

Alias Connections Serve Many Reports

Overview

When a set of reports are required that only differ by the source tag names, then alias connections can be used to avoid having to create multiple templates. For example, to produce reports for six production machines that are identical except for their tags, one template with alias connections can be used to serve every machine.

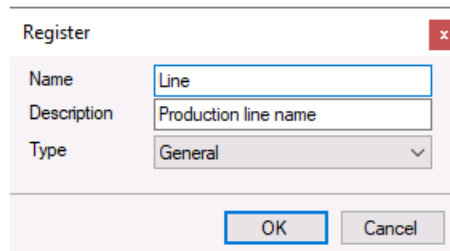
Approach

The approach requires a two-template strategy. One template, the *Report Template*, is used to produce the report and is designed with alias connections and names using variables. The other template, the *Worker Template*, is driven from the scheduler to set physical values to the alias names and initiate the Report Template to produce the reports.

Variables

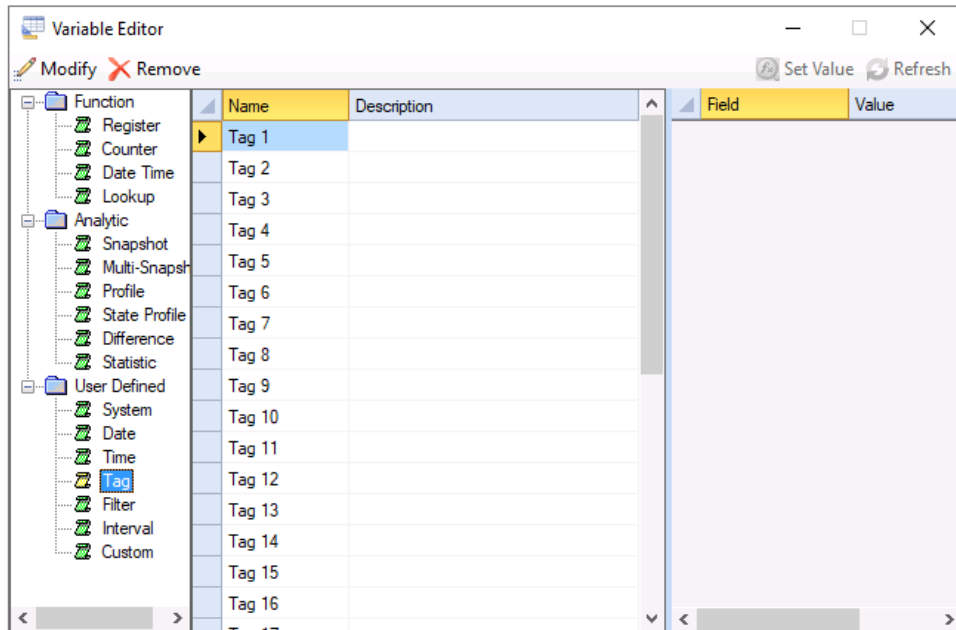
From the **Project Explorer**, select the **Data** tab and then **Variables**.

Under **Custom, User Defined** variables can be configured to represent the alias names for the report template. Click on an empty line in the grid and select **Modify**.



The image shows a 'Register' dialog box with a close button (X) in the top right corner. It contains three input fields: 'Name' with the text 'Line', 'Description' with the text 'Production line name', and 'Type' with a dropdown menu showing 'General'. At the bottom, there are 'OK' and 'Cancel' buttons.

In the above example, *Line* represents a production line name. This example also uses *Tag 1 to Tag 4* represent tag names.



These are defined under **User Defined, Tag**.

Report Template

This template is a generic version of the report and uses alias names given by variables. Create a new blank template from the **Template Studio**.

Report Names

The configuration of **Report Names** uses the alias names.

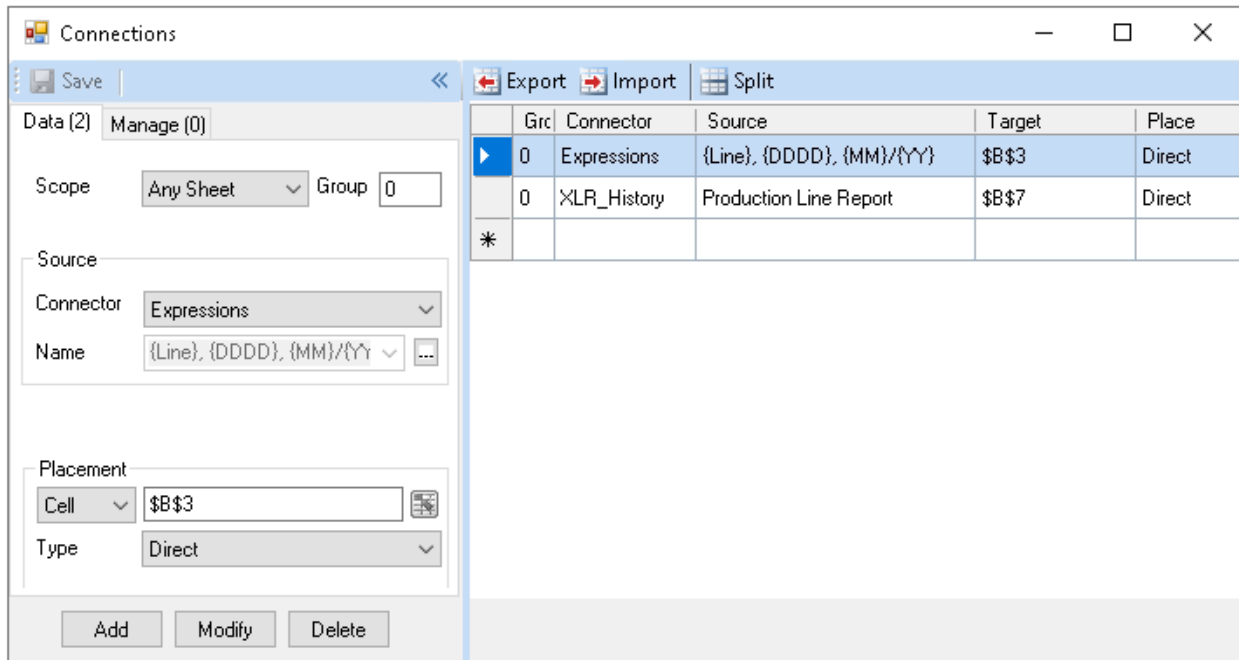
Report Names			
Template	Folder	Report	Over
WORKBOOK			
Production Line Report	{Line}	Production_{Line}_{YYYY}_{MM}_{DD}	No
WORKSHEET			
*			
Template			

In the above example, *{Line}* is the alias name for the production line and is used for:

- The **Folder** where the report will be saved
- As part of the **Report** name, together with data variables.

Data Connections

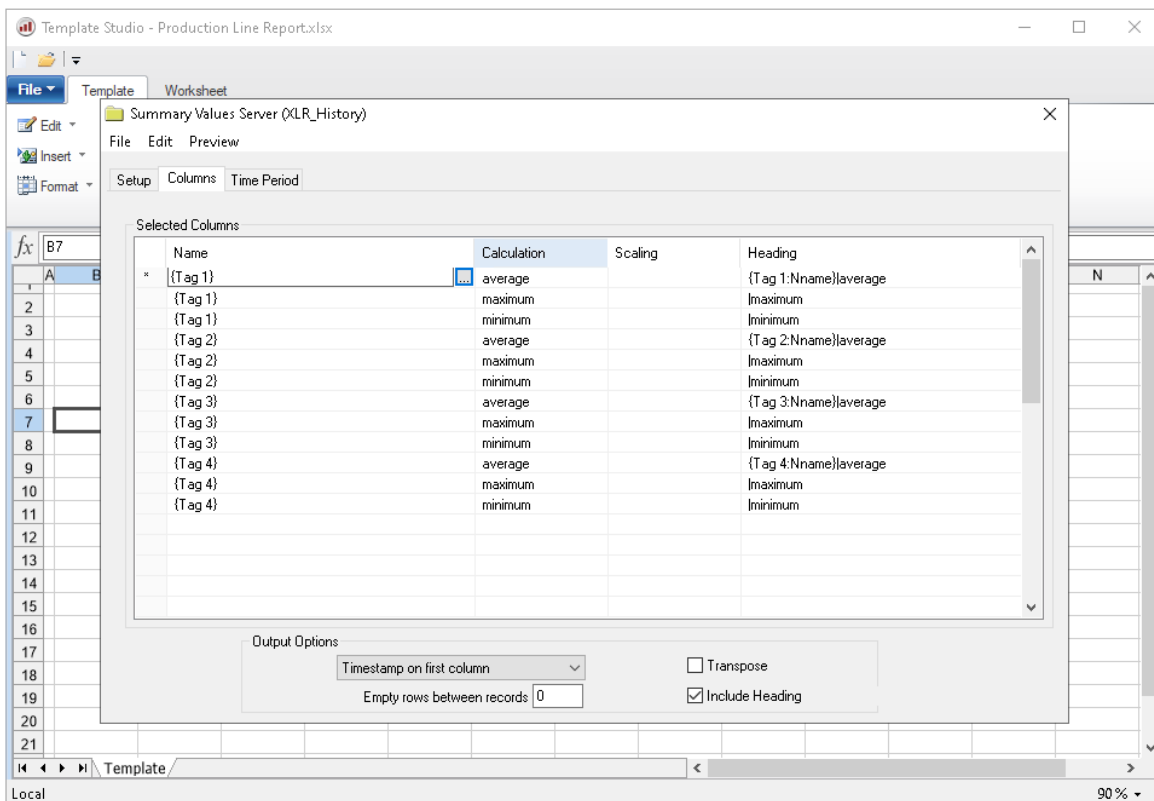
The template data connections use alias names.



In the above example, an alias name is used in an **Expression** connection to provide a title at cell $B3$. There are also alias names used in the data group connector.

Data Group

Using alias names in a data group opens the possibility of re-using the group over different sets of tags, i.e., different process equipment.

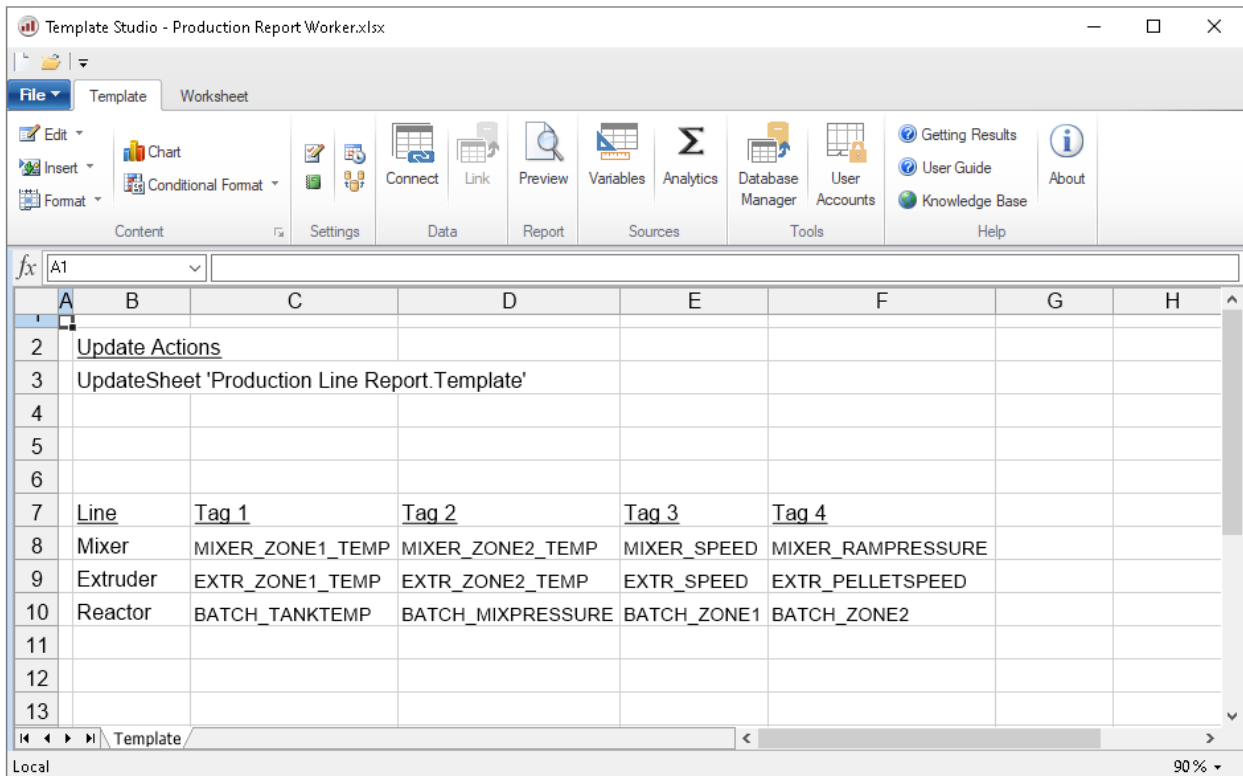


In the above example, alias names have been used for the tag **Names** and also the **Heading**.

Worker Template

The worker template is used to drive the reports from the report template. The template consists of the schedule actions that are required to produce the report and the physical tag name to alias name relationship.

Note that the heading of the alias name table correspond to the alias names required by the report template and that each row represents a set of physical values that are assigned to the alias name.

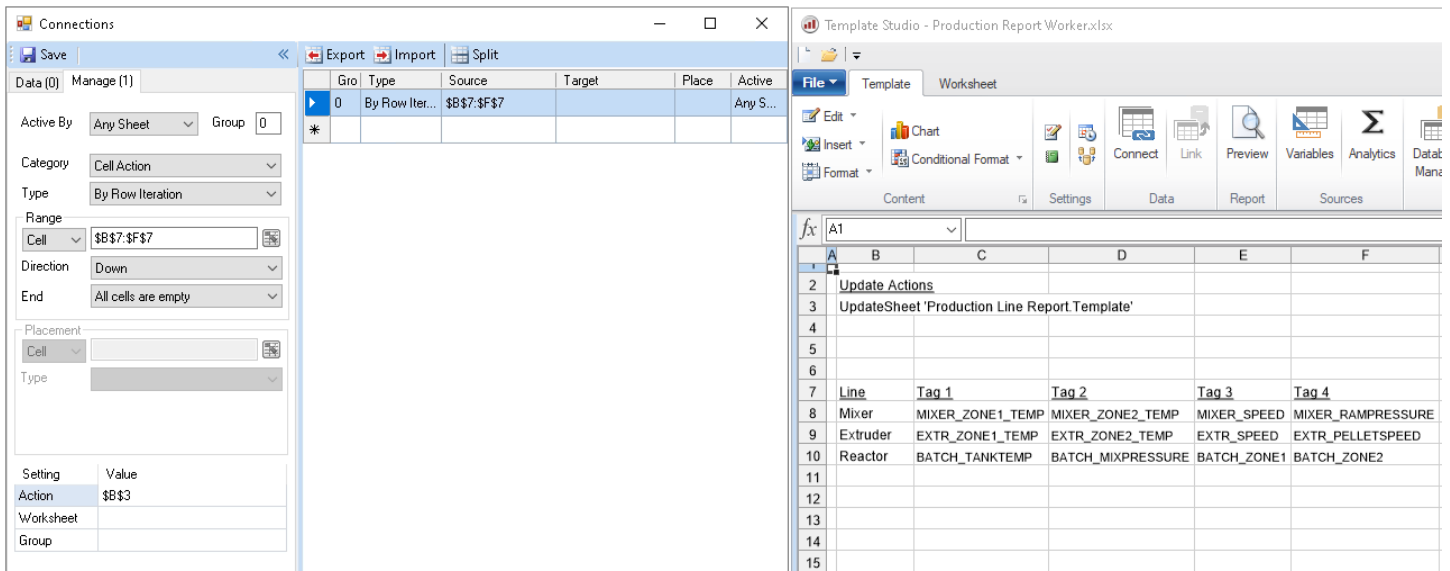


In the example above, the schedule action is in cell \$B\$3, the alias names are in row 7 and the physical value for the alias names are in rows 8 to 10. The management connection in the next section processes all this information to produce the reports.

Management Connection

A **Cell Action by Row Iteration** connection performs the schedule actions iteratively over each row in the alias table. For example, when the scheduler initiates the worker template example of the previous section, the physical values starting at row 8 are assigned to the alias names and the action starting in row 3 are processed. The net result is the schedule action runs 3 times, one for each set of alias names.

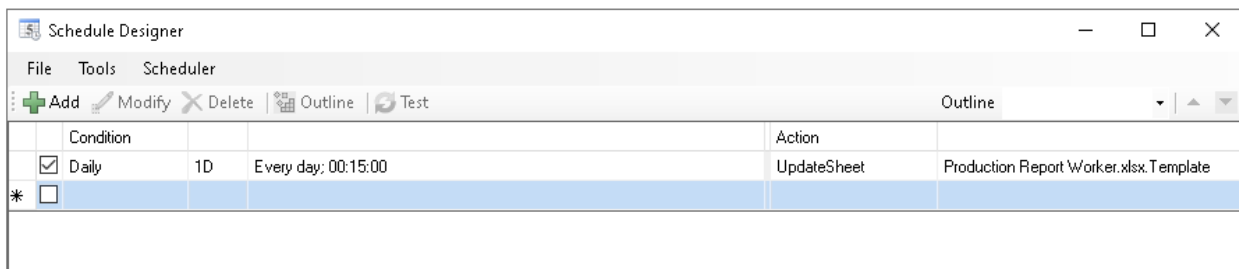
Open the **Connect** menu to the **Manage** tab to add the **Cell Action by Row Iteration** management connection.



The **Range** parameter is set to the alias table with the **Direction** is set to *Down* until *All Cells are Empty*. The **Action** is set to $\$B\3 .

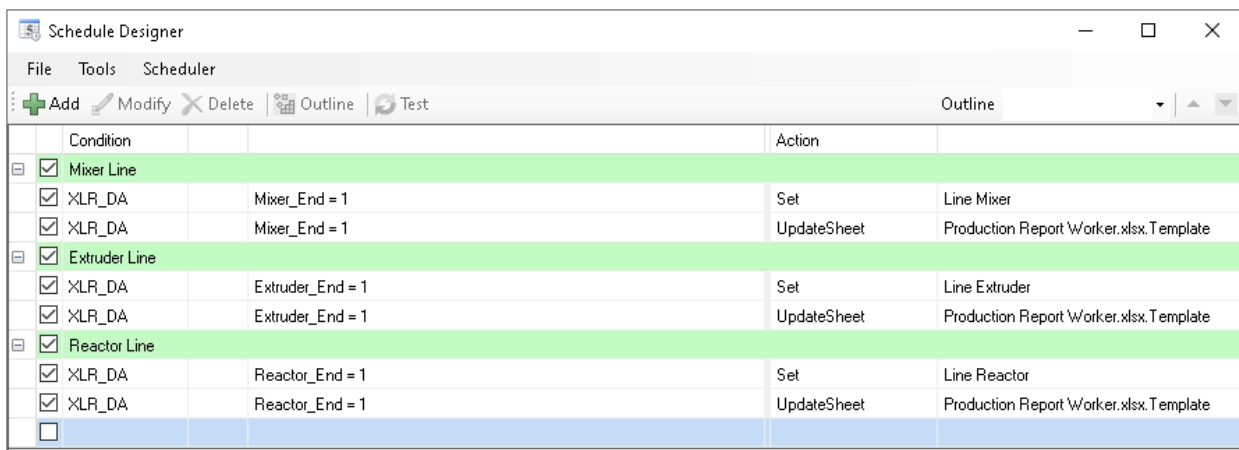
Schedule

The worker template is executed by the scheduler which in turn processes the report template.

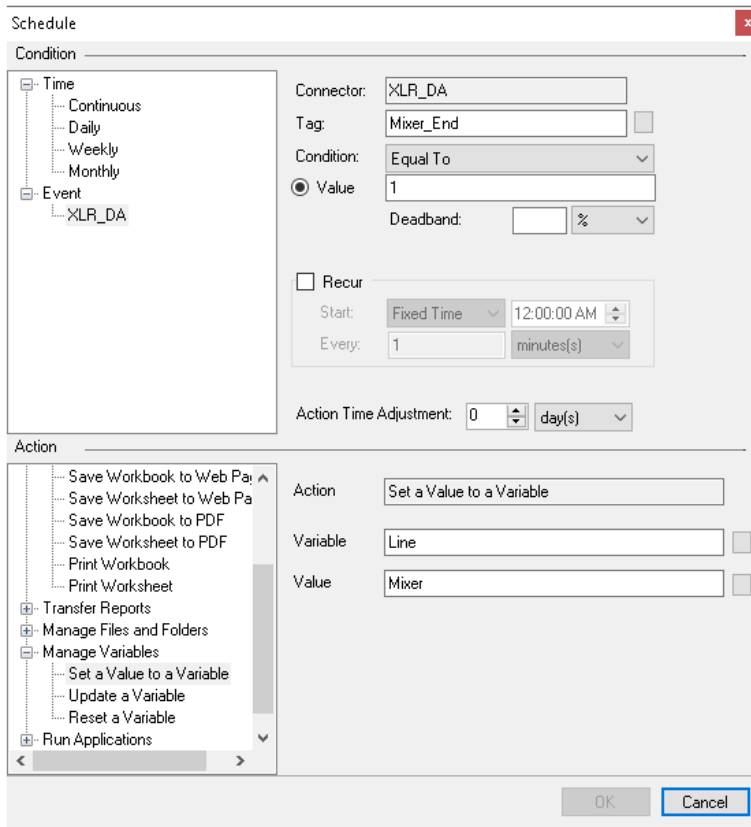


Example

A production facility with 3 production lines requires the same report produced from each line when a batch cycle is completed. For this scenario, the schedule is modified to update individual production lines based on **Event Conditions**.

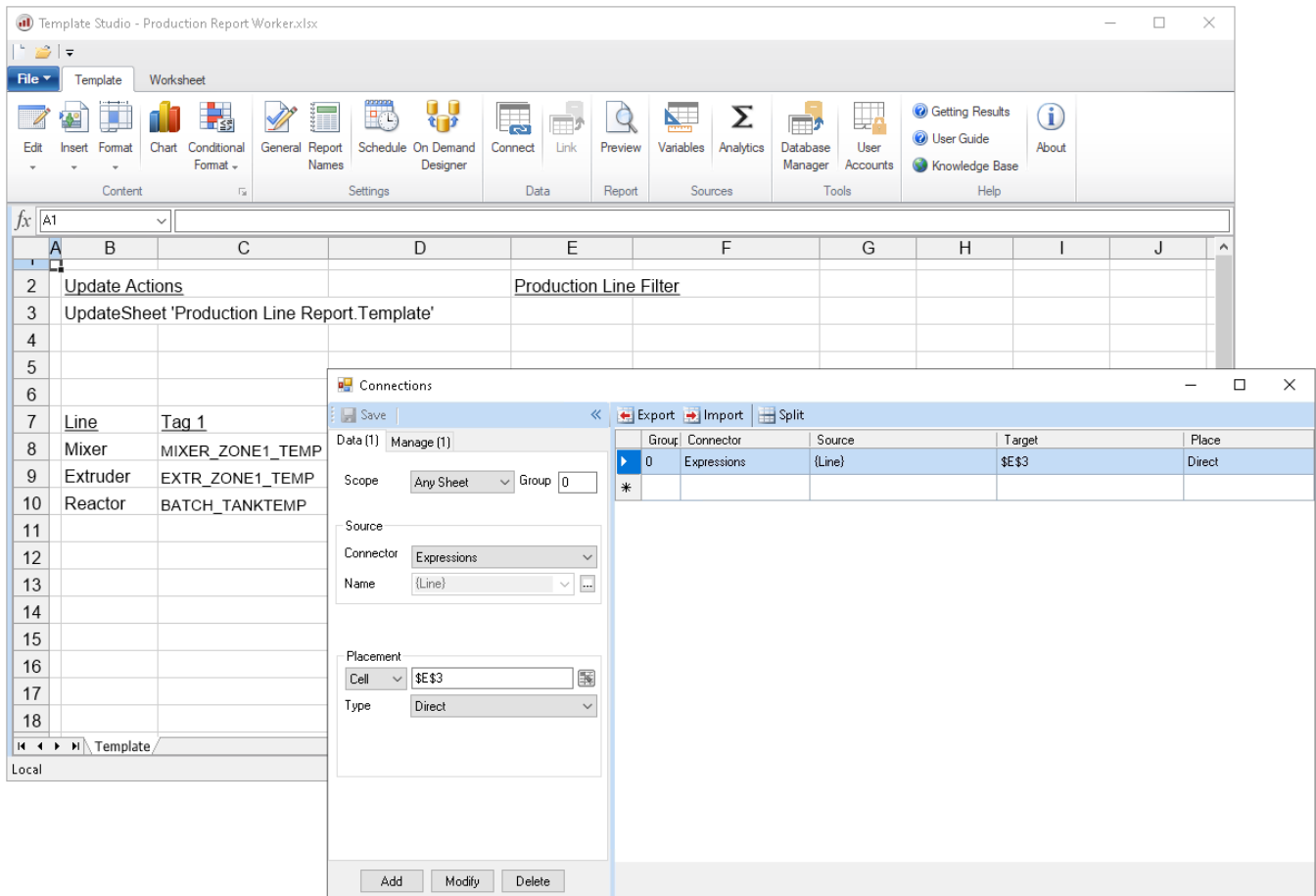


For each production line, a **Set a Value to a Variable** action is processed on the **Event Condition** which indicates that the production line has completed its cycle. The set action is followed by an action to update the *Production Report Worker* template on the same condition.

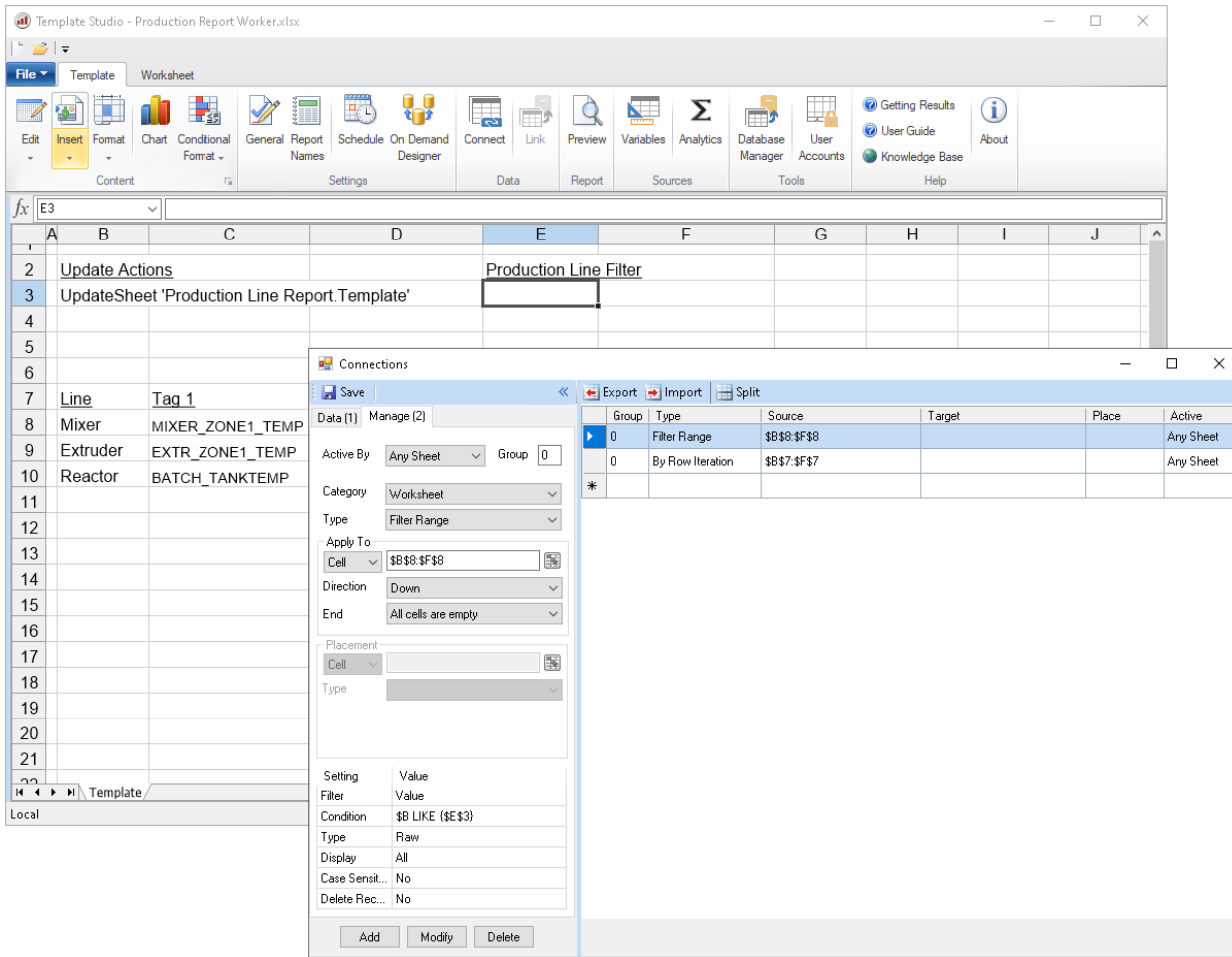


The **Variable** parameter of the set action is set to *Line* and the **Value** is set to the name of the line as indicated in the alias connections table in the report template.

An additional Data Connection is added to the *Production Report Worker* template.



The **Expressions** connection to the variable $\{Line\}$, placed in cell $\$E\3 indicates which line is updated by the event trigger.



A **Management Connection** is also added. The **Filter Range** connection operates on the alias table starting on the first row below the headings ($\$B\$8:\$F\8) and keeps only the row that matches the expression value passed in from the schedule. The result is that at the time of the event trigger, the *Production Line Report* Template is only updated for that particular line.