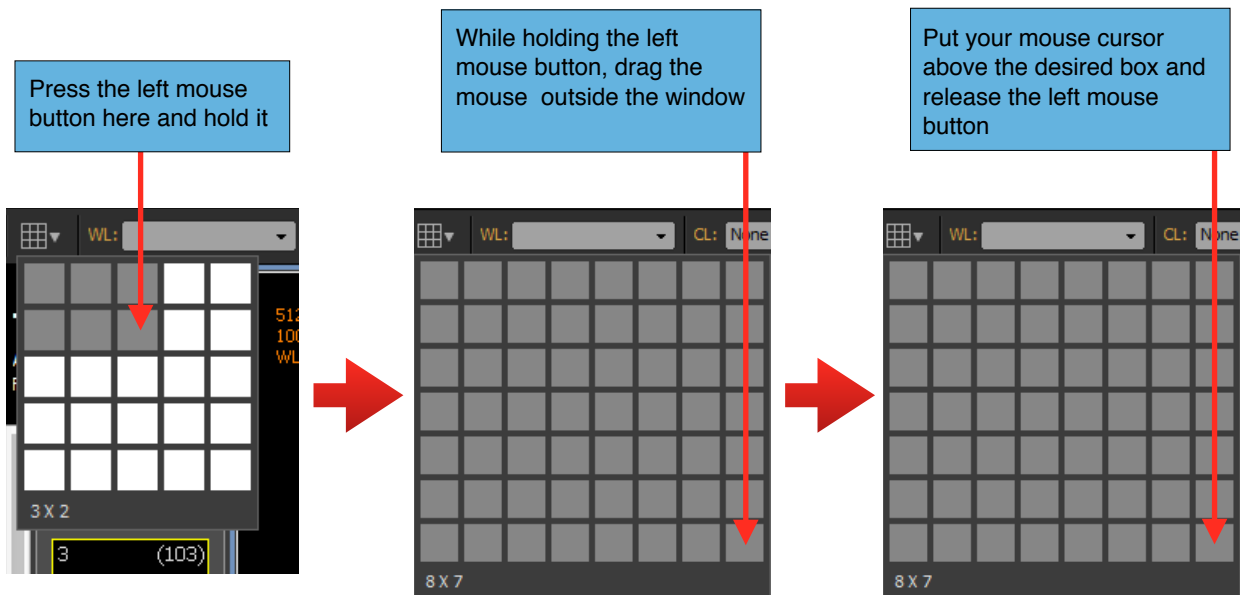


2. In the 5x5 default matrix, click on the box corresponding to the number of rows and columns you wish to display.

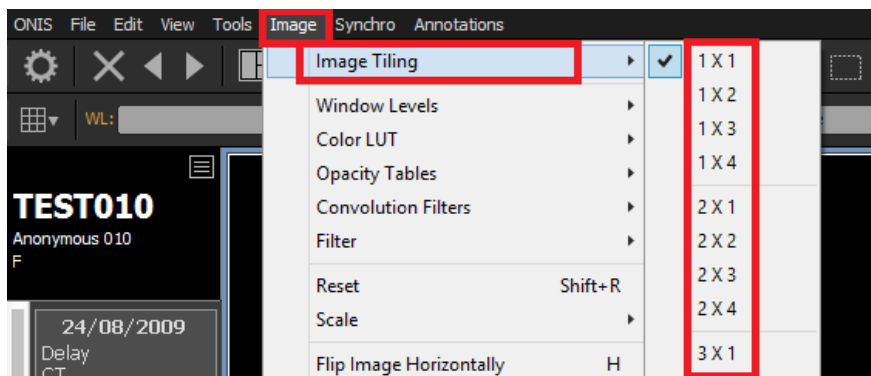


You also can set more than 5 columns or 5 rows by following the instructions below:

1. Click on the grid button
2. Keep your mouse cursor above one box in the matrix and press the left mouse button.
3. Hold down the left mouse button and drag your mouse outside the frame of the matrix window. Drag it to the right beyond the right edge of the window frame to increase the number of columns; drag it downwards beyond the bottom edge of the window frame to increase the number of rows. The size of the matrix window will automatically adjust itself to display the new matrix size. You can have up to 10 columns and 10 rows.
4. When you reach the desired number of rows and columns for your grid, release the left mouse button.



If the toolbar is hidden, you can still modify the grid size of the active 2D view using the 'Image Tiling' item of the 'Image' menu, but this is limited to a 4x4 matrix:



8.2.4 Paging

If the number of images exceeds the number of images in the grid, you change change the current visible page to browse all the images.

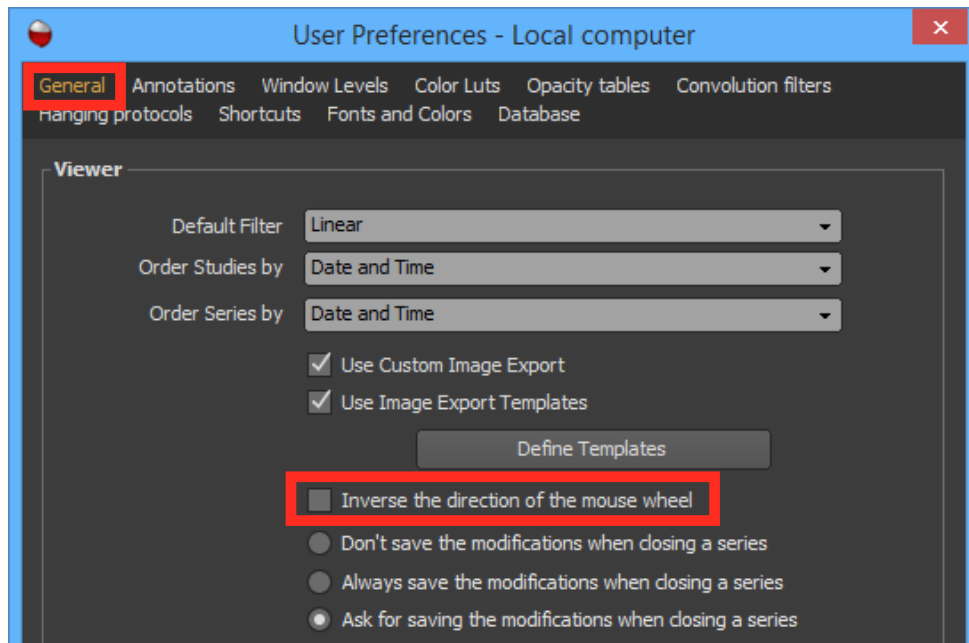
You have 3 different ways to modify the current displayed page:

- by using the mouse wheel
- by using the image slider
- by using the keyboard

8.2.4.1 Using the Mouse Wheel

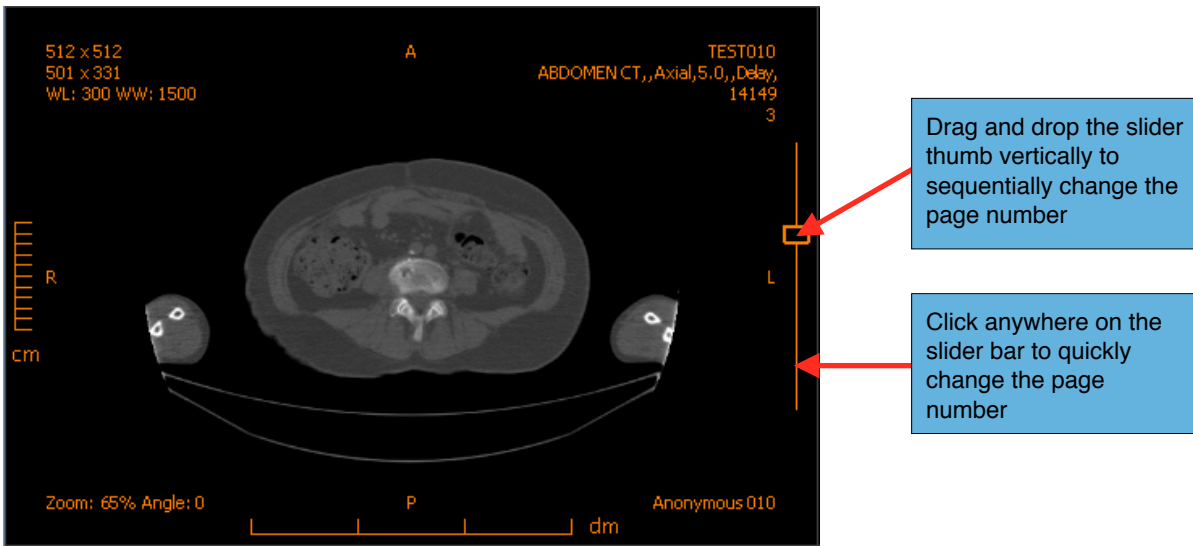
1. Keep your mouse above a view
2. Turn the mouse wheel upward (away from you) to decrease the page number or downward (toward you) to increase it.

You can invert the direction of the mouse wheel in the 'General' page of the User Preferences panel.



8.2.4.2 Using the Image Slider

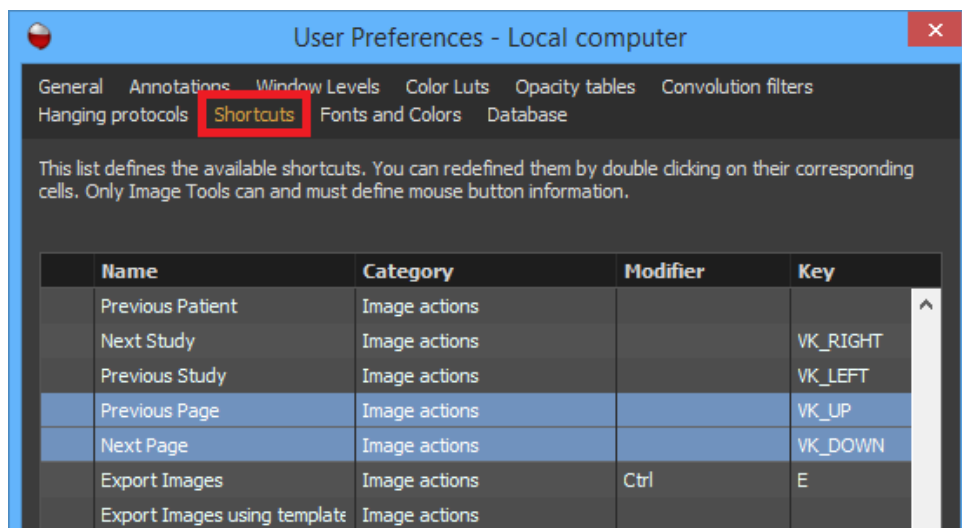
Each image in the grid have a slider that can be used to modify the current page.



8.2.4.3 Using the Keyboard

1. Click anywhere in the view to select it and give it the keyboard focus.
2. Use the 'up' key to scroll to the previous page and the 'down' key to scroll to the next.

These are the default keyboard shortcuts for changing the page number. You can modify the shortcuts in the 'Shortcuts' page of the User Preferences panel.

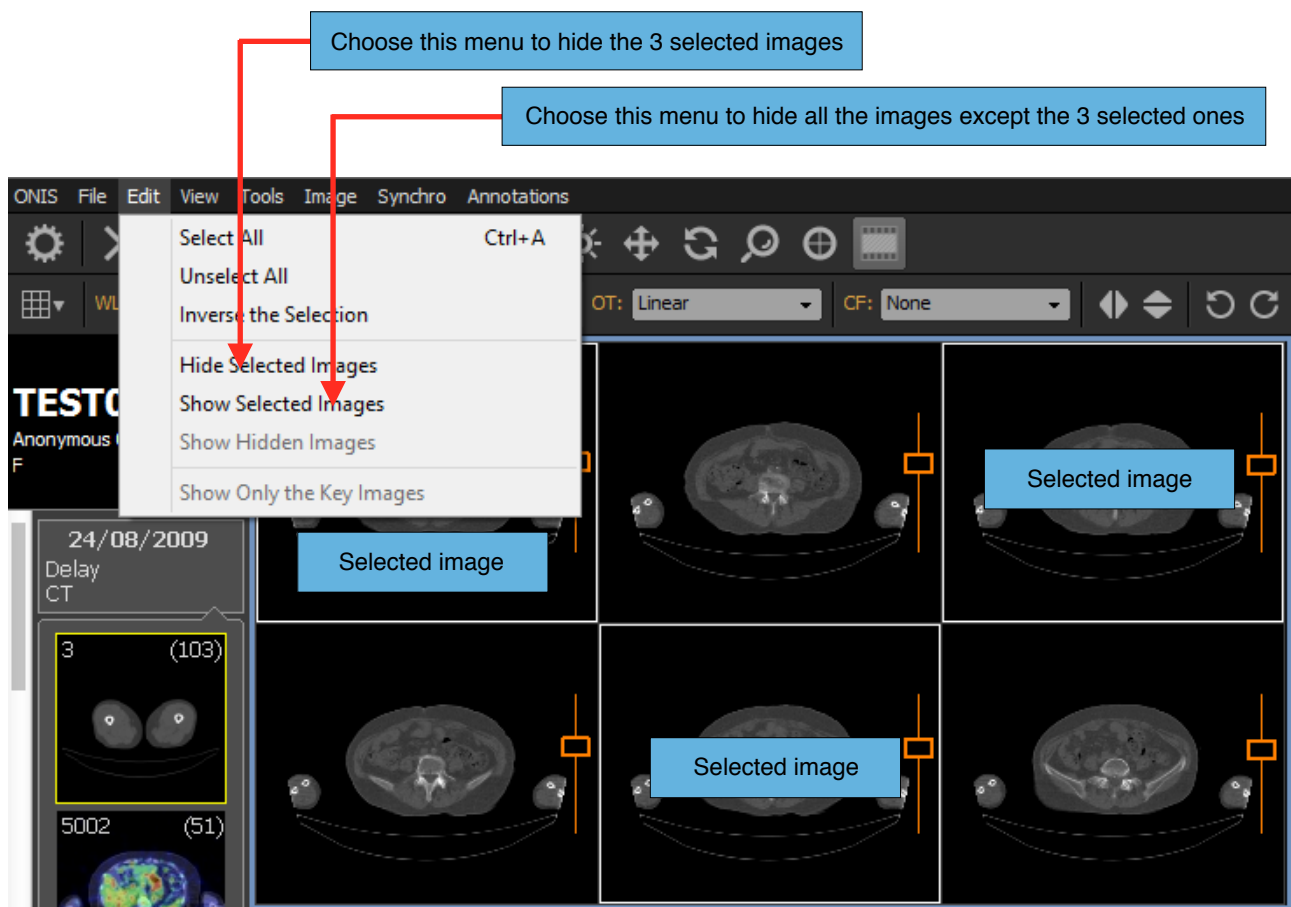


8.2.5 Hide/Show images

You can hide any image of a series in a 2D View.

8.2.5.1 Hiding images

1. Select the image you want to hide by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
2. In the 'Edit' menu of the viewer page, choose 'Hide Selected images' to hide the selected images. If you choose 'Show Selected Images', all of images will be hidden except for the selected ones.

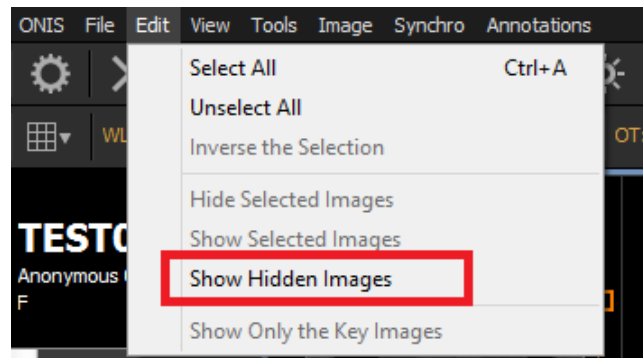


Note:

1. You can select all of the images by choosing 'Select All' under 'Edit' or using the default shortcut key 'Ctrl+A' (this shortcut can be modified in the 'Shortcuts' page of the User Preferences panel).
2. You can invert the selection by choosing 'Inverse the Selection' under 'Edit'.

8.2.5.2 Revealing Hidden Images

If you have some images hidden, you can make them visible again by choosing ‘Show Hidden Images’ under ‘Edit’. If this item appears disabled, that means there are no hidden images.

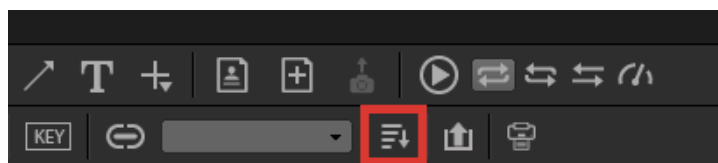


If you have defined one or more key images, you can also display them and hide all other images by choosing ‘Show Only the Key Images’ under ‘Edit’.

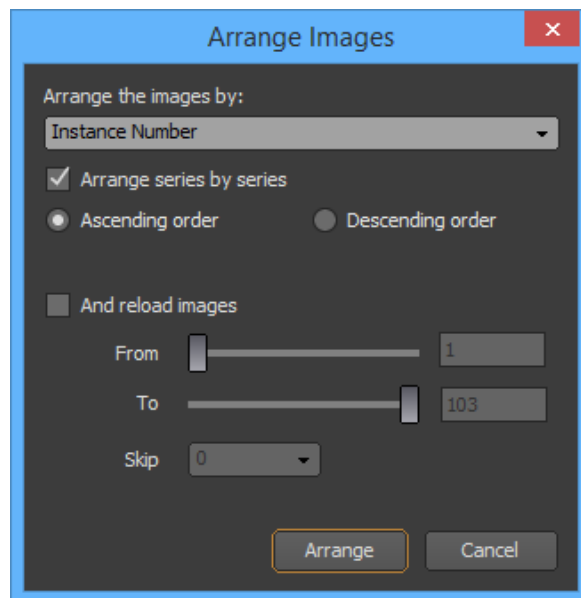
8.2.6 Sorting Images

Once all of the series are loaded in a view, you can sort them using one criteria. You can also reload your images and specify for only a portion of them to be visible.

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. Click on the Sorting button in the toolbar. If the button appears disabled, it means that some images have not fully loaded yet or that you have only one image displayed.



3. Select the sorting criteria in the drop down list (by either Instance Number; Content Date and Time; Acquisition Date and Time; or Slice Position). You can also choose to sort the images in ascending or descending order.



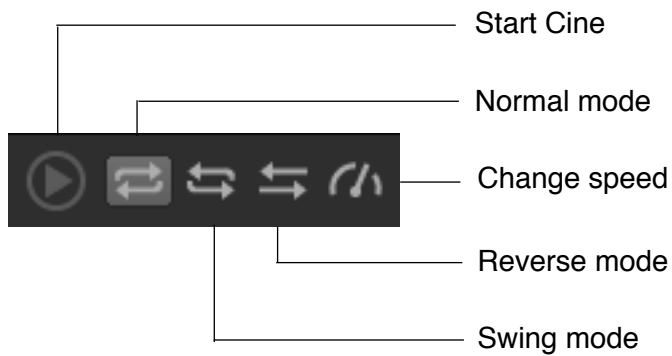
4. If you have multiple series in the view, you can specify whether you want sort within each series separately or sort all of the images collectively. In the latter case, all of the images will mix out of their respective series to rearrange according to the sorting criteria.
5. Check on the "And reload images" box if you would like the images to be reloaded. If the view contains hundreds of images, you may want to focus on a specific range of images. You can hide the first /n/ number of images and the last /m/ number of images:
 - A. Use the 'From' and 'To' sliders or edit boxes to set the range of images you want to display. For example, if a series contains 300 images and you want to see only 20 of its images starting at index 60, type '60' in the 'From' edit box and '79' in the 'To' edit box. Indexes are zero based, meaning that the first image index is zero.
 - B. In addition, you can skip some images out of the range you have selected. For example, say your range size is 20 beginning from image index 60, and you want to skip 1 image by 1 image in this range. Then only the following image indexes will be displayed: 60, 62, 64, 66, 68, 70, 72, 74, 76 and 78. Say you want to skip 2 images by 2 images, then only the following image indexes will be displayed: 60, 63, 66, 69, 72, 75 and 78.
6. Click the 'Arrange' button.

8.2.7 Cine-Mode

If you have more images than the grid definition, Cine-mode can scroll through the images automatically at a defined speed:

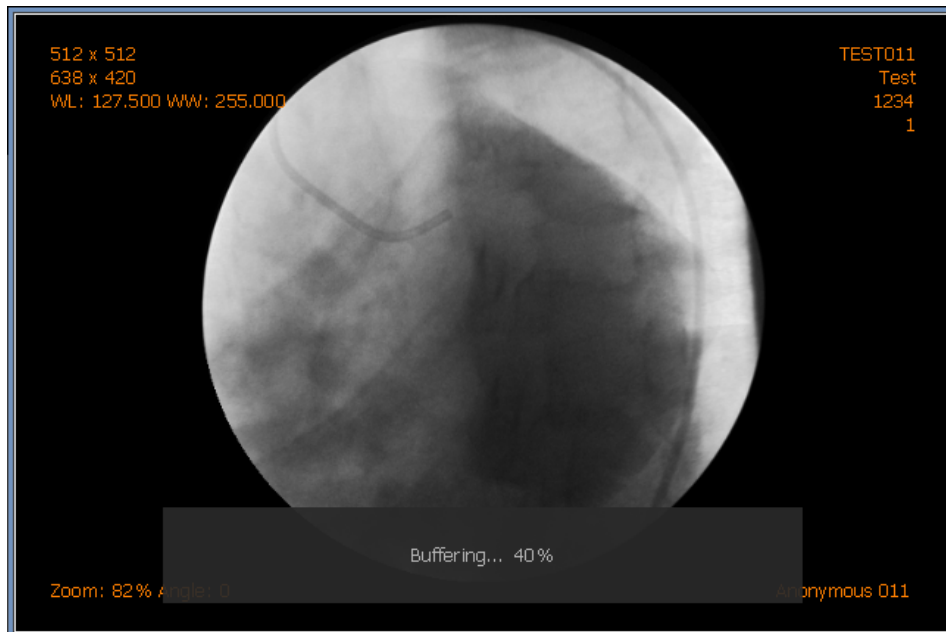
1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. Click on the 'Play' button of the toolbar to start Cine-mode. Click again to pause it.
3. Click the 'Speed' button of the toolbar to set the scrolling speed.

4. Choose the play mode by clicking on one of the three buttons 'Normal', 'Reverse' or 'Swing'.



8.2.7 Multi-Frame Images

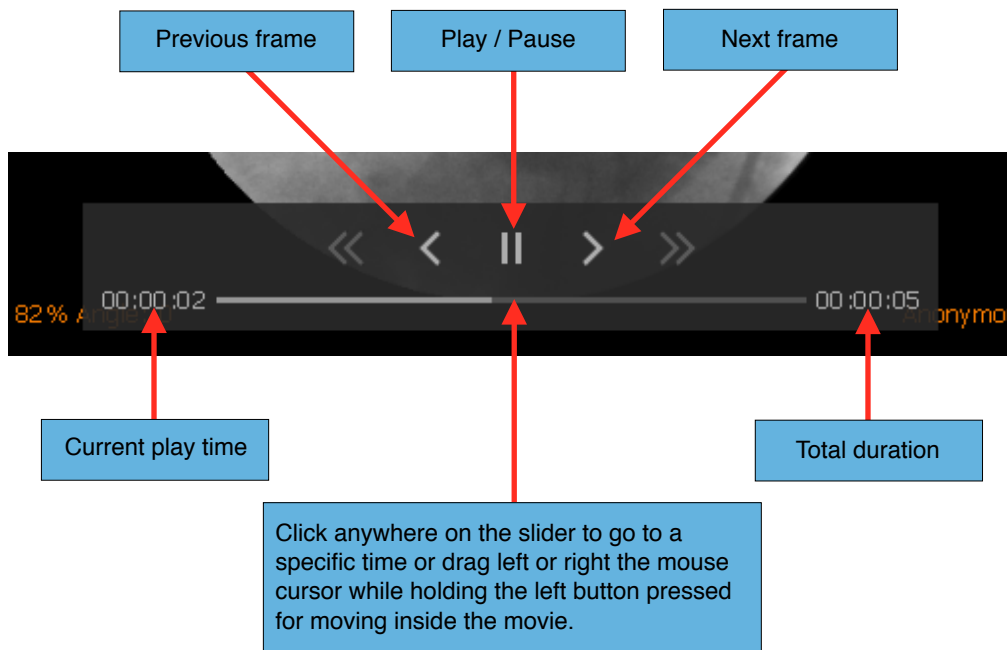
If you load a multi-frame DICOM image in the view, it will automatically start to read as soon as the image is visible. Before playing, all of the frames will be loaded into the memory and a toolbar will show this progression:



When all of the frames have been loaded, a navigation bar will appear on the image allowing you to:

- Stop/Pause playing
- Go to previous or next frame (only when paused)

- Skip over to a specific frame using the slider
- See the current time and total duration of the movie



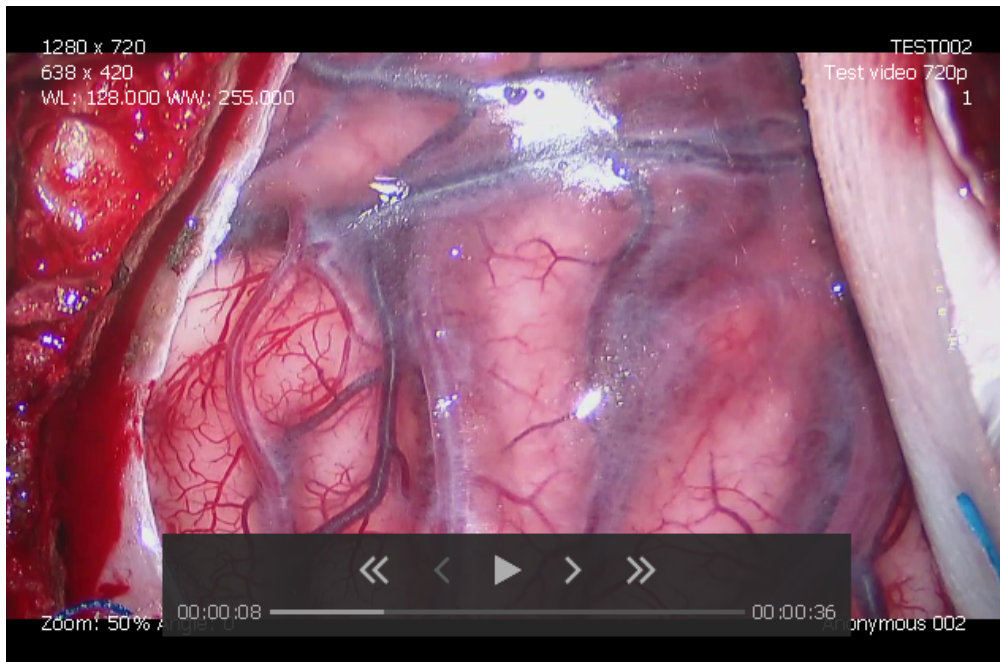
If the navigation bar is not visible, bring your cursor over the image and it will appear. If you leave the cursor over the navigation bar, it will remain visible. If you bring the mouse cursor outside the navigation bar but still over the image, the toolbar will disappear if you stop moving your mouse cursor for a second. If you bring your mouse cursor outside the image, the navigation bar will disappear after a second, even if you are still moving the mouse cursor.

Notes:

1. *The play speed is automatically calculated from the information contained in the DICOM tags of the image.*
2. *The movie will automatically replay from the beginning when it reaches the end.*
3. *You can also control the movie using the functions under 'Image' on the viewer page (Play, Pause, Previous Frame, Next Frame). You can also create shortcut keys in the User Preferences panel.*

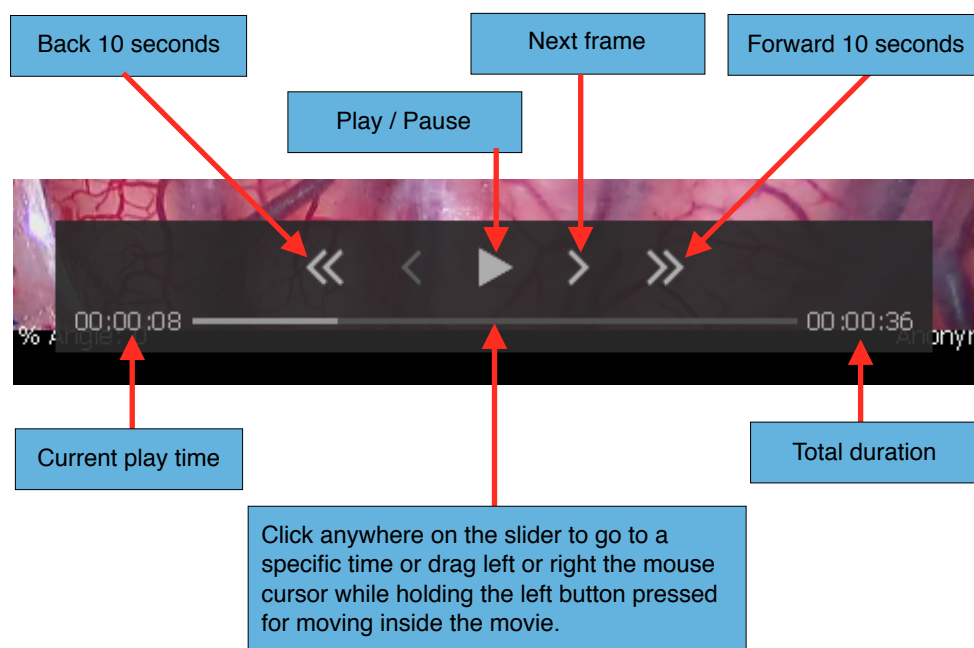
8.2.7 MPEG Movies

MPEG DICOM files are also supported and can be read like a multi-frame DICOM image. It will automatically start to play as soon as the image is visible. Before playing, a portion of the movie buffer onto the main memory.



When enough data has buffered, a navigation will appear, allowing you to:

- Stop/Pause playing
- Go to next frame (only when the movie is paused)
- Skip back or forward 10 seconds
- Skip forward or backward in time using the slider
- See the current time and total duration of the movie



If the navigation bar is not visible, bring your cursor over the image and it will appear. If you leave the cursor over the navigation bar, it will remain visible. If you bring the mouse cursor outside the navigation bar but still over the image, the toolbar will disappear if you stop moving your mouse cursor for a second. If you bring your mouse cursor outside the image, the navigation bar will disappear after a second, even if you are still moving the mouse cursor.

Notes:

1. *The movie will automatically replay from the beginning when it reaches the end.*
2. *You can also control the movie using the functions under 'Image' on the viewer page (Play, Pause, Previous Frame, Next Frame). You can also create shortcut keys in the User Preferences panel.*

8.2.8 Image Manipulation

8.2.8.1 Pan

You can pan the image using the mouse with the Pan tool. Refer to the 'Image Tools' section to understand how to operate this.

8.2.8.2 Zoom

You can zoom into the image using the mouse with the Zoom tool. Refer to the 'Image Tools' section to understand how to operate this.

8.2.8.3 Rotate

You can rotate the image using the mouse with the Rotation tool. Refer to the 'Image Tools' section to understand how to operate this.

8.2.8.4 Scope

You can zoom a small part around your mouse with the Scope tool. Refer to the 'Image Tools' section to understand how to operate this.

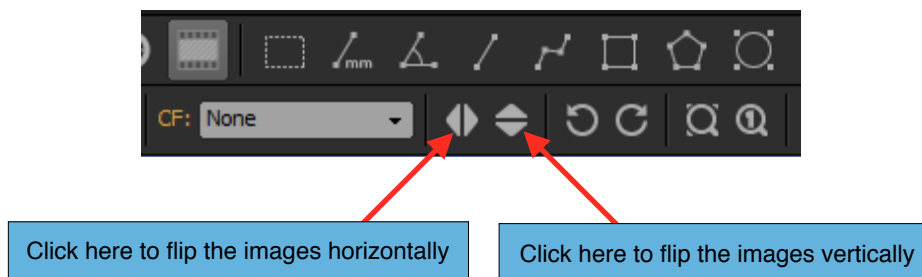
8.2.8.5 Flip

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. If the Propagation mode for the 'Flip' property is off, select the image you want to flip by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is

surrounded by a white frame.

If the Propagation mode for the 'Flip' property is active, you don't need to select any images because the flip operation will be applied to all of the images inside the view.

3. Click the Horizontal Flip and Vertical Flip buttons on the toolbar (as shown below). You also can use the 'Flip Image Horizontally' or 'Flip Image Vertically' under 'Image' in the viewer page. Shortcut keys can also be assigned in the User Preference panel.

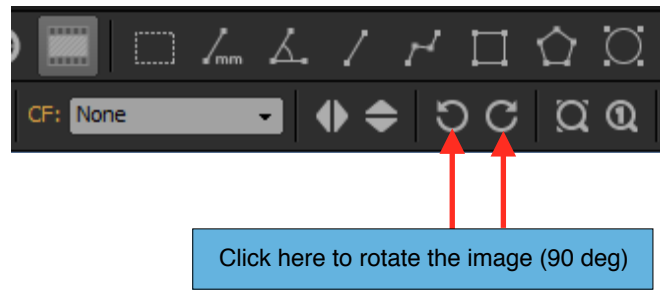


Notes:

1. Refer to the 'Propagation' section to understand the concept of property propagation and how other images may be affected.

8.2.8.6 Quick rotation

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. If the Propagation mode for the 'Rotation' property is off, select the image you want to rotate by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
If the Propagation mode for the 'Rotation' property is active, you don't need to select any images because the rotation operation will be applied to all of the images inside the view.
3. Click the Rotate Clockwise and Rotate Counter-Clockwise buttons on the toolbar (as shown below). You also can use the 'Rotate Image (-90 deg)' or 'Rotate Image (+90 deg)' under 'Image' in the viewer page. Shortcut keys can also be assigned in the User Preferences panel.



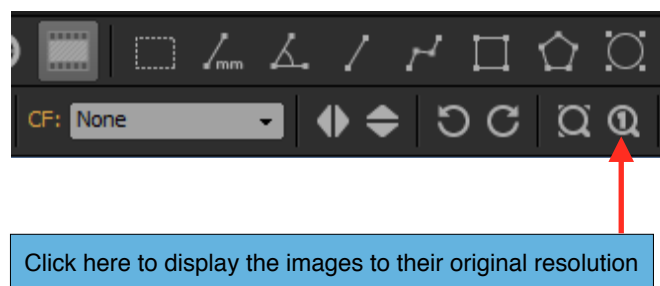
Notes:

1. Refer to the 'Propagation' section to understand the concept of property propagation and how other images may be affected.

8.2.8.7 Original Resolution

You can display images in their original sizes, meaning that 1 pixel of the image will match the size of 1 pixel on the screen. Setting images to their original resolutions will center them inside of the image box but it will not affect their rotations.

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. If the Propagation mode for the 'Zoom' property is off, select the image you want to display at its original resolution by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
If the Propagation mode for the 'Zoom' property is active, you don't need to select any images, the operation will be applied to all of the images inside the view.
3. Click the 'Original Resolution' button on the toolbar. You also can use the 'Scale to Original' in the 'Scale' submenu under 'Image' in the viewer page. Shortcut keys can also be assigned in the User Preferences panel.



Notes:

1. Refer to the 'Propagation' section to understand the concept of property propagation and how other images may be affected.
2. If the 'Zoom' property of the propagation mode is active, some images may not be displayed in their original resolutions. Deactivate the 'Zoom' property of the propagation mode, select all of the images and click on the 'Original Resolution' button to make sure that all the images will be displayed in their original resolutions.

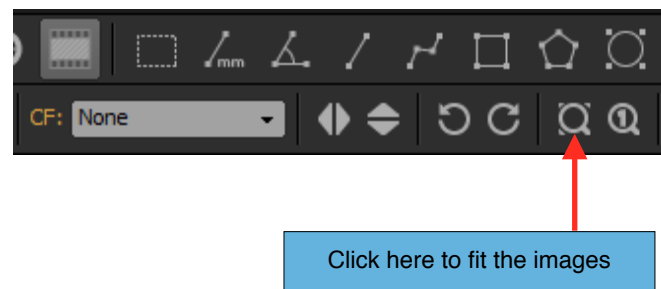
8.2.8.8 Fit mode

You can display the images to fit the image box. The image will be centered inside of the image box but its rotation will not be affected.

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. If the Propagation mode for the 'Zoom' property is off, select the image you want to fit by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.

If the Propagation mode for the 'Zoom' property is active, you don't need to select any images, the operation will be applied to all of the images inside the view.

3. Click the 'Fit' button on the toolbar. You also can use the 'Scale to Fit' in the 'Scale' submenu under 'Image' in the viewer page. Shortcut keys can also be assigned in the User Preference panel.



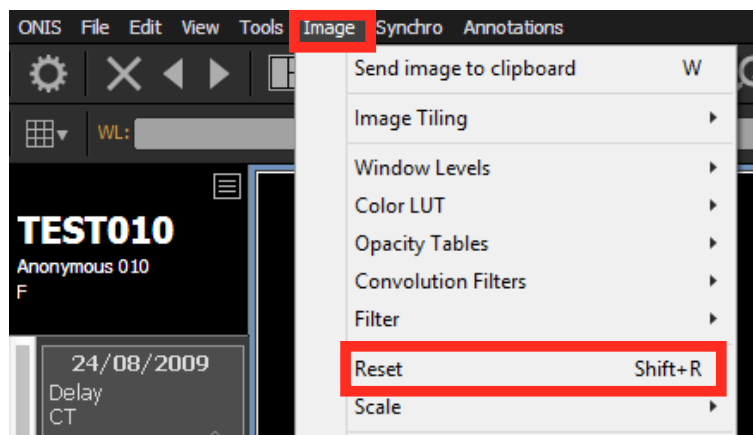
Notes:

1. Refer to the 'Propagation' section to understand the concept of property propagation and how other images may be affected.
2. If the 'Zoom' property of the propagation mode is active, some images may not fit the image box. Deactivate the 'Zoom' property of the propagation mode, select all the images and click on the 'Fit' button to make sure that all the images will fit in the view.

8.2.8.9 Reset

If you reset an image, it will fit inside of the image box and be centered without any rotation. The window level will revert to its original state; the Color LUT, Opacity Filter and the Convolution Filter will be reset as well.

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. If the Propagation mode for the 'Zoom' or 'Position and Rotation' properties are off, select the image you want to reset by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
If the Propagation mode for the 'Zoom' and 'Position and Rotation' properties are active, you don't need to select any images, the operation will be applied to all of the images inside the view.
3. Choose 'Reset' under 'Image' on the viewer page. A shortcut key can also be assigned in the User Preference panel.



Notes:

1. Refer to the 'Propagation' section to understand the concept of property propagation and how other images may be affected.
2. If the 'Zoom' or 'Position and Rotation' properties of the propagation mode is active, some images may not be completely reset. Deactivate the 'Zoom' and/or 'Position and Rotation' properties of the propagation mode, select all of the images and choose 'Reset' under 'Image' menu to make sure that all of the images will be reset.

8.2.9 Image Rendering

Image rendering will be affected by the following:

- Window level
- Opacity table
- Color LUT
- Convolution filter

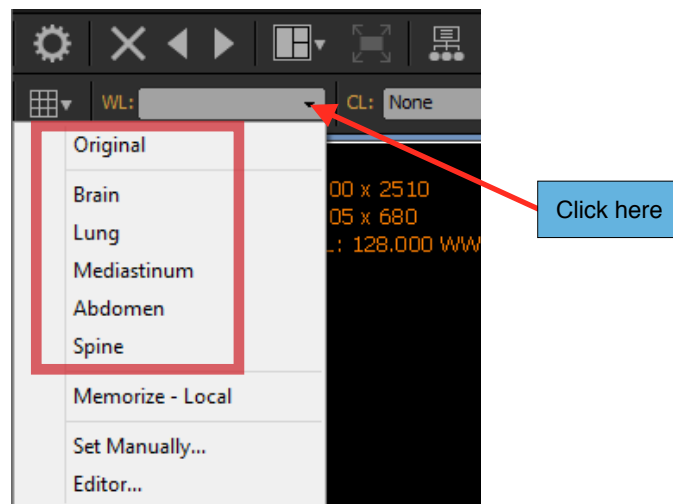
- Rendering filter

8.2.9.1 Window Level

You can modify the window level using the mouse with the 'Window Level' tool. Please refer to the 'Image Tools' section to understand how to operate this.

You can also assign a preset if you have some presets already defined:

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. If the propagation mode for the 'Window Level' property is off, select the image you want to assign the preset by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
If the propagation mode for the 'Window Level' property is active, you don't need to select any images because the preset will be applied to all images inside of the view.
3. Open the Window Level drop down list and select which preset you want to assign to the images. You also can use the 'Window Levels' submenu under 'Image' on the viewer page, or press the keyboard shortcut if one was defined for your target preset. Choose 'Editor...' to create, modify or delete a preset.

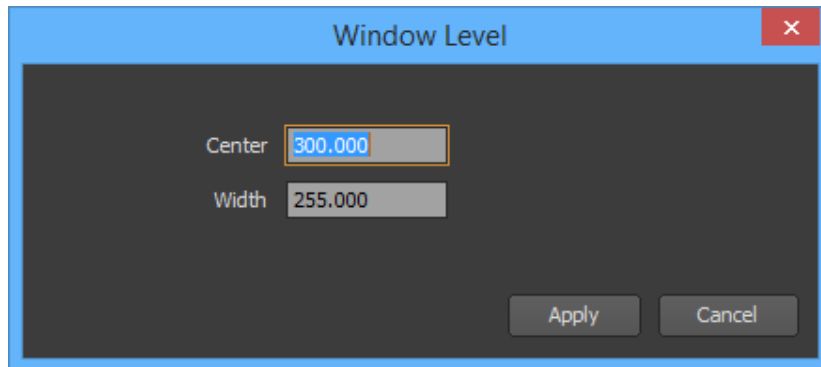


Notes:

1. Refer to the 'Propagation' section to understand the concept of property propagation and how other images may be affected.

You can also set the window level manually. For this, repeat the previous steps 1 and 2. For step 3, instead of choosing one preset, select 'Set Manually...'. You can also find this option in the

'Window Level' submenu under 'Image'. A window will pop up letting you assign a value for the center and the width of the window level. Click on the 'Apply' button to assign the window level.



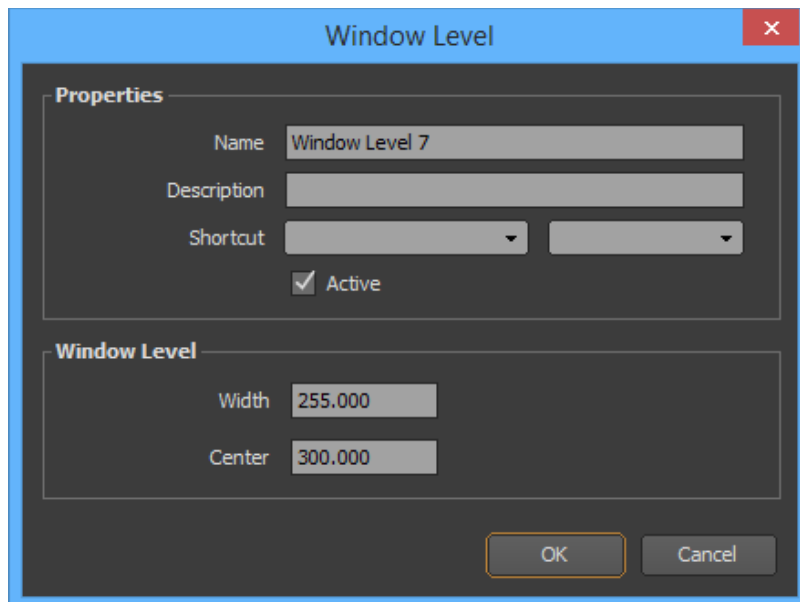
You can also use the "Memorize" function to retain the information of a current window level of an image. This will become a window level preset that you can reuse later:

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. Select the image that has the current window level that you want to have memorized. The selected image will be surrounded by a white frame.
3. Open the Window Level drop down list and select 'Memorize'. You also can use the 'Window Level' submenu under 'Image' on the viewer page. Depending on the user preference set you are currently using, you can make this into a personal preset (used only by you) or a group preset (can be used by other users).

A window will appear allowing you to define:

- A name for your preset
- A small description (optional)
- A keyboard shortcut (optional)
- If the preset can be used or not
- The center and width values

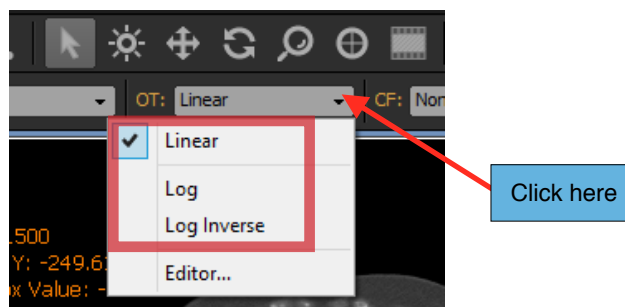
4. Click on the 'OK' button.



8.2.9.2 Opacity Table

You can apply one preset if you have some presets already defined:

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. If the propagation mode for the 'Opacity Table' property is off, select the image you want to assign the preset by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
If the propagation mode for the 'Opacity Table' property is active, you don't need to select any images because the preset will be applied to all images inside of the view.
3. Open the Opacity Table drop down list and select which preset you want to assign to the images. You also can use the 'Opacity Tables' submenu under 'Image' on the viewer page, or press the keyboard shortcut if one was defined for your target preset. Choose 'Editor...' to create, modify or delete a preset.



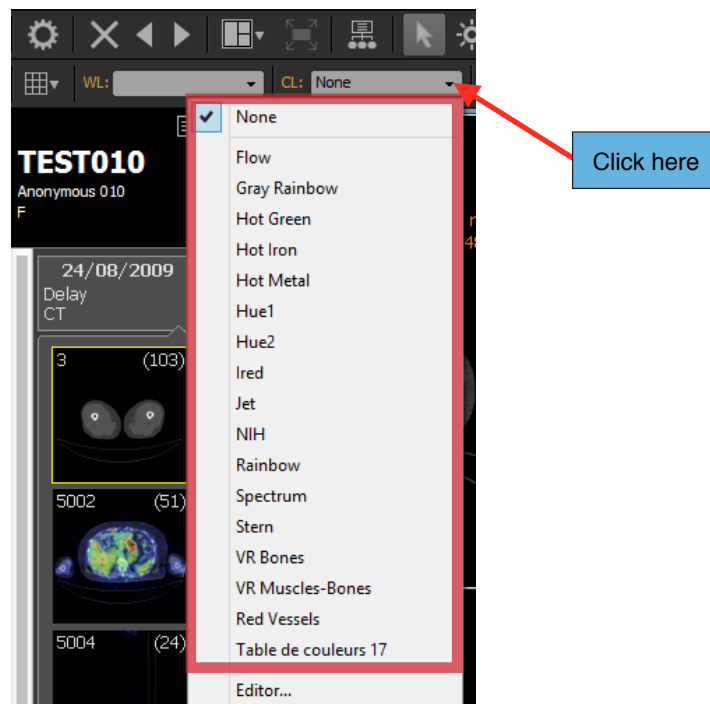
Notes:

1. Refer to the 'Propagation' section to understand the concept of property propagation and how other images may be affected.
2. The default opacity table is 'Linear'

8.2.9.3 Color Lut

You can apply one preset if you have some presets already defined:

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. If the propagation mode for the 'Color Lut' property is off, select the image you want to assign the preset by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
If the propagation mode for the 'Color Lut' property is active, you don't need to select any images because the preset will be applied to all images inside of the view.
3. Open the Color Lut drop down list and select which preset you want to assign to the images. You also can use the 'Color Lut' submenu under 'Image' on the viewer page, or press the keyboard shortcut if one was defined for your target preset. Choose 'Editor...' to create, modify or delete a preset.



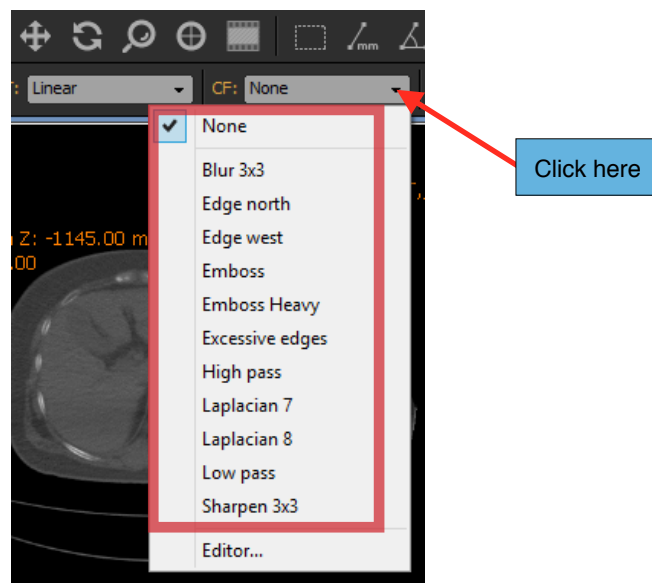
Notes:

1. Refer to the 'Propagation' section to understand the concept of property propagation and how other images may be affected.

8.2.9.4 Convolution Filter

You can apply one preset if you have some presets already defined:

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. If the propagation mode for the 'Convolution Filter' property is off, select the image you want to assign the preset by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
If the propagation mode for the 'Convolution Filter' property is active, you don't need to select any images because the preset will be applied to all images inside of the view.
3. Open the Convolution Filter drop down list and select which preset you want to assign to the images. You also can use the 'Convolution Filters' submenu under 'Image' on the viewer page, or press the keyboard shortcut if one was defined for your target preset. Choose 'Editor...' to create, modify or delete a preset..



Notes:

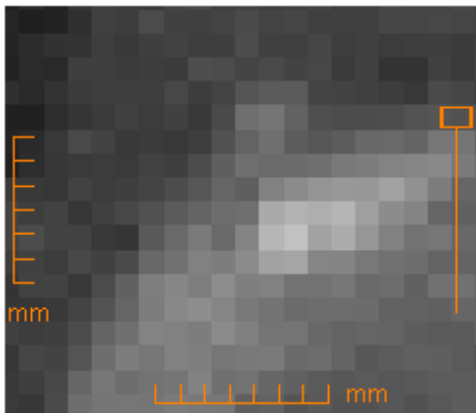
1. Refer to the 'Propagation' section to understand the concept of property propagation and how other images may be affected.

8.2.9.5 Rendering filter

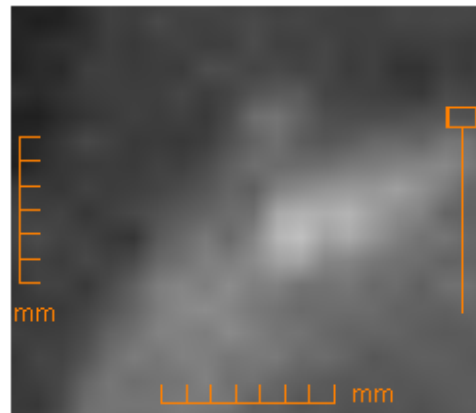
When an image is rendered on the screen, you can choose to use one of the following filters:

- Nearest: Each screen pixel is assigned the value of the nearest image pixel.

- Linear: Each screen pixel is assigned the value of the linear interpolation of the neighboring four image pixels. Each pixel will be smoothed out and the resulting image will look much smoother.



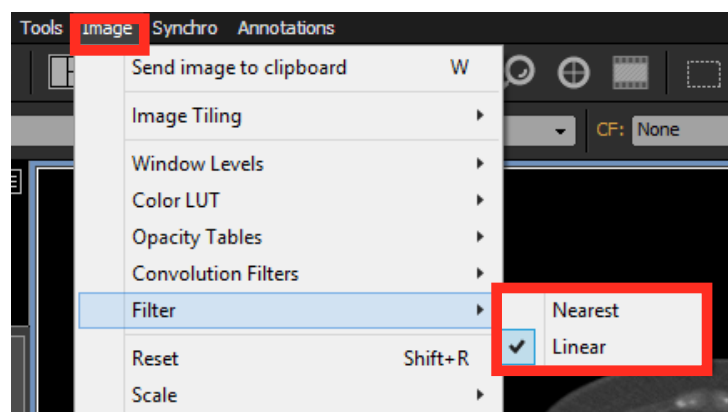
Nearest filter



Linear filter

To choose the filter you would like to use:

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. Under 'Image' on the viewer page, choose the 'Filter' submenu and select either 'Nearest' or 'Linear'.



Notes:

1. The default filter is 'Linear', which can be changed in the User Preference panel.

8.2.10 Overlays

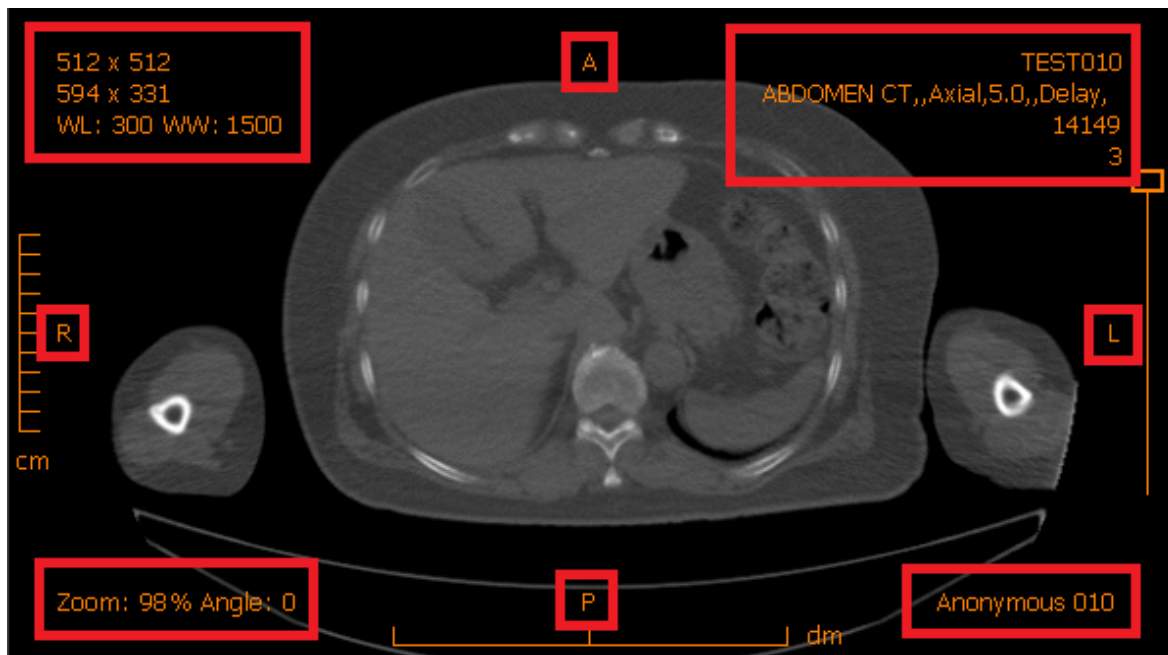
The 2D view supports the following three types of overlays:

- DICOM Annotations

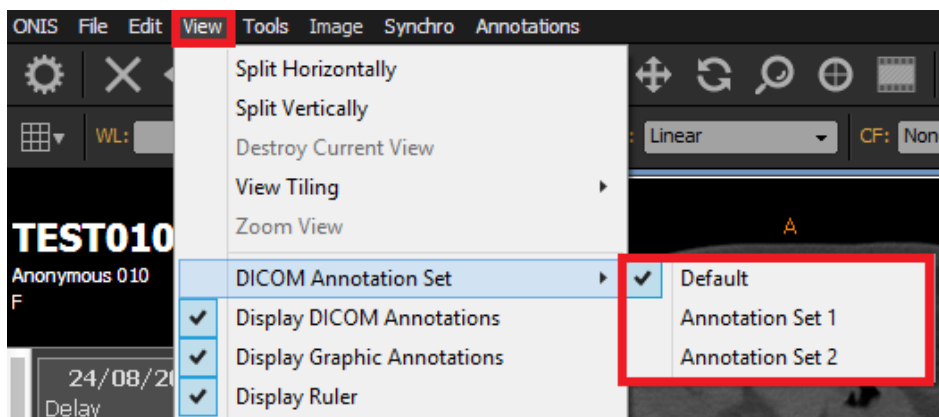
- Rulers
- Graphic Annotations

8.2.10.1 DICOM Annotations

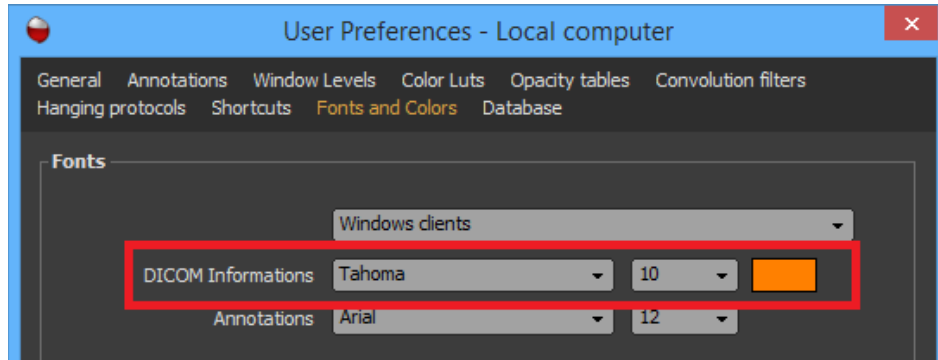
When an image is rendered, there will usually be some text visible on the corners and sides (see image example below). These texts come from a set of annotations and are defined in the User Preference panel. A set defines what annotations should be drawn depending on the modality.



Generally, hanging protocols decide which set will be used for the annotations. However, if you would like to change the current annotation set, choose a new set from the 'DICOM Annotation Set' submenu under 'View'.

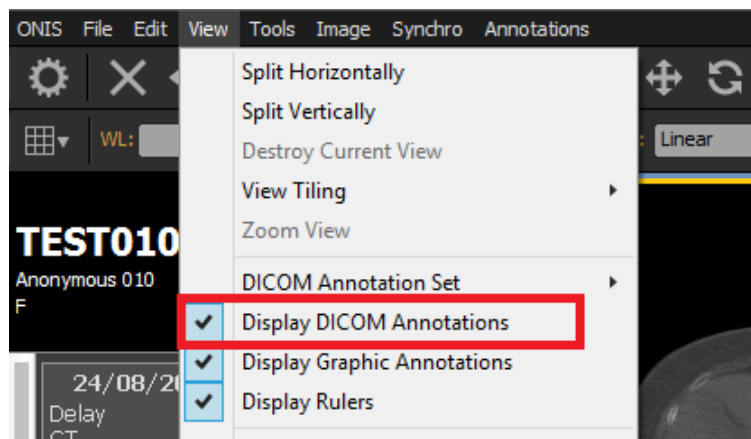


The font used to write the annotations can be selected in the 'Fonts and Colors' page of the User Preference panel. The font size and color can be modified as well.



You can also change the font size under 'View'. Choose 'Bigger DICOM Font' for increasing the font size and 'Smaller DICOM Font' to decrease it. You can assign shortcut keys for both of these operations.

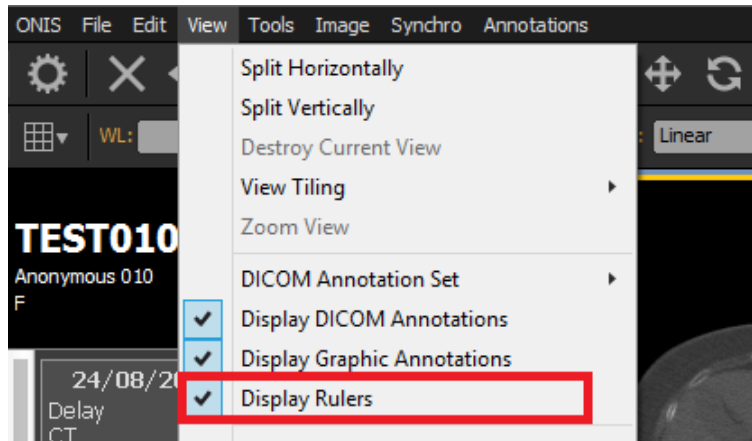
To show or hide the DICOM annotations, choose 'Display DICOM Annotations' under 'View'. However, you might have chosen to automatically hide the annotations and rulers if the rendering size is less than a specific value (in the 'General' page of the User Preference panel). If this is the case, the DICOM annotations may remain hidden even if you choose to display them.



8.2.10.2 Rulers

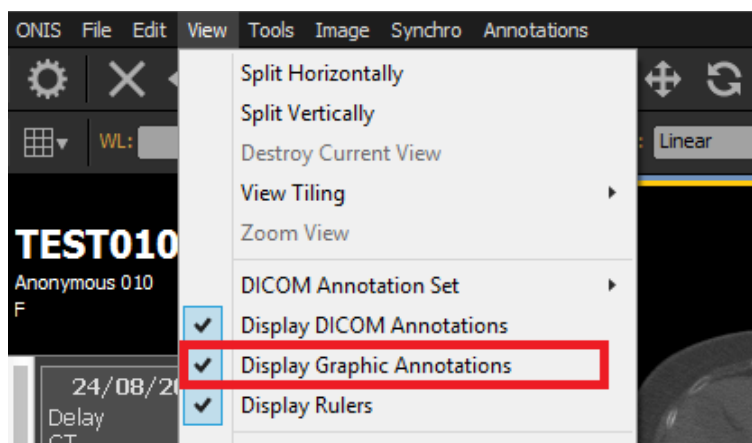
If the DICOM image is calibrated, a vertical ruler will appear on the lefthand side of the image box and a horizontal one will appear underneath the image box. The rulers will have graduations with the units labeled next to them (in either millimeters, centimeters or decimeters).

To show or hide the rulers, choose 'Display Rulers' under 'View' on the viewer page. However, you might have chosen to automatically hide the annotations and rulers if the rendering size is less than a value (in the 'General' page of the User Preferences panel). If this is the case, the rulers may remain hidden even if you choose to display them.



8.2.10.3 Graphic Annotations

If you have created graphic annotations on the images (i.e. lines, polygons, arrows, measurements), you can show or hide them using the 'Display Graphic Annotations' under 'View' on the viewer page.

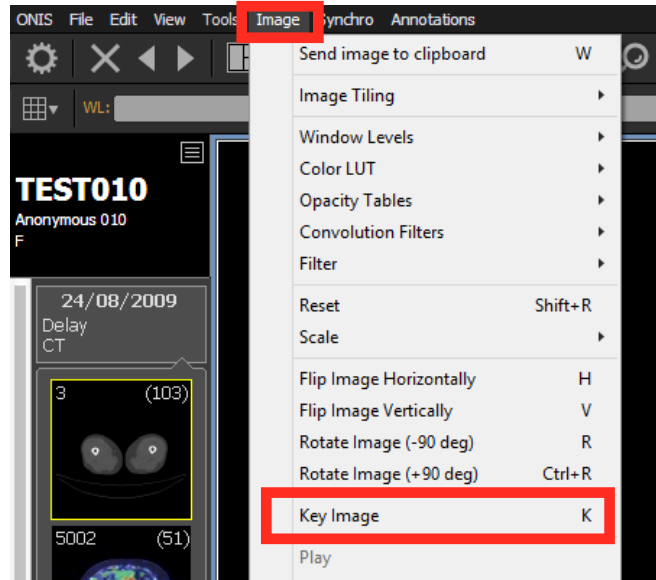


8.2.11 Key Images

You can define one or multiple key images in a series.

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).

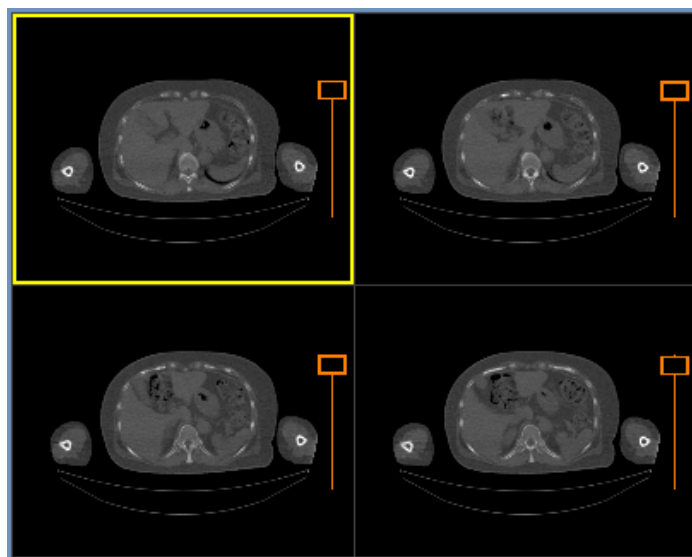
- Select the image you want to set as a key by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. The selected image will be surrounded by a white frame.
- Choose 'Key Image' under 'Image', or press the 'K' key on your keyboard to toggle the key state of the selected images.



Notes:

- The default shortcut key 'K' can be modified in the 'Shortcuts' page of the User Preference panel.

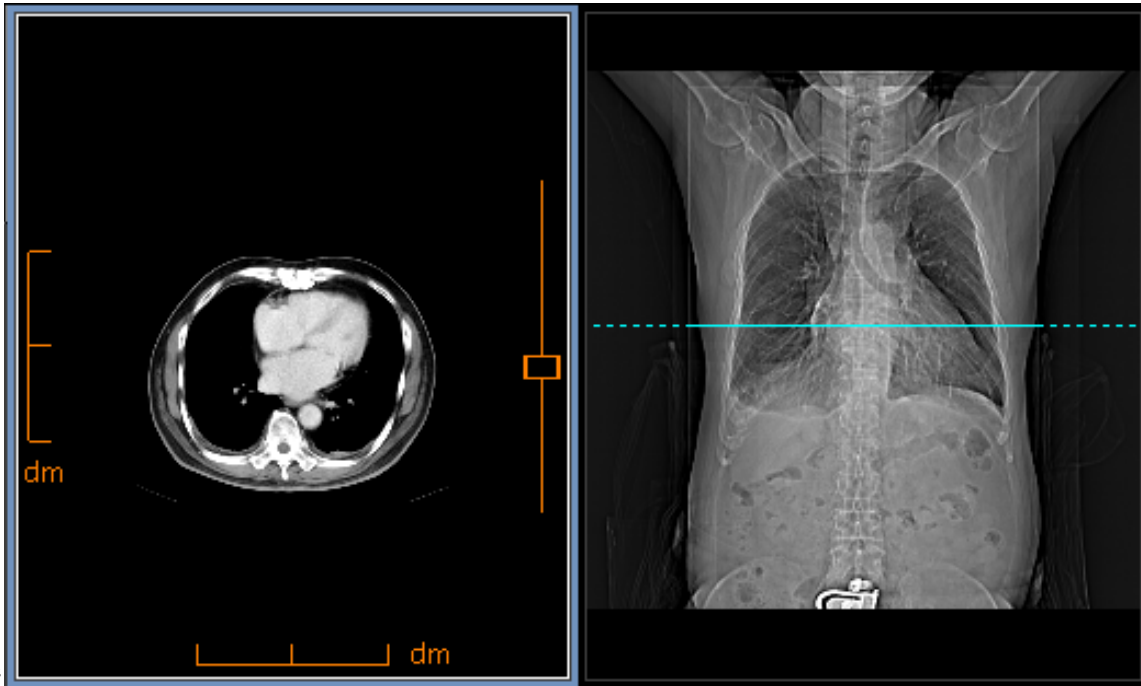
The key images are surrounded by a thick yellow border:



8.2.12 Scout Lines

Reference lines, or scout lines, are applied by default to help you visualize the intersection of images in different planes. To turn on or off the reference lines, choose 'Show Scout Lines' under 'Image' on the viewer page. A check indicates that the scout reference lines will be visible.

The reference image for the scout lines is the last selected image in the active 2D view. It will look at all other existing 2D views to verify if a reference line can be drawn for the reference image.



The filled segment of the reference line represents the exact location of the reference image.

Notes:

1. *Valid calibration is necessary for the reference line to work.*

8.2.13 Calibration

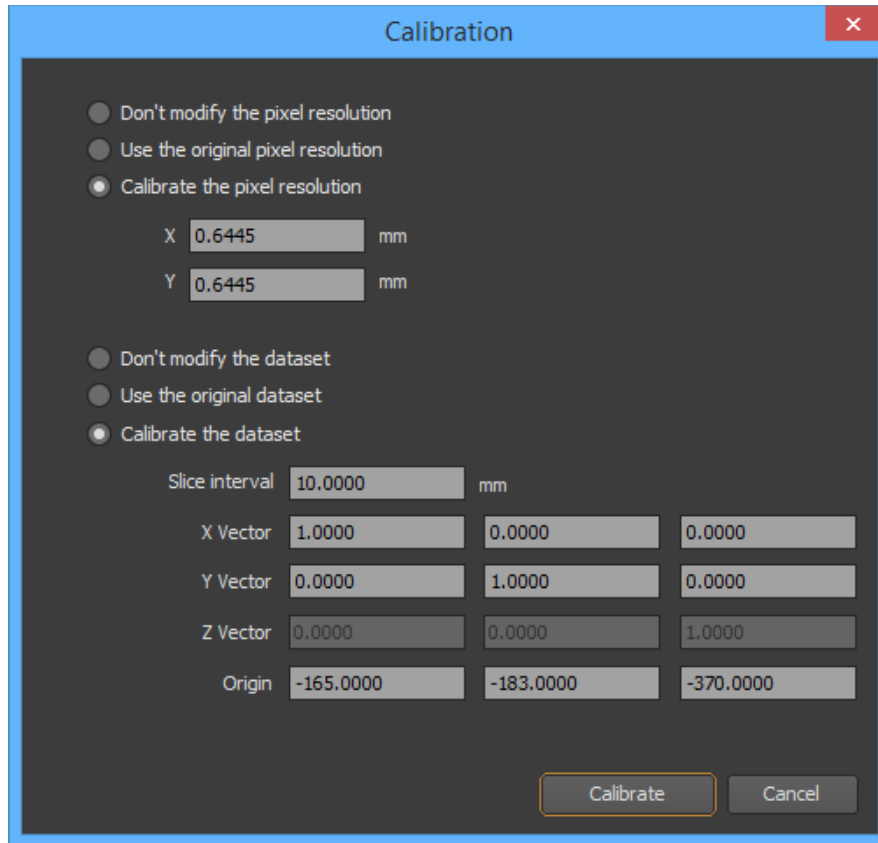
Most DICOM images are already calibrated. However, some are not (most commonly ultrasound). When an image is not calibrated, ONIS measures in pixels instead of millimeters. You can also recalibrate images that are already calibrated, but do it only if you know what you are doing.

With the calibration feature, not only can you calibrate the pixel resolution, but you can calibrate the direction and position of the images within the series as well. You can always revert back to the original calibration.

To calibrate a series of images:

1. Click anywhere in the view displaying the series you want to calibrate (it will be surrounded by a blue frame).

2. Select 'Calibrate...' under 'Image' on the viewer page. The calibration window will open.



3. Choose one of the following three pixel calibration options:

- **Don't modify the pixel resolution:** This will keep the last pixel resolution you had calibrated before. If you didn't calibrate the pixel resolution yet, it will keep the original pixel resolution (no pixel resolution if the DICOM files does not specify any).
- **Use the original pixel resolution:** This will cancel any earlier pixel resolution calibrations and use the original resolution (no pixel resolution if the DICOM files does not specify any).
- **Calibrate the pixel resolution:** This will allow you to manually specify the horizontal (X) and vertical (Y) size of 1 pixel (in millimeters).

4. Choose one of the following three dataset calibration options:

- **Don't modify the dataset:** This will keep the last dataset calibration you had calibrated before. If you didn't calibrate the dataset yet, it will keep the original dataset information (none if the DICOM files does not specify any).
- **Use the original dataset:** This will cancel any earlier dataset calibration and use the original one (none if the DICOM files does not specify any).
- **Calibrate the dataset:** This will allow you to manually specify the slice interval, the X and Y direction vector (normalized) and the origin of the first image (in millimeters). Choose also the new slice interval.

5. Click on the 'Calibrate' button.

Notes:

1. *If the view contains more than one series, the calibration of the dataset will not be possible.*
2. *If an image contains multiple regions, the calibration might not be possible if it detects the risk of conflict.*

8.2.14 Synchronized Stacking

You can synchronize the viewing of different stacks of images. Synchronization can be done by Slice ID or Slice Position, with or without an offset. The synchronization of 2D views brings the concept of primary and secondary views. The secondary views always try to synchronize with the primary view.

When you synchronize multiple views, ONIS divides them into groups, depending on the options you chose. View synchronization occurs only within individual groups (of views). The creation of the group might rely on the study and the orientation plane. To illustrate this, lets take the example below:

Below, you have six views that you would like synchronized. Every view contains one series each:

View	Study	Series	Plane
1	1	1	CORONAL
2	2	2	CORONAL
3	1	3	SAGITTAL
4	2	4	SAGITTAL
5	1	5	CORONAL
6	2	6	SAGITAL

If you limit the synchronization to the same study, the views will be first divided into 2 groups, each group containing the views displaying the same study:

- GROUP A: Views 1, 3 and 5 (all displaying Study 1)
- GROUP B: Views 2, 4 and 6 (all displaying Study 2)

If you synchronize the views by slice position, the synchronization can only work in the same plane. The two previous groups will then be divided into 4 groups:

- GROUP A: Views 1 and 5 (both CORONAL)
- GROUP B: View 3 (SAGITTAL)
- GROUP C: View 2 (CORONAL)
- GROUP D: Views 4 and 6 (both SAGITTAL)

The table below summarizes the created groups depending on the synchronization options:

Limit to the same study	Sync by slice position	Groups
NO	NO	GROUP A: 1, 2, 3, 4, 5, 6
NO	YES	GROUP A: 1, 2, 5 GROUP B: 3, 4, 6
YES	NO	GROUP A: 1, 3, 5 GROUP B: 2, 4, 6
YES	YES	GROUP A: 1, 5 GROUP B: 3 GROUP C: 2 GROUP D: 4, 6

Notes:

1. *If a group contains only one view, there is obviously nothing to synchronize.*

In each group, there is one primary view. The other views will be the secondary views. The primary view is generally the one that is active (surrounded by a blue frame). If none of the views within a group is active, the primary view is in priority the one that was last active, or simply the first view of the group.

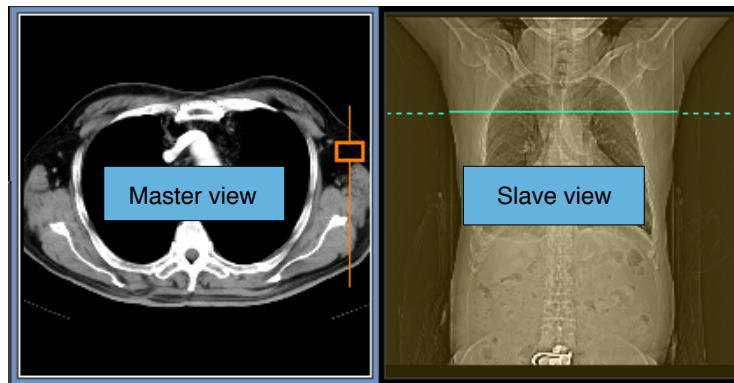
8.2.14.1 By slice ID

The stacks of images does not need to be in the same plane and will be synchronized by their page index in the stack, independently from their real slice position. You can use the absolute mode or the offset mode.

absolute mode:

In Absolute mode, the synchronized 2D views will always display the same page index in the stack. If the primary view displays the second page of its stack, then the secondary views will also display the second page of their own stack.

Sometimes, synchronized views in a group contain varying quantities of images. When the primary view displays a page index that does not exist in a secondary view, this secondary view will display its last page under a semi-transparent orange layer.



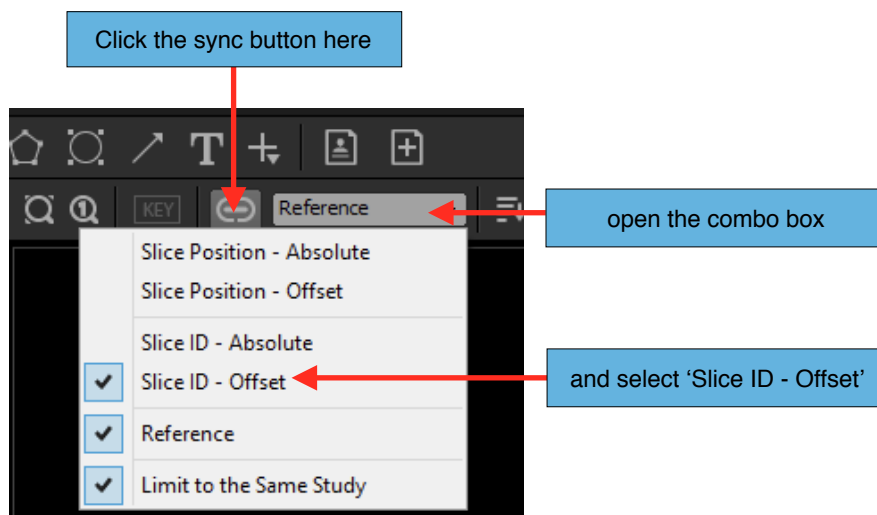
Offset Mode:

In Offset mode, you can set an offset between the page indexes in the synchronized views. For example, if you have three synchronized views, with the Offset mode you can set the second view to have an offset of 1 page from the first view, and set it so that the first view and third view have an offset of 2 pages.

The Offset mode requires that you have a reference view in the group. The other views will calculate their offset based on the reference view when you initiate synchronization. The reference view is usually the first view you synchronized, but you can alter this freely. When you synchronize a second view, the offset from the first view will be calculated automatically.

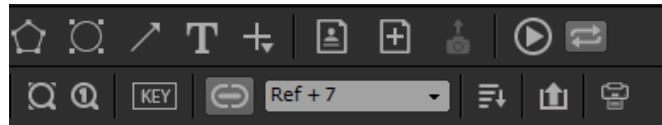
To synchronize two or more views with an offset, follow this procedure:

1. Click anywhere in the reference view to activate it (it will be surrounded by a blue frame).
2. Click on the Sync button located in the toolbar to activate the Sync mode. When the sync starts, the drop down list on the right will be enabled. Click on the down arrow and select 'Slice ID - Offset'. The word 'Reference' should appear in the drop down box.

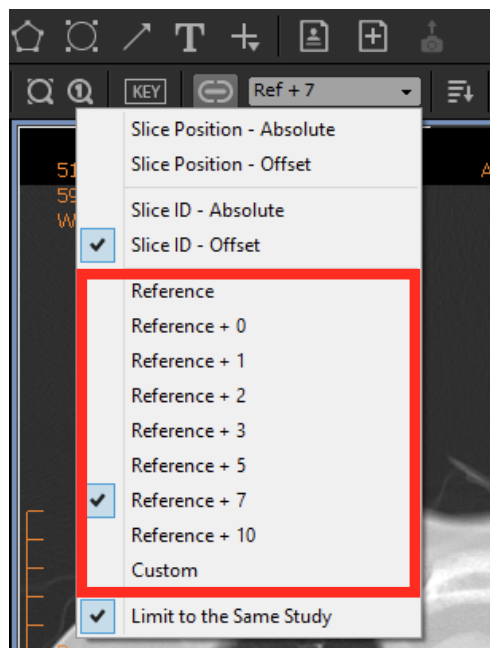


3. Click anywhere within the view you want to apply the Offset to activate it (it will be surrounded by a blue frame).
4. Using the buttons or your up/down keys, manually flip through the pages in the view until you reach the desired offset between that view and the reference view.

- Click on the Sync button located in the toolbar to initiate synchronization. When the sync starts, the drop down list on the right will be enabled. The drop down box should read 'Ref + n', n being the number of offset pages between the reference view and this view.

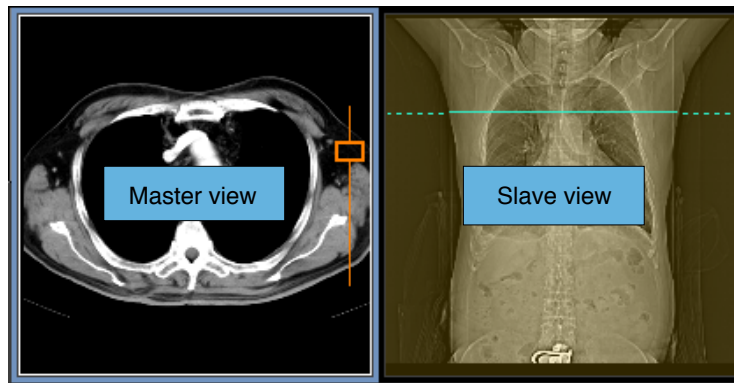


- If you want to modify the offset, you can click again on the Sync button to deactivate the sync and repeat steps 4 and 5. Or you can open the drop down list and select one of the predefined offsets or select 'Custom' to define your own offset instead (you can use negative numbers for offsets as well).



Notes:

- If you change the reference view, all offsets will be recalculated.*
- If a secondary view is unable to maintain the offset with the primary view (due to the different quantity of pages in each view), the secondary view will display the closest page under a semi transparent orange layer.*



8.2.14.2 By Slice Position

The stacks of images must be in the same plane and will be synchronized by their slice position in the stack. You can use the absolute mode or the offset mode.

Absolute Mode:

In absolute mode, the secondary views will always display the closest slice matching the position of the current slice displayed in the primary view. If this position is outside the position range of a secondary view, this secondary view will display the closest slice under a semi-transparent orange layer.

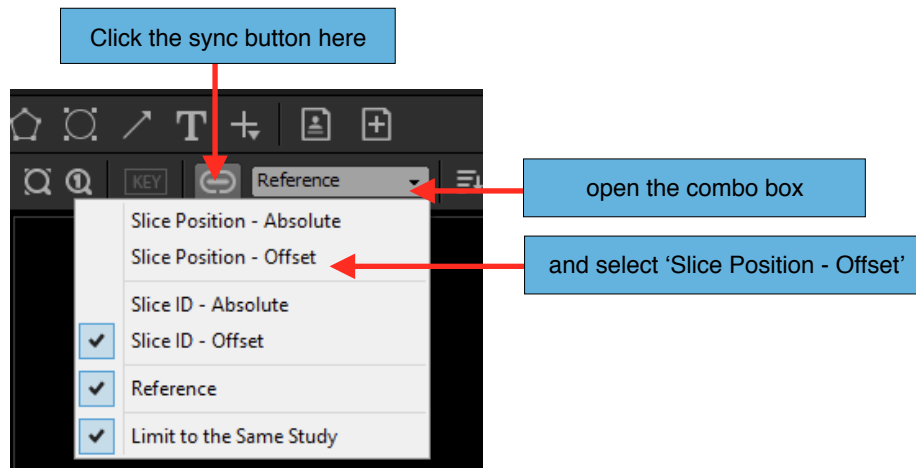
Offset Mode:

In offset mode you can set an offset between the position of the slices in the synchronized views. For example, if you have three views, you can synchronize the views by specifying that the second view should have an offset of 1 millimeter with the first view and the third view should have an offset of 5 millimeters.

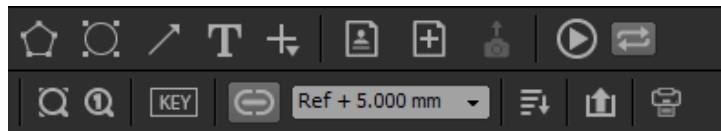
In offset mode, you need to appoint a reference view within each group. The other views will calculate their offset based on the reference view. The reference view is usually the first view you synchronize, but you can change it anytime. When you synchronize a second view, the offset with the first view will be calculated automatically.

To synchronize two or more views with an offset, follow this procedure:

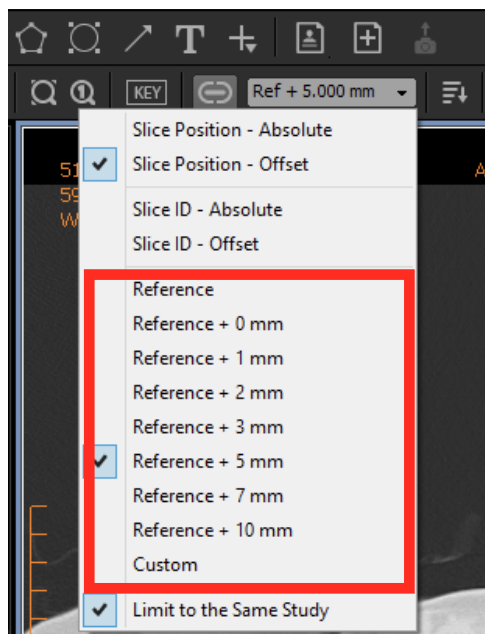
1. Click anywhere in the reference view to activate it (it will be surrounded by a blue frame).
2. Click on the Sync Button located in the toolbar to activate the Sync Mode. When the sync starts, the drop down list on the right will become enabled. Open the the drop down and select the 'Slice Position - Offset' mode. The drop down combo box should display the word 'Reference'.



3. Click anywhere in the view you want to apply the offset synchronization (it will be surrounded by a blue frame).
4. Manually change the page for that it has the desired offset with the reference view.
5. Click on the sync button located in the toolbar to activate the sync mode. When the sync starts, the combo box on the right will become enabled. The combo box should display 'Ref + n mm', n being the offset between the reference view and this view (in millimeters).



6. If you want to modify the offset, you can click again on the sync button to deactivate the sync and repeat the steps 4 and 5. Or you can open the combo box and select one of the predefined offset or 'Custom' to define your own (you can use negative offset as well).

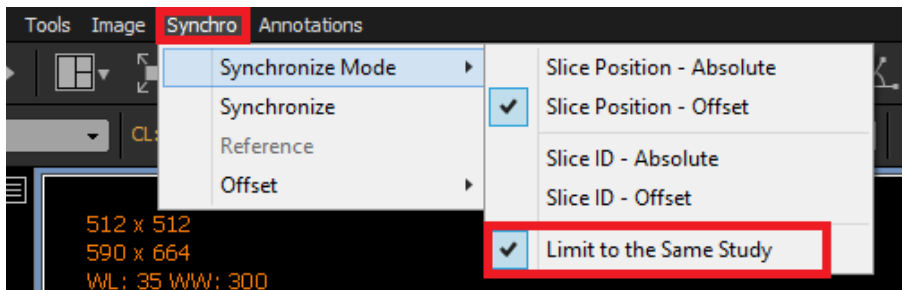


Notes:

1. If you change the reference view, all offsets will be recalculated.
2. The secondary views will always display the closest slice matching the position of the current slice displayed in the primary view, with the offset accounted for. If this position is outside the position range of a secondary view, this secondary view will display the closest slice under a semi transparent orange layer.

8.2.14.3 Limit to the same study

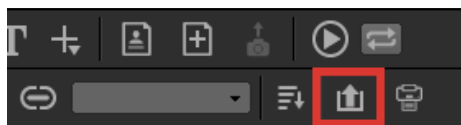
You can limit the synchronization to views displaying the same study by choosing ‘Limit to the same study’ in the drop down list next to the sync button of the toolbar. You can also find this menu in the ‘Synchro’ menu of the viewer page.



8.2.15 Export Images

You will learn later in this document how to export the images from a view. You can use the menu of the viewer page to export the images. However, you may prefer to use the toolbar of the 2D View:

1. Click the ‘Export’ button.



2. The behavior of the export button depends on the options you chose in the User Preferences panel and are summarized in the following table:

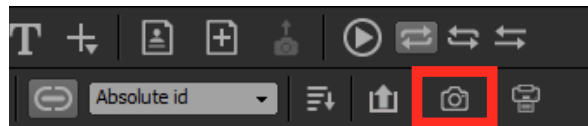
Use Custom Image Export	Use Image Export Templates	Behavior
NO	NO	The ‘Export’ button is disabled and cannot be clicked.
YES	NO	Open the export option window
NO	YES	Start exporting the images following the template rules

Use Custom Image Export	Use Image Export Templates	Behavior
YES	YES	Popup a menu to let you choose between the custom or template export.

8.2.16 Sending Images to Clipboard

You can send an image to the clipboard to easily paste it into a third party application:

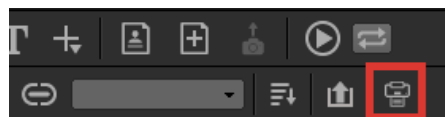
1. Select the image you would like to send to the clipboard. A selected image will be surrounded by a white frame.
2. Choose 'Send Image to Clipboard' under 'Image' on the viewer page. Alternatively, you can click the camera icon in the toolbar. Your image is now in the clipboard.



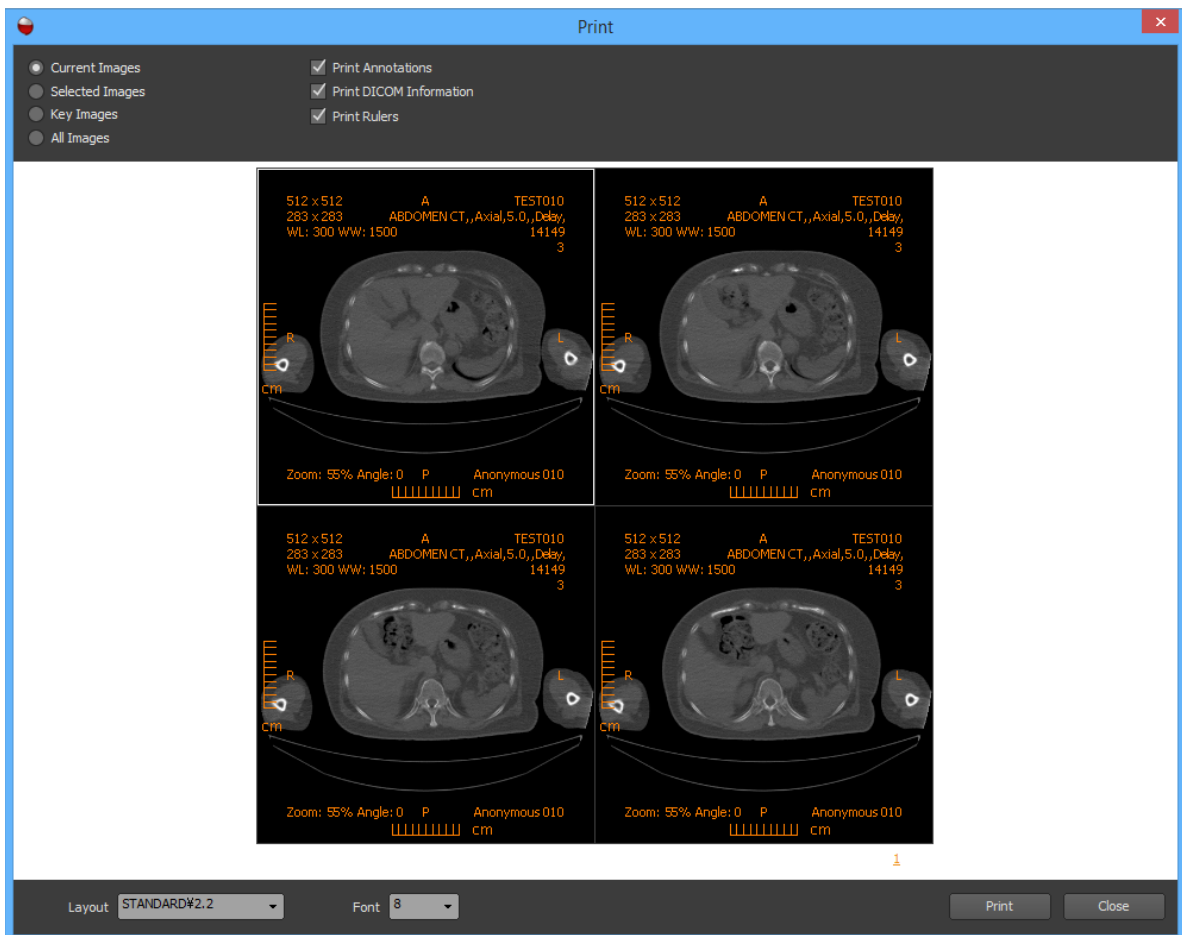
8.2.17 Print

To print one or more images from a view:

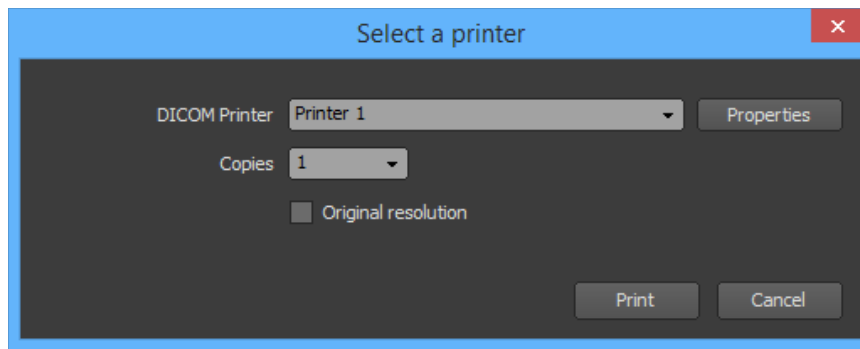
1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. You may be prompted to print only the selected images. If this is your intention, select the image you want to print by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a noncontiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. A selected image will be surrounded by a white frame.
3. Choose 'Print' under 'File' on the viewer page. This will open the print window. Alternatively, you can click on the 'Print' icon from the toolbar.



4. Choose the options you would like for printing:



- **Source:** Select what images will be printed from the view. You can choose from either: all images;, only the selected images; only the key images; or the current images (the images currently displayed in the view). The Preview will reflect your changes.
 - **Overlays:** Check on the overlays you would drawn onto the printed images. You can draw the DICOM annotations, the graphics annotations and rulers. The Preview will reflect your changes.
 - **Layout:** Specify the print layout from a 1x1 grid to a 5x5 grid.
 - **Font Size:** Choose the font size for the overlay text.
5. Click on the 'Print' button. If you have registered one or more DICOM printers, a menu will pop up giving you the choice to print on a regular printer or on a DICOM printer. If you choose to print on a DICOM printer, a window will pop up for you to select the printer, the number of copies and whether you would like to print using the original resolution or not. You can change the properties of the selected printer by clicking on the 'Properties' button. Click on the 'Print' button to begin printing. If you didn't choose a DICOM printer, follow the standard printing procedure of your operating system.



Notes:

1. Refer to the 'DICOM Printers' chapter to learn how to register a DICOM Printer.

8.2.18 Propagation

Please read first the 'Propagation' chapter of the 'Viewer page' section to understand the general concept of property propagation.

The 2D view type enables the following properties to be shared:

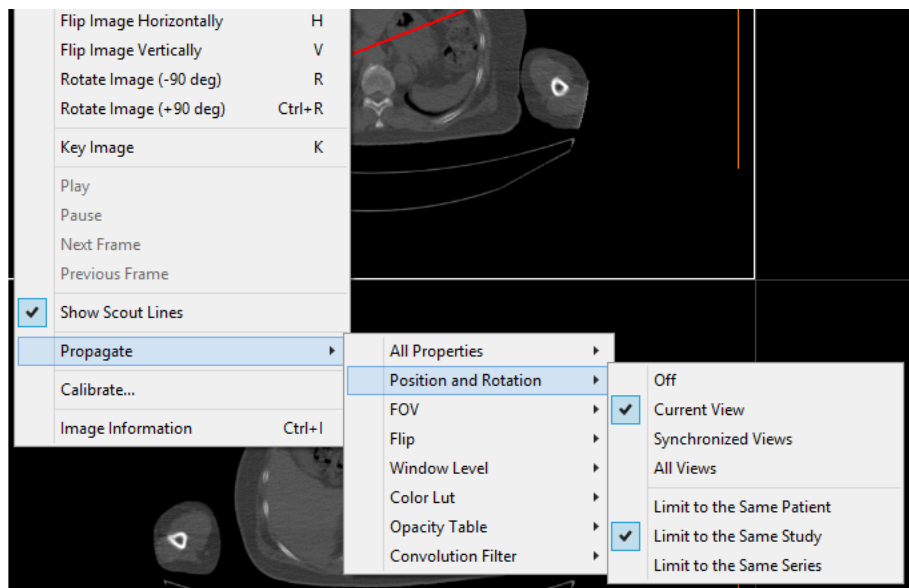
- Position and Rotation
- Zoom factor
- Horizontal and Vertical Flip
- Window Level values
- Color LUT preset
- Opacity table preset
- Convolution Filter preset

For each property, you can specify the images it should be shared with:

- **Current view:** The property will be shared with the images of the current view that belong to the same patient, the same study or the same series (depending on your settings).
- **Synchronized views:** The property will be applied to the images of the views that are synchronized together. It will only be shared with the images that belong to the same patient, the same study or the same series (depending on your settings).

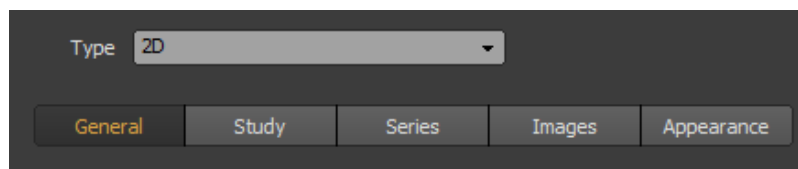
- **All views:** The property will be shared with the images of all the existing 2D views (from viewer pages), including the current view. It will only be shared with the images that belong to the same patient, the same study or the same series (depending on your settings).

To specify how the properties should be shared, you can open the 'Propagate' submenu of the 'Viewer' menu of the viewer page. In this menu, you can set the same propagation options for all the properties at the same time, using the 'All Properties' submenu. Or you can specify your options for each property through the corresponding submenu. You can select 'Off' if you don't want a property to be shared. You can automate these settings by using hanging protocols.



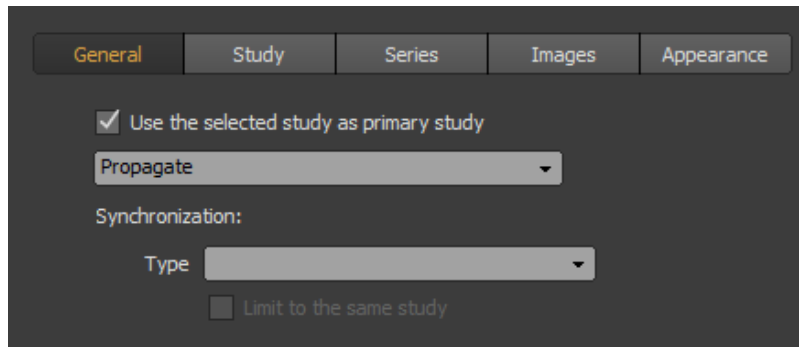
8.2.19 Hanging Protocol

This section describes the parameters you can define to specify what should be displayed in a 2D view created by a layer of one hanging protocol. These parameters are grouped in 5 pages ('General', 'Study', 'Series', 'Images' and 'Appearance').



8.2.19.1 General

This page displays some parameters that are shared by all the views of the 2D type that will be created by the hanging protocol layer.



Primary study:

When you open a study from the Database page, you can specify that this study should be the primary study. If not, the primary study will be the one that was most recently performed on. In other words, if you mark the 'Use the selected study as primary study', the primary study will be the one selected by the user in the Database page. Otherwise, it will be the study that was most recently performed on. The understanding of what is the primary study is very important for setting up the succeeding Study page correctly.

Propagation:

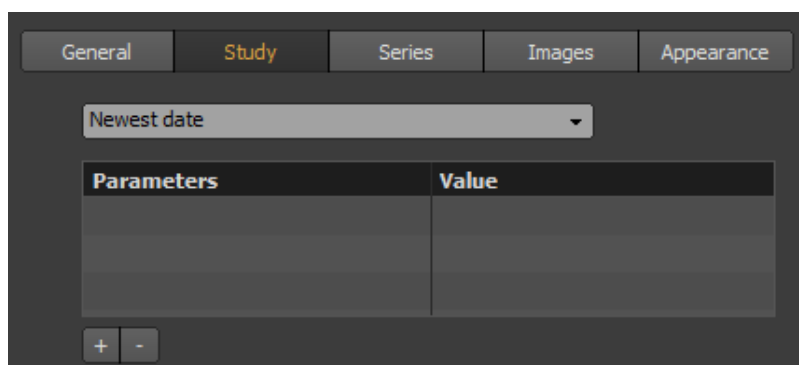
You can specify how the properties of the 2D views (position, rotation, zoom, window levels...) should be propagated in the view and the other views. Please refer to the 'Property Propagation' section under the 2D View Type to understand how to use this parameter.

Synchronization:

You can specify how all 2D views created by the hanging protocol will be synchronized together. Choose the blank option if the views should not be synchronized. Otherwise, please refer to the 'Synchronized Stacking' section under the '2D View' chapter to understand the synchronization parameters.

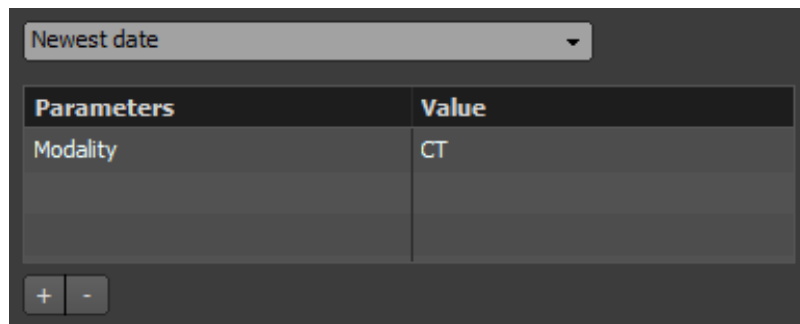
8.2.19.2 Study

This page lets you select the study you want to be displayed in the view.



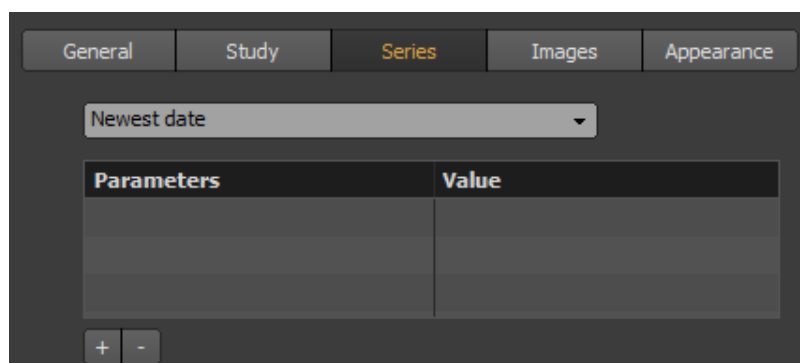
From the drop down list, you can choose to leave the view blank (no image will be displayed), or you can choose the study to be displayed depending on its date or accession number. It is important to note that the study is specified in terms of its relevance to the primary study and not the newest study. The primary study is the one that the user has selected on the Database page. If you choose 'Newest Date' but open a prior exam on the Database page and you have marked the 'Use the selected study as primary study' on the General page, then the study that will be displayed is the selected prior exam (not the newest exam).

You can also add criteria to select which study will be displayed. To add criteria, click on the '+' button and choose one or more criteria from the proposed list. To set the value of a criteria, double click on its corresponding value cell in the list. To remove criteria, select one or more of them and click on the '-' button. The criteria are applied to the one selected in the drop down list. For example, if you have selected 'Newest date' and added the 'CT' modality as a criteria, the newest study that has at least one CT series will be displayed. If you add more than one criteria, all of them would match the displayed study.



8.2.19.3 Series

This page lets you select the series you want to be displayed in the view. The series can only be the ones belonging to the study that has been selected from the 'Study' page.



From the drop down list, you can choose to leave the view blank (no image will be displayed), or you can choose the series to be displayed depending on its date or its series number. You also have the option to display all the series.

You can also add criteria to select which series will be displayed. To add criteria, click on the '+' button and choose one or more criteria from the proposed list. To set the value of a criteria, double click on its corresponding value cell in the list. To remove criteria, select one or more of them and click on the '-' button. The criteria are applied to the one selected in the drop down list. For example, if you have selected 'Newest date' and added the 'CT' modality as criteria, the newest CT series will be displayed. If you add more than one criteria, all of them would match the displayed series.

8.2.19.4 Images

This page lets you choose how the images will be displayed in the view. The images are the ones belonging to the series that has been selected from the 'Series' page.

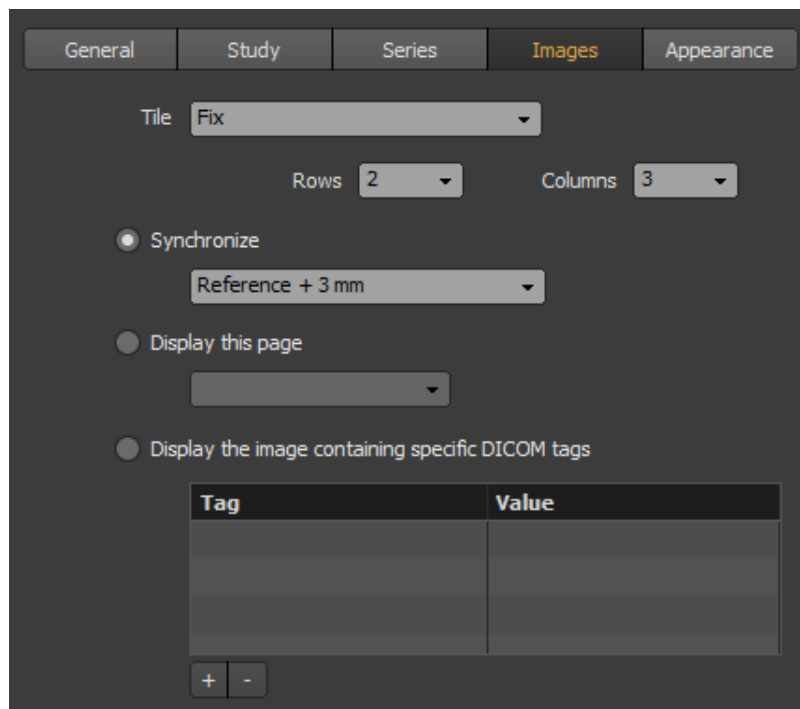


Image Grid:

You can choose the size of the image grid, between the following two modes:

- Adaptive: The grid dimension will be adjusted depending on the number of images in the series. You can select the maximum number of rows and columns..
- Fix: the grid dimension is fixed and has exactly the number of rows and columns specified in the drop down lists.

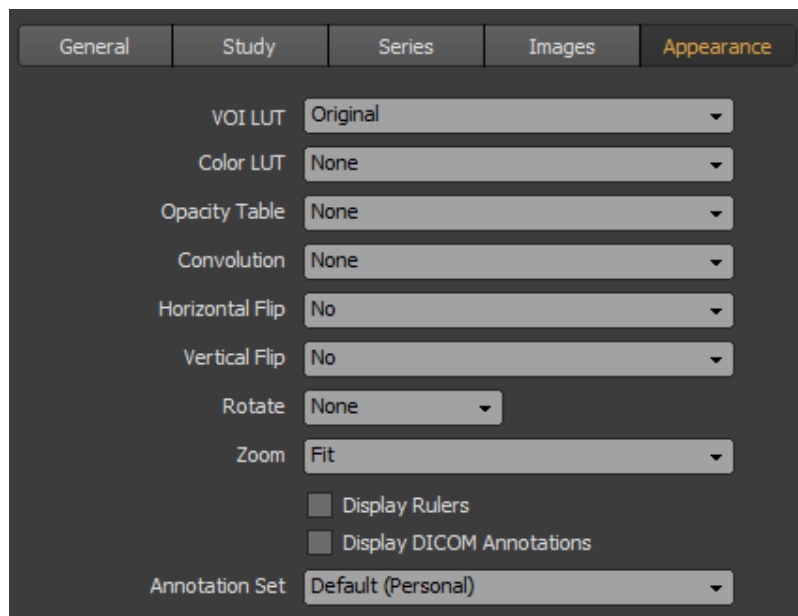
Displayed Page:

You can specify here which image will be displayed by default in the view:

- Synchronize: The views will be synchronized (you can set the Synchronize mode in the 'General' page). If you have chosen the images to display synchronically with offsets, use the drop down list to make this view the reference view or to specify the offset with the reference view.
- Display this page: you can specify the page number that should be displayed.
- Display the image containing specific DICOM tags: Choose this if you would like to specify one or more DICOM tag values that will be used to identify which images should be displayed. Click the on the '+' button to pick a DICOM tag and double click on its corresponding value column to specify its value. Select one or more tags and click the '-' button to delete them. If you specify more than one tag, all of them have to be verified for a match.

8.2.19.5 Appearance

This page lets you choose how the images will be rendered in the view.



You can specify:

- If a Window Level should be applied
- If a Color LUT should be applied
- If an Opacity Table should be applied
- If a Convolution filter should be applied
- If the images should be flipped horizontally or vertically
- If the images should be rotated
- If the images should fit in the view or if they should be displayed at their original resolution
- Which overlays should be rendered (DICOM Annotations and rulers)

- Which annotation set should be used to render the DICOM Annotations

8.2.20 DICOM tags

To display the DICOM tags of an image:

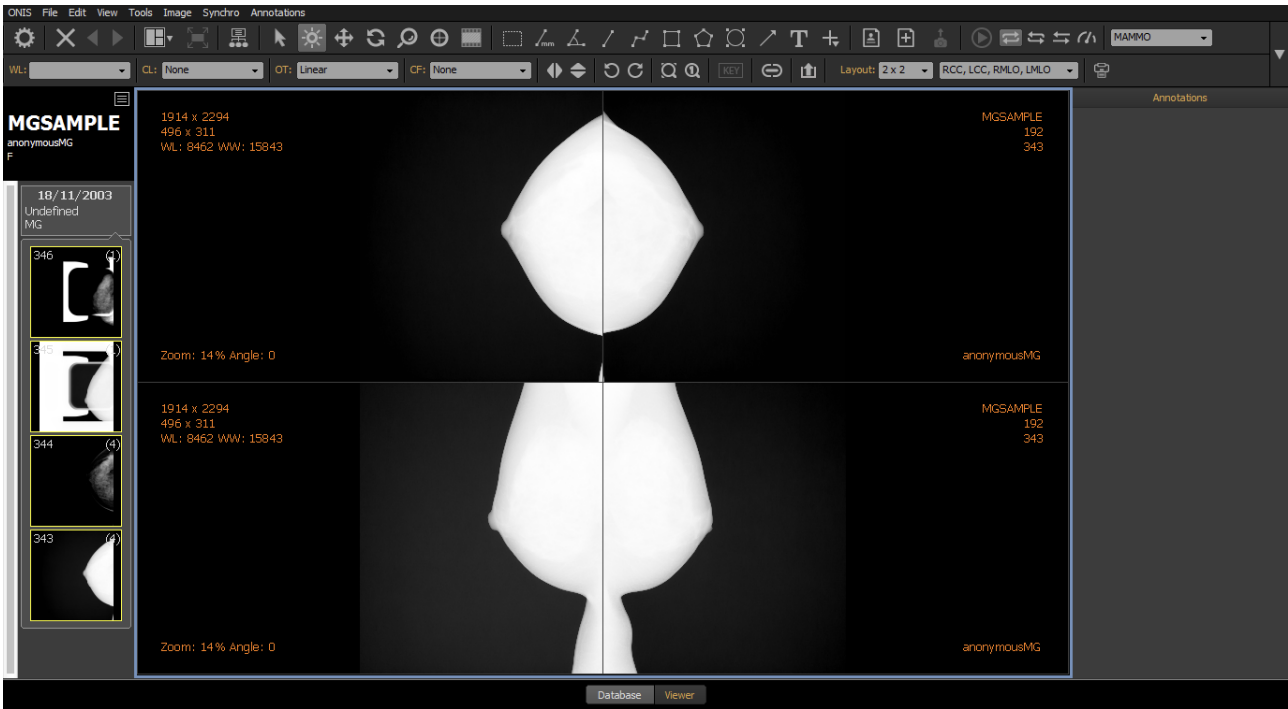
1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. Select the image you wish to see the DICOM tags of by clicking on it. The selected image will be surrounded by a white frame.
3. Choose 'Image Information' from the 'Image' menu or hit 'Ctrl+I' on your keyboard. This will open the DICOM Information window displaying the first level of DICOM tags found in the selected image.

The screenshot shows a window titled "DICOM Information" with a close button in the top right corner. The window contains a table with four columns: "All existing tags", "Group:Element", "Description", and "Value". The table lists various DICOM tags and their corresponding values.

All existing tags	Group:Element	Description	Value
[0002] File Meta Elements	[0002:0000]	Group Length	192
[0008] Study information	[0002:0001]	File Meta Information Version	00
[0009] Private	[0002:0002]	Media Storage SOP Class UID	1.2.840.10008.5.1.4.1.1.2
[0010] Patient	[0002:0003]	Media Storage SOP Instance UID	1.3.12.2.1107.5.1.1.20137.20030904101314761.4
[0011] Private	[0002:0010]	Transfer Syntax UID	1.2.840.10008.1.2
[0013] Private	[0002:0012]	Implementation Class UID	1.2.276.0.7230010.3.0.3.6.0
[0018] Acquisition Group	[0002:0013]	Implementation Version Name	OFFIS_DCMTK_360
[0019] Private	[0008:0005]	Specific Character Set	ISO_IR_100
[0020] Relationship Group	[0008:0008]	Image Type	ORIGINAL
[0021] Private	[0008:0016]	SOP Class UID	1.2.840.10008.5.1.4.1.1.2
[0028] Image presentation	[0008:0018]	SOP Instance UID	1.3.12.2.1107.5.1.1.20137.20030904101314761.4
[0029] Private	[0008:0020]	Study Date	20030904
[0031] Private	[0008:0021]	Series Date	20030904
[7FE0] Pixel Data	[0008:0022]	Acquisition Date	20030904
	[0008:0023]	Content Date	20030904
	[0008:0030]	Study Time	095352.000000
	[0008:0031]	Series Time	100827.160000

8.3 MAMMO View

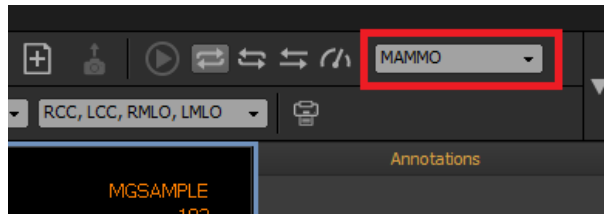
The MAMMO View type is a useful view type that automatically arranges mammography images in pre-defined layouts.



8.3.1 View Type Selection

To assign the mammography type to a view:

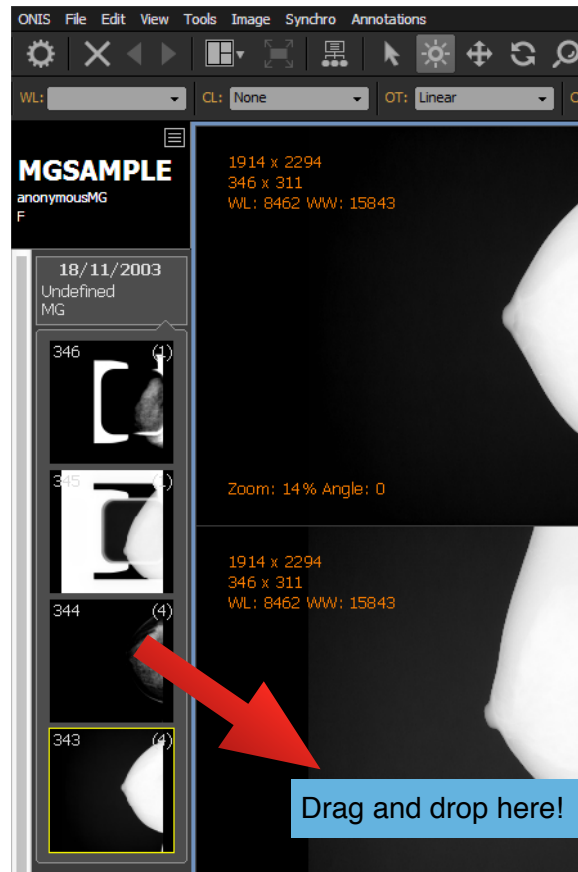
1. Activate the view by clicking inside it. The active view is the one surrounded by a blue frame.
2. Select the 'MAMMO' view type using the appropriate drop down list located in the toolbar.



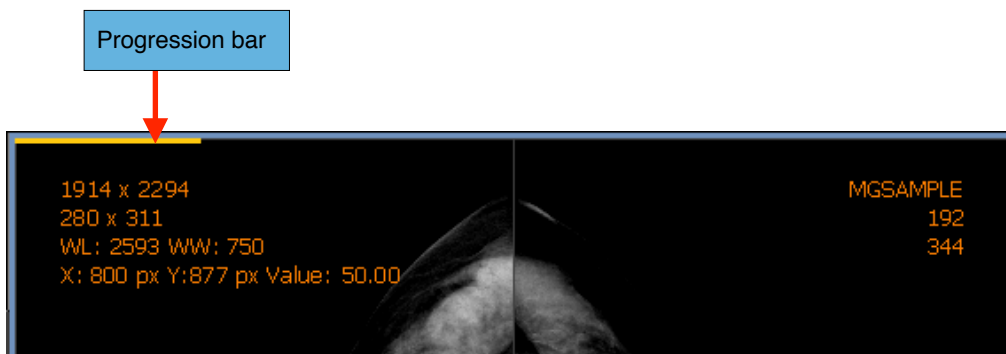
8.3.2 Assign One or Multiple Series

You can assign one or multiple series to a MAMMO view automatically using hanging protocols. Please refer to the hanging protocol section to learn how to do it. However, you can also assign series manually using the history bar with a simple drag and drop operation.

To process a drag and drop, keep your cursor above a study or a series in the history bar. While holding down the left mouse button, drag your mouse above a view. Drop your selection by releasing the left mouse button.



If you drop a series, the current content of the view will be replaced by the series. If you drop a study, the current content of the view will be replaced by all of the series in the study. If necessary, the images of the series will be downloaded from the source, in which case, a yellow progression bar will appear at the top of the view letting you see the download progression. When the yellow bar reaches the right edge of the view, it will disappear indicating that the download has completed. The yellow progression bar may also appear if the images are being loaded into memory in order for the software to be more responsive.



If you already have one or multiple series in a view and would like to add one more, you can drag and drop the series you wish to add from the history bar while holding down the 'Shift' key. If you perform this drop process on a study, then all of its series will be dragged into the view.

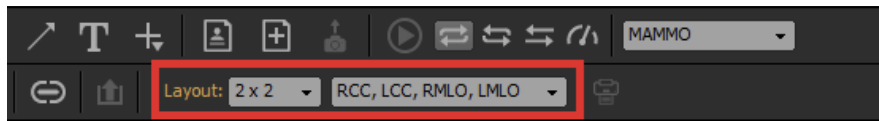
8.3.3 Mammography Layouts

When you assign one or multiple series to MAMMO view, ONIS will select images from the series and display them according to the current layout. If a layout requires a specific image to be displayed at a specific position but ONIS is not able to detect the appropriate images from within the series, then the image area will remain black.

A layout is created through the combination of two parameters:

- **The grid dimension:** it defines the number of images displayed in the view and how they are aligned to each others. The following grid dimensions are supported:
 - 1x1: a single image.
 - 1x2: two images arranged horizontally.
 - 1x4: four images arranged horizontally.
 - 2x1: two images arranged vertically.
 - 2x2: four images arranged in the form of two rows of two images.
- **The content that should be displayed:** it defines which images will be displayed. Nine different contents can be selected:
 - RCC
 - LCC
 - RMLO
 - LMLO
 - RCC, RMLO
 - RCC, LCC
 - LCC, LMLO
 - RMLO, LMLO
 - RCC, LCC, RMLO, LMLO

To select a specific layout, choose the grid dimension and the content to display from appropriate drop down lists in the toolbar. This can also be done automatically by using the hanging protocol.



Notes:

1. *When the images are rendered with DICOM annotations, the annotations defined in the current annotation set located at the right side will not be drawn for the RCC, RMLO images. The annotations located at the left side will not be drawn for the LCC and LMLO images.*

8.3.4 Paging

If the number of images exceeds the number of images in the grid, you can change the current visible page to browse all of the images. Refer to the same section of the '2D View' type to learn how to do that.

8.3.5 Cine Mode

If you have more images than the grid definition, cine mode can scroll through the images automatically at a defined speed. Refer to the same section of the 2D View type to learn how to do that.

8.3.6 Image Manipulation

The images can be manipulated in the same way as the images of '2D View' type. Refer to the same section of the '2D View' type to learn how you can manipulate them.

8.3.7 Image Rendering

Images are rendered in the same manner as the rendering in the '2D View' type. Refer to the same section of the '2D View' type to learn the different options.

8.3.8 Key images

You can define one or multiple key images in a series. Refer to the same section of the '2D View' type to learn how to do that.

8.3.9 Calibration

Refer to the same section of the '2D View' type to learn how you can calibrate your images.

8.3.10 Synchronized Stacking

You can synchronize the viewing of different stacks of images. Synchronization can only be done by absolute Slice ID. The synchronization of MAMMO views brings the concept of primary and secondary views. The secondary views always try to synchronize with the primary view.

When you synchronize multiple views, ONIS divides them into groups, depending on the options you chose. View synchronization occurs only within individual groups (of views). The creation of the group might rely on the study. If you limit the synchronization to the same study, one group per displayed study will be created. Otherwise, only one group will be created.

In each group, there is one primary view. The other views will be the secondary views. The primary view is generally the one that is active (surrounded by a blue frame). If none of the views within a group is active, the primary view is in priority the one that was last active, or simply the first view of the group.

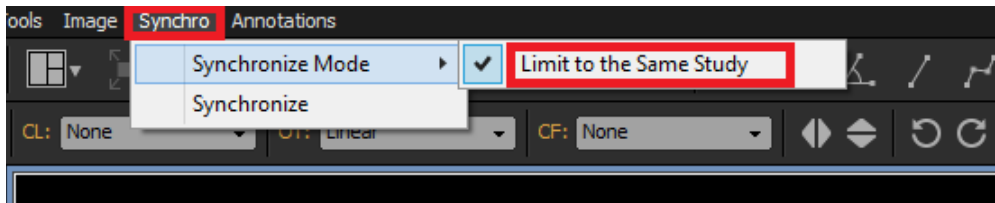
8.3.10.1 By slice ID

The synchronized MAMMO views will always display the same page index in the stack. If the primary view displays the second page of its stack, then the secondary views will also display the second page of their own stack.

Sometimes, synchronized views in a group contain varying quantities of images. When the primary view displays a page index that does not exist in a secondary view, this secondary view will display its last page under a semi-transparent orange layer.

8.3.10.2 Limit to the same study

You can limit the synchronization to views displaying the same study by choosing 'Limit to the Same Study' from the 'Synchro' menu of the viewer page.



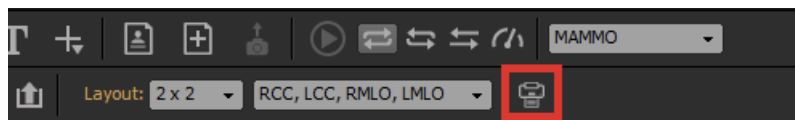
8.2.11 Exporting Images

Refer to the same section of the '2D View' type to learn how you can export your images.

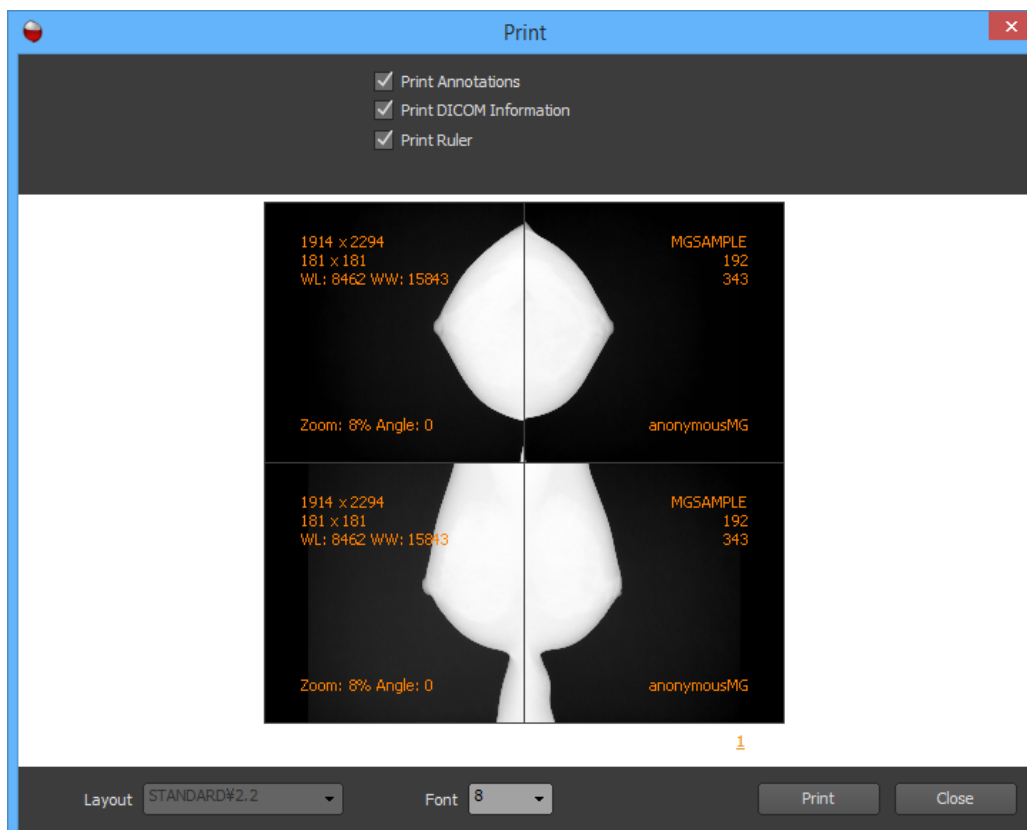
8.3.12 Print

To print one or multiple images from a view:

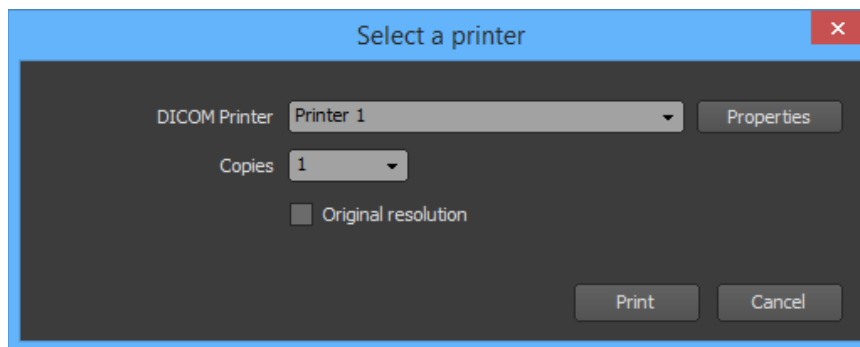
1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. Go to 'Print' under 'File' on the viewer page. This will open the print window. Alternatively, you can click on the 'Print' icon from the toolbar.



3. Choose the options you would like for printing:



- **Overlays:** Check on the overlays you would like to be drawn on the printed images. You can draw the DICOM annotations, the graphics annotations and rulers. The preview will reflect your changes.
 - **Layout:** The layout will copied of the active view and cannot be modified here.
 - **Font Size:** Choose the font size to be used when drawing the overlays.
4. Click on the 'Print' button. If you have registered one or more DICOM printers, a menu will pop up giving you the choice to print on a regular printer or on a DICOM printer. If you choose to print on a DICOM printer, a window will pop up for you to select the printer, the number of copies and whether you would like to print using the original resolution or not. You can change the properties of the selected printer by clicking on the 'Properties' button. Click on the 'Print' button to begin printing. If you didn't choose a DICOM printer, follow the standard printing procedure of your operating system.



Notes:

1. Refer the to the 'DICOM Printers' chapter to learn how to register a DICOM Printer.

8.3.13 Propagation

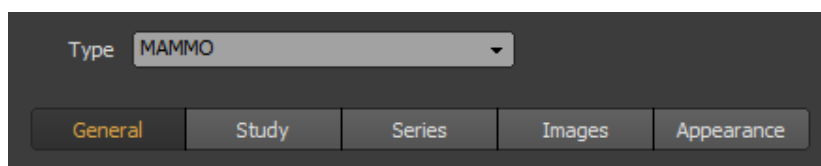
Please read the 'Propagation' chapter of the viewer page first to understand the general concept of property propagation.

The properties that can be propagated with the MAMMO view type are identical to those in the 2D view type. Please refer to the same section of the '2D view' type for details.

The only difference in the case of the MAMMO view type is that during propagation the position between left and right images are mirrored.

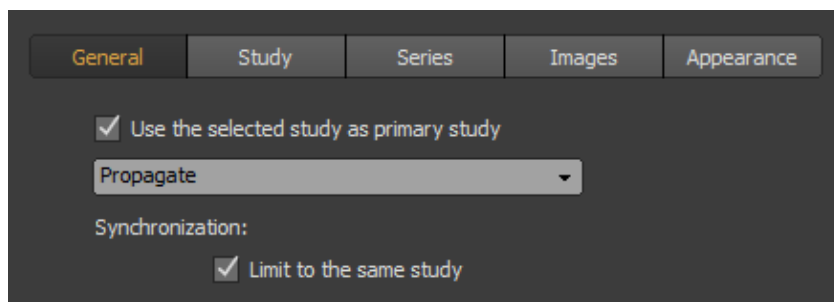
8.3.14 Hanging protocol

This section describes the parameters you can define to specify what should be displayed in a MAMMO view created by a layer of one hanging protocol. These parameters are grouped in 5 pages ('General', 'Study', 'Series', 'Images' and 'Appearance').



8.3.14.1 General

This page displays some parameters that are shared by all the views of type MAMMO that will be created by the hanging protocol layer.



Primary study:

When you open a study from the Database page, you can specify that this study should be the primary study. If not, the primary study will be the one that was most recently performed on. In other words, if you mark the 'Use the selected study as primary study', the primary study will be the one selected by the user in the Database page. Otherwise, it will be the study that was most recently performed on. The understanding of what is the primary study is very important for setting up the succeeding Study page correctly.

Propagation:

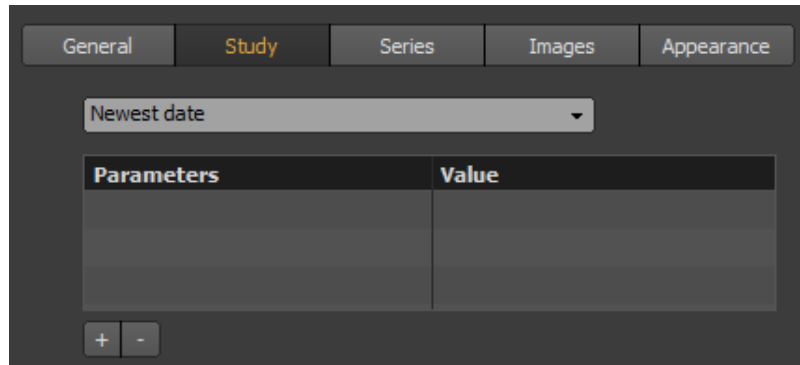
You can specify how the properties of the 2D views (position, rotation, zoom, window levels...) should be propagated in the view and the other views. Please refer to the 'Property Propagation' section under the 'MAMMO View' type to understand how to use this parameter.

Synchronization:

You can specify how all MAMMO views created by the hanging protocol will be synchronized together. Choose the blank option if the views should not be synchronized. Otherwise, please refer to the 'Synchronized Stacking' section under the 'MAMMO View' chapter to understand the synchronization parameters.

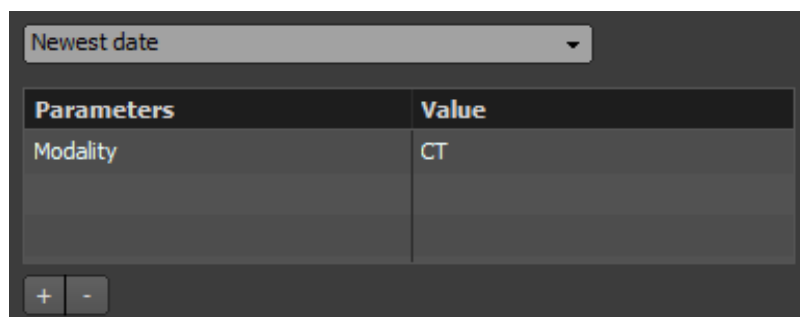
8.3.14.2 Study

This page lets you select the study you want to be displayed in the view.



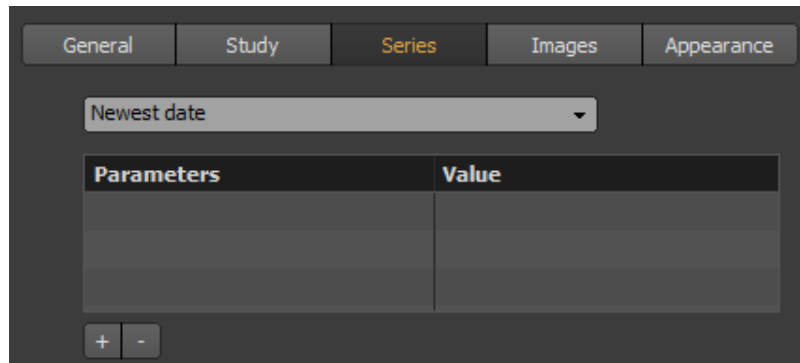
From the drop down list, you can choose to leave the view blank (no image will be displayed), or you can choose the study to be displayed depending on its date or accession number. It is important to note that the study is specified in terms of its relevance to the primary study and not the newest study. The primary study is the one that the user has selected on the Database page. If you choose 'Newest Date' but open a prior exam on the Database page and you have marked the 'Use the selected study as primary study' on the General page, then the study that will be displayed is the selected prior exam (not the newest exam).

You can also add criteria to select which study will be displayed. To add criteria, click on the '+' button and choose one or more criteria from the proposed list. To set the value of a criteria, double click on its corresponding value cell in the list. To remove criteria, select one or more of them and click on the '-' button. The criteria are applied to the one selected in the drop down list. For example, if you have selected 'Newest date' and added the 'CT' modality as a criteria, the newest study that has at least one CT series will be displayed. If you add more than one criteria, all of them would match the displayed study.



8.3.14.3 Series

This page lets you select the series you want to be displayed in the view. The series can only be the ones belonging to the study that has been selected from the ‘Study’ page.

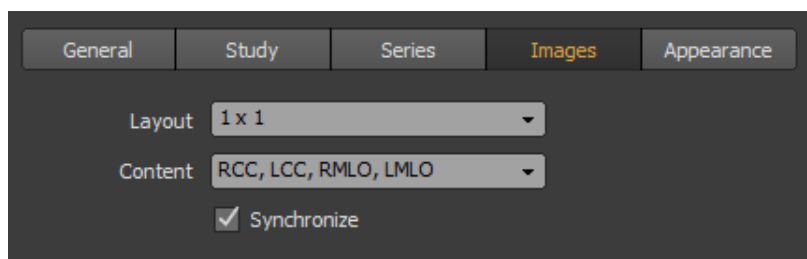


From the drop down list, you can choose to leave the view blank (no image will be displayed), or you can choose the series to be displayed depending on its date or its series number. You also have the option to display all the series.

You can also add criteria to select which series will be displayed. To add criteria, click on the ‘+’ button and choose one or more criteria from the proposed list. To set the value of a criteria, double click on its corresponding value cell in the list. To remove criteria, select one or more of them and click on the ‘-’ button. The criteria are applied to the one selected in the drop down list. For example, if you have selected ‘Newest date’ and added the ‘CT’ modality as criteria, the newest CT series will be displayed. If you add more than one criteria, all of them would match the displayed series. This page lets you select the series you want to be displayed in the view. The series can only be the ones belonging to the study that has been selected from the ‘Study’ page.

8.3.14.4 Images

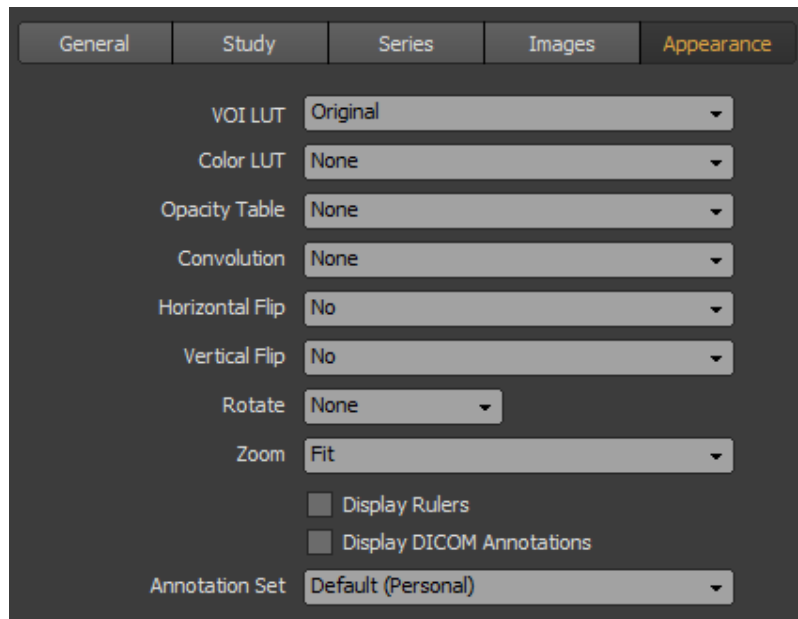
This page lets you choose how the images will be displayed in the view. The images are the ones belonging to the series that has been selected from the ‘Series’ page.



Choose the layout you would like to use for displaying the images. You can refer to the ‘Mammography Layouts’ section for more details. Mark the ‘Synchronize’ checkbox if you would like the view to be synchronized with some other views.

8.3.14.5 Appearance

This page lets you choose how the images will be rendered in the view.



You can specify:

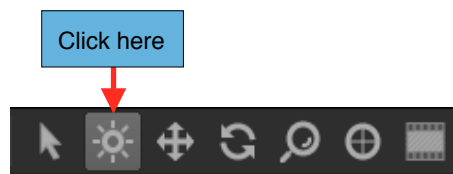
- If a Window Level should be applied
- If a Color LUT should be applied
- If an Opacity Table should be applied
- If a Convolution filter should be applied
- If the images should be flipped horizontally or vertically
- If the images should be rotated
- If the images should fit in the view or if they should be displayed at their original resolution
- Which overlays should be rendered (DICOM Annotations and rulers)
- Which annotation set should be used to render the DICOM Annotations

8.4 Image Tools

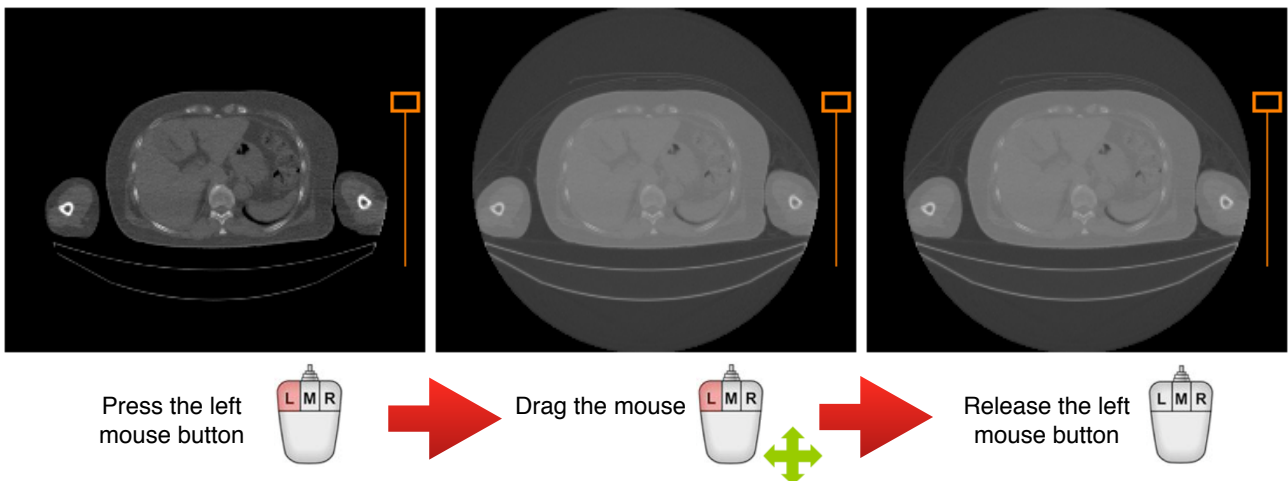
8.4.1 Window Level

To modify the window level of one or multiple images using the mouse, follow the instructions below:

1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. If the propagation mode for the 'Window Level' property is off, select the image you want to modify by clicking on it. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
If the propagation mode for the 'Window Level' property is active, you don't need to select any images because the new window level values will automatically apply to all of the images inside the view.
3. Select the 'Window Level' tool from the toolbar.



4. Bring your mouse cursor above an image.
5. While holding down the left mouse button, drag your cursor horizontally to modify the window width and vertically to modify the window center.
6. Release the left mouse button when you are done.



Alternatively, you also can use a mouse shortcut if there is one defined in the User Preferences panel. The default shortcut is 'Alt' key + 'Left mouse button'. To use the default shortcut, repeat the instructions 1 and 2 above then:

1. Keep holding down the 'Alt' key.
2. While holding down the left mouse button, drag your mouse horizontally to modify the window width and vertically to modify the window center.
3. Release the left mouse button when you are done.

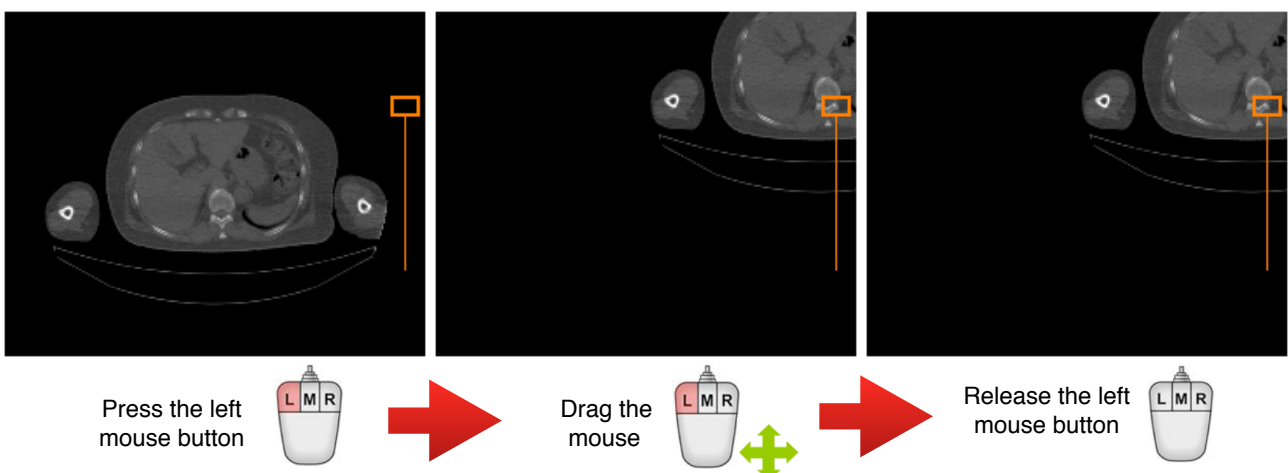
8.4.2 Pan

To translate one or multiple images using the mouse, follow the instructions below:

1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. If the propagation mode for the 'Position' property is off, select the image by clicking on it. You can select multiple images by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding the 'Ctrl' key. When an image is selected, it is surrounded by a white frame. If the propagation mode for the 'Position' property is active, you don't need to select any images because the new position will be applied automatically to all of the images inside the view.
3. Select the 'Pan' tool from the toolbar.



4. Bring your cursor above an image.
5. While holding down the left mouse button, drag your cursor horizontally and/or vertically to translate the image.
6. Release the left mouse button when you are done.



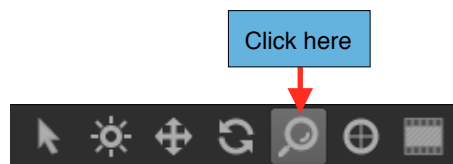
Alternatively, you can use a mouse shortcut if there is one defined in the User Preferences panel. The default shortcut is 'Right mouse button'. To use the default shortcut, repeat the instructions 1 and 2 above then:

1. Press the right mouse button.
2. While holding down the right mouse button, drag your cursor horizontally and/or vertically to translate the image.
3. Release the right mouse button when you are done.

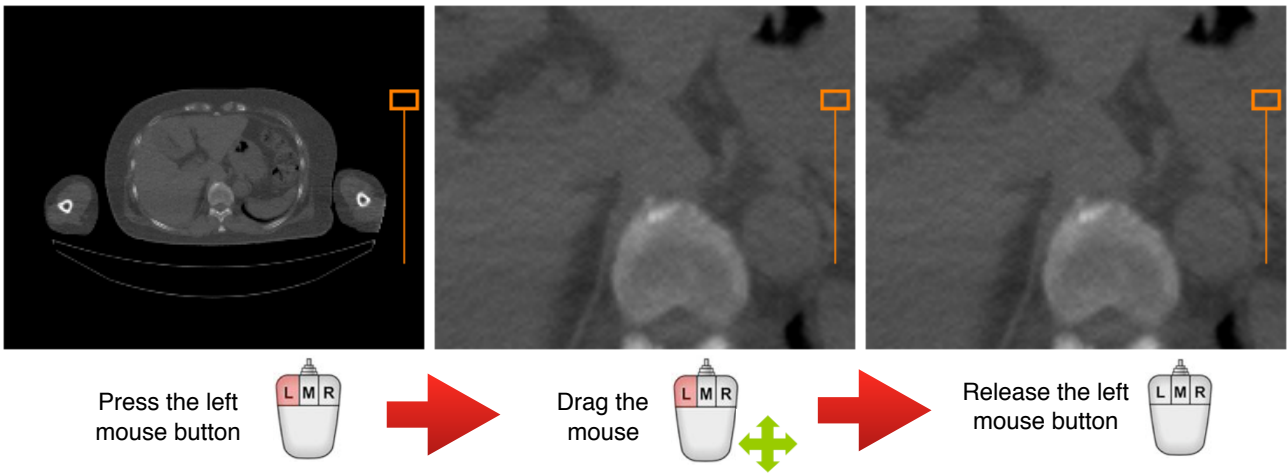
8.4.3 Zoom

To zoom in or out of one or more images using the mouse, follow the instructions below:

1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. If the propagation mode for the 'Zoom' property is off, select the image you want to zoom into or out of by clicking on it with the left mouse button. You can select images to zoom by clicking on them while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame. If the propagation mode for the 'Zoom' property is active, you don't need to select any images because the new zoom value will be applied automatically to all of the images inside the view.
3. Select the 'Zoom' tool from the toolbar.



4. Bring your cursor above an image.
5. While holding down the left mouse button, drag your cursor upward to zoom in or downward to zoom out.
6. Release the left mouse button when you are done.



Alternatively, you also can use a mouse shortcut if there is one defined in the User Preferences panel. The default shortcut is the ‘Alt’ key + ‘Right mouse button’. To use the default shortcut, repeat instructions 1 and 2 above, and then perform the following:

1. While holding down the ‘Alt’ key, press the right mouse button.
2. While holding down the right mouse button, drag your mouse upward to zoom in or downward to zoom out.
3. Release the right mouse button when you are done.

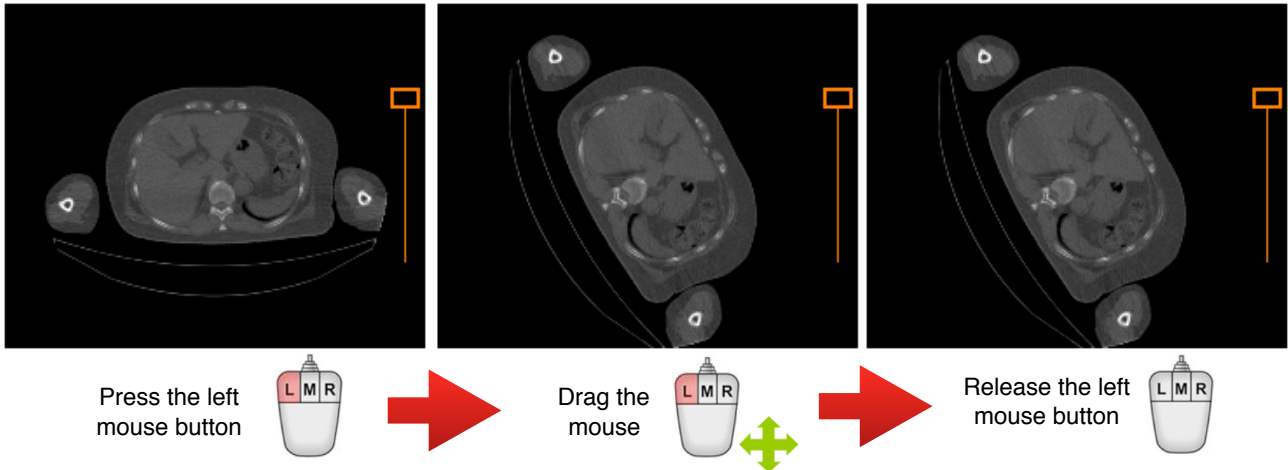
8.4.4 Rotate

To rotate an image or multiple images using the mouse, follow the instructions below:

1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. If the propagation mode for the ‘Rotation’ property is off, select the image you wish to rotate by clicking on it. You can select multiple images to rotate by clicking on them while holding down the ‘Shift’ key for continuous selection or the ‘Ctrl’ key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the ‘Ctrl’ key. When an image is selected, it is surrounded by a white frame.
If the propagation mode for the ‘Rotation’ property is active, you don’t need to select any images because the new rotation will be applied automatically to all of the images inside the view.
3. Select the ‘Rotate’ tool from the toolbar.



4. Bring your cursor above an image.
5. While holding down the left mouse button, drag your cursor to the right to rotate the image clockwise or to the left to rotate it anti-clockwise.
6. Release the left mouse button when you are done.



Notes:

1. You can define a shortcut for this tool in the User Preferences panel.

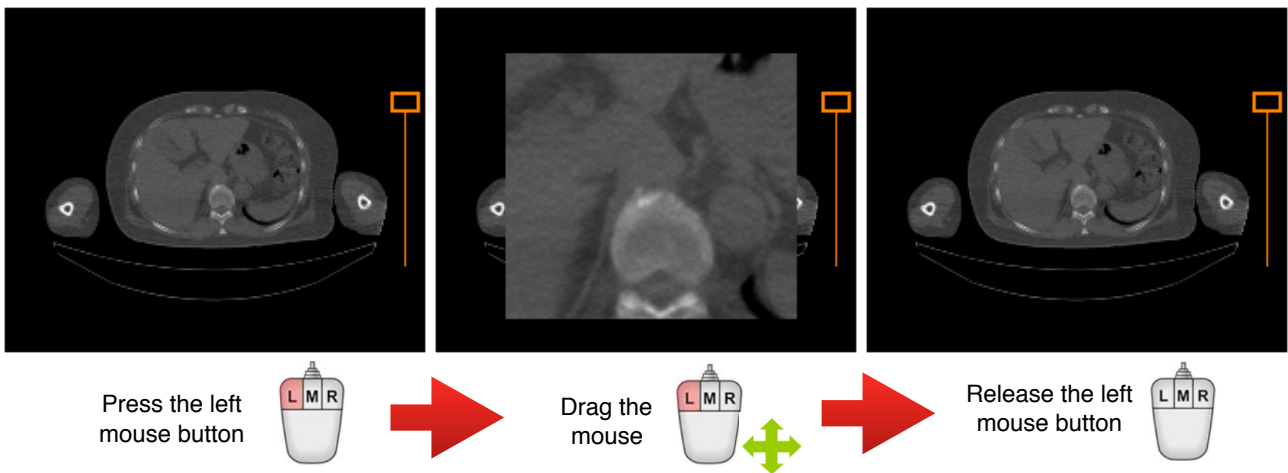
8.4.5 Scope

The Scope tool allows you to magnify a portion of an image without changing the zoom of the entire image as you would with the ‘Zoom’ tool. The ‘Scope’ tool acts like a magnifying glass that enlarges just the area beneath your cursor. To use this tool, follow the instructions below:

1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. Select the ‘Scope’ tool from the toolbar.



3. Bring your cursor above an image.
4. While holding down the left mouse button, drag your cursor inside the image area to closely examine specific parts of the image.
5. Release the left mouse button when you are done.



While using the tool, you can change the magnification factor by using the up and down arrow keys to increase or decrease the magnification levels. The following magnification levels are available: 1.5, 2, 3, 4 and 8.

Notes:

1. You can define a shortcut for this tool in the User Preferences panel.

8.4.6 Multi-Frames

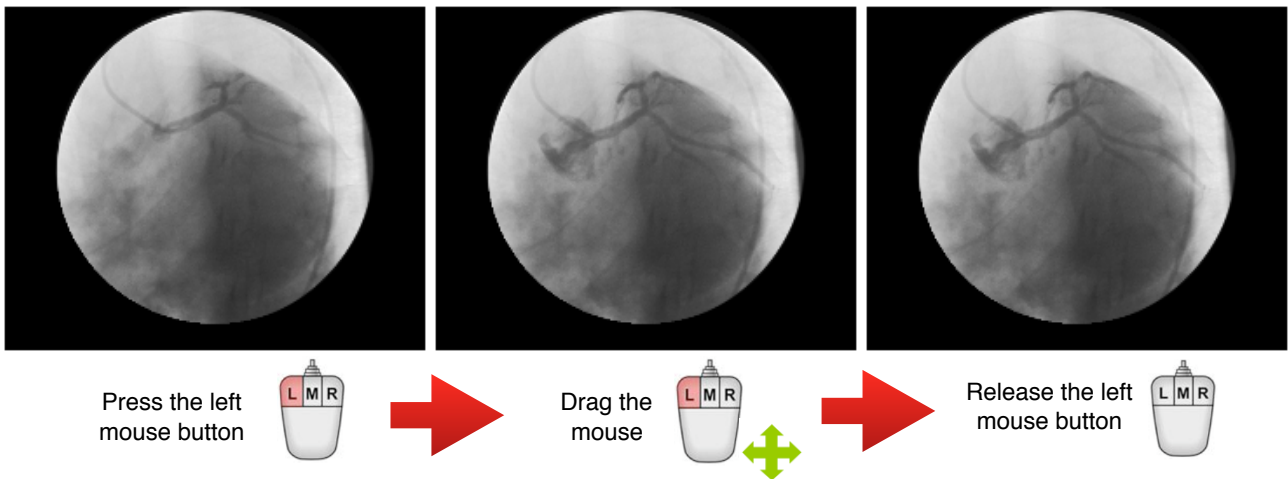
When you are reading a multi-frame image, you can quickly switch to the movie timeline using the ‘Multi-Frames’ tool.

To use this tool, follow the instructions below:

1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. Select the ‘Multi-Frames’ tool from the toolbar.



3. Bring your cursor above an image.
4. While holding down the left mouse button, drag your cursor to the right to move forward in the movie and to the left to move backward.
5. Release the left mouse button when you are done.



Notes:

1. You can define a shortcut for this tool in the User Preferences panel.

8.5 Export

From the viewer page, you will find two ways to export the displayed images:

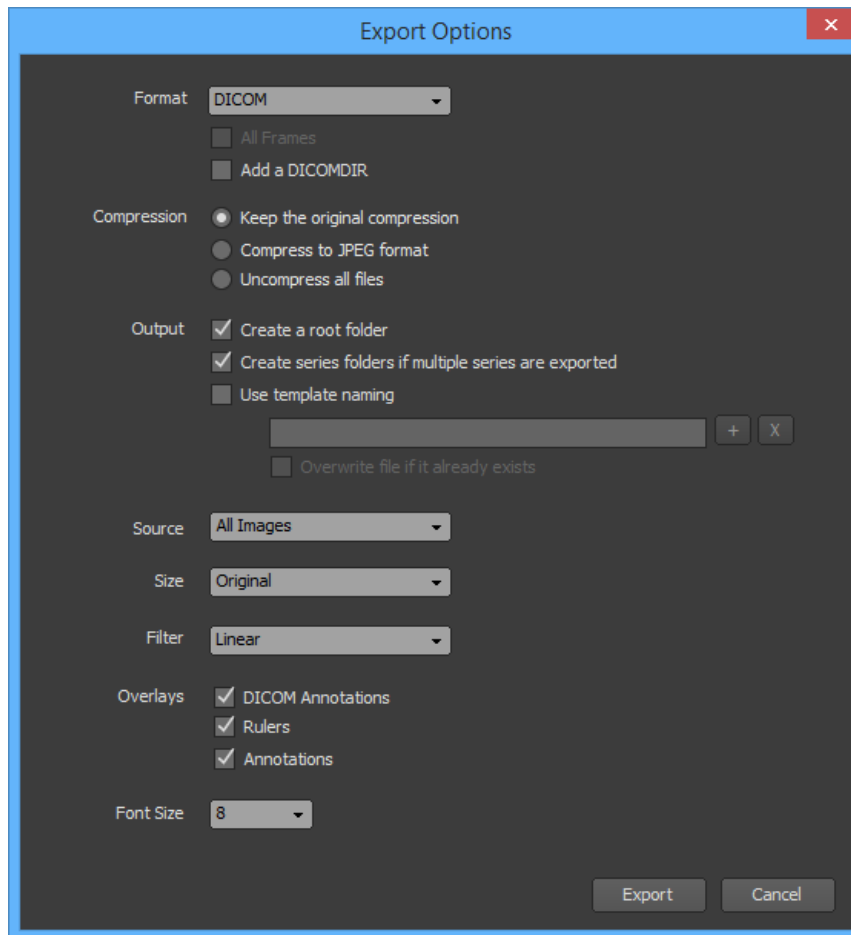
- **Custom Export:** This is the usual way to export images, by choosing your export options and the output directory.
- **Template Export:** You can export images just by one click. You will define your export options in one or more export templates (you can define one template per modality).

8.5.1 Custom export

8.5.1.1 Defining the Options

To export one or more images from a view:

1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. You will be proposed to export only the selected images. If this is your intention, select the image you want to export by clicking on it with the left mouse button. Multiple images can be selected by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
3. Choose 'Export...' under 'File' on the viewer page. This will open the Export Option window.



4. Choose the options you would like for exporting:

- **Format:** You can choose to export the file in DICOM, BMP, JPEG or in PNG formats.
- **All Frames:** When a multi-frame DICOM file is exported in either a BMP, JPEG or PNG format, all of the frames will be exported if you check on this option. Otherwise, only the current frame will be exported.
- **Add a DICOMDIR:** Check on this option if you would like a DICOMDIR to be added. This option is only available when you export the images in the DICOM format.
- **Compression:** If you export the images in the DICOM format, you can ask ONIS to modify the transfer syntax of the files. You can choose to keep the original format, to compress the files to the JPEG transfer syntax (only for the uncompressed files), or to uncompress the files (except for the multi-frame images or MPEG transfer syntaxes).
- **Create a Root Folder:** Check on this option if you would like to create a root folder that will contain the exported images. The root folder will be named 'ExportXXXX', wherein XXXX will be replaced by a unique number.
- **Create Series Folders if Multiple Series are Exported:** Check on this option if the images you want to export belong to a different series and if you would like them to be separated in different folders series by series.

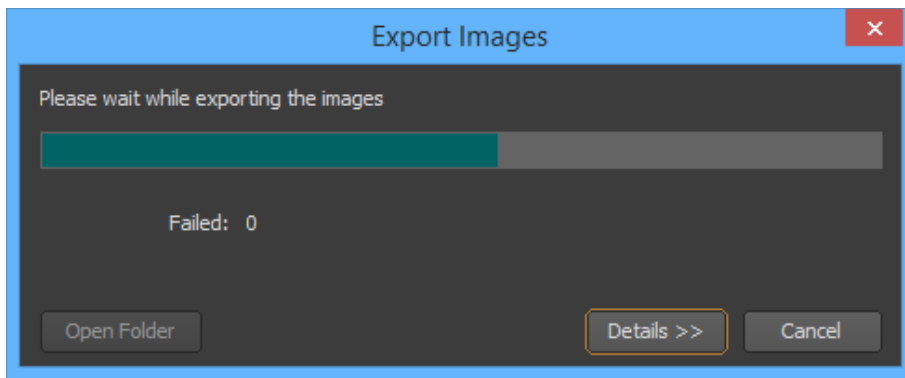
- **Use Template Naming:** If this option is checked off, the files of the exported images will be named 'IMGXXXX', wherein XXXX will be replaced by a unique number. If you check on this option, you can customize how the files will be named. The file names can be constructed by any combination of the following flags: Modality, Study Date, Study ID, Accession Number, Series Number, Instance Number, Study Instance UID, Series Instance UID, SOP Instance UID. Click on the '+' button to add a flag and the 'x' button to remove the last one. For the file names to be unique, it is recommended to include the Instance Number or the SOP Instance UID. If the file names do not include either, they will be overwritten when the 'Overwrite file if it already exists' option is checked on. Otherwise, one extension will be added to the file name to make it unique.
 - **Source:** You can select here what images will be exported from the view. It can be all of the images, only the selected ones or the key images only.
 - **Size:** You can specify the resolution for the exported images. Choose 'Original' for the original dimension of the DICOM image, 'Snapshot' for the view resolution or 'Fix' for a custom resolution.
 - **Filter:** Choose the rendering filter you would like to use for drawing the images. If you choose 'Linear', the exported images will look much smoother.
 - **Overlays:** Check on the overlays you would like drawn on the exported images.
 - **Font Size:** Choose the font size to be used when drawing the overlays.
5. Click the 'Export' button, choose the output directory and click on the 'OK' button to start exporting the images

Notes:

1. *The 'Export...' menu is disabled if you didn't check on the 'Use Custom Image Export' on the 'General' page of the User Preferences panel.*
2. *The toolbar of the view may provide you a shortcut to export the images.*

8-5-1.2 Progression

When the export starts, a window will open to show you its progression.



You can stop to export images anytime by clicking on the "Cancel" button.

Once the exportation completes, if there were any errors they will be displayed in the Error List. You can display or hide the Error List anytime during the process by clicking on the 'Details' button.

You can open the output folder by clicking on the 'Open Folder' button.

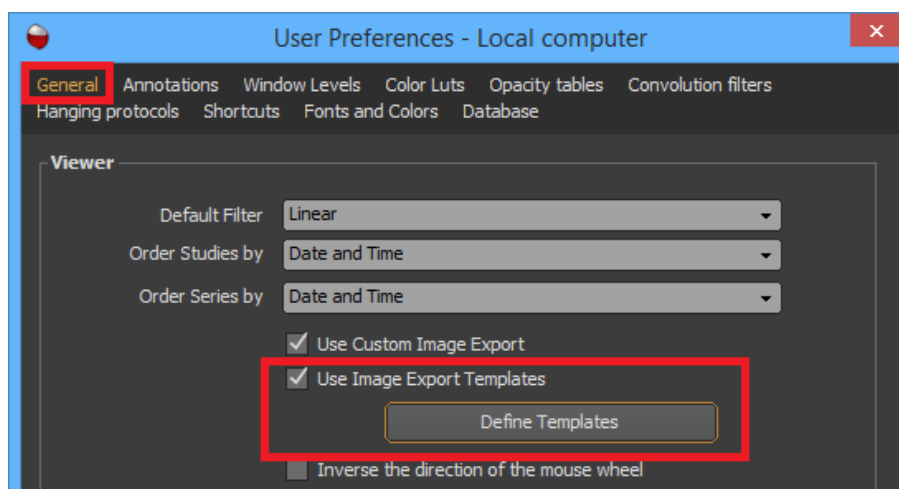
8.5.2 Template Export

You can define per modality templates to export your images from a view by a single click.

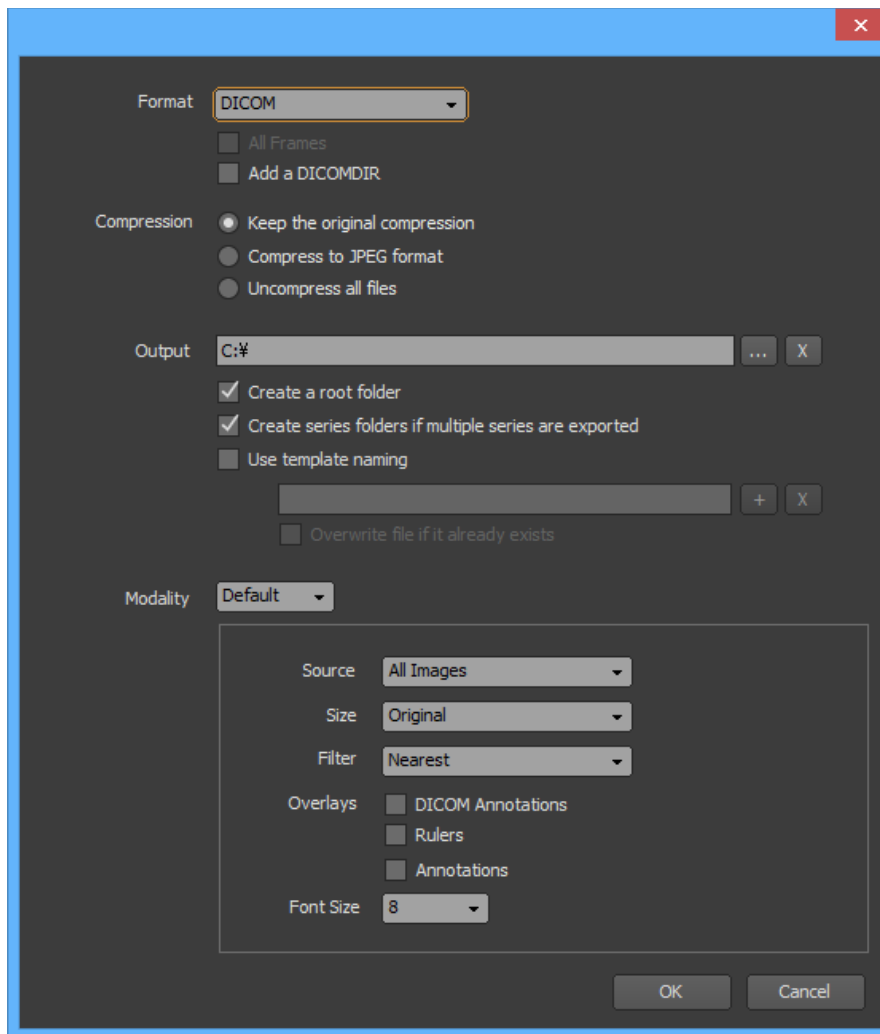
8.5.2.1 Define templates

To defined the templates:

1. Open the User Preferences panel and select the 'General' page.



2. Check on the 'Use Image Export Templates' and click on the 'Define Templates' button. The template window will open.



3. Define the common options for all the modality templates:

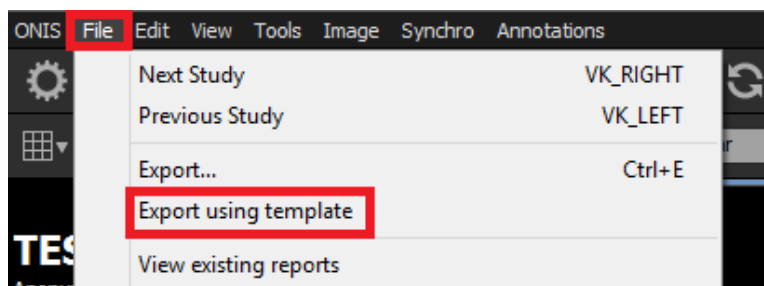
- **Format:** You can choose to export the file in DICOM, BMP, JPEG or in PNG formats.
- **All Frames:** When a multi-frame DICOM file is exported in either a BMP, JPEG or PNG format, all of the frames will be exported if you check on this option. Otherwise, only the current frame will be exported.
- **Add a DICOMDIR:** Check on this option if you would like a DICOMDIR to be added. This option is only available when you export the images in the DICOM format.
- **Compression:** If you export the images in the DICOM format, you can ask ONIS to modify the transfer syntax of the files. You can choose to keep the original format, to compress the files to the JPEG transfer syntax (only for the uncompressed files), or to uncompress the files (except for the multi-frames images or MPEG transfer syntaxes).
- **Output:** Click on the ‘...’ button to choose the output directory for the exported images. If you leave this field blank, the exportation will not work.
- **Create a Root Folder:** Check on this option if you would like to create a root folder that will contain the exported images. The root folder will be named ‘ExportXXXX’, wherein XXXX will be replaced by a unique number.

- **Create Series Folders if Multiple Series are Exported:** Check on this option if the images you want to export belong to a different series and if you would like them to be separated in different folders series by series.
 - **Use Template Naming:** If this option is checked off, the files of the exported images will be named 'IMGXXXX', wherein XXXX will be replaced by a unique number. If you check on this option, you can customize how the files will be named. The file names can be constructed by any combination of the following flags: Modality, Study Date, Study ID, Accession Number, Series Number, Instance Number, Study Instance UID, Series Instance UID, SOP Instance UID. Click on the '+' button to add a flag and the 'x' button to remove the last one. For the file names to be unique, it is recommended to include the instance number or the SOP Instance UID. If the file names do not include either, they will be overwritten when the 'Overwrite file if it already exists' option is checked on. Otherwise, one extension will be added to the file name to make it unique.
4. Use the 'Modality' drop down list to select the modality containing the template you wish to customize. The modalities without customization will use the 'Default' modality options. The options you can define are:
- **Source:** you can select what images will be exported from the view. It can be all of the images, only the selected ones or the key images only.
 - **Size:** You can specify the resolution of the exported images. Choose 'Original' for the original dimension of the DICOM image, 'Snapshot' for the view resolution or 'Fix' for a custom resolution.
 - **Filter:** Choose the rendering filter you would like to use for drawing the images. If you choose 'Linear', the exported images will look much smoother.
 - **Overlays:** Check on the overlays you would like to be drawn on the exported images.
 - **Font Size:** Choose the font size to be used when drawing the overlays.
5. Click the 'OK' button.

8.5.2.2 Export Event

To export one or more images from a view:

1. Click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. The modality template that will be used may take the selected images as source. If this is the case, select the image you want to export by clicking on it. You can select multiple images by clicking while holding down the 'Shift' key for continuous selection or the 'Ctrl' key for a non-contiguous selection. You can unselect an image by clicking on it while holding down the 'Ctrl' key. When an image is selected, it is surrounded by a white frame.
3. Choose 'Export Using Template' under 'File' on the viewer page. The exportation process should start.

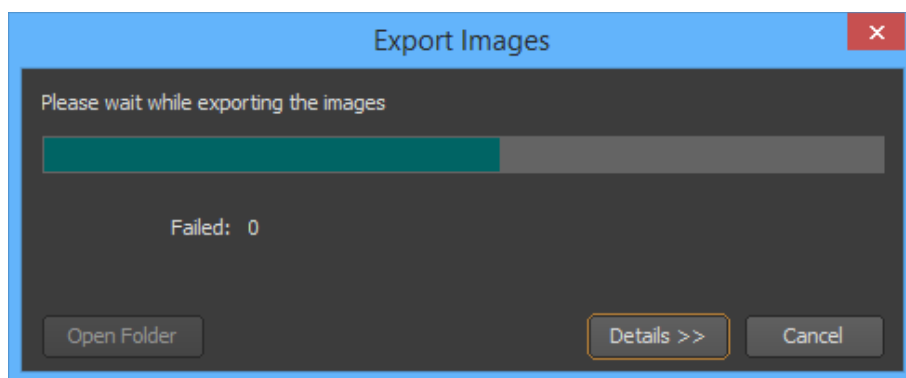


Notes:

1. If you checked off 'Use Image Export Templates' in the User Preferences panel, this menu will not be enabled.
2. The toolbar of the view may provide you a shortcut to export the images.

8-5-2.3 Progression

When the export starts, a window will open to show you its progression.



You can stop to export images anytime by clicking on the "Cancel" button.

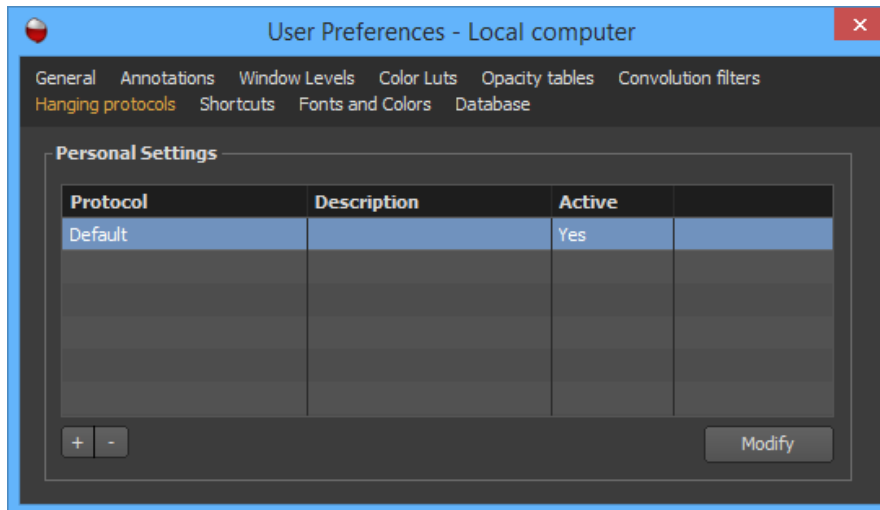
Once the exportation completes, if there were any errors, they will be displayed in the Error List. You can display or hide the Error List anytime during the process by clicking on the 'Details' button.

You can open the output folder by clicking on the 'Open Folder' button.

8.7 Hanging protocols

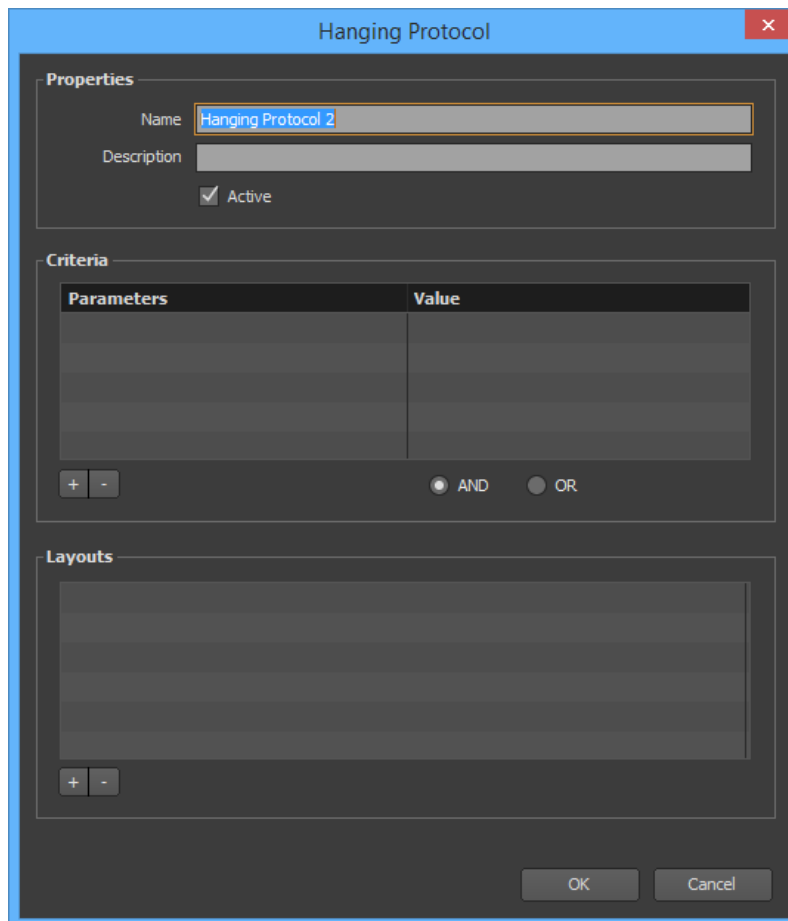
Hanging protocols allow you to customize how the images of related studies should be displayed on screen, according to the Radiologist Preferences. Multiple hanging protocols are usually needed since the images often have to be displayed differently depending on the type of exams.

The 'Hanging Protocols' page of the User Preferences panel displays the list of predefined hanging protocol presets. If the current preference set is an account set, you might have two lists, one displaying your personal presets and the other the presets available to all the members of the group you belong to.

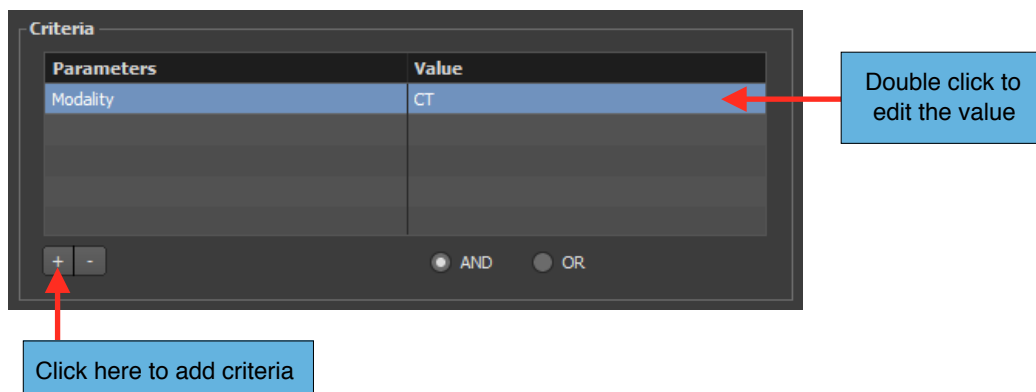


8.7.1 Creating a Hanging Protocol

1. Click on the '+' button. This will open the property window for the hanging protocol.



2. Choose a name for the hanging protocol (should be unique) and an optional description.
3. Mark the 'Active' check box if you would like your hanging protocol to be usable. If not, it will be saved but not made available when you open a study.
4. You have the option to define one or multiple criteria. When you open a study, all available hanging protocols that are considered a match will be listed. Matches are searched based on the criteria you input here. The hanging protocol that has the closest matching criteria will be selected to layout the images.
 - To add criteria, click on the '+' button. Select one or more criteria from the list that is proposed to you, then click on the 'OK' button. In the criteria list, set a matching value for each criteria by double clicking on the corresponding cells.



- To modify a criteria value, double click on its corresponding value cell.
 - To remove one or more criteria, select them and click the ‘-’ button.
 - If you have defined multiple criteria, select ‘AND’ if all the criteria should be a match for the hanging protocol to be a match. If you select ‘OR’, the hanging protocol will be a match if just one of the criteria is a match.
5. Define one or more layouts for the hanging protocol.
 6. Click on the ‘OK’ button.

8.7.2 Modifying an Existing Hanging Protocol

1. Select the hanging protocol you want to modify in the list and click on the ‘Modify’ button. You also can double click on the hanging protocol line directly.
2. Choose a name for the hanging protocol (should be unique) and an optional description.
3. Define the criteria and layouts as you want (refer to the previous section).
4. Mark the ‘Active’ check box if you would like your hanging protocol to be usable. If not, it will be saved but not made available when you open a study.
5. Click on the ‘OK’ button.

8.7.3 Deleting One or More Hanging Protocols

1. Select one or more hanging protocols in the list.
2. Click on the ‘-’ button.
3. Click on the ‘Delete’ button of the confirmation window.

8.7.4 Layouts

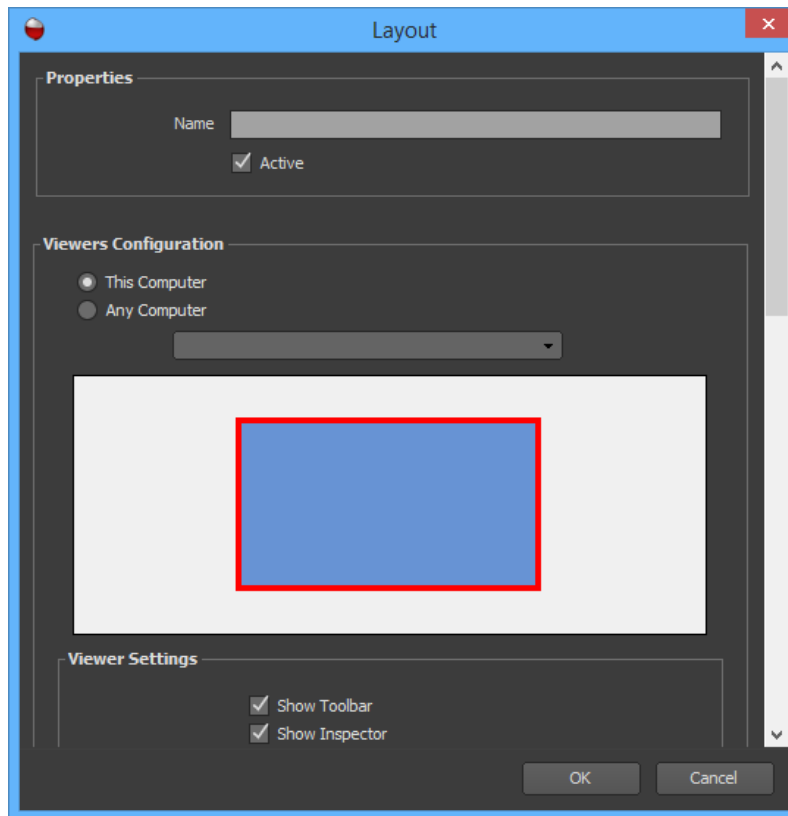
You can create one or more layouts for a hanging protocol. A layout comprises of all of the elements that the user should see on the screen. The advantage of multiple layouts is that they allow different views of the data set within a single hanging protocol.

In a similar concept, you can define for a single layout several complete descriptions of what the user should be seen, depending on the number of available viewer pages. This is very useful when you use your account preference set. You might sign in from time to time from different computers and each of them might have a different number of viewer pages. For example, you can define how the same layout will display the images if you have only one viewer page and how it should be done if you have two. We are talking here in terms of viewer pages instead of monitors because it is not

necessarily related. If you have two monitors, you can decide in the monitor configuration how many of them will be used and which of them will display a viewer page.

To create a layout:

1. Click on the '+' button in the 'Layouts' section of the hanging protocol property window.



2. Define a name for the layout.
3. Mark the 'Activate' checkbox if you would like this layout to be usable. If not, your layout will be saved but not available.
4. Define a complete description of what the user should see in each viewer page, depending on their quantity.
5. Click on the 'OK' button.

To modify a layout:

1. Double click on the layout in the list
2. Define a name for the layout.
3. Mark the 'Activate' checkbox if you would like this layout to be usable. If not, your layout will be saved but not made available.

4. Define a complete description of what the user should see in each viewer page, depending on their quantity.
5. Click on the 'OK' button.

To delete a layout:

1. Select the layout in the list.
2. Click on the '-' button.
3. Click on the 'Delete' button of the confirmation window.

To reorder the layouts:

1. Select a layout in the list.
2. Drag and drop the layout to a different position in the list.

To select the configuration for a specific number of viewer pages:

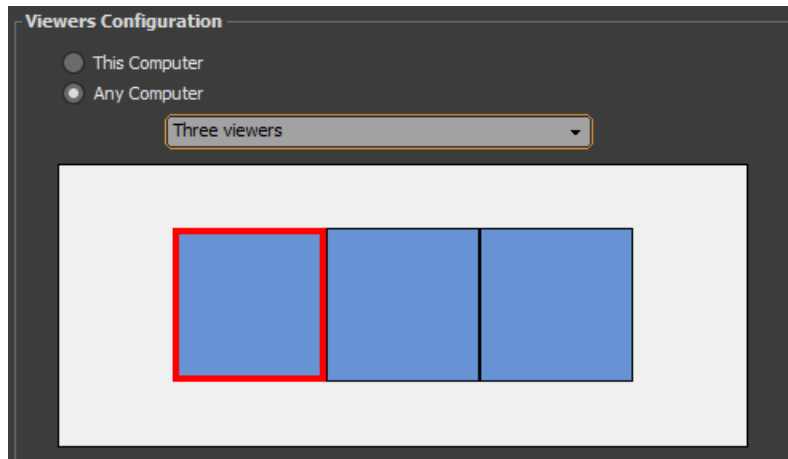
- Select 'This Computer' to select the current configuration of your computer (this is the configuration you have defined in the monitor settings from the System Preferences panel). 'This Computer' is a shortcut for 'Any Computer' with the number of viewer pages you are currently using.
- Or, select 'Any Computer' and choose a number of viewer pages in the drop down list (1 to 6).

Below these settings, you will find a representation your viewer pages.

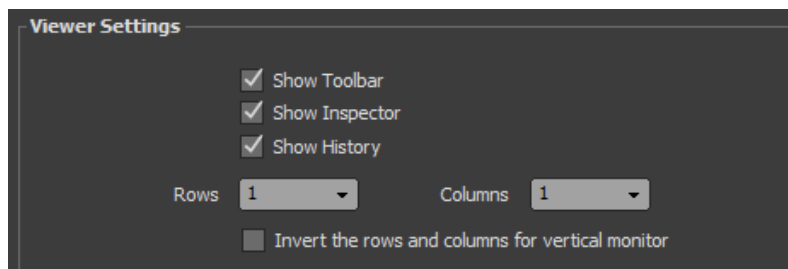


To define a complete description of what the user should see in a viewer page:

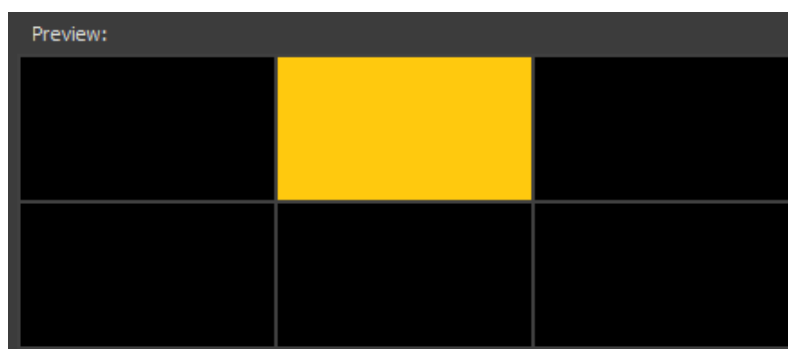
1. Select a viewer page by clicking anywhere inside it. The selected viewer page is the one surrounded by a red frame.



2. If you would like the viewer page to display the toolbar, the inspector bar or the history bar, mark the appropriate checkboxes.



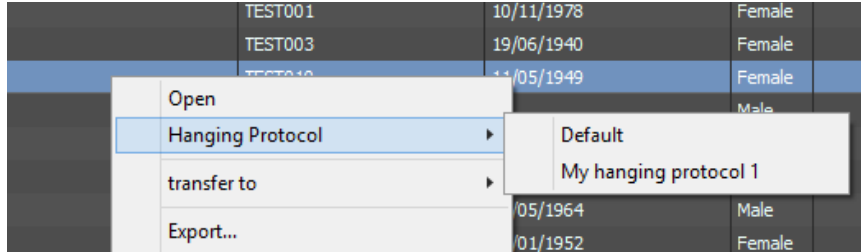
3. Choose a view layout by specifying the number of rows and columns. You can mark the checkbox just below these settings if you would like the number of rows and columns to be inverted if the monitor displaying the viewer page is vertical.
4. For each view, choose one of the available view types. To select a view, click anywhere inside it in the view preview. The selected view will have an orange background. Open the 'Type' drop down list to choose the view type of the selected view. Then refer to the view type properties to specify what should be displayed in it.



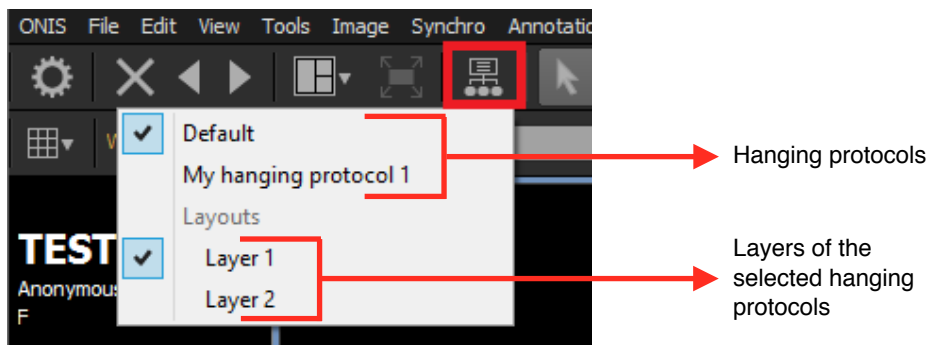
8.7.5 Applying a Hanging Protocol

When you open a study from the Database page, ONIS will use the hanging protocol that is a closest match (base on the criteria you've defined for each hanging protocol).

You also can choose to use a specific hanging protocol, as long as it is considered as a match for the selected study. In the Database page, bring your cursor over the study you wish to open and right click on it. In the popup menu, open the 'Hanging Protocol' submenu and choose the hanging protocol you want to use. The first layer of the hanging protocol will automatically be used.



From the viewer page, you can find out what was the latest hanging protocol and layer that was used when you opened the study. You can also apply a different hanging protocol or layer. To do this, simply click on the hanging protocol button in the toolbar or open the 'Hanging Protocols' submenu under 'View'. The latest hanging protocol and layer used will be marked. From the menu, simply select a different layer or hanging protocol.



8.8 Propagation

Propagation is a function that enables you to apply the same property modifications you've made on one image to multiple others. This function is useful in instances when you want the same properties to be applied to many images without having to adjust them one at a time. For example, if you are looking at a series of 20 images in a view, you might want all of the images to always display using the same window level values.

Each view type defines a list of properties than can be propagated among images. The 2D view type allows the following properties to be shared:

- Position and Rotation
- Zoom factor
- Horizontal and Vertical flip
- Window Level values
- Color LUT preset
- Opacity Table preset
- Convolution Filter preset

You can usually decide which images will be subject to the property adjustments. For each property, you will be usually be able to define with which other images you will share it. Such images may belong to different views, in which case, the property propagation can only be applied to views of same view type (i.e. 2D view type).

Please refer to each view type documentation for a complete description of the properties that can be propagated.

8.9 Annotations

8.9.1 Creating Annotations

You can create the following kinds of annotations and regions of interest in any image of a series:

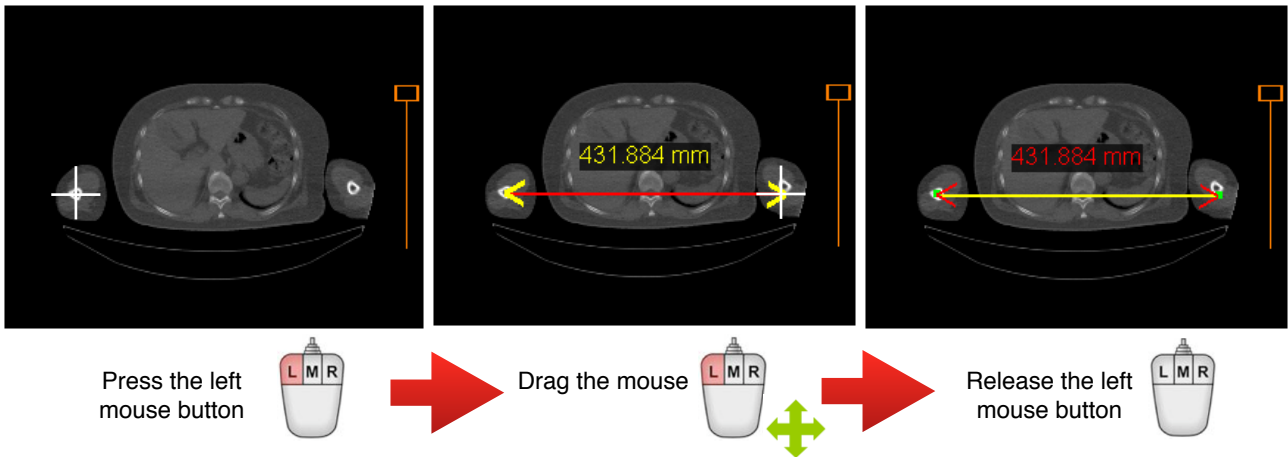
- Measure
- Angle
- Line
- Polyline
- Rectangle
- Polygon
- Ellipse
- Arrow
- Text

8.9.1.1 Measure

1. Select the 'Measure' tool from the toolbar.



2. Bring your cursor above an image and press down on the left mouse button to pin the first point of the measure.
3. While holding down the left mouse button, drag your mouse to the location of the second point of the measure.
4. Release the left mouse button to create the measurement.



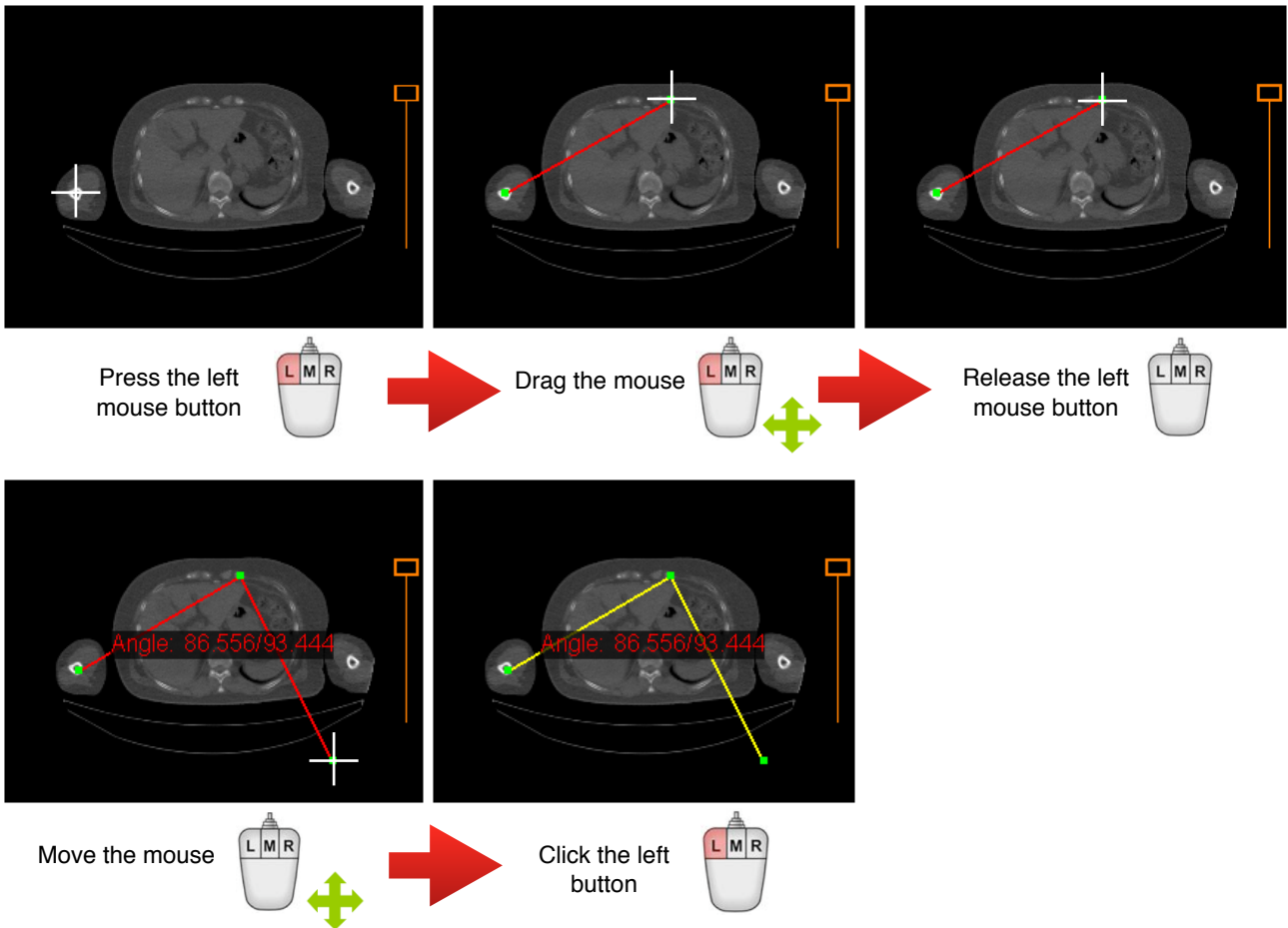
If the image is calibrated, the unit of measurement will be in millimeters. Otherwise it is in pixels. If the image contains several regions, both points of the measurement need to be inside of the same region. If not, the measurement will not be made and its value will be displayed as '****'.

8.9.1.2 Angle

1. Select the 'Angle' tool from the toolbar.



2. Bring your cursor above an image and press down on the left mouse button to pin the first point of the angle.
3. While holding down the left mouse button, drag your cursor to the location of the second point of the angle, then release the button.
4. Drag your cursor to the location of the third point of the angle.
5. Click the left mouse button to complete the angle.



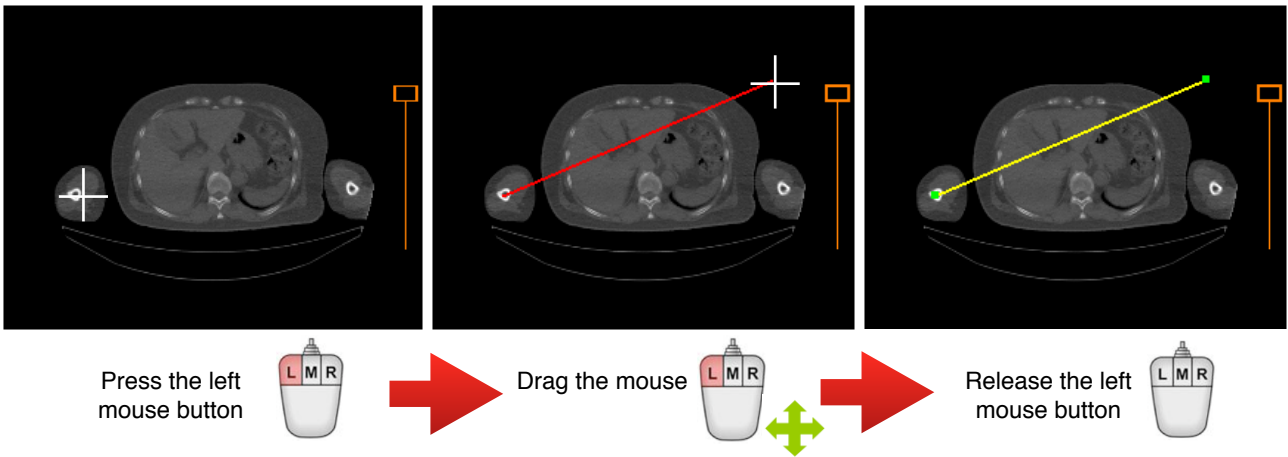
The unit of the angle measurement is in degrees. The second value is the supplement of the angle.

8.9.1.3 Line

1. Select the 'Line' tool from the toolbar.



2. Bring your cursor above an image and press down on the left mouse button to pin the first point of the line.
3. While holding down the left mouse button, drag your cursor to the location of the second point of the line.
4. Release the left mouse button.

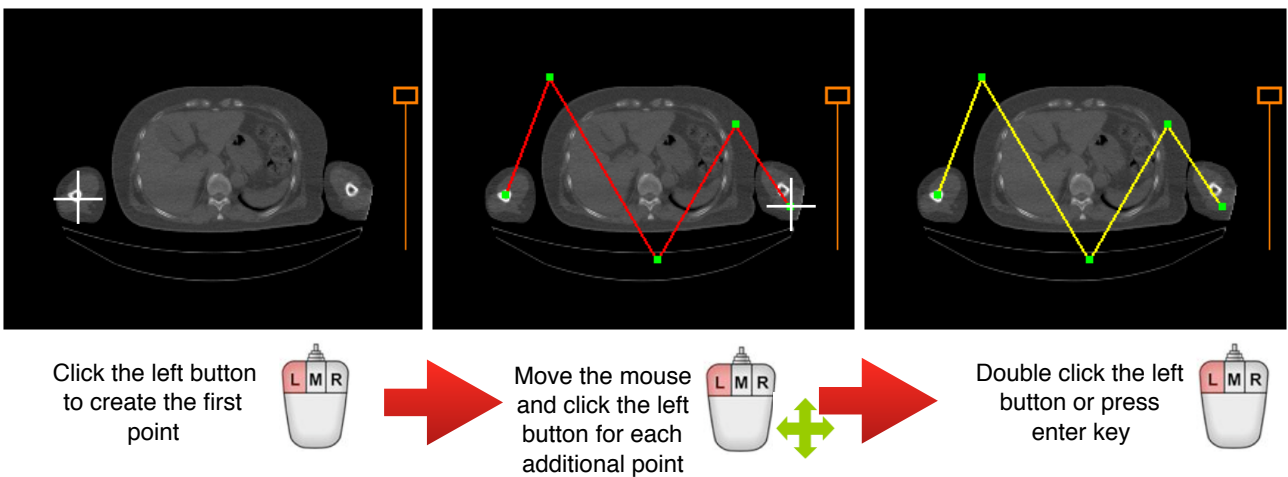


8.9.1.4 Polyline

1. Select the 'Polyline' tool from the toolbar.



2. Bring your cursor above an image and click down on the left mouse button to pin the first point of the polyline.
3. For each additional point, move your cursor and click the left mouse button.
4. Double click the left mouse button to create the last point or press the 'Enter' key of your keyboard when you wish to end the polyline.

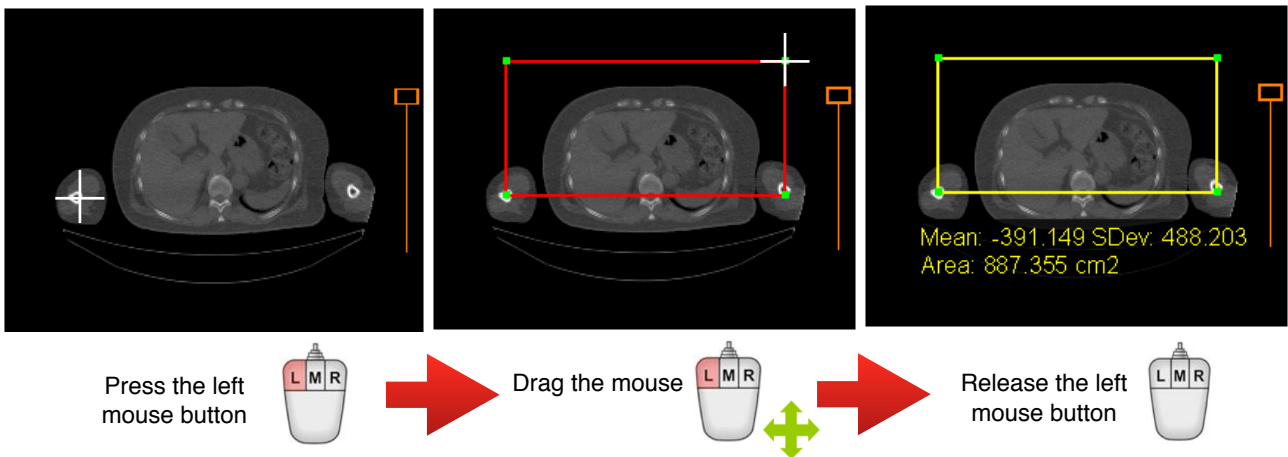


8.9.1.5 Rectangle

1. Select the 'Rectangle' tool from the toolbar.



2. Bring your cursor above an image and press down on the left mouse button to pin the first corner of the rectangle.
3. While holding down the left mouse button, drag your cursor to the location of the opposite corner of the rectangle.
4. Release the left mouse button.



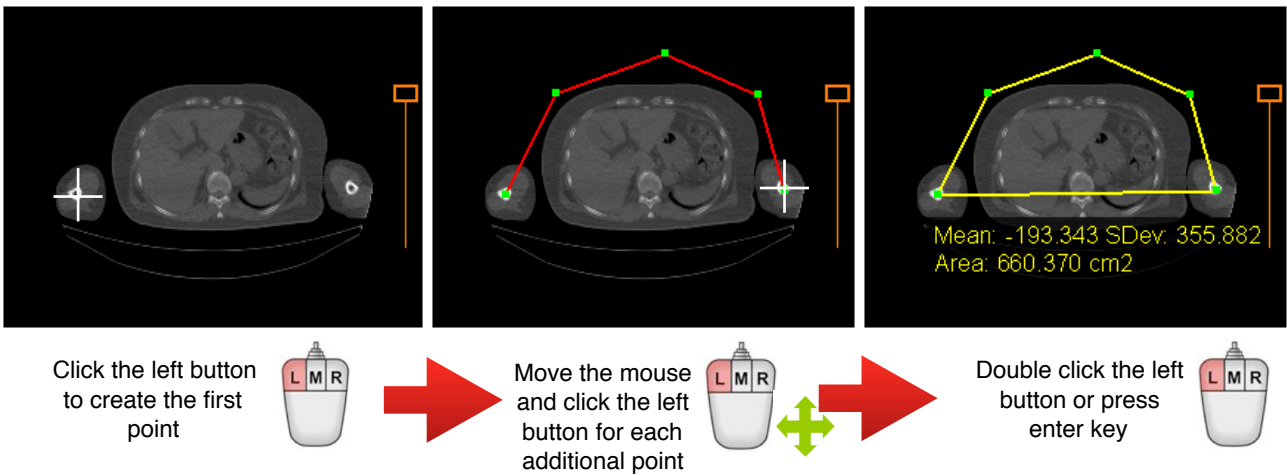
Once you complete your rectangle, a marker will appear, displaying the statistics of the region of interest. These statistics can be adjusted using threshold values, which you will learn how to do in the 'Modify Annotations' section of this manual. You can also find out how to change the position of the marker and its contents.

8.9.1.6 Polygon

1. Select the 'Polygon' tool from the toolbar.



2. Bring your cursor above an image and click on the left mouse button to pin the first point of the polygon.
3. For every additional point, move your mouse and click the left mouse button.
4. Double click the left mouse button to create the last point or hit the 'Enter' key of your keyboard to close the polygon.



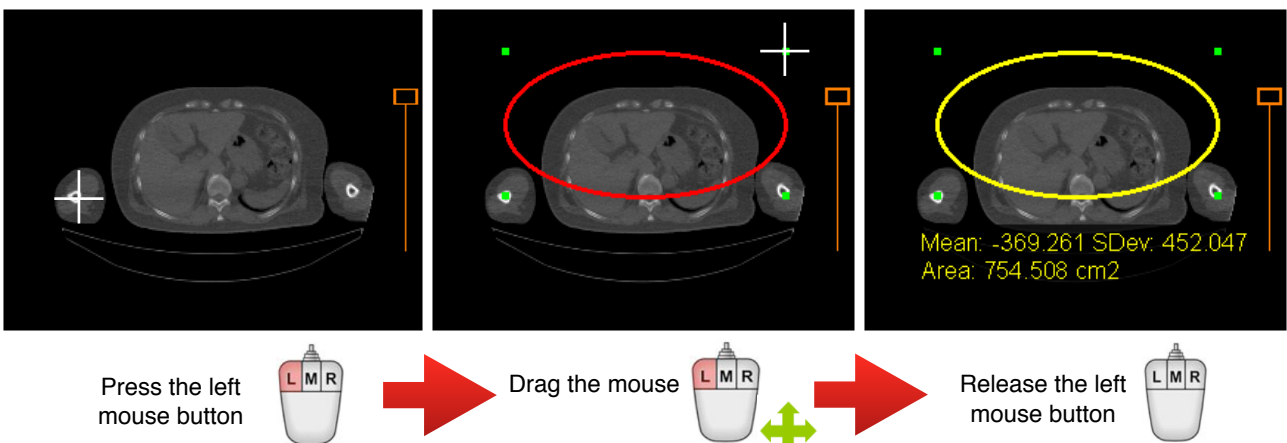
Once you complete your polygon, a marker will appear, displaying the statistics of the region of interest. These statistics can be adjusted using threshold values, which you will learn how to do in the ‘Modify Annotations’ section of this manual. You can also learn how to change the position of the marker and its contents.

8.9.1.7 Ellipse

1. Select the ‘Ellipse’ tool from the toolbar.



2. Bring your cursor above an image and press down on the left mouse button to pin the first corner of the rectangle containing the ellipse.
3. While holding down the left mouse button, drag your cursor to the location of the opposite corner of the rectangle containing the ellipse.
4. Release the left mouse button.



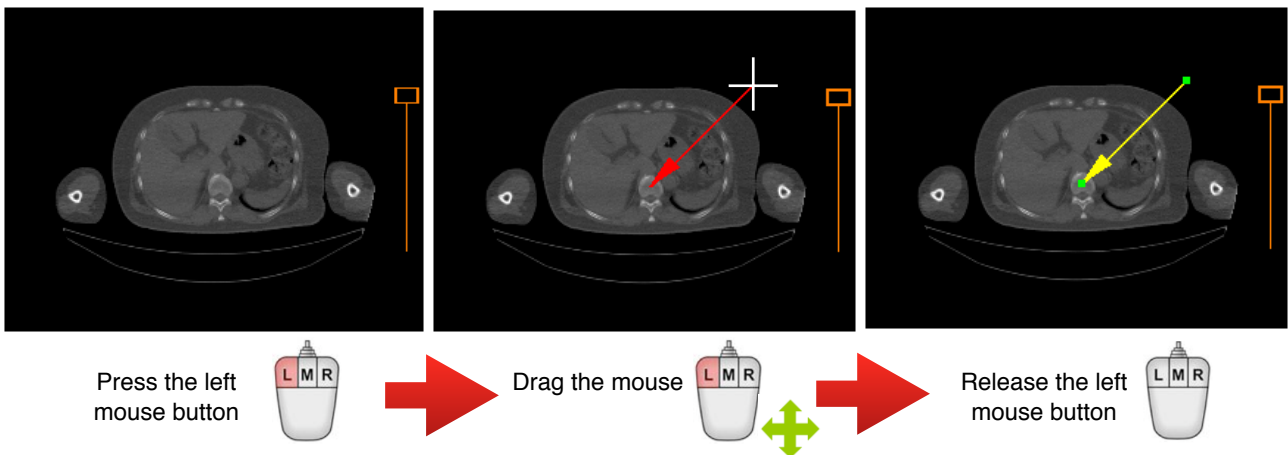
Once you complete your ellipse, a marker will appear, displaying the statistics of the region of interest. These statistics can be adjusted using threshold values, which you will learn how to do in the ‘Modify Annotations’ section of this manual. You can also learn how to change the position of the marker and its contents.

8.9.1.8 Arrow

1. Select the ‘Arrow’ tool from the toolbar.



2. Bring your cursor above an image and press down on the left mouse button to pin the target point of the arrow.
3. While holding down the left mouse button, drag your cursor to the location of the base point of the arrow.
4. Release the left mouse button.

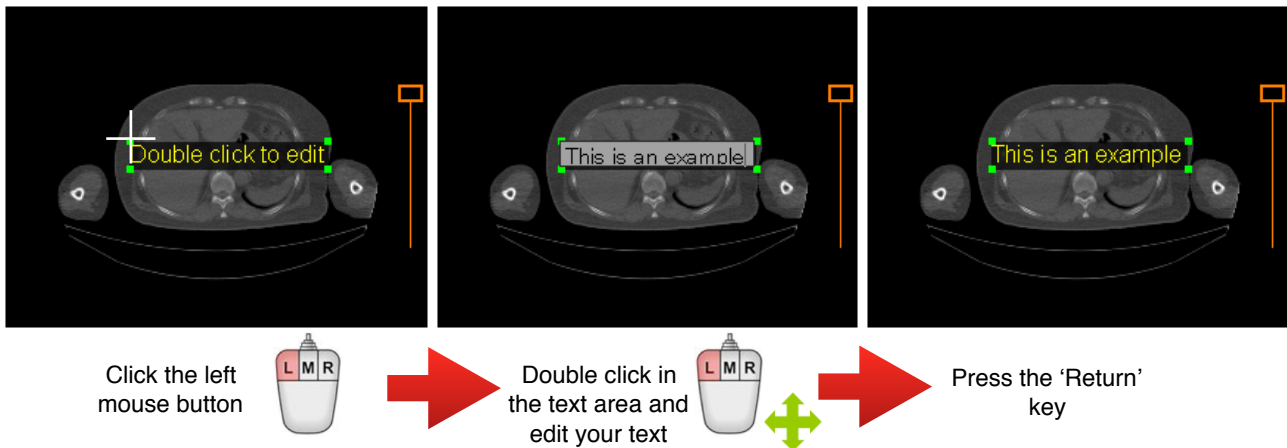


8.9.1.9 Text

1. Select the ‘Text’ tool from the toolbar.



2. Bring your cursor above an image and click the on left mouse button to define the top left corner of the text area.
3. Double click within the text area to edit its contents.
4. Press the ‘Enter’ key or click on the left mouse button outside of the text area to finish editing.



8.9.1.10 Cardio-thoracic tool

8.9.2 Selecting Annotations

To select or unselect one or more annotations:

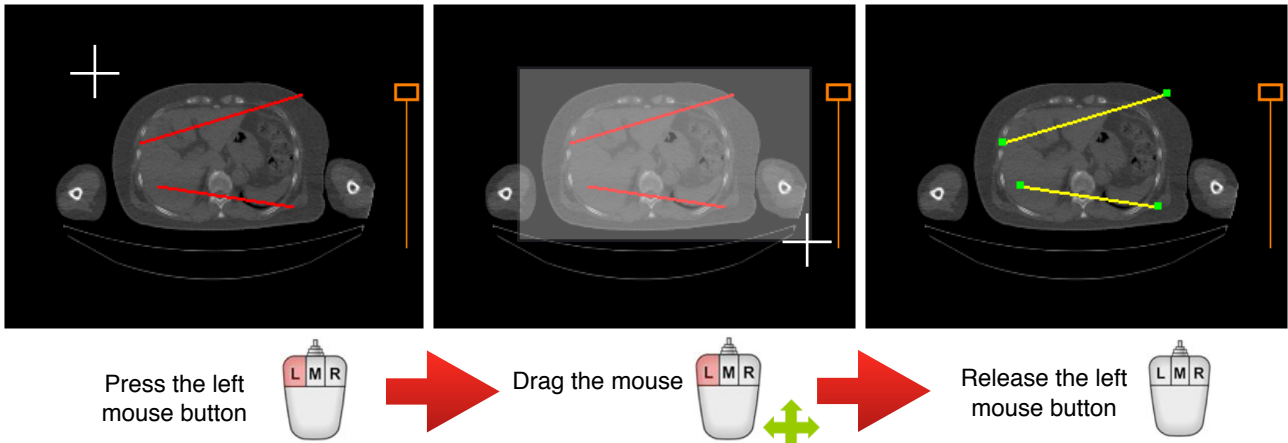
1. Make sure that one of the annotation tools is activated in the toolbar.
2. Bring your cursor above one of the annotations and click on it. When an annotation becomes active, its points appear in green.
3. You can select one more annotations by clicking on it while holding down the 'Shift' key of your keyboard.
4. You can unselect an annotation by clicking on it while holding down the 'Ctrl' key of your keyboard. You may have to repeat this several times until all of its points are hidden (refer to the 'Selection of Segments' section to understand why).

Alternatively you can select or unselect multiple annotations by using the Square Selection tool:

1. Select the 'Selection' tool from the toolbar.



2. Bring your cursor above an image and press the left mouse button to define the first corner of the selection rectangle.
3. While holding down the left mouse button, drag your cursor to the location of the opposite corner of the selection rectangle.
4. Release the left mouse button.



This will select all of the annotations inside of the rectangle as well as those that are intersecting it. Repeating the same process while holding down the ‘Ctrl’ key will unselect all of the encompassing annotations. When you create a new selection, all other annotations will be unselected unless you keep the ‘Shift’ or ‘Ctrl’ keys pressed. Please note that to unselect annotations, you may have to repeat the operation several times (refer to the ‘Selection of Segments’ section to understand why).

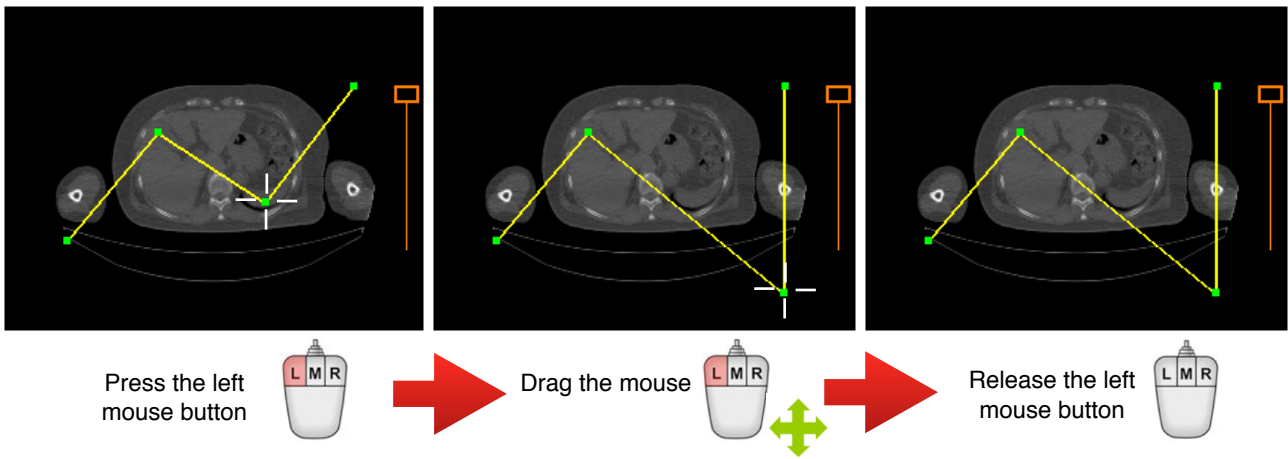
8.9.3 Modifying Annotations

8.9.3.1 Moving a Point

Most of the annotations are made of points which can be moved.

To modify the position of a point:

1. Make sure that one of the annotation tools is activated in the toolbar.
2. Bring your cursor above the point you want to move. The shape of the cursor should change to the point selection symbol.
3. While holding down the left mouse button, drag your mouse to the desired location.
4. Release the left mouse button.



Notes:

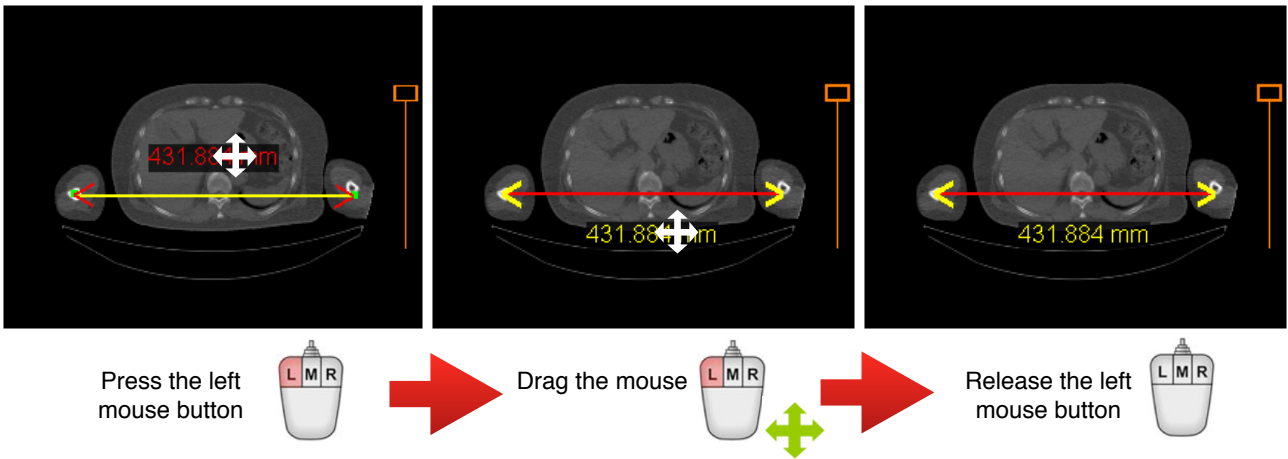
1. *Some points can't be moved or can move only in specific directions.*
2. *If you want to see the points, select the annotation and then the points will appear in green.*

8.9.3.2 Moving a Marker

Markers are the informative text related to an annotation. For instance, they can indicate a measurement, an angle or the statistics of a region of interest.

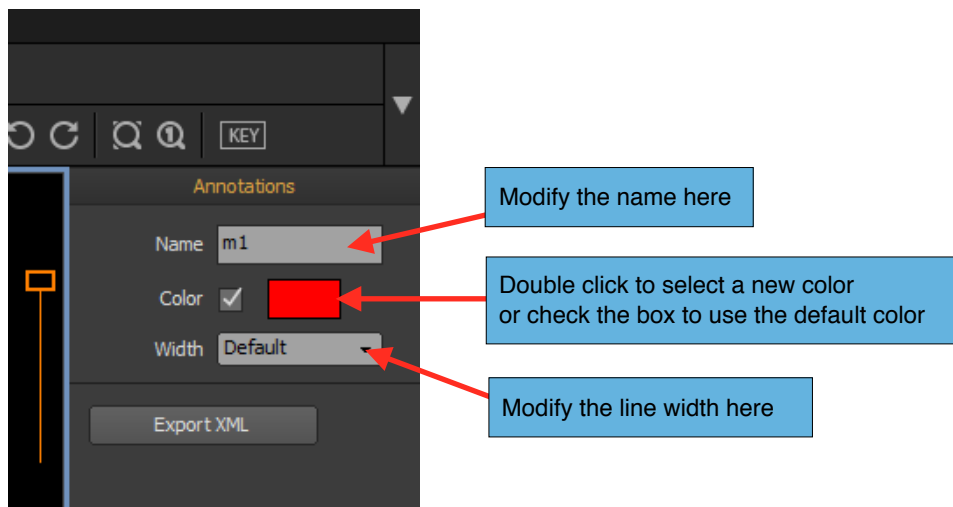
To move a marker:

1. Make sure that one of the annotation tools is activated in the toolbar.
2. Bring your cursor above the marker. The shape of the cursor should change to the move symbol.
3. Press the left mouse button.
4. While holding down the left mouse button, drag your cursor to the desired location.
5. Release the left mouse button.



8.9.3.3 Changing the Appearance

1. Select one annotation by clicking anywhere on it.
2. In the inspector, modify the name, the color or the line width as you wish. The default color and width can be modified in the User Preferences panel.



For regions of interest (rectangles, polygons and ellipses), you can customize which information should be displayed in the marker:

1. Select one region of interest by clicking anywhere on it.
2. In the inspector, check the type of content you want displayed in the marker.

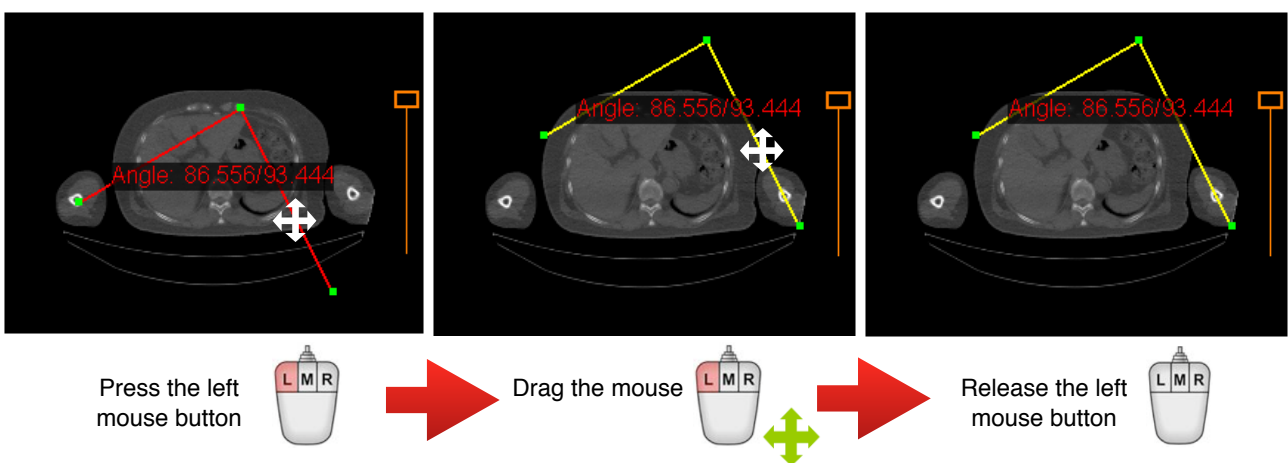
Area	<input checked="" type="checkbox"/>	118.373 cm2
Center	<input type="checkbox"/>	180.40 / 148.82 mm
Min/Max	<input type="checkbox"/>	1036.000 / 3045.000
Total	<input type="checkbox"/>	471626056
Mean	<input checked="" type="checkbox"/>	1591.18
Standard Dev	<input checked="" type="checkbox"/>	455.45
Fill	<input type="checkbox"/>	
Min Threshold	<input type="checkbox"/>	<input type="text"/>
Max Threshold	<input type="checkbox"/>	<input type="text"/>

Notes:

1. You can select multiple annotations to modify the appearance of all of them at the same time.

8.9.4 Moving Annotations

1. Make sure that one of the annotation tools is activated in the toolbar.
2. Bring your cursor anywhere above one of the two segments of the angle, outside the angle value or the points of the segments.
3. Press the left mouse button.
4. While holding down the left mouse button, drag your cursor to the desired location.
5. Release the left mouse button.



Notes:

1. You can select multiple annotations to move all of them at the same time.

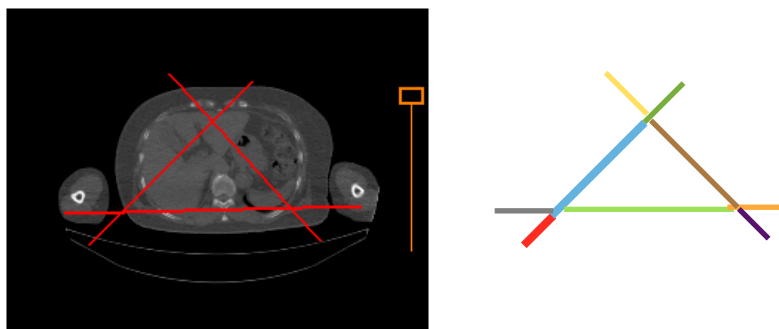
8.9.5 Annotation Actions

If you have created one or more annotations, you can do some action on them, like create a parallel or calibrate a segment.

8.9.5.1 Selecting Segments

A segment is a portion of line belonging to an annotation. A polyline with 4 points would have 3 segments. A rectangle would have 4 segments—2 horizontal and 2 vertical ones.

Annotations can also intersect each other. The intersecting points will be calculated automatically to define additional segments. For example, the following figure displays 3 simple line annotations intersecting each other. This figure has 9 segments, 3 segments per line (shown with different colors).



Since certain actions need one or more segments as source, you may need to manually select/unselect particular segments.

In a previous section, you have learned how to select and unselect annotations. Selection and unselection of segments are done in exactly the same way. When a segment is selected, its color becomes yellow.

To select or unselect one or more segments:

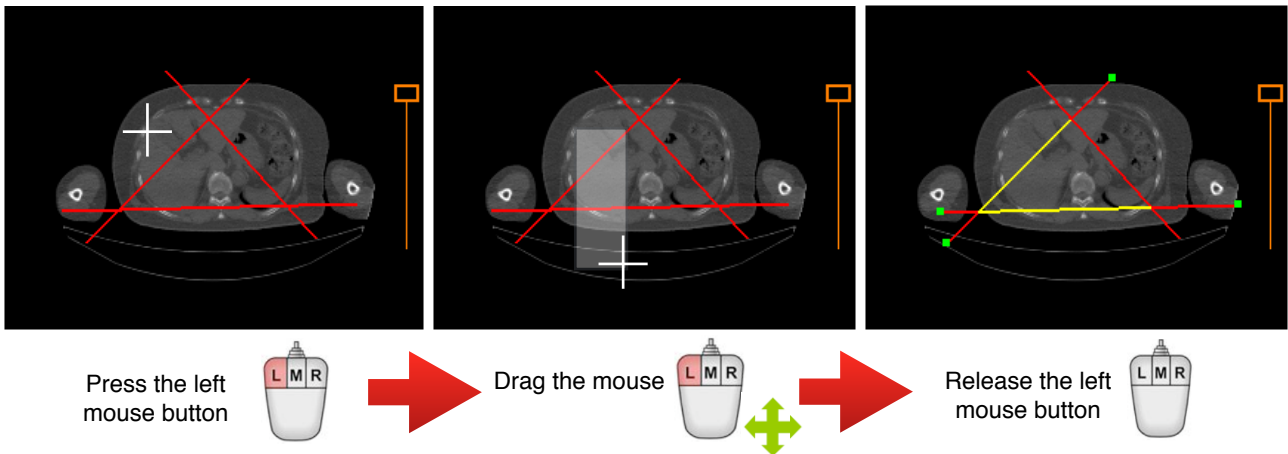
1. Make sure that one of the annotation tools is activated in the toolbar.
2. Bring your cursor above one segment of an annotation and click the left mouse button.
3. You can select one more segments by clicking on it while holding down the ‘Shift’ key of your keyboard.
4. You can unselect a segment by clicking on it while holding down the ‘Ctrl’ key of your keyboard. An annotation will be unselected once all of its segments are unselected.

Alternatively you can also select or unselect multiple segments by using the Square Selection tool:

1. Select the 'Selection' tool from the toolbar.



2. Bring your cursor above an image and press the left mouse button to pin the first corner of the selection rectangle.
3. While holding down the left mouse button, drag your cursor to the location of the opposite corner of the selection rectangle.
4. Release the left mouse button.



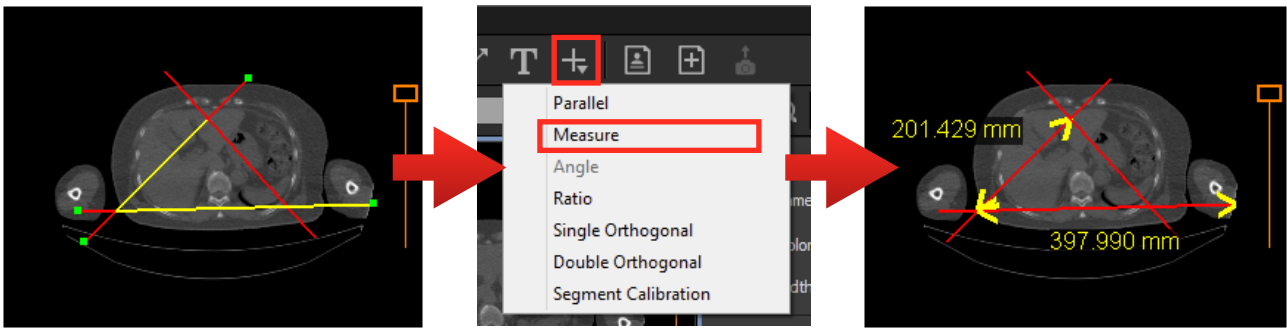
This will select all of the segments inside of the rectangle as well as those that are intersecting it. Repeating the same process while holding down the 'Ctrl' key will unselect all of the encompassing annotations. When you create a new selection, all other segments will be unselected unless you keep the 'Shift' or 'Ctrl' keys pressed. When you unselect segments all segments of an annotation, the annotation itself will be unselected.

8.9.5.2 Measuring Segments

You can measure the length of any segment or the length of any consecutive segments as long as they belong to the same annotation.

To measure the length of segments:

1. Select one or more segments.
2. Choose 'Measure' from the Annotation Action menu, as indicated below.



If the image is calibrated, the unit of the measurement will be in millimeters. Otherwise it will be measured in pixels. If the image contains several regions, both points of the measurement need to be inside the same region. If not, the measurement will not be possible and its value will be displayed as '****'.

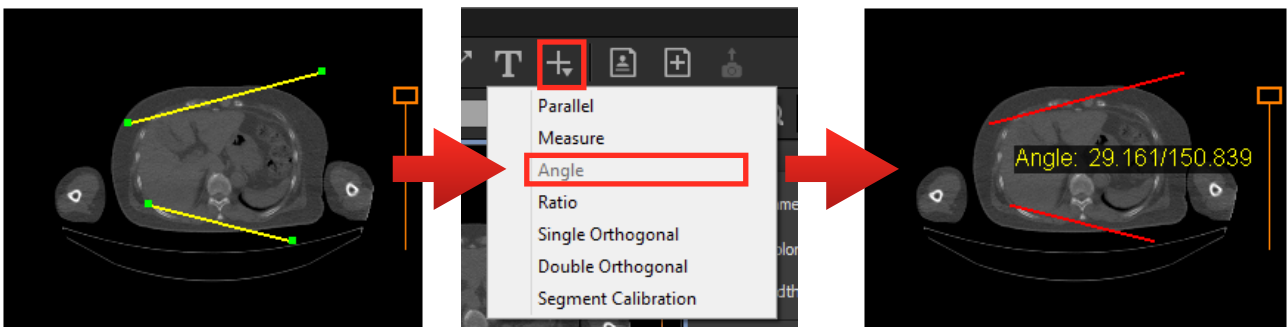
Note:

1. If you select all the segments of a closed figure like a rectangle or a polygon, the measurement will be equal to the perimeter.

8.9.5.3 Angle Between Segments

You can measure the angle formed by two segments:

1. Select two non-consecutive segments.
2. Choose 'Angle' from the Annotation Action menu.



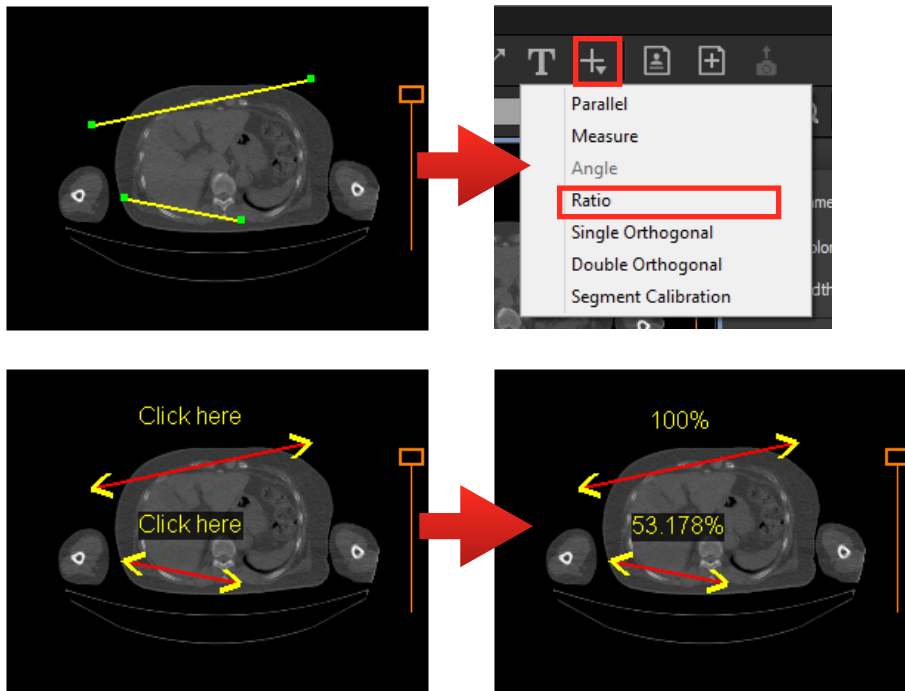
The unit of the angle measurement is in degrees. The second value is the supplement of the angle.

8.9.5.4 Ratio Measurement

You can measure the ratio between two segments:

1. Select one or more segments.
2. Choose 'Ratio' from the Annotation Action menu.

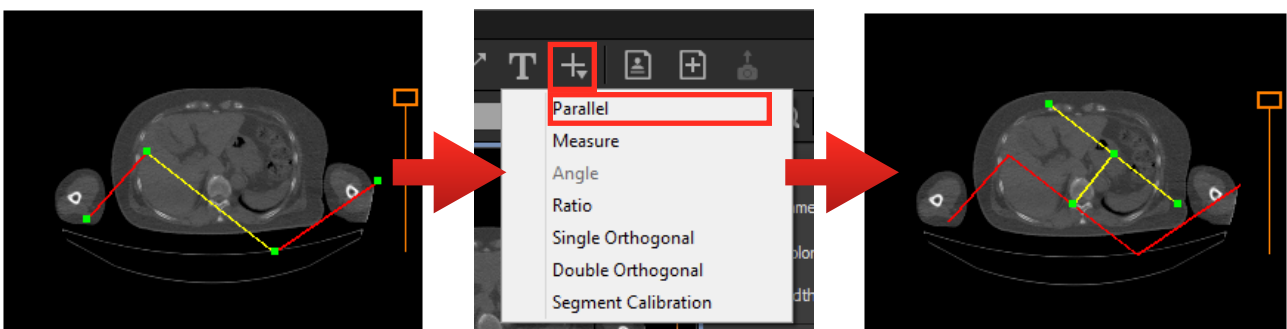
- Click on the base segment, the one that will be used for calculating the ratio. Each candidate segment will be displayed with a clickable area ('Click here').



8.9.5.5 Parallel

For any segment or consecutive segments, you can create a parallel line:

- Select one or more segments.
- Choose 'Parallel' from the Annotation Action menu.

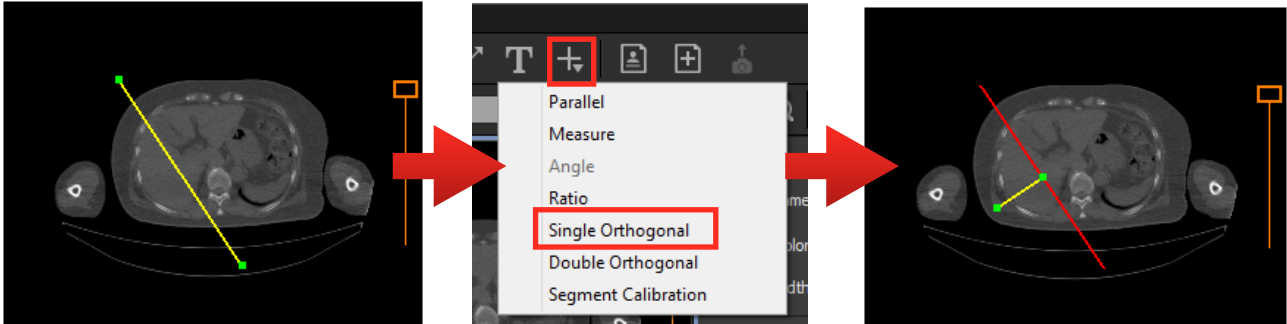


A parallel line will behave like a child annotation of the segment and will always remain parallel to it when you modify its position and orientation. If the segment becomes invalid (zero length for example), the parallel line will be invisible. Each parallel line has control points, which you can use to adjust the line length and position.

8.9.5.6 Single orthogonal

For any segment or consecutive segments, you can create a single orthogonal line:

1. Select one or more segments.
2. Choose 'Single Orthogonal' from the Annotation Action menu.

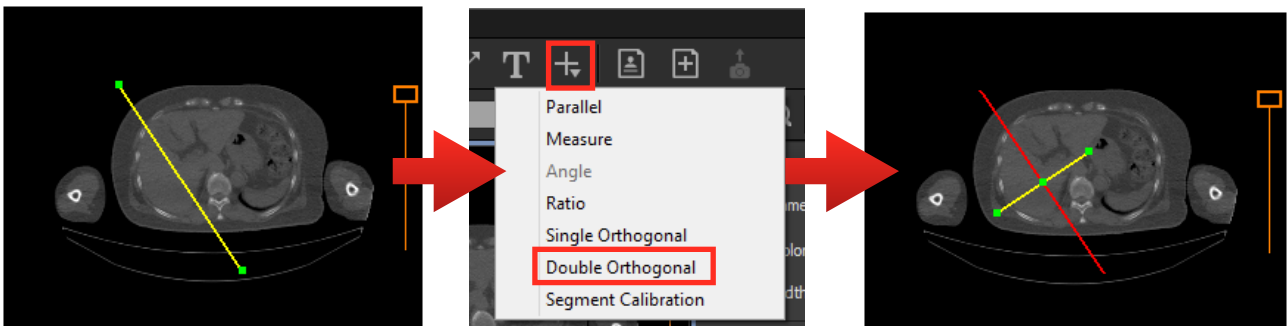


Each orthogonal line will behave like a child annotation of the segment and will always remain orthogonal to it when you modify its position and orientation. If the segment becomes invalid (zero length for example), the orthogonal line will be invisible. Each orthogonal line has control points, which you can use to adjust the line length and position.

8.9.5.7 Double Orthogonal

For any segment or consecutive segments, you can create two orthogonal lines, one on each side of the segment:

1. Select one or more segments.
2. Choose 'Double Orthogonal' from the Annotation Action menu.



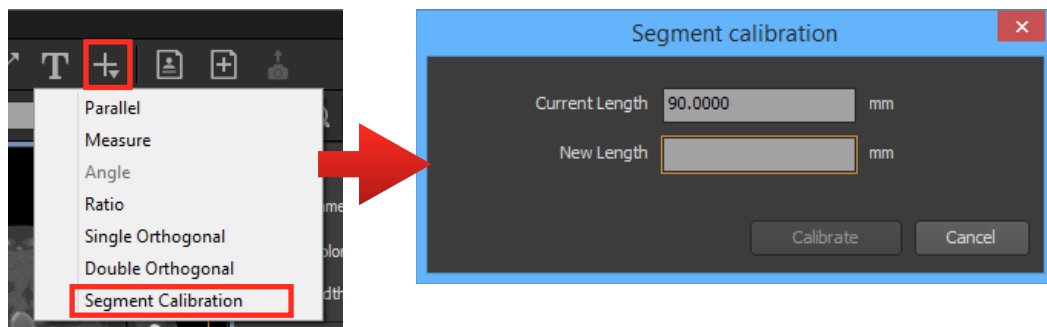
Each orthogonal line will behave like a child annotation of the segment and will always remain orthogonal to it when you modify its position and orientation. If the segment becomes invalid (zero length for example), the orthogonal lines will be invisible. Each orthogonal line has control points, which you can use to adjust the line length and position.

8.9.5.8 Segment Calibration

Though most DICOM images are already calibrated, there are a few such as ultrasound images which are not. When an image is not calibrated, the measurement in ONIS is calculated in pixels instead of millimeters. You can also calibrate images that are already calibrated, but do it only if you know what you are doing.

The segment calibration allows you to calibrate a series of images by providing the length of a segment:

1. Select a single segment.
2. Choose 'Segment Calibration' from the Annotation Action menu.
3. Enter the new length of the segment in millimeters.



Notes:

1. *If the image contains multiple regions, the calibration may not be possible if a risk of conflict is detected.*
2. *When you calibrate an image from a series, all other images within that series will also be calibrated.*
3. *You can cancel the calibration using the standard calibration feature (under 'Image').*

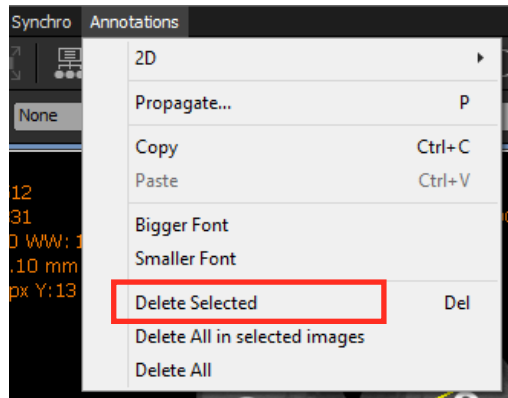
8.9.6 Deleting Annotations

You can either delete individual annotations, all annotations of the selected images, or all annotations of all the images displayed in a view.

8.9.6.1 Deleting Selected Annotations

To delete individual annotations:

1. Select the annotations you would like to delete.
2. Choose 'Delete Selected' from the 'Annotations' menu or hit the 'Del' key of your keyboard.



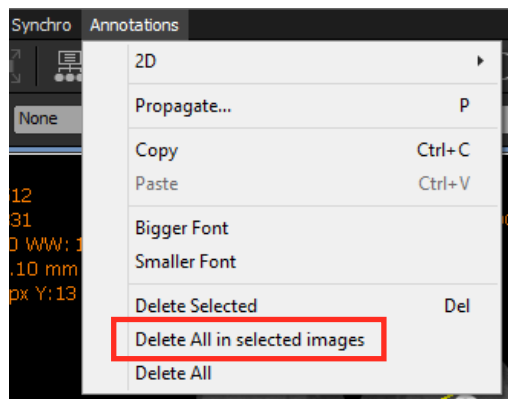
Note:

1. You can change the shortcut key in the Preference Panel to delete the selected annotations. The default key is 'Del'.

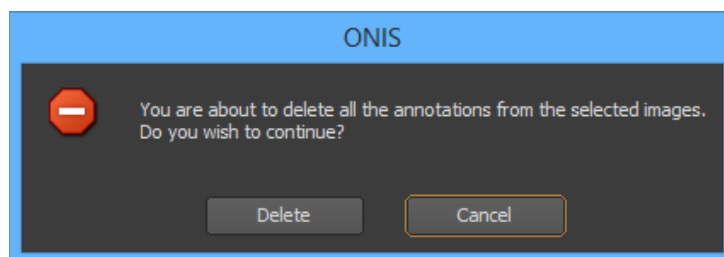
8.9.6.2 Deleting All Annotations of the Selected Images

To delete all annotations of the selected images:

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. Select one or multiple images in a view.
3. Choose 'Delete All in Selected Images' in the 'Annotations' menu.



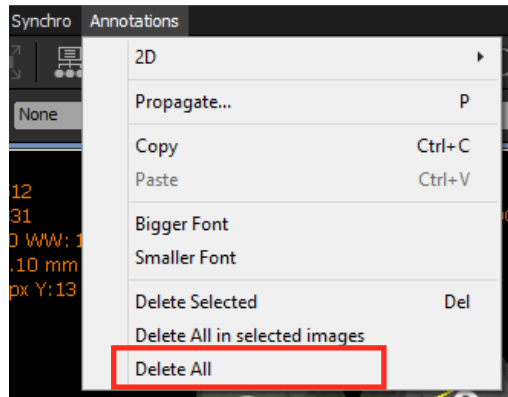
4. Click on the 'Delete' button in the confirmation window.



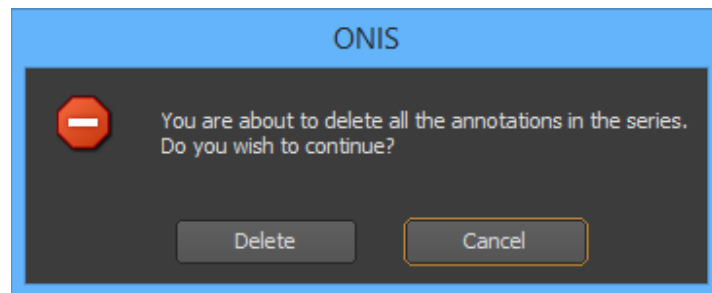
8.9.6.3 Deleting All Annotations from a View

To delete all of the annotations from a view:

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. Choose 'Delete All' from the 'Annotations' menu.



3. Click on the 'Delete' button in the confirmation window.



8.9.7 Duplicating Annotations

You can duplicate annotations or regions of interest within the same image or in other images (including images from other series).

You can also propagate any annotation in the other images of the same series. The propagation can be as a hard copy (all copies will be independent) or as an instance (a modification of one annotation will affect all of its copies).

8.9.7.1 Duplicating Using Copy and Paste

To copy and paste one or more annotations:

1. Select the annotations that you want to duplicate.

2. Choose 'Copy' from the 'Annotations' menu, or hold down the 'Ctrl' key and hit the 'C' key on your keyboard.
3. Select one or more images from the view.
4. Choose 'Paste' from the 'Annotations' menu, or hold down the 'Ctrl' key and hit the 'V' key on your keyboard.

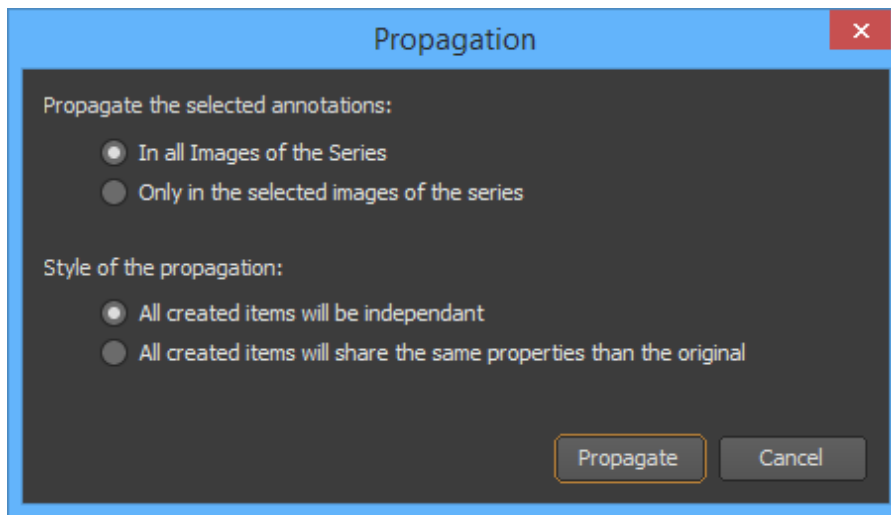
Notes:

1. *The selected annotations will be duplicated in the selected images at the same position.*
2. *If you duplicate annotations in the same image, they will be superposed and you will have to move the duplicated annotations on your own.*
3. *The default shortcut keys 'Ctrl+C' and 'Ctrl+V' can be modified in the User Preferences panel.*

8.9.7.2 Propagating

If you have created annotations in an image of a series, you can propagate them to other images within the same series:

1. Select the annotations that you want to propagate from the image.
2. If you don't want the selected annotations to be propagated in all the other images of the series, select just the ones you want propagated. Make sure you keep the image containing the annotations and regions of interest.
3. Choose 'Propagate...' from the 'Annotations' menu. This will open the Propagation window.
4. Select the options you want:
 - **In all images of the series:** The selected annotations in the series will be duplicated on all of the images.
 - **Only in the selected images of the series:** The selected annotations will be duplicated only on the selected images.
 - **All created items will be independent:** The duplicated annotations will be independent from each other. A modification of one annotation will not affect its copies.
 - **All created items will share the same properties as the original:** The duplicated annotations will be linked to the others. A modification of one will affect its copies.
5. Click on the 'Propagate' button.



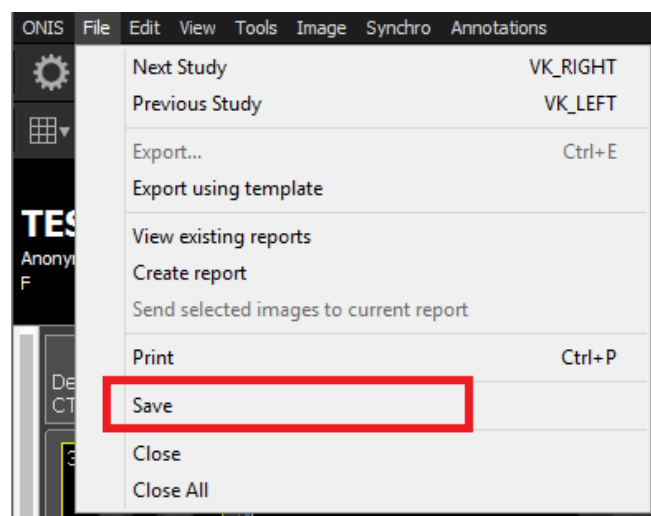
8.9.8 Saving Annotations

If you have created annotations in a view, they can be saved to be retrieved later (if the original images source supports this functionality).

8.9.8.1 Saving Manually

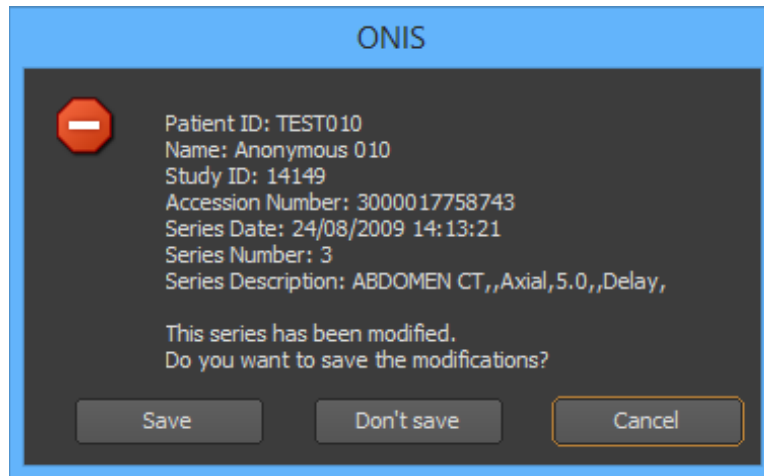
To save the annotations manually:

1. Click anywhere in the view containing the annotations to activate it (it will be surrounded by a blue frame).
2. Choose 'Save' under 'File'.



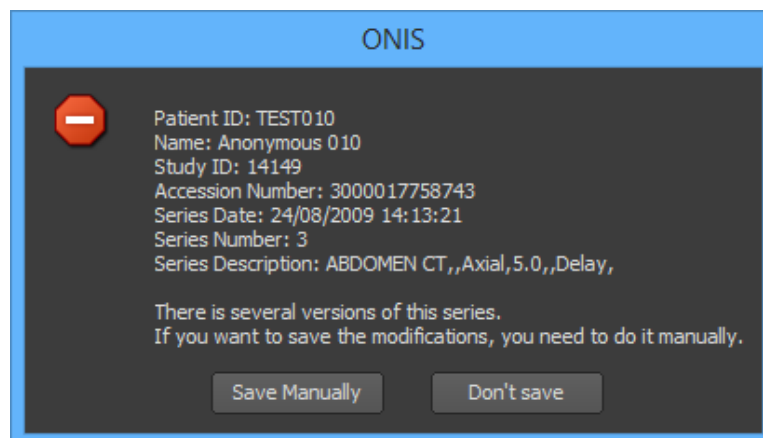
8.9.8.2 Saving When Closing the Series

When closing a series s you will be asked whether or not you would like to save the changes you have made to the annotations. Click on the 'Save' button to save the modifications.



You can modify the settings in the User Preferences panel to omit this popup question by adjusting your settings to always (or never) saving when closing a series.

There may be instances when ONIS needs you to save the modifications manually. This happens when you have two views displaying the same series and you have modified the annotations in both of them. In such cases, close one of the views or activate one of them and choose 'Save' under 'File'.

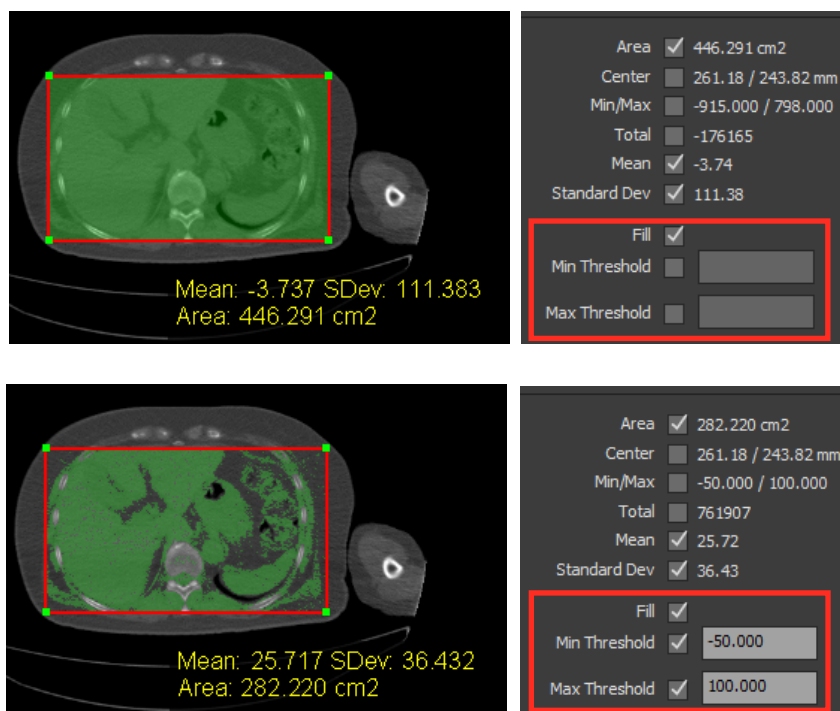


8.9.9 Advance Topics

8.9.9.1 Adjusting Surface Statistics Using Thresholds

For 2D regions of interest (rectangle, polygon, ellipse), statistics are calculated and displayed. You can use pixel thresholds to optimize the measurements:

1. Select one of your 2D regions of interest (rectangle, polygon or ellipse).
2. In the inspector, mark the 'Fill' check box. This will fill the region of interest with a semi-transparent green layer. Each green pixel of this layer is taken into account for the calculation of the statistics.
3. If you would like to remove all of the pixels that are under a certain value from the calculation, mark the 'Min Threshold' check box. Enter the minimum value in the corresponding edit box and hit the 'Enter' key of your keyboard. The pixels that have a luminosity under the entered value will be removed from the calculation and from the green layer.
4. If you would like to remove all of the pixels that are over a certain value from the calculation, mark the 'Max Threshold' check box. Enter the maximum value in the corresponding edit box and hit the 'Enter' key of your keyboard. The pixels that have a luminosity above the entered value will be removed from the calculation and from the green layer.



Notes:

1. When you use the minimum or maximum threshold values, the calculation of the surface area will be based on the pixel unit. When not, the calculation of the surface area is based on the real data of the annotations (point positions if applicable). Both values may differ a little.
2. You can modify the color of the layer and its transparency level in the User Preferences panel.

8.9.9.2 Accumulating Surface Statistics

If you create several regions of interest, you can get the statistics of all regions collectively:

1. Create two or more 2D surfaces (rectangle, polygon, ellipse).
2. Select two or more of them.
3. Read the cumulated statistics from the inspector window.

8.10 Report

For each study, you can create one or more reports. Reports can be saved for a later review, modified if not completed, verified or printed.

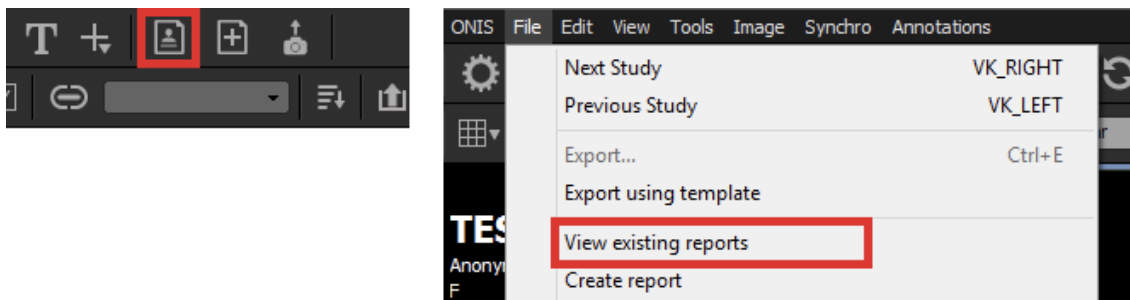
Notes:

1. *The reporting system is not supported on all sources. Refer to the 'Manage Report Templates' section to learn more about this.*

8.10.1 Viewing the Existing Reports

To view the exiting reports of a study:

1. Choose the study you want to see the reports of and click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. Click on the 'View Existing Reports' button of the toolbar or select 'View Existing Reports' under 'File' on the viewer page. The Report window will open.

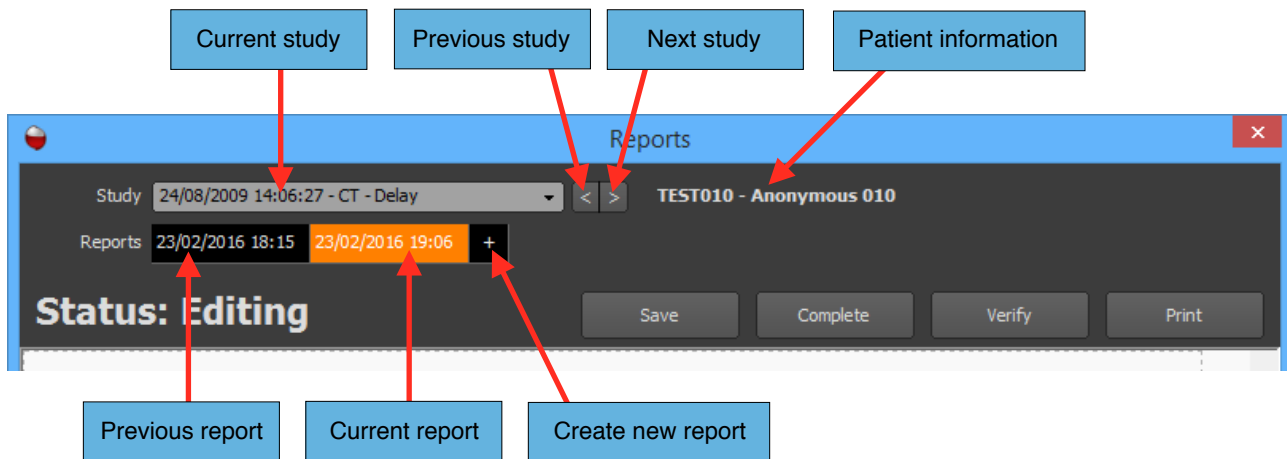


In the Report window, you will find the following information:

- The Patient ID and Name
- A drop down list containing all of the studies attached to the patient. The current value of the drop down list is the selected study of the patient. You can change the selected study by choosing

a new study in the drop down list, or by using the '<' and '>' buttons to select the previous or the next study (the studies are sorted by date).

- The list of reports belonging to the selected study. The reports are sorted from oldest to newest. The current report is the one drawn with an orange background. The latest report will be displayed by default. A '+' button may appear at the end to let you create a new report. To visualize a report, simply click on its corresponding button.
- The status of the report, which can be one of the following values:
 - **Editing:** The report is editable.
 - **Completed:** The report has been completed and is no longer editable.
 - **Verified:** The report has been completed and verified; it is no longer editable.



The report window will also contain a toolbar with the following buttons:

- **Save:** Click on this button to save your report.
- **Complete:** Click on this button when your report is completed. The report will be saved and will no longer be editable. The 'Save' button will change to a 'Modify' button that allows you to edit the report again later.
- **Verify:** Click on this button if you have verified the report.
- **Print:** Click on this button to print the current report.

Notes:

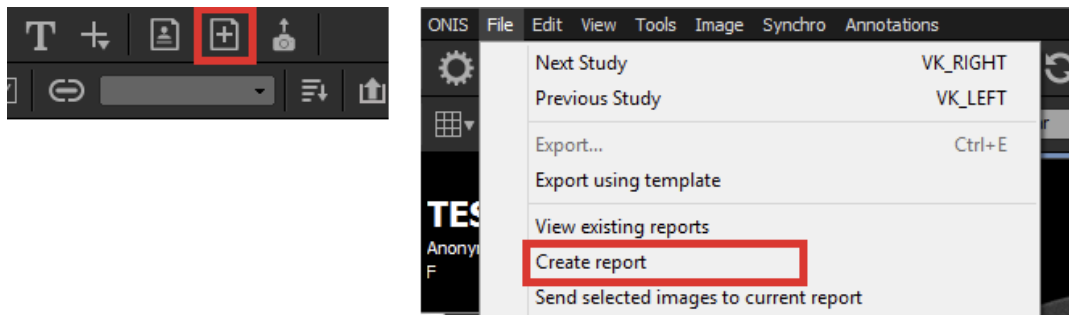
1. *If no report template is loaded, the source is probably not supporting reporting; or no template report has been defined yet.*

8.10.2 Creating a New Report

8.10.2.1 From the view

To create a new report for a study:

1. Choose the study you wish to create a report for and click anywhere in a view to activate it (it will be surrounded by a blue frame).
2. Click on the 'Create New Report' button of the toolbar, or select 'Create Report' under 'File' on the viewer page. The report window will open with a new report ready to be edited for the displayed study.



3. Fill in the report.
4. Click on the 'Save', 'Complete', 'Verify' or the 'Print' button.

Notes:

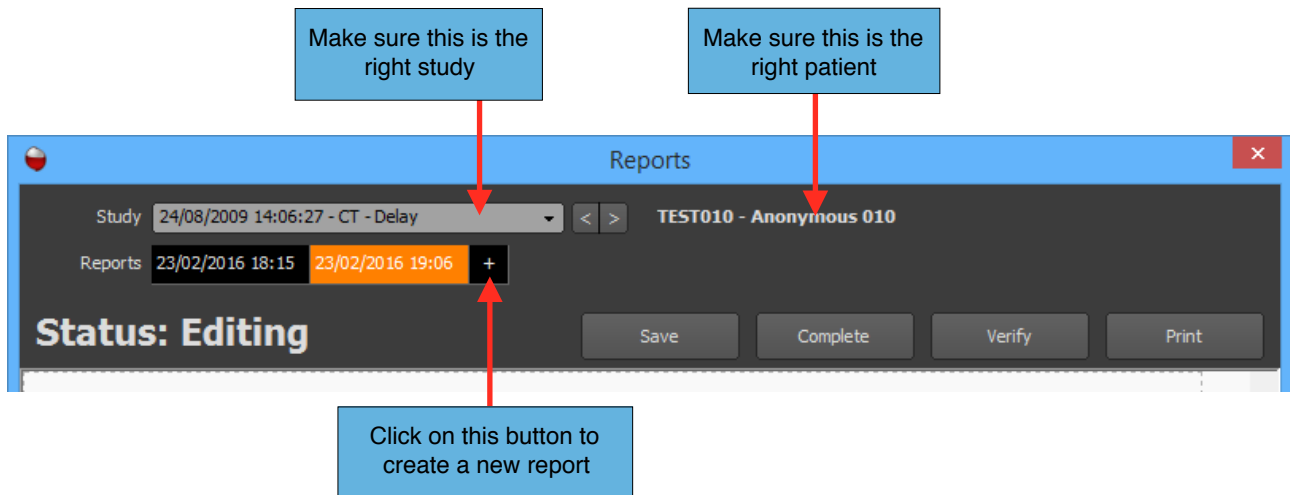
1. *If no report template is loaded, the source is probably not supporting reporting; or no template report has been defined yet.*
2. *Depending on the source, you may not be able to save a report. In this case, you need to print it or it will be lost.*

8.10.2.2 From the report window

To create a new report from the report window, first make sure that the current study is the one you want to create a report for. To switch studies, select the desired study from the drop down list; if you can't find it, refer to the previous section and create a new report from the view.

Once you have chosen your study and you are ready to create a report, complete the following steps:

1. Click the '+' button to create a new report. A new report button will appear in the list of reports for the study (with an orange background).



2. Fill in the report.
3. Click on the 'Save', 'Complete', 'Verify' or the 'Print' button.

Notes:

1. *If no report template is loaded, the source is probably not supporting reporting; or no template report has been defined yet.*
2. *Depending on the source, you may not be able to save a report. In this case, you need to print it or it will be lost.*

8.10.3 Modifying a Report

You can modify a report anytime, even if you have completed or verified it.

1. In the report window, display the report you would like to modify (refer to the 'View the Existing Reports' to learn how to proceed).
2. If the report status does not show 'Editing', click on the 'Modify' button. The status of the report will come back to 'Editing'.
3. Modify the report.
4. Click on the 'Save', 'Complete', 'Verify' or the 'Print' button.

8.10.4 Verifying a Report

1. In the report window, display the report you would like to verify (refer to the 'Viewing the existing reports' to learn how to proceed).
2. Click on the 'Verify' button. The status of the report will change to 'Verify'.

8.10.5 Printing a Report

1. In the report window, display the report you would like to print (refer to the ‘Viewing the Existing Reports’ to learn how to proceed).
2. Click on the ‘Print’ button and follow the instructions.

8.10.5 Deleting a Report

You can delete a report by following this procedure:

1. In the report window, bring up the report you would like to delete (refer to the ‘Viewing the Existing Reports’ to learn how to proceed).
2. Bring your cursor above the selected report in the report list and right click.
3. Select ‘Delete Report’ in the popup menu.
4. Confirm the deletion.

Notes:

1. *Be mindful that you will not be able to recover a report once it has been deleted.*

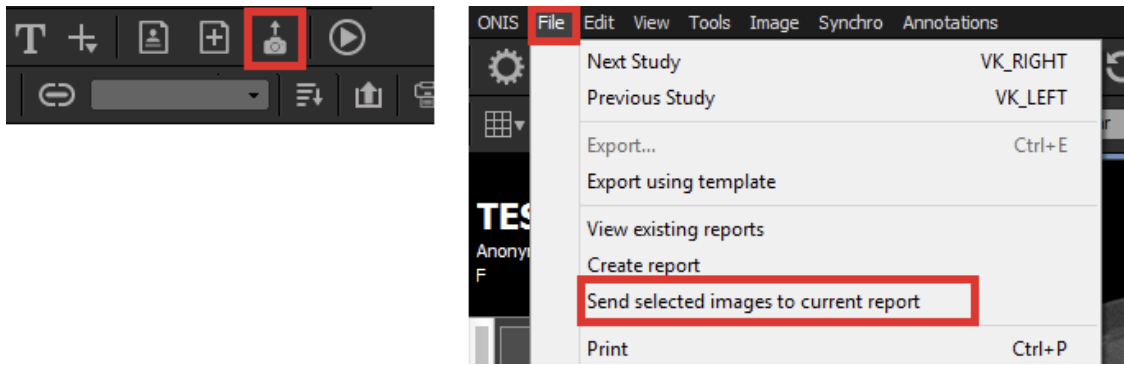
8.10.6 Adding Images to Report

If the current report template has image boxes, you can fill them with images coming from a view. You can also move or remove them from the report.

8.10.6.1 Transferring Images From a View

To transfer one or more images from a view to the current report:

1. Click anywhere in the view to activate it (it will be surrounded by a blue frame).
2. Select the image you want to transfer to the report by clicking on it. Multiple images can be selected by clicking while holding down the ‘Shift’ key for continuous selection or the ‘Ctrl’ key for a non-continuous selection. You can unselect an image by clicking on it while holding down the ‘Ctrl’ key. When an image is selected, it is surrounded by a white frame.
3. Click on ‘Send Images’ from the toolbar, or choose ‘Send Selected Images to Current Report’ under ‘File’ on the viewer page.



4. Each selected image will be transferred to the report and will fill the first available image box.

Notes:

1. *The aspect of the image, displayed overlays and font size may be different from what you expected because the template may define how the image must be rendered.*

8.10.6.2 Moving Images Within a Report

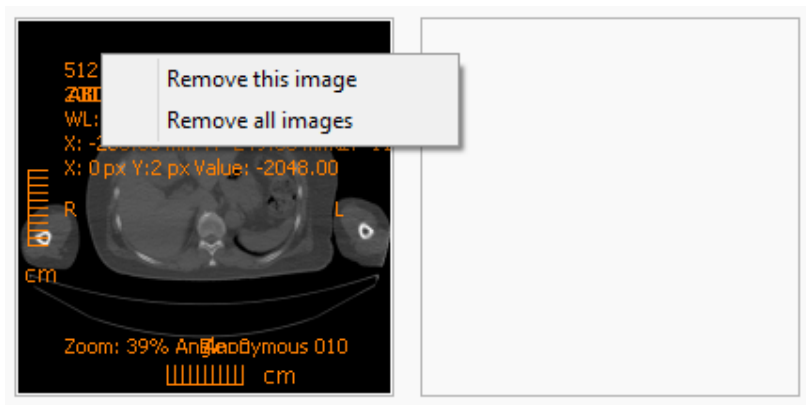
If you have multiple image boxes in your report template, you can move one image to an empty image box like this:

1. Bring your cursor above one image.
2. While holding down the left button of your mouse, drag your cursor above an empty image box.
3. Release your mouse button.

8.10.6.3 Removing Images From a Report

You can remove one image or all of the images from your report using the following instructions:

1. Bring your cursor above one image and right click.
2. In the popup menu, choose 'Remove This Image' to remove the image for the report or 'Delete All Images' to remove all of the images.



8.10.6 Managing Report Templates

When you create a report, it will use one of the registered templates of the source where the study is coming from. Some sources, like optical drives or folders, do not support report templates and therefore you will not be able to create reports.

The local server supports report templates. Any source under the 'LOCAL' node can be used for creating and printing reports. However, only the source 'My Studies' can store reports. Other sources can be used only to create and print reports (but not save). You can manage the report templates for the local sources in the section 'Configure the Local Server'.

8.11 User Preferences

8.11.1 Introduction

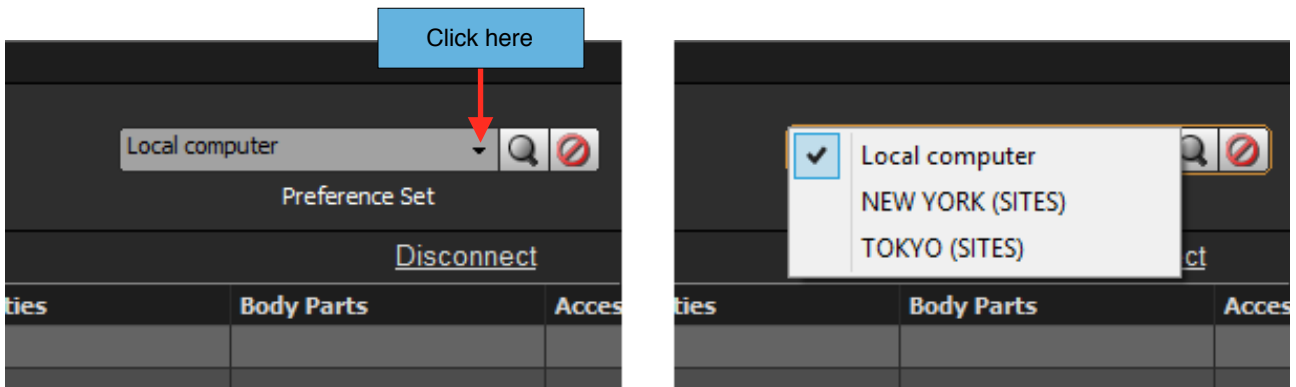
The User Preferences panel allows you to adjust your preferences for functions such as the colors or fonts used to draw annotations, your hanging protocols, your window level presets and many other elements.

All of your preferences are stored in what is referred to as a 'set'. There are two kind of sets, the Local Set and the Account Set.

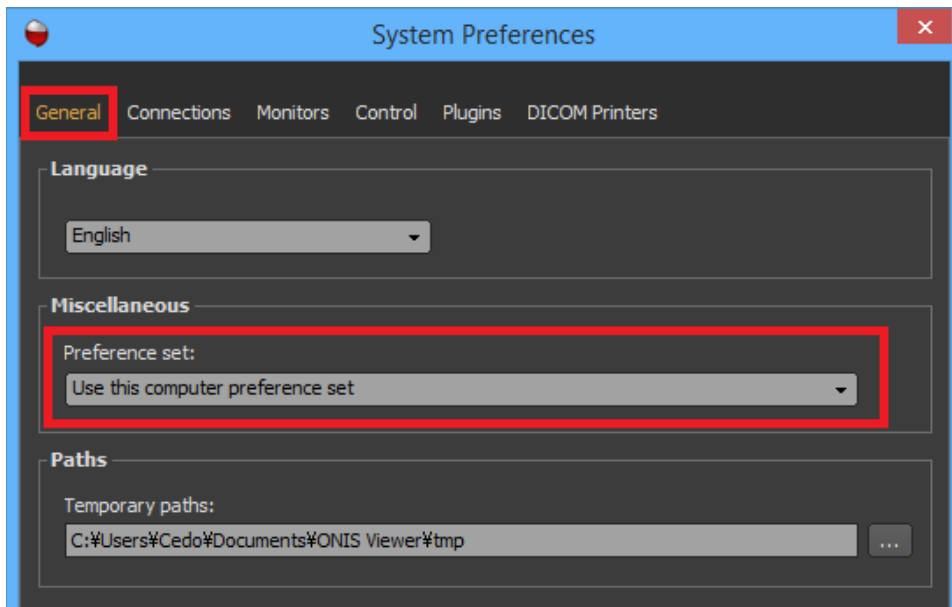
The Local Set is the one stored locally to your computer and is shared by all of the users of your computer. The Local Set can only be used from your computer.

If you have an account on a site, then that site will also have an account set. The set is stored on the site server and can be used from any computer, as long as you are logged in on the site. If you are logged into multiple sites, you will have one available set per site.

Only one set can be used at a time. So if you have multiple sets available, you can choose the one you wish to use on the Database page:

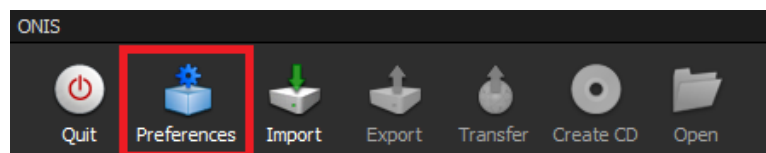


The Local Set is the set that is used by default. When you log into a site, the active set will still be the Local Set. You can change this in the System Preferences and choose to switch to your Account Set as soon as you are logged in (only from the first site).



Account sets may mix two types of User Preferences, the ones that are yours and the ones that are shared among your group. If this is the case, you will be able to choose if a new preference (like a window level preset) should be available only to you or to the group you belong to.

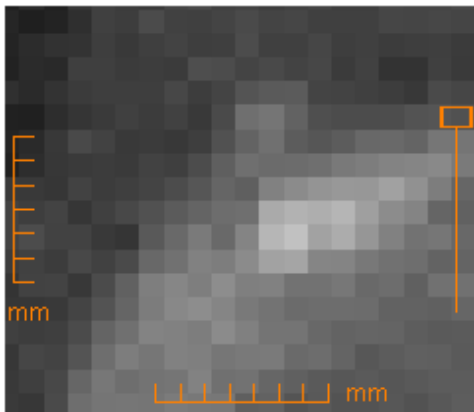
Finally, to open the User Preferences panel, you can click the 'Preferences' button from the toolbar of the Database page or the viewer page or by choosing 'User Preferences' from the 'ONIS' menu.



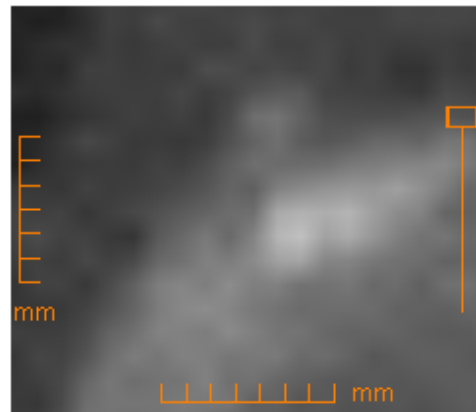
8.11.2 General

In the 'General' page of the User Preferences panel, you can set the following options:

- **Default Filter:** This is the default filter used to render the images in a view. You can choose one of the two available filters:
 - Nearest: Each screen pixel is assigned the value of the nearest image pixel.
 - Linear: Each screen pixel is assigned the value of the linear interpolation of the neighboring four image pixels. Each pixel will be smoothed out and the resulting image will look much softer.



Nearest filter



Linear filter

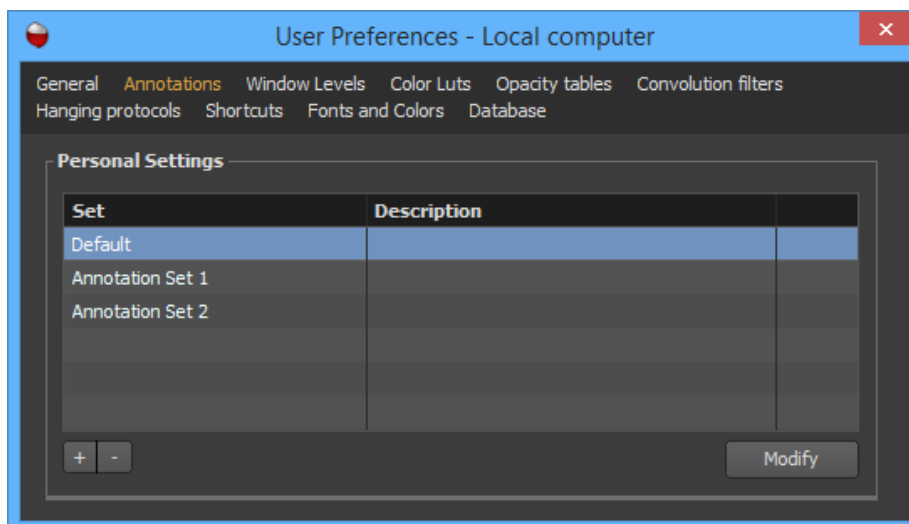
- **Order Studies by:** This option specifies the order in which the studies of a patient are displayed in the History bar of the viewer pages. Choose 'Date and Time' to reorder the studies from most recent to oldest, or choose 'Accession Number' to reorder them from the highest number to the lowest.
- **Order Series by:** This option specifies the order in which the series of a study are displayed in the History bar of the viewer pages. Choose 'Date and Time' to order the series from most recent to oldest, or choose 'Series Number' to order them from the highest number to the lowest.
- **Use Custom Image Export:** Mark this option to activate the usual way to export images from a view, by choosing your export options and the output directory. Refer to the export section in this document for more details.
- **Use Image Export Templates:** Mark this option to activate the possibility to export the images from a view just by a single click. You can define your export options in one or more export templates by clicking on the 'Define Templates' button.
- **Inverse the Direction of the Mouse Wheel:** Mark this option to invert the direction of the mouse wheel when you use it to change the current page in a view.
- **Saving Options:** Choose what should follow when you close a series that contains graphic annotations that have been recently created, modified or deleted. You can request a confirmation

step to be asked whether or not you want to save the modifications; or if you do not want a confirmation, then decide whether you want the modifications to be automatically saved or ignored and unsaved when the series closes.

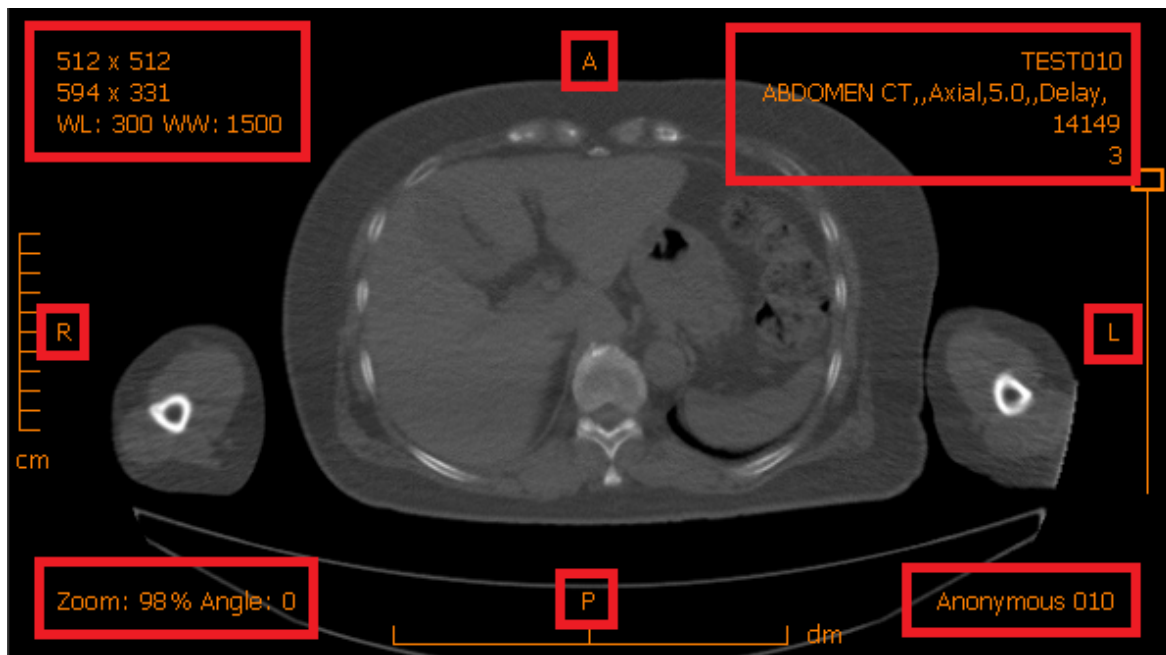
- **Auto-Hide Annotations:** Mark this option if you wish to automatically hide the DICOM annotations and rulers in the image when the rendering size is below a certain value. You can specify this value in pixel. For example, if you check this mark and set the value to 200 pixels, the DICOM annotations and rules will not be drawn if the width or height of the rendering view is less than 200 pixels.

8.11.3 Annotations

The ‘Annotations’ page of the User Preferences panel displays the list of predefined DICOM annotation sets. If the current preference set is an account set, you might have two lists, one displaying your personal presets and the other the presets available to all the members of the group you belong to.

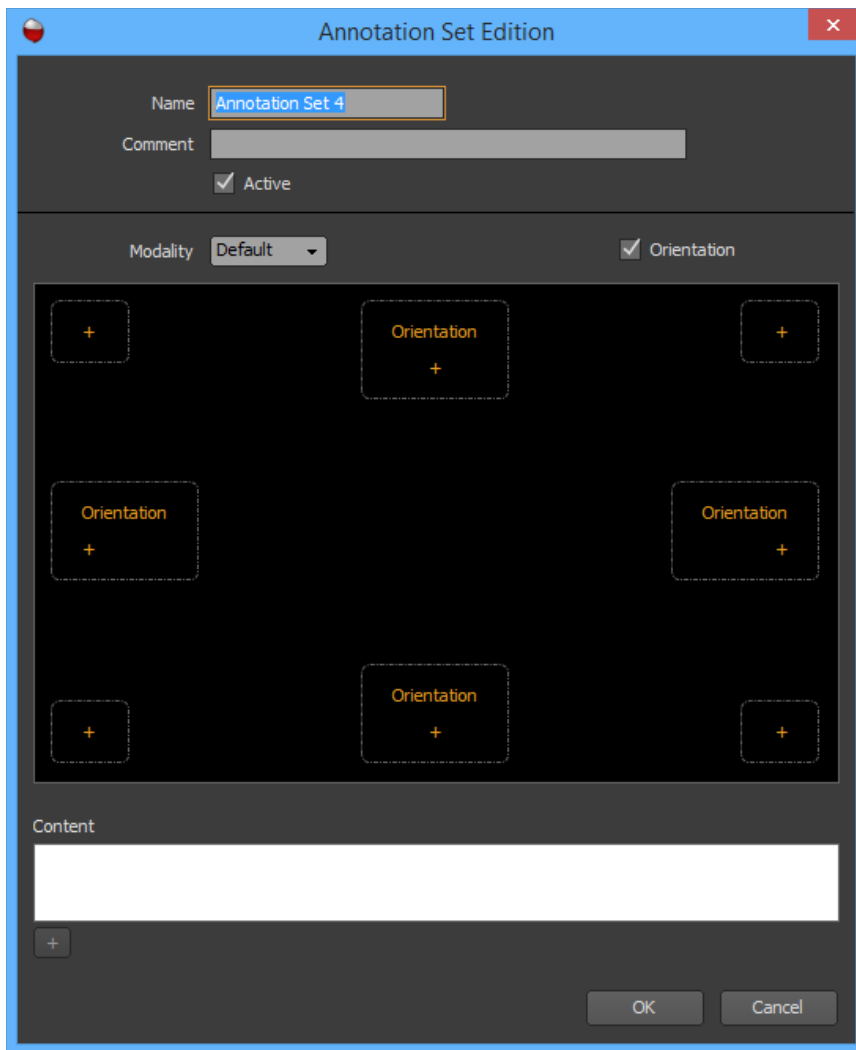


When an image box is rendered, some text information is usually drawn at its corners and at the center of each side. These texts come from one of these predefined sets. A set defines what annotations should be drawn depending on the modality.

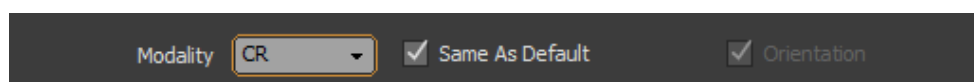


8.11.3.1 Creating a Set

1. Click on the '+' button. This will open the property window of the set.



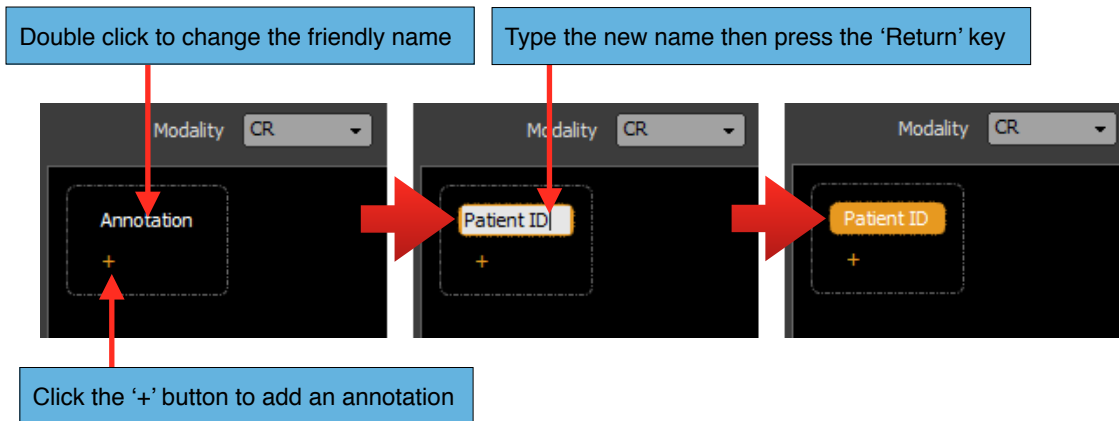
2. Choose a name for the preset (should be unique) and an optional description.
3. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
4. Define what annotations should be drawn depending on the modality. In the 'Modality' combo box, you will find the list of modalities for which you can define the annotations to be drawn. You will also find a 'Default' modality, for which you can also define certain annotations. For the other modalities, you can choose to draw the annotations defined for the 'Default' modality or you can define specific ones.
 - A. Choose one modality in the 'Modality' drop down list.
 - B. If present, mark the 'Same As Default' checkbox to specify that the annotations defined for the 'Default' modality should be used for the selected modality. Unmark the checkbox to customize the annotations.



- C. You are able to customize 8 annotation boxes in total: four annotations at the corners and 4 at the middle of each side. Mark the 'Orientation' checkbox if you would like the image

orientation to appear at the middle of the sides. For each of these boxes you are able to do the following:

- To add an annotation, click on the '+' button. Double click on the created annotation to change its name (this is a friendly name so you can choose any name you like). Define the content of this annotation (what should be rendered).



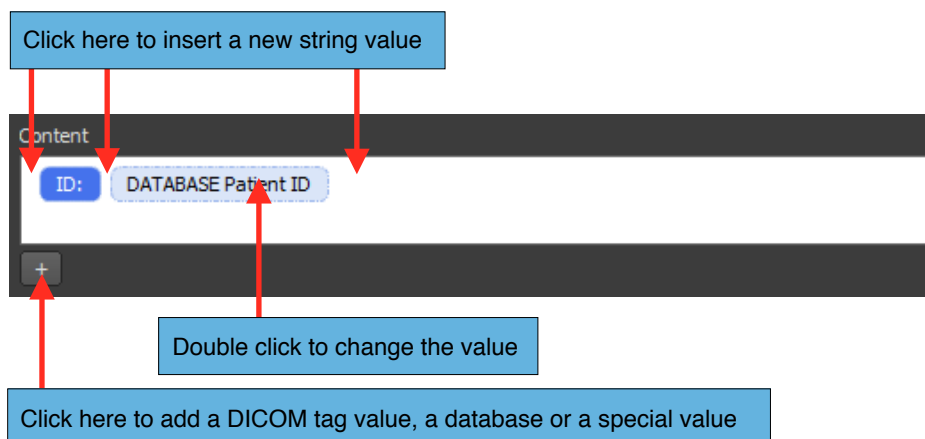
- Select an existing annotation to modify its content.
- Select an existing annotation and press the 'Delete' key of your keyboard to delete it.
- You can move an annotation with a simple drag and drop. You can change its position in the box or you can drop it inside another box.

D. Repeat steps A to C for each modality you want to customize the annotations for.

5. Click on the 'OK' button.

How to define the content of an annotation:

The content of an annotation is the concatenation of one or more items. Each item can be a simple string, the value of a DICOM tag of the image, a value coming from the database or a special value.



To add a simple string, simply click anywhere inside of the content area. It will create a new item ready for you to input the string with your keyboard. If you leave the string blank, the item will be deleted automatically. You can click between two items to insert a simple string between them.

To edit a simple string, double click inside of the item and modify the string as you wish. Hit the 'Enter' key when you are done.

To add a value of a DICOM tag, click on the '+' button and choose 'Add DICOM Tag' from the popup menu. It will open a window for you to identify the DICOM tag you want to retrieve the value from.

To add a value coming from the database, click on the '+' button and choose a database entry from the 'Database' submenu. You can modify it by double-clicking on it.

To add a special value, click on the '+' button and choose one of possible values from the 'Others' submenu. You can modify it by double-clicking on it.

You can modify the position of an item with simply drag and drop it to its new location in the content area.

You can delete an item by selecting it and hitting the 'Delete' key of your keyboard.

8.11.3.2 Modifying an Existing Set

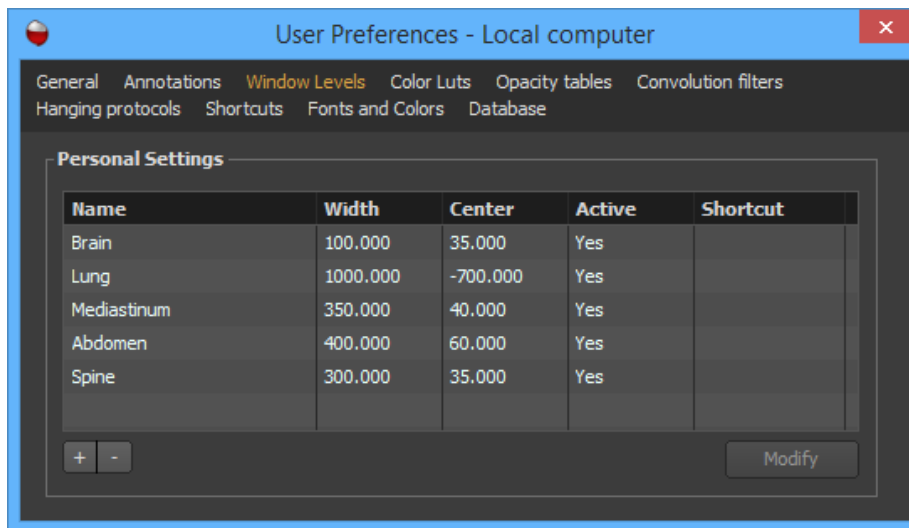
1. Select the set you wish to modify from the list and click on the 'Modify' button. You also can double click on the set line directly.
2. Choose a name for the set (should be unique) and an optional description.
3. Define the annotations as you want (refer to the previous section).
4. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
5. Click on the 'OK' button.

8.11.3.3 Deleting One or More Sets

1. Select one or more sets in the list.
2. Click on the '-' button.
3. Click on the 'Delete' button of the confirmation window.

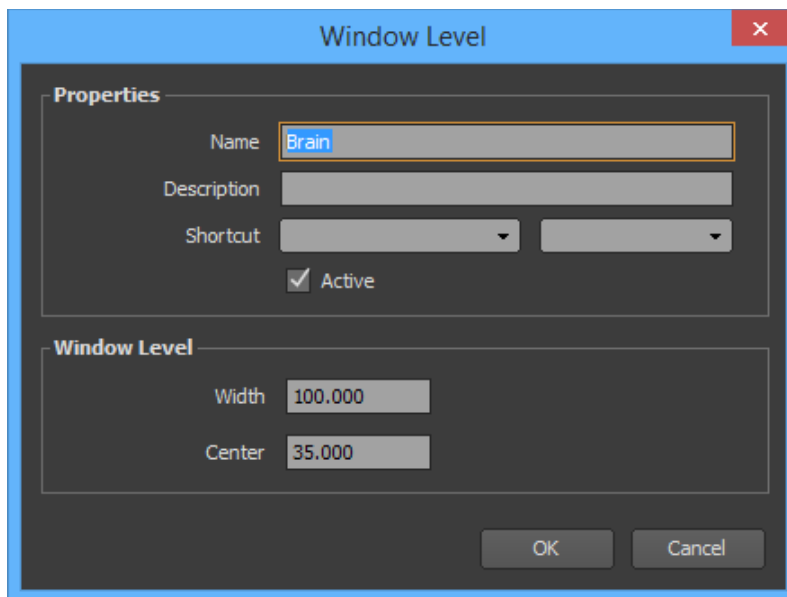
8.11.4 Window levels

The 'Window Levels' page of the User Preferences panel displays the list of predefined window level presets. If the current preference set is an account set, you might have two lists, one displaying your personal presets and the other the presets available to all members of the group you belong to.



8.11.4.1 Creating a Preset

1. Click on the '+' button. This will open the property window of the preset.



2. Choose a name for the preset (should be unique), an optional description and a shortcut key, the width and center values.
3. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
4. Click on the 'OK' button.

8.11.4.2 Modifying an Existing Preset

1. Select the preset you wish to modify from the list and click the 'Modify' button. You also can double click on the preset line directly.

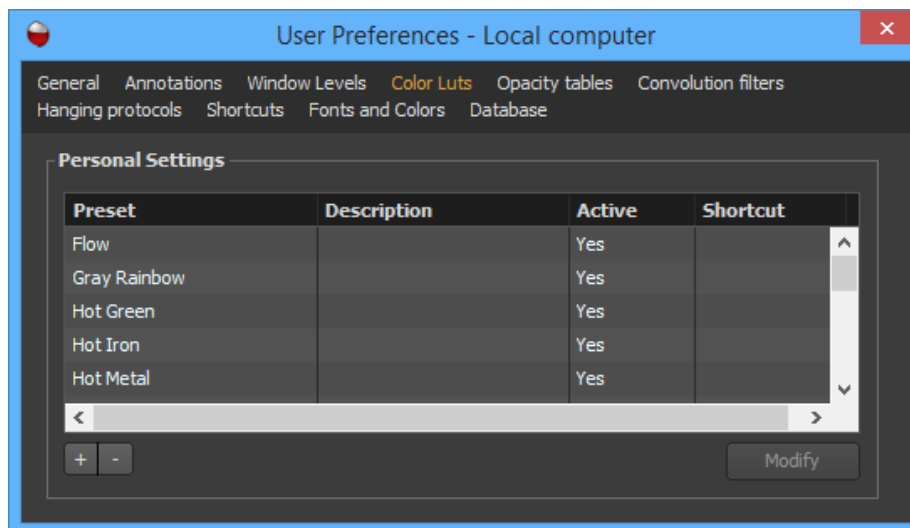
2. Choose a name for the preset (should be unique), an optional description and a shortcut key, the width and center values.
3. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
4. Click on the 'OK' button.

8.11.4.3 Deleting One or More Presets

1. Select a preset or multiple presets in the list.
2. Click on the '-' button.
3. Click on the 'Delete' button of the confirmation window.

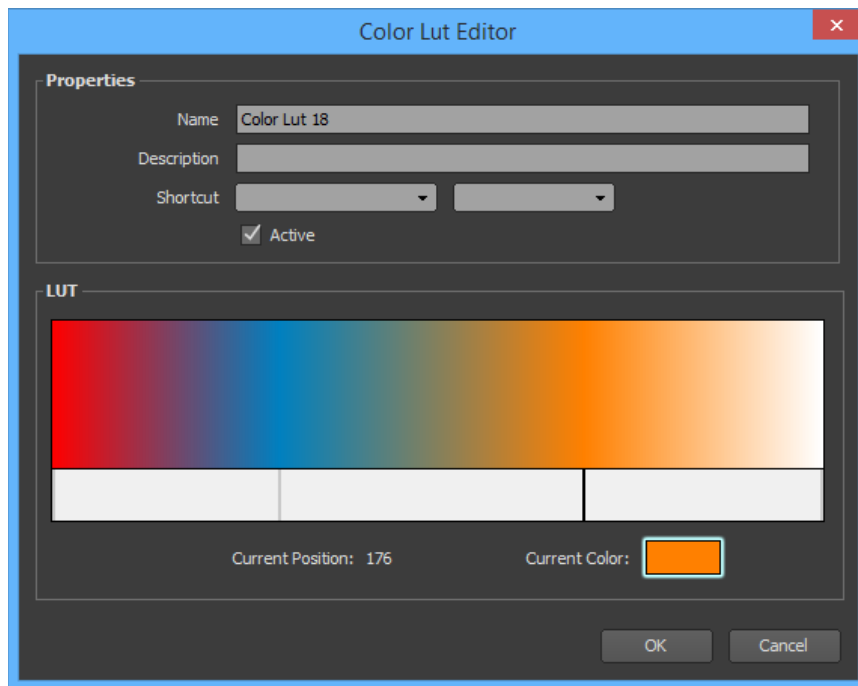
8.11.5 Color LUTs

The 'Color LUTs' page of the User Preferences panel displays the list of predefined 8 bit color LUT presets. If the current preference set is an account set, you may have two lists, one displaying your personal presets and the other the presets available to all the members of the group you belong to.

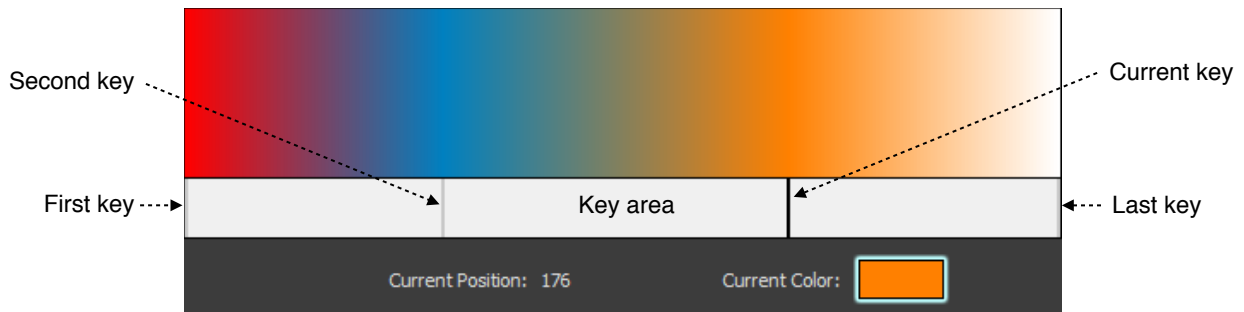


8.11.5.1 Creating a Preset

1. Click on the '+' button. This will open the property window of the preset.



2. Choose a name for the preset (should be unique), an optional description and a shortcut key.
3. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
4. Define your color table as you want:



- Create a new key by clicking anywhere inside of the key area.
 - Select a key by clicking on it.
 - Select a key and double click inside of the color box to change its color.
 - Move a key using a simple drag and drop.
 - Remove a key by dropping it outside of the key area.
5. Click on the 'OK' button.

8.11.5.2 Modifying an Existing Preset

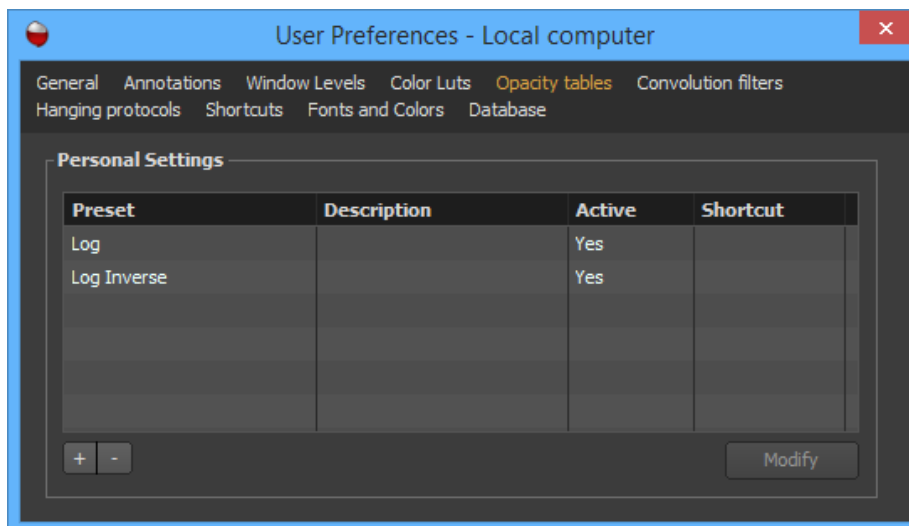
1. Select the preset you want to modify from the list and click on the 'Modify' button. You also can double click on the preset line directly.
2. Choose a name for the preset (should be unique), an optional description and shortcut key.
3. Define your color table as you wish (refer to the previous section).
4. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
5. Click on the 'OK' button.

8.11.5.3 Deleting One or More Presets

1. Select one preset or multiple presets from the list.
2. Click on the '-' button.
3. Click on the 'Delete' button of the confirmation window.

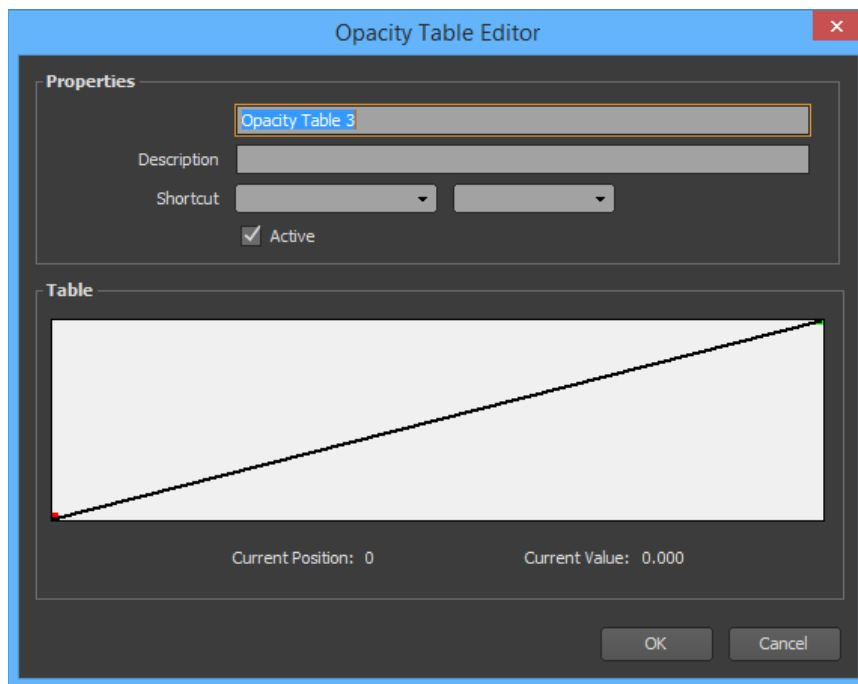
8.11.6 Opacity Tables

The 'Opacity Tables' page of the User Preferences panel displays the list of predefined 8 bit opacity table presets. If the current preference set is an account set, you may have two lists, one displaying your personal presets and the other the presets available to all members of the group you belong to.

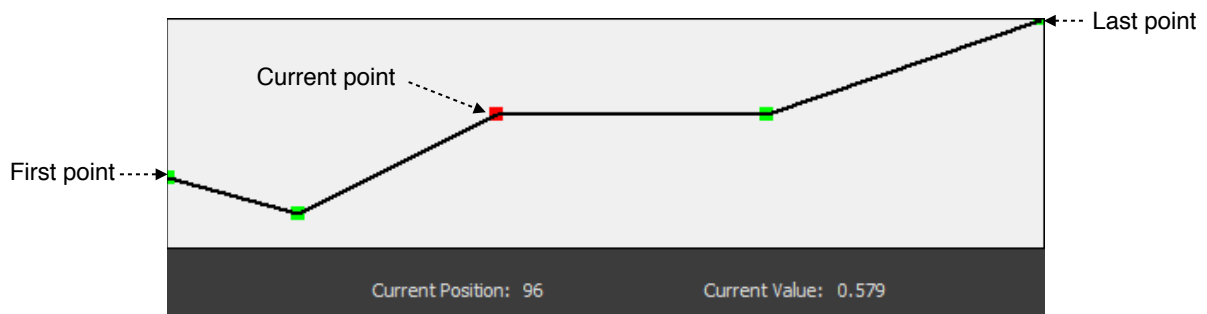


8.11.6.1 Creating a Preset

1. Click on the '+' button. This will open the property window of the preset.



2. Choose a name for the preset (should be unique), an optional description and shortcut key.
3. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
4. Define your opacity table as you wish:



- Create a new point by clicking anywhere inside of the table.
- Select a point by clicking on it.
- Move a point using a simple drag and drop.
- Remove a point by dropping it outside of the table.

5. Click on the 'OK' button.

8.11.6.2 Modifying an Existing Preset

1. Select the preset you wish to modify from the list and click on the 'Modify' button. You also can double click on the preset line directly.

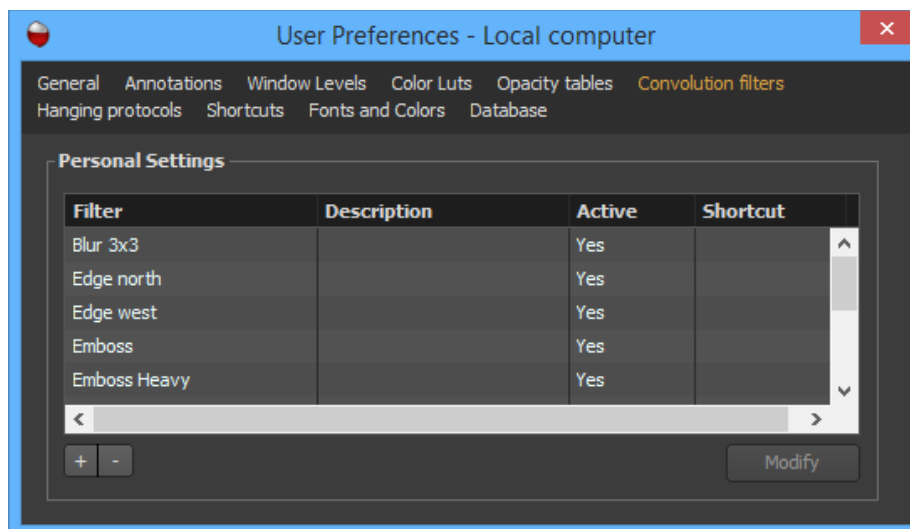
2. Choose a name for the preset (should be unique), an optional description and shortcut key.
3. Define your opacity table as you wish (refer to the previous section).
4. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
5. Click on the 'OK' button.

8.11.6.3 Deleting One or More Presets

1. Select one preset or multiple presets from the list.
2. Click on the '-' button.
3. Click on the 'Delete' button of the confirmation window.

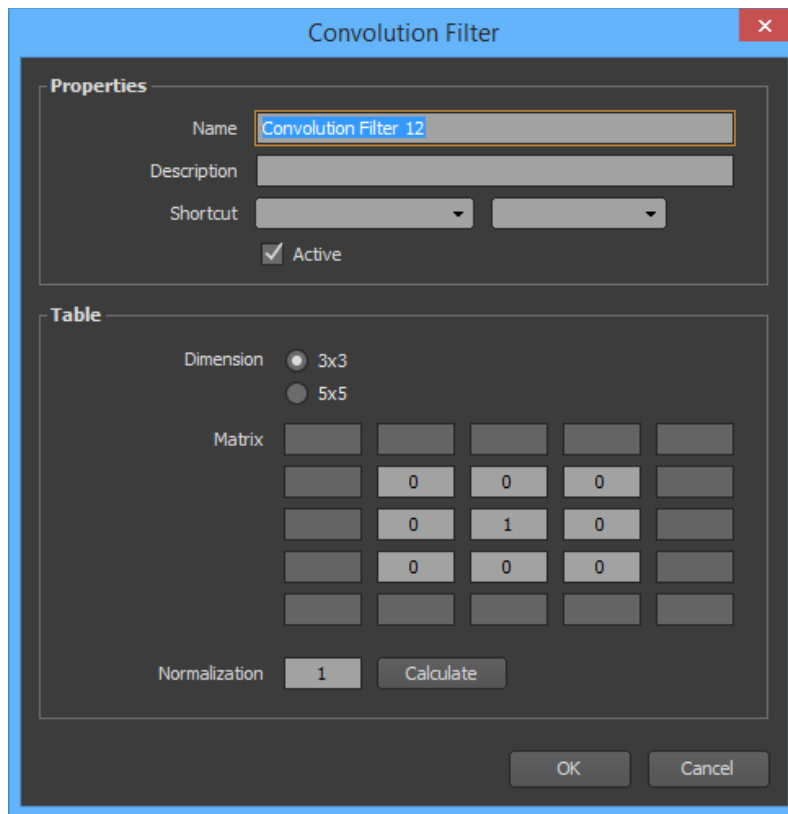
8.11.7 Convolution Filters

The 'Convolution Filters' page of the User Preferences panel displays the list of predefined convolution filter presets. If the current preference set is an account set, you may have two lists, one displaying your personal presets and the other the presets available to all members of the group you belong to.



8.11.7.1 Creating a Preset

1. Click on the '+' button. This will open the property window for the preset.



2. Choose a name for the preset (should be unique), an optional description and a shortcut key, the dimension of the filter (3x3 or 5x5), the matrix coefficients and the normalization factor (usually equal to the sum of the matrix coefficients).
3. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
4. Click on the 'OK' button.

8.11.7.2 Modifying an Existing Preset

1. Select the preset you wish to modify from the list and click on the 'Modify' button. You also can double click on the preset line directly.
2. Choose a name for the preset (should be unique), an optional description and a shortcut key, the dimension of the filter (3x3 or 5x5), the matrix coefficients and the normalization factor (usually equal to the sum of the matrix coefficients).
3. Mark the 'Active' check box if you would like your preset to be usable. If not, your preset will be saved but not available in the hanging protocols or in any menu.
4. Click on the 'OK' button.

8.11.7.3 Deleting One or More Presets

1. Select one preset or multiple presets from the list.
2. Click on the ‘-‘ button.
3. Click on the ‘Delete’ button of the confirmation window.

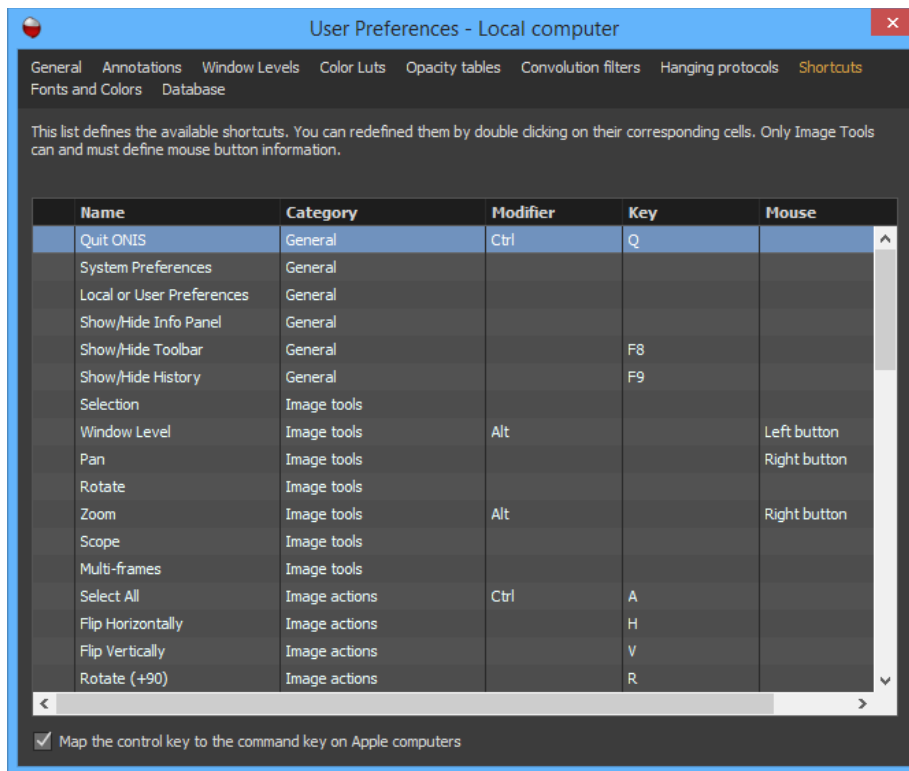
8.11.8 Hanging Protocols

Please refer to the ‘Hanging Protocols’ chapter of this manual to learn how to create hanging protocols.

8.11.9 Shortcuts

The ‘Shortcuts’ page of the User Preferences panel displays the list of available keyboard shortcuts to quickly access to specific features. There are 4 categories of shortcuts:

- **General:** Shortcuts related with the interface of ONIS, such as opening the User Preferences panel or hiding a toolbar.
- **Image Tools:** Shortcuts for using image tools (i.e. Pan, Rotate, Zoom). These shortcuts require the use of a mouse.
- **Image Actions:** Shortcuts that operate on an image of a view (i.e. Flip, Scale to Fit).
- **Annotation Actions:** Shortcuts that operate on selected annotations (i.e. Measure, Create a Parallel).

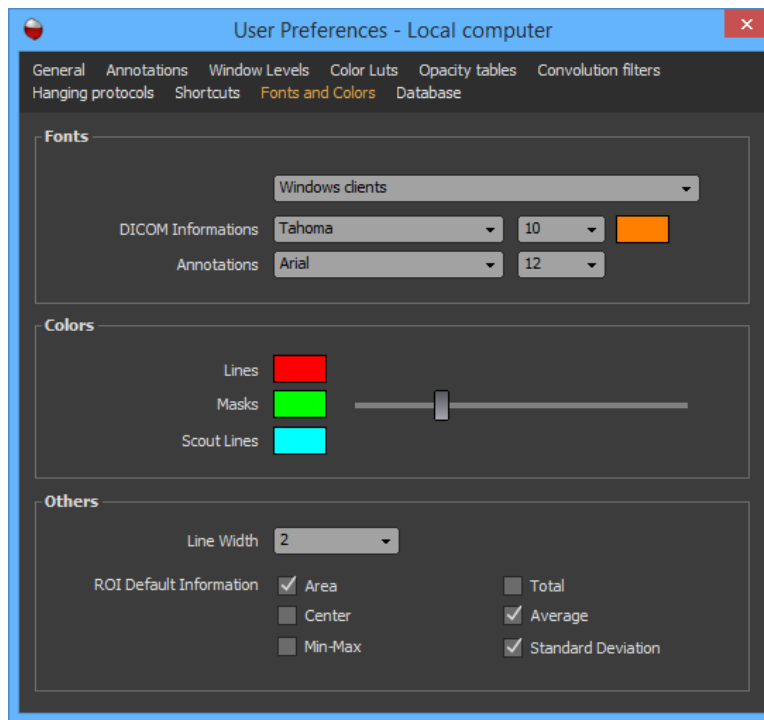


You can customize a shortcut by double clicking on its corresponding cells. For image tool shortcuts in particular, you will need to also specify which mouse button to click.

If you happen to set the same shortcut for two separate functions, an exclamation mark '!' will appear in the first column indicating which shortcuts are conflicting.

8.11.10 Fonts and Colors

You can customize the default parameters used to render the images in the 'Fonts and Colors' page of the User Preferences panel.



8.11.10.1 Fonts

You can change the font used to draw the DICOM annotations and the font for drawing the graphic annotations. Both font type and size can be selected using the corresponding drop down lists.

The color of each graphics annotations (lines, arrows, rectangles...) is specified by the annotation itself, so you cannot set the color here. However you can specify the color of the DICOM annotations by double clicking in the corresponding color box.

Notes:

1. Always select 'Windows Clients' for your fonts. The 'Macintosh OSX Client' is meant for a future release of the software.

8.11.10.2 Colors

You can change the following default colors:

- **Lines:** Default line color for graphic annotations.
- **Masks:** Default color of the filled layer for surface annotations (i.e. rectangles, polygons and ellipses). The slider allows you to control the transparency of the layer.
- **Scout Lines:** Default color for reference lines.

To change a color, simply double-click on the corresponding color box.

8.11.10.3 Others

You can choose a different default line width for drawing annotations.

Also, you can customize what default statistics should be displayed on the image when you create a region of interest (i.e. rectangle, polygon, ellipse). Simply mark the check box corresponding to the statistics you want displayed.

8.11.11 Databases

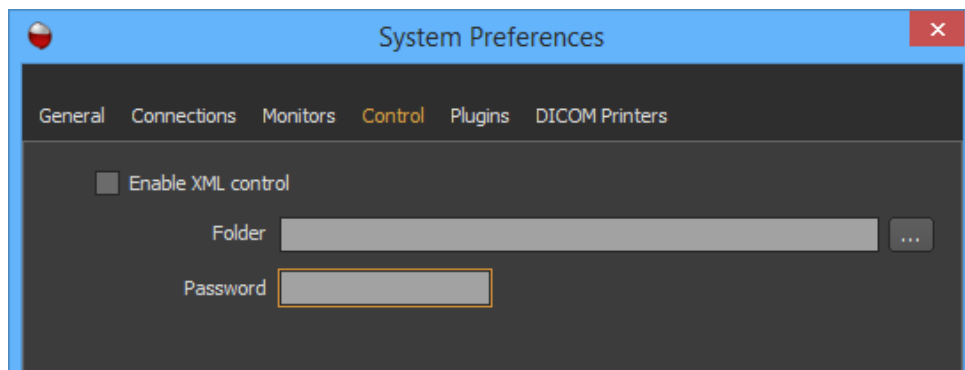
Please refer to the 'User Preferences' of the 'Database Page' of this manual.

8.12 XML Control

ONIS can be controlled using XML commands.

8.12.1 Activating XML Control

1. Open the system preferences panel (Choose 'System Preferences' in the 'ONIS' menu) and select the 'Control' page.



2. Mark the 'Enable XML Control' checkbox.
3. Choose the folder you wish to survey. This is the destination folder where you intend to drop your XML command files. ONIS will survey this folder for any changes.
4. If there is an encoded password in a command, provide the decoding DES key by the 'Password' box.

Notes:

1. *Once the XML file is processed, it will be destroyed..*

8.12.2 XML Commands

Only two commands are supported by XML, one to open an exam and another to disconnect yourself from a source.

At the root of the XML files, a key/value pair should be present to specify the operation type.

8.12.2.1 Open exam

The value for the ‘Operation’ key must be ‘Open Exam’.

To open a specific exam, the XML file must contain information about the source to open the exam and information to identify the exam itself.

The source information should be contained in a dictionary named ‘Source’ of Key/Value pairs. The following Key/Value pairs are supported:

Key	Type	Mandatory	Value
Target	string	Yes	A string of characters representing the full path of the source from the root node. Each node should be separated with the ‘ ’ character. Ex: ‘MY COMPUTER LOCAL My Studies’
User	string	Only if a session must be opened and a user name and password are required.	A string of characters containing the user identifier.
Password	string	Only if a session must be opened and a user name and password are required.	A string of characters containing the password of the user identifier.
Encrypted Password	string	Only if a session must be opened and a user name and password are required and if the password is encoded.	A string of characters containing the encrypted password of the user identifier. The password must be encrypted using DES algorithm, then encoded to base64. The DES key should contains exactly 8 characters.

The information to identify an exam shall be contained in a dictionary named ‘Study’ of Key/Value pairs. You need to include one or more of the following Key/Value pairs:

Key	Type	Value
PID	string	A string representing a patient ID
Study UID	string	A string representing a study UID
Modality	string	A string representing a modality
Patient Name	string	A string representing a patient name
Accession Number	string	A string representing an accession number
Study Date	string	A string representing a study date in the form of YYYYMMDD
Birthdate	string	A string representing a birthdate in the form of YYYYMMDD

The information you provide may not be sufficient to narrow the search down to a single exam. If multiple exams are retrieved, then the first one will be opened. You can choose how the exams will be ordered in the options dictionary described below.

You may also add in the command a dictionary named 'Options' for which the following Key/Value pairs are supported:

Key	Type	Value
Window	string	One of the following values: 'Maximize', 'Normal' or 'Minimize'. This will maximize, minimize or restore the ONIS main window.
Sorting	dict	A dictionary contained two key/value pairs controlling the sorting order of the studies matching the provided criteria.

The sorting dictionary contains the following two Key/Value pairs:

Key	Type	Value
Field	string	One of the following values: 'Date' or 'Accession Number'. This will sort the candidates studies by their study date or their accession number respectively.
Ascending	integer	1 if the sorting should be ascending. 0 for descending.

The exam will open using the first available hanging protocol. You can choose to open the exam with a specific hanging protocol by adding an optional 'Hanging Protocol' dictionary in the command:

Key	Type	Value
Target	string	Personal' or 'Site'. The first specify that the hanging protocol that should be used belong to you. The second specifies that the hanging protocol belong to your group.

Key	Type	Value
Name	string	A string representing the name of the hanging protocol
Layout	string	A string representing the name of the hanging protocol layer to use

Example:

```

<?xml version="1.0" encoding="UTF-8"?>
- <root>
  <key>Operation</key>
  <string>Open exam</string>
  <key>Source</key>
  - <dict>
    <key>Target</key>
    <string>SITES|LOCAL1|Partitions|Radiologists</string>
    <key>User</key>
    <string>admin</string>
    <key>Password</key>
    <string>abcd</string>
  </dict>
  <key>Study</key>
  - <dict>
    <key>PID</key>
    <string>0357271064</string>
    <key>Birthdate</key>
    <string>18581118</string>
  </dict>
  <key>Options</key>
  - <dict>
    <key>Window</key>
    <string>Maximize</string>
  </dict>
  <key>Hanging Protocol</key>
  - <dict>
    <key>Target</key>
    <string>Personal</string>
    <key>Name</key>
    <string>Default</string>
    <key>Layout</key>
    <string>compare</string>
  </dict>
</root>

```

8.12.2.2 Disconnect

The value for the ‘Operation’ key must be ‘Disconnect’.

To disconnect from a source, you need to provide the full path of the source from the root node as the value for the ‘Target’ key.

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
- <root>
  <key>Operation</key>
  <string>Disconnect</string>
  <key>Target</key>
  <string>SITES|LOCAL1</string>
</root>
```

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