

Two-Dimensional Report-Daily Update

Overview

When multiple daily readings of a process value are needed in a monthly report, an effective placement strategy is to arrange the data in a two-dimensions. In this document, such an arrangement is discussed where 6 daily readings are arranged in rows of a monthly report. The reports are collated into a yearly workbook. An up-to-date view of the report is made available by updating the report every day.

Objective

Generated: 4/18/2017 23:37 MONTH: April 2017

Date	Filter 1						Highest		Calibration
	Four (4) Hours Readings(NTU)						Turbidity Level		Maintenance
	0:00	4:00	8:00	12:00	16:00	20:00	24 Hrs	at	Remarks
1	0.036	0.035	0.034	0.032	0.036	0.037	0.164	17:26	
2	0.034	0.043	0.033	0.032	0.040	0.039	0.156	14:56	
3	0.034	0.034	0.033	0.119	0.037	0.036	0.148	11:34	
4	0.035	0.033	0.034	0.036	0.035	0.035	0.135	08:47	

Configuration

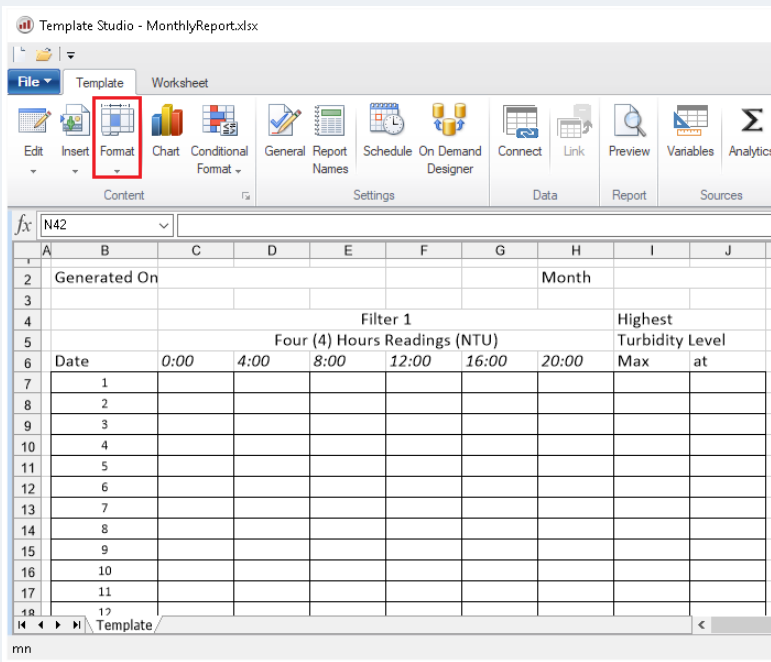
- Template layout of static information
- Template content using two history groups, one for the 4 hour values and one for the maximum value/time. The output of the first group is *Transposed* and both are placed on the report using the day of the month (*dM*).
- Report naming convention for the yearly workbook and monthly worksheets.
- A schedule to update the content of the report every day

Result

Generated On 1/1/20 0:00 Month Dec-2019

Date	Filter 1						Highest		
	Four (4) Hours Readings (NTU)						Turbidity Level		
	0:00	4:00	8:00	12:00	16:00	20:00	Max	at	
1	75	78	52	77	77	78	96	4:49	
2	61	80	82	60	90	67	61	3:42	
3	69	84	72	82	81	78	89	19:27	
4	79	85	81	78	88	78	53	12:44	
5	60	60	56	60	54	60	95	12:25	
6	88	85	85	84	87	80	81	19:30	
7	53	69	34	32	47	39	91	5:35	
8	80	86	88	83	85	84	88	18:02	
9	78	80	40	77	46	76	95	22:57	
10	87	74	65	91	61	79	61	17:42	
11	78	75	82	78	74	85	89	20:11	
12	82	79	76	79	78	76	83	18:20	
13	59	56	60	50	58	60	96	20:14	
14	84	85	85	83	89	82	81	7:16	
15	37	57	66	73	39	58	91	18:16	
16	87	79	94	83	81	80	87	17:30	
17	76	78	77	40	52	78	95	3:56	
18	66	73	87	59	86	74	61	22:58	
19	82	71	77	80	72	78	89	9:53	
20	78	79	77	81	78	89	84	13:28	
21	56	60	57	58	55	45	95	5:24	
22	84	45	86	83	69	82	81	3:43	
23	35	42	34	49	50	59	91	8:53	
24	91	77	84	79	85	78	88	5:09	
25	28	77	77	64	81	79	96	2:54	
26	81	80	61	90	66	72	61	10:48	
27	73	86	76	72	75	75	89	5:41	
28	78	81	11	89	79	85	84	8:36	
29	57	59	58	55	56	59	96	16:31	
30	85	84	87	82	83	87	81	21:00	
31	56	54	46	49	62	54	91	14:22	

Template Layout

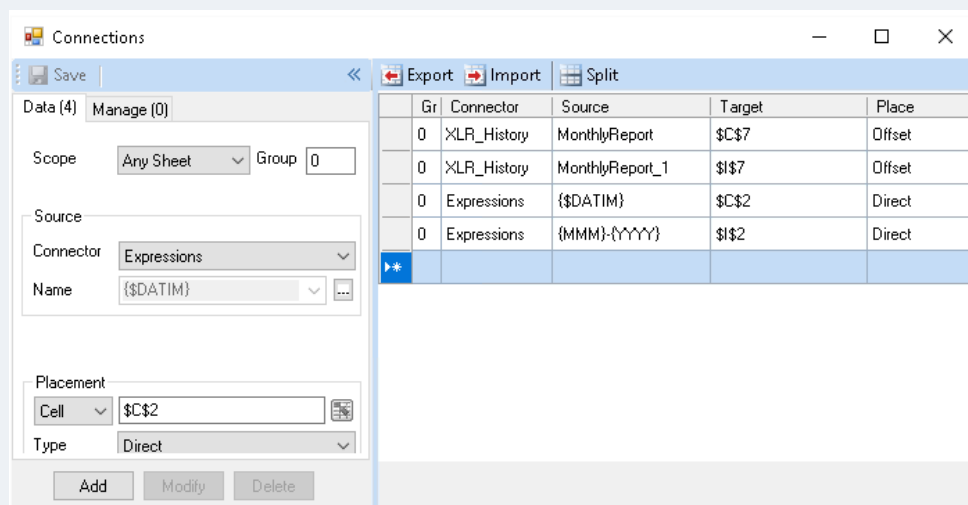


In the Template Design Studio, the template is laid out with a row for every day of the month (31 rows for worst case), columns for the 4-hour readings and columns for the maximum turbidity and the time that occurred.

Template Content

Data Connections

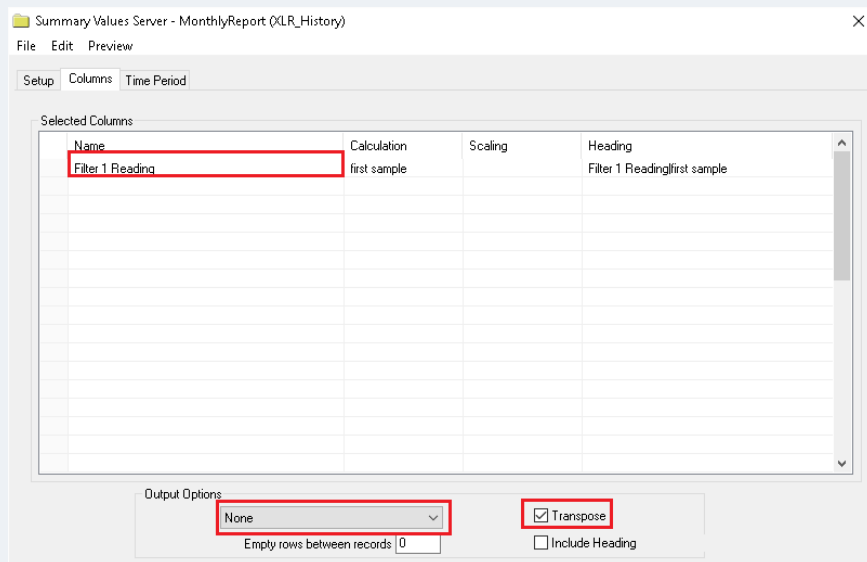
Data connections provide content to the report.



There are 4 data connections defined for the template: a History Data Group to retrieve the 4-hour readings for the day, a History Data Group to retrieve the daily maximum and the time that occurred and two Expression connections to display the date the report is generated as well as the Month and Year the report is for.

History Data Groups

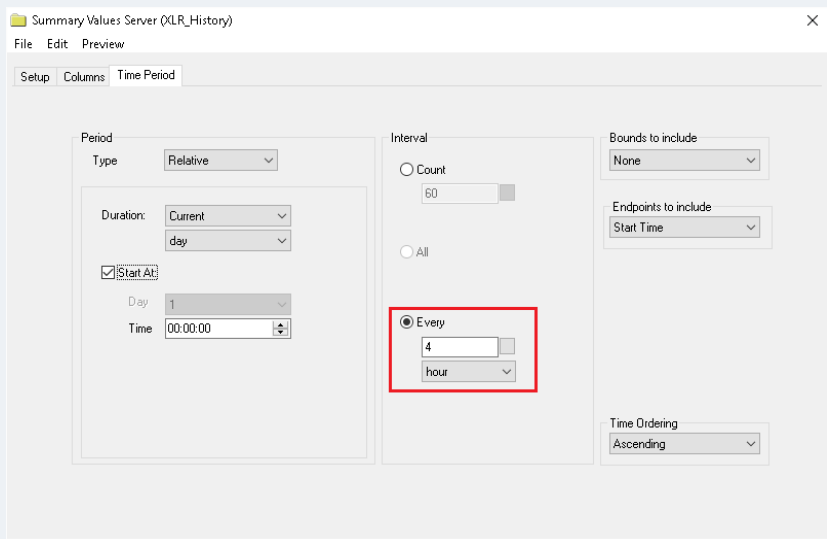
4-hour History Group



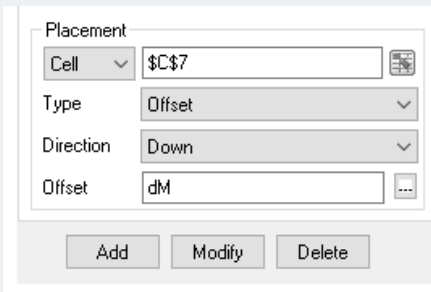
The 4-hour **History Data Group** is set up to retrieve the *first sample* of the filter.

Since the rows in the sheet are already labeled for the day of the month, **Output Options** is set to *None*.

Since the sheet is laid out to show each 4-hour value across the row, the **Transpose** option is checked to produce this type of output.

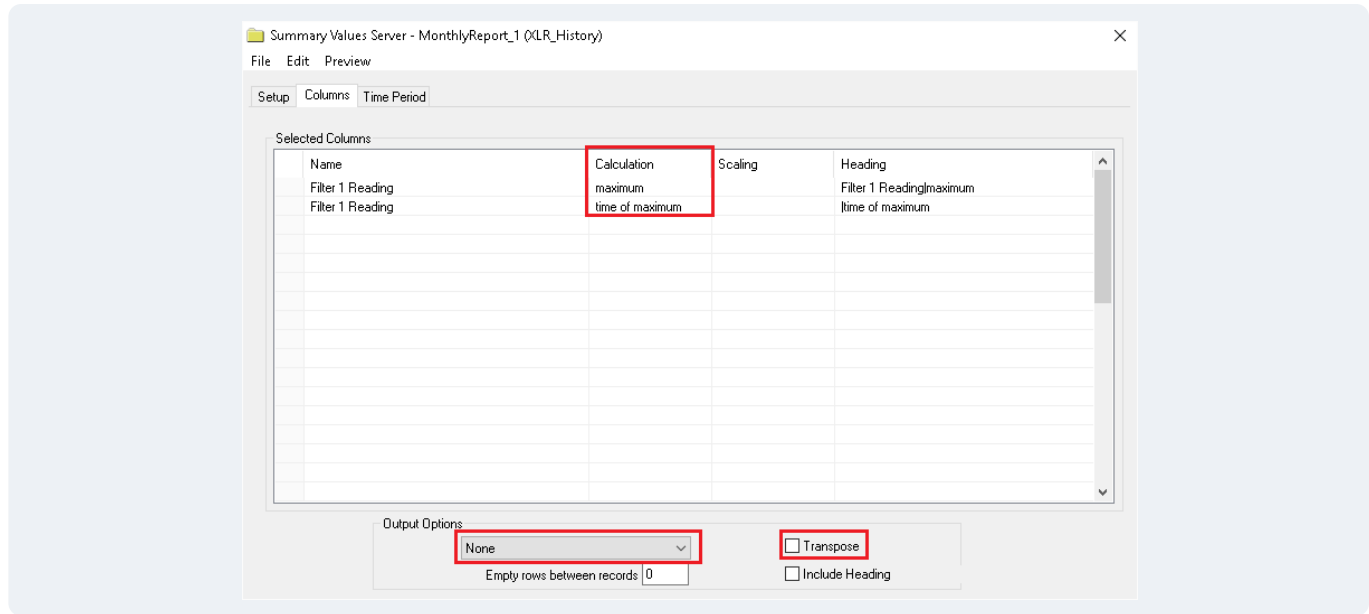


The **Time Period** tab is set up to retrieve the samples **Every 4 hours** over the day.



For this connection, the **Placement** is set to *Offset, Down* the column starting at $C7$ based on the day of the month (*dM*).

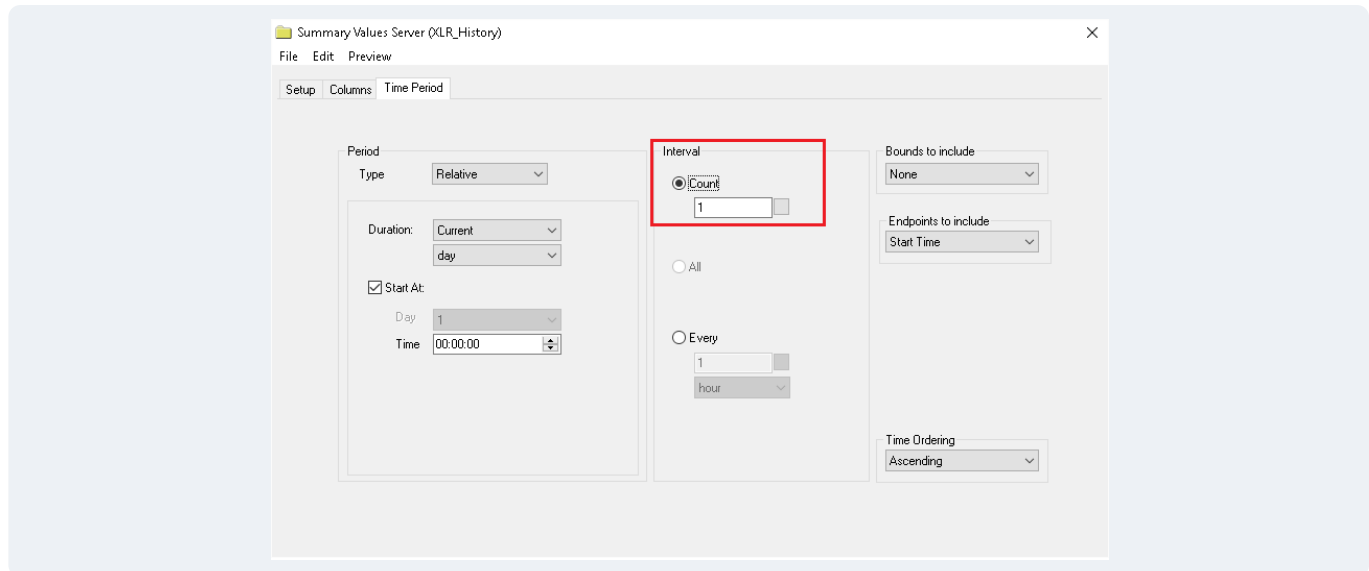
Daily Maximum Value/Time History Group



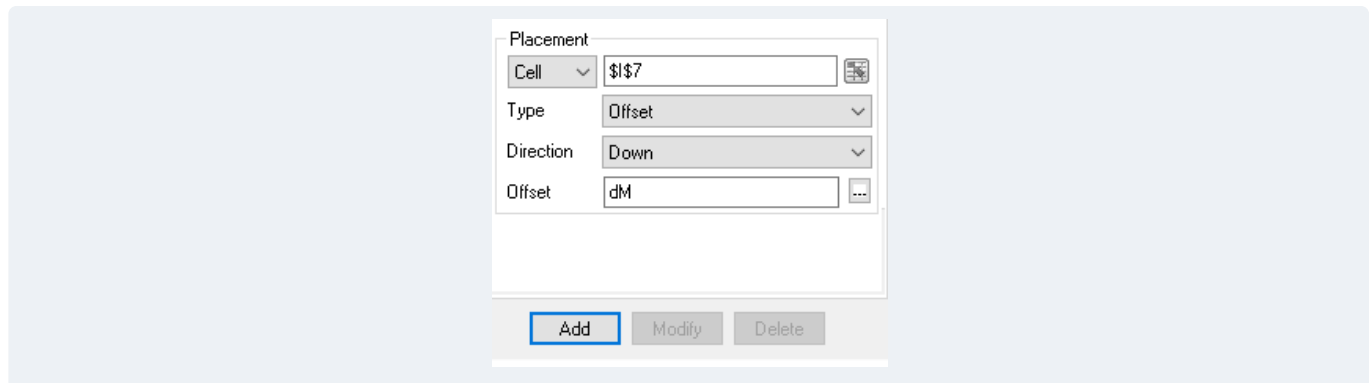
The Daily Maximum Value/Time **History Data Group** is set up to retrieve the *maximum* and *time of maximum* of the filter.

Since the rows in the sheet are already labeled for the day of the month, **Output Options** is set to *None*.

Since the sheet is laid out to show the maximum and maximum time as 2 columns in the row, the **Transpose** option is not checked to produce this type of output.

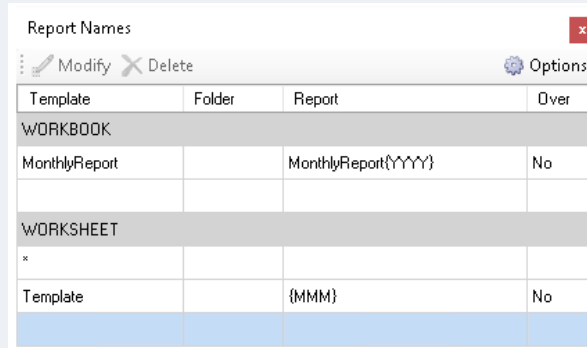


The **Time Period** tab is set up to retrieve a single row of calculations over the day.



For this connection, the **Placement** is set to *Offset, Down* the column starting at $\$I\7 based on the day of the month (*dM*).

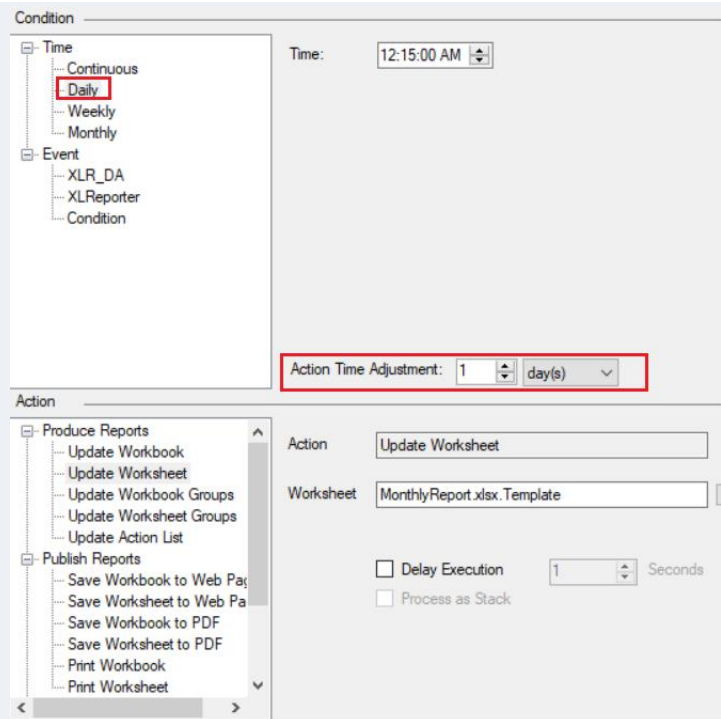
Report Names



Template	Folder	Report	Over
WORKBOOK			
MonthlyReport		MonthlyReport{YYYY}	No
WORKSHEET			
*			
Template		{MMM}	No

The **Report Names** are configured to produce a WORKBOOK named after the year ($\{YYYY\}$) and a WORKSHEET named after the month ($\{MMM\}$). The net result is for every year there is a single workbook file that contains 12 worksheets: 1 for each month of the year.

Schedule



Condition

Time: 12:15:00 AM

Action Time Adjustment: 1 day(s)

Action

Produce Reports > Update Worksheet

Worksheet: MonthlyReport.xlsx.Template

Delay Execution 1 Seconds

Process as Stack

To generate the report, a schedule is set up to update **Daily** at 12:15:00. To ensure that the report is populated for the previous day, the **Action Time Adjustment** is set to 1 day.