

DICOM Image Viewer Documentation

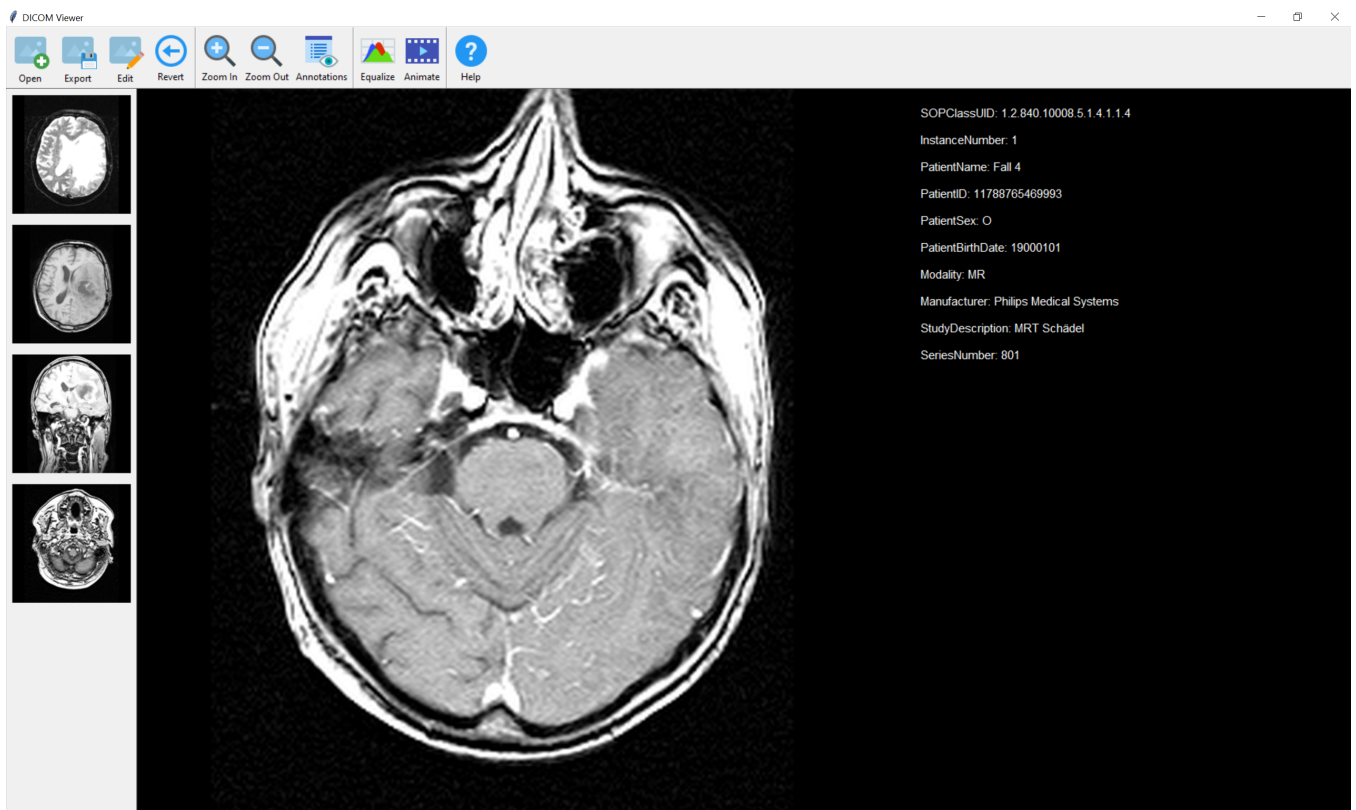
Date: Jun 29, 2023

Version: 1.0

DICOM Viewer is simple and elegant viewer, designed to work with DICOM files and extract meta data from them.

1. Installation

1. Download [Python 3](#)
2. Extract the archive to a folder of your choice
3. Navigate to the folder from your terminal and run project with following command:
\$ python DicomViewer.py



2. User Guide

How to open DICOM images

- Click on Open button
- Click on Open DICOM Image
- Select one or more DICOM files of your choice
- The selected images will be automatically combined by series number (SeriesInstanceUID) and previewed with a thumbnail in the left bar of the program

How to open DICOM archive (.zip)

- Click on Open button
- Click on Open ZIP File
- Select a .zip archive
- The extracted images will be automatically combined by series number (SeriesInstanceUID) and previewed with a thumbnail in the left bar of the program

How to export DICOM images to PNG image files (this feature is in TODO state)

- Click on Export button
- Select images to export: Export Current Image or Export Current Series
- Your files will be exported in 'data' directory under the main project directory

How to edit DICOM images

- Click on Edit button
- Choose a filter or transformation to apply
- The selected option will be applied to the current image only
- Options include: Sharpen Image, Smooth Image, Rotate 90' CW, Rotate 180' CW, Flip Horizontal, Flip Vertical

How to revert transformations or filters applied on DICOM images

- Click on Revert button
- The operation will be applied to the current image only

How to zoom in or zoom out DICOM images

- Click on Zoom In or Zoom Out button depending on the operation selected
- The operation will be applied to the current image only

How to hide annotation of DICOM images

- Click on Annotations button
- The operation will be applied to the current image only

How to automatically adjust contrast of DICOM images

- Click on Equalize button
- The operation will be applied to the current image only

How to animate a series of DICOM images

- Click on Animate button
- The operation will be applied to the current image only

3. API reference_

DicomViewer

- A class implementing the main interface of the application.
- Methods:

initGUI	Initialization of graphical elements of the main window
loadIcons	Initialization of graphical elements of the main window
loadMenu	Loads main menu
reloadPreviewBar	Loads previews of selected DICOM image series
onOpenImgCanvas	Loads selected DICOM image
onOpenDICOM	Opens DICOM images
onOpenZIP	Open archive with DICOM images
onExportImg	Exports currently selected DICOM image to other image formats
onExportSeries	Exports all images from a DICOM series to other image formats
onSmoothImg	Applies Gaussian Blur filter to DICOM series
onSharpenImg	Applies Sharpen filter to DICOM series
onRotateRight90Img	Rotate DICOM series to 90 degrees CW
onRotateRight180Img	Rotate DICOM series to 180 degrees CW
onFlipHorzImg	Flip DICOM series horizontally
onFlipVertImg	Flip DICOM series vertically
onRevertImg	Revert transformations and filters applied on DICOM series
onZoomIn	Zooms in the current DICOM image
onZoomOut	Zooms out the current DICOM image
onAnnotation	Show/Hide annotations of DICOM series
onEqualizeImg	Automatically adjust contrast of DICOM series
onDocumentation	Shows documentation in browser
onExit	Closes the main windows with Escape button

ImgCanvas

- A helper class implementing basic functionality for displaying a selected DICOM series

- Methods:

reset	Changes the displayed DICOM image series
description	Shows/Hides annotations of DICOM series
zoomin	Zooms in the currently displayed DICOM image series
zoomout	Zooms out the currently displayed DICOM image series
resize	Resizes currently displayed DICOM image series on application request
reindex	Scrolls through displayed DICOM image series
redrawAll	Refreshes all graphical elements used for displaying selected DICOM series
redraw	Refreshes displayed DICOM series

DicomController

- A class for collecting data to display on the main window

- Methods:

readData	Gathers data from DICOM image series
writeData	Saves data from DICOM images series
generatePreview	Generates preview thumbnails for displayed DICOM image series
generateImages	Generates images for displayed DICOM image series
generateAttributeData	Generates annotations data for displayed DICOM image series
removeDICOM	Removes all data for a DICOM image series
getData	Returns data gathered from all DICOM series
clearData	Clears data gathered from all DICOM series

DicomIO

- A class for basic I/O operations with DICOM images

- Methods:

readDICOM	Reads DICOM image series
readZIP	Reads /zip archive with DICOM image series
writeDICOM	Saves DICOM image series to file

DicomSeries

- A model class holding information from DICOM image series

- Methods:

getSeriesId	Returns SeriesInstanceUID of DICOM image series
setSeriesId	Sets SeriesInstanceUID of DICOM image series
getImageData	Returns all image data of DICOM image series
addImage	Adds image to DICOM image series
getPreviewImageData	Gets Preview thumbnail Image for DICOM image series
getPreviewImageName	Gets Preview thumbnail Image name for DICOM image series
anonymizePatientData	Deletes patient's information from DICOM image
getAttributeData	Returns annotation data of DICOM image series
setAttributeData	Sets annotation data of DICOM image series
getStrAttributeData	Returns annotation data of DICOM image series as string