

FBD tricks and tips

straton user guide – Rev. 10

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straton



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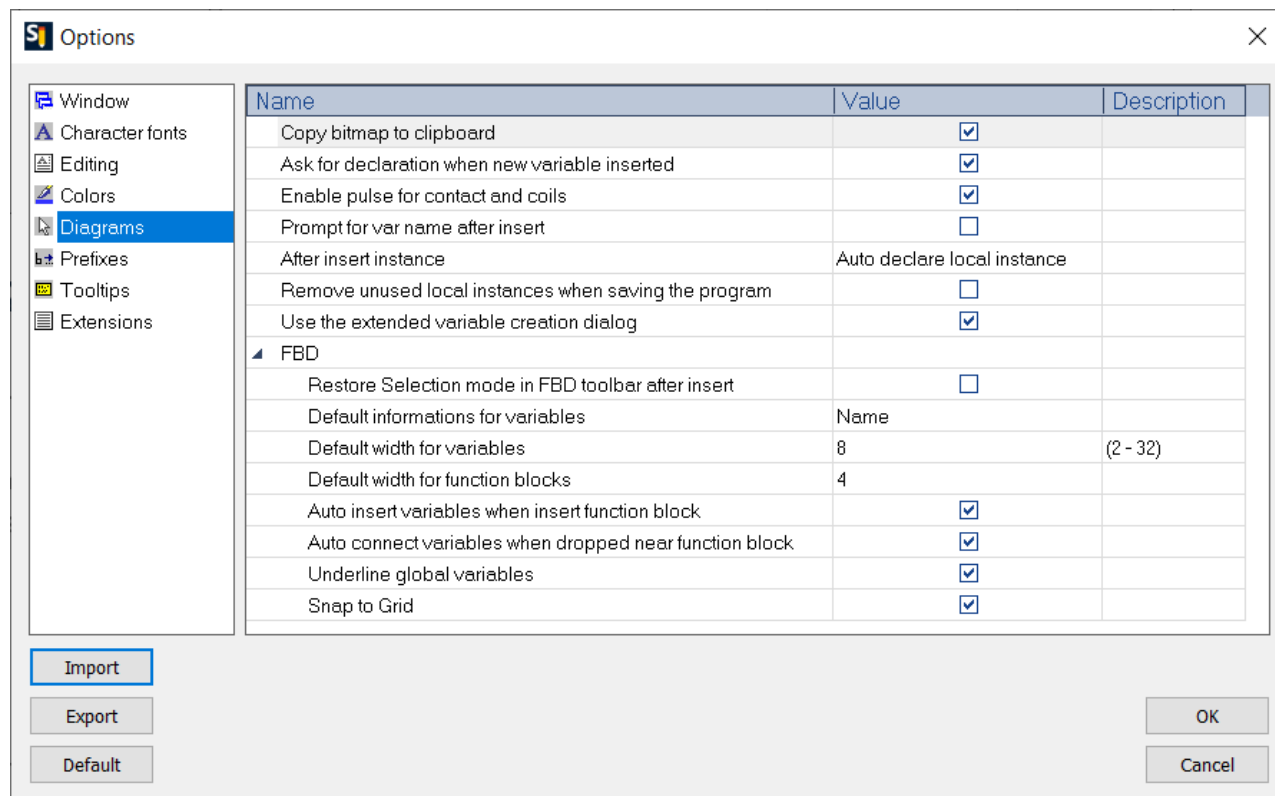
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1. Tricks and tips

1.1. Recommended settings

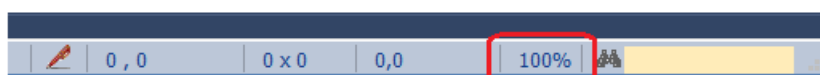
For more comfort, in the “Tools /Options” menu command, reach the “Diagrams” page and select the following options:



1.2. Zoom

Use the menu command “View / Zoom...” to set the zoom ratio.

You can open the same “zoom” box doing a double click on the zoom ratio displayed in the status bar:



If you have a numerical keypad, you can also use “+” and “-” keys to zoom forward or backward.

The mouse wheel with CTRL key pressed also provides zoom feature.

1.3. Using the mouse wheel

The mouse wheel offers various features:

- ▶ Without any key pressed: scroll vertically
- ▶ With SHIFT key pressed: scroll horizontally
- ▶ With CTRL key pressed: zoom
- ▶ Keep the mouse wheel pressed and move the mouse to scroll in any direction

1.4. Using the toolbar

The FBD toolbar can be used in various ways:


- ▶ Select an item in the toolbar. Then click in the diagram to insert it. At any time you can go back to "select" default toolbar mode by pressing ESCAPE key or by pressing the right mouse button.
- ▶ Simply drag an item from the toolbar to the diagram.

For method #1, it is possible to automatically reset the toolbar selection after inserting an item in the diagram:

"Tools > Options > Diagrams > Restore selection mode in FBD toolbar after insert"


If checked, to avoid that, double click on the toolbar button instead of single clicking.

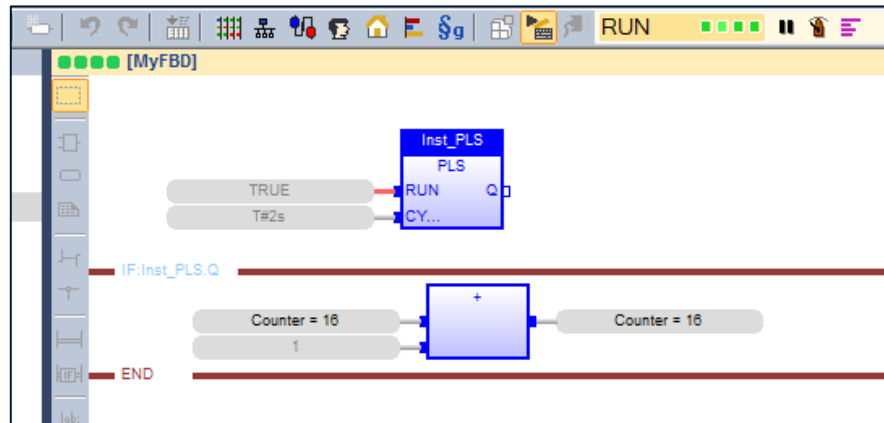
1.5. Network breaks

Use the  button of the toolbar to insert a network break. Network breaks may contain a single line comment text, or alternatively a #ifdef pragma for conditional compiling.

Network breaks are also useful for navigation use CTRL + PAGE UP or CTRL + PAGE DOWN keystrokes to navigate from a network break to another into the program.

1.6. ST conditions in the FBD

Use the  button to insert ST conditions in the FBD. Every ST condition must be ended by an END condition. (This feature is only available since version 9.0)



1.7. Comment blocks

Use the  button of the toolbar to insert a resizable comment block. A comment block can contain either:

- ▶ a multiline text to be displayed
- ▶ or the pathname of a bitmap file (.bmp, .gif...) to be displayed
- ▶ or the pathname of a text file (.txt) to be displayed

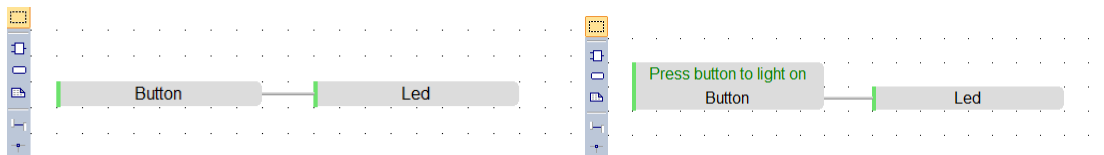
You can also directly drag such a file from the explorer to the FBD comment block.

1.8. Resize variable - insert comment

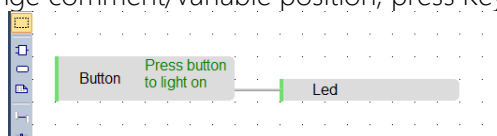
Another way to insert comments inside the code without using comment blocks. Insert a comment in description variable field:

| Name | Type | Dim. | Attrib. | Syb. | Init.val... | User... | Tag | Description |
|--------|------|------|---------|------|-------------|---------|-----|--------------------------|
| Button | BOOL | | | | TRUE | | | Press button to light on |
| Led | BOOL | | | | | | | |

Then once you place the variable in the FBD workspace, just resize the variable block.




Now, if you want to change comment/variable position, press Key-Space on variable block.



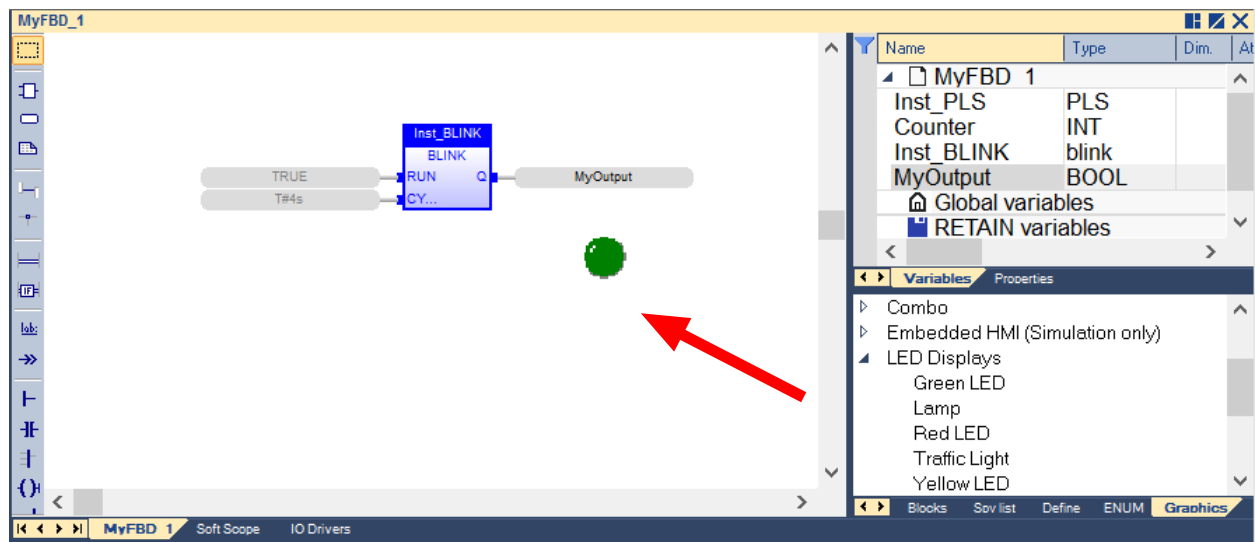
1.9. FBD Execution order

Sometimes it is not so trivial to recognize how the FBD diagram is executed, i.e. in which order blocks are called and variables assigned.

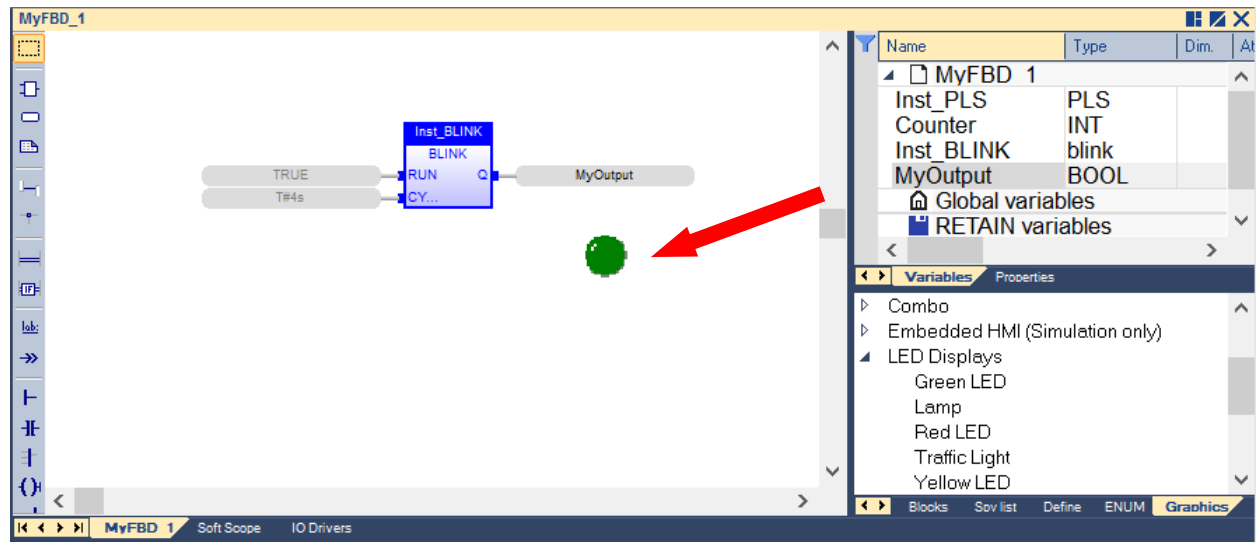
Use the  button of the toolbar or press CTRL+D to display or hide the execution order of the diagram. You must press the button again every time you move some items in the diagram.

1.10. Working with animated graphic items

Animated graphic items can be directly inserted in an FBD diagram. Select the “Graphics” tab in the bottom / right area of the editor and then simply drag an object to the diagram:



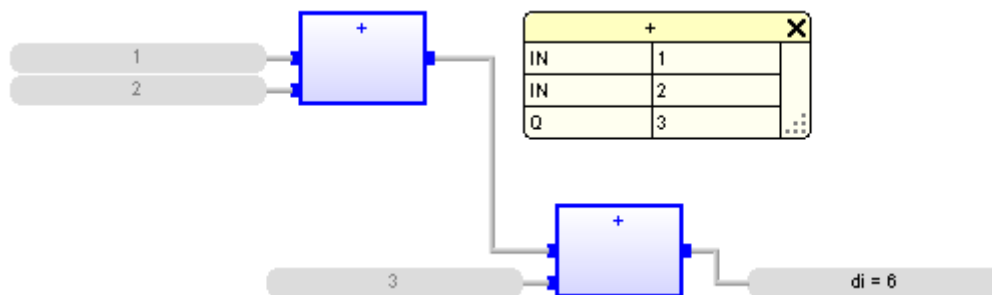
In order to associate a variable to the graphic object, select it and then select the “Properties” tab in the top/right area, or double click on the graphic object. The easiest way is to simply drag the variable to the graphic object:



Such graphic objects will be animated during simulation or debug. Particularly, the use of input objects such as push buttons can significantly help your work during simulation.

1.11. Showing FB input and output values

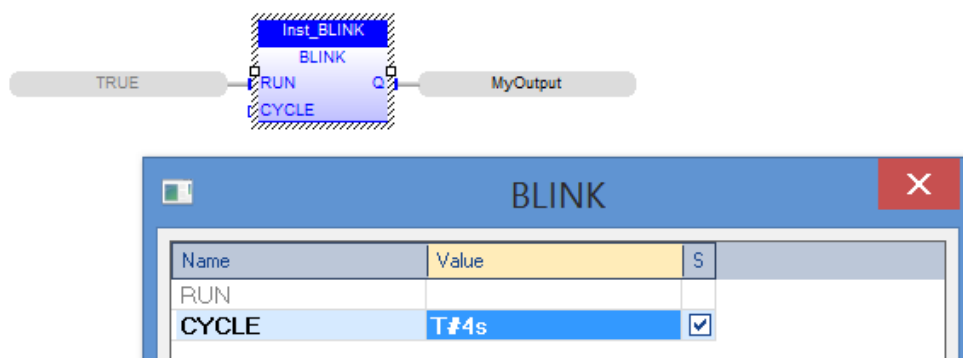
Select a block and select the contextual menu command "Show/Hide FB Values" to display or hide a small box which will be used in debug for showing the values of FB inputs and outputs:



You can then move or resize this box. The box remains visible during editing.

1.12. Predefining FB inputs

Select a block and select the contextual menu command "Edit Pins" to enter predefined values for some of the block inputs, and thus avoid to explicitly connect them in the diagram:



This is particularly useful for entering some preset values or unused parameters.

Note that this feature is not available for extendable blocks such as AND, OR, +, *...

1.13. Inserting some space in the diagram

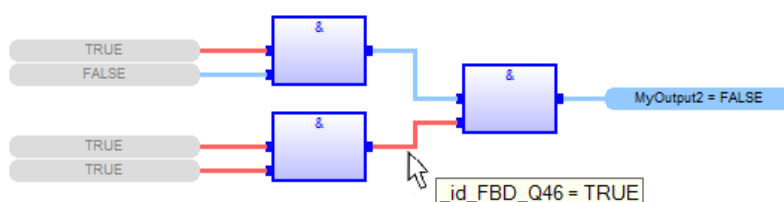
Very often it is useful to insert some free space horizontally somewhere in an existing diagram. To do that:

- ▶ Place the mouse cursor at the location where you want to insert lines and then press SHIFT + CONTROL + DOWN keystroke.
- ▶ You can also place the mouse cursor at the location where you want to insert lines and hit SHIFT + CTRL + END. All items below the mouse cursor are selected so you can easily drag them with the mouse.

1.14. Displaying line values during debug

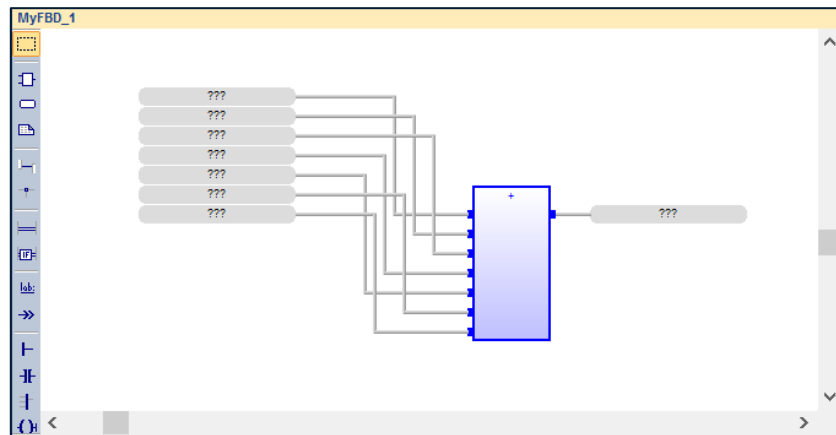
Right click on the project > Settings > Compiler > Color FBD lines during debug

If the option is checked, then line values between FBD blocks will be available during debug. Boolean lines will be colored blue or red for respectively FALSE and TRUE. For non-Boolean variables, you can see their value in a tooltip when the mouse cursor is on a line. For example:

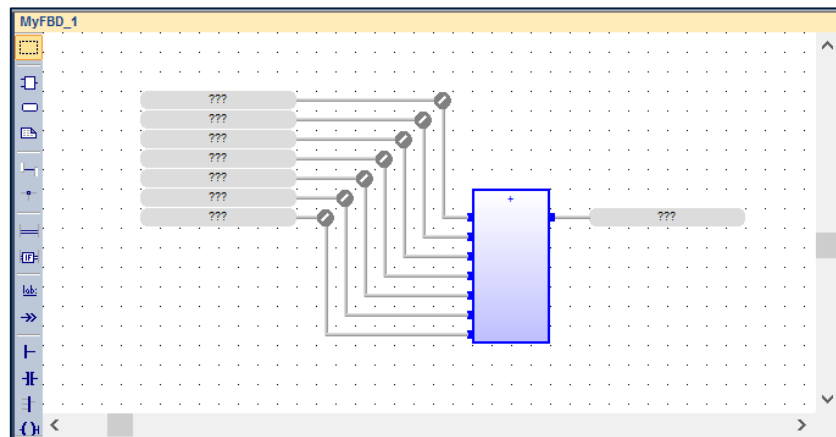


1.15. Multiple lines arrangement

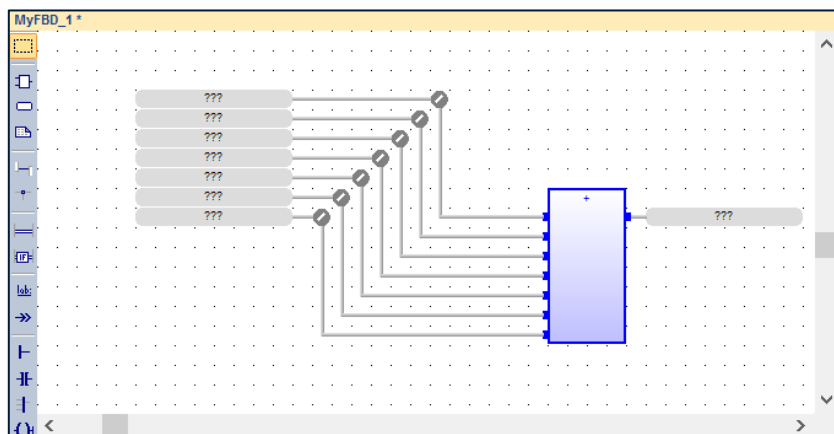
Firstly, create the diagram and the connections:



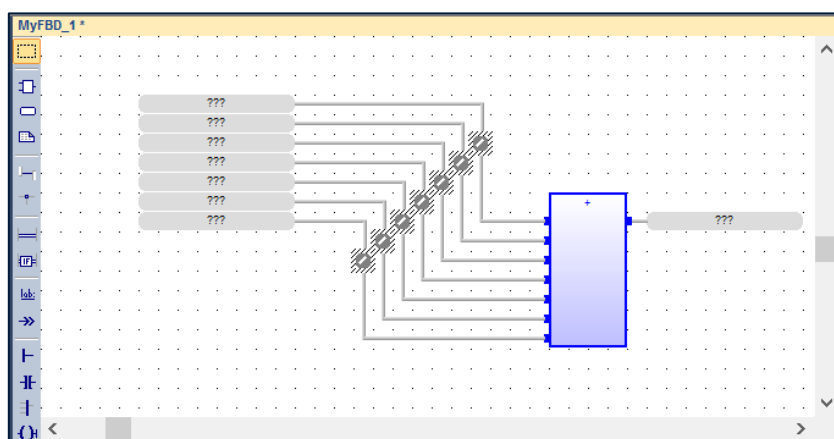
Press CTRL+G to display the grid in the FBD window. Select a corner and shift it directly or double click on the line to add a corner. Repeat this operation for all lines:



You can move the function block and keep the corner in place:



You can also select all corners (CTRL + left-click) and move them at the same time:



1.16. Changing the default width for function blocks

Since straton version 9.0 it is possible to change the default width for function blocks in:

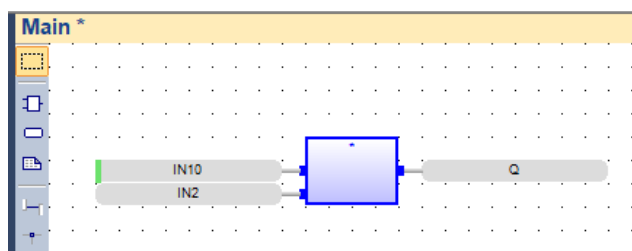
Tools > Options > Diagrams > Default width for function blocks.

A width unit is equal to one square of the grid (by default it is equal to 4)

1.17. Track changes

The Track changes option allows the users to see all the changes that has been made in an FBD program.

Changes are identified by a specific color on the left of the concerned item:

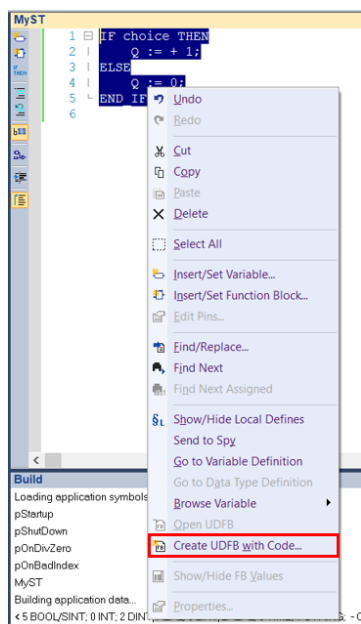


The Track changes option is activated by default, in order to activate/deactivate this option:

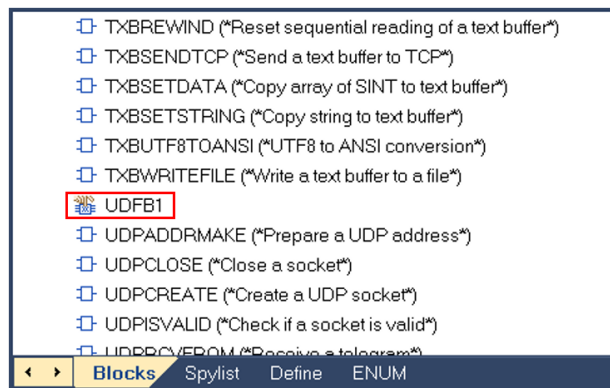
Tools -> Options -> Editing -> Track changes

1.18. Create UDFB with code

Select the code needed in your FBD program -> Right click on an item selected -> Create UDFB with Code...

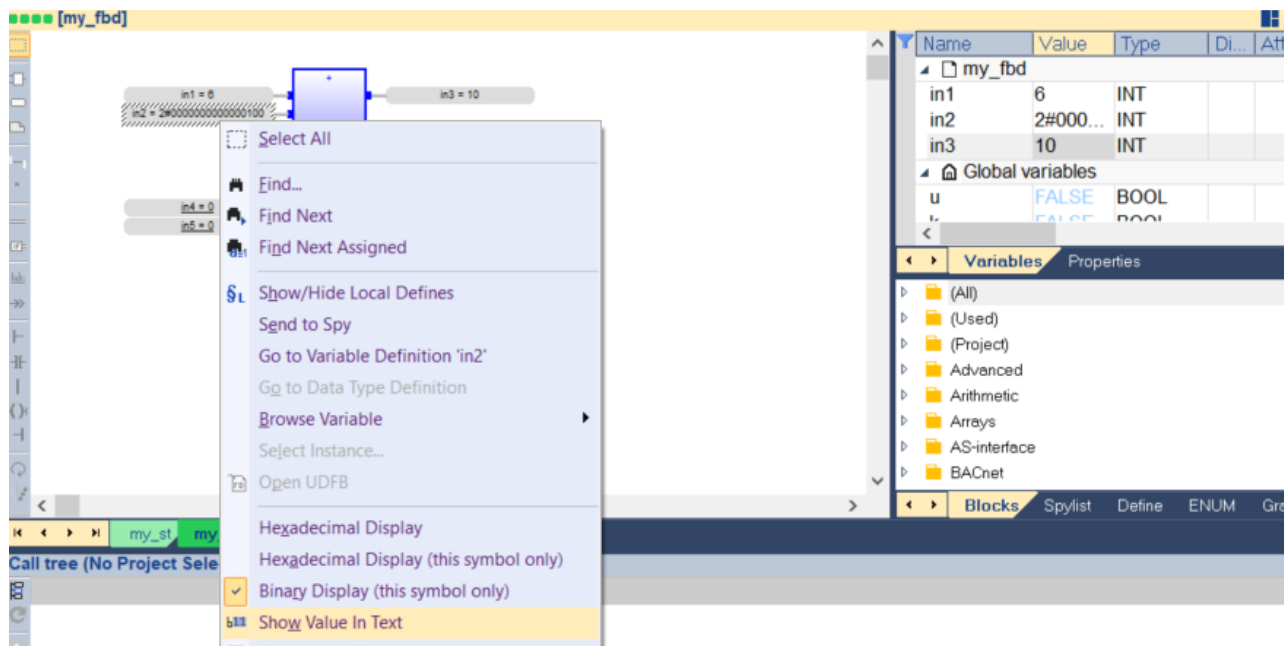


It will create an UDFB block which you can find in Function Blocks section:



1.19. Variable display

The user can choose in which format variable(s) are displayed. Doing a right-click on the variable and "Binary Display", the binary format of the variable is displayed in all debuggers (programs, variable list, spy lists...):



The user has then several options for the variable display:

- Binary display for one specific symbol
- Hexadecimal display for one specific symbol
- Hexadecimal display for all symbols
- Hexadecimal display for all symbols + binary display for specific symbols
- Normal displaying (depending on the symbol type)

1.20. Automatically link variable to output block.

To avoid creating a link each time between a variable and its block, you can directly move a variable from the dictionary and place the variable one step next to the block.

This will automatically create a link between the block and the variables.



Hint: press CTRL+G to display/hide the FBD grid.