**User interface overview**

The NilRead user interface is divided into three main areas: the image viewing area, top toolbar and left toolbar.

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| **Top toolbar and left toolbar** | The toolbars provide quick access to the NilRead areas and features. For details, see [Toolbars overview](https://nil.acr.org/Help/Read/en/nilread/overview/ui_toolbars.htm). |
| **Image viewing area** | The image viewing area is organized differently depending on the current NilRead study layout and view mode. For details, see [Customize the image viewing area](https://nil.acr.org/Help/Read/en/nilread/overview/ui_customize.htm). |
| **Maximize a viewport** | Double-click a viewport to maximize it and hide other viewports. Double-click again to restore the original viewport layout. |
| **Image orientation** | Each viewport contains information regarding the image orientation. For details, see [View image orientation](https://nil.acr.org/Help/Read/en/nilread/studies/orientation.htm). |
| **Reference lines** | Reference lines are shown on all series on the current screen that are in the same frame of reference. The intersection of the reference lines represents the corresponding position in all viewports. |
| **Image information** | Details about the study, series and image are shown on an image. For details, see [View image details](https://nil.acr.org/Help/Read/en/nilread/studies/imageinfo.htm). |

**Toolbars overview**

The toolbars provide quick access to the NilRead areas and features. Many tools in the top toolbar are also available by right-clicking the image viewing area.

To move through the tools on the top toolbar, use the arrows at the ends of the toolbar or fling the toolbar (on touch devices).

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| **Top Toolbar** |
| **Image visualization tools** | Image Visualization ToolsUse these tools to adjust image visualization settings. These tools are available in all view modes. For details, see [Review a study](https://nil.acr.org/Help/Read/en/nilread/studies/reviewstudy.htm). |
| **Hanging Protocols** | Hanging ProtocolsUse hanging protocols to customize the image viewing area. For details, see [Select hanging protocols](https://nil.acr.org/Help/Read/en/nilread/studies/hangingprotocolsuse.htm). |
| **Study Layout and View** | Study Layout ViewUse screen layouts and view modes to customize the image viewing area. For details, see [Select study layouts and view modes](https://nil.acr.org/Help/Read/en/nilread/studies/layout.htm). |
| **Cine** | CineView the images in a study as a "movie". For details, see [Review a study](https://nil.acr.org/Help/Read/en/nilread/studies/reviewstudy.htm). |
| **Mode specific tools** | Mode Speciific Tools |
| **Scrolling arrows** | First, Previous, Next, LastScroll through the images in a series. |
| **Save** | Save**Bookmarks**Use a bookmark to tag an image in a patient study that you want to find again quickly or that you want to share with others. For details, see [Share bookmarked images](https://nil.acr.org/Help/Read/en/nilread/collaboration/bookmarks.htm).**Captured images**You can create a series of secondary captured images for a patient study. Secondary captures are static screenshots and cannot be modified. For details, see [Create secondary captured images](https://nil.acr.org/Help/Read/en/nilread/collaboration/capture.htm).**Export**Export the images currently on the screen. You can export a single viewport or all viewports. |
| **Patient Study Directory** | StudiesView the patient directory. For details on using the directory, see [Open a study](https://nil.acr.org/Help/Read/en/nilread/studies/openstudy.htm). |
| **Logoff** | LogoffExit your current NilRead session. |

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| **Left Toolbar** |
| **Collaboration** | Start or join an online meeting. Meeting participants all see the same screen and can annotate images at the same time. For details, see [About meetings](https://nil.acr.org/Help/Read/en/nilread/collaboration/aboutmeetings.htm). |
| **Bookmarks** | Select a bookmarked image for the current study. For details, see [Share bookmarked images](https://nil.acr.org/Help/Read/en/nilread/collaboration/bookmarks.htm). |
| **Presets** | Apply a preset to the current study. For details, see [Apply a preset](https://nil.acr.org/Help/Read/en/nilread/studies/preset.htm). |
| **Reports** | View a report. For details, see [View reports](https://nil.acr.org/Help/Read/en/nilread/collaboration/reports.htm). |
| **Series** | Select a series for the current study. For details, see [Select a series](https://nil.acr.org/Help/Read/en/nilread/studies/series.htm). |
| **<< >>** | Use the arrows to hide or view the left toolbar. |

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| **NilRead Help >**[**Home**](https://nil.acr.org/Help/Read/en/nilread/nilread_contents.htm)**|**[**Overview**](https://nil.acr.org/Help/Read/en/nilread/books/bookoverview.htm)**| Toolbars overview** |  |  |  |

**Review studies**

Use the tools in the top toolbar to adjust image visualization settings. You can also right-click a viewport to access the tools. The study modality and view mode (2D, MPR, etc.) determines which tools are available.

You can use the tools in any viewport; changes to one viewport affect all viewports displaying the same series. If the [Link feature](https://nil.acr.org/Help/Read/en/nilread/studies/reviewstudy.htm#Link) is active, then changes to one series will affect all series in all viewports.

After using a tool, your changes are saved unless you select Annotations > Delete Last or Delete All (removes changes from current image) or Reset (removes changes from all images in the series) before closing the patient study.

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| scroll | **Scroll**2D - Drag to scroll forwards or backwards through the images in a series.MPR and Sculpting - Drag to navigate forwards or backwards through the stack of images. The navigation step depends on the slice thickness that is currently selected.3D and Sculpting - Drag to rotate an image with a full three degrees of freedom.ECG - Drag to navigate forwards or backwards in time. You can also scroll through the images in a series using:* the arrow keys on your keyboard
* the First, Previous, Next and Last arrows (top toolbar)
* the arrows at each end of the scroll bar below an image. You can also click and drag on the scroll bar to move through the images.
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| pan | **Pan**Drag to move an image within a viewport. You can also hold ALT while clicking the left mouse button. Panning is applied to all images in the series. |
| zoom | **Zoom**Drag up to zoom in on an image, and drag down to zoom out. You can also hold CTRL while clicking the left mouse button. Zooming is applied to all images in the series.TIP: To focus on a specific area, pan the image so the area is centred in the viewport, then zoom in. **Magnifier**Drag to zoom in on a specific area within an image. Magnification options are set in your [user preferences](https://nil.acr.org/Help/Read/en/nilread/settings/userprefs.htm). |
| rotate | **Rotate**MPR and Sculpting - Drag to rotate an image in any direction. Rotation is applied to all images in the series.3D, Fusion 3D and Sculpting - Drag to rotate an image with a full three degrees of freedom.NOTE: The [orientation figure and orientation information](https://nil.acr.org/Help/Read/en/nilread/studies/orientation.htm) is updated when you rotate an image. |
| Invert | **Invert**Click to invert grey images. Will be applied to all images in the series. |
| window level | **Window Level**Drag to adjust the window level. You can also hold SHIFT while clicking the left mouse button. Window level changes are applied to all images in the series.TIP: Use presets (left toolbar) to apply common window levels. |
| relate | **Relate**MPR, 3D, Fusion and Sculpting - Modify the reference lines. Reference lines are shown on all series on the current screen that are in the same frame of reference. The intersection of the reference lines represents the corresponding position in all viewportsClick an image where you want to place the intersection of the reference lines. You can also drag the horizontal and vertical lines individually, or drag the intersection to move both lines simultaneously.NOTE: Click Reference to show or hide the reference lines. |
| link | **Link**Link/unlink all currently open series. This allows you to scroll through the linked series scroll in a synchronized manner. Changes (such as rotation, zoom and window level) applied to one series are also applied to the other series. |
| annotations | **Annotations and Measurements**Use during image analysis to mark and measure features on the images. Click the arrow beside Annotations to select a tool.NOTE Measurement units and patterns are set in your [user preferences](https://nil.acr.org/Help/Read/en/nilread/settings/userprefs.htm). |
|   | **Annotations**

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| **Arrow** | Click to add an arrow pointing to a feature of the image. Click and drag to add an arrow and note. |
| **Text** | Click to add a note without an arrow. |

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|   | **Linear Measurements**

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| **Cursor** | Click to display a point intensity measurement. The value is shown in measurement units appropriate for the study type. |
| **Ruler** | Drag to create a linear measurement. After the line is drawn, the line's length is calculated and displayed. Measurements are not shown on uncalibrated images. |
| **Contour** | Drag to create a free hand curve and measure its length. Measurements are not shown on uncalibrated images. |

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|   | **Area Measurements**

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| **ROI-Free, ROI-Ellipse** | Drag to create a border around a region of interest using an elliptical or freehand shape. Statistics for the area are shown as appropriate for the study type, for example: average intensity, standard deviation, area and main diameters.NOTE: You can define patterns for the area measurement tools in your [user preferences](https://nil.acr.org/Help/Read/en/nilread/settings/userprefs.htm). |

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|   | **Angle Measurements**

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| **Angle** | Drag to create the first side of the angle (the start of this side will be the vertex). Click where you want to place the bottom of the second side of the angle. The two sides are automatically connected. The angle between the two sides will be displayed. |
| **Cobb Angle** | Drag to create the first side of the Cobb angle, then drag to create the second side. The two sides are automatically connected. The angle between the two sides will be displayed. |

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|   | **Color**Select the color to use for annotations. |
|   | **Manage**

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| **Delete Last, Delete All** | Remove the last change or all changes from the current image. TIP: Use Reset to remove changes from all images in the series. |
| **Editing Annotations** | You can edit annotations. For example, you can click and drag to change the annotation's position or size. You can also double-click the text in an arrow or text annotation to modify it. |
| **Deleting Annotations** | To remove an annotation, right-click the annotation and click Delete. |

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| key image | **Key Image**2D - Create a series of key images for a study. This allows you to quickly access important images within a large series of images.To mark the current image as a key image, click Key Image. The image is added to a key images series and is labelled as a key image. |
| Titles | **Titles**Show or hide image details in all viewports. See [View image details](https://nil.acr.org/Help/Read/en/nilread/studies/imageinfo.htm). |
| Full Quality | **Full Quality**View the original, uncompressed image. |
| reset | **Reset**Remove changes from all images in the series. Changes will only be removed from the current view mode (2D, MPR, 3D, Sculpting, Fusion or ECG).TIP: Use Annotations > Delete Last or Delete All to remove changes from the current image only. |
| Hanging Protocols | **Hanging Protocols**Use hanging protocols to customize the image viewing area. See [Select hanging protocols](https://nil.acr.org/Help/Read/en/nilread/studies/hangingprotocolsuse.htm). |
| screen layout | **Study Layout**Use study layouts to customize the image viewing area. See [Select study layouts and view modes](https://nil.acr.org/Help/Read/en/nilread/studies/layout.htm). |
| View | **View**Use view modes to customize the image viewing area. See [Select study layouts and view modes](https://nil.acr.org/Help/Read/en/nilread/studies/layout.htm). |
| rendering | **Rendering**MPR, 3D and Sculpting - Select the rendering mode for the study. Options are MIP (maximum intensity projection), volume rendering and average.TIP: Use presets (left toolbar) to apply common rendering settings. |
| thickness | **Thickness**MPR and Sculpting - Click the arrows to increase or decrease the plane thickness. |
| first, previous, next, last | **First, Previous, Next, Last**Scroll through the images in a series. |
| cine | **Cine**View the images in a study as a "movie". Use the Cine controls to: |
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| **Run** | Play the cine. |
| **Run All** | Play all viewports in a synchronized way. |
| **Pause** | Pause the cine. |
| **Speed** | Change the desired playback speed. The actual playback speed is shown while the cine is playing. |
| **Range** | Select the range of images from the series to include in the cine, based on the current image. For example, selecting 40 will include the 20 images before the current image and the 20 images after the current image. You can also choose to include all images in the series. |
| **Replay/Yoyo** | Replay the cine continuously or yoyo (play forwards then backwards). |

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| reference | **Reference**MPR, 3D, Fusion and Sculpting - Click to show or hide reference lines.NOTE: Use [Relate](https://nil.acr.org/Help/Read/en/nilread/studies/reviewstudy.htm#Relate) to change the position of the reference lines. |
| Clipper | **Clipper**Clippers are used to selectively remove portions of a study from a 3D rendering. This is generally used to expose a part of anatomy or a pathology. Several types of clippers are available: Plane, Box, Ellipsoid and Cylinder.NOTE: You can perform other actions, such as rotating the image, while using a clipper. You can also save a clipped image as a [bookmarked image](https://nil.acr.org/Help/Read/en/nilread/collaboration/bookmarks.htm).

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| **Plane** | Front plane clipper.Click to enable the clipper. Click and drag to push the plane in and out. |
| **Box** | Rectangular clipper.Click to enable the clipper. Click and drag a handle on the corner of the box to change the box size. Click and drag the center of the box to move it. |
| **Ellipsoid, Cylinder** | Elliptical or cylindrical clipper.Click to enable the clipper. Click and drag the center of the shape to move it. |
| **Clear** | Remove all clipping from the image. |
| **Reset** | Reset the currently selected clipper to the default settings. |
| **Pin, Unpin** | Use Pin to lock/unlock the clipping changes that have been made to an image. This allows you to retain the current clipping while working with an image (rotating, zooming, etc.). Further clipping cannot be performed until the image is unpinned. (Pin is not available for the Plane clipper.) |

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| NM Map | **NM Map**Fusion - Assign a colour map to nuclear medicine images. |
| Fusion Map | **Fusion Map**Fusion - Assign a colour map to fusion images. |
| Fusion Blend | **Fusion Blend**Fusion Blend - Adjust the fusion blend level. |
| **Image Orientation** | See [View image orientation](https://nil.acr.org/Help/Read/en/nilread/studies/orientation.htm). |

**Select series**

You can view multiple series by dragging different series into different viewports.

NOTE: For details on enabling multiple viewports, see [Customize the image viewing area](https://nil.acr.org/Help/Read/en/nilread/overview/ui_customize.htm).

1. Click Series (left toolbar). The series in the study are shown below the left toolbar.
2. Hover on a series thumbnail for information (series ID, image count, date, modality, description).
3. Click a series thumbnail to load the series in the viewer. The series is opened in all viewports.
or
Drag a series onto a viewport .

You can view the images in the series using:

* [scrolling](https://nil.acr.org/Help/Read/en/nilread/studies/reviewstudy.htm)
* [bookmarks](https://nil.acr.org/Help/Read/en/nilread/collaboration/bookmarks.htm)
* [key images](https://nil.acr.org/Help/Read/en/nilread/studies/reviewstudy.htm)
* [captured images](https://nil.acr.org/Help/Read/en/nilread/collaboration/capture.htm)