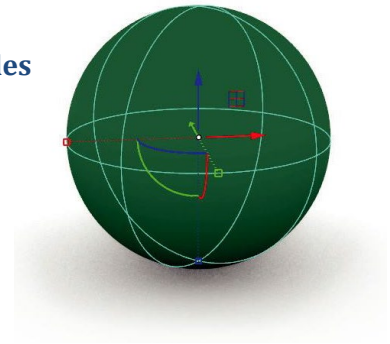
Using the Gumball

A manipulation tool, named Gumball, is used to move, scale, and Rotate objects while keeping them aligned in 3D space using handles That appear in your viewport

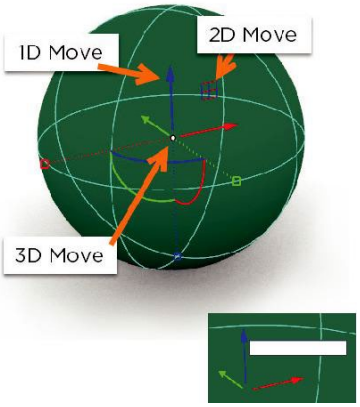


To turn on or off, locate the gumball checkbox along the bottom of the viewports. When this box shows a check mark, the gumball tool is turned on.

The functionality for this tool is outlined below.

Move Handles

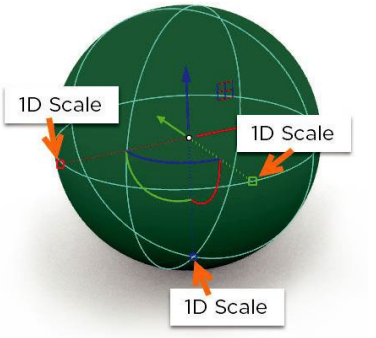
The three arrow handles allow you to manipulate the objects along the X, Y, and Z planes and the bicolored squares allow more freedom of movement within two planes (the colors represent the planes it falls between). A white handle at the center allows you to move the given object anywhere in the 3D space



If you left-click the end of the arrows, an open field will appear. This allows you to enter a specific translation distance in millimeters. A positive value moves the object in the direction of the arrow. A negative value moves it in the opposite direction.

Scale

In order to scale an object, click on one of the three small square handles that represent Scale in a particular plane. The red, blue or green squares are positioned opposite the directional arrows. Click and move the handle as the object scales 1D (one dimensional) along the plane.

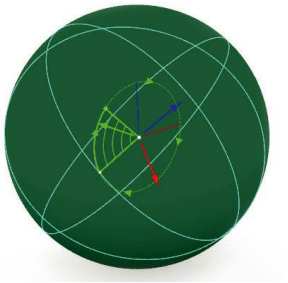


Hold the Shift key, and click any of these squares to see the object scale in 3D (three dimensions).

If you left-click on one of the squares, an open field will appear just as with the move
handles and you can enter a scaling dimension here.

Rotate

The rotate option is represented by three, color-coded arcs which rotate the object along a specific plane, as you click and move with the left mouse key. Double-click the arc and you may enter a specific angle value in the empty negative values indicate the direction of rotation.



Hold the Shift key after clicking one of the arcs to snap in 45-degree increments as you move around on the selected plane.

Gems & Bezels

Learn to quickly create a bezel around an existing gemstone using the Bezel Builder. Parametric History allows you to update the gem and see the setting update to reflect immediately.

Icon Key

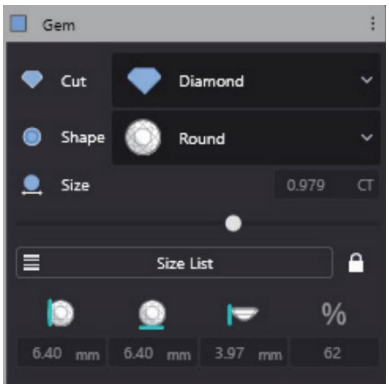
Gem

Bezel

Bail

1. Add Gem

- Navigate to the Gems Category and left-click on the *Gem* command to begin. A preview gem will appear in your viewport with control handles, and "Gem" will appear on the Dynamic Command Panel.



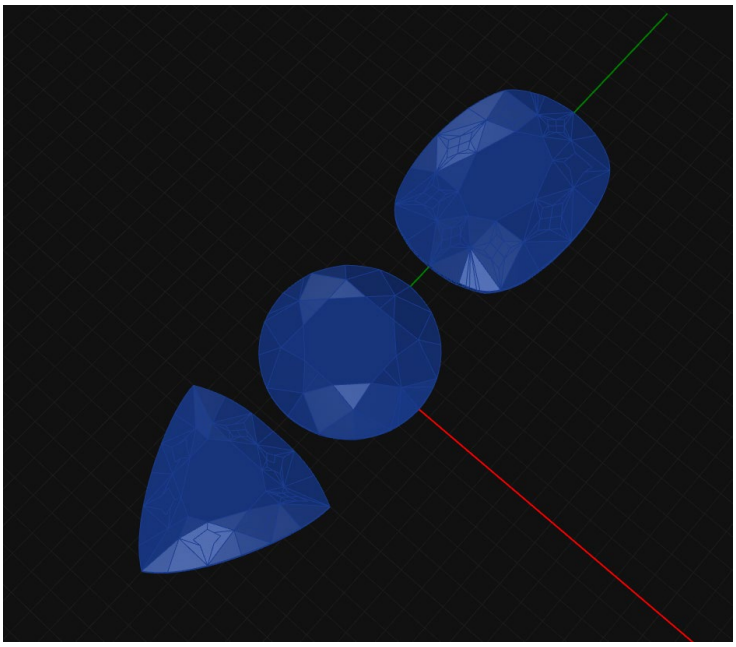
- In the Dynamic Command Panel, you will see the ability to adjust the gem cut, shape, and size. Leave the cut at 'Diamond" and the shape as "Round" for now. Scroll down the *Size List* and select the "7.00mm X 7.00mm X 4.34mm" size. Your preview gem will update to reflect this change.

Clicking on the padlock next to the Size List 'unlocks' the custom sizing function and allows you to manually type-in the length, width and height of a gemstone in the respective boxes immediately below. This is immensely useful for instances where you have physical, actual gemstones that you need to tailor your designs to.

- Press "Enter" to complete the command.

1. Add 2 more Gems

- Navigate to the Gems Category and left-click on the *Gem* command to begin. A preview gem will appear in your viewport with control handles, and "Gem" will appear on the Dynamic Command Panel.

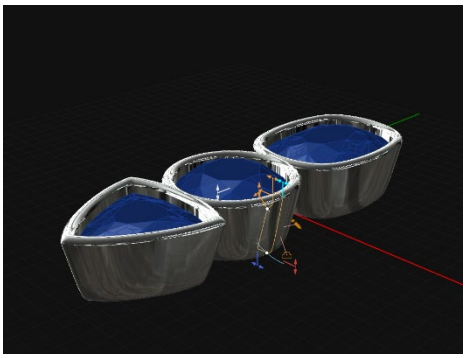


- Use the gem's Gumball to move the gem above or below the original round gem.

- In the Dynamic Command Panel, adjust the gem shape, and size. This time choose "Trillion" for the lower Gem and "Cushion" for the upper gem. Scroll down the *Size List* and select a Suitable 7mm wide size.

- Press "Enter" to complete the command.

2. Apply Bezels to the gems



- Using VCHs, adjust the scale and style of your bezel as desired, ***taking care to ensure the culet of the gemstone does not protrude out from the bottom of the setting***. You can change the profile of the bezel by opening the bezel profile library in a manner similar to that in the Profile Placer for alternative looks. Additional bezel controls are available in the Dynamic Command panel*

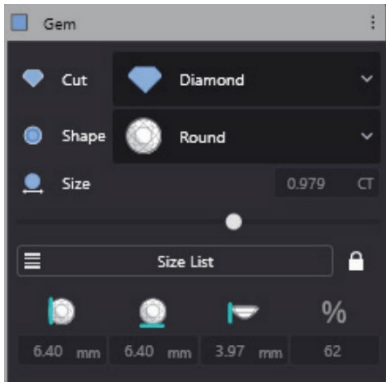
***We highly recommend that you do NOT adjust the following settings:**

- Girdle Offset
- Position
- Seat Angle
- Seat Length

- Once adjustments have been made, press "Enter" to complete the command.

3. Edit a Gem

- Select the gem in your viewport. The Dynamic Command panel will automatically pull up the tool that was used to create this part and give you the option to make edits to that geometry.

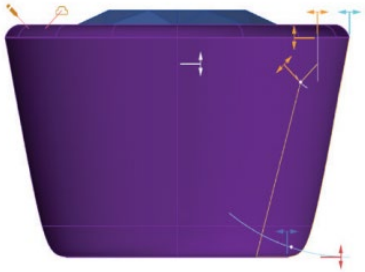


- **Left-click on the "Edit" button** to activate the ability to modify the gem. Change the gem to different shape. The bezel will automatically update and adapt to the new shape and size.

- Press "Enter" to complete this command.

4. Edit Bezel

- Select the bezel in your viewport. Once again, the Dynamic Command panel will automatically pull up the tool that was used to create this part and give you the option to make edits to its geometry.



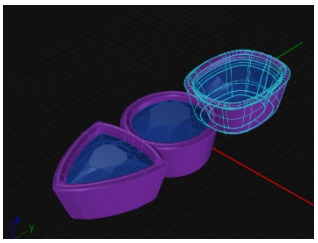
- **Left-click on the "Edit" button** to activate the ability to edit the bezel. Adjust the settings to properly fit your new gemstone as well as any additional changes you may like to implement.

Do not forget to take note to the bezel height relative to the bottom of the stone!

- Press "Enter" to complete the command.

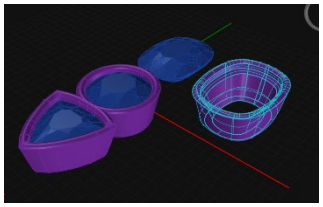
Notice that the system rebuilds your design after each edit of the parametric history tree.

4. Try to BREAK History!



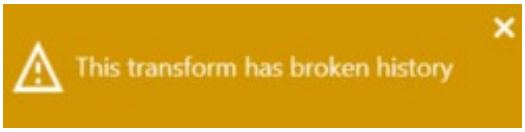
- Select one of the bezels in your viewport. Once again, the Dynamic Command panel will automatically pull up the tool that was used to create this part and give you the option to make edits to its geometry.

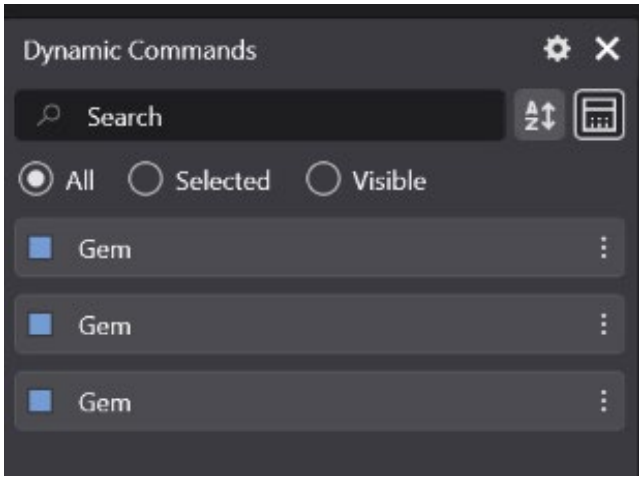
- **This time, drag the bezel away from the gem!**



This will BREAK the Parametric History Tree

You will see a message to warn you of this destructive change.



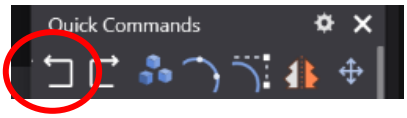


As a result of your action:

1. **The Dynamic command will DISAPPEAR FROM YOUR HISTORY TREE**
2. **ALL your bezels will be 'disconnected' from their source gems.** (ie: if you change the gem, the bezel will no longer update.)

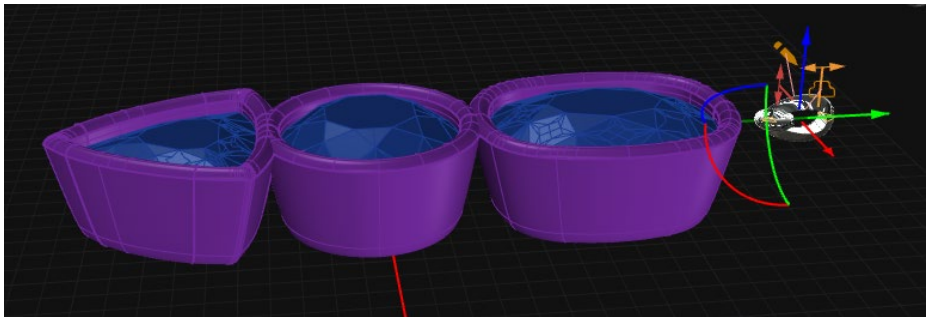
The only way you can reverse this action is to

UNDO



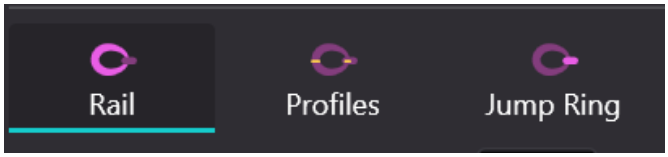
After you have undone your destructive transformation, you will see your bezel dynamic command appears again and you can resume working on your model.

- Select the **Bail** command in the **Settings** ribbon
- The bail will appear SMALL and in the centre of the screen! It may be invisible or covered by a large gemstone… move it to the top of your design using the bail's Gumball.



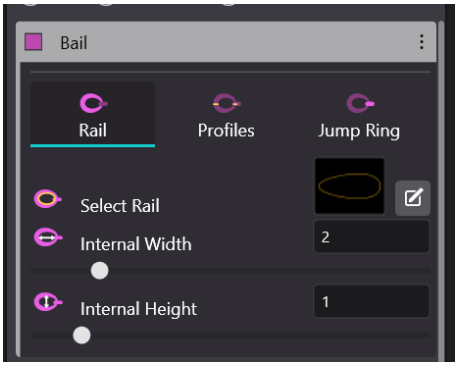
The bail command has 3 distinct sections:

1. **Rail**: For adjusting the bail size and shape
2. **Profiles**: For adjusting the thickness of the bail, its width and surface shape
3. **Jump Ring**: For adjusting the ring that connects the bail to the jewellery

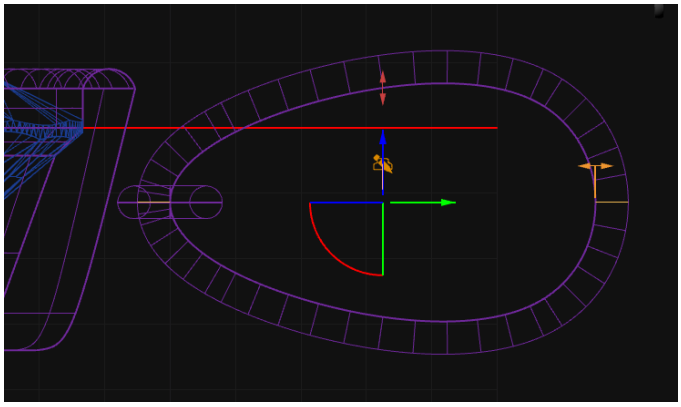


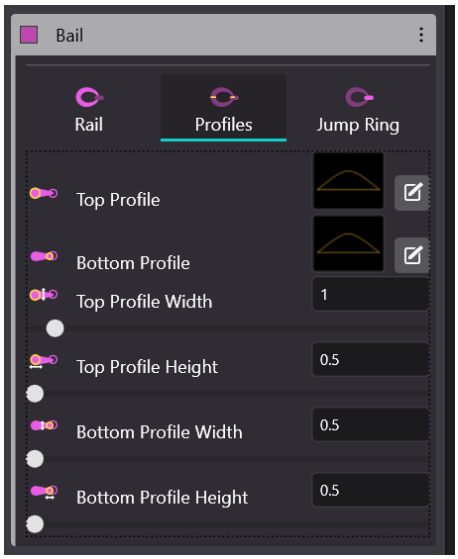
Notice that each of these functions are SIMILAR to the 'Ring Rail', 'and 'Profile' dynamic commands you used earlier? The tools and concepts for making a ring and a bail are the same!

<u>Rail Changes:</u>

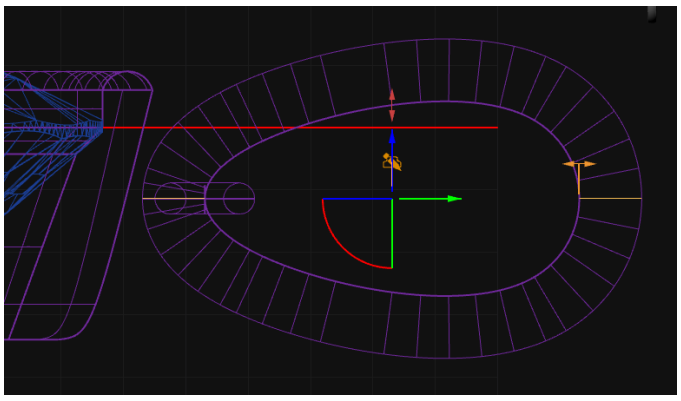


Use the **Internal Width** and **Internal Height** to make the rail height roughly match the height of the bezel. The hole inside the bail should be at LEAST 3x4mm but may be larger depending on the size of chain you intend to use.

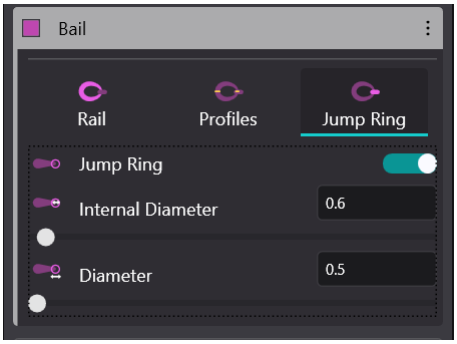




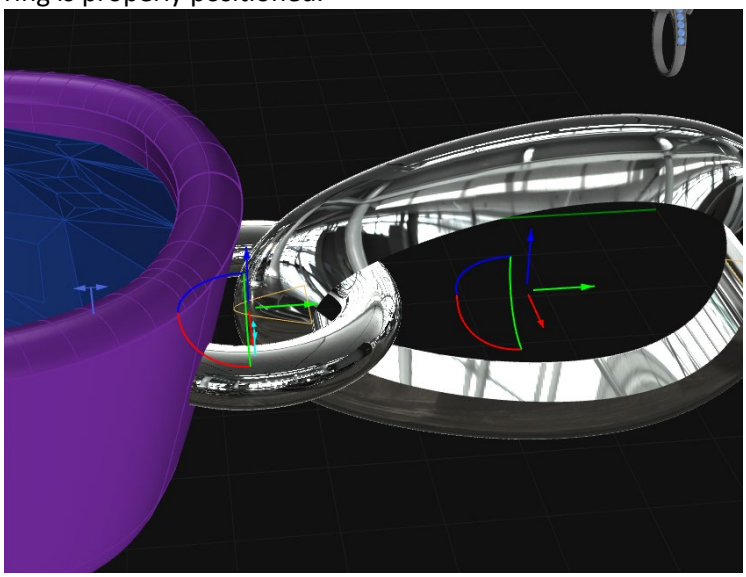
Ensure the **top profile** and **bottom profile heights** and **widths** are no less than 1mm. Depending on the size of your design, you can make these larger to 'match' your bezel thickness or to achieve the desired look.



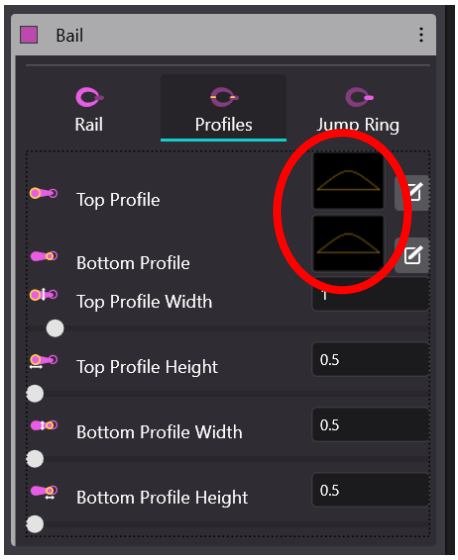
Keep using the Gumball to move the bail into position after your changes.



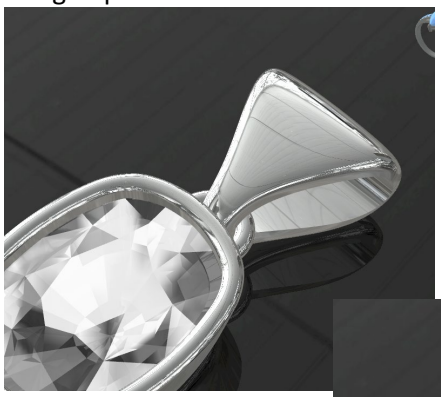
Ensure the **diameter** is no less than 0.8mm.
Adjust the **internal diameter** as desired for your design. Use the smaller additional Gumball near the jump ring to ensure the jump ring is properly positioned.



<u>Spice up your Bail:</u>



Return to the Profile tab and try changing the TOP and BOTTOM profiles as well as adjusting the TOP profile Width.
Tapered bails with smooth or scalloped surfaces are popular design options.



Bezel-Set Gemstone Ring

Combine the ring and gemstone techniques learned in earlier lessons to produce a complete bezel-set gemstone ring with the flexibility of Parametric History

1. Create an open shank ring starting with a ring rail

Follow the techniques outlined in your previous lessons to create an open shank ring.

- Start with a Ring rail: Size 7

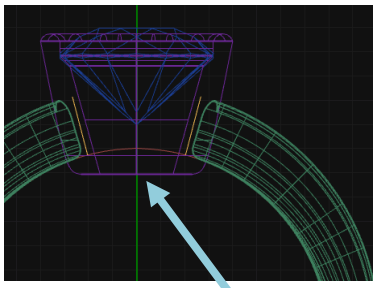
2. Place a gemstone using Gem on Ring Rail

- Repeat the process you learned with gemstones and bezel settings, but this time use the **Gem on Ring Rail** function instead of the Gem function. The Gem On Ring Rail function may ask you for to select the ring rail (if you have multiple designs on your screen) and will place the gemstone offset to your ring size.

- Adjust the **Z-Offset** slider to move the gemstone upwards in the "Front" viewport into a place directly above the ring rail, taking care to make sure the culet of the stone is not intruding into the finger space.

3. Create a Bezel

Follow the process you learned with gemstones and bezel settings in previous lessons.
- Create a bezel for the gemstone

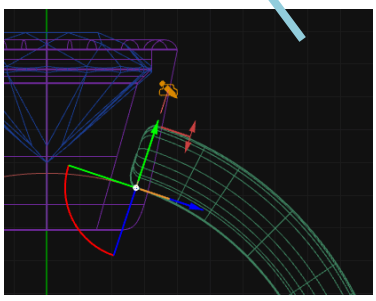


- Adjust the size and shape of the bezel as desired, being sure not to modify settings that could lead to an unmanufacturable design.

- When creating your bezel, ensure the **Height** of the bezel is large enough that the entire bezel extends ***into the finger space!***

4. Add Profiles

Follow the techniques outlined in your previous lessons to create an open shank ring.
- Profile Placer:
    - Create profiles at 0.1 and 0.5
    - Mirror the profile at 0.1
    - Make lower profile at 0.5 smaller to taper your ring shank



-Adjust your top profile positions so that they meet appropriately with the outer walls of the bezel. Once adjusted, press *"Enter"* to complete the command.

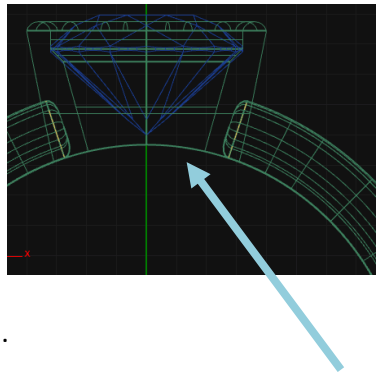
5. Sweep your Profiles to create an open shank

Follow the techniques outlined in your previous lessons to create an open shank ring.
- Sweep 1:
    Create an open sweep with end-caps.

Refer to your previous notes if necessary to get to this stage!

6. Cut Bezel To Rail

- Navigate to the Cutters category and run the **Cut to Ring Rail** command.



- Follow the command line instructions to **Select Surfaces** for cutting. You can either select the bezel by left-clicking on it, or right clicking on the purple colour block in the *Layers* Panel. Press *"Enter"* to see a preview of the cut bezel.

- Press ***"Enter"*** again to complete the command. This gives you a tidy bezel under-section that is flush with the finger when the ring is worn.

7. Change Display Modes, Render

- Use your experiences during earlier lessons to choose a suitable display mode to properly visualize your design – then apply materials to the gem and metal geometry and create a photo-realistic render of your jewellery creation.

8. Save Your Work

- In your Project panel, **left-click on the *"Full Save"* icon**.
You now have a "Master" Job Bag of this model.

Your future Bezel Set Ring designs need only open this model and then edit the parameters to adjust!