

Creating a Geometric Shape 2.0

Geometric shapes, which are equivalent to markups, describe a user's region of interest on an image and are patterned after DICOM SR graphical types. Combinations of these shapes can be used to represent graphical drawings placed on images.

1. Click the **Templates** tab.
2. In the Templates panel, select the template to which you want to add a geometric shape.
3. In the Template Components panel, right-click the template name and select **Create Geometric Shape**. You can also find this option in the

 **Unknown Attachment**
toolbar ().

A new panel appears on the right and the toolbar below the Template Components panel changes to provide the option for geometric shapes.

4. In the panel on the right, provide the required information, as follows:
 - a. Provide a **Label** for the calculation.
 - b. Provide **Explanatory Text** to better describe the label.
 - c. Specify the minimum and maximum number of **Answer Choices** that the person answering the related question may select in the template. Answer Choices inform the AIM template user how many markups the user has to create. For example, if there are two circles (min=max=2), the user should create two circles. If a multipoint is assigned with a value min=max=2, ATB interprets that this is a line (with two points, x1,y1 and x2,y2). Developers of an AIM-enabled workstation must know how to map AIM template markup to an appropriate graphical drawing tool on their workstation.
 - d. Select the button that describes your display preference for the inference in the template.
 - e. Select the button that describes your display preference for [Annotator Confidence](#).
 - f. Specify whether or not a comment is required.
 - g. Specify one or more names in the **Default Authors** field to show who created the calculation.
 - h. Optionally, provide a **Group Label**, which can show an affiliation between this calculation and others in the same group.
 - i. Select the **Shape Type** from the options of two-dimensional and three-dimensional shapes.

The geometric shapes available are as follows. ATB follows the DICOM standard.

Shape	Description
2D Point (Arrow)	A single pixel denoted by a single (column,row) pair
2D Circle	A circle defined by two (column,row) pairs. The first point is the central pixel. The second point is a pixel on the perimeter of the circle.
2D Polyline (Closed Polygon)	A series of connected line segments with ordered vertices denoted by (column,row) pairs. If the first and last vertices are the same, it is a closed polygon.
2D Ellipse	An ellipse defined by four pixel (column,row) pairs. The first two points specify the endpoints of the major axis and the second two points specify the endpoints of the minor axis of an ellipse.
2D Multipoint (Connected Points)	Multiple pixels each denoted by a (column,row) pair
3D Polygon (Closed Coplanar Polygon)	A series of connected line segments with ordered vertices denoted by (x,y,z) triplets, where the first and last vertices shall be the same forming a polygon; the points shall be coplanar.
3D Polyline (Connected Line Segments)	A series of connected line segments with ordered vertices denoted by (x,y,z) triplets. The points need not be coplanar.
3D Multipoint (Series of Points)	Multiple locations each denoted by an (x,y,z) triplet. The points need not be coplanar.
3D Point (Arrow)	A single location denoted by a single (x,y,z) triplet.
3D Ellipse	An ellipse defined by four (x,y,z) triplets. The first two triplets specify the endpoints of the major axis and the second two triplets specify the endpoints of the minor axis.

3D Ellipsoid	A three-dimensional geometric surface whose plane sections are either ellipses or circles and contains three intersecting orthogonal axes, "a", "b", and "c". The ellipsoid is defined by six (x,y,z) triplets, the first and second triplets specifying the endpoints of axis "a", the third and fourth triplets specifying the endpoints of axis "b", and the fifth and sixth triplets specifying the endpoints of axis "c".
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j. If this is the last question in the template, select **No More Questions**.

k. If this is not the last question, select the question that should follow this one from the options in the **Next Question to Ask** box.

5. Click **Save**.