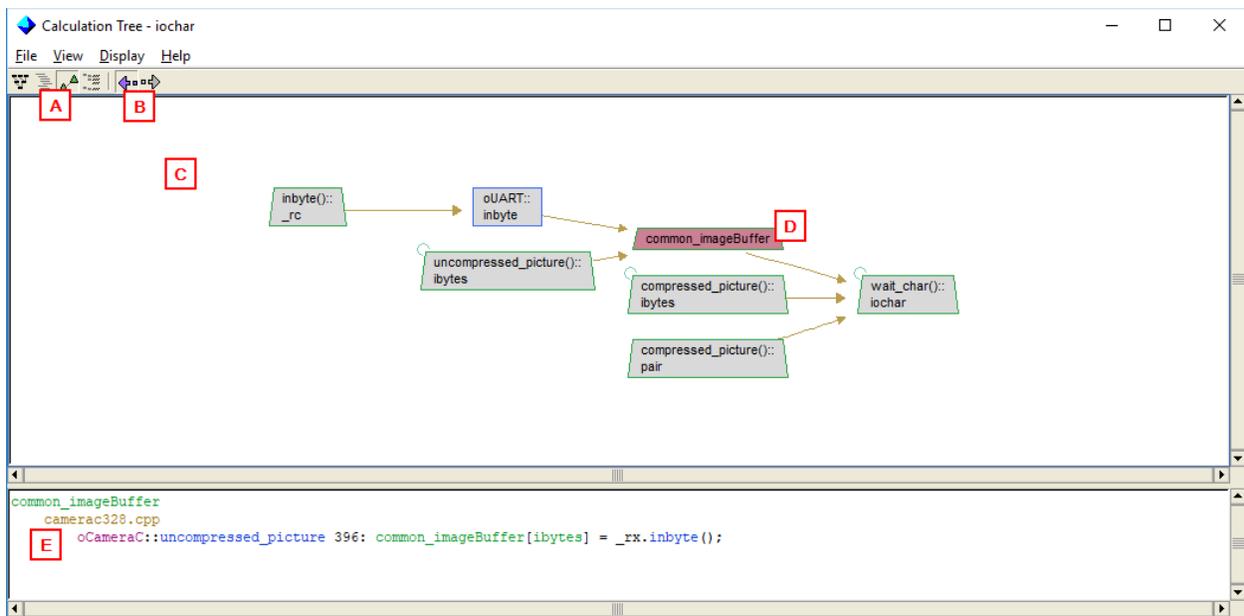


## Calculation Tree – Variable Views

Imagix 4D's Calculation Trees display information about assignments related to the value of a variable. These include all of the initializations, sets and reads, of any variable, that contribute to or are impacted by a specific variable's value. This analysis of your software's data flow tracks assignment dependencies across function boundaries and through parameter passing.

When the tool is invoked through the right mouse pop-up menu in a File Editor, just those assignments leading to or resulting from the value of the variable at the selected line of code are analyzed. Otherwise, the Calculation Tree analyzes the full set of assignments related to any of the occurrences of the variable.



- (A) The Calculation Tree provides four complementary views. The two Variable views described here display the overall data flow at level somewhat abstracted up from the actual assignments themselves. You can examine the global and the local variables and parameters which are involved in the calculation, and study the dependencies between these variables.
- (B) You select whether contributing or impacted statements are displayed. Contributing statements are the upstream assignments that lead to the value of the variable. Impacted statements are the downstream assignments that are effected by the value of the variable. In these screenshots, the contributing statements are being displayed.
- (C) The Variable Dependencies view presents a graphical display of the data flow, using the same graph symbols that appear in Imagix 4D's standard graph windows. Variables and functions are represented by green and blue sided shapes respectively. Orange lines indicate a variable being read, and aquamarine lines show a variable being set.
- (D) As you select an variable in the graph by clicking on it, that variable's shape is filled red, and...
- (E) Information about the selected variable is shown in the table just below the graph. Included is a list of all the source lines where assignments to that variable occur. Double clicking on the assignment will open a file editor to that line of source code.

```
Calculation Tree - iochar
File View Display Help
ibytes
  camerac328.cpp
    oCameraC32::compressed_picture 312: ibytes = 0;
    350: ibytes++;
ibytes
  camerac328.cpp
    oCameraC::uncompressed_picture 388: uint32 ibytes = 0;
    397: ibytes++;
_rc
  uart.cpp
    oUART::inbyte 212: _rc = *ptrRTXCharTail[_uart_channel];
oUART::inbyte
  uart.cpp
    oUART::inbyte 215: return _rc;
common_imageBuffer
  camerac328.cpp
    oCameraC::uncompressed_picture 396: common_imageBuffer[ibytes] = _rx.inbyte();
pair
  camerac328.cpp
    oCameraC32::compressed_picture 311: pair[2] = 0;
iochar
  camerac328.cpp
    oCameraC328::wait_char 275: iochar = _rx.inbyte();
    oCameraC32::compressed_picture 330: if (! wait_char(pair[0])) return OOMRM_WAIT_DATA_ERROR;
    332: if (! wait_char(pair[1])) return OOMRM_WAIT_DATA_ERROR;
    339: if (! wait_char(pair[0])) return OOMRM_WAIT_DATA_ERROR;
    341: if (! wait_char(pair[1])) return OOMRM_WAIT_DATA_ERROR;
    348: if (!wait_char(common_imageBuffer[ibytes]) ) return OOMRM_WAIT_DATA_ERROR;
    353: if (! wait_char(pair[0])) return OOMRM_WAIT_DATA_ERROR;
    355: if (! wait_char(pair[1])) return OOMRM_WAIT_DATA_ERROR;
```

(F) In the Assignment Table view, a list of all the assignments in the data flow is organized by the variable being set in the assignment.