Electron Block Creation

🔧 Fix Me!

Here the user can create and edit Electron Blocks for the selected beam as well as edit values for an existing block.

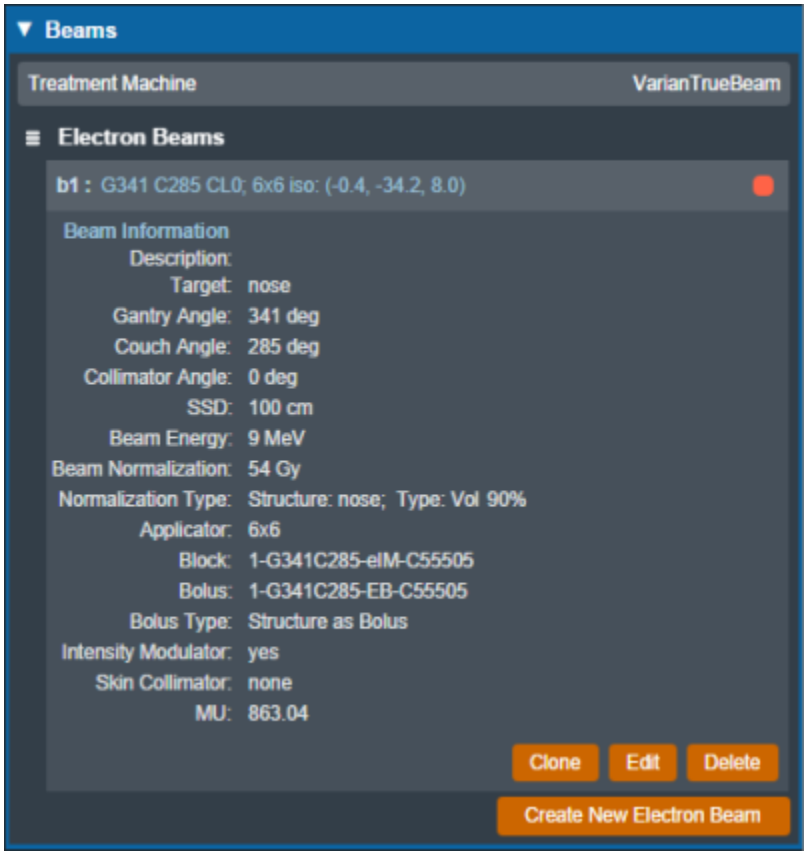


Fig. 1: Block size selection

Block Size

- **Size:** Select the block size. The list of available block sizes is derived from the list of cone sizes available for the selected machine. Cone sizes can be enabled and disabled from editing the machine data in the site configuration.

Note: When first creating a beam the eRT app will auto calculate the smallest block that will fit the current aperture shape.

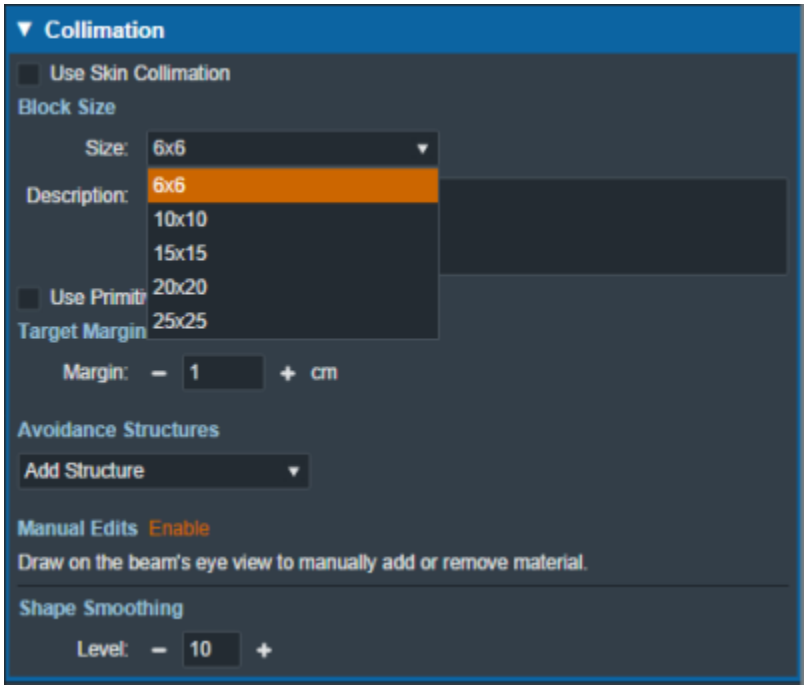


Fig. 2: Block size options

Note Selecting a block size that is too small for the aperture shape will cause an error that will not allow the creation of the beam.

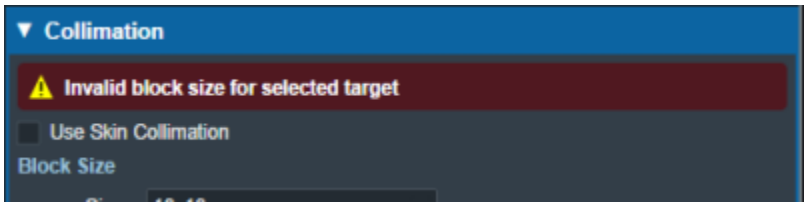


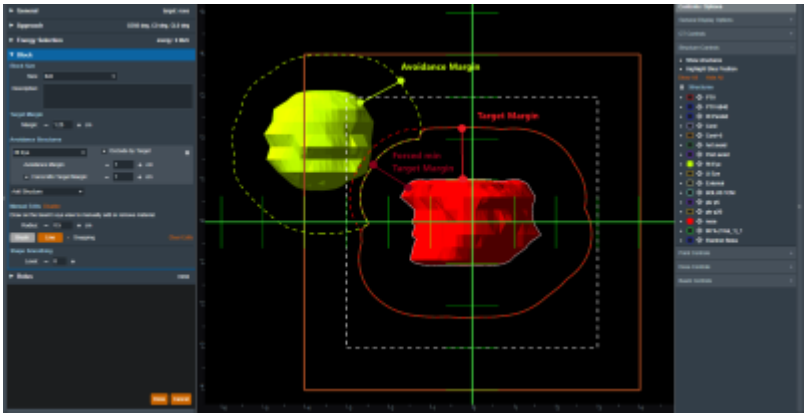
Fig. 3: Block size too small

- **Description:** An optional description for this block used to identify it.

Target Margin

- **Margin:** The value (in cm) of the margin around the aperture shape. A negative margin can be used to specify a contraction around the beam target while positive values will cause an expansion.

Note: The app will automatically recalculate and display changed to the block based on the set margin.

Fig. 4: Block target margin 

Avoidance Structures

The user may select a structure in the structure list here to add the as an avoidance structure. The beam and block will recalculate to take into account avoiding the selected structures.

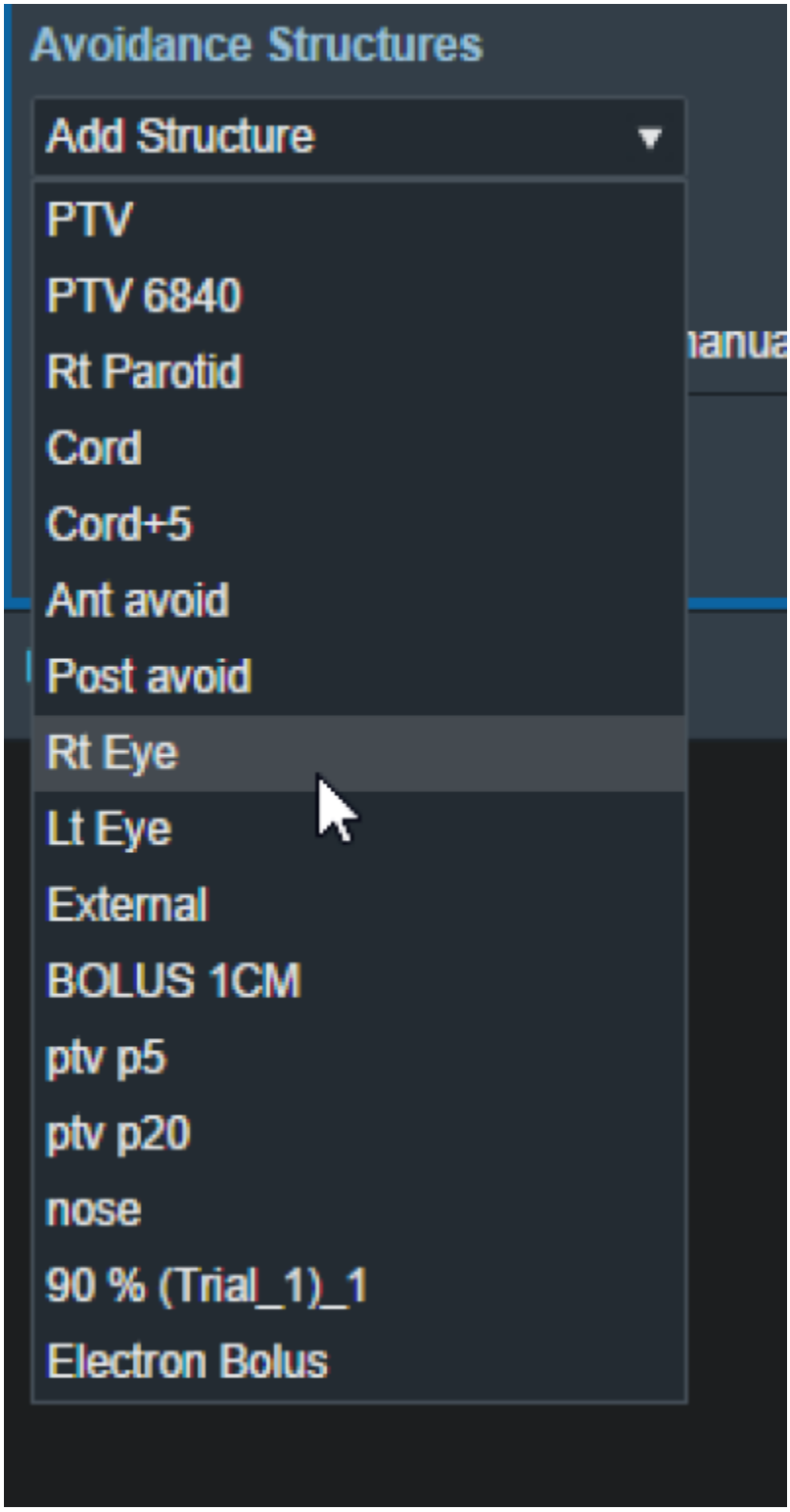


Fig. 6: Avoidance structure selection

Once the structure is selected you will be able to set the values for how it should be avoided. Including:

- **Avoidance Margin:** Required, sets the margin of avoidance around the selected structure.

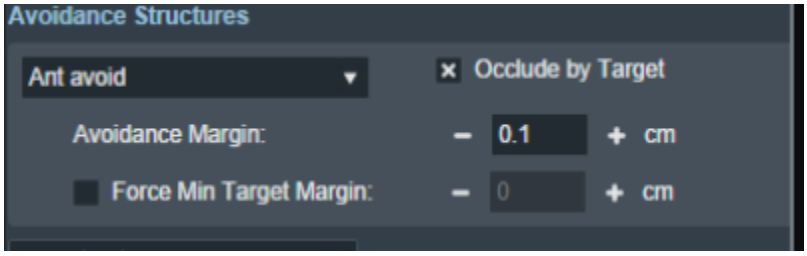


Fig. 7: Selected avoidance structure

- **Force min target margin:** disabled by default, when enabled it will force a minimum margin around the target taking priority over the settings of the avoidance structure.

For example: As you can see below, there is an over lap between the margin set for the avoidance structure and our target structure. Since “force min target margin” is disabled, the avoidance margin has priority over the target.

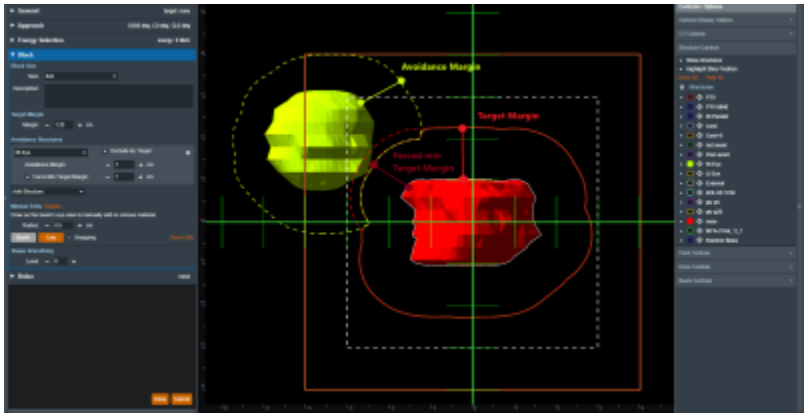


Fig. 8: Force min target margin is off{{ :electronrt:userguide:tutorials:block_force_min_target_margin_off.png?direct&400 }}</imgcaption

- **Occlude by target:** Enabled by default, sets whether you are giving priority to the target over the selected structure.

For example: Selecting to “Occlude by target” gives the target priority over the structure, ass seen below.

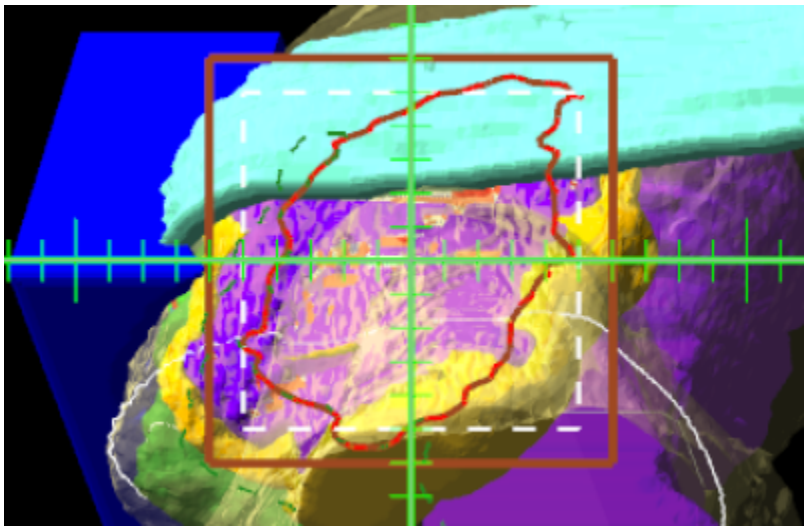


Fig. ##: Structure is occluded

And disabling the checkbox gives the priority to the avoidance structure, this means you block the entire structure regardless of its position relative to the target.:

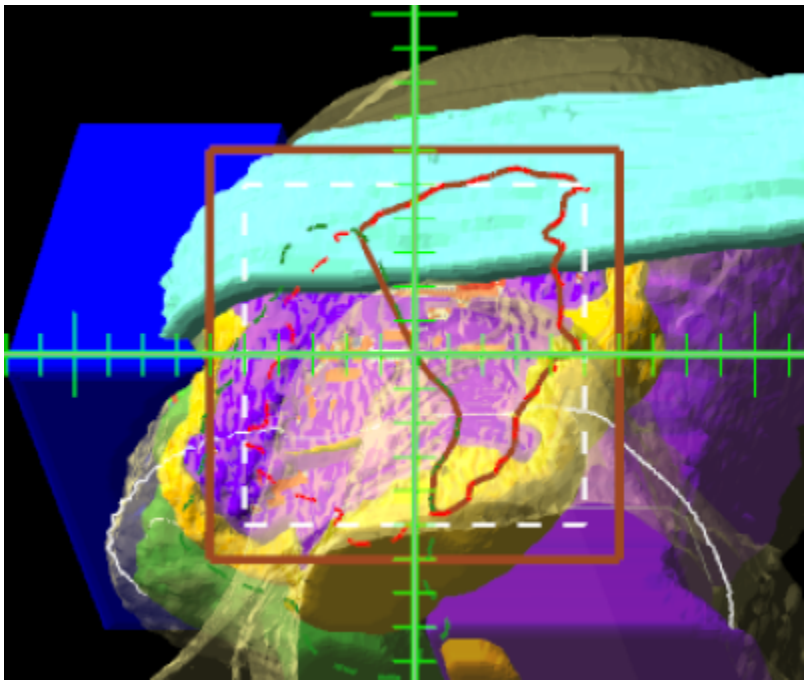


Fig. ##: Structure is not occluded

Manual Edits

By default manual editing of the block shape it disabled, but a user can elect to enable the ability to manually change the block shape.

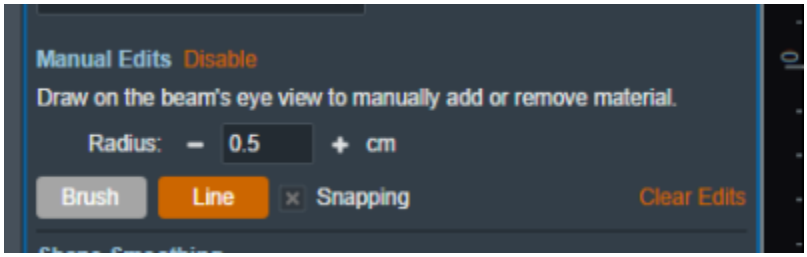


Fig. 10: Enabling manual edits

Once manual editing has been enabled you will see the cursor update to reflect the editing tool. You can choose to edit edit with the Brush cursor or by drawing straight lines using the Line tool. Both take in the radius that can also be set by the user to alter the size of the editing tool.

Note: Drawing on the “Exterior” of the aperture shape will shrink the shape of the block as can be seen below.

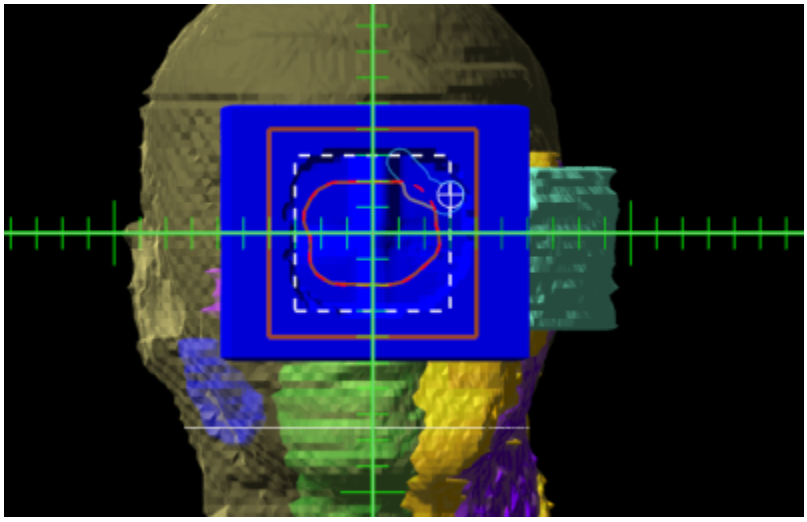


Fig. 11: Shrinking the block shape

Note: Drawing from the “Interior” of the aperture shape will expand the shape of the block as can be seen below.

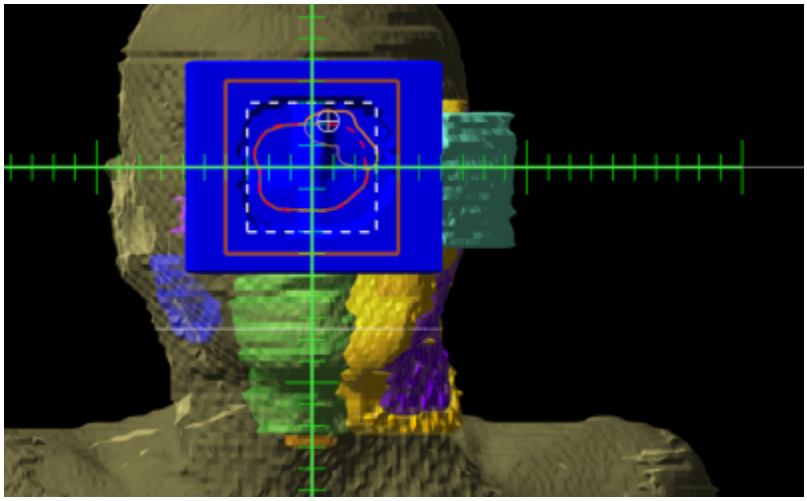


Fig. 12: Expanding the block shape

Shape Smoothing

- **Level:** Sets the level of smoothing applied to the block shape.

Note: The app will automatically recalculate and display changes to the block based on the set smoothing level.

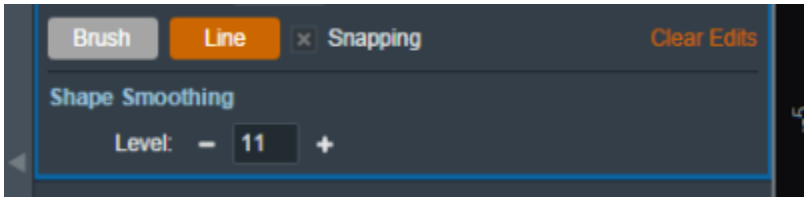


Fig. 13: Setting the smoothing level for the block