Electron Block Creation

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

▼	Beams					
Т	eatment Machine				Variar	TrueBeam
=	Electron Beams					
	b1: G341 C285 CL0	; 6x6 iso: (-0.4, -34.2,	8.0)			
	Beam Energy: Beam Normalization: Normalization Type: Applicator: Block: Bolus: Bolus Type: Intensity Modulator: Skin Collimator:	341 deg 285 deg 0 deg 100 cm 9 MeV 54 Gy Structure: nose; Type 6x6 1-G341C285-eIM-C5 1-G341C285-EB-C55 Structure as Bolus yes	5505	%	Edit	Delete
				Create Ne	w Electr	on Beam
				Cicale Ne	W LICCU	on beam

Fig. 1: Block size selection

Block Size

• **Size:** Select the block size. The list of available block sizes is derived from the list of applicator (cone) sizes available for the selected machine. Applicator 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.

▼ Collimatio	on and a second s						
Use Skin C	collimation						
Block Size							
Size:	6x6 🔻						
Description:	6x6						
	10x10						
	15x15						
📃 Use Primiti	20x20						
Target Margin	25x25						
Margin:	- 1 + cm						
Avoidance St	ructures						
Add Structure	•						
Manual Edits Enable Draw on the beam's eye view to manually add or remove material.							
Shape Smoothing							
Level:	- 10 +						

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/saving of the beam until an appropriate size is selected.

▼ Collimation	
A Invalid block size for selected target	
Use Skin Collimation	
Block Size	
D: (0.10	

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 target structure as projected to isocenter. 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 changes to the block as the margin is edited.



Fig. 4: Block target margin

decimal App Documentation - https://apps.dotdecimal.com/

Avoidance Structures

The user may select one or more structures in the structure list here to add as an avoidance structure. Avoidance structures will decrease the block opening to remove all areas within the projection of the structure.

Avoidance Structures

Add Structure

PTV	
PTV 6840	
Rt Parotid	an
Cord	
Cord+5	
Ant avoid	
Post avoid	
Rt Eye	
Lt Eye 🥆	
External	
BOLUS 1CM	
ptv p5	
ptv p20	
nose	
90 % (Trial_1)_1	
Electron Bolus	

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's projection to the isocenter plane.

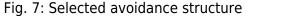
-

Occlude by Target

cm

cm

01



Avoidance Structures

Avoidance Margin:

Force Min Target Margin:

Ant avoid

• 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 overlap 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.

barrard barrar	cimal err + ECT Nose (Nose) + 3					_	_										atenaude
Lateral Lateral Ligger Selection coster (Lit day integer Selection coster (Lit day Linger Selection coster (Lit day See: Cost See: See: See:		Views	Sagital	Coronal	Transverse	30 BEV	DVH	Statistics	Dose Line	Compositions	Ortho + BEV	Ortho + 3D	30 + BEV	Ortho + DVH	OVH + Stats		
spergedeck code deg. (0 de	General target nose	10.															
Street A Sile So is did A Sile So is did A Sile So is did Internet Another Street File Internet File A coldade by Target File A coldade by Target A coldade by Target <td>Approach C356 deg, C0 deg, CL9 deg</td> <td></td>	Approach C356 deg, C0 deg, CL9 deg																
is Size	Energy Selection energy: 9 MeV	-															
	socobian per Margin Margin: = 1.25 + cm sidence Structures 12 pa + Acciliante by Target + Posca Nen Target Margin: = 1 + cm Posca Nen Target Margin: = 1 + cm Posca Nen Target Margin: = 1 + cm Relative: = 0 + cm Relative: = 0.5 + cm	-								e Margin	Target	t Margin		_		Show shackers Highping Size, Position Structures Structures	

Fig. 8: Force min target margin is off

If the user decides that the target should have priority over the avoidance structure we can enable the "force min target margin" and set a min margin for our target. As you can see below the min margin set takes priority over our avoidance margin and there is no more overlap.

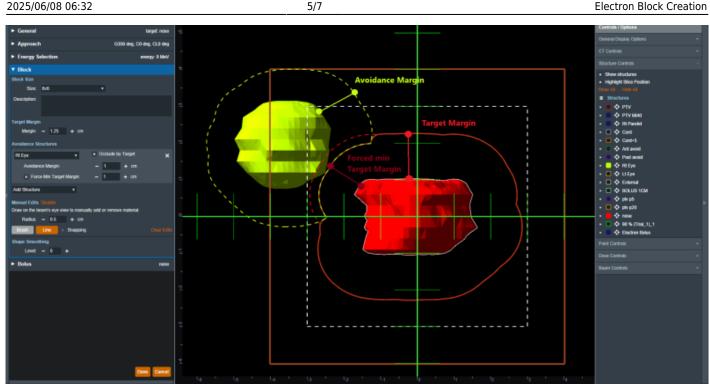


Fig. 9: Force min target margin is on

• Occlude by target: You may also choose to occlude the structure by the target or not using the "Occlude by Target" option. By checking the "Occlude by Target" box you are choosing to give the target priority over the structure in the view you are looking at in the BEV. In other words the visible target (target in front of this structure) will not be blocked by the aperture. If you leave the "Occlude by Target" unchecked, you are choosing to give the structure priority over the target. This means you will block the entire structure regardless of its position relative to the target. In this example the aperture blocks out all of the Urethra.

For example: Selecting to "Occlude by target" ignores portions of the avoidance structure that are deeper than the target (from the BEV perspective), as seen below.

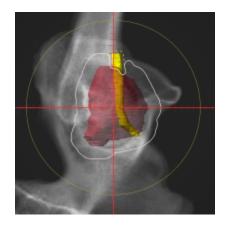


Fig. ##: Structure is occluded

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.:

6/7



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.

Manual Edits Disable	0
Draw on the beam's eye view to manually add or remove material.	
Radius: – 0.5 + cm	
Brush Line Snapping Clear Edits	
Change Carrow Hings	

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 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.

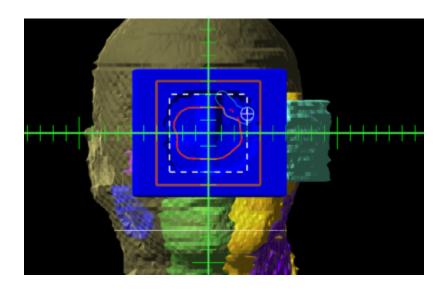


Fig. 11: Shrinking the block shape

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

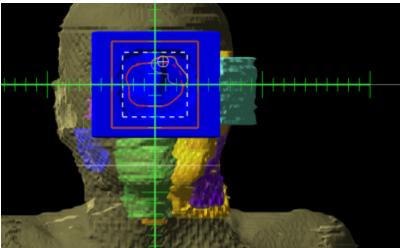


Fig. 12: Expanding the block shape

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.

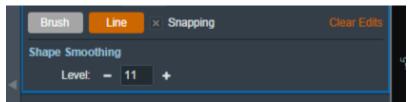


Fig. 13: Setting the smoothing level for the block

