Can I create my own functions inside ISaGRAF ?

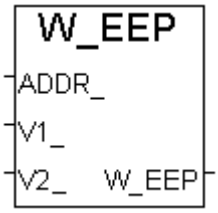
ISaGRAF supports functions written in ST, FBD, IL and QLD languages. User-defined functions are normally for some algorithm which been used again and again.

A function always has a return value (output parameter) and its name should be the same name as the function, and may have up to 31 input parameters. The code written inside functions cannot call any **function block**, however can call other ISaGRAF standard **functions** and **c functions** provided by ICP DAS.

We are going to creating a function to save an integer value to the EEPROM. Its format is as the below.

Function name: W_EEP
Description: Save an integer to the EEPROM when its value changed

Input parameters:
ADDR_ (integer): The address of the EEPROM to write
V1_ (integer): New value
V2_ (integer): Old value



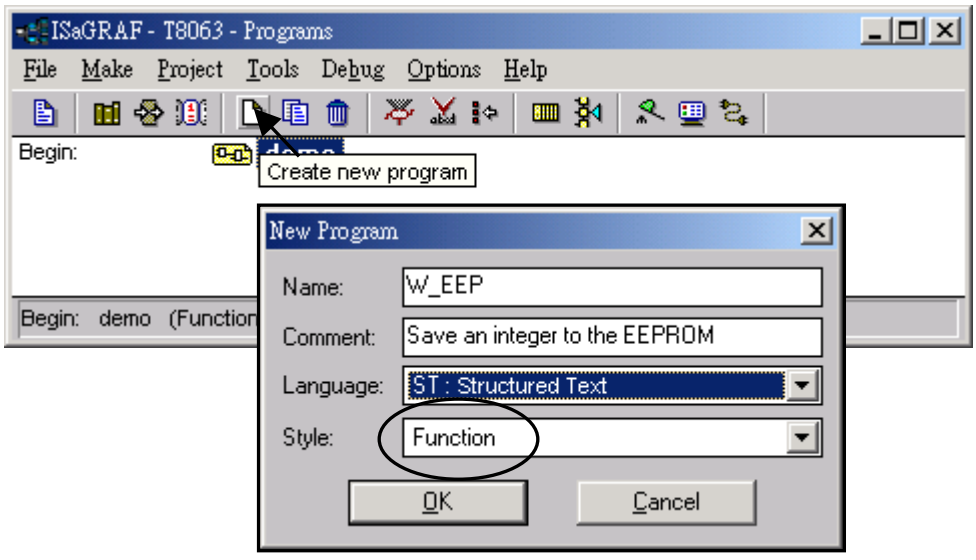
Return parameter:
W_EEP (integer): Return the new value

Note: The parameter names been used will become reserved names. That's why we use ADDR_, V1_, V2_ rather than ADDR, V1 & V2.

15.1: Creating functions inside one project

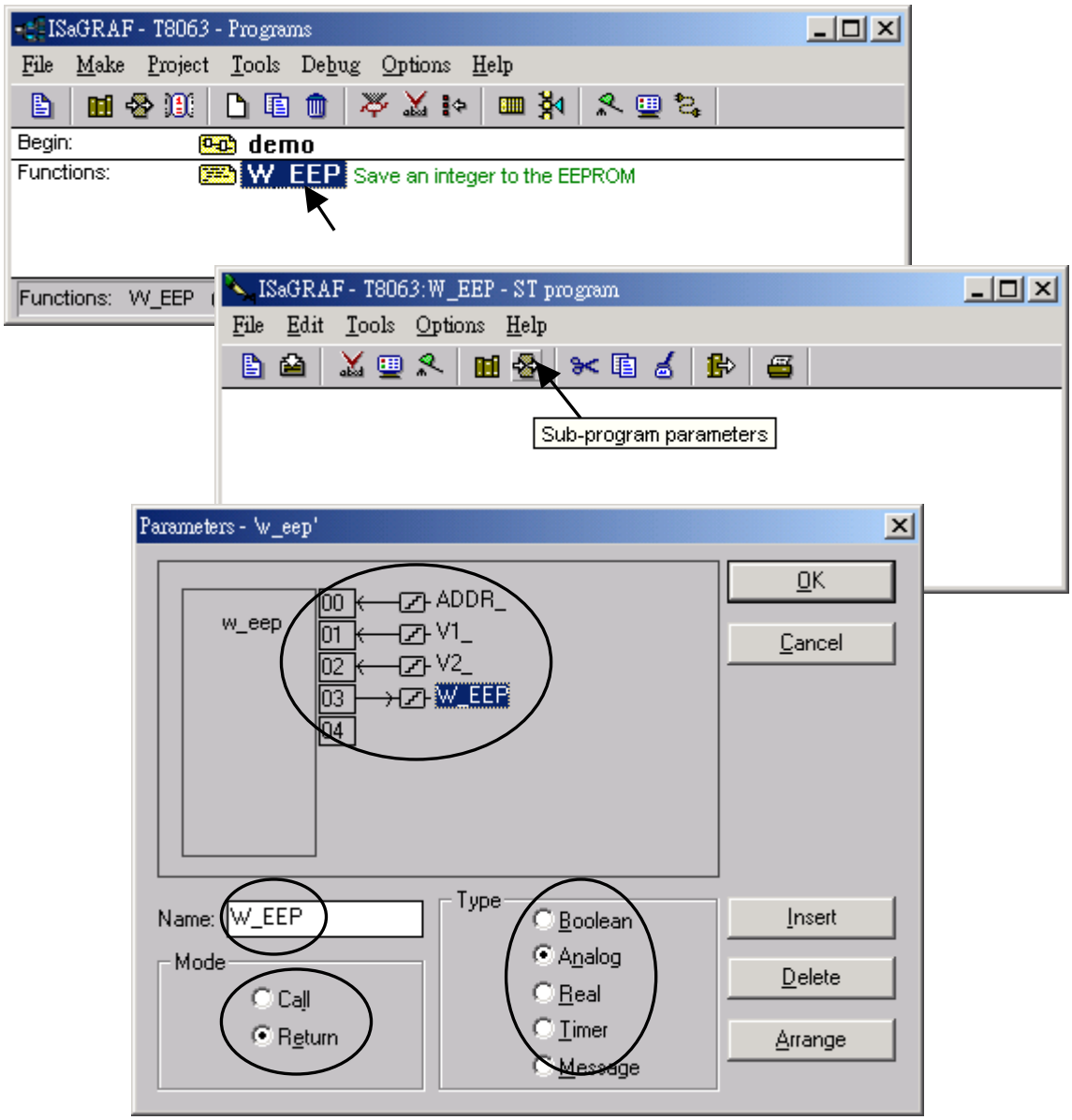
Functions created inside one project can be only called by other programs written in the same project.

A. Click on "Create new program" inside the project. Given Name as "W_EEP", Language as "ST: …", Style as "Function".



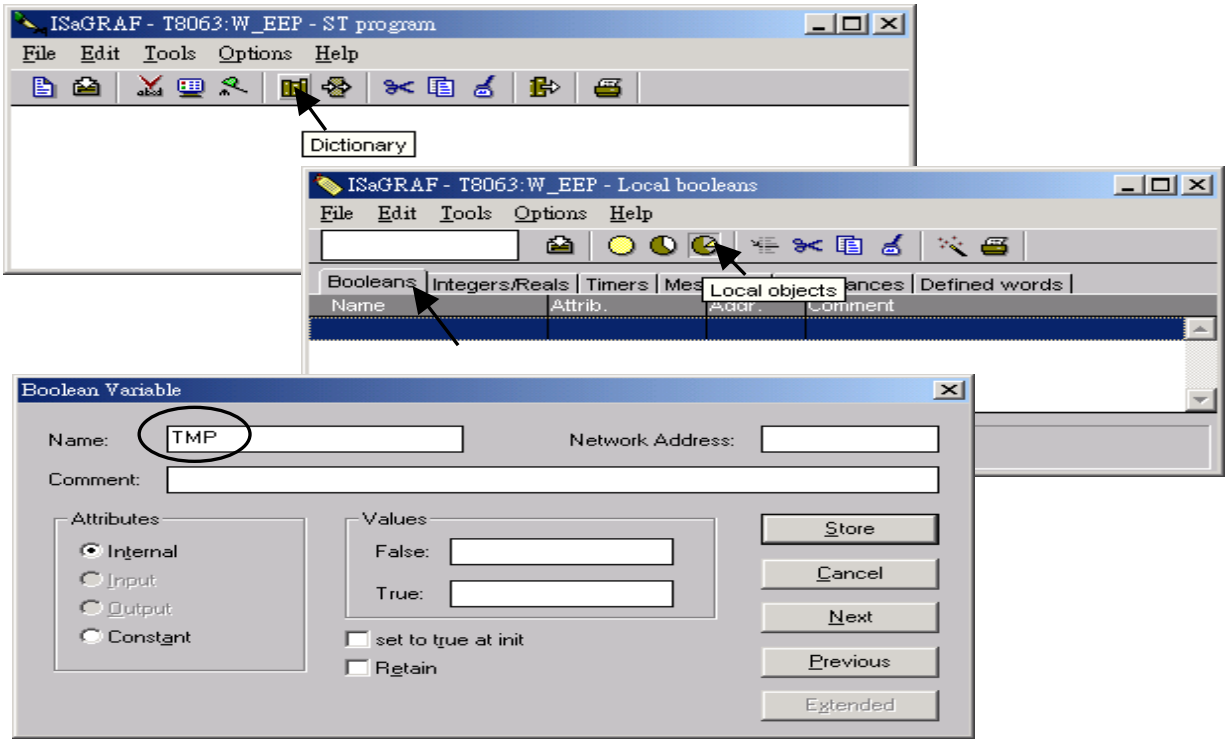
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B. Double click on the function to get into it. Then click on “Sub-program parameters” to define input and output parameters.

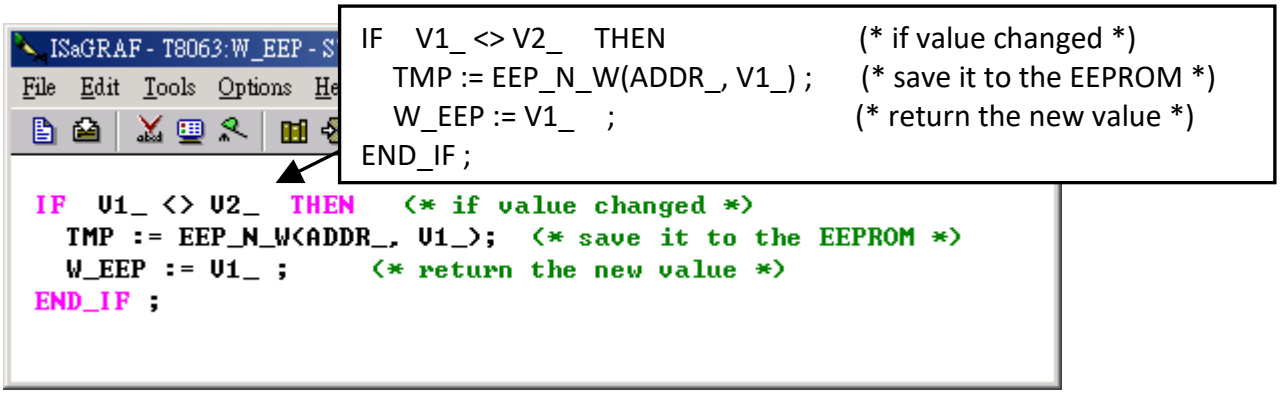


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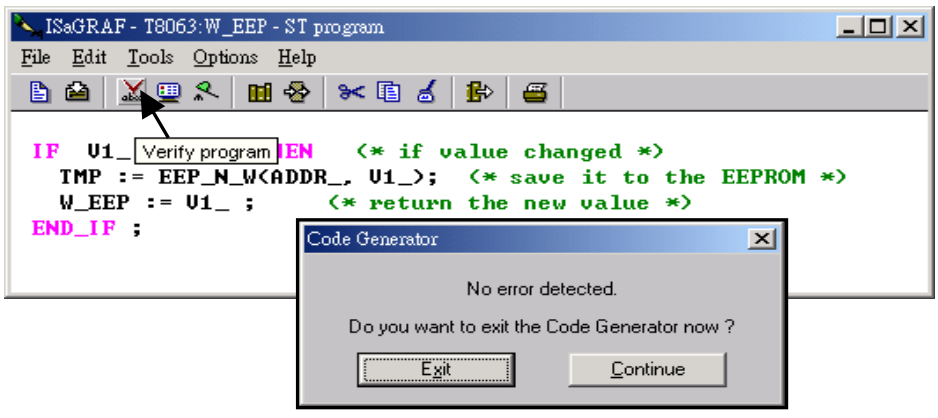
C. Declare local variables. We need a local **Boolean internal** variable "**TMP**" in this example.



D. Enter function codes.



E. Verify the function.



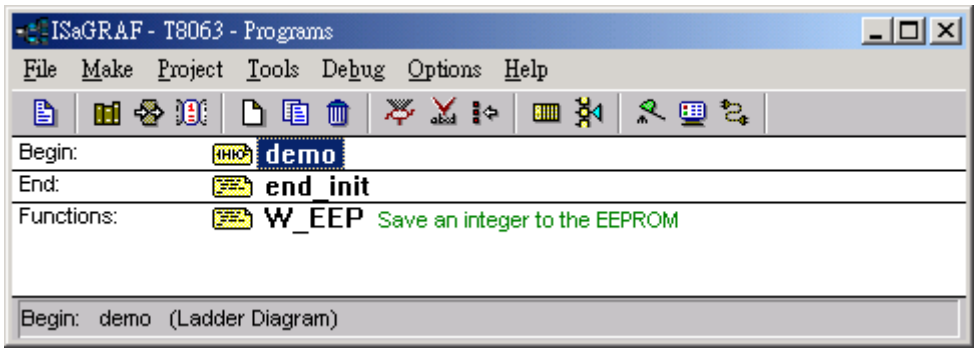
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F. Call it in other programs in the same project.

Global variables used in the project:

Name	Type	Attribute	Description
INIT	Boolean	Internal	**initial value at "TRUE"**. TRUE means 1st scan cycle
K1	Boolean	Input	Connect to 1st ch. Of "push4key", press it to get "Val"
New_Val	Integer	**Internal**	New value wish to save to the EEPROM
Old_Val	Integer	**Internal**	Old value
Val	Integer	**Internal**	Read back value of the EEPROM

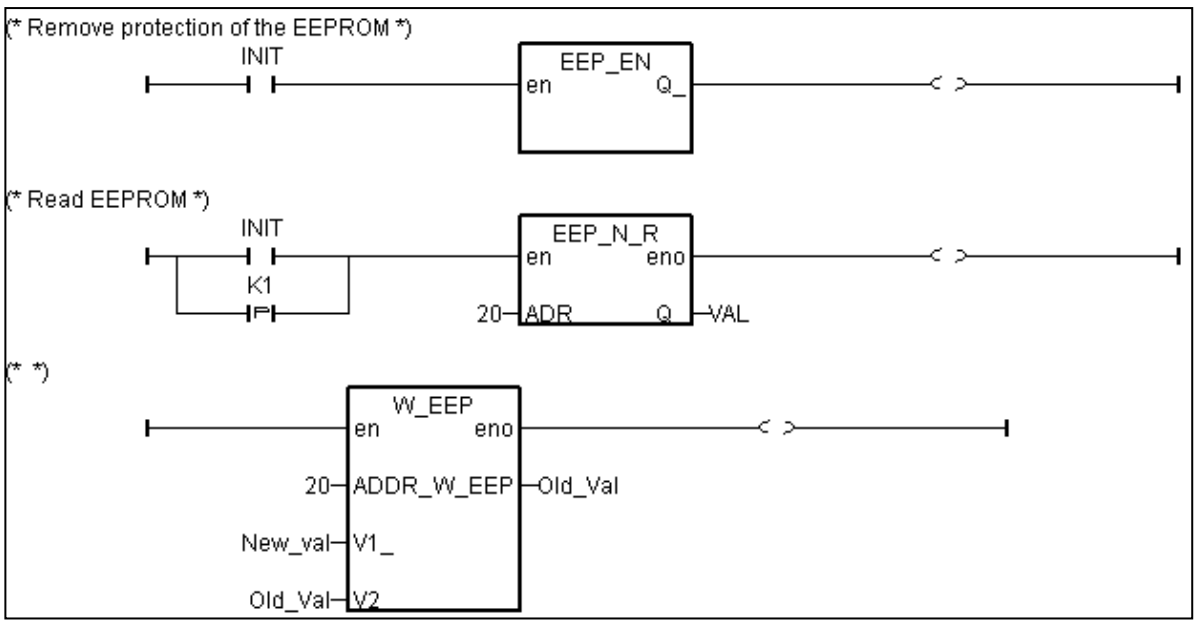
Project architecture:



ST program – "end_init" in the "End" area:

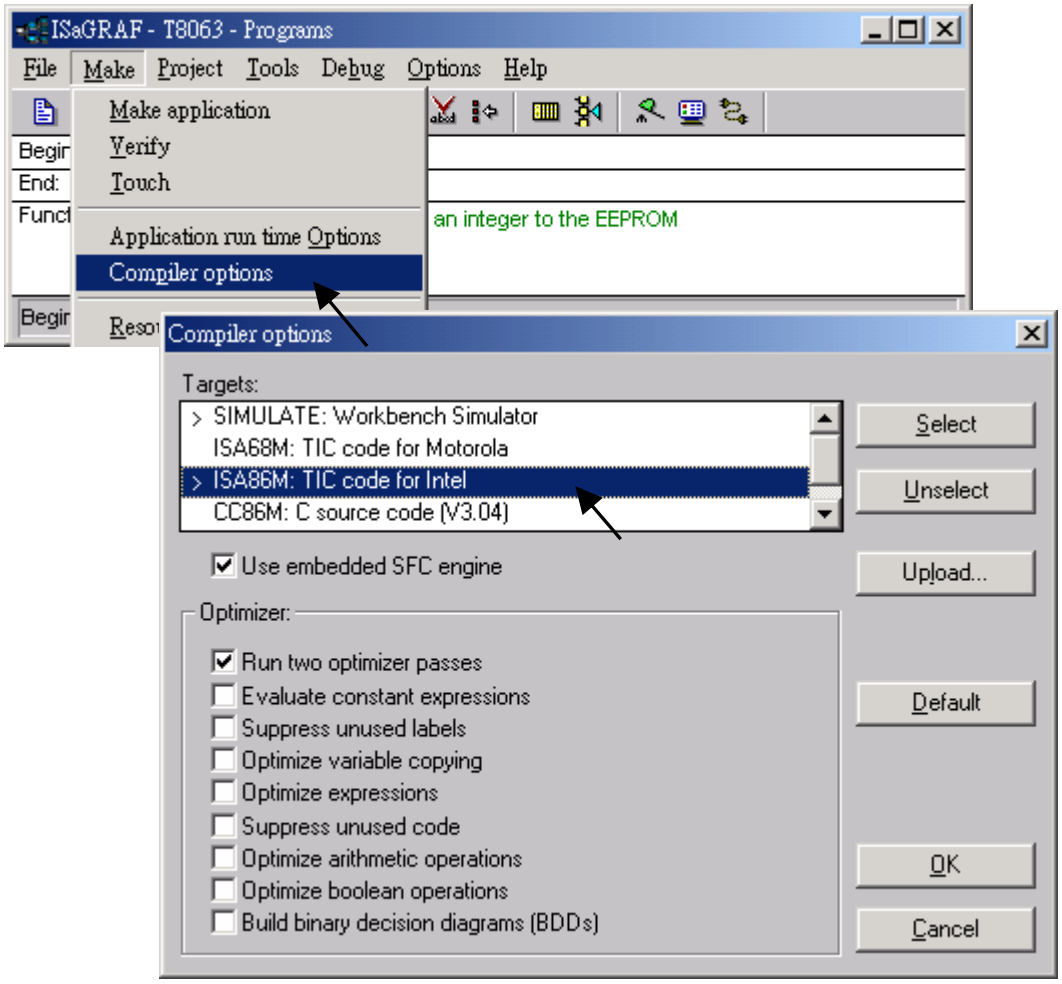
```
IF    INIT=TRUE    THEN
          INIT := FALSE ;
END_IF ;
```

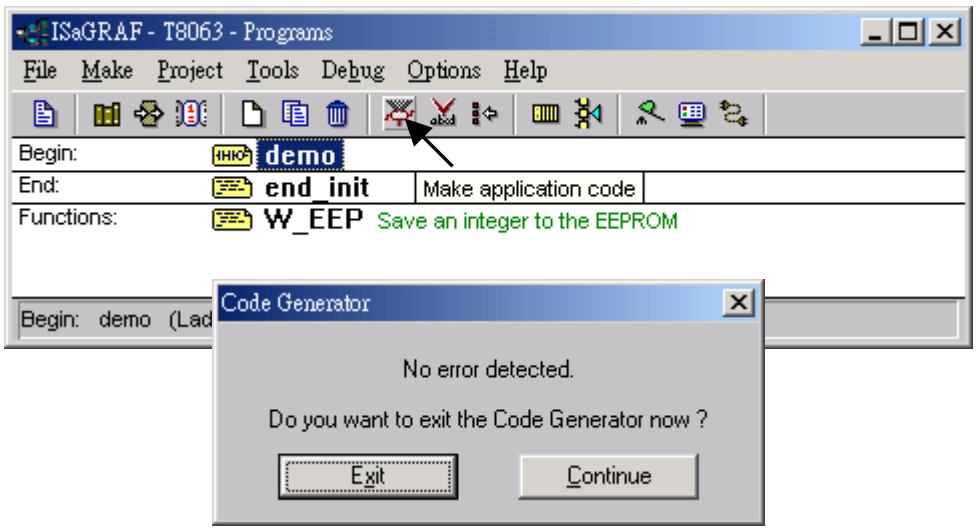
LD program – "demo":



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G. Set Compiler Options and compile the project.





After download to the controller, you may change the “New_Val”, and then press “K1” to see what it happens.

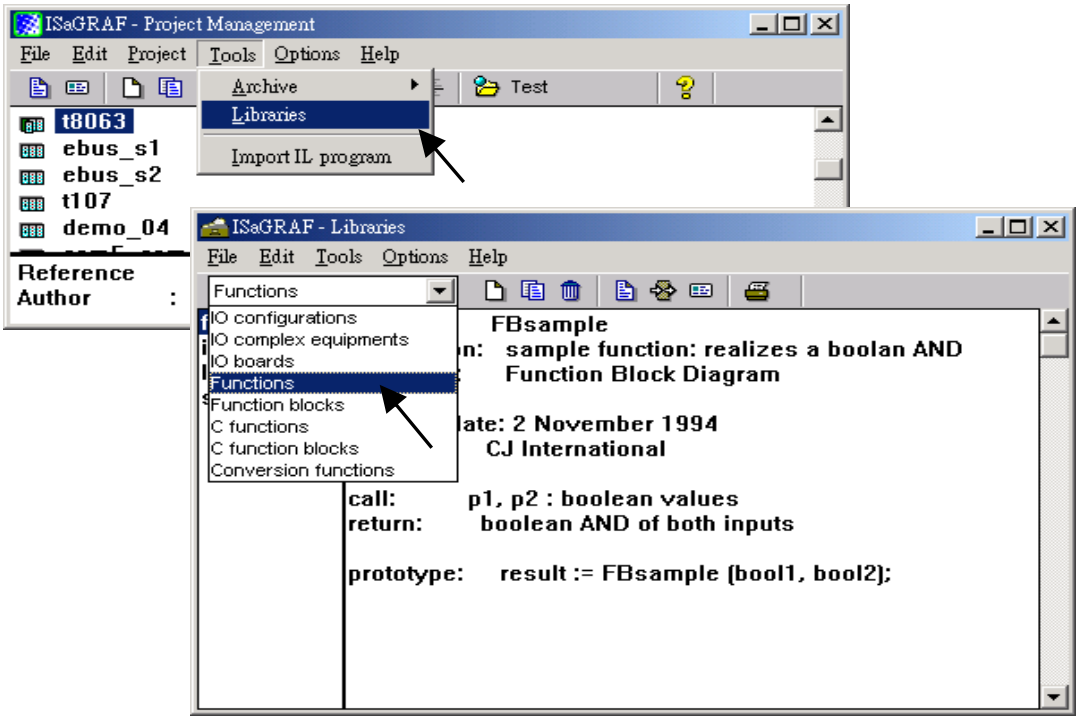
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15.2: Creating functions in the library

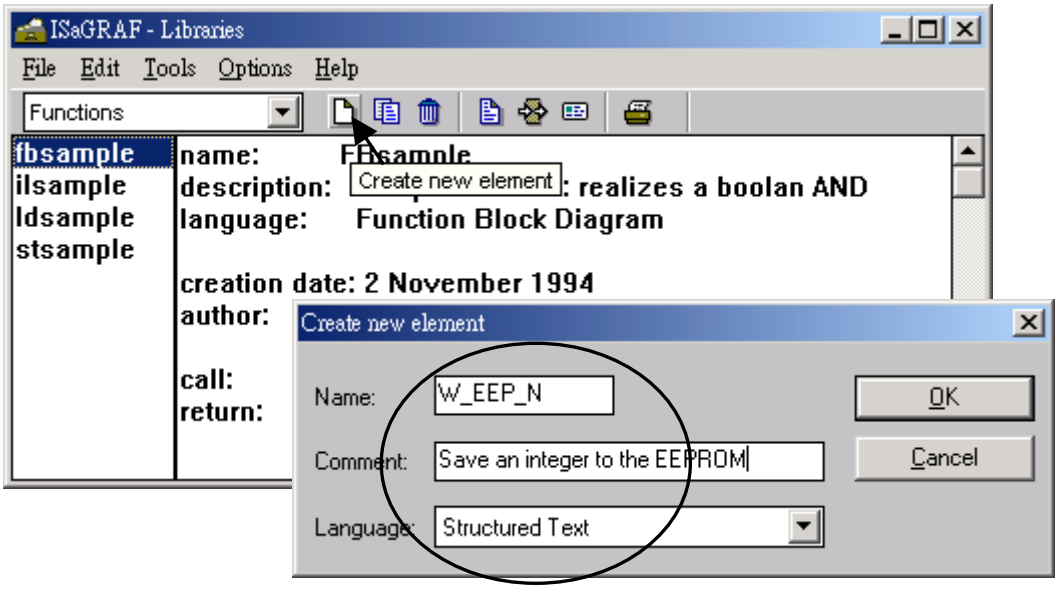
Functions created in the library can be called by programs in any project.

The steps are similar to the former section 15.1. Please refer to it in advance.

A. Get into the library. Then click on “Functions”.

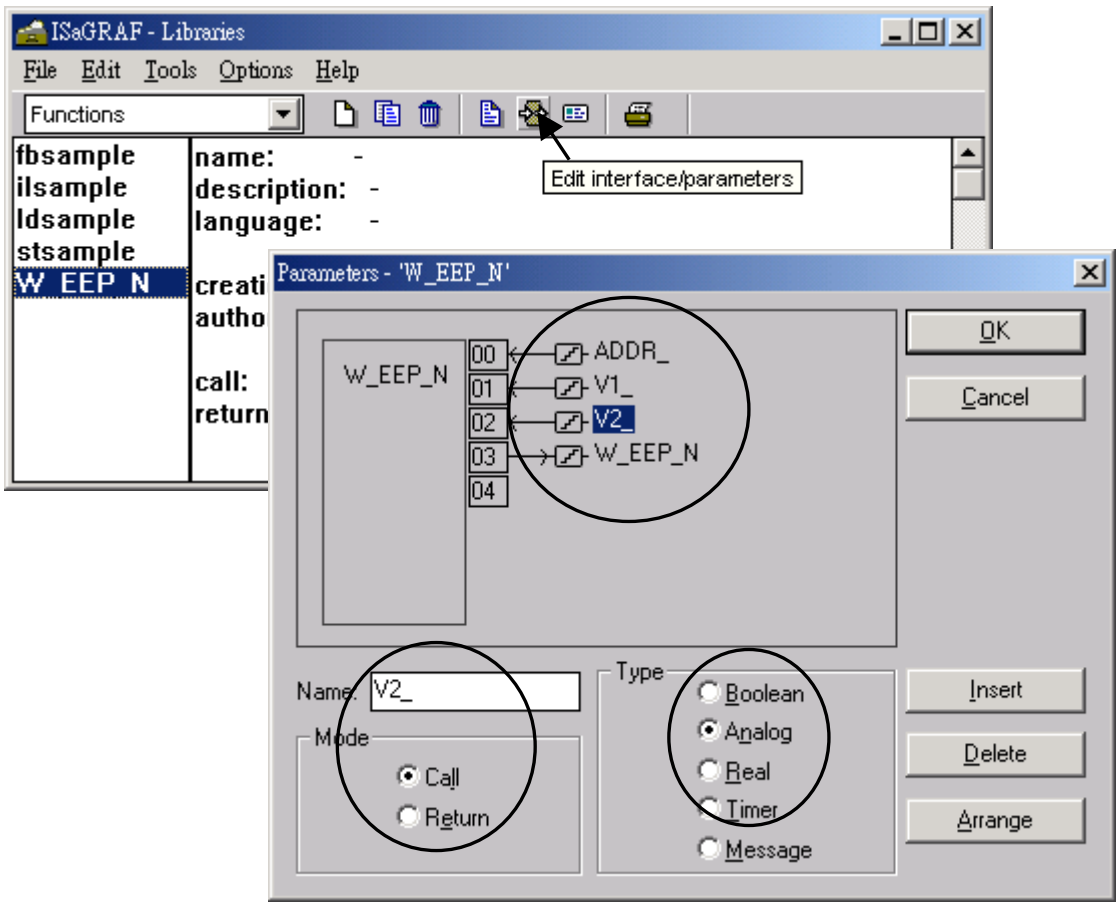


B. Create a new function and given Name as “W_EEP_N”, Language as “Structured Text”.

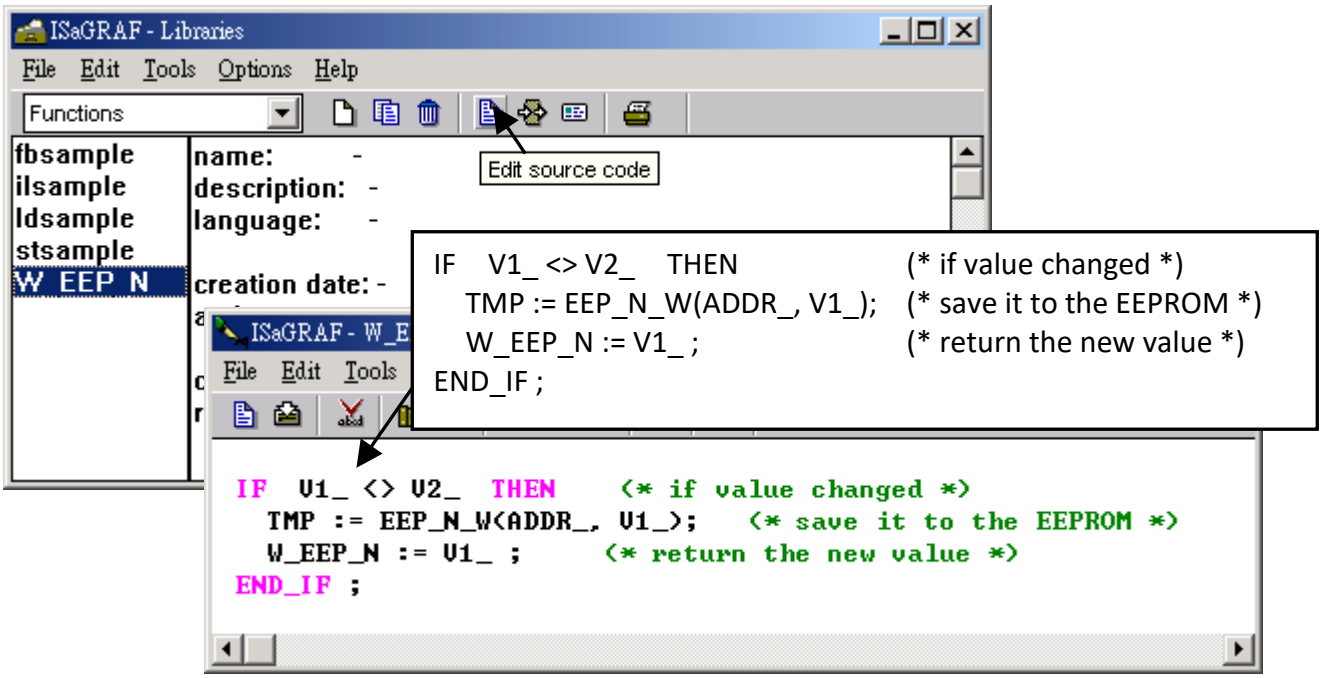


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C. Define input and return parameters.

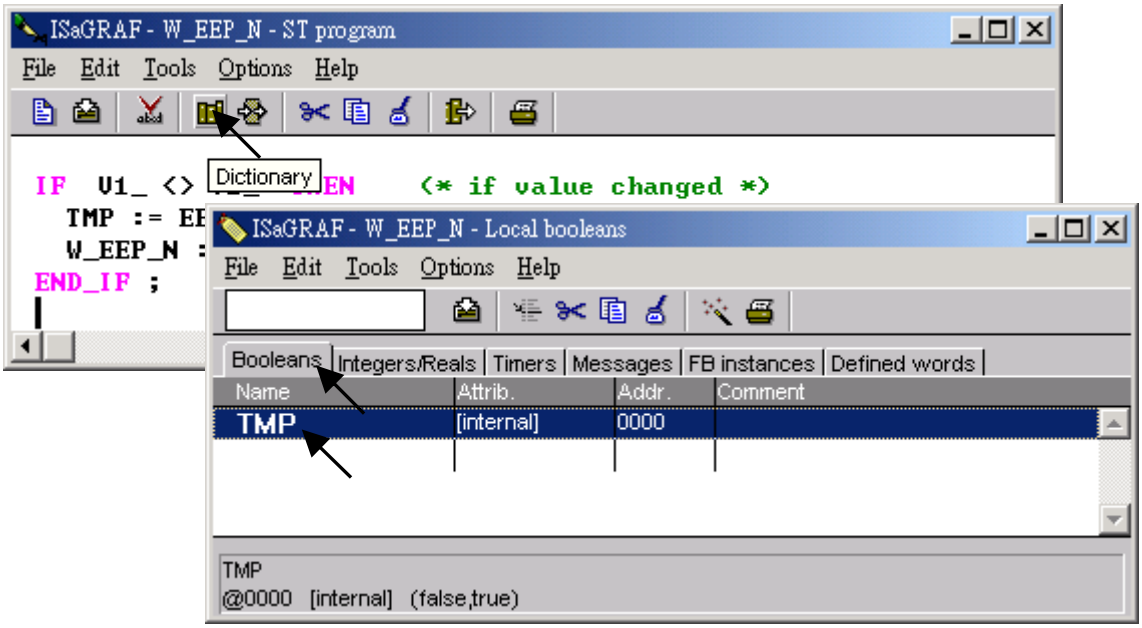


D. Add codes.

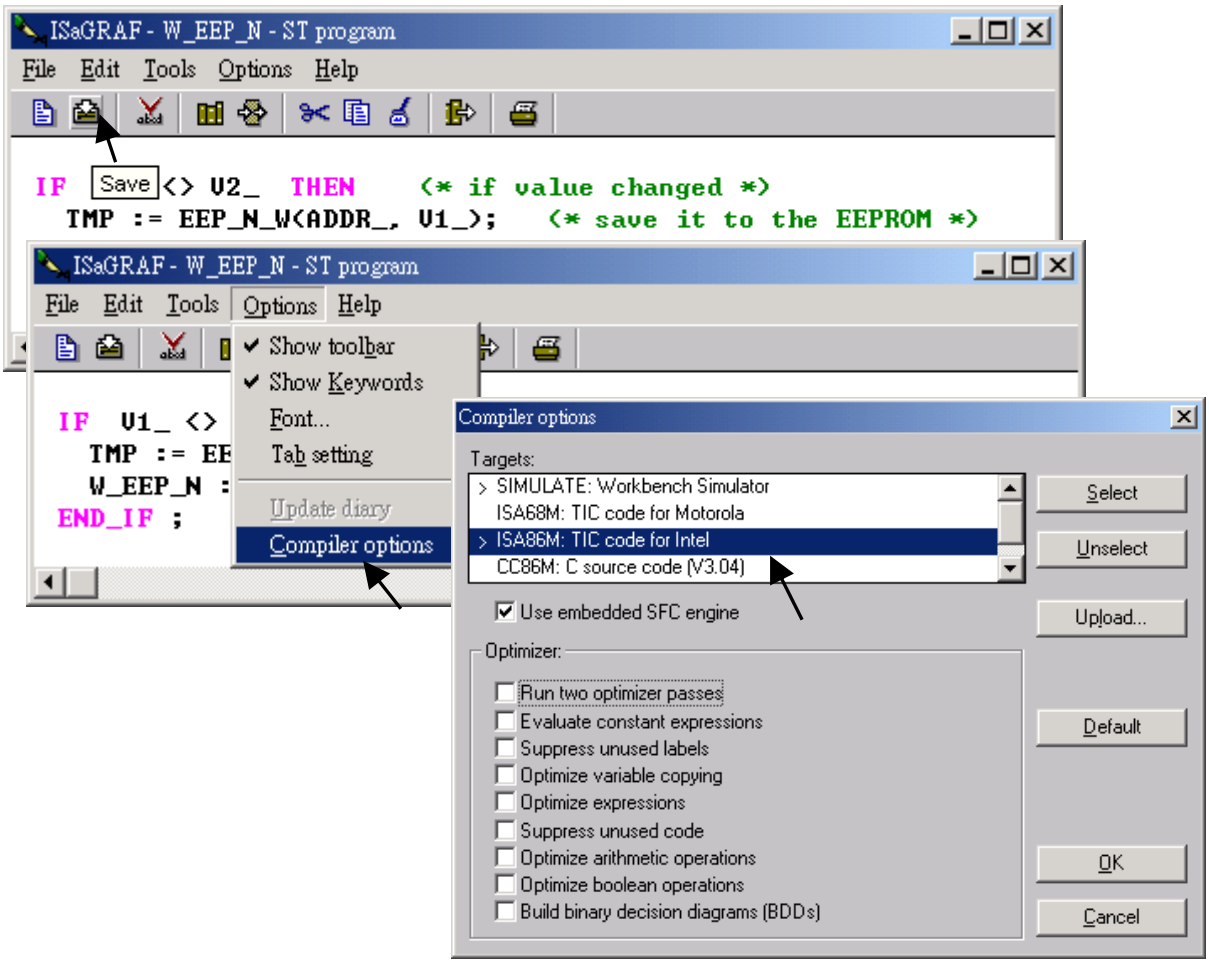


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E. Declare local variables. We need a Boolean internal variable – "TMP".

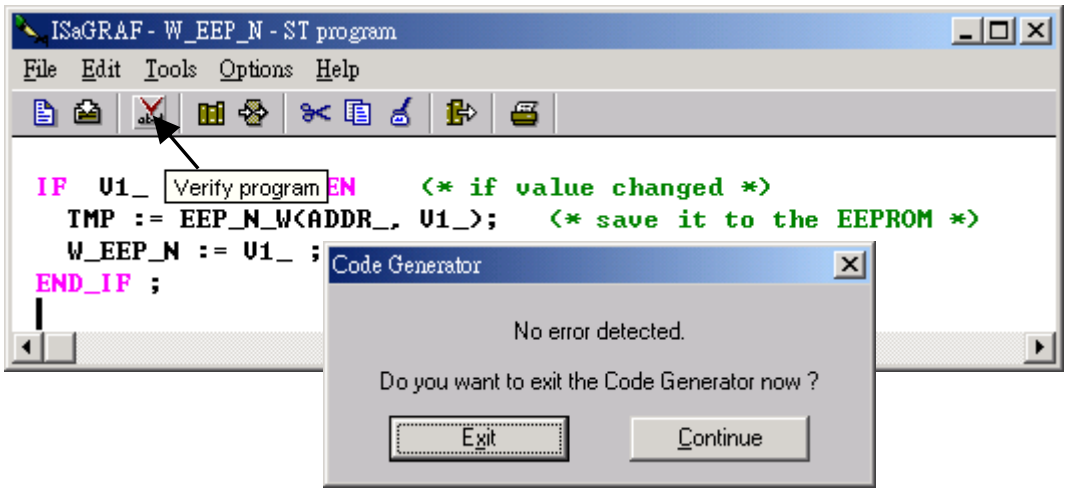


F. Save the function and set compiler options.



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G. Verify the function.



Then you can call it in any project.

Click the link for more ISaGRAF FAQ:
http://www.icpdas.com/en/faq/index.php?kind=280#751

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