DataFlow and CallFlow Operations

Creating Various Types of Flowcharts

1) To view DataFlow:

   Place the cursor on a local variable in a function,

   then click the "Create DataFlow" icon in the main toolbar or use the "DataFlow" pull-down menu

   - expand the function-calls to view the variable as it is passed to called functions
   - similarly, view the data flowchart of global variables, structure members, functions, #defines etc.

2) To view CallFlow:

   Place the cursor inside a function,

   then click the "Create CallFlow" icon in the main toolbar or use the "CallFlow" pull-down menu

   - You will see theCallFlow in the current function. Expand function-calls with a double-click
   - Similarly, Project CallFlow allows you to view the CallFlow starting from main( ) and similar functions

3) To view the full flowchart of a function (to understand its detailed logic)

   Place the cursor inside a function,

   then click the "Create Flowchart" icon in the main toolbar or use the "Flowchart" pull-down menu

   - Use L1, L2, L3, … icons in the Flowchart Toolbar to change the level of detail for easy understanding

   Similarly, use the "Flowchart" pull-down menu to generate
   - flowchart of slected-text within the current function
   - flowchart of a "case" in the current function

4) To dig deeper in a full function flowchart:

   Place the cursor inside a function,

   then click <Expand Calls in a Full Function flowchart> in the "CallFlow" pull-down menu or "Create CallFlow" icon's Drop-down List

   - Double-click on any symbol containing a function-call to expand the function-call

Viewing DataFlow

- DataFlow is a graphical display of where and how the data object is used in the function.

  Click the <Zoom Out> icon in the Flowchart window toolbar to increase the amount of logic you can view in the Flowchart Window while still being able to read the text in the DataFlow symbols.

  Only those statements/declarations that contain the data object are displayed in DataFlow

  Rest of the statements/declarations are represented by miniature symbols.

- Click on the miniature symbols to view the statements/declarations that are not visible in the DataFlow.

  Click on a symbol to highlight the corresponding code in the File Window

  Click in the left-half of a symbol to display the code covered by that symbol.

- Click <Scroll Code Up> and <Scroll Code Down> icons in Flowchart Window's toolbar to scroll the highlighted code in the File Window

- To view how the data is used in called-functions, double-click on symbols containing function-calls.

  When you double-click on a function-call, the DataFlow of the called function is expanded just above the function-call.

  The expansion has a different background color. The function-call is just below the expansion (in the caller-function)

  "Tracking: ….." At the beginning of DataFlow tells us what data object is being tracked.
  It is especially helpful when the argument name is different from the parameter name in the called function.

- Click on "Tracking: ….." to highlight the function-header in the File Window.
- Click on the Start-symbol to highlight the actual function-call in the caller -function.

- To view the sequence of function-calls that brought you to a nested expansion:

  Right-click in any symbol in the nested expansion, then click <Function Call Stack> in the pop-up menu.

  Click on a function-name in the list to go to that expansion.

- Suppose you are viewing the DataFlow and - you wish to view the full flowchart of a function in order to understand its complete logic - and then return to that DataFlow:

  Click on any symbol in that function so that the corresponding code is highlighted in the File Window.

  Now click the <Create Flowchart> icon in the toolbar at the top.

  You will see the full-function flowchart.

  After understanding the function logic, when you wish to go back to the DataFlow: Click the <SwitchBack to Call/Data FLOW> icon in the Flowchart Window toolbar.

- Double-click on the Start-symbol to close the expansion

Other Variations of DataFlow and CallFlow

Similarly:

- View the data flowchart of global variables, structure members, functions, #defines etc.
- View theCallFlow in the current function. Expand the function-calls.
- View the Project CallFlow and Expand the function-calls.
- Click <Expand Calls in a Full Function flowchart> in the "CallFlow" pull-down menu or "Create CallFlow" icon's Drop-down List

  And dig deeper in the function's flowchart: