

Real Time Data Groups

Overview

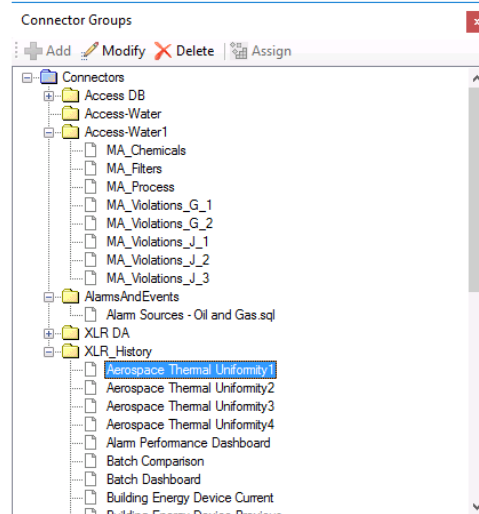
Data Groups are used to fetch data from the source defined in a **Connector** and place it in a report. The configuration of a group does not require any knowledge of how information is organized in the **Connector**.

A **Real Time Data Group** is built with a real time connector, such as OPC-DA Server, to extract the most current value. They can be used in snapshot reports as well as tabular reports. For tabular reports, the group is used repeatedly to add new rows/columns say, every hour over a day.

Quick Access

Data Groups can be accessed for modification by selecting a template from the main window of the **Project Explorer** and clicking the group from the template items in the bottom of the Left View.

Another direct method is to use the **Connector Group** application for creating and modifying **Data Groups**. From the **Project Explorer** select **Tools** tab, **Diagnostic, Connector Groups** to display all the connectors defined for the project and the data groups that are using them.

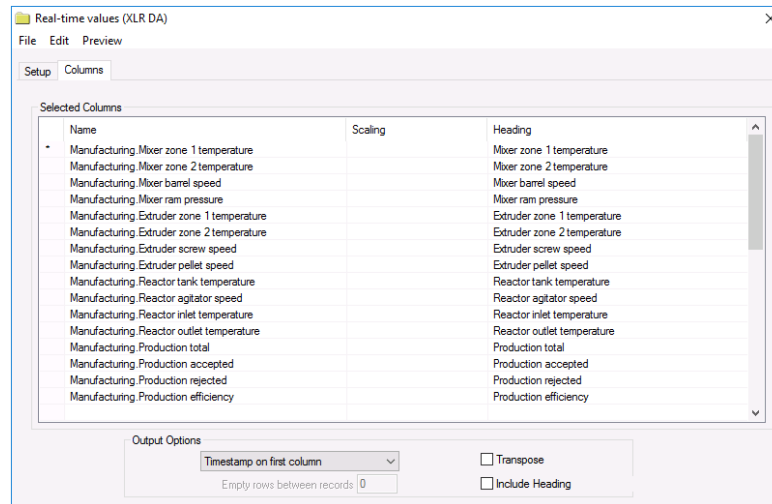


If a data group references a connector that does not exist, it is displayed with a red image. In this case, the group can be re-assigned to a different connector by selecting **Assign** and choosing the new connector.

Group Builder

Columns Tab

The **Columns** tab shows the item **Names** configured in the group. Up to 40 items can be configured in a group.



Browsing and Selecting Item Names

To add an item, select a cell in the **Name** column, and click the browse button (...) to open the item browser. A **Name** can be one of three choices:

- **Literal name:** Actual name of the item (as configured in the server). A literal name can be selected from the **Online** browser or from a **Catalog**.
- **Variable name:** A variable item is a placeholder that is assigned a literal item name at the runtime of a report. Variable names can be selected from the **Variables** branch of the item browser and can be a **User-Defined** or a **Register** variable. User defined variables are not limited to the *{Tag X}* syntax – these can be assigned to any expression, e.g. *{Temperature}* or *{Pressure}* by typing in the name.
- **Static Variable name:** Fixed text.

Variables (displayed in *{ }*) provide a way to assign the item names externally, e.g., when the group is used on-demand, the item name is specified.

Static Variables (displayed in **{ }*) are considered fixed text for display only and is not used for data retrieval. Select **Treat as Text** to configure.

Grid rows are moved relative to each other, **Inserted** or **Deleted** by right clicking on the left most column or using the up/down and insert/delete keys on the keyboard.

When empty rows are set between two items, the output of the group will contain empty rows/columns. Use empty rows to prevent calculations in the template from being overwritten in the report.

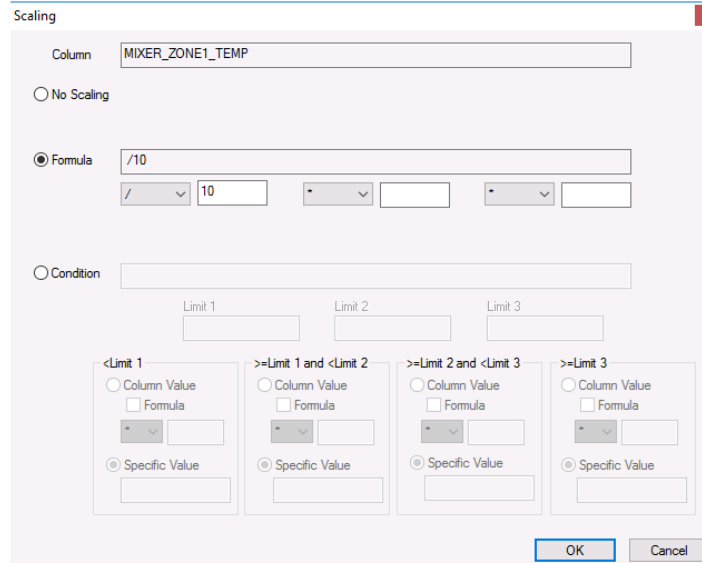
If the **Scaling** is left blank then the value is not scaled. By selecting **Scaling** the scaling dialog is displayed (see **Scaling**).

The **Heading** shows the text that appears in the output if **Include Heading** is enabled. This is fixed text or a variable. By selecting **Heading** the heading dialog is displayed (see **Heading**).

By default, the output has each selected column as a column. By selecting **Transpose**, each selected column is displayed as a row.

Scaling

The value produced by a data group can be **Scaled** using a **Formula** or limit **Conditions**.



Formula scaling provides three operators with values.

Example: An item contains the flow rate in gallons/minute. To calculate the total flow in MGD perform an average on the item value and then scale with ***1440/1000000**.

Example: An item contains the temperature in Fahrenheit. To convert to Celsius scale, use the formula **-32*5/9**.

Condition scaling provides up to three **Limits** that provide up to three ways the value can be scaled. The scaling supported are:

- Specific Value
- Column Value
- Column Value that has an applied Formula

Example: When an item value is below 0.001, display the text *negligible* otherwise show the value.

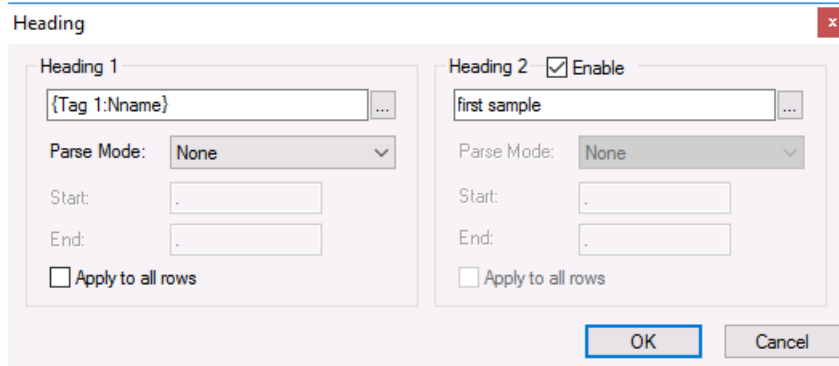
Example: When an item value is below 100, display blank otherwise scale the value by 1000.

Example: A digital item contains the state of a pump. When the value is less than 0.5 display **OFF**, otherwise **ON**.

Example: An item contains the temperature of an oven. Display **LOW**, **MEDIUM**, and **HIGH** at specified temperature thresholds.

Heading

When **Include Heading** is selected on the main display, up to two headers can be included in the output of the group. To change a heading of a defined item, select the cell in the **Heading** column and enter the heading manually. To change a heading for a variable item, select the cell in the **Heading** column and click the browse pushbutton [...].



Headings can be fixed text, a **Variable**, or a combination of both. A variable would normally be used when the item name is also a variable.

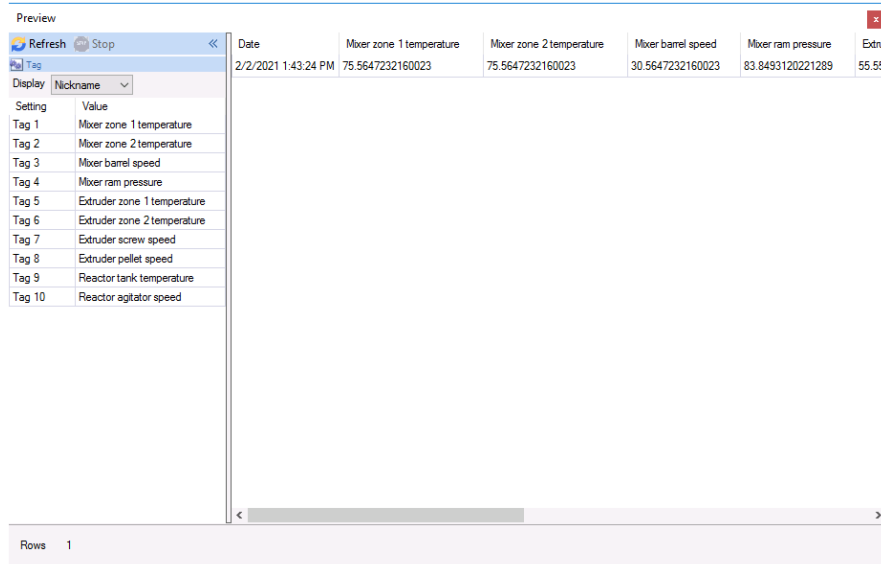
When a **Variable** is used, substrings can be created using the **Parse Mode**. The following options are available:

- **Before Start**
Substring contains all the characters before the **Start** character.
- **After End**
Substring contains all the characters after the **End** character.
- **Between Start and End**
Substring contains all the characters between the **Start** the **End** character.

When either **Heading 1** or **Heading 2** is a variable and the field of the variable is changed, e.g., from *Nickname* to *Description*, that change can be applied to all the other headings in the group by checking the **Apply to all rows** setting under the appropriate heading.

Preview

Preview is opened from the **Preview** menu option. To preview the output of the group settings, click the **Refresh** pushbutton.



Multiple instances of **Preview** can be opened to compare data.

If the group contains **Variables**, they are listed in the display so that values can be specified.

Variables

When variables are used in data groups, their usage becomes more flexible since the variables can be given a value when it is deployed.

The following group settings can be specified as a variable:

- Names
- Headings (including parsing)

Name Variables

When a variable is used for the **Name** under the **Columns** tab, there are 3 different values that are available from that variable:

- Name (e.g., *{Item 1}*)
- Nickname (e.g., *{Item 1:Nname}*)
- Description (e.g., *{Item 1:Desc}*)

These additional variables can be used in the **Heading** in the group or as a **Variable** connection in the template to display more information in the report.

Data Errors

If there are issues in retrieving data, rather than showing an erroneous value, a symbol may appear in the report.

Symbol	Description
???	The quality of the value returned from the server is bad.
###	The item specified is not valid.
@ @ @	The connection to the data server failed.
!!!	Value error
unk	The item specified is not valid. (Exclusive to Data Agent Connections)
% % %	No memory

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