

Manipulating Dynamic Blocks

By Sabrina Pilon RA, GSP Architectural Specialist











While you work, you can manipulate the geometry in a dynamic block through custom grips or custom properties instead of searching for another block to insert, or redefining the existing one.

For example, the size of a door block reference in a drawing might need to change while you're editing the drawing. If the block is dynamic and defined to have an adjustable size, you can drag the custom grip or by specify a different size in the Properties palette.

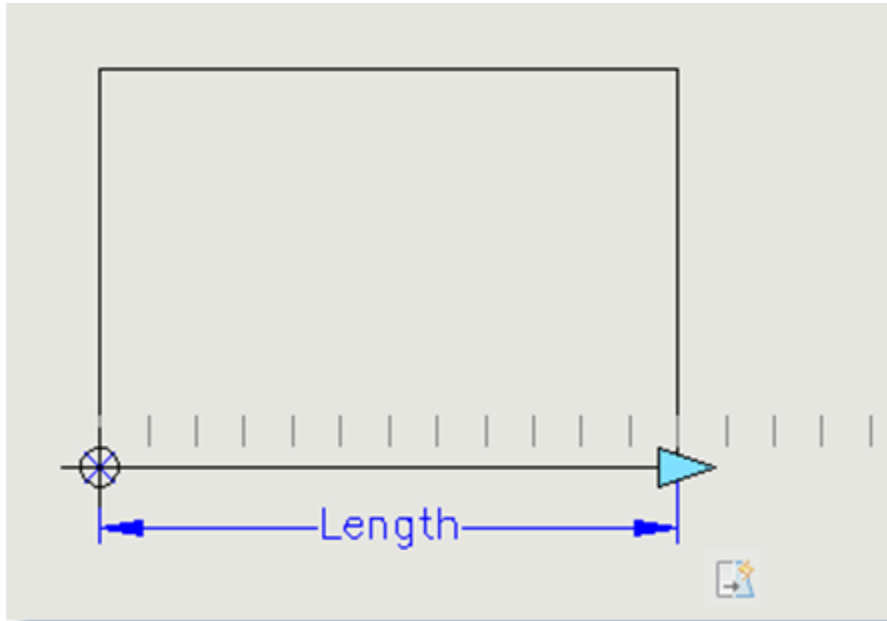
The door block might also contain an alignment grip, which allows you to align the door block reference easily to other geometry in the drawing.

You can create a block from scratch, or you can add dynamic behavior to an existing block definition. You can also create geometry, just as you would in the drawing area. You add dynamic behavior to new or existing block definitions by adding parameters and actions to the block in the Block Editor.

Parameters and actions are displayed only in the Block Editor. When you insert a dynamic block in a drawing, the parameters and actions contained in the dynamic block definition are not displayed. Listed below are the available Parameters and associated Actions that can be applied to geometry in the block editor which are used to create a dynamic block.

Parameter Type	Grip Type		Actions You Can Associate with a Parameter
Point		Standard	Move, Stretch
Linear		Linear	Move, Scale, Stretch, Array
Polar		Standard	Move, Scale, Stretch, Polar Stretch, Array,
XY		Standard	Move, Scale, Stretch, Array
Rotation		Rotation	Rotate
Flip		Flip	Flip
Alignment		Alignment	None (The action is implied and contained within the parameter.)
Visibility		Lookup	None (The action is implied and controlled by visibility states.)
Lookup		Lookup	Lookup
Base		Standard	None

In the following example, a coffee table block is shown in the Block Editor. The block contains one linear parameter, which displays similarly to a dimension and is labeled "Length". Additionally you'll find a stretch action, which is represented by the stretch tool icon.



For a block to be dynamic, you must add at least one parameter (Length in the case above). You then add an action (stretch) and associate the action with the parameter. The types of parameters and actions you add to the block definition define how the block reference will work in a drawing.

In the case above one stretch action is tied to the Length parameter to allow the block user to elongate the length of the coffee table by selecting the bottom right corner arrow grip. You can also see that the grip movements are set to specific increments which are defined by the block creator in the properties palette.

Dynamic Blocks that Stretch

Create a block that stretches (Linear parameter with a Stretch action):

- Open a blank drawing
-
- Select the Block Editor tool in the Ribbon –
 - Insert tab > Block panel > Block Editor > enter Coffee Table in the Block to Create or edit line.
 -
- Now you're in the block editor.
- Dock your block authoring palette so that it's not in your way but it is available to you pinned open.
-
- Draw a rectangle 2' x 3'
-
- Select the Parameters tab of the Authoring Palette.

- Select the Linear parameter
-
- Place the Linear parameter as you would a linear dimension beginning in the bottom left corner of the coffee table. Then place the second point at the bottom right corner of the coffee table; and then finally place your parameter just below the table.
- Your parameter will be entitled Distance 1

- Rename your parameter by selecting it and navigating to the properties palette and renaming it to Length (Property Labels > Distance Name)

- Under Value Set section of the Properties Palette, enter Increment, Dist Increment, Distance Min, and Distance Max values as shown to the right.

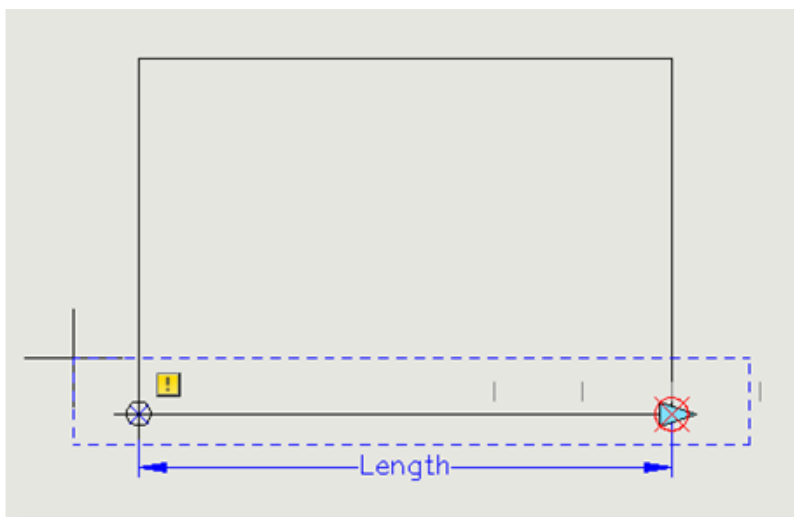
- Before leaving the properties palette & while the Width parameter is still selected, change the number of grips from 2 to 1 in the bottom of the palette. There will only be a need for one grip to stretch this coffee table's Length.

- Now navigate to the Actions tab of the Authoring Palette

- Select the Stretch action > Select the Length parameter

- When prompted to specify the parameter point, select the top left corner (this is the location where the stretch grip will be located so that you stretch the table's width).

- When prompted for the stretch frame select a box similar to the one shown below: .



- When prompted to select objects, select the rectangle that represents the table and enter.

- You're now ready to test your block. Select the Test Block icon in the Block Editor tab > Open/Save panel. You are now in a temporary testing environment. Select the table and then test your two grips. They should elongate the table both in the length and the width and they should be at 6" increments and should not be able to be set larger than 4'. If you select the block and then look at the very bottom of the properties palette, you will find under the Custom section a Length and Width parameter where you can enter in the value manually.
- Once you have completely tested the block you can select the Close button in the top right of the Ribbon.
- You're now back in the block editor and you're ready to save the block. Select the Close button in the top right of the Ribbon again and then save your block.