1 Manufacturer

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2 Product name

Osimis Web Viewer plugin

3 Product version

1.4.0.0

4 Product description

Osimis Web Viewer is a plugin of Orthanc, an open-source, lightweight DICOM server with an ubiquitous Web interface that enables the user to upload, receive and transfer DICOM images. It comes with a REST API to automate imaging flows and an SDK to integrate with native applications.

The following types of exams are supported by the viewer:

- CT scans;
- MRIs;
- PET scans;
- Tomography;
- Echographs;
- RXs;
- Dicomized Static Images; and
- Endoscopies.

Unsupported image types cannot be uploaded. Contact Osimis for Technical Support.

Main functionalities include:

- Display and access to patient history;
- Display of patient and study information;
- Selection of studies and series to be analysed;
- Image control including pinch, zoom and pan gestures, image rotation and flip;
- Adjustment of Hounsfield windowing and windowing presets for e.g. lung, bone;
- Progressive loading;
- Annotations;
- Measures;
- Studies comparison

5 Intended use

Osimis Web Viewer is intended for patients reviewing their images, for research and for quality assurance.

Osimis Web Viewer is not a diagnostic viewer.

6 Operating instructions

The Osimis zero footprint HTML5 medical imaging viewer features a rich JavaScript API for displaying and working with images within HTML5 elements. It comes as a set of two plugins to the Orthanc core library, which they have been specifically designed for.

The viewer supports both mouse and multi-touch (gesture) input and has been optimised for visualisation on mobile devices.

6.1 Overview

The viewer is subdivided into the following sections that will be made reference to throughout this document. Viewer section are illustrated in Figure 1. Figure 2 provides an example of the viewer interface for radiology application.

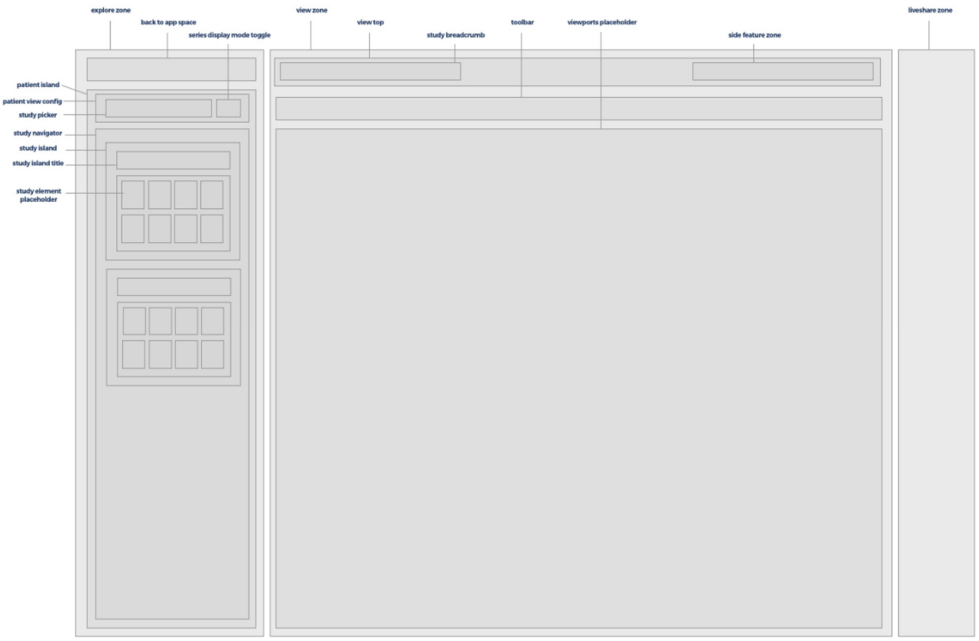


Figure 1 – Viewer sections

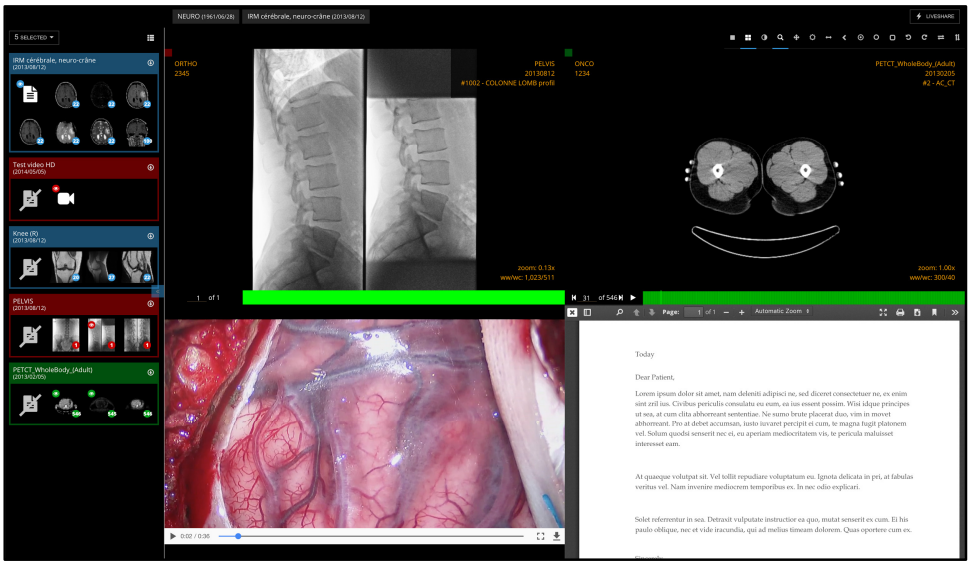


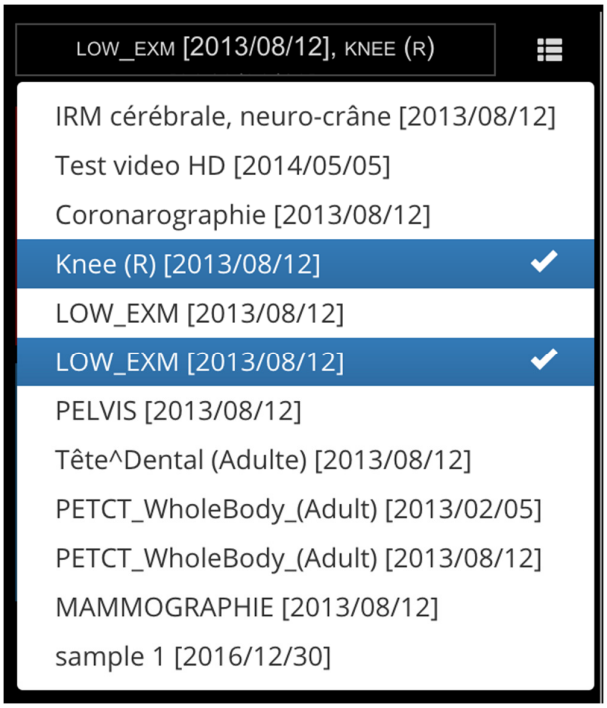
Figure 2 - Radiology viewer

6.2 Patient & study information

The patient and study information is always shown in the top of the “Study Breadcrumb”, starting with the patient name and birth date on the left and the study type and date on the right.

6.3 Patient history

The patients’ history can be accessed by clicking on the study picker in the top of the left hand element of the viewer.

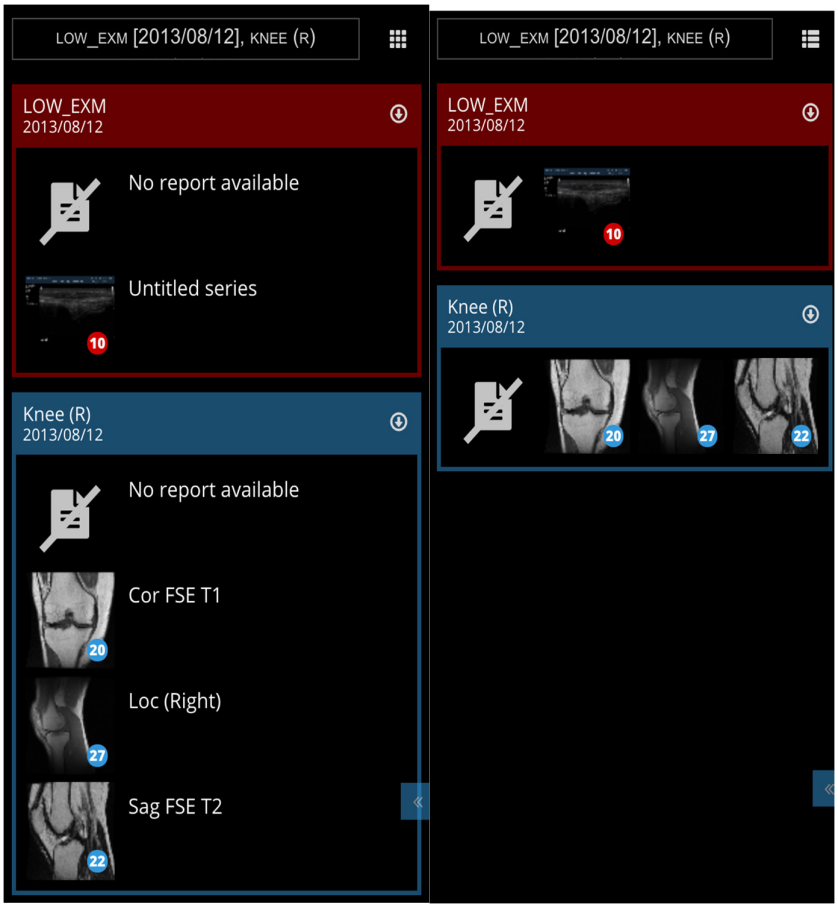


6.4 Series picker

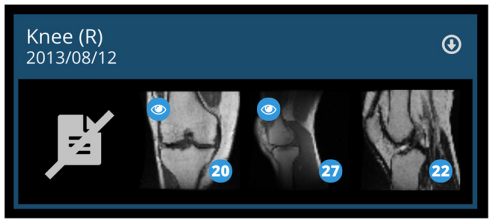
Once the user has selected at least one study, the thumbnails of the series held within the study are shown either in a list or grid format. The user can toggle between the following views.

In order to distinguish the series of different studies, they’re assigned a colour that’s also being used in the viewports.

This way, the user can compare 2 or more series of different studies.



Viewed studies are indicated with the icon in the top left corner of the breadcrumb.



6.5 Toolbar

Note : All tools with a toggle function have a blue underline if enabled.

6.5.1 Viewports management

The user can toggle between a single viewport,1x1, 2x1, 1x2 or 2x2 layout.

6.5.2 Image controls

Combined tool: By selecting the combined tool, WW/WL is under the left mouse button, Pan under the middle mouse button and zoom under the right mouse button.

Zoom: left-click-drag up and down with the left mouse button to zoom in or out. Note that the zoom function is also available on right-click-drag when any other tool is selected.

Pan: click-drag to move the image. Note that the pan function is also available on middle-click-drag when any other tool is selected.

Invert colour: click to invert the colour of the image (black becomes white)

Windowing: click-drag to change the Hounsfield winnowing level and modify the contrast/brightness of the image. The viewer comes with a series of windowing presets for lung, bone, …that are configured at installation. The viewer will also suggest presets that are stored in the image Dicom tags.

Magnifying glass: click on the image to display a local zoom. Zoom level and magnifying glass size can be adjusted when selecting the tool

Rotate: click to rotate the image 90° CW or CCW

Flip: click to flip the image vertically or horizontally

On Touch devices, the viewer supports pinch, zoom and pan gestures. Whatever the selected tool, they are always enabled. Use 2 fingers to pan and zoom.

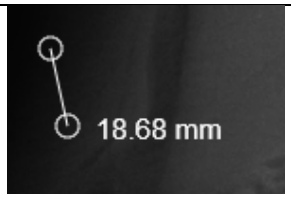
6.5.3 Measurements and annotations

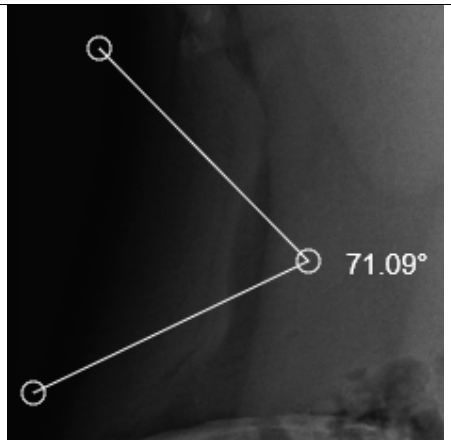
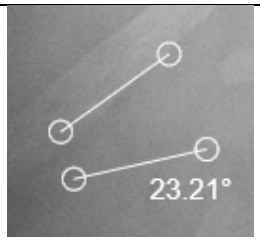
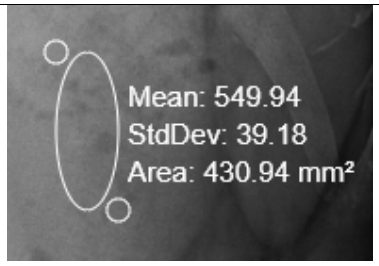
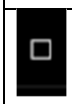
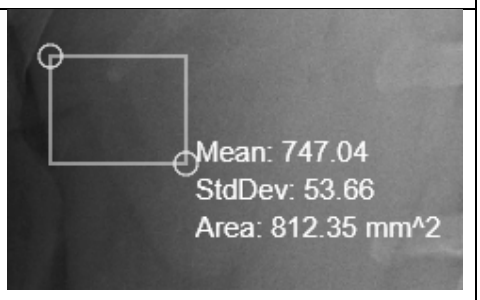
The viewer provides multiple measurements and annotations. Note that dimensions are expressed in mm given the scaling information contained in the DICOM image. If the image does not contain any such information, dimensions are displayed in pixels.

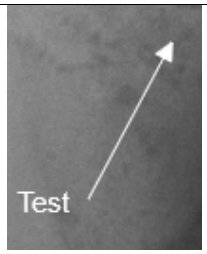
All annotations can be edited by moving the handles. Handles can be moved as soon as any of the annotations tool is selected.

To remove an annotation, drag one of its handles outside the viewport.

Depending on the configuration of your installation, annotations will be stored or not and will/won't be visible next time you view the same image.

	Length: • First click: starting point • Second click: end point	

	Simple angle: • First click: starting point of the first line • Second click: angle point • Third click: end point of the second line	
	Split angle: • First click: starting point and angle • Second click: end point of the second line Then, you should adjust all lines. The angle point can be “exploded”	
	Pixel probe: click and move the mouse. The first line displays X and Y pixels coordinates. The second line displays: • SP = the Stored Pixel = the pixel value as stored in the DICOM file. • MO = modality pixel value = Single pixel value * Rescale Slope + Rescale Intercept.	
	Ellipctial ROI: • First click: start drawing the ellipse • Second click: stop drawing the ellipse	
	**Rectangle ROI**: • First click: start drawing the ellipse • Second click: stop drawing the ellipse	

	Text annotation: • First click: the arrow pointer • Second click: the arrow end	

6.6 Other tools

Print:Allows you to print the current view. Note: this feature must be enabled during the configuration of the server. Printing is not available on Internet Explorer.

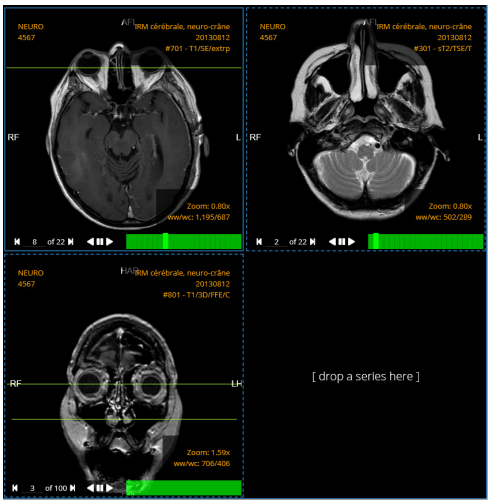
Create a key image:This creates a new DICOM image with the annotations burned in the image. When creating the image, you might enter a text that will be stored in a private DICOM tag (7331, 1000). Note: this feature must be enabled during the configuration of the server.

Synchronized browsing: Once this tool is enabled (it is by default), every time the user changes the displayed instance in a series, all other instances of all other series with the same orientation will be changed accordingly.

The synchronized browsing can be temporarily disabled by holding the shift key in order to adjust an offset between series.

Download as JPEG: This function will download the image in the selected viewport as image file in .jpeg format. The image is stored in the default download folder.

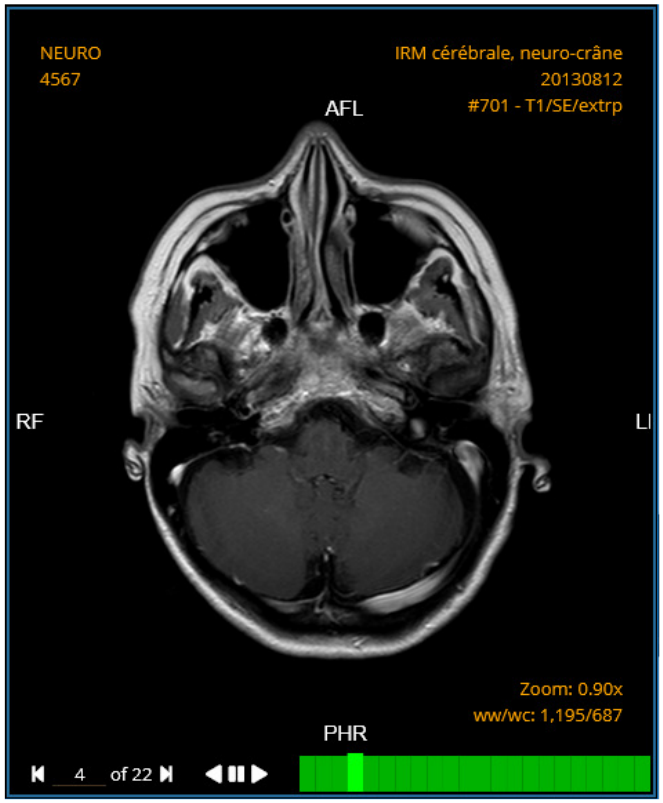
Reference lines: reference lines show the intersection line of the selected viewport with orthogonal images displayed in other viewports.



Cross-Hair: clicking in a viewport A will select the slices in other viewports that are intersecting the slice displayed in viewport A near the clicked point.

Toggle Viewport information: This buttons hide/show the viewport information.

6.7 Image screen



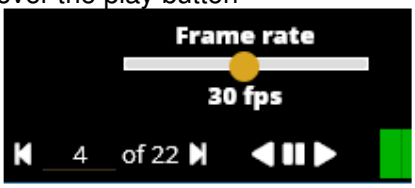
The viewport frame indicates the colour of the study that is visualized.

The study instance data are indicated as follows within the viewport:

- Top left corner: patient name and patient ID
- Top right corner: Study name + study date + series name
- Bottom right corner: zoom level and Hounsfield windowing level

The bottom of the viewport is subdivided into two parts:

- Left: instance navigator with an option for the user to control play speed when hovering over the play button



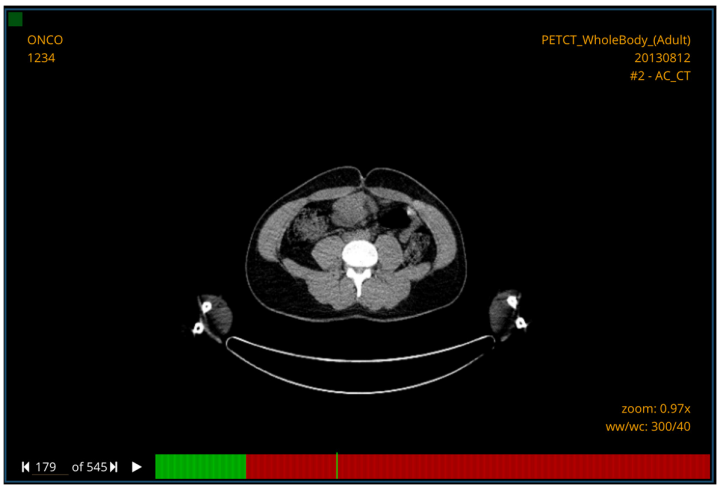
- Right: the instance navigation bar.

Note that you can also change the displayed instance with the mouse wheel.

6.8 Progressive loading

Low-res images are loaded first for quick navigation. Lossless images are loaded afterwards or as soon as a user stops on an instance (see red/green markers below).

Low-res images (red marker) are not intended for diagnostic review.



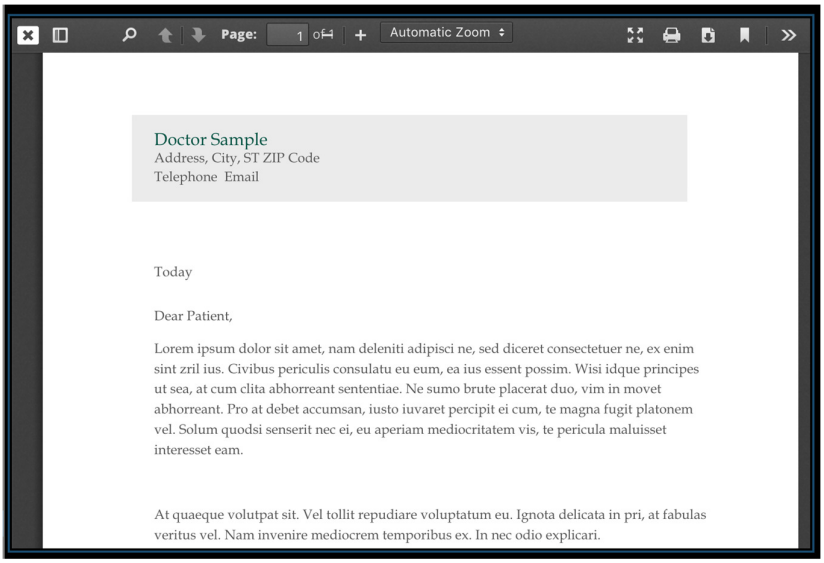
6.9 Keyboard shortcuts

Here is a list of default keyboard shortcuts. Note that these shortcuts can be changed when configuring the server.

Left arrow	Show previous image
Right arrow	Show next image
Up arrow	Show previous series
Down arrow	Show next series
Shift + up arrow	Show previous study
Shift + down arrow	Show next study
L	Rotate left
R	Rotate right
V	Flip vertical
H	Flip horizontal
I	Invert colour
P	Select pan tool
Z	Select zoom tool
W	Select windowing tool
Ctrl + l	Select length measure tool
Ctrl + i	Select pixel probe tool
Ctrl + m	Select magnifying glass tool
Ctrl + e	Select elliptical ROI tool
Ctrl + o	Select rectangle ROI tool
Ctrl + a	Select arrow annotation tool
Ctrl + k	Select key image capture tool
Ctrl + p	Print
1	Apply Windowing presets 1 from image
2	Apply Windowing presets 2 from image
3	Apply Windowing presets 3 from image
4	Apply Windowing presets 4 from image
5	Apply Windowing presets 5 from image
Ctrl + 1	Apply windowing presets 1 (from server configuration)
Ctrl + 2	Apply windowing presets 2 (from server configuration)
Ctrl + 3	Apply windowing presets 3 (from server configuration)
Ctrl + 4	Apply windowing presets 4 (from server configuration)
Ctrl + 5	Apply windowing presets 5 (from server configuration)
S	Toggle synchronized browsing
F1	Set layout to 1x1
F2	Set layout to 1x2
F3	Set layout to 2x1
F4	Set layout to 2x2
Space	Play/Pause
Tab	Select next viewport
Shift + tab	Select previous viewport
Enter	Load series in viewport

6.10 Report display

Reports are displayed in a viewport. The user can zoom, search, set the viewport to full screen, print and download the report.



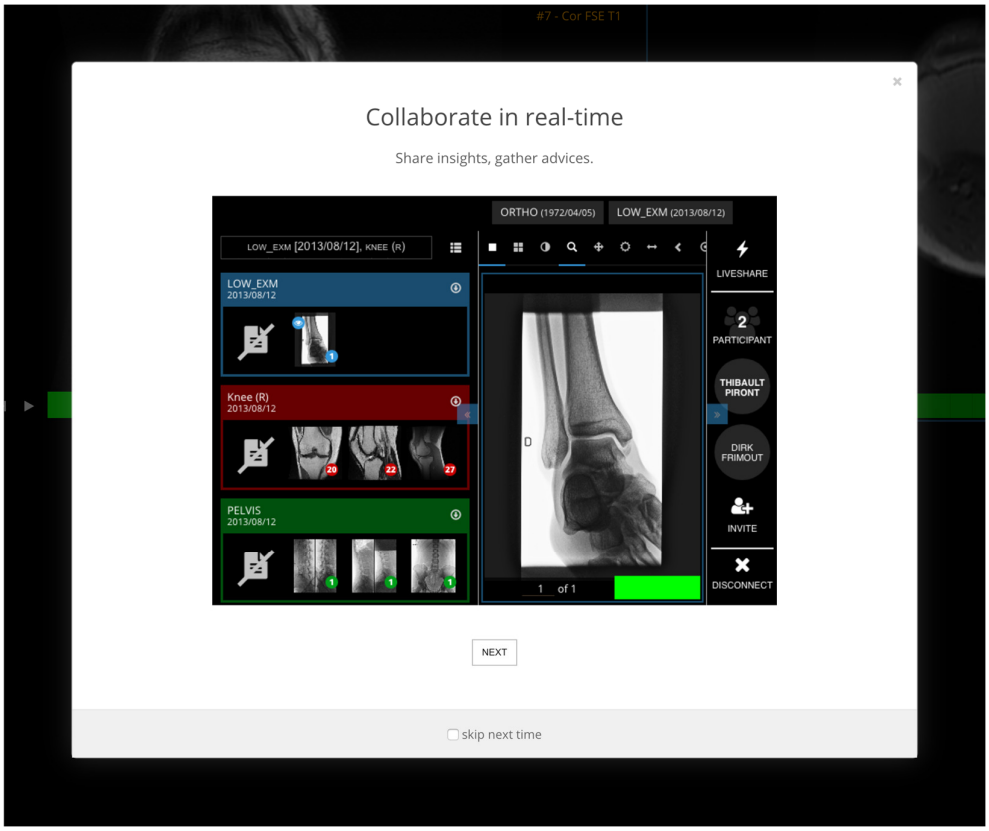
6.11 Liveshare (optional feature)

The Liveshare feature allows for remote collaboration sessions to be set up. After you distribute the session sharing link, all actions taken by the host are visible to the guests.

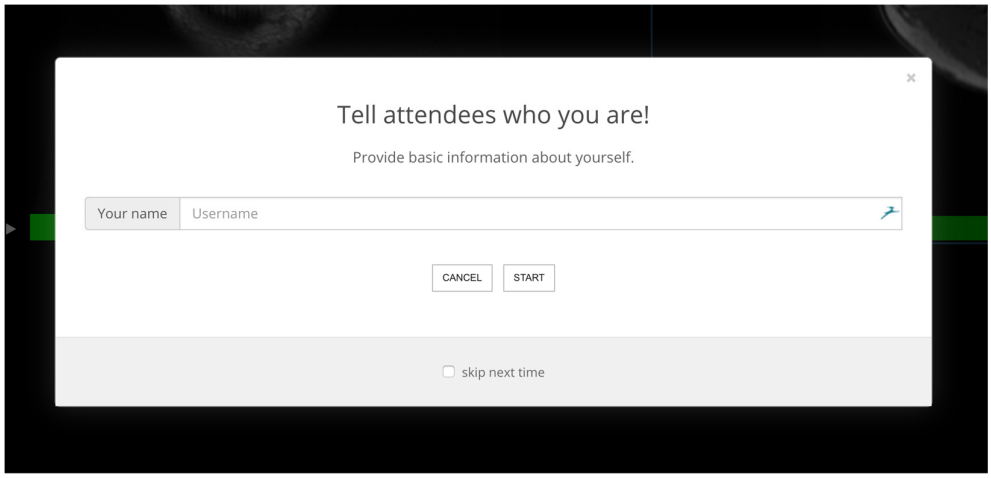
The Liveshare button is available in the top right corner of the viewer.

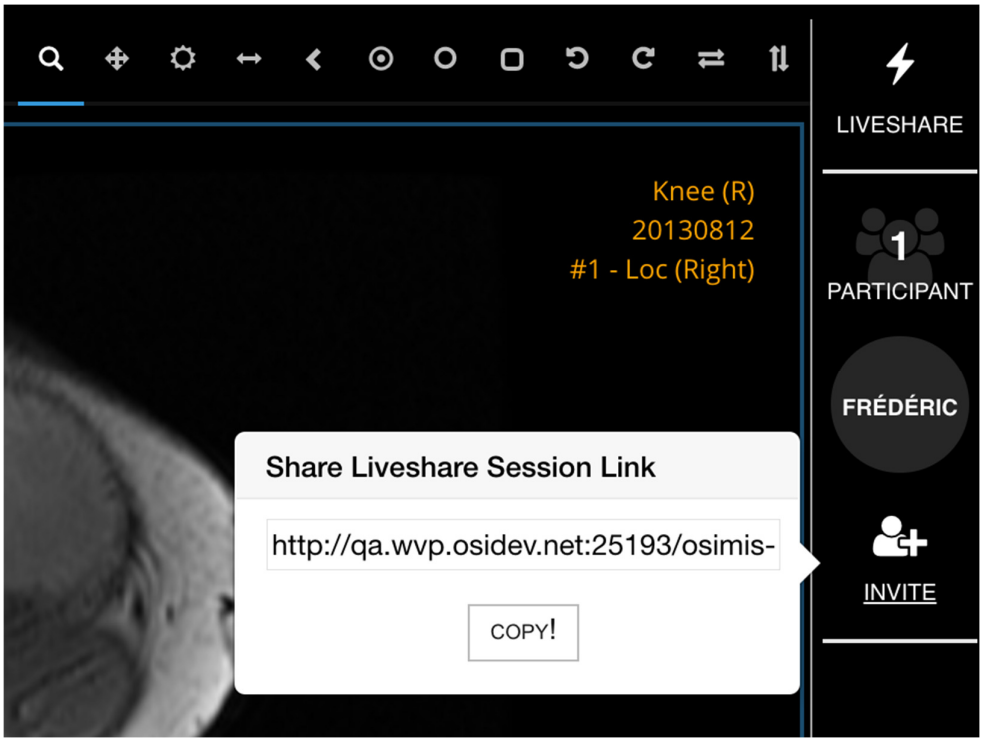
6.11.1 Hosting a session

Once the host presses the Liveshare button, he's prompted with an explainer modal. The user can choose to skip this step the next times.


#7 - Cor FSE T1
Collaborate in real-time
Share insights, gather advices.
ORTHO (1972/04/05)
LOW_EXM (2013/08/12)
LOW_EXM [2013/08/12], KNEE (R)
LOW_EXM
2013/08/12
Knee (R)
2013/08/12
PELVIS
2013/08/12
1 of 1
LIVESHARE
2
PARTICIPANT
THIBAULT PIRONT
DIRK FRIMOUT
INVITE
DISCONNECT
NEXT
skip next time

Next, the user will be asked to enter his name. This name will be stored in the browser's cookies.

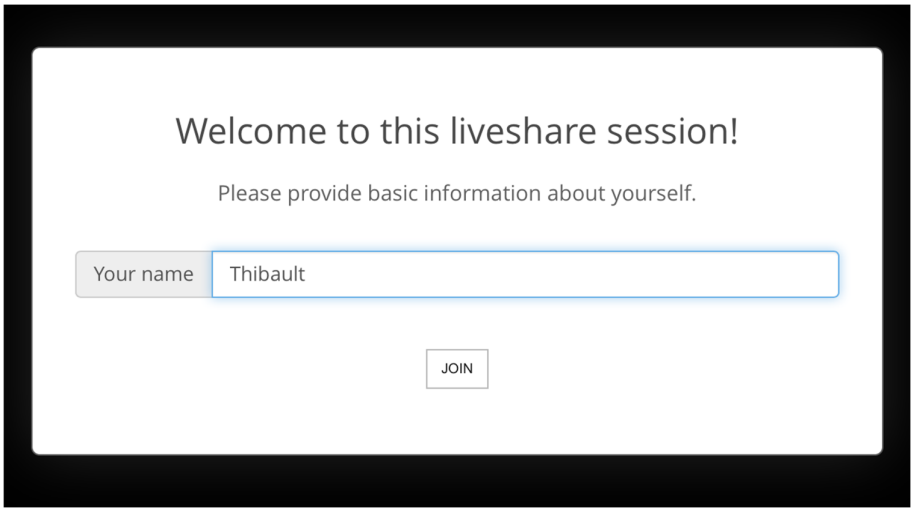




The user copies the link and share it via email or any other channel.

6.11.2 Attending a session

Any person clicking the generated url will be asked to enter his/her name.

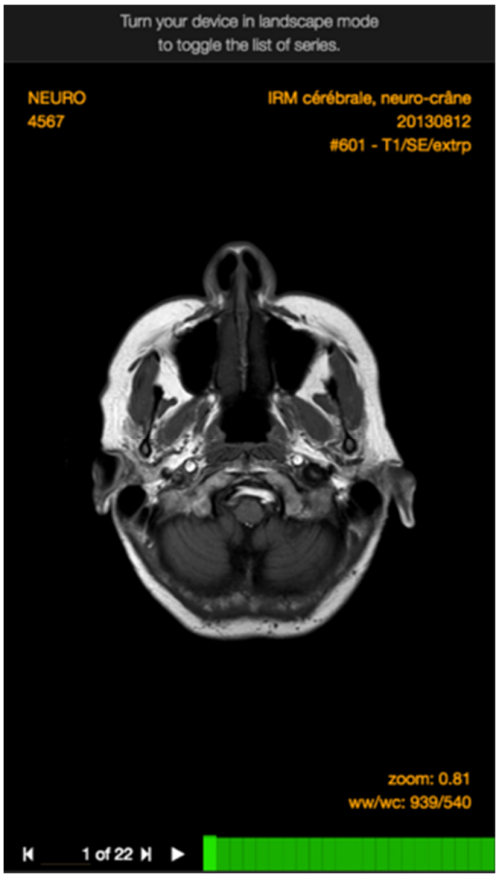


The attendees name is stored in the cache of the browser, involving the fact that the user's name will be suggested the next time he'll access a study as an attendee or host.

6.11.3 Liveshare session bar

All participants can see the below bar. The bar can be minimized. If an attendee disconnects, his name will disappear from the list. If the host disconnects, the session will be closed altogether and attendees will no longer have access to the study.

6.12 Mobile optimisation

The viewer has been specifically optimized for viewing on mobile devices with modern browsers. Series can be touch-dragged into the viewport.

The series selector only appears in landscape mode in order to make the optimize the viewing space in portrait mode.