Creating a Fraction Group

🔧 Fix Me! from here on down

Once the beams have been created the next block is **Optimization**. The first block in Optimization is **Fraction Group**

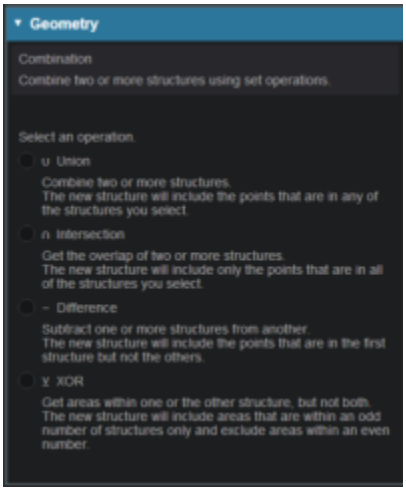
About Fraction Groups

In the Fraction Group the user will put in the total target(s) dose along with the total number of fractions. The user will then further break the into Beam Set groups where beams are assigned to a group and a specific number of fractions

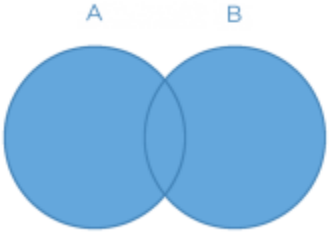
Working with Fraction Groups

Combination

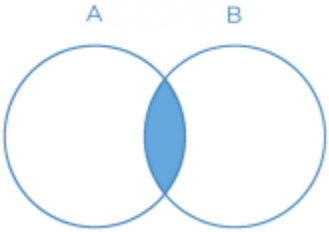
Combination of two ore more structures using set operations. The planner must choose which set operation they desire to create the structure.



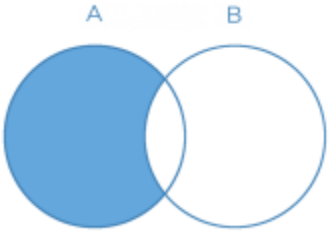
- ***Union*** - Combine two or more structures. The resulting new structure will contain the points that are in any of the structures the planner selects. From the drop down the planner chooses which structures the would like in the union. Refer to this example for a sample of a union structure being created.



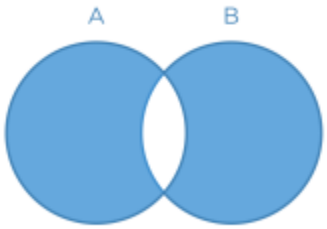
- ***Intersection*** - This will get the overlap of two or more structures. The resulting new structure will include only the points that are in all of the structures the planner selects form the drop down. Refer to this example for a sample of a intersection structure being created.



- ***Difference*** - Allows the planner to subtract one structure from another. The resulting new structure will include the points that are in the first structure but not the others. The first drop down is the structure to be subtracted from. The second drop down is the structure the planner wishes subtracted. Refer to this example for a sample of a difference structure being created.

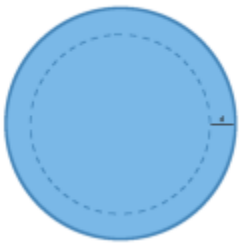


- ***XOR*** (Exclusive OR) - Combines two or more structures. The resulting new structure will include areas that are within an odd number of structures only but will exclude areas that are within an even number of structures. Two or more structures need to be chosen from the drop down to create the new structure.The shaded areas in the examples show the new structure. The non-shaded areas would be excluded.



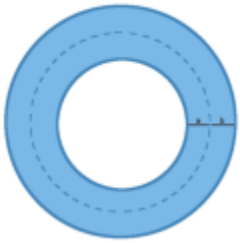
Expansion

The planner may create an expansion or contraction of a chosen structure. An expansion is done by entering a positive number in the expansion amount. A negative number will cause a contraction to be created. They also may to choose to expand the structure in two dimensions (structure will only expand/contract in the slice that the chosen structure is on) or three dimensions(structure will expand onto other slices). Refer to this example for a sample of a expansion structure being created.



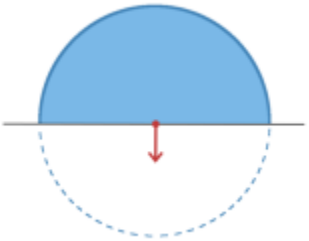
Rind

Creates an outer ring around the outside of a structure. The planner needs to choose the structure form the drop down as well as enter the inner margin and outer margin. Negative margins are not permitted. Refer to this example for a sample of a rind structure being created.



Clipped

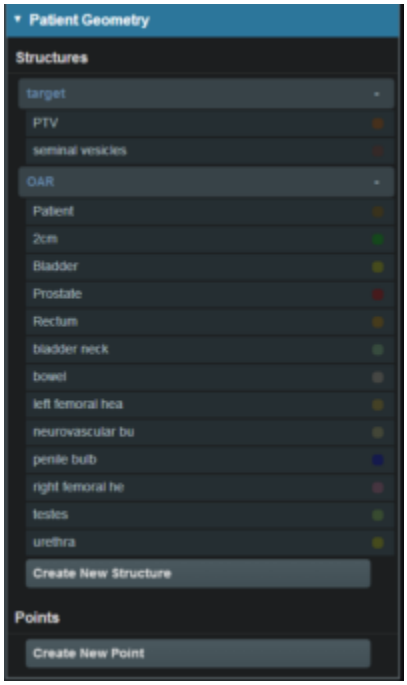
Splits a structure on the user defined plane. The user must choose the structure, plane and the point at which the structure should be clipped. The plane is defined as the normal vector of the plan (in XYZ) of the side of the structure to clip away. The point is the location in space to place the clipping plane. Refer to this example of a clipped structure being created.



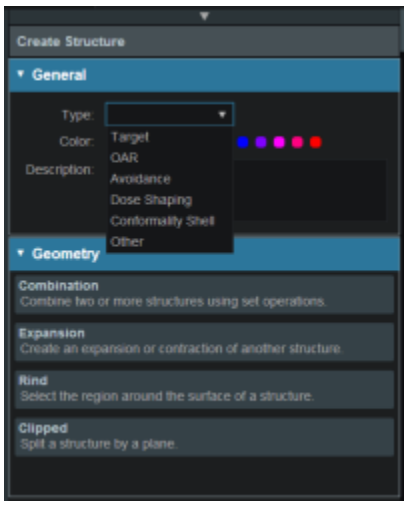
Creating Structures Process

Within Astroid the planner has the ability to create additional structures that may be needed to perform the plan.

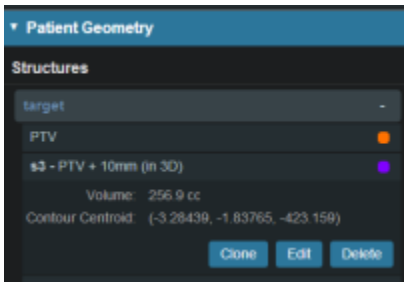
1. Open the Patient Geometry block This will open the patient structure list.
2. Choose the Create New Structure list at the bottom of the list



3. The planner must then choose what type of structure they would like to create from the drop down menu at the top as well as the geometry to create the structure- Combination, Expansion, Rind or Clipped.

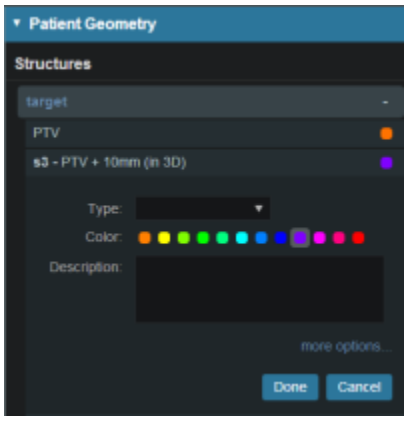


4. Once an additional structure has been created the planner may edit, clone or delete the structure by clicking on the structure.



5. If the planner desires to clone (duplicate) or delete the structure they may choose to do so. If they need to further edit the structure they may click on the edit button then choose more options. This

will take the planner to the structure Geometry block and they may proceed with the necessary edits.



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