Manual
Version 1.0

Supported Data Formats

- MEVIS draw supports import and export in the following formats:
    - DICOM (slices, volume, SEG, RTSTRUCT)
    - MetaImage
    - MLImage
    - NiFTI
    - NRRD
- Import and export of DICOM slices requires providing a folder. For all other formats, you can either provide one or multiple files or a folder.

Image Import

- Click *Import file* or *Import* folder in the *Images* section in the sidebar.
- Select the file(s) or folder you want to import and click *Open*.
- Wait until new patients appear in the *Images* section. This may take a while. Note that images are copied to the MEVIS draw workspace.

Image Selection

- Select an image in the *Images* section.
- Images are grouped by patients. If a patient has multiple images, click on the patient to expand the list.

Image Viewing

- Window/level with *right mouse button*.
- Slice with *mouse wheel* or *middle mouse button* or *arrow keys*.
- Zoom with *Ctrl + middle mouse button* or *+/- keys on the numeric keypad*.
- Pan (move visible part of the image) with *Shift + middle mouse button* or *arrow keys on the numeric keypad*.
- Reset view (unzoom and center) with *5 key on the numeric keypad.*
- Toggle image annotations with *A.*
- Toggle visibility of contour overlays with *O.*
- Toggle visibility of position crosshairs in the ortho view with *P.*

Contouring a New Structure

- If no structure is selected in the *Structures* section, you can create a new structure by drawing a contour in the viewer with the *left mouse button* pressed.
- You can always create a new structure by clicking *Create* in the *Structures* section.
- The label of a selected structure can be edited by clicking on it.
- It is recommended to select the most suitable view (axial, coronal, sagittal) before drawing the first contour.

- You might want to try both the *Brush* and the *Freehand* interaction tools, they can be interchanged at any time.
- With the freehand tool, just draw contours onto the image. Initial contours are closed automatically. To edit a contour, draw the new contour part; it will replace the corresponding part of the existing contour.
- With the brush tool, use *Alt + Mouse wheel* to change the size of the brush. Start drawing. When you draw a ring, it will be closed automatically unless you uncheck *Fill holes automatically*. Once you have drawn the first contour on a slice, you can edit it by either adding or removing parts from it. When you start drawing from the outside, you remove, otherwise you add. This behavior is inverted when you press *Shift*, which is needed to draw holes or multiple contours in the same slice.
- When you draw a new contour a few slices apart, contours are created automatically in the intermediate slices by interpolation. These contours will be dashed whereas manually drawn contours are solid. When you edit any manual or interpolated contour, the interpolation is updated automatically. This allows you to explore the quality of the interpolation and adapt the amount of manual contours accordingly.
- To get a preview of your segmentation in a different view, change the *View* above the viewer. Use the *Ortho* view to see all views at the same time.
- To edit your segmentation in a different view, change the *Contour orientation*. Your contours will be reformatted and you can no longer use the interpolation because the contours are already contiguous.

Editing an Imported Structure

- You can import a segmentation from another software by clicking *Import file* or *Import folder* in the *Structures* section and proceed as in the image import case. The corresponding image must be selected in the *Images* section. You can only import a single structure at a time. This means that an imported image is interpreted as a binary mask and an RSTRUCT is interpreted as containing a single structure.
- After importing, a new structure appears in the *Structures* section. Its label can be edited.
- Edit the contours as described above. Interpolation is not available in editing mode.

Result Export

- Structures are saved automatically in the MEVIS draw workspace.
- To export a segmentation, click the *Export* ⬆ icon of a selected structure. You will be asked for an export format. Depending on your choice, select a file name or a folder where the segmentation should be saved.
- Remove selected patients, images, or structures by clicking the *Remove* 🗑 icon.

Tips and Tricks

- Click *Help* on the top right to get a quick overview of shortcuts.
- Click *Open workspace* to locate the MEVIS draw workspace. If you want to clear the whole workspace at once or in case of problems, you can delete the workspace manually. You may have to close MEVIS draw first.
- If you like MEVIS draw, if you have problems or ideas for improvements, feel free to send us an e-mail by clicking *Send feedback*.