

## 1 Introduction to iLogic

### 1.1 What is iLogic?

#### iLogic is a Design Intelligence Capture Tool

- Supporting more types of parameters (string and boolean)
- Define value lists for parameters. Then redefine value lists automatically as values are chosen for each parameter.
- Enable automatic error correction and user feedback for parameter value limitations and valid value combinations
- Support more types of equations (involving parameters, attributes, features and components)
  - Conditional Equations (If Then, Else If)
  - Optimizations and Iterations (For, While and Where Loops)
  - Define and utilize variables of all kinds (not just parameters)
- Support rule based parameter relations. Document links are not required. Cyclical References are not a concern.

### 1.2 About the iLogic Panel

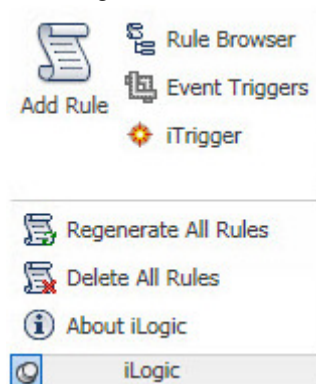
#### Overview





The Inventor ribbon has two main panels that are commonly used in iLogic. The **Parameters** panel and the **iLogic** panel

#### The iLogic Panel

The iLogic Panel has a set of commonly used commands you use while applying iLogic to a model.

The iLogic Panel has the following commands by default:






-  **Add rule:** The Add Rule command enables you to add a rule to your model in Inventor.
-  **Rule Browser:** The Rule Browser command shows all rules applied in the current document.
-  **Event Triggers:** The Event Triggers command helps you enable or disable the rules applicable for events.
-  **iTrigger:** iTrigger is a user parameter you can use to activate rules manually. It can execute one or more rules.

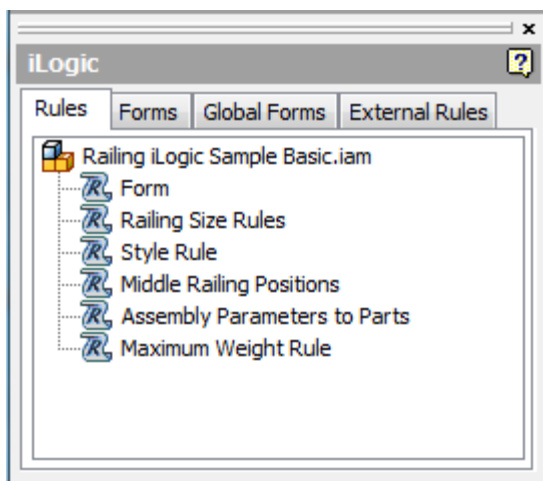
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## Project 2 – iLogic Part 1



-  **Regenerate All Rules:** The Regenerate All Rules command helps you synchronize the parameters in the rules with your model.
-  **Delete All Rules:** The Delete All Rules command deletes all the rules associated with your model. This is ideally used after configuring the model to export a sample configuration.
-  **About iLogic:** The About iLogic command gives you the details of the iLogic Extension.

### The iLogic browser



- **External Rules:** The External Rules tab displays generic rules that apply to a wide array of parts, assemblies or drawings and can be loaded on demand.

- **Rules:** The Rules tab displays all the rules that have been added to the current Part, Assembly or Drawing document.

- **Forms:** The Forms tab displays all the custom forms that have been added to the current Part, Assembly or Drawing document.

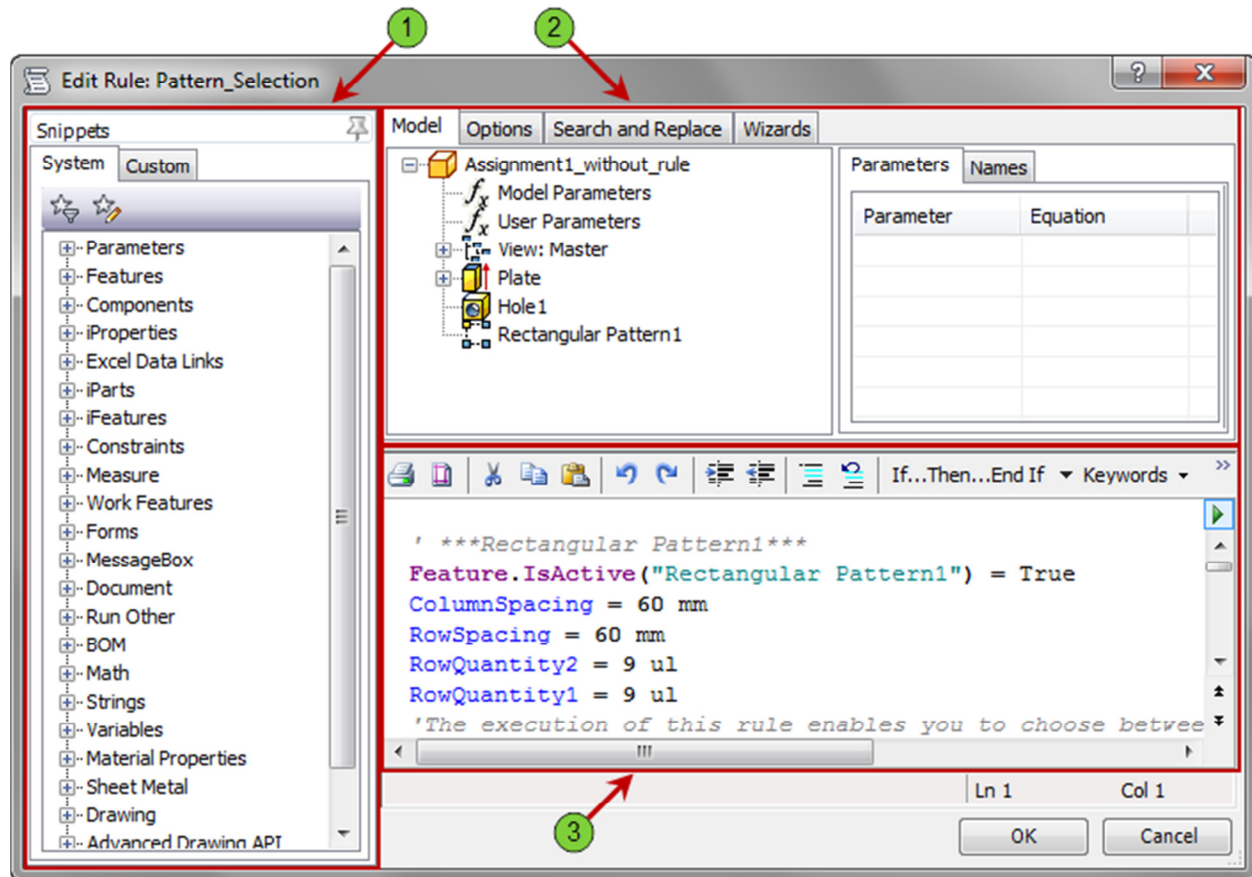
- **Global Forms:** The Global forms tab displays the custom forms that are stored in the Design Data folder related to the project file and are present in every Part, Assembly or Drawing document.

**NOTE: Global forms should only contain inputs that pertain to every Part, Assembly or Drawing document.**

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### The Edit Rule dialog box



#### 1 Snippets

- **System:** The System tab contains snippets of code to push into or pull out system elements. For example, the **Parameter (Dynamic)** snippet under the **Parameters** snippets, adds the following line to the design space

Parameter ("d0") = 1.2

which sets the parameter **d0** in the current document equal to **1.2**.

- **Custom:** The Custom tab contains snippets of code that the author of the rule feels will be reusable in other rules.

#### 2 iLogic Utility Group













- **Model:** The Model tab reflects exactly what is in the model browser of the document to which the rule is being added. This give you access to add rules about any Part, Feature, Sheet, Parameter, ... which appears in the model browser to that document.
- **File Tree:** Only present when a rule is added to an assembly. The File Tree tab shows all the files that are direct children of the assembly. This give you access to add rules about any Part, Feature or Parameter that is a direct descendant a child in the assembly.
- **Files:** Only present when a rule is added to an assembly. The Files tab is a list of the file name of all the direct children of the assembly.

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- **Options:** The Options tab gives the author options to how iLogic rules look as well as how they behave.
- **Search and Replace:** The Search and Replace tab allows the author to search for specific strings of text within the active rule and replace them with others.
- **Wizards:** The Wizards tab provides the author with wizards to add advanced functionality to an iLogic rule.

### 3 Code Editing Space: The design space consists of two (2) components

- **Code Text Editing Toolbar** 
  -  **Print**
  -  **Page Setup**
  -  **Cut**
  -  **Copy**
  -  **Paste**
  -  **Undo**
  -  **Redo**
  -  **Increase Indent**
  -  **Decrease Indent**
  -  **Comment out selected lines.**
  -  **Uncomment out selected lines.**
- **Design Space:** This is where all the rules will be written. The following list identifies what different color fonts represent.
  - **Strings (Cyan)**
    - "This is a string"
    - "The double quotes indicate the beginning and end of a string."
    - `MessageBox.Show ()`
    - "Hello World" example
  - **Functions (Purple)**
    - Simply put, a function performs an action (does something)
    - `Feature.IsActive`
    - `iProperties`
    - `Excel Data Links`
    - Etc.....
  - **Comments (Gray)**
    - The apostrophe (' ) will make everything to the right a comment
    - Exclude or disable lines of code
    - Add comments to code to explain what it does in simple English.

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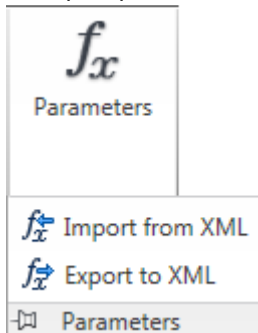
## Project 2 – iLogic Part 1



- **Parameters (Blue)**
  - Numeric - Multi-value?
  - Text - Multi-value?
  - True/False
  - Key
  - NOTE: Renaming Parameters will update the Internal Rules
- **Conditional Statements & Operators (Red)**
  - If-Then
  - If-Then-Else
  - If-Then-Elseif
  - Null/Empty Sets (aka Do Nothing)
  - Case Selects
- **Values (Black)**
  - 0.08 in or 1.5 mm
  - True or False
- **Variables (Dark Red)**
  - Temporary variables used in the current rule only

### The Parameters Panel

With the Parameters panel you can view or edit parameters associated with a model. You can also import or export parameters from here.



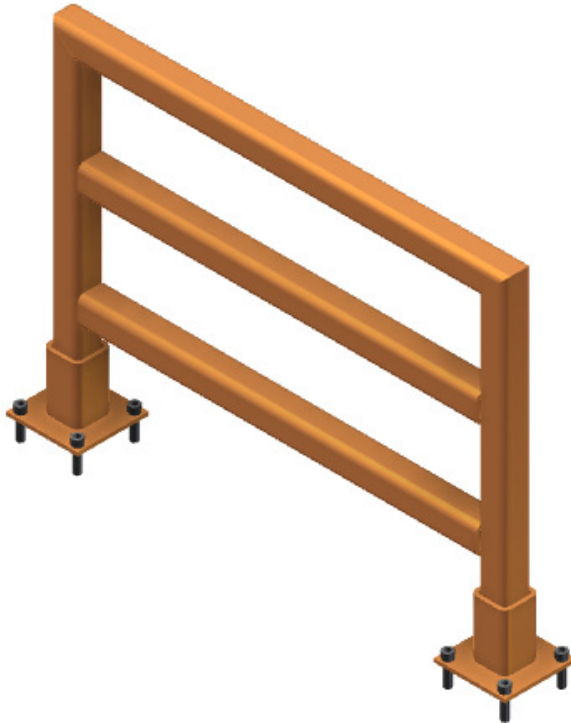
- **Parameters:** This command displays a dialog in which you can view or edit parameters associated with your model.
- **Import from XML:** With this command you can use an XML file to copy the parameters to the document.
- **Export to XML:** This command is used to copy the parameters from a document to an XML file

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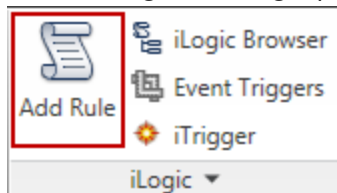
## Project 2 – iLogic Part 1

### 1.3 Project: Assembly Environment

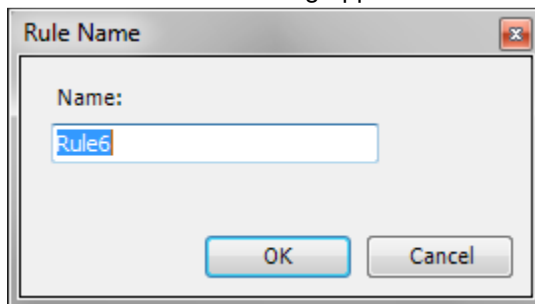
1. Using the iLogic Projects.ipj
2. Open Railing iLogic Sample Basic.iam.



3. From the **Manage** tab, **iLogic** panel, click **Add Rule**.



- The Rule Name dialog appears.



- Click **OK**

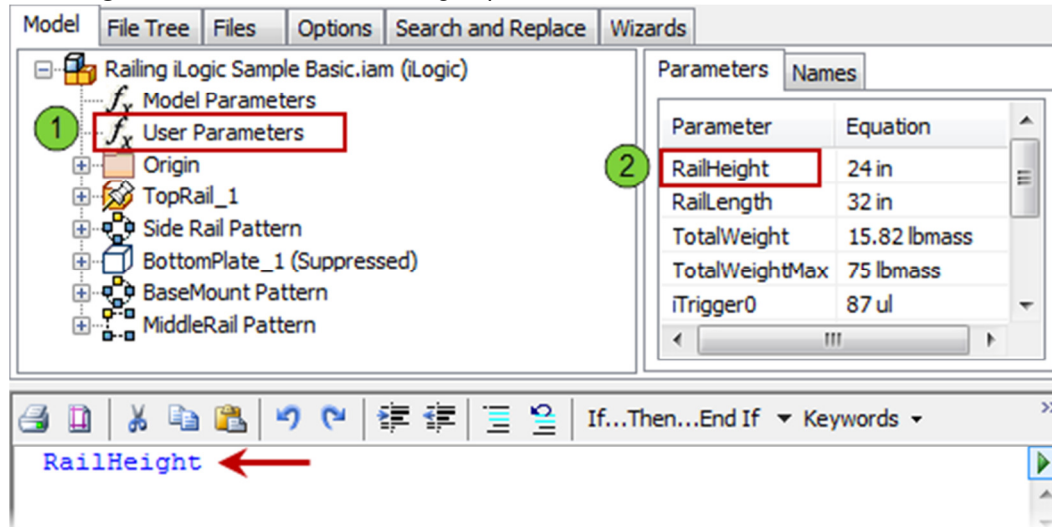
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## Project 2 – iLogic Part 1

4. Add **RailHeight** to the design space.

- 1 On the **Model** tab, click **User Parameters**
- 2 On the **Parameters** tab double-click **RailHeight**

**RailHeight** is now added to the design space.



5. Repeat the previous step for **RailLength** and **TotalWeight**. Place each parameter on its own line.

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## Project 2 – iLogic Part 1



**NOTE:** The following two (2) steps highlight the text editing features with the **Edit Rule** dialog box.

6. Highlight all the parameter names in the design space

- Click the **Increase Indent**  button

```
RailHeight  
RailLength  
TotalWeight
```

- Click the **Decrease Indent**  button

```
RailHeight  
RailLength  
TotalWeight
```

7. With Lines still highlighted

- Click the **Comment out the selected lines**  button

```
'RailHeight  
'RailLength  
'TotalWeight
```

- Click the **Uncomment the selected lines**  button

```
RailHeight  
RailLength  
TotalWeight
```

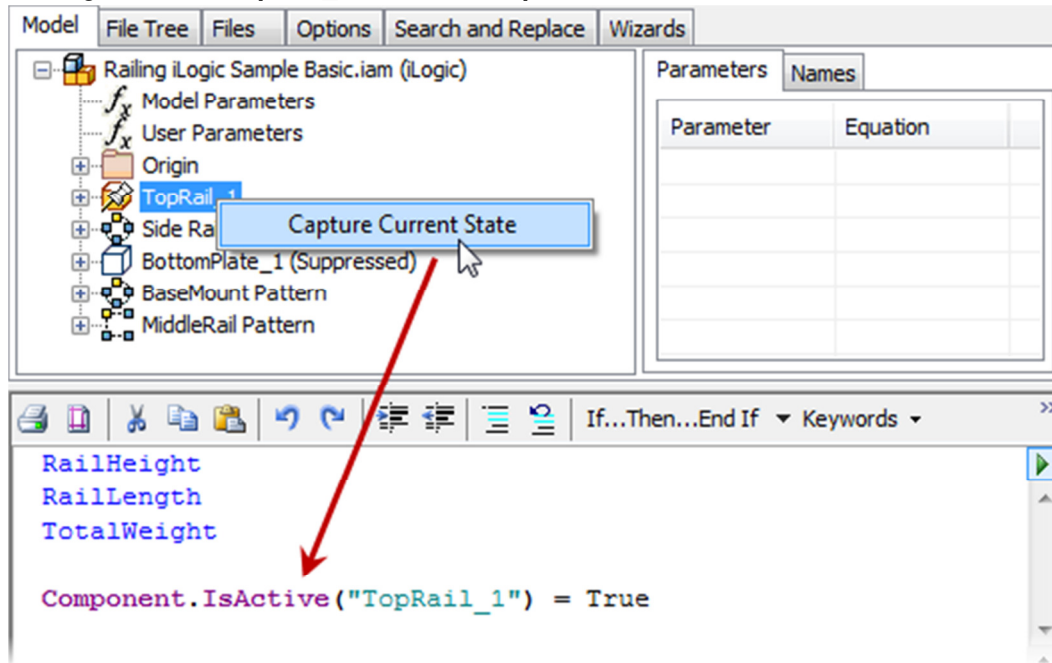
**NOTE:** A commented out line will have no effect on the results of the rule. It is best practice to place comments in each rule to identify what it does in layman's terms.



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## Project 2 – iLogic Part 1

8. Capture Current State of TopRail\_1
  - Right-click on **TopRail\_1** and select **Capture Current State**

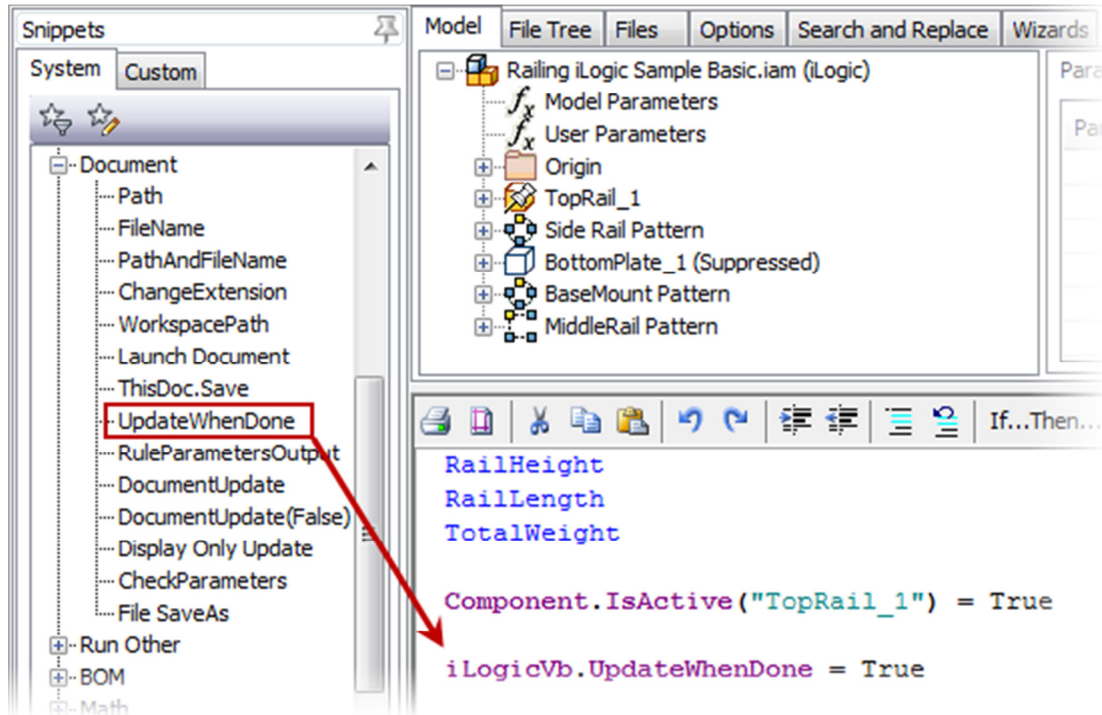


**Note:** **Capture Current State** adds all the elements that can be controlled by iLogic to the design space.

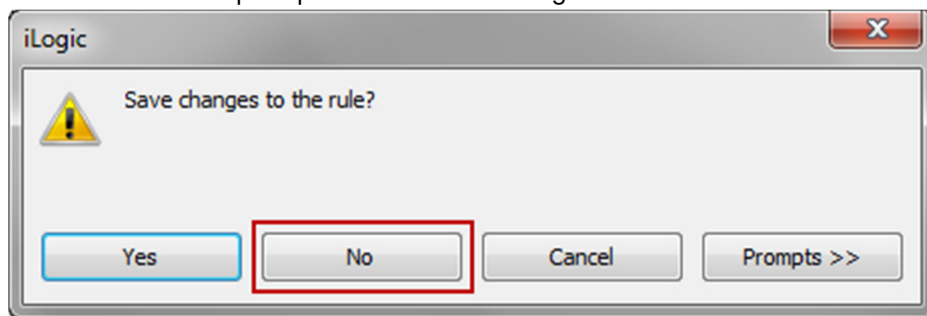
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## Project 2 – iLogic Part 1

9. Add an **UpdateWhenDone** snippet
- In the **Snippets** pane under **System** expand **Document**
  - Double-click **UpdateWhenDone**
  - The **UpdateWhenDone** snippet is now added to the design space.



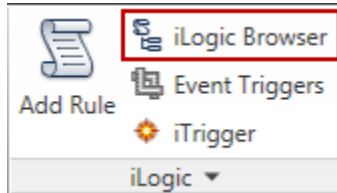
10. Click **Cancel**.
- In the Edit Rule dialog box, click **Cancel**
  - Click **No** when prompted to save the changes



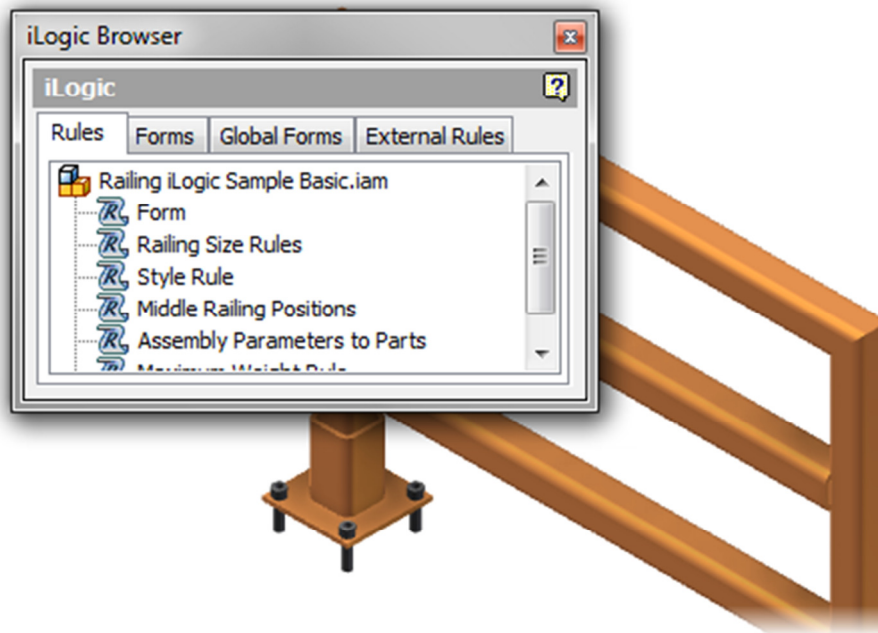
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## Project 2 – iLogic Part 1

11. From the **Manage** tab, **iLogic** panel, click **iLogic Browser**.



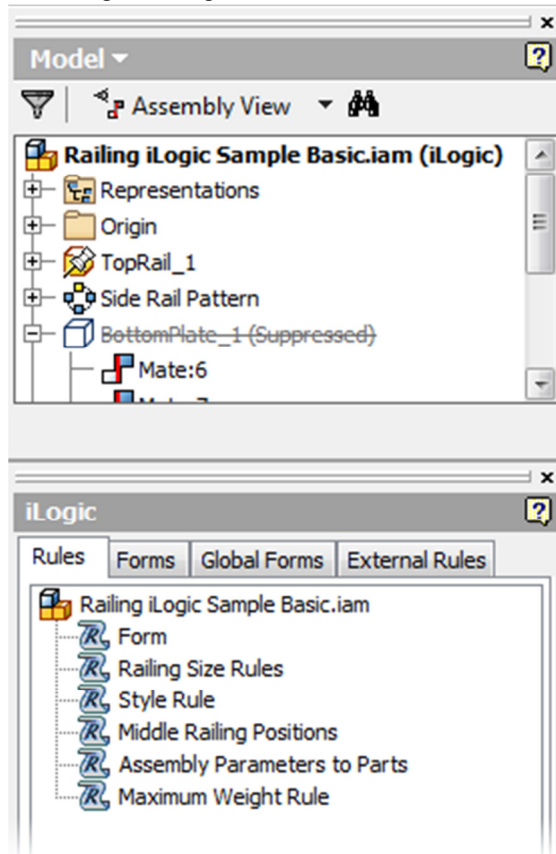
- The iLogic Browser is displayed



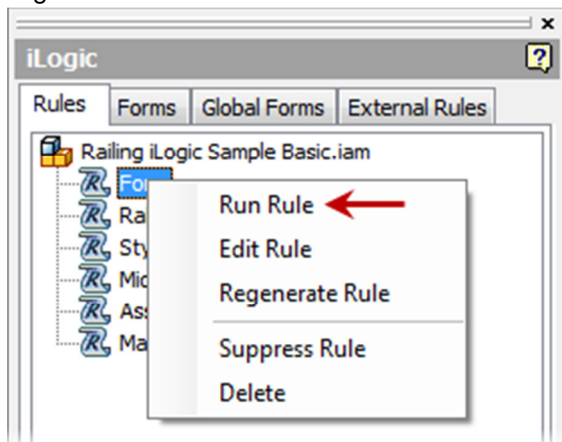
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## Project 2 – iLogic Part 1

- Drag the iLogic Browser under the Model Browser and release to dock it.



12. Right-click on the **Form** rule and select **Run Rule**

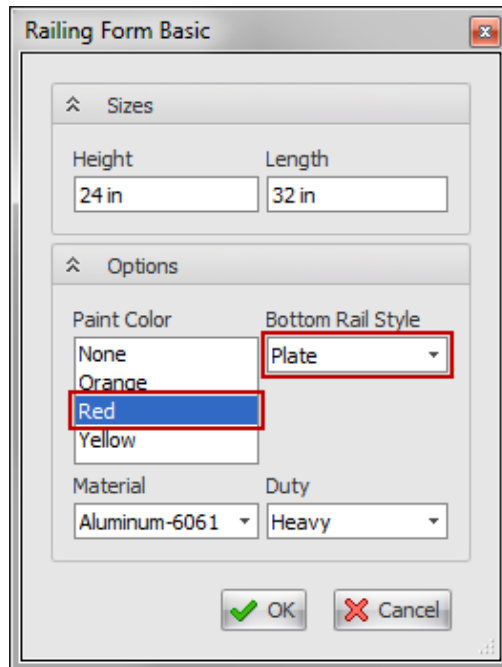


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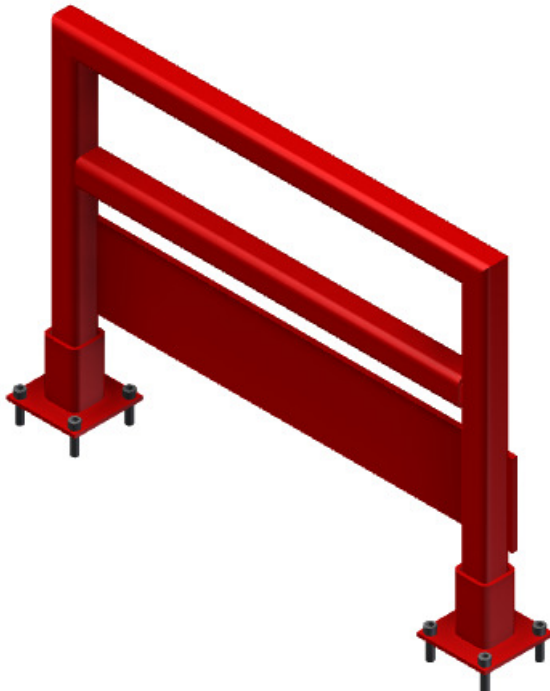
## Project 2 – iLogic Part 1

13. Make changes to the form

- Change the **Paint Color** to **Red**
- Change the **Bottom Rail Style** to **Plate**
- Click **OK**



14. Note the changes to the model.



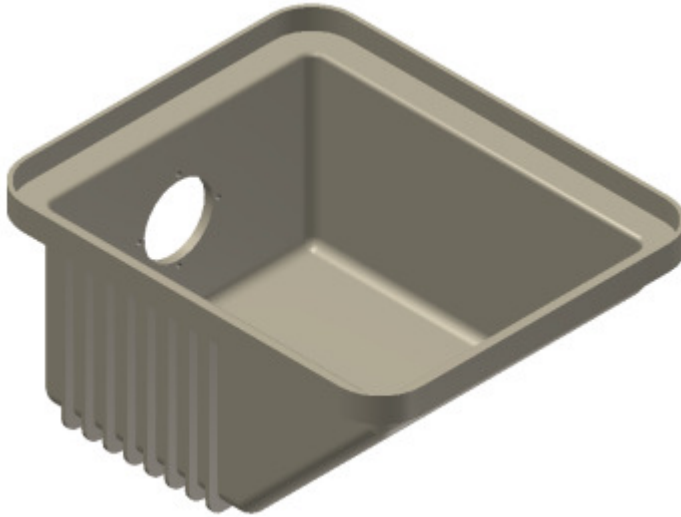
15. Close the file. Do **NOT** save.

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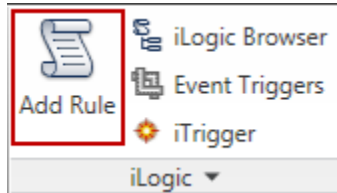
## Project 2 – iLogic Part 1

### 1.4 Project: Part Environment

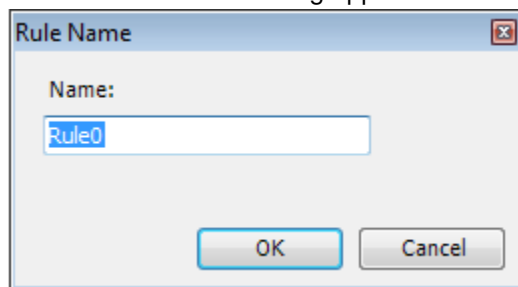
1. Using the iLogic Projects.ipj
2. Open Air-Box-2.ipt.



3. From the **Manage** tab, **iLogic** panel, click **Add Rule**.



- The **Rule Name** dialog appears.

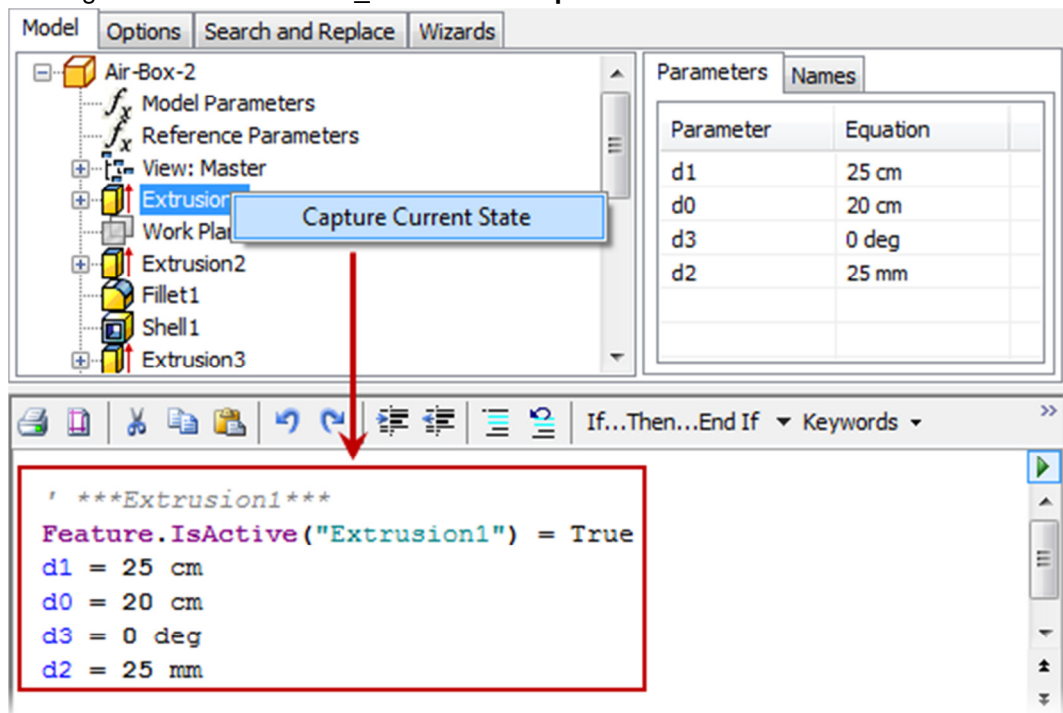


- Click **OK**

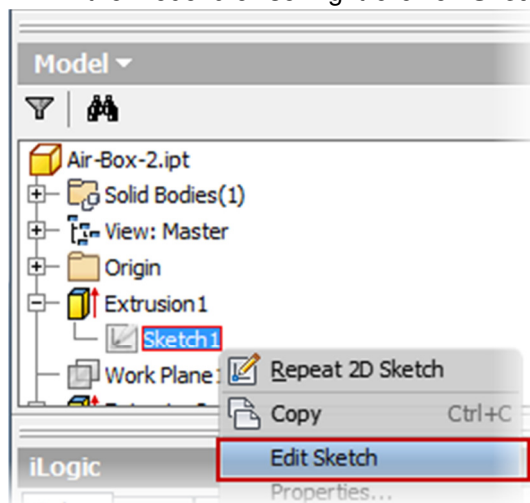
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## Project 2 – iLogic Part 1

4. Capture Current State of Extrusion\_1
  - Right-click on **Extrusion\_1** and select **Capture Current State**



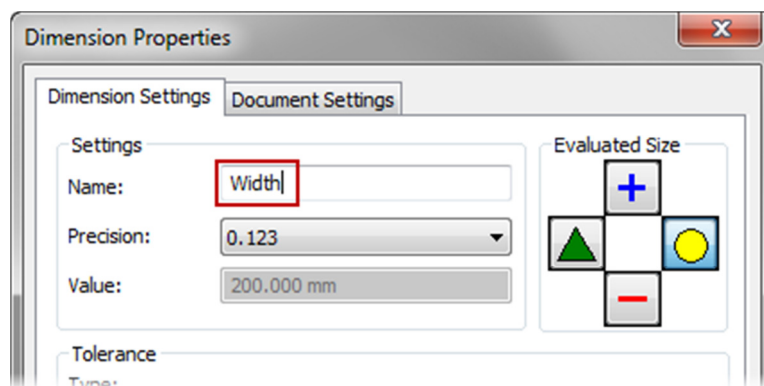
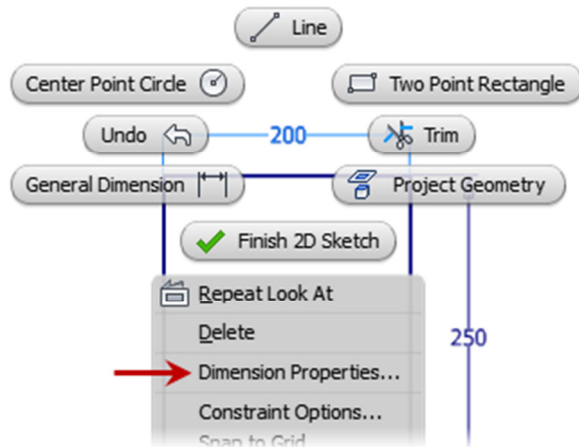
5. Click **OK**.
  - In the **Edit Rule** dialog box, click **OK**
6. Edit Sketch1.
  - In the model browser right-click on **Sketch1** under **Extrusion1** select **Edit Sketch**



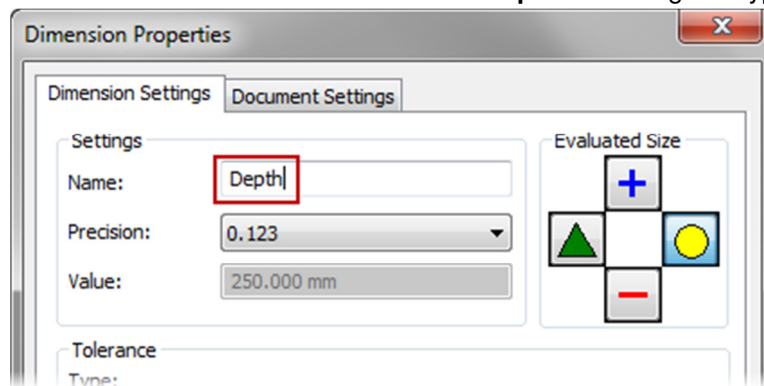
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## Project 2 – iLogic Part 1

7. Rename the **200** dimension to **Width**
  - Right-click on the **200** dimension and select **Dimension Properties**
  - In the **Name** file of the **Dimension Properties** dialog box type **Width**



8. Rename the **250** dimension to **Depth**
  - Right-click on the **250** dimension and select **Dimension Properties**
  - In the **Name** file of the **Dimension Properties** dialog box type **Depth**

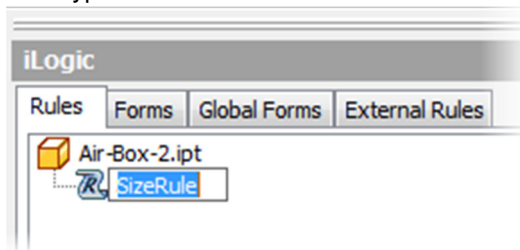




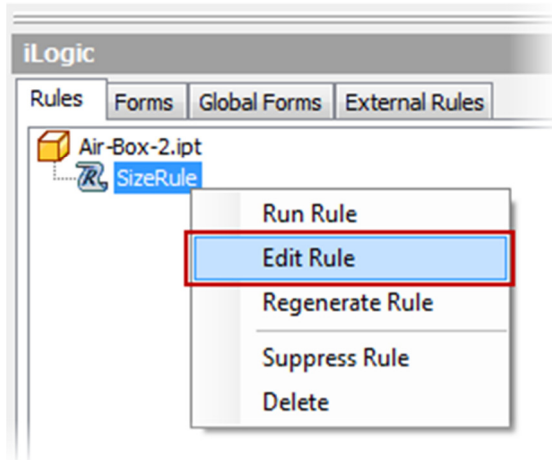
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## Project 2 – iLogic Part 1

9. Rename *Rule0* to *SizeRule*
  - Slowly click twice on **Rule0**
  - Type **SizeRule**



10. Edit *SizeRule*
  - Right-click on **SizeRule** and select **Edit Rule**



11. Note that the update parameter names are reflected in the design space

```
' ***Extrusion1***  
Feature.IsActive("Extrusion1") = True  
Depth = 25 cm  
Width = 20 cm  
d3 = 0 deg  
d2 = 25 mm
```

12. Click **Cancel**.
13. Close the file. Do **NOT** save.