



QW6 Summary Statistics Reporter

User Guide

February 26, 2024

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Introduction

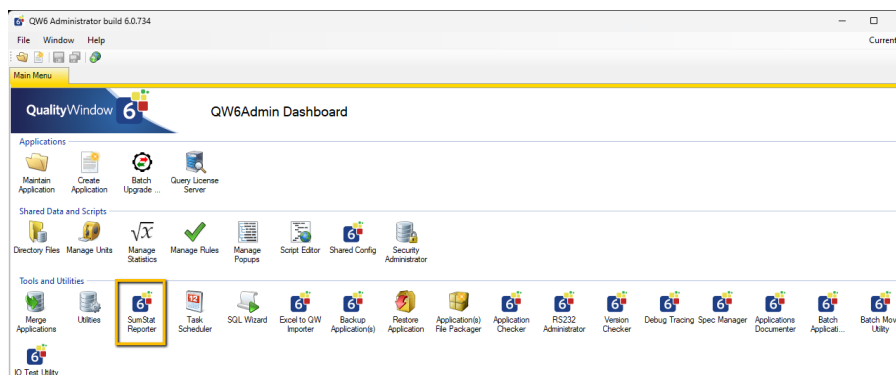
The QW6 Summary Statistics Reporter (QW6SumStat) is an application that can be used to create a summary statistics matrix for selected variables and statistics from multiple Quality Window applications based on common filtering criteria. This matrix of data can then be used by the scripting engine to create an unlimited number of customized reports to be generated. Busitech provides several example scripts that produce a variety of reports that can be reviewed and used as guides to develop outputs that best meet the specific requirements for a user.

In this document we will overview the process for selecting the QW6 Applications, the individual variables, the statistics as well as the Summary Statistics and common filtering used to create the Summary Statistics Matrix of data used to produce the sample outputs, we provide with QW6SumStat.

We will also provide an overview of the scripts used to product the various output.

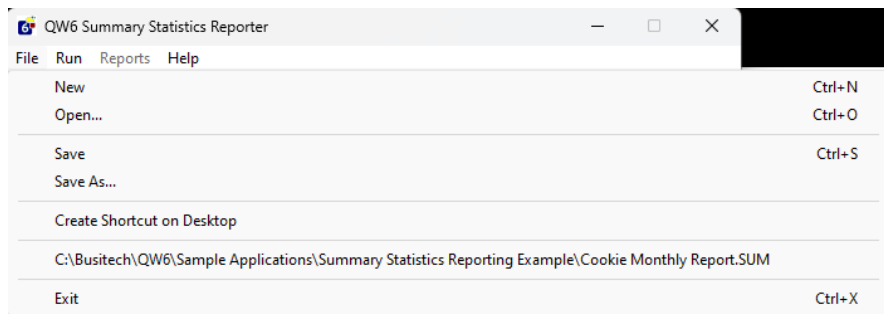
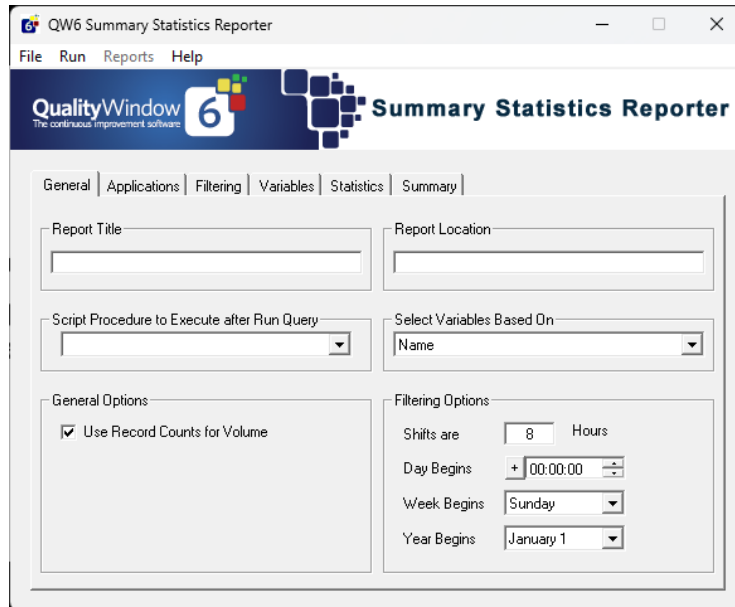
Creating a QW6SumStat Application

The QW6SumStat Application is started by selecting the Icon in the QW6Admin module.



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The following screen is displayed:

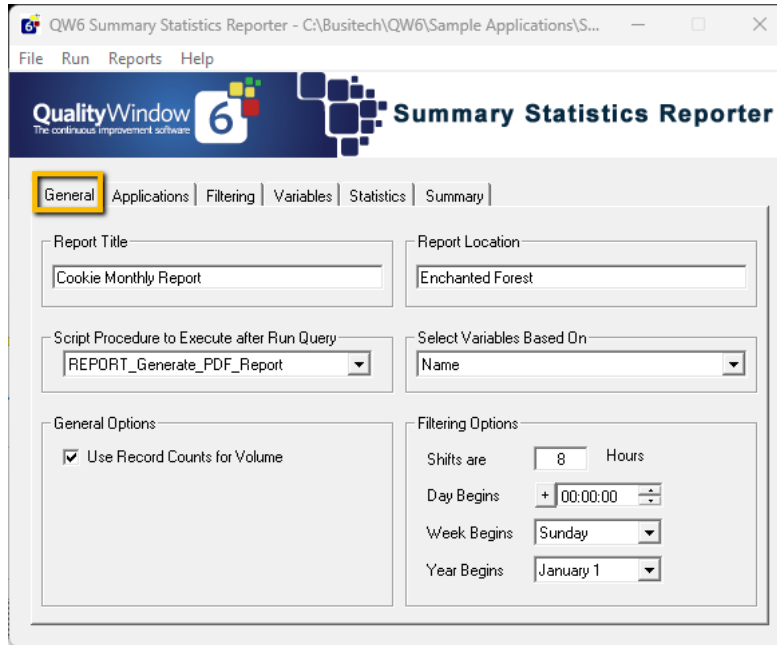


Selecting File opens a dropdown menu of options:

- New – create a new QW6SumStat command file.
- Open... open an existing command file (.SUM extension)
- Save – currently loaded command file.
- Save As... - Save an the currently open command file as a new file.
- Create Shortcut on Desktop – for current command file.
- List of existing command files (.SUM) in current directory.
- Exit – QW6SumStat

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General Screen



Report Title: Descriptive title for this command file.

Report Location: Example Production Line, Plant or Product line

Script Procedure to Execute after Run Query: The optional VBScript procedure that will execute automatically after running the query. This can be useful when running QW6SumStat in command line mode.

General Options

Use Record Counts for Volume - this option will override the Volumes value entered on the Applications screen and use relative record counts instead.

Report Location

A descriptive label that can be included in a script for the generated Output.

Select Variables Based On

- The data to be summarized can be based on:
- the actual template variable names
- Or the X-Ref field if the variables are similar in purpose but with different names.

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- Or the Category field if the variables are similar in purpose but with different names.

Filtering Options

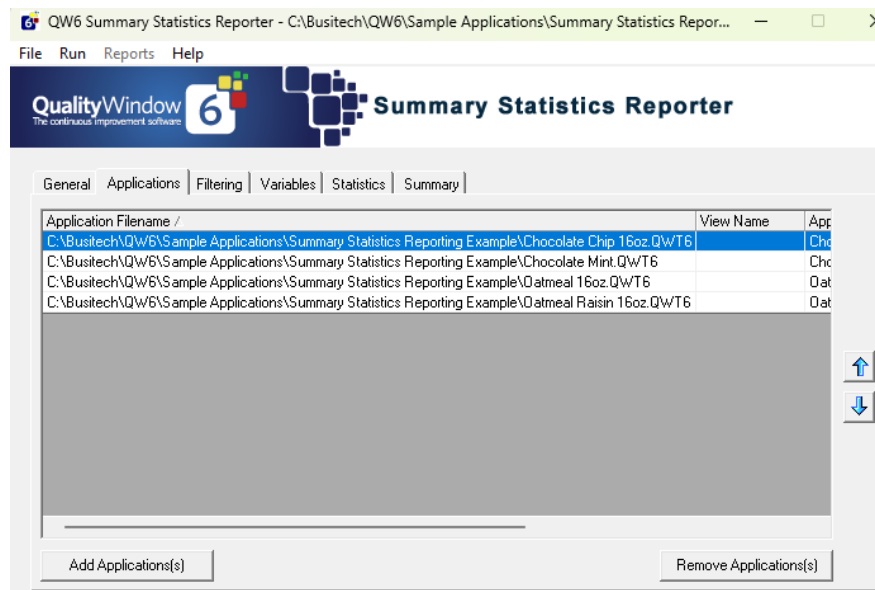
Option	Description	Default
Shifts are	the length of shifts in hours	8
Day Begins	the time of the first shift of the day	00:00:00 (midnight)
+/-	Use - if your first shift begins before midnight (Example: use -01:00:00 for 11:00pm) Use + if your first shift begins after midnight (Example: use +01:00:00 for 1:00am)	
Week Begins	the day on which the week begins	Sunday
Year Begins	the month on which the fiscal year begins	January 1

Applications Screen

The Application screen allows the user to view and select which applications are referenced for the summary statistics reports.

Application list provides the following information:

- Application File Name and path
- View Name
- Application Title
- Records
- Volume
- % Compliance



Add Applications(s)

Click the Add Application(s) button to add an application for Summary Reporting.

More than one application can be added at once by holding down the Shift or Control key while clicking the mouse.

Once the application has been added a View can also be selected for each application. Filtering parameters are ignored by individual templates if a View is specified on the Application screen.

After a template has been added a normalizing factor can be entered in the Volume field to account for differences between templates.

Remove Applications(s)

Click the Remove Application(s) button to remove applications from Summary Reporting.

More than one application can be removed at once by holding down the Shift or Control key while clicking the mouse.

Use the up and down arrows to reorder the applications.

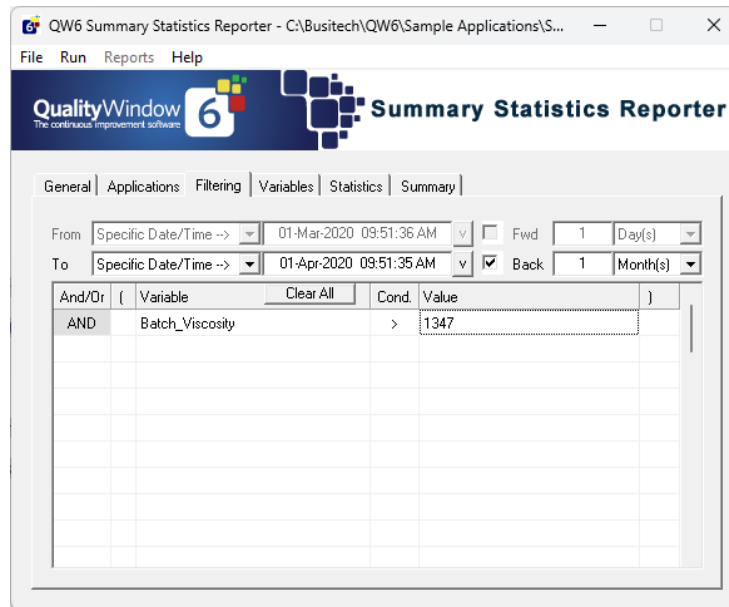
Click on the column header to sort the applications by that column.

Note: *Application Tab - % Compliance is not used or reported. It is for information only.*

Filtering Data

The Filtering screen is where the data to be summarized can be constrained **if no View was selected on the Applications screen.**

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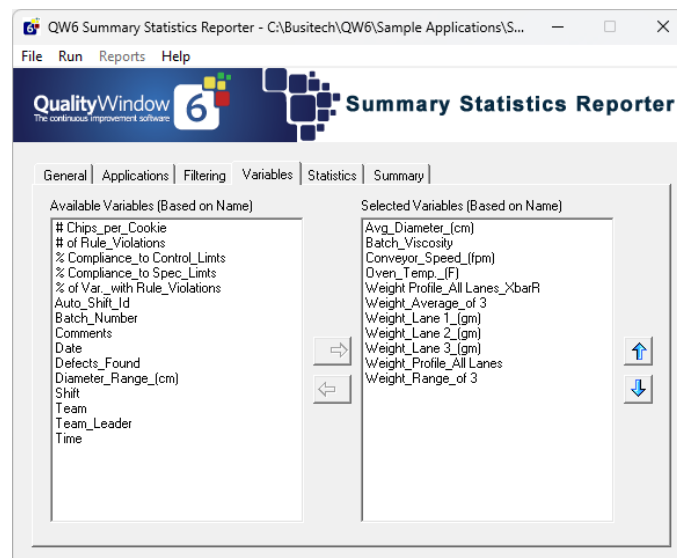
The top section of the Filtering screen is where the data can be constrained by Date and Time intervals.

The bottom section of the Filtering screen is where the data can be constrained by data values.

Note: The Filtering parameters on this screen are only used if no View is specified, per application, on the Application screen.

Variables Screen

The variables screen allows the user to select which of the available variables are to be used in the summary report.



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Available Variables

Contains a sorted list of unique variable Names/Xfers'/Categories from all selected applications.

Selected Variables

Contains the list of variables already chosen to appear on the report.

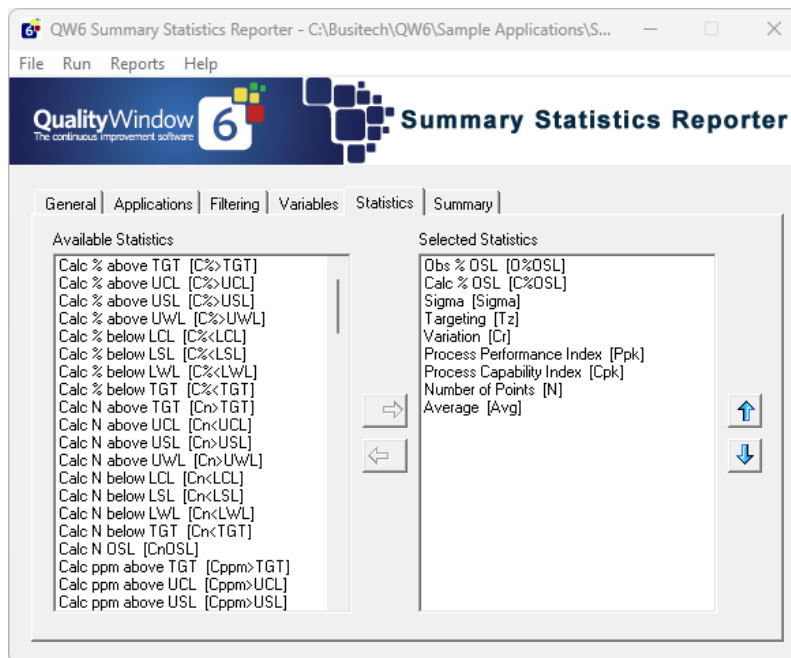
Use the right arrow button to add a variable.

Use the left arrow button to remove a variable.

Use the up and down arrows to set the order in which the variables are to be displayed.

Use the Shift or Control key to select multiple variables prior to moving.

Statistics Screen



Available Statistics

Contains a sorted list of statistics.

Selected Statistics

Contains the list of statistics already chosen to appear on the report.

Use the right arrow button to add a statistic.

Use the left arrow button to remove a statistic.

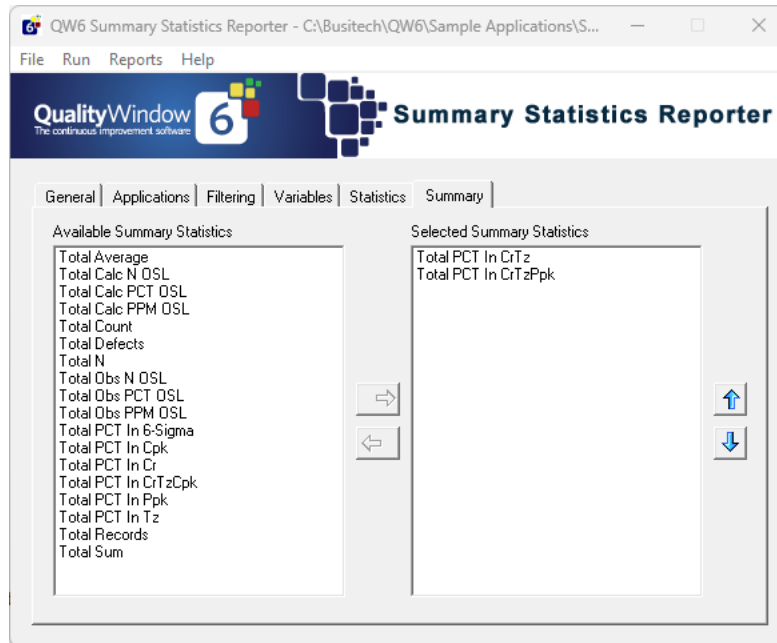
Use the up and down arrows to set the order in which the statistics are to be displayed.

QW6 Summary Statistics Reporter

Use the Shift or Control key to select multiple statistics prior to moving.

Summary Screen

The summary screen allows the user to select which summary statistics they wish to have on their summary report.



Available Summary Statistics

Contains a sorted list of summary statistics.

Selected Summary Statistics

Contains the list of statistics already chosen to appear on the report.

Use the right arrow button to add a summary statistic.

Use the left arrow button to remove a summary statistic.

Use the up and down arrows to set the order in which the summary statistics are to be displayed.

Use the Shift or Control key to select multiple summary statistics prior to moving.

Statistic	Description
Total Average	Total Sum of all averages of selected chartable variables for this application
Total Calc PCT OSL	Total calculated percent of variables out of spec

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Total Calc PPM OSL	Total calculated parts per million of variables out of spec
Total Count	Number of selected chartable variables for this application
Total Defects	Total observed out of spec for selected variables for this application
Total N	Total number of all non-null values for selected chartable variables for this application
Total Obs N OSL	Total observed number of values out of spec
Total Obs PCT	Total observed percent of values out of spec OSL
Total Obs PPM	Total observed parts per million out of spec OSL
Total PCT in 6-Sigma	Total percent of values inside 6 Sigma
Total PCT in Cpk	Total percent of values in Cpk (≥ 1.33)
Total PCT in Cr	Total percent of values in Cr ($\leq .75$)
Total PCT in Tz	Total percent of values in Tz (between $-.5$ and $+.5$)
Total PCT in CrTz	Total percent of values in CrTz
Total PCT in CrTzCpk	Total percent of values in CrTzCpk
Total Records	Number of records selected for this application
Total Sum	Total sum of all values

Note: Values above are based on the results of filtering the data at the View level or the QW6Sumstat Filter level

Filtering at the View level will override the filter set at the QW6SumStat level for this application.

Normalization of the Summary results is available in two options:

Based on the volume of records for an application

Based on a value entered like production for an application.

This is entered under Applications tab in QW6SumStat in the Volume field for each Application selected. This can be the production for each application for the period selected.

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Report Output

QW6SumStat reports are generated either on screen, or, as the result of user defined VBScript hooks.

The on-screen report is in a fixed format while the user defined VBScript reports offer greater flexibility.

The QW6SumStat example reports are the following:

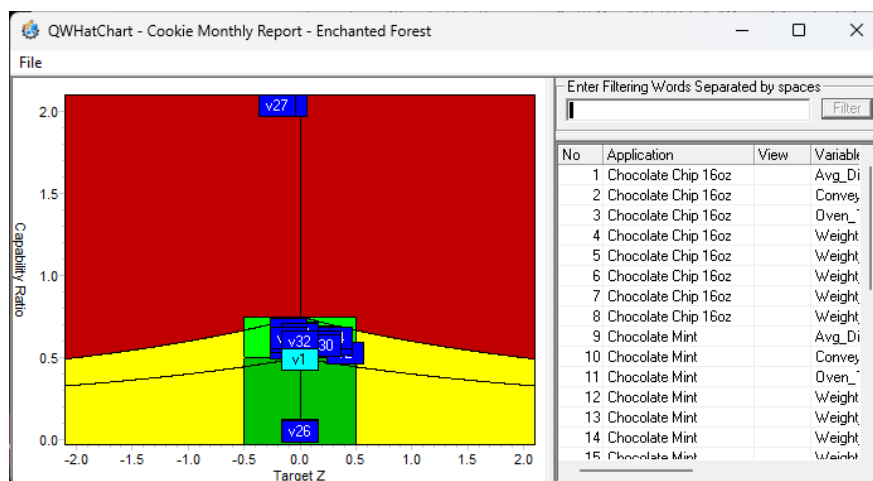
On Screen Results report

This interactive on screen Report has a dropdown selection enabling users to drill down to specific statistics.

Obs % OSL	Avg_Diameter_(cm)	Batch_Viscosity	Conveyor_Speed_(fpm)	Oven_Temp_(F)	Weight Profile
Chocolate Chip 16oz	0		0	22.222	
Chocolate Mint	0		0	19.718	
Oatmeal 16oz	0		0	14.583	
Oatmeal Raisin 16oz	0		0	21.212	
Totals	0	0	0	77.735	

Display Hatchchart

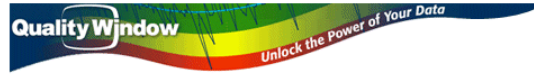
This built in report generates an interactive hat chart and supports a filtering capability



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Generate Dashboard Report

This report highlights applications in red that have statistics out of limits. Selecting the application will open the Application on QW6 Desktop



Cookie Monthly Report - Enchanted Forest

Chocolate Chip 16oz	Oatmeal 16oz
Chocolate Mint	Oatmeal Raisin 16oz

Generate HTML Report

This report generates a report that can be viewed in any modern web browser and supports hyperlink to open the application.

QualityWindow *Unlock the Power of Your Data* WHERE DateTime BETWEEN '2020-03-01 09:51:36' AND '2020-04-01 09:51:35'

Obs % OSL	Avg_Diameter_(cm)	Batch_Viscosity	Conveyor_Speed_(fpm)	Oven_Temp_(F)	Weight_Profile_All_Lanes_XbarR
Chocolate Chip 16oz	0		0	22.222	0
Chocolate Mint	0		0	19.718	0
Oatmeal 16oz	0		0	14.583	0
Oatmeal Raisin 16oz	0		0	21.212	0
Totals	0	0	0	77.735	0

Calc % OSL	Avg_Diameter_(cm)	Batch_Viscosity	Conveyor_Speed_(fpm)	Oven_Temp_(F)	Weight_Profile_All_Lanes_XbarR
Chocolate Chip 16oz	0		0	32.03	0
Chocolate Mint	0.001		0	28.45	0
Oatmeal 16oz	0		0	24.4	0
Oatmeal Raisin 16oz	0		0	32.62	0
Totals	0.001	0	0	117.5	0

QW6 Summary Statistics Reporter

Generate PDF Report

This report generates a PDF report that can be opened in any PDF viewer.

Sigma				
	Avg_Diameter_(cm)	Batch_Viscosity	Conveyor_Speed_(fpm)	Oven_Temp._(I
Chocolate Chip 16oz	12.3		11.3	
Chocolate Mint	8.9		106.3	2.
Oatmeal 16oz	9.4		107.1	2.
Oatmeal Raisin 16oz	10.7		117	
Totals	41.3	0	341.7	8.

Generate Excel Report

This report generates 3 excel sheets: Statistics, Normalized and Summary

	A	B	C	D	E	F	G	H	I	J	K	L	M	
1														
2	Cookie Monthly Report - Enchanted Forest													
3	WHERE DateTime BETWEEN '2020-03-01 09:51:36' AND '2020-04-01 09:51:35'													
4														
5	Obs %	OSI	Avg_Diam	Batch_Vis	Conveyor	Oven_Ten	Weight Pr	Weight_A	Weight_L	Weight_L	Weight_L	Weight_P	Weight_R	Volume
6	Chocolate	0			0	22.222	0		0	0	0	0	0	27
7	Chocolate	0			0	19.718	0		0	0	0	0	0	71
8	Oatmeal 1	0			0	14.583	0		0	0	0	0	0	48
9	Oatmeal F	0			0	21.212	0		0	0	0	0	0	33
10	Totals	0	0	0	0	77.735	0	0	0	0	0	0	0	179
11														
12														
13	Calc %	OSI	Avg_Diam	Batch_Vis	Conveyor	Oven_Ten	Weight Pr	Weight_A	Weight_L	Weight_L	Weight_L	Weight_P	Weight_R	Volume
14	Chocolate	0			0	32.03	0		0	0	0	0	0	27
15	Chocolate	0.001			0	28.45	0		0	0	0	0	0	71
16	Oatmeal 1	0			0	24.4	0		0	0.001	0	0	0	48
17	Oatmeal F	0			0	32.62	0		0	0	0	0	0	33
18	Totals	0.001	0	0	0	117.5	0	0	0	0	0.001	0	0	179
19														
20														
21	Sigma	Avg_Diam	Batch_Vis	Conveyor	Oven_Ten	Weight Pr	Weight_A	Weight_L	Weight_L	Weight_L	Weight_P	Weight_R	Volume	
	<	>	Statistics	Normalized	Summary	+								

Scripting in QWSumStat

QW6SumStat supports a variety of scripting hooks. When executed, the program loads a script file name **QWSumStat.qwxt** within the same folder as the program. All script procedures beginning with '**REPORT_**' will be loaded under the Reports menu of the program.

Within the script, a public class called SumStat is available and exposes the Properties and Collections. See Below

The following other procedures gets called at various points in the program:

SUMSTAT_Initialize()

Called when the program first starts up.

SUMSTAT_PreProcess()

Called just before the current query is executed. Note that the StatisticResult and SummaryStatisticResult collections are undefined at this point.

SUMSTAT_PostProcess()

Called just after the current query is executed.

SUMSTAT_Terminate()

Called just before the program ends.

Other Private or Public procedures may be defined in the script, but only public procedures are allowed to be set in AutoExecute.

Properties and Collections available to the scripting engine:

ReportTitle As String

Returns the Report Title defined.

ReportLocation As String

Returns the Report Location defined.

ReportParameters As String

Returns the Filtering parameters defined as one long string with parameters separated by CrLf.

FieldXRefType As Long

Returns whether variables were selected based on 0-Name, 1-XRef, or 2-Category.

UseRecords As Boolean

Returns False if volumes are based on the values entered on the Templates screen; True if record counts are to be used instead.

TotalVolume As Long

Returns the Total Volume of all files. This value is based on whether the UseRecords is set or not.

AutoExecute As String

Returns the Procedure name within the script that will be executed after the Run Query is issued. This parameter can be blank.

Collections:*StatisticsTable*

The StatisticsTable collection contains a master list of all available Quality Window statistics.

StatisticsTable.Count returns the number of entries.

StatisticsTable(Index).Name returns the statistic's long name

StatisticsTable(Index).Abbrev returns the statistic's short name

StatisticsTable(Index).ID returns the statistic's internal ID number

SummaryStatisticsTable

The SummaryStatisticsTable collection contains a master list of all available Quality Window summary statistics.

SummaryStatisticsTable.Count returns the number of entries

SummaryStatisticsTable(Index).Name returns the statistic's long name

SummaryStatisticsTable(Index).Abbrev returns the statistic's short name

SummaryStatisticsTable(Index).ID returns the statistic's internal ID number

Statistics

The Statistics collection contains a list of currently selected statistics which will be calculated during the query, in the order they were selected.

Statistics.Count returns the number of entries

Statistics (Index).Name returns the statistic's long name

Statistics (Index).Abbrev returns the statistic's short name

Statistics (Index).ID returns the statistic's internal ID number

SummaryStatistics

The SummaryStatistics collection contains a list of currently selected summary statistics which will be calculated during the query, in the order they were selected.

SummaryStatistics.Count returns the number of entries

SummaryStatistics (Index).Name returns the statistic's long name

SummaryStatistics (Index).Abbrev returns the statistic's short name

SummaryStatistics (Index).ID returns the statistic's internal ID number

Files

The Files collection contains a list of currently selected templates that will be acted upon during the query, in the order they were selected.

Files.Count returns the number of entries

Files (Index).Filename returns the full path to the template file

Files (Index).Name returns the Title of the template file

Files (Index).ViewName returns the View name if specified

Files (Index).Volume returns the Volume specified for the template file

Files (Index).RunVolume returns the Volume based on UseRecords.

Files (Index).TotalRecords returns the total records in the template

Fields

The Fields collection contains a list of currently selected Variables that will be acted upon during the query, in the order they were selected. Note that the FieldXRefType property is used to differentiate variables.

Fields.Count returns the number of entries.

Fields (Index).Name returns the selected variable's XREF name

StatisticResult(FileIndex, FieldIndex, StatisticIndex)

The StatisticResult object is actually an array containing all of the statistic results calculated during the query. The following properties may be used:

.Value contains the result

.NormalizedValue contains the normalized by volume result

.Hilite will be True or False depending on if the result should be highlighted

SummaryStatisticResult(FileIndex, SummaryStatisticIndex)

The SummaryStatisticResult object is actually an array containing all of the summary statistic results calculated during the query. The following properties may be used:

.Value contains the result

.NormalizedValue contains the normalized by volume result

.Hilite will be True or False depending on if the result should be highlighted