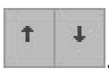
- **Angle Between Rulers** Whether to show the angle between two intersecting lines created with the ruler measurement tool.
- **ROI Threshold Default (SUV)** Default threshold value for ROI threshold measurements.

Measurement Patterns

Pre-defined patterns for the area measurement tools (see **Annotations and measurements**). You can also create new patterns.

1. Select **Add Pattern**.
2. To customize the pattern, select any of the underlined areas and choose an option. (Customizable areas are highlighted when you hover over them.)
3. To delete a pattern, select the first customizable area, then select .
4. To move a pattern to a new position, select the first customizable area in the pattern, then select . The patterns will be shown in the Annotations and Measurement tool in the order defined here.

Change your workstation preferences

You can set preferences for your NilRead workstation.

> **Note**
> If you access **Settings** while viewing a study, select **Back to Viewer** to return to the image viewing area.

1. Select **Settings**.
2. Under **Preferences**, select **Workstation Preferences**.
3. Select your preferences, then select **Save**.

Connection Type

Default connection type to access NilRead. (You can select a different option when logging in.) NilRead uses different compression polices based on the selected connection type to provide both interactive performance and image quality.

- **Internet** Connection speed is under 4 Mbps.
- **Fast Internet** Connection speed is between 4 and 10 Mbps.
- **Local network** Connection speed is over 10 Mbps.
- **Auto detect** Allow NilRead to detect the network connection.

Select **Speed Test** to check your NilRead connection speed.

Session Settings

Select the session timeout period. You will be logged out if your NilRead session is inactive for this amount of time.

- **Default** Use the default timeout period.
- **Workstation** Select a different timeout period. Select **Workstation**, then select a **Session Timeout** period.

User Interface Size

View NilRead using the default interface size (100%) or a larger size (150%). If using a larger size, you can also choose to enlarge the patient directory.

Image view controls

Whether the patient timeline and side panel are always visible in the image viewer. If this preference is enabled, the option to hide these items will be hidden.

Desktop Touch UI

Whether the NilRead desktop touch interface is enabled. Select this option if you are using a desktop operating system with touch features.

Viewer Monitor Type

Whether you are using a color or grayscale monitor.

Monitors

Virtual monitor layout. Select a layout based on the number of monitors you are using. Using multiple monitors allows you to display the Patient Study Directory on one monitor and the image viewing area on the remaining monitors. Note that this option is not available for all browsers.

Change mouse, keyboard and touch preferences

You can assign NilRead tools (such as zoom and scroll) to mouse buttons, keyboard shortcuts and touch gestures. This allows you to quickly access tools you use frequently.

Customizing mouse, keyboard, and touch actions involves two steps:

1. Create templates that define the tools assigned to mouse buttons, keyboard shortcuts and touch gestures.
2. Select the mouse, keyboard and touch templates you want to use when working in NilRead.

> **Note**
> If you access **Settings** while viewing a study, select **Back to Viewer** to return to the image viewing area.

Step 1: Add a template

1. Select **Settings**.
2. Under **Preferences**, select **Mouse, Keyboard and Tools**.
3. Select the **Templates** tab.
4. Select **Add**. You can also select an existing template, then select **Clone**.

   The Mouse, Keyboard and Tools Template Editor opens. Customizable areas are underlined and are highlighted when you hover over them. Click (or tap) a customizable area to edit it.
5. Enter the following information, then select **Save**. The template is added to the **Templates** tab.

   Template Info

   1. Enter a name for the template.
   2. Select whether this is a **Mouse**, **Keyboard** or **Touch** template.

3. Enter a description for the template.

Template Rules Definition

Select the NilRead tools you want to assign. Depending on the type of template, you can assign tools to the mouse buttons and scroll wheel, create keyboard shortcuts, or assign tools to touch gestures.

Default tools are already assigned. To change a tool:

1. Click (or tap) the tool. A list appears with available tools you can choose from.
2. Select a tool from this list or search for a tool.

Edit or delete templates

1. On the **Templates** tab, select a template.
2. Select **Edit**. Modify the details, then select **Save**.
   or
   Select **Delete**.

Step 2: Select a template to use in NilRead

Create definitions that specify the templates you want to use in NilRead. For example, you could create different definitions for mouse, keyboard and touch gestures. You can also use different key-board shortcuts for different devices.

1. Select the **Definition** tab.
2. Select **Add**. You can also select an existing definition, then select **Clone**.
   The Mouse, Keyboard and Tools Template Editor opens. Customizable areas are underlined and are highlighted when you hover over them. Click (or tap) a customizable area to edit it.
3. Enter the following information, then select **Save**. The definition is added to the **Definition** tab and is enabled by default, meaning it will be applied to NilRead. To disable the definition, deselect the **Enabled** checkbox.

Protocol Info

1. Enter a name.
2. Select whether this is a **System**, **Group** or **User** protocol. A system protocol will be applied to all users of NilRead. A group protocol will only be applied to the group you specify (enter the group name). A user protocol will only be applied to the type of user you specify (enter **Admin**, **User**, or **Guest**).
3. Select whether this is a **Mouse and Touch** protocol or a **Keyboard** protocol.
4. Select the view mode and modality the protocol applies to.

Mouse

1. Select **<add new>**.
2. Select **<pick>** and select a mouse template.
3. You can select **<add new>** again and add additional mouse templates.
4. To remove a mouse template, select **Cycle** to switch to **Delete**.

Touch

Select **<pick>** and select a touch template.

Keyboard

1. Select a device (**Desktop**, **Tablet** or **Smartphone**).
2. Select **<pick>** and select a keyboard template for this device.

Edit or delete definitions

1. On the **Definition** tab, select a template.
2. Select **Edit**. Modify the details, then select **Save**.
   or
   Select **Delete**.

Change tool preferences

You can customize the tools that appear in the toolbar, Annotations menu and image viewer context menu. This allows you to quickly access tools you use frequently.

Customizing tools involves two steps:

1. Create templates that define the tools assigned to the toolbar, Annotations menu and image viewer context menu.
2. Select the tool templates you want to use when working in NilRead.

> **Note**
> If you access **Settings** while viewing a study, select **Back to Viewer** to return to the image viewing area.

Step 1: Add a template

1. Select **Settings**.
2. Under **Preferences**, select **Mouse, Keyboard and Tools**.
3. Select the **Templates** tab.
4. Select **Add**. You can also select an existing template, then select **Clone**.

   The Mouse, Keyboard and Tools Template Editor opens. Customizable areas are underlined and are highlighted when you hover over them. Click (or tap) a customizable area to edit it.
5. Enter the following information, then select **Save**. The template is added to the **Templates** tab.

   Template Info

   1. Enter a name for the template.
   2. Select **Tools** template.
   3. Enter a description for the template.

   Template Rules Definition

   a) Customize the placement of the tools in the toolbar.

   Note that tools must be placed in a group. The tools in a group will be placed beside each other in the toolbar. To add a new group, select **Add Group** below the **Fixed Controls** or **Scrolling Controls** box.

To add or rearrange tools in the toolbar, drag a tool or a group of tools to the **Fixed Controls** or **Scrolling Controls** box.

- **Fixed Controls** contains tools that will also be visible on the left side of the toolbar and will not scroll. Note that if you have too many fixed controls, you may not be able to see all of the tools if your browser window size is reduced.
- **Scrolling Controls** contains tools that will scroll if there is not enough room to display all of the tools at once.

To remove a tool from the toolbar, drag the tool to the **Unassigned Controls** box.

b) Customize the annotations tools.

- To rearrange the annotation tools, drag a tool to a new position in the **Active Annotations** box.
- To remove an annotation tool, drag the tool to the **Available Annotations** box.
- To add an annotation tools, drag the tool to the **Active Annotations** box.

c) Customize the image viewer context menu. This menu appears when you right-click (or touch and hold) an image.

- To rearrange the menu items, drag a menu item to a new position in the **Context Menu Items** box.
- To remove an item from the menu, drag the item to the **Unused Menu Items** box.
- To add an item to the menu, drag the item to the **Context Menu Items** box.
- To add a submenu, select **Add Submenu**. Enter a name and select **OK**. Drag the submenu from the **Unused Menu Items** box to the **Context Menu Items** box. You can now drag other menu items into the submenu list.
- To delete a submenu, right-click (or touch and hold) the submenu, then select **OK**.
- To add a separator line, select **Add Separator**. Drag the separator from the **Unused Menu Items** box to the **Context Menu Items** box.
- To remove a separate line, drag the line to the **Unused Menu Items** box.

Edit or delete templates

1. On the **Templates** tab, select a template.
2. Select **Edit**. Modify the details, then select **Save**.

   or

   Select **Delete**.

Step 2: Select a tool template to use in NilRead

Create definitions that specify the tool templates you want to use in NilRead for different devices.

1. Select the **Definition** tab.
2. Select **Add**. You can also select an existing definition, then select **Clone**.

   The Mouse, Keyboard and Tools Template Editor opens. Customizable areas are underlined and are highlighted when you hover over them. Click (or tap) a customizable area to edit it.
3. Enter the following information, then select **Save**. The definition is added to the **Definition** tab and is enabled by default, meaning it will be applied to NilRead. To disable the definition, deselect the **Enabled** checkbox.

   Protocol Info

   1. Enter a name.
   2. Select whether this is a **System**, **Group** or **User** protocol. A system protocol will be applied to all users of NilRead. A group protocol will only be applied to the group you specify (enter the group name). A user protocol will only be applied to the type of user you specify (enter **Admin**, **User**, or **Guest**).
   3. Select **Tools**.

   Tools

   1. Select which devices this toolbar configuration applies to.
   2. Select **<pick>** and select a tools template.

Edit or delete definitions

1. On the **Definition** tab, select a template.
2. Select **Edit**. Modify the details, then select **Save**.

   or

   Select **Delete**.

Change window level presets

You can change the window level presets for different modalities. These presets appear in the **Presets** side panel when viewing a study.

> **Note**
> If you access **Settings** while viewing a study, select **Back to Viewer** to return to the image viewing area.

1. Select **Settings**.
2. Under **Preferences**, select **Modality Preferences**.
3. Enter the following information, then select **Save**.

   Modality

   Select the modality that you want to set preferences for. The changes you make on the Modality Preferences page will only affect studies containing this modality. Select **All** to apply the changes to all modalities. Note that if you set a preference for an individual modality, this will override the same preference set for all modalities.

   > **Note**
   > Window level presets are not available for all modalities.

   Window Level Presets

   In the **Scope** area, select the presets you want to modify.

- **SiteDefaults** Default site presets. Select this option if you want to modify the default presets for all users of the site.
- **User** Your presets. Select this option if you want to modify your presets only.

You can modify the values for a preset.

1. Select **Edit** beside the preset.
2. Change the values, then select **Save** beside the preset. Select **Cancel** to discard your changes.

You can change the order of the presets in the side panel.

- Select the up or down arrow beside a preset to move the preset to a new position in the list.

Change modality preferences

You can change NilRead settings for different modalities.

> **Note**
> If you access **Settings** while viewing a study, select **Back to Viewer** to return to the image viewing area.

1. Select **Settings**.
2. Under **Preferences**, select **Modality Preferences**.
3. Enter the following information, then select **Save**.

Modality

Select the modality that you want to set preferences for. The changes you make on the Modality Preferences page will only affect studies containing this modality. Select **All** to apply the changes to all modalities. Note that if you set a preference for an individual modality, this will override the same preference set for all modalities.

Series Navigation

Determines the behavior of the Scroll tool. By default, the Scroll tool will scroll through images in the current series only.

- **None** Scroll through the current series only.
- **Single Frame Only** Scroll through all of the series in the study. When advancing to the next series, scroll through single frame images only (omit multiframe images).
- **All** Scroll through all of the series in the study. When advancing to the next series, scroll through all images (single frame and multiframe).

Virtual Series

Determines whether a **virtual series** is automatically created for a study.

- Select **Yes** to automatically create virtual series.
- Select **No** if you do not want to create virtual series.

Zoom Policy

Determines the behavior of the Zoom tool.

- **Zoom at center** Zoom will be applied at the center of the viewport, regardless of where you click (or tap) on the image with the Zoom tool.
- **Relative zoom at mouse position** Zoom will be applied at the point where you click (or tap) on the image with the Zoom tool. This is the default setting for mammography images.

Old Study Warning

A warning is displayed in the viewport if an image is older than the specified number of days. The default value for mammography images is 365 days. The default value for other modalities is 0, meaning a warning will not be displayed.

Cine Sequence

Determines whether cine sequences are played automatically when the cine sequence is loaded in the viewport.

Window level presets

(Available for some modalities only) You can change the window level presets for different modalities. For details, see **Change window level presets**.

Image Ruler Options

(Available for some modalities only) Determines how the image ruler size is controlled. Rulers can only be displayed when the underlying meta-data provides known and consistent pixel spacing and image geometry is flat.

- **Scope** (Administrators only) Choose whether the settings apply to the entire site (**Site Defaults**) or to your account (**User**).
- **Basis** Choose how the ruler size is controlled. **Viewport** basis constrains the ruler to fit in the viewport (typically 60%). Different ruler lengths can be chosen while zooming the image. **Image** basis keeps the ruler size constant independent of zoom; however, the ruler may extend beyond the viewport size under certain zoom factors.

> **Note**
> NilRead users can use **Titles** to show or hide a ruler for an image (see **Titles**). Administrators can choose whether rulers are shown by default (see **Ruler display settings**).

Admin

Manage data quality control

About data quality control

The NilRead data quality control (QC) tools allow you to make adjustments to data. You can use the QC tools to:

- Modify DICOM attributes.
- Redact areas on images.
- Add and hide labels on images.
- Split a series into multiple series.
- Merge patients, studies and series.
- Delete a patient, study or series.

The QC tools are available in the QC viewer. See the next section for details on accessing the viewer.

Add studies to the data QC viewer

Add the studies you want to edit to the QC viewer. You can add studies for one or more patients.

1. Use any of the options in the navigation tree to find a study (Patient Search, Patient Directory, Recently Opened, Worklists and Folders).
2. Right-click (or touch and hold) a study, then select **Advanced QC**.

   To add multiple studies, select the checkbox beside the studies, right-click (or touch and hold) one of the studies, then select **Advanced QC**.

   To add all studies in a worklist or folder, right-click (or touch and hold) the worklist or folder name, then select **Advanced QC**.
3. The QC viewer opens with the study (or studies) you selected.
4. To add more studies to the QC viewer:
   a. Select **Add** in the top-left corner.
   b. Use the Patient Search page to find the study you want to add (for details, see **Use Patient Search**).
   c. Click (or tap) a study to add it to the QC viewer. To add multiple studies, select the checkbox beside the studies, then select **Load**.
5. To remove a patient from the QC viewer, select **X** on the patient row.
6. To remove all patients from the QC viewer, select **Clear** in the top-left corner.
7. To update the studies in the QC viewer with the latest changes made by all users, select **Refresh** in the top-left corner.

Overview of the QC viewer

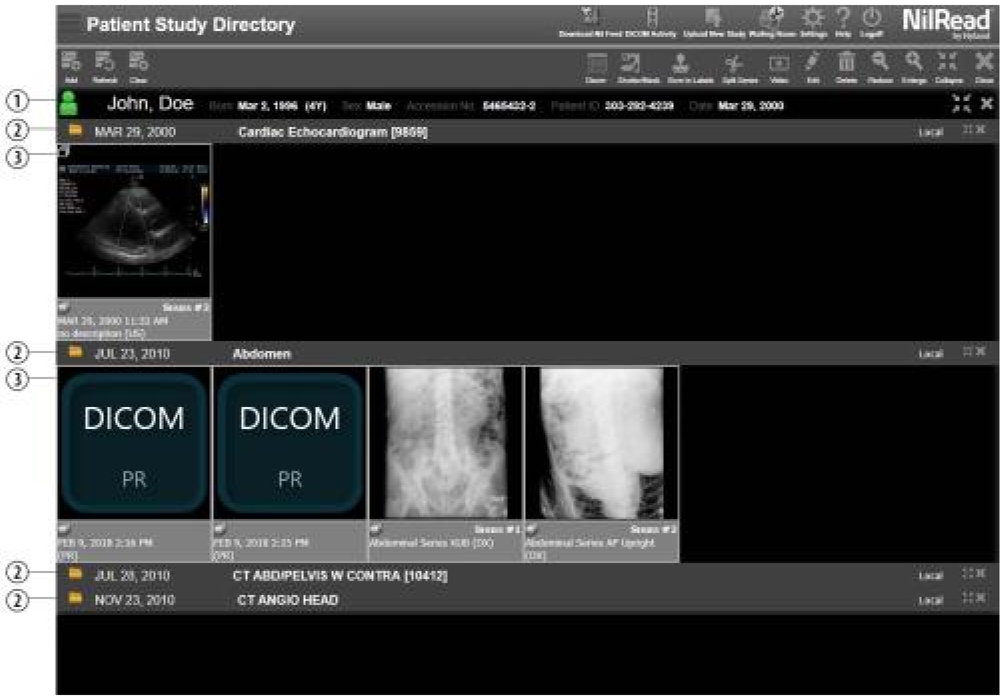
The following information is shown for the studies in the QC Viewer. The studies are organized by patient.

① **Patient** Patient information is shown first. Click (or tap) the patient name to view details.

② **Studies** The patient's studies are listed by date. Each study is shown on a separate row. Click (or tap) the study title to view details.

③ **Series** Thumbnails for the series in the study are shown. Series can be color-coded according to the series type.

The following example shows one patient with four studies. The last two studies have been collapsed so that only the study date and title are shown.



Optimize the QC viewer display

You can change the amount of information displayed in the viewer and the size of the series thumbnails. This can be useful when using a device with a small screen.

- To view the patient rows only, select **Collapse** (toolbar). The study and series rows are hidden. Select **Expand** to view the rows.
- To collapse a specific patient row, select on the patient row. The patient's studies are hidden. Select again to view the studies.
- To collapse a study row, select on the study row. The series in the study are hidden. Select again to view the series.

- To reduce the size of the series thumbnails, select **Reduce** (toolbar). To enlarge the thumbnails, select **Enlarge**. Note that you can select **Reduce** or **Expand** multiple times until the minimum or maximum size is reached.

Edit key DICOM attributes

You can quickly edit key DICOM attributes for a patient, study or series. Your changes will be saved in new SOP instances.

DICOM attributes conform to the following hierarchy: (1) patient, (2) study and (3) series. When you edit key DICOM attributes at one of these levels, you also have access to the higher level attributes. For example, if you edit attributes for a study, you can also edit the patient attributes. If you edit attributes for a series, you can also edit the study and patient attributes.

> **Note**
> You cannot edit image attributes using the **Edit** tool. To modify DICOM attributes in more detail, including image attributes, see **Manage DICOM attributes**.

1. Select **Edit** from the toolbar, then do one of the following.
   - Select  on a patient row. This opens the patient attributes.
   - Select  on a study row. This opens the study and patient attributes.
   - Click (or tap) a series. This opens the series, study and patient attributes.

   or

   Right-click (or touch and hold) a patient, study or series, then select **Edit**.
2. Make changes to the DICOM attributes. For most attributes, you can type directly in the **Value** field.