

Building a Rule with the Snap Toolbox

Configurators offer more than the configured logic of field constraints and option filters.

You can build your own customized logic using Snap blocks.

In this course, we will create a rule using the Snap toolbox and workspace.

We will demonstrate how Snap blocks can be mutated and explore the context menus and logic statements.

Select an option to get started.

Adding a Rule

Let's create a rule to calculate and display the volume of a cube.

Before writing any Snap code, consider the context (when it should run), and the components (what it needs to run).

Context first. Since we want our cube volume to always be correct, regardless of what the customer does, we will create a Value rule.

Value rules are part of the rule cycle, so we know our volume calculation will run after every edit the user makes.

Now the components.

Decide what is needed to calculate the input information and display the results.

For this rule, we need three inputs for the calculation: depth, width, and height.

This data already exists in those three fields.

We also need to store and display the output of our rule.

This will be the volume, so we will create a new field.

Here, we'll follow naming convention to create this new number field using a numberbox control.

With the context and the components in place, let's start coding. We will click the rules node of the explorer.

It will highlight, and a plus sign will be visible. Click the plus sign to add a new value rule.

A new value rule appears, as well as a folder.

The folder stores this new rule, and any other value rules created in the future for this configurator.

We will give this a better name by double-clicking the name Value Rule and changing it to Set Volume.

Since we've selected a rule in the explorer tree on the left, we see a new white space where we create the logic on the right.

It consists of two areas: the multicolored toolbox has all the Snap blocks you need to write the logic. It's like a dictionary.

The empty white space with a green start block to the right is the workspace. This is where we write the code.

By dragging blocks out of the toolbox, and connecting them to the start block, we create the logic.

We want to set the value of the volume field so, let's browse to the configurator section of the toolbox.

In the fields subsection, there is a Snap block to set a field value and we will drag that block into the workspace.

Then pick it up and drag it close to the green Start block.

Notice that if we drag any block close enough to another block that fits, a color dot appears between them.

This tells us that if you let go, the two blocks will snap together.

Now we snap the block to the green start block.

If we connect anything to the Start block, the automated parser will look for any errors.

It highlights any troublesome block in red and shows more information at the bottom of the screen.

The total number of errors throughout the entire configurator appears in the top right corner.

Here, it found two errors and there are two missing pieces of information. Let's fill them in.

First, what field do we want to set? Enter the name of the volume field you just created.

Next, what do we want for its new value?

Returning to the toolbox we look for a way to get a field value.

We will drag get field value into the empty slot and pick the height field.

The parser now reports no errors.

When the configurator runs, we see the volume field is always set to the height field, even if we try to edit the volume field itself.

Remember, after any field is changed, the rule cycle runs. This value rule is part of that cycle.

We will need to mutate a block to get the correct results.

Using Block Mutations

We will return to the value rule and drag the get field value block out of the rule.

We want the product of multiplying the height, depth, and width numbers in that slot, so we will use a math block.

In the toolbox, we open the numbers category, and drag out the math block.

This block is close to what we need, but it's performing addition and it has only two slots.

Let's mutate, or change, the block.

Clicking the drop-down list of math operators, we choose multiplication.

Then, we look for the mutation symbol within the block to add a slot. Click the symbol: a new slot will appear in the math block.

Notice that we can also remove any mutations by clicking the trash-can icon.

Set both math operators to multiplication.

Drag the get field value block into one of those slots.

We still need two more get field value blocks.

We can either get a fresh one from the toolbox, or we can Control-Drag an existing one to duplicate it.

When we run the configurator, we see the volume field updates correctly.

Notice that the volume field is editable in our user interface.

If the customer edits this field, their work is simply overwritten by the rule that runs immediately after any edit they make.

To prevent confusion, we can set the enabled property of that volume field to false. This will mark the field for display only.

Using the Context Menu

Writing Snap code is more than just dragging blocks from the toolbox into the workspace.

Right-click any Snap block to show the context menu. This menu can offer some basic help for the block such as its name and the data it needs to work.

The help pane can be left open or closed.

The context menu also lets us disable Snap code.

This is useful for testing or troubleshooting.

Disabled blocks turn gray, but we can easily right-click and choose “enable” to turn them back on again.

The context menu also lets us copy Snap blocks to move code from one place to another.

If we select “copy json”, a pop-up appears with a recipe written in JSON for whatever blocks that we have selected.

We can press CTRL-C to copy that recipe.

Then, right-click in any workspace to see a “paste json” box. Paste the recipe into this box.

The workspace itself also has a menu of helpful tools, shown as icons across the top. With them we can Schedule all the code in the workspace to run only during a specific window of time.

Zoom in to make the Snap blocks appear larger or zoom out to make them smaller.

Enlarge the Snap workspace to fill the entire screen.

This is helpful when you want an immersive coding environment.

We can also Undo the last edit or redo the last undone edit.

The next two icons show a read-only view of the Snap block recipe as JSON or JavaScript.

And we can open or close the context help pane.

Adding Logic Statements

Snap code can also make decisions, based on information in the configurator.

Let's say we need to implement a new business rule so that if the height is greater than five, then the depth is set to 8.

First, we will create a new value rule and give it a useful name, like "set depth from height".

In the "logic" section of the toolbox we'll drag the "if" block out to the workspace and connect it to the start block.

The logic block checks a condition, shown here in red.

If it's true, then the statement we write within the block is run.

If the condition is false, then the statement is not run.

We will use a get field value block and a number block, to create the condition if the height is greater than five.

A set field value block and a number block will create the statement to set the depth field's value to 8.

Running the configurator shows the depth field locked to 8 if the height is greater than 5.

When the height is 5 or less, the depth field can be changed.

Recap

In this course we demonstrated the use of customized logic with Snap blocks.

We created Snap code by using the Snap toolbox and workspace.

A Snap block was mutated, or changed, to get the correct results and we explored the use of logic statements.

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