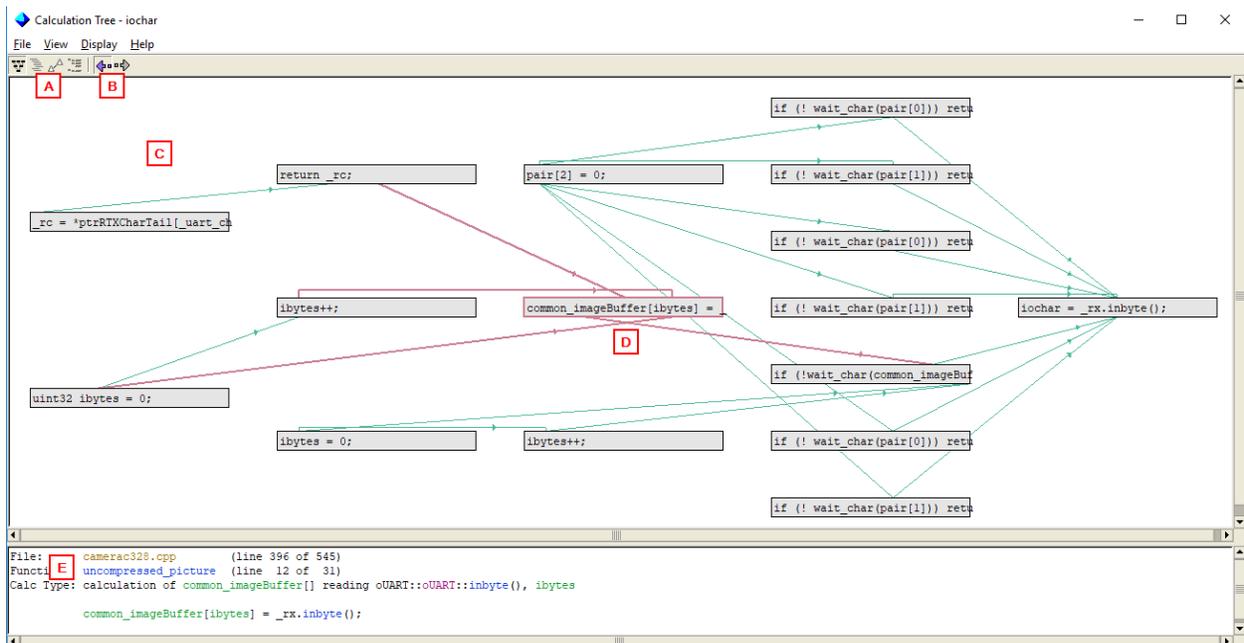


Calculation Tree – Assignment Views

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 Calculation Tree 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 in the selected line of code are analyzed. Otherwise, the tool analyzes the full set of assignments related to any of the occurrences of the variable.



- The Calculation Tree provides four complementary views. The two Assignment views described here show the full hierarchy of assignments leading to or resulting from the variable or specific assignment being examined.
- 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.
- The Assignment Flow view presents a graphical display of the assignment hierarchy. Within the graph, each rectangle represents a specific assignment, and contains the source code for that assignment. Lines show the hierarchy of that assignment within the overall data flow. The lines have direction, indicated by arrowheads.
- As you select an assignment in the graph by clicking on it, that assignment and the lines connecting it are highlighted in red.

- (E) And information about the selected assignment is shown in the table just below the graph. Included is a description of the assignment, as well as details about its location. And of course, double clicking on the assignment will open a file editor to that line of source code.

```

1 311 camerac328.cpp      . assignment of pair[]
2 330 camerac328.cpp      . . pair[] passed as param iochar into oCameraC328::wait_char()
3 275 camerac328.cpp      . . . calculation of 'iochar reading iochar
4 332 camerac328.cpp      . . pair[] passed as param iochar into oCameraC328::wait_char()
5 275 camerac328.cpp      . . . calculation of 'iochar reading iochar (see 3)
6 339 camerac328.cpp      . . pair[] passed as param iochar into oCameraC328::wait_char()
7 275 camerac328.cpp      . . . calculation of 'iochar reading iochar (see 3)
8 341 camerac328.cpp      . . pair[] passed as param iochar into oCameraC328::wait_char()
9 275 camerac328.cpp      . . . calculation of 'iochar reading iochar (see 3)
10 353 camerac328.cpp      . . pair[] passed as param iochar into oCameraC328::wait_char()
11 275 camerac328.cpp      . . . calculation of 'iochar reading iochar (see 3)
12 355 camerac328.cpp      . . pair[] passed as param iochar into oCameraC328::wait_char()
13 275 camerac328.cpp      . . . calculation of 'iochar reading iochar (see 3)
14 212 uart.cpp           . assignment of _rc
15 215 uart.cpp           . . calculation of oUART::oUART::inbyte() reading _rc
16 396 camerac328.cpp      . . . calculation of common_imageBuffer[] reading oUART::oUART::inbyte(), ibytes
17 348 camerac328.cpp      . . . common_imageBuffer[], ibytes passed as param iochar into oCameraC328::wait_char()
18 275 camerac328.cpp      . . . . calculation of 'iochar reading iochar (see 3)
19 388 camerac328.cpp      . assignment of ibytes
20 396 camerac328.cpp      . . calculation of common_imageBuffer[] reading oUART::oUART::inbyte(), ibytes (see 16)
21 397 camerac328.cpp      . . calculation of ibytes reading ibytes
22 396 camerac328.cpp      . . . calculation of common_imageBuffer[] reading oUART::oUART::inbyte(), ibytes (see 16)
23 312 camerac328.cpp      . assignment of ibytes
24 348 camerac328.cpp      . . common_imageBuffer[], ibytes passed as param iochar into oCameraC328::wait_char() (see 17)
25 350 camerac328.cpp      . . calculation of ibytes reading ibytes
26 348 camerac328.cpp      . . . common_imageBuffer[], ibytes passed as param iochar into oCameraC328::wait_char() (see 17)

```

- (F) All of these same assignments are also displayed in the Assignment List view. In this tabular view, a description of each assignment appears in a list. The order and indenting of the list indicates the flow of the assignments.

```

1 311 camerac328.cpp      . pair[2] = 0;
2 330 camerac328.cpp      . . if (! wait_char(pair[0])) return OOMRM_WAIT_DATA_ERROR;
3 275 camerac328.cpp      . . . iochar = _rx.inbyte();
4 332 camerac328.cpp      . . if (! wait_char(pair[1])) return OOMRM_WAIT_DATA_ERROR;
5 275 camerac328.cpp      . . . iochar = _rx.inbyte(); (see 3)
6 339 camerac328.cpp      . . if (! wait_char(pair[0])) return OOMRM_WAIT_DATA_ERROR;
7 275 camerac328.cpp      . . . iochar = _rx.inbyte(); (see 3)
8 341 camerac328.cpp      . . if (! wait_char(pair[1])) return OOMRM_WAIT_DATA_ERROR;
9 275 camerac328.cpp      . . . iochar = _rx.inbyte(); (see 3)
10 353 camerac328.cpp      . . if (! wait_char(pair[0])) return OOMRM_WAIT_DATA_ERROR;
11 275 camerac328.cpp      . . . iochar = _rx.inbyte(); (see 3)
12 355 camerac328.cpp      . . if (! wait_char(pair[1])) return OOMRM_WAIT_DATA_ERROR;
13 275 camerac328.cpp      . . . iochar = _rx.inbyte(); (see 3)
14 212 uart.cpp           . _rc = *ptrRXCharTail[_uart_channel];
15 215 uart.cpp           . . return _rc;
16 396 camerac328.cpp      . . . common_imageBuffer[ibytes] = _rx.inbyte();
17 348 camerac328.cpp      . . . . if (!wait_char(common_imageBuffer[ibytes])) return OOMRM_WAIT_DATA_ERROR;
18 275 camerac328.cpp      . . . . . iochar = _rx.inbyte(); (see 3)
19 388 camerac328.cpp      . uint32 ibytes = 0;
20 396 camerac328.cpp      . . common_imageBuffer[ibytes] = _rx.inbyte(); (see 16)
21 397 camerac328.cpp      . . ibytes++;
22 396 camerac328.cpp      . . . common_imageBuffer[ibytes] = _rx.inbyte(); (see 16)
23 312 camerac328.cpp      . ibytes = 0;
24 348 camerac328.cpp      . . if (!wait_char(common_imageBuffer[ibytes])) return OOMRM_WAIT_DATA_ERROR; (see 17)
25 350 camerac328.cpp      . . ibytes++;
26 348 camerac328.cpp      . . . if (!wait_char(common_imageBuffer[ibytes])) return OOMRM_WAIT_DATA_ERROR; (see 17)

```

- (G) Alternatively, the full source line for each assignment can be displayed.