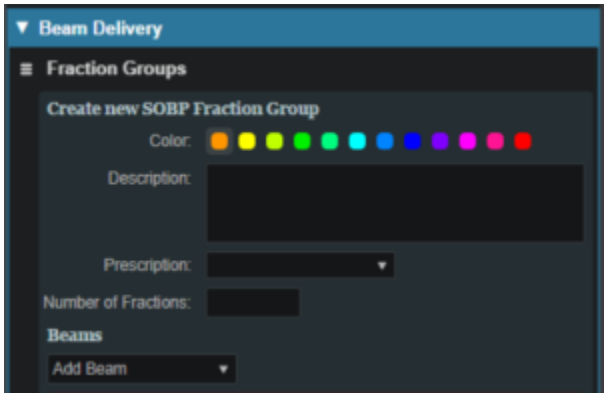
Beam Delivery (SOBP)

SOBP Fraction Groups

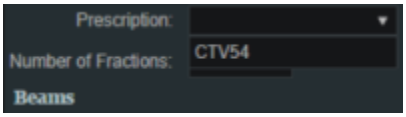
Defining *Fraction Groups* is the final step in the SOBP planning process within Astroid. A fraction group is simply an arrangement of beams that will be used in a typical daily treatment fraction. The Fraction Group contains a list of beams where each beam can be weighted and normalized based on the needs of the patient at hand. Beam normalizations allow for minor field independent adjustments of dose and these factors are limited to stay within 0.90 - 1.10. Beam Weights established the relative fluence of each beam within the fraction group and therefore the sum of the beam weights in each fraction group must be 1.0. Further details of defining fraction groups are provided below.

- To get started, navigate to the *Beam Delivery* block and click *Create New Fraction Group*.

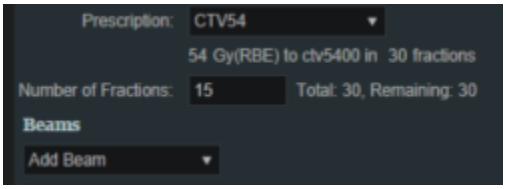
General Fraction Group Data



- **Color**: Display color of the *Fraction Group*
- **Description**: Optional, user specified text describing the *Fraction Group*
- **Prescription**: Prescription that the *Fraction Group* implements

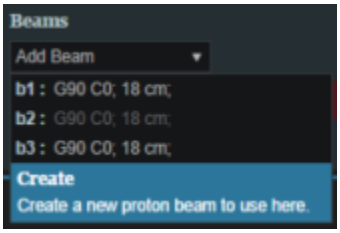


- **Number of Fractions**: The total number of fractions to be delivered for this *Fraction Group*; this is very important as it will determine the appropriate dose to be delivered from this fraction group, which when combined with the beam weights, provides the proper Monitor Units to be delivered for the individual beams

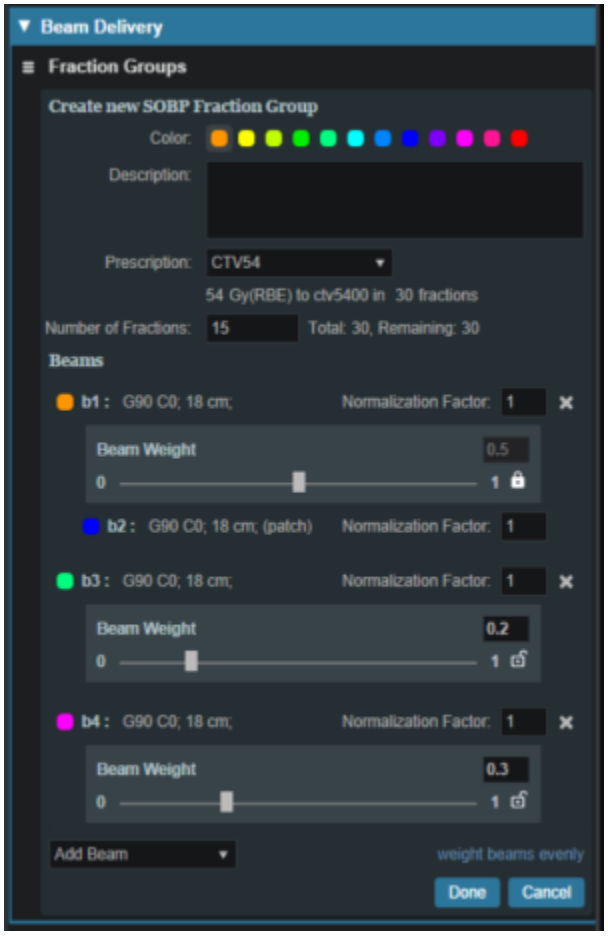


Beam Options

- Select the beams to be added to this fraction group from the drop down list. Repeat this process as necessary. Notice how a one the beams in the image below is grayed out. This means that the beam has already been selected or it is a *patch beam*. If it is a patch beam, the beam will automatically be added with its parent beam. There is also the option to create a new beam from the drop-down list.



- Change the normalization factor by clicking its box and entering the value desired.
  - This is independent from the weight values.
  - Available as an option for patch beams
  - Useful when adjusting hot or cold areas where beams treat the same area or meet.
- Weight each beam by either sliding the slider or clicking on the weight value box and type in the value.
  - The value of all beams listed **MUST add up to 1.0** (100%).
  - By default, the beams are automatically weighted evenly, and, if edited, can be reset by clicking the *weight beams evenly* option.
  - Use the *Beam Lock* (not available for patch beams) to restrict a beam from automatically adjusting when another beam's weight is adjusted. This option is useful to secure one beam's weight while adjusting the other beams' weights (see image below). The sum of all weights still must equal zero.



- When finished, click the *Done* button. Clicking the *Cancel* button will reset the changes made to the current fraction group and return the *Beam Delivery* block to its previous state.
- Repeat process of adding fraction groups until all remaining fractions are completed.