



File Format Specification

ImageTool ROI

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1	Change history	2
2	Background	2
3	Format.....	2
3.1	Image filename	3
3.2	Zoom factor	3
3.3	Matrix number	3
3.4	ROI type.....	3
3.5	X and Y coordinates	4
3.6	Width and height	4
3.7	ROI number.....	4
3.8	ROI name	4
3.9	Number of points	4



1 Change history

Revision	Date	Author	Description
1.0	26.6.2007	Calle Laakkonen	Separated from tpcroi.net document

2 Background

This is the native ROI format of ImageTool and YaIT.

3 Format

The format supports following ROI types:

- Rectangle (type 0)
- Circle (type 1)
- Ellipse (type 2)
- Trace (polygon) (type 3)

A single file can hold multiple ROIs. Each ROI occupies a single plane on a single frame. Should the same ROI need to occupy multiple frames, copies of it must be made.

The file consists of lines each describing a single ROI. In case of trace ROIs, two lines are required to describe the ROI. The second line consists of a list of XY coordinate pairs. Blank lines and lines beginning with '#' are ignored. Lines containing a ROI begin with an asterisk (*).

ROI line format:

```
*<1> <2> <3> <4> <5> <6> <7> <8> <9> <10> <11> <12> <13>///0 <14>
```

Meaning of the fields:

1. Filename of the image the ROI was drawn on
2. Zoom factor.
3. Reconstruction zoom factor. (unused)
4. Matrix number.
5. ROI type.
6. Status code. (unused)
7. Origin X coordinate
8. Origin Y coordinate



9. ROI width
10. ROI height
11. Unused (0)
12. ROI number
13. ROI name (may contain spaces)
14. Number of points for polygon ROI (0 for other ROI types)

Example:

```
*image.img 6.000000 2.002765 18022401 3 1 397 534 0 0 0 0 roi name///0 9  
-1 -1 -1 28 21 29 57 14 80 -18 93 -36 66 -48 47 -11 22 9
```

3.1 Image filename

The image filename is the first component of the ROI description. It contains the name of the image onto which the ROI was originally drawn. To support spaces in filenames, the ROI format was extended by allowing quotes or escaped spaces.

Examples:

```
/my\ directory/image.img  
"/my directory/image.img"  
/my" "directory/image.img
```

3.2 Zoom factor

The zoom factor of the image when the ROI was drawn. Since the YaIT ROI format uses integer coordinates, normalizing the ROI when saving would result in lack of precision.

3.3 Matrix number

The matrix number, as used in ECAT6/7 images, contains the frame, plane, gate, data and bed number of the ROI. The values can be extracted in the following way:

```
frame = matnum&0xFFF;  
plane = (matnum>>16)&0xFF;  
gate = (matnum>>24)&0x3F;  
data = (matnum>>30)&0x3;  
bed = (matnum>>12)&0xF;
```

3.4 ROI type

See the beginning of the format chapter for the list of ROI types.



3.5 X and Y coordinates

The X and Y coordinates define the ROI position. For trace ROIs, they set the origin to which the polygon points are relative.

3.6 Width and height

The width and height define the size for rectangle, ellipse and circle ROIs. In case of a circle ROI, the width and height should be equal. They are unused for trace ROIs.

3.7 ROI number

A numerical index for the ROI.

3.8 ROI name

A freeform name for the ROI. The name may contain spaces. It terminates in the string “///0”.

3.9 Number of points

This value defines the number of points for trace ROIs. For other types it is zero. A line consisting of coordinate pairs should follow a trace ROI definition.