

Cognex Designer Advanced – Section 1
SQL Database Lab
Approximate Duration: 30 minutes

EXPECTED OUTCOMES:

- Add database to application
- Have user have the ability to filter data shown

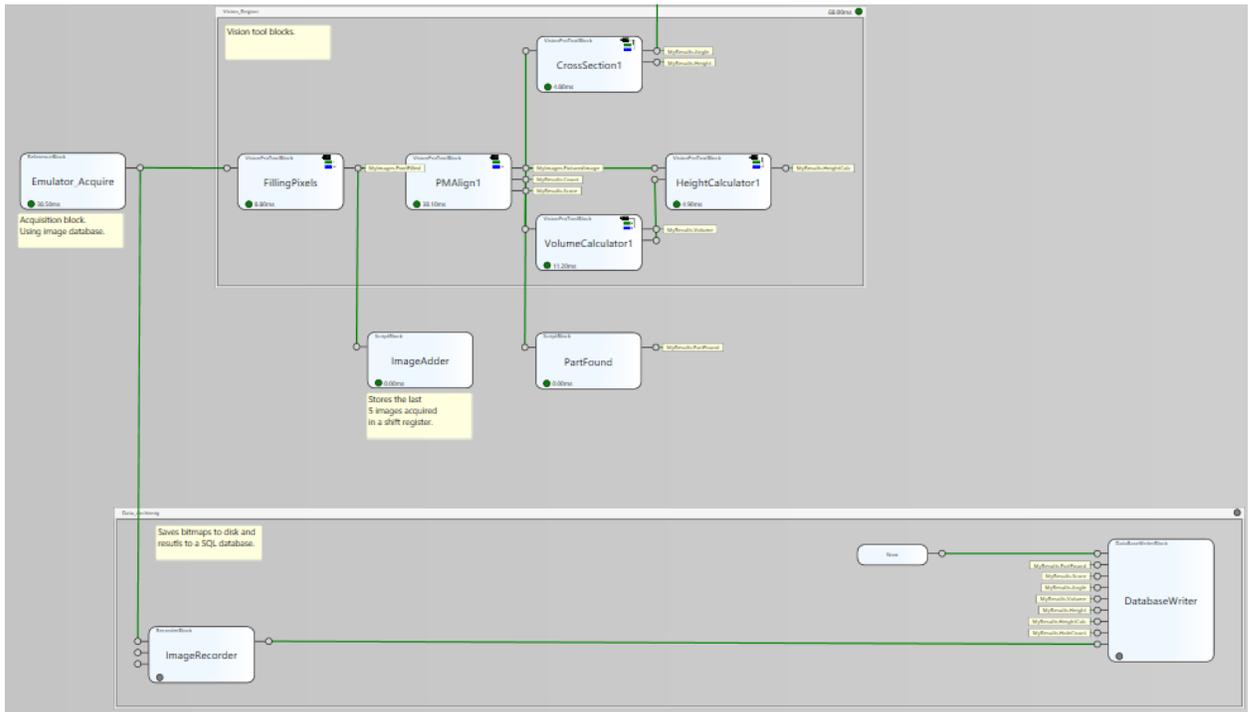
EXPECTED VISUAL RESULT:

TimeStamp	PartFound	Score	Angle	Volume	Height	HeightCalc	NumHoles	FileName
2/19/2015 3:40:37 PM	True	97%	25.1	30941.1	22.8	22.5	3	Mylmage - 20150219154037279.bmp
2/19/2015 3:10:39 PM	False	37%	25.1	15.3	22.9		0	Mylmage - 20150219151039932.bmp
2/19/2015 3:10:32 PM	False	37%	25.1	15.3	22.9		0	Mylmage - 20150219151032473.bmp
2/19/2015 3:10:15 PM	True	37%	25.1	15.3	22.9		0	Mylmage - 20150219151015424.bmp
2/19/2015 3:10:08 PM	True	97%	25.1	31255.7	22.9	22.5	3	Mylmage - 20150219151008391.bmp
2/19/2015 2:22:53 PM	True	23%	25.2	7725.4	22.9		0	Mylmage - 20150219142253601.bmp
2/19/2015 2:22:32 PM	True	79%	25.2	34544.5	22.9	22.5	3	Mylmage - 20150219142232469.bmp
2/19/2015 2:07:42 PM	False	99%	25.1	31216.6	22.8	22.5	3	Mylmage - 20150219140742015.bmp
2/19/2015 2:07:30 PM	True	99%	25.1	31216.6	22.8	22.5	3	Mylmage - 20150219140730200.bmp
2/19/2015 2:07:25 PM	True	99%	25.1	31216.6	22.8	22.5	3	Mylmage - 20150219140725152.bmp
2/19/2015 2:07:14 PM	True	98%	25.1	31215.9	22.8	22.5	3	Mylmage - 20150219140714477.bmp
2/19/2015 1:57:28 PM	True	99%	25	31205.5	22.8	22.5	3	Mylmage - 20150219135728579.bmp
2/19/2015 1:52:13 PM	False	94%	24.8	31315.7	22.6	22.5	3	Mylmage - 20150219135213794.bmp
2/19/2015 1:52:07 PM	True	94%	24.8	31315.7	22.6	22.5	3	Mylmage - 20150219135207850.bmp
2/19/2015 11:01:52 AM	True	98%	25.2	31262.7	22.8	22.5	3	Mylmage - 20150219110152288.bmp
2/19/2015 10:28:49 AM	False	98%	25.1	31018.2	22.8	22.5	3	Mylmage - 20150219102849768.bmp

Run

Main

Clear



OUTLINE OF LAB:

1. Add database to record measurements
 - a. Create a new database
 - b. Connect the Database Writer in the Sequence
 - c. Query all data
2. Add a Table to the HMI to display data
 - a. Add another page
 - b. Add ability to go between pages
 - c. Add Table
3. Add ability to filter data being shown
 - a. Add filter variable to query and attach to HMI

Challenge: Add the ability to save images in table as well

Steps for the Lab:

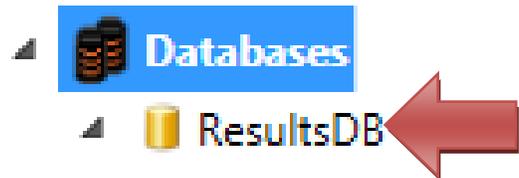
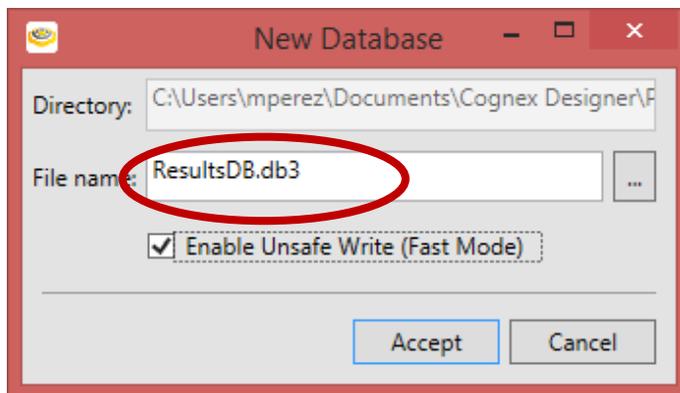
1. Add database to record measurements

a. Create a new database

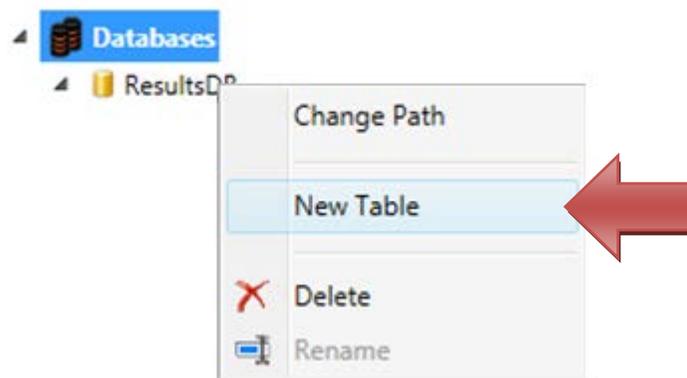
- i. Go to the Explorer and right-click on Databases to create a New Database



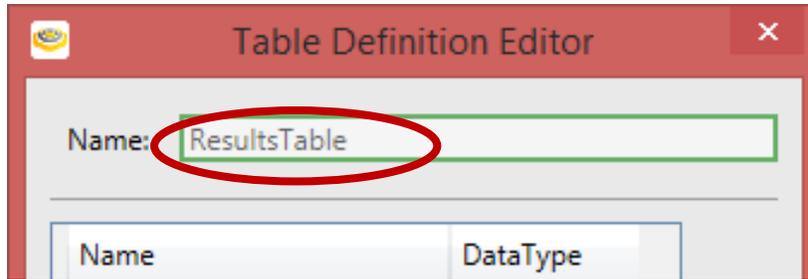
- ii. Name it "ResultsDB" and then Accept. It will now appear in the Explorer under Databases.



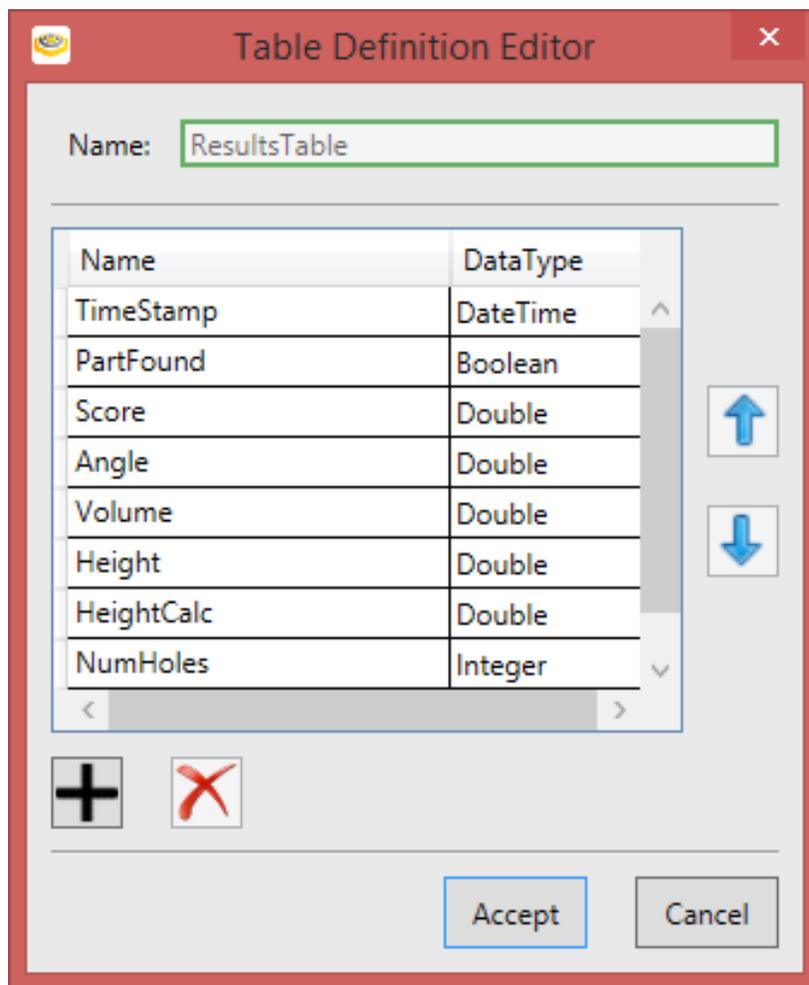
- iii. Add a table by right-clicking "ResultsDB" and selecting "New Table"



iv. Name the table “ResultsTable”

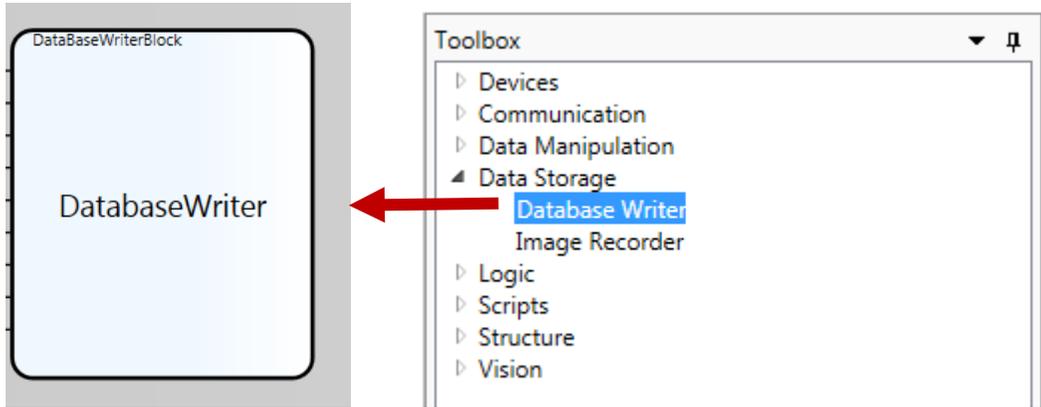


v. Add the data that is being saved in the database. This will be the TimeStamp, PartFound, Score, Angle, Volume, Height, HeightCalc, NumHoles, and ImagePath. Select the correct types when stating the data. Then press Accept.

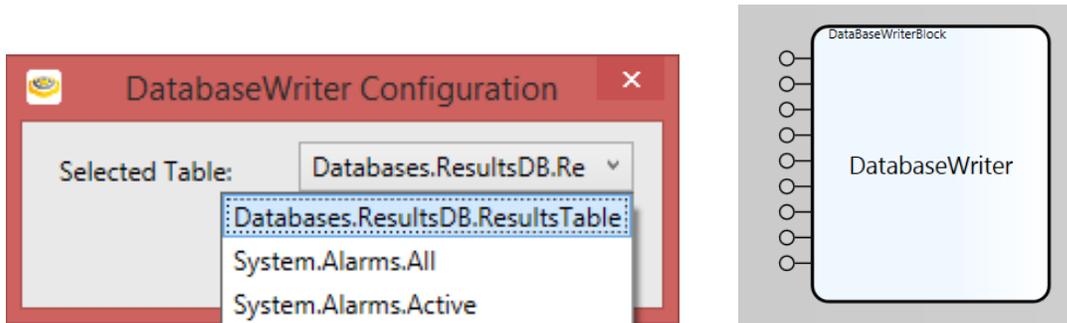


b. Connect the Database Writer in the Sequence

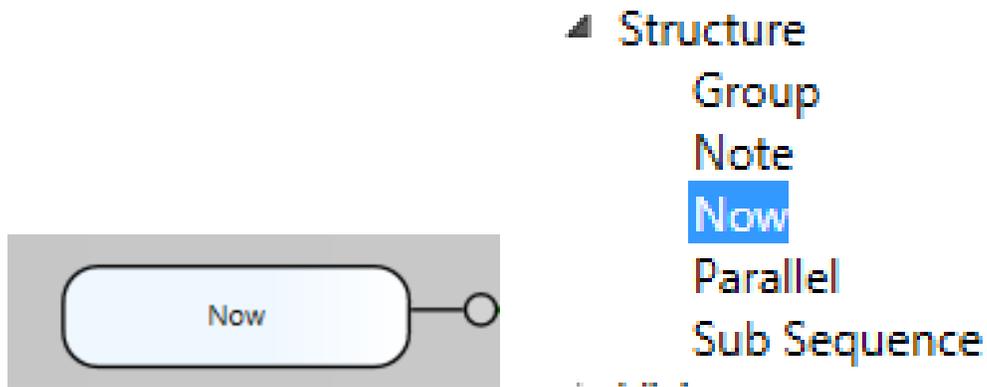
- i. Go to the Sequence and add a DatabaseWriter block



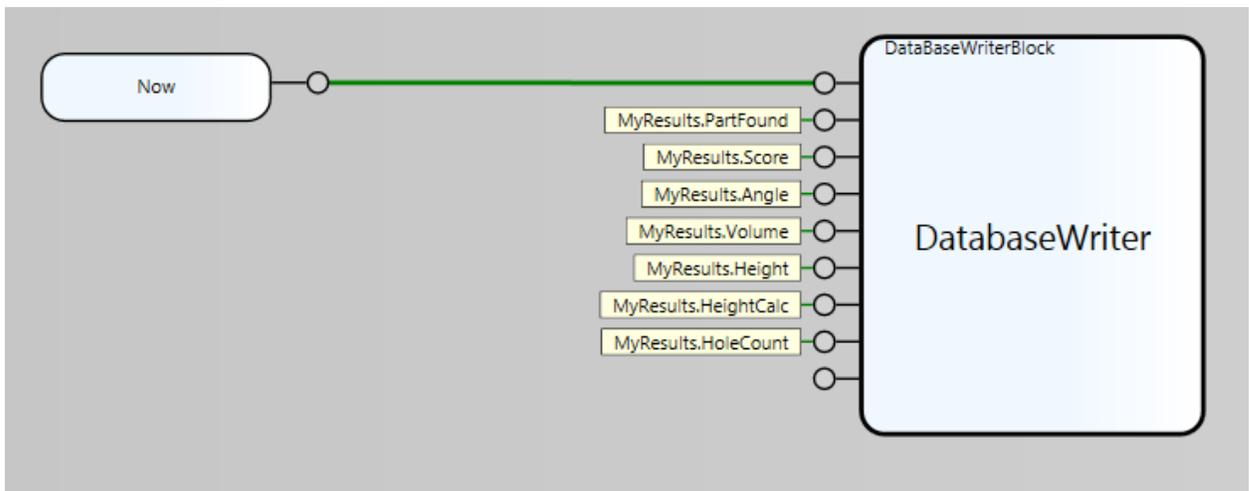
- ii. Double-click on the DatabaseWriterBlock and reference the table just created to the DatabaseWriter's Selected Table.



- i. To get the time, a Now function needs to be added and attached the Time pin.

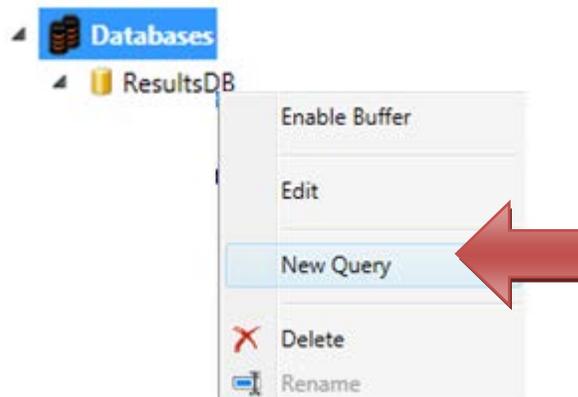


- ii. Attach the appropriate results in the sequence to the appropriate input pin on the DatabaseWriter. You can drag and connect all the other pieces of data, but if you made them tags, you can right-click and select Add Tag to connect them via the tag manager.

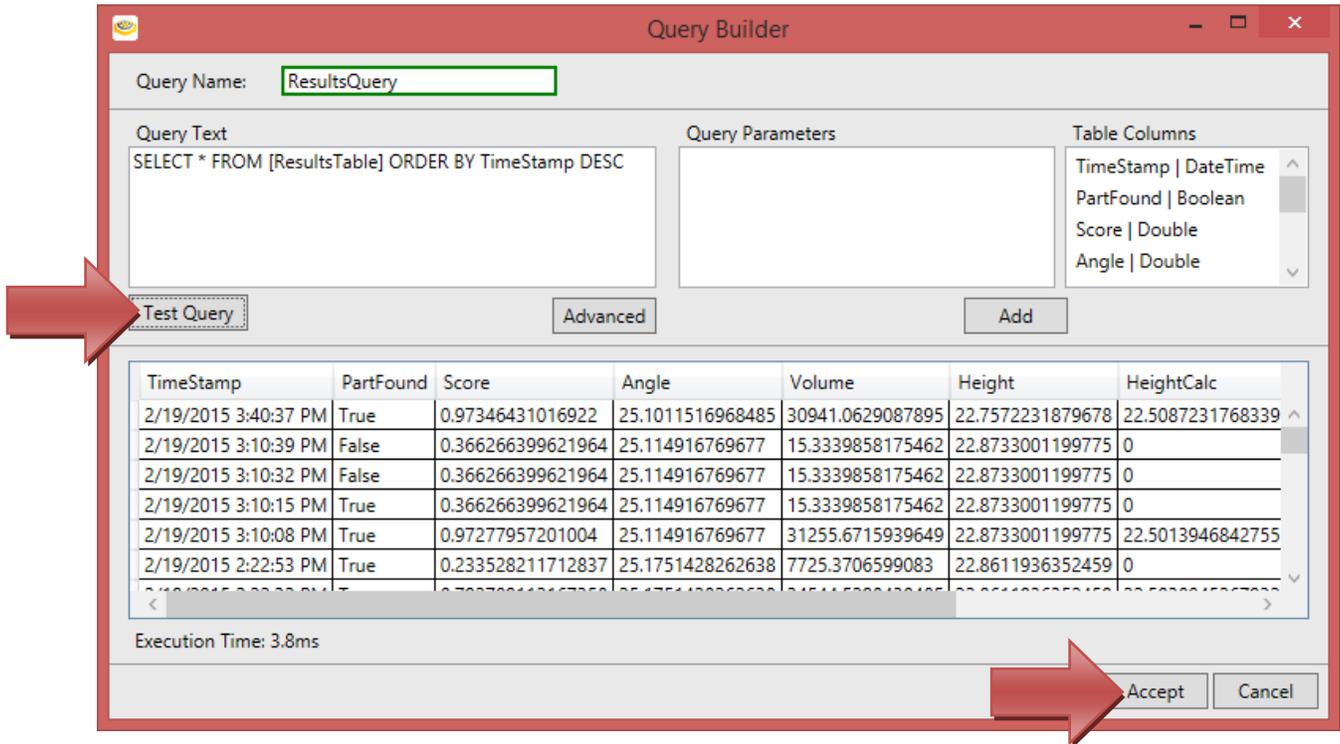


c. Query all data

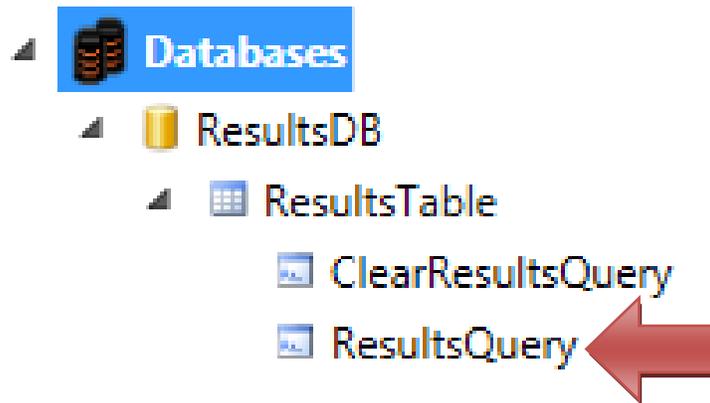
- i. Go back to ResultsTable table in the Add a new query to the table by right-clicking on the table and selecting “New Query”.



- ii. Name the query “ResultsQuery” and replace the default query text with the query below. This queries the table within the database for all entries sorted by descending timestamp (most recent at the top). Test the query.



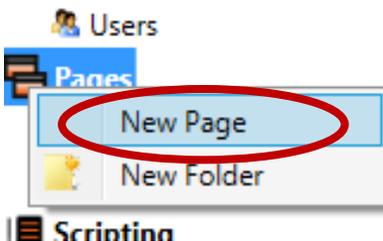
- iii. Press Accept.



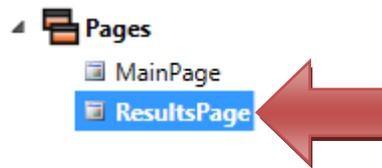
2. Add a Table to the HMI to display data

a. Add another page

- i. Right-click on “Pages” in the Explorer and select “New Page”

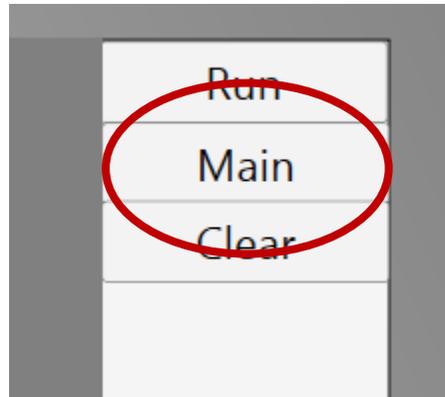


ii. Name your new page “ResultsPage”

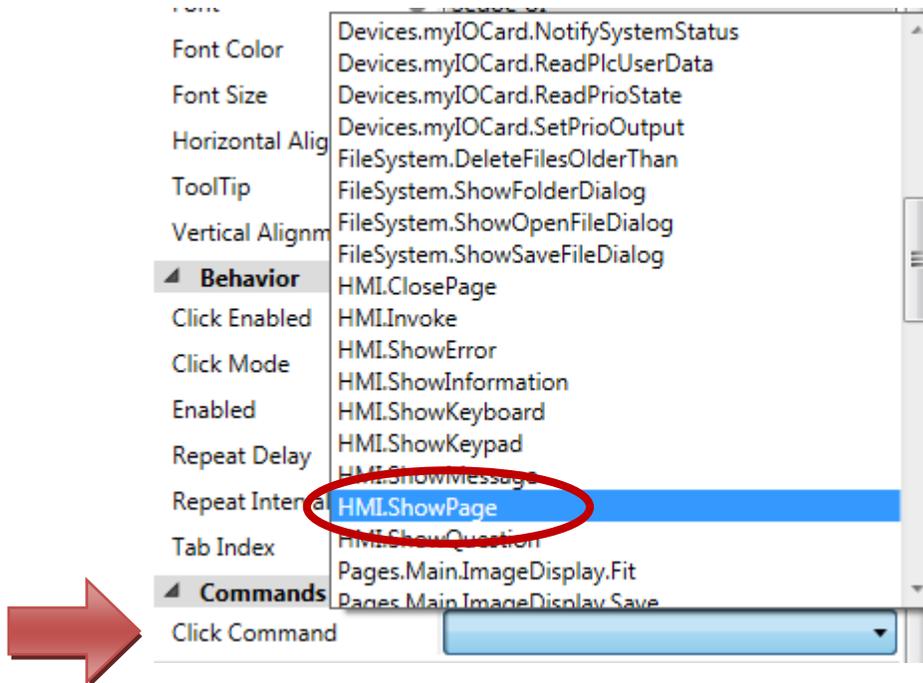


b. Add ability to go between pages

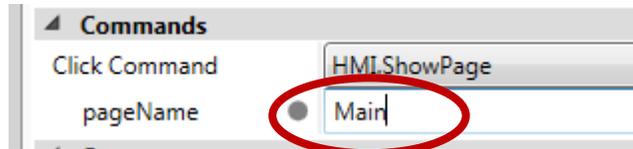
i. Add a Button to the **ResultsPage** page the says “Main”



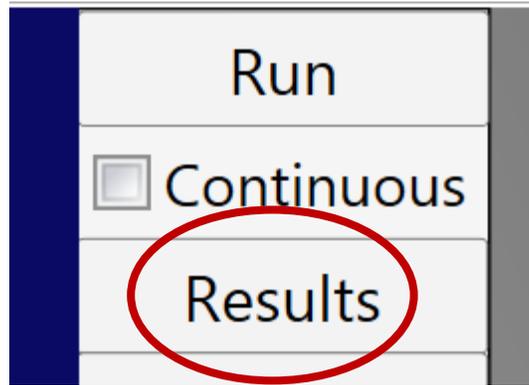
ii. Choosing the \$HMI.Showpage function as the Click Command in the properties



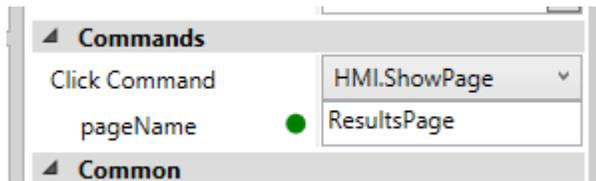
iii. For Page, type in “Main”



iv. Go to the **Main** page and add a button there that says “Results”

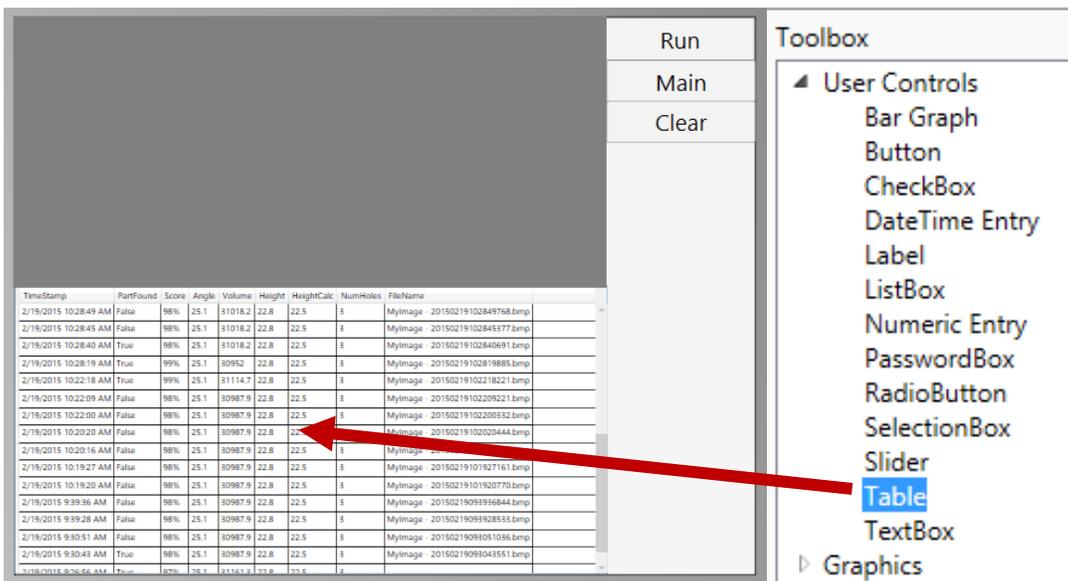


v. Choosing the \$HMI.Showpage function as the Click Command in the properties. For Page, type in “ResultPage”

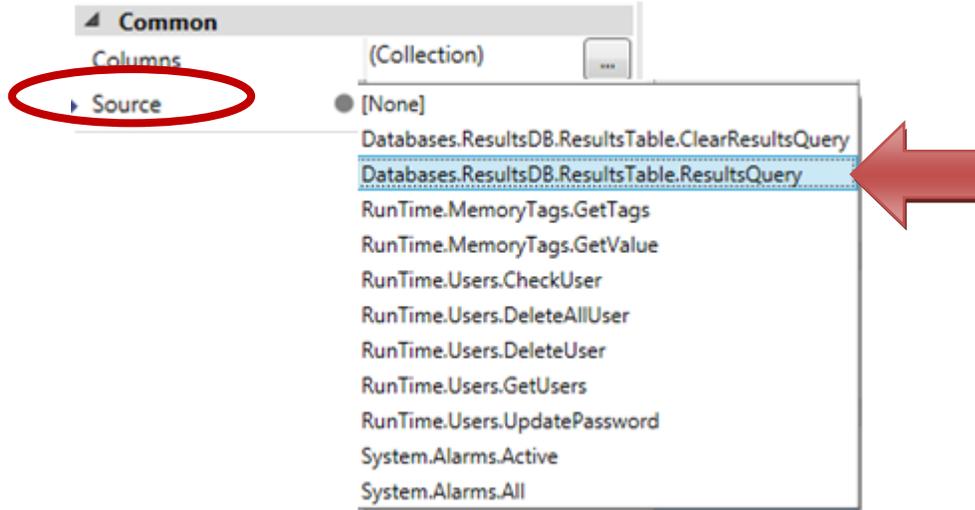


c. Add Table

i. Go back to the **ResultsPage** page and add a table



- ii. Attach the Source of the table to the “ResultsQuery” query from the Databases.



- iii. Go into Test Mode and test out to see how things work.

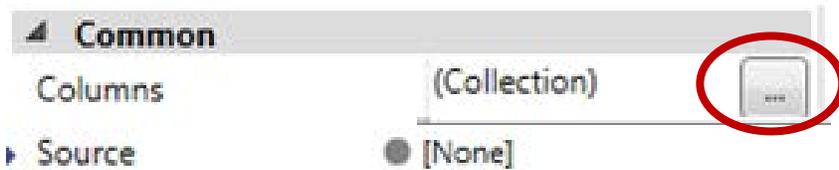
Run

Main

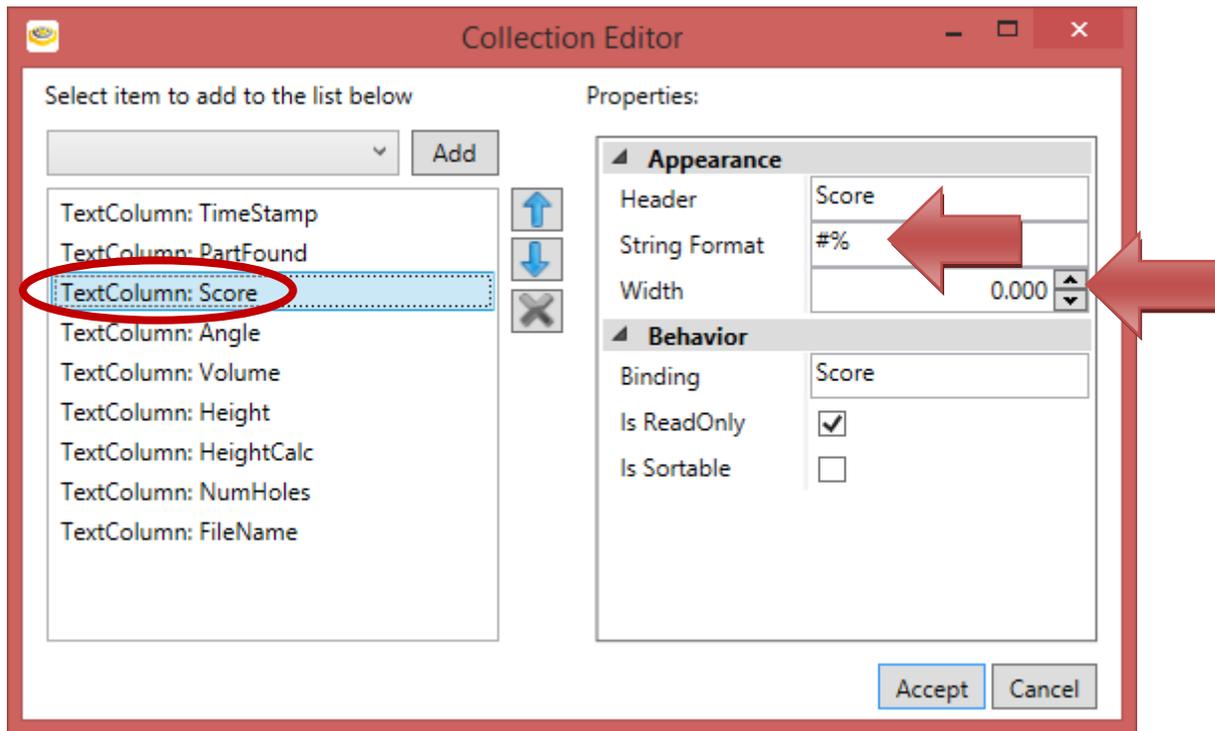
Clear

TimeStamp	PartFound	Score	Angle	Volume	Height	HeightCalc	NumHoles	FileName
2/19/2015 10:28:49 AM	False	98%	25.1	31018.2	22.8	22.5	3	MylImage - 20150219102849768.bmp
2/19/2015 10:28:45 AM	False	98%	25.1	31018.2	22.8	22.5	3	MylImage - 20150219102845377.bmp
2/19/2015 10:28:40 AM	True	98%	25.1	31018.2	22.8	22.5	3	MylImage - 20150219102840691.bmp
2/19/2015 10:28:19 AM	True	99%	25.1	30952	22.8	22.5	3	MylImage - 20150219102819885.bmp
2/19/2015 10:22:18 AM	True	99%	25.1	31114.7	22.8	22.5	3	MylImage - 20150219102218221.bmp
2/19/2015 10:22:09 AM	False	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219102209221.bmp
2/19/2015 10:22:00 AM	False	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219102200332.bmp
2/19/2015 10:20:20 AM	False	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219102020444.bmp
2/19/2015 10:20:16 AM	False	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219102016794.bmp
2/19/2015 10:19:27 AM	False	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219101927161.bmp
2/19/2015 10:19:20 AM	False	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219101920770.bmp
2/19/2015 9:39:36 AM	False	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219093936844.bmp
2/19/2015 9:39:28 AM	False	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219093928533.bmp
2/19/2015 9:30:51 AM	False	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219093051036.bmp
2/19/2015 9:30:43 AM	True	98%	25.1	30987.9	22.8	22.5	3	MylImage - 20150219093043551.bmp
2/19/2015 9:26:56 AM	True	97%	25.1	31161.3	22.8	22.5	3	

- iv. The columns and decimal places can be formatted by selecting the button to the right of “Columns” in the Properties for the table.



- v. Choose the variable want. You can set the decimal place or percentage by using the correct formatting with the amount of zeros after the decimal place being the amount of positions wanted. You can also select a size for the column.

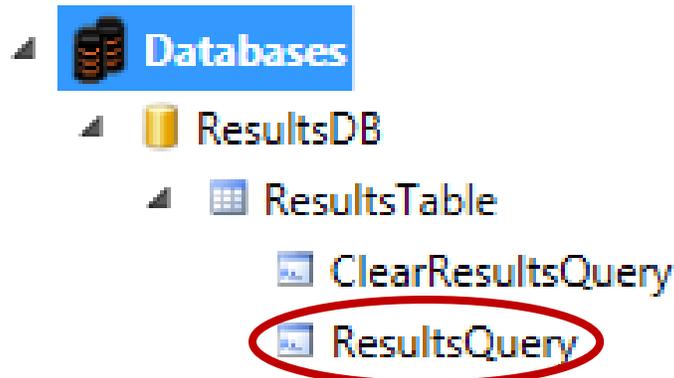


TimeStamp	PartFound	Score	Angle	Volume	Height	HeightCalc	NumHoles
2/19/2015 10:28:49 AM	False	98%	25.1	31018.2	22.8	22.5	3
2/19/2015 10:28:45 AM	False	98%	25.1	31018.2	22.8	22.5	3
2/19/2015 10:28:40 AM	True	98%	25.1	31018.2	22.8	22.5	3
2/19/2015 10:28:19 AM	True	99%	25.1	30952	22.8	22.5	3
2/19/2015 10:22:18 AM	True	99%	25.1	31114.7	22.8	22.5	3
2/19/2015 10:22:09 AM	False	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 10:22:00 AM	False	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 10:20:20 AM	False	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 10:20:16 AM	False	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 10:19:27 AM	False	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 10:19:20 AM	False	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 9:39:36 AM	False	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 9:39:28 AM	False	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 9:30:51 AM	False	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 9:30:43 AM	True	98%	25.1	30987.9	22.8	22.5	3
2/19/2015 9:26:56 AM	True	97%	25.1	31161.3	22.8	22.5	3

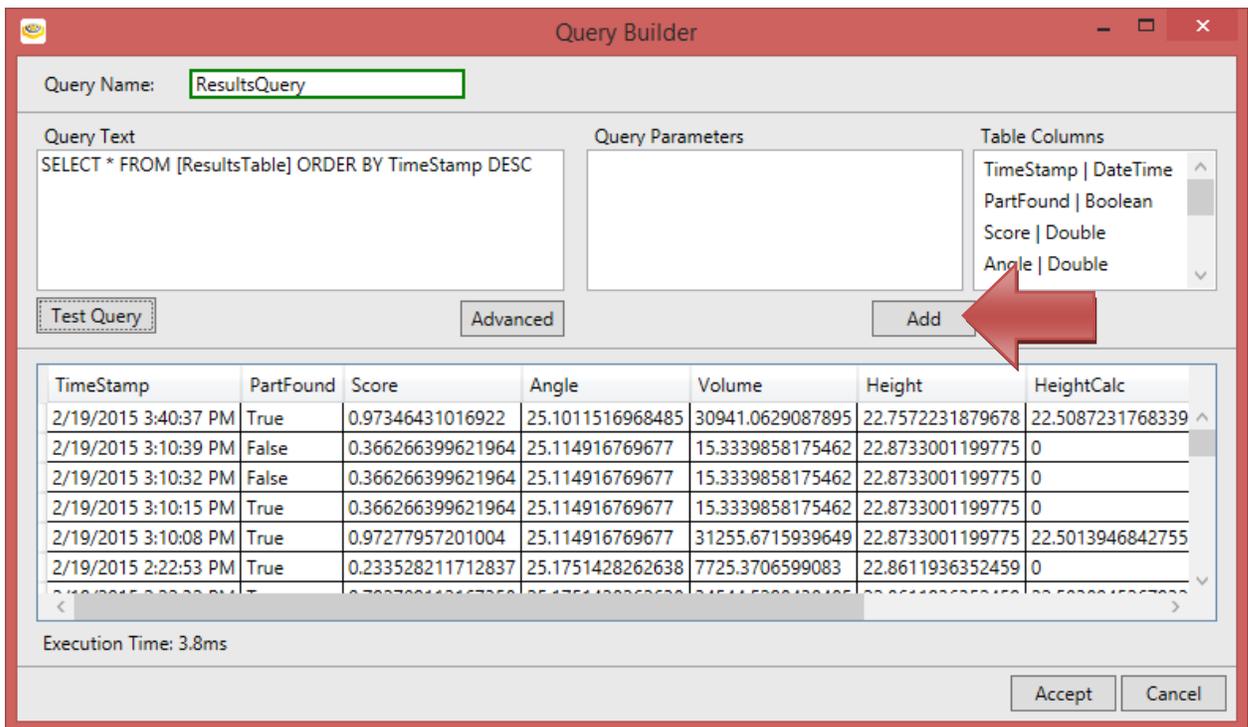
3. Add ability to filter data being shown

a. Add filter variable to query and attach to HMI

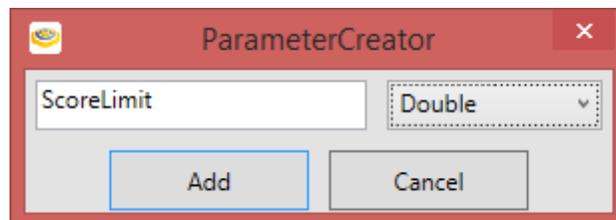
i. Go back to your **ResultsQuery** query and right-click to Edit it.



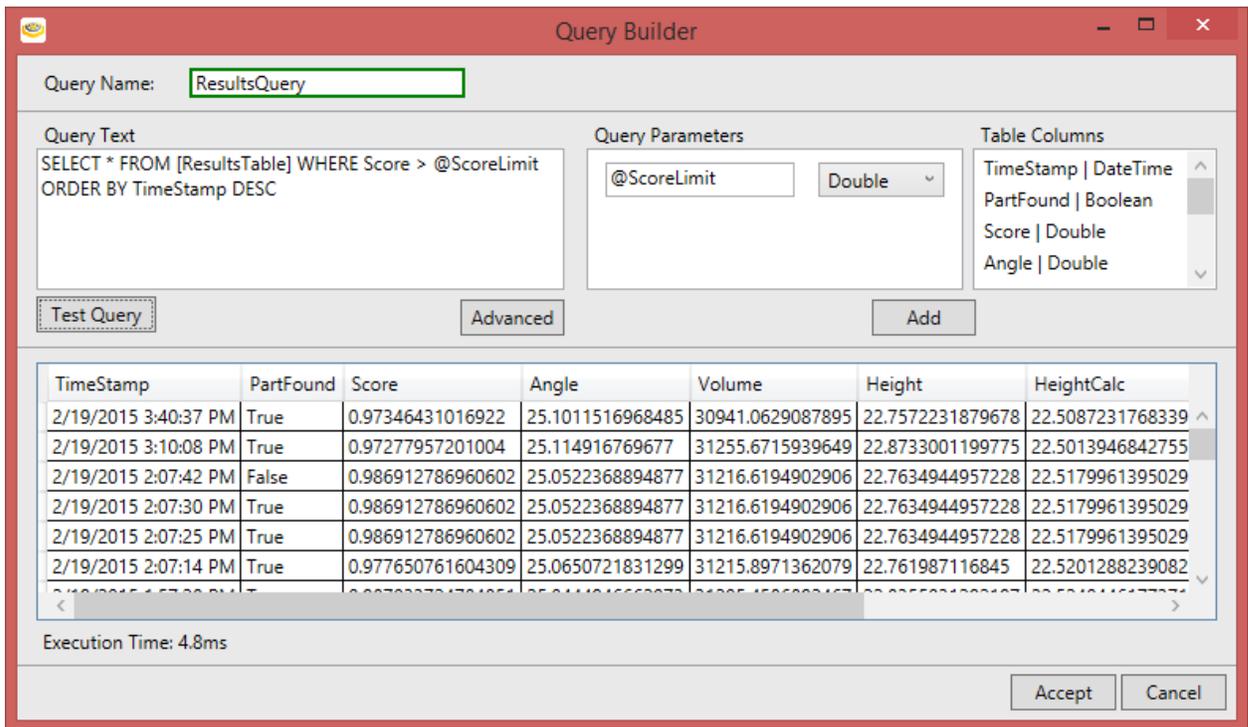
ii. Under Query Parameters, select “Add”.



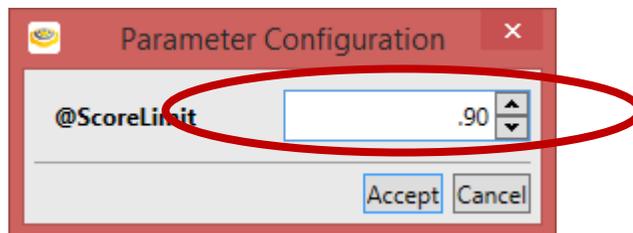
iii. Call it “ScoreLimit” and set it to Double



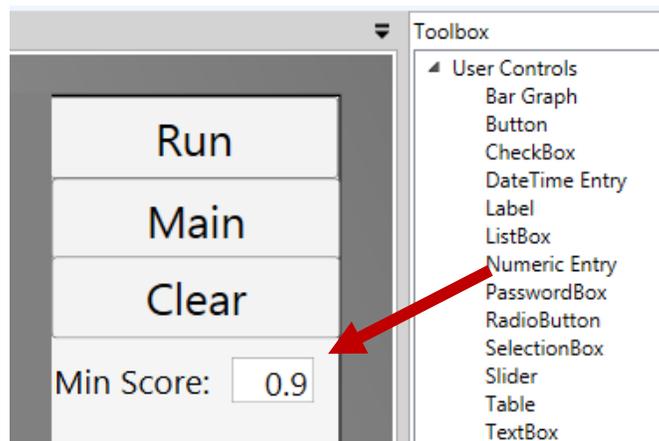
- iv. Change the Query Text to say “SELECT * FROM [ResultsTable] WHERE Score > @ScoreLimit ORDER BY TimeStamp DESC” and then press “Test Query” to see if anything shows up.



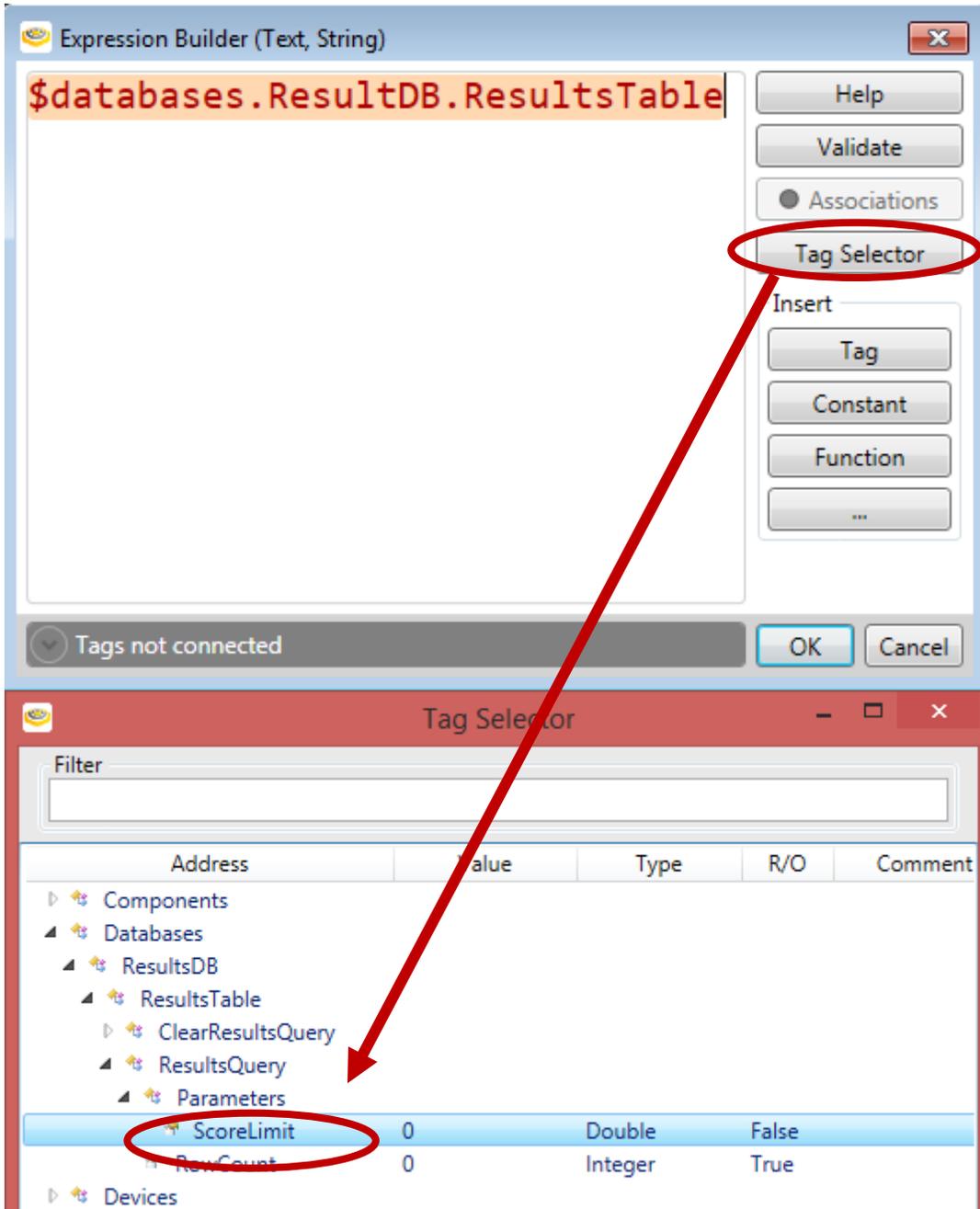
- v. You will need to put in a value for the limit.



- vi. Go to the ResultsPage page and add a numeric entry. You may need to set the font a little bigger.



- vii. Attach the Value of the numeric entry to the parameter in the query.



Go into Test Mode and see how things work.

Run
Main
Clear

Min Score:

TimeStamp	PartFound	Score	Height	HeightCalc	NumHoles	FileName		
2/19/2015 2:07:14 PM	True	98%	25.1	31205.5	22.8	22.5	3	MyImage - 20150219140714477.bmp
2/19/2015 1:57:28 PM	True	99%	25	31205.5	22.8	22.5	3	MyImage - 20150219135728579.bmp
2/19/2015 1:52:13 PM	False	94%	24.8	31315.7	22.6	22.5	3	MyImage - 20150219135213794.bmp
2/19/2015 1:52:07 PM	True	94%	24.8	31315.7	22.6	22.5	3	MyImage - 20150219135207850.bmp
2/19/2015 11:01:52 AM	True	98%	25.2	31262.7	22.8	22.5	3	MyImage - 20150219110152288.bmp
2/19/2015 10:28:49 AM	False	98%	25.1	31018.2	22.8	22.5	3	MyImage - 20150219102849768.bmp
2/19/2015 10:28:45 AM	False	98%	25.1	31018.2	22.8	22.5	3	MyImage - 20150219102845377.bmp
2/19/2015 10:28:40 AM	True	98%	25.1	31018.2	22.8	22.5	3	MyImage - 20150219102840691.bmp
2/19/2015 10:28:19 AM	True	99%	25.1	30952	22.8	22.5	3	MyImage - 20150219102819885.bmp
2/19/2015 10:22:18 AM	True	99%	25.1	31114.7	22.8	22.5	3	MyImage - 20150219102218221.bmp
2/19/2015 10:22:09 AM	False	98%	25.1	30987.9	22.8	22.5	3	MyImage - 20150219102209221.bmp
2/19/2015 10:22:00 AM	False	98%	25.1	30987.9	22.8	22.5	3	MyImage - 20150219102200332.bmp
2/19/2015 10:20:20 AM	False	98%	25.1	30987.9	22.8	22.5	3	MyImage - 20150219102020444.bmp
2/19/2015 10:20:16 AM	False	98%	25.1	30987.9	22.8	22.5	3	MyImage - 20150219102016794.bmp
2/19/2015 10:19:27 AM	False	98%	25.1	30987.9	22.8	22.5	3	MyImage - 20150219101927161.bmp
2/19/2015 10:19:20 AM	False	98%	25.1	30987.9	22.8	22.5	3	MyImage - 20150219101920770.bmp

b. Save your project

Challenge:

- Save images as bitmaps using a DataWriter block.
- Outout the path of the DataWriter block into the DataBaseWriter.
- Use the OnSelectionChanged() method of the table to dynamically load the saved images into an image display media control.

Hint:

```

public void OnSelectionChanged()
1 // Building the filepath to my saved image that I want to display
2 $MyImages.ResultsImagePath = @"C:\Users\user\Documents\Cognex Designer\Projects\CompleteApp\SavedImages\" +
3   $Pages.ResultsPage.Table.GetSelectedRow().ItemArray[8].ToString();

```