2 CT Viewer

CT Viewer Indications for Use

The CT Viewer is an image visualization and post-processing software application designed to visualize and analyze CT images supporting the physician's diagnostic process. The software application supports study review, side-by-side comparison, image fusion, 2D and 3D manipulation, series arrangement, and measurement of CT images.

CT Viewer 2D Mode

The primary function of the CT Viewer's 2D viewing mode is to review original axial images as acquired by the scanner.

NOTICE

When you first access the CT Viewer, it opens in the default Slab viewing mode. To access the 2D viewing mode, click the 2D button in the upper left corner of the viewing display.

Basic functions include:

- Scroll bar for rapid viewing of large image sets.
- Zoom, pan, window/level adjustments, and enhancements.
- Alternate (view same images with 2 different window/level settings).
- Graphic tools for annotating and measuring.
- Grid overlay.

Other functions include:

- Copy viewing parameters from one image to others (Clone).
- Create a Batch (a series of images for filming, reporting and saving).
- Cine, for viewing images in a movie-like mode.
- View image parameters.

Advanced functions include:

- Sort, using DICOM tags.
- Compare series side-by-side.
- Combine multiple images into one.

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WARNING

Verify correct semi-automatic volume segmentation for bed and head holder removal operations.

NOTICE

When loading data into an application, ensure the orientation shown on the images is consistent with the images' appearance. This precaution is required for data that contains wrong orientation information because the data will be incorrectly presented within the application.

2D Viewer Window

The 2D viewer allows you to view axial images in a single-image or multi-image layout. (The default layout in 2D is 1x1, the single-image layout).

Load Multiple Studies in Application

To load multiple studies in the application:

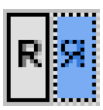
1. Use the **Ctrl** key when selecting studies from the Directory list.
2. Select the application from the Applications menu.
3. Confirm the studies are from the same patient.

2D Viewer Tools

Use the 2D Viewer Tools to review original axial images as acquired by the scanner.

Orientation

Orientation allows you to rotate the images on the display:



Rotate the selected image(s) horizontally, 180 degrees.

Rotate the selected image(s) vertically, 180 degrees.

Rotate the selected image(s) clockwise.

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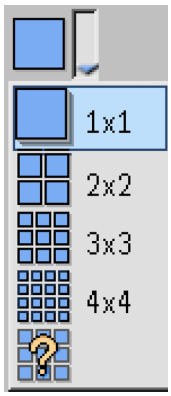
Rotate the selected image(s) counter-clockwise.

Layout



The Layout function controls how the images display in the viewport. Click the Layout down-arrow to select from four image layout arrangements, 1x1, 2x2, 3x3, 4x4, and Custom. When changing layouts, the image that was active beforehand stays active and appears closest to the top left corner as possible, so that no blank images appear on the screen.

NOTICE

When you are in the Compare mode, with two images side by side, the layout selections are limited to vertical and horizontal.

Custom Layouts

In addition to the four standard layouts, you can define the number of images in the rows and columns, from 1 to 10.

Compare

The Compare function allows you to perform a side-by-side review of selected images from the series tree. When the Compare mode is active, you can click a Spread button to spread the images you are comparing across both of the system's monitors.

Spread Mode

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Relate

Relate scenes allows you to mark a point in any axial image and then switch to another scene (Slab, Volume, or Endo) and view the related points in other Image Planes. (In the 2D viewing mode, only Relate scenes is available. Relate viewports function is not available and is grayed out.)

Move to Next or Previous

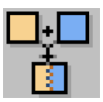
Use this function to move to the next or previous series in the patient study. The button is enabled when more than one series has been loaded to the current application.

Combine

The basic Combine function combines groups of original thin “slices” into fewer, thicker “slices” for viewing, filming, reporting or saving.

NOTICE

Combined images should not be used as the SOLE basis for clinical diagnosis.



The Advanced Combine function allows you to manipulate the basic combined sets of images by adding them to each other or subtracting them from each other (within each combined image set). The primary use is to perform subtraction on contrasted and non-contrasted studies. You can also have the basic combined images displayed in a way that shows, in each pixel location, either the minimum (“Min”) or the maximum (“Max”) pixel value.

See **Report**, **Film**, **CT Common Processes** and **CT Common Tools** for information on using common options, tools, functions, and processes.

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Alternate Window

The Alternate function allows you to define two different window/level presets for the same image(s). Procedure to activate the Alternate function:

1. Select the images that you want to view in the Alternate function.
2. Set the window/level as desired.
3. Click the Alternate button.
4. Set the window/level for the Alternate view.
5. To toggle between the two views, click the Alternate button.

Clone

Use the Clone function to copy the windowing, zoom, pan, enhancement, and inverse window parameters from one image (the “source”) to one or more other images (the “target”).

1. If not already selected, click the image (the source image) from which you want to copy the parameters. It becomes “Active,” with a blue frame.
2. Click **Clone.**

   Or:

   Double click Clone if you want the clone function to remain active for using it repeatedly (the “constant” mode).

   The Clone button appears pressed. This saves the parameters from the source image.
3. Select the image(s) on which you want to apply Clone (the target image).

   The parameters that were saved from the source image are applied to the target image(s), and the Clone button becomes un-pressed (if you are not in the constant mode).

Clone Settings of One Image to Entire Series

1. Click on the source image.
2. Click **Clone.**
3. Change the selection to “Series.”
4. Click on one of the images of the series.

NOTICE

If you click Clone while it appears pressed, the cloning function is cancelled.

Double click Clone for constant mode.

The Clone function is applied to images based on the Selection mode.

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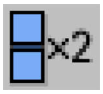
Duplicate (Create Temporary Series)



The Duplicate function creates a temporary series from the active selection. The duplicate series icon in the series tree appears faded; a 1 or 01 identifier is appended to the series number, as shown at left.

1. Use the Selection function to select the images you want to create a new series from.
2. Click the **Duplicate** button.
3. The selected series are duplicated into a new temporary series.

The new series:

- contains the images that were selected when the duplicate was performed, including any sorting and combining; and
- appears after the original series, both in the viewport and in the series tree.

You can now activate the Compare mode to show the highlighted original series and duplicated series side by side. The duplicated series has a faded icon in the series tree, indicating that it is not saved. The temporary series can be saved with the Save function from a right mouse click over the series in the Series tree.

Sort

The Sort... tool allows you to sort images using DICOM tags. You can use factory defined sorting protocols, or you can use the Custom sort feature to create your own sort protocol.

See **Report**, **Film**, **CT Common Processes** and **CT Common Tools** for information on using common options, tools, functions, and processes.

Select Images

Use the tools shown at left to select images. The buttons, from left to right, are:

- One image (at a time).
- A series of images.
- The screen (the whole window).
- All images loaded in the viewer.

Selecting images allows you to perform the same manipulation on the image(s) of your choice, such as scrolling, panning, zooming, filming, or saving.

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NOTICE

Selected images are enclosed within an orange frame.

Images that are not selected have no surrounding frame.

The currently active, selected image is enclosed within a blue frame.

All your image viewing operations are performed in real-time on selected images.

The maximum zoom factor in all applications is 15 on all images, including cross-sectional images.

2D Viewer Functions

To access additional 2D Viewer functions, click the down arrow in the tab window, or hover the mouse over the tab window. The list of available functions displays.

NOTICE

Instructions for using the functions described below are provided in the Common Processes section (except PET/SPECT).

Series

The Series tree displays a list of the studies and series that are loaded into the viewer, and also other elements (like batches) that have been created. Show Pictorials changes list to thumbnails

Bookmarks

While using a viewer or an application, you can use a bookmark at any time to “save the current status” of your work.

Batch

The Batch function allows you to create a series of sequential images for viewing, saving, reporting and filming purposes.

PET/SPECT

When your current Portal directory contains PET and SPECT patient studies, the PET/SPECT function appears in the drop-down list.

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If your system has the optionally available NM Fusion Viewer, you can use the CT Viewer - Slab and Volume mode functions on NM images. See section “CT Viewer Slab Mode” on page 20 and section “CT Viewer Volume Mode” on page 38.

See **Report**, **Film**, **CT Common Processes** and **CT Common Tools** for information on using common options, tools, functions, and processes.

2D Viewer Common Tools

Common tools provide many basic functions, including saving, filming, reporting, scrolling, measurements/annotations, panning, zooming, rotating, and windowing.

See **Report**, **Film**, **CT Common Processes** and **CT Common Tools** for information on using common options, tools, functions, and processes.

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