Designing On-Demand Reports

Overview

There are two ways to create a report, automatically and on-demand. This document describes how to design an on-demand report. To deploy on-demand reports, refer to the **Deploy On-Demands Reports** document.

From a user's perspective, an on-demand report is generated by entering custom values and then clicking **Refresh**. This can be performed locally, or from Team clients on the network or from mobile devices.

The steps required in designing an on-demand report are:

- **Step 1** Create a Template with Variables

  A template with **Variables** allows an end user to assign values to the variables and produce a custom report. It is recommended to create all required variables in the **Variable Editor** on the **Connect** section of the **XLReporter Project Explorer** under the **User Defined** section.

- **Step 2** Assign input methods for the Variables

  When a template is saved, **XLReporter** assigns an input method to the Variables. For example, a date variable has a date calendar assigned. If custom input methods are required, then the **On-Demand Designer** is used.

- **Step 3** Deploy the Template.

On-Demand Designer

The **On-Demand Designer** is accessed from an open template in the Template Studio.

The display consists of two tabs, **Variables** and **Actions** and a grid that is partitioned into DATE, PARAMETER, TAG and DATABASE with each representing a Panel (see **Panels**).

When assignments to the grid have been completed, click **Preview** to view the **Panels** from the perspective of the end user. The display shown is in fact the left panel of **On-Demand** reports.

To save changes click **Save**.
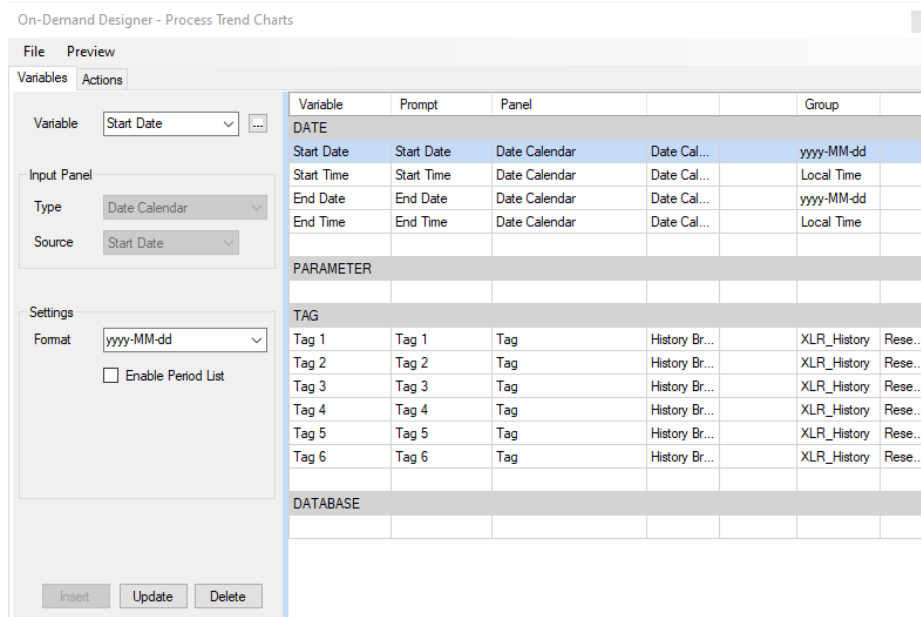
Variables Tab

The **Variables** tab is used to specify the method by which a variable is assigned a value. The selection of the input method is usually dictated by the context of how the variable is used. For example, if the variable represents a date, a Date picker would be appropriate.

Completed settings are added to the grid by clicking **Insert**.

Select a **Variable** from the drop-down list containing a list of variables. If the variable is not listed, a browse pushbutton […] is provided to select any variable configured in the project. Alternatively, variables can be manually entered.

Under **Input Panel** the **Type** is typically read only and changes depending on what row is selected in the grid to the right.
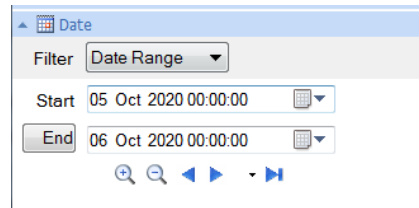
DATE

The DATE panel is used to specify elements of date and time to variables. Specifically, using the DATE panel provides the Start Date, Start Time, End Date and End Time elements from the control.
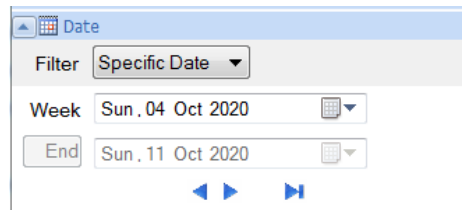
Input Panel

Type

- **Date Calendar**

  This **Type** can be used to specify any of the elements available from the control depending on what **Source** elements are configured.

- **Date Interval**

  This **Type** can be used to specify the *Start Date* (and possibly *Start Time*) for a specific interval like a day, week, or month.

Source

The element of the DATE panel to set to the specified **Variable**. The following are available:

- **Start Date**

  The value for the variable comes from the Start Date of the panel.

- **Start Time**

  The value for the variable comes from the Start Time of the panel.

- **End Date**

  The value for the variable comes from the End Date of the panel.

- **End Time**

  The value for the variable comes from the End Time of the panel.

Settings

Format

This setting is only available when the Source is Start Date or End Date.

This defines the format of the date when the value is written to the variable. If the format required is not listed, it can be manually entered. The following formats are selectable:

- *Local Date*

  The short date format as defined in the Windows Control Panel. Use this **Format** when the **Variable** must be set with a date in the local format.

- *Local Time*

  The 24-hour format as defined in the Windows Control Panel. Use this **Format** when the **Variable** must be set with a time in the local format.

  The *Start Time* and *End Time* are always set in this **Format**.

- *Local Date Time*

  The local date and time formats (with a space in between) as defined in the Windows Control Panel. Use this **Format** when the **Variable** must be set with a date and time with both in local format.

If this **Format** is configured and **Source** is *Start Date*, the **Variable** is set with the *Start Date* and *Start Time* from the panel. If **Source** is *End Date*, the **Variable** is set with the *End Date* and *End Time* from the panel.

- *yyyy-MM-dd*

  The universal date format used by virtually all database engines. This is the default **Format** for *Start Date* and *End Date* and should be used unless the local format is explicitly required.

- *yyyy-MM-dd hh:mm:ss*

  The universal date and time format used by virtually all database engines. If the **Variable** requires both a date and time use this **Format** unless the local format is explicitly required.

  If this **Format** is configured and **Source** is *Start Date*, the **Variable** is set with the *Start Date* and *Start Time* from the panel. If **Source** is *End Date*, the **Variable** is set with the *End Date* and *End Time* from the panel.

Period

This setting is available when the **Input Panel Type** is set to *Date Interval*.

This setting defines the interval period added to the *Start Date* and *Start Time* specified to determine the *End Date* and *End Time*. This also defines the interval that the start and end change by when panning to the left or to the right.

- **Hourly**

  The *End Date* and *End Time* are calculated as the *Start Date* and *Start Time* plus 1 hour.

- **Daily**

  The *End Date* is calculated as the *Start Date* plus 1 day. The *Start Time* and *End Time* are both fixed at midnight and are not displayed in the panel.

- **Daily. Start time**

  The *Start Time* is specified in the list to the right. The *End Date* and *End Time* are calculated as the *Start Date* and *Start Time* plus 1 day.

- **Weekly**

  The *End Date* is calculated as the *Start Date* plus 1 week. The *Start Time* and *End Time* are both fixed at midnight and are not displayed in the panel.

- **Weekly. Start day**

  The day of the *Start Date* is specified as a day of the week in the list to the right. The *End Date* is calculated as the *Start Date* plus 1 week. The *Start Time* and *End Time* are both fixed at midnight and are not displayed in the panel.

  If the user selects a date that is not the same day of the week as specified to the right, the date is set to the date of that day of the week. For example, if the Start day is set to *Wednesday* and the user selects *January 3rd, 2020*, the Start Date is *January 1st 2016* as that was the date of the previous Wednesday before January 3rd.

- **Monthly**

  The *End Date* is calculated as the *Start Date* plus 1 month. The *Start Time* and *End Time* are both fixed at midnight and are not displayed in the panel.

- **Monthly. Start day**

  The day of the *Start Date* is specified as a day of the month in the list to the right. The *End Date* is calculated as the *Start Date* plus 1 month. The *Start Time* and *End Time* are both fixed at midnight and are not displayed in the panel.

  If the user selects a date other than the Start day specified to the right, the Start Date is set to the month and year of the date chosen but to the day specified as the Start day. For example, if Start day is set to *1* and the user selects *January 15th, 2020*, the Start Date is set to *January 1st , 2020*.

Enable Period List

When checked, the DATE panel displays a list of standard time periods to select from which require no additional entry as well as an option where the user can enter specific dates and times.

This list appears at the top of the panel labeled as **Filter**.

Limit Time Period

This setting is available when the **Input Panel Type** is *Date Calendar* and **Source** is *End Date*.

This setting is used to limit the overall time period the user can specify in the panel. Common settings are provided to choose from. A custom setting may be entered in the format *[DD] HH:mm:ss*, e.g., *[15] 12:00:00* for 15 days and 12 hours. The limit is always imposed from the start date and time.

This setting must be at least 1 day.
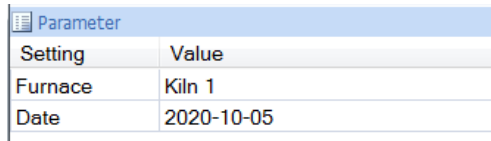
Required Settings

In order to use this panel a **Variable** must be configured for the *Start Date*. All others are optional.

If the **Type** is *Date Calendar* and the *End Date* and *End Time* are not configured to **Variables**, the **End** settings are disabled in the panel.

If only the *Start Date* and *End Date* are configured to **Variables**, in the panel the **Start** and **End** are both shown as dates with no time displayed.

PARAMETER

The PARAMETER panel is an "all purpose" panel that can be used to prompt the user for settings using many different input sources.

Input Panel

Source

- **Text Box**

  A text box is presented to the user to enter in the **Value**. The user can enter anything they wish.

- **Date Picker**

  A date calendar picker is presented to the user to select a date.

- **Time Picker**

  A time picker is presented to the user to configure a time in hours, minutes, and seconds.

- **Database List**

  The results of a database data group are presented as a list of values for the user to select for the **Value**.

- **Text From File**

  A list of values is read from a text file and presented to the user to select for the **Value**.

- **File From Folder**

  A list of files from a specified folder is presented to the user to select for the **Value**.

- **Custom List**

  A custom list is specified and presented to the user to select for the **Value**.

- **Yes/No List**

  A list containing *Yes* and *No* are presented to the user to select for the **Value**.

- **True/False List**

  A list containing *True* and *False* are presented to the user to select for the **Value**.

- **Tag Catalog**

  A tag browser is presented to the user with all the tags listed from the **Catalog** specified to select for the **Value**.

  If the report requires multiple tags to be specified it is better to use the TAG panel.

- **Real Time Browser**

  A tag browser is presented to the user with all the tags available from the Real Time **Connector** specified to select for the **Value**.

  If the report requires multiple tags to be specified it is better to use the TAG panel.

- **History Browser**

  A tag browser is presented to the user with all the tags available from the History **Connector** specified to select for the **Value**.

  If the report requires multiple tags to be specified it is better to use the TAG panel.

Settings for All Sources

Prompt

The text displayed to the user under the **Setting** column of the panel prompting them for a value.

Reset

This setting determines what rows get reset if the value of the current row changes.

- **Reset None**

  No other rows are reset when the value of the current row changes.

- **Reset All**

  The **Value** of all other rows beneath the current row are reset when the value of the current row changes.

- **Reset Next**

  The **Value** of the row immediately beneath the current row is reset when the value of the current row changes.

Settings for Text Box

Initial

The initial value to show for the **Value** when the template is loaded in the On Demand Reports application or web portal.

Settings for Date Picker

Format YYYY-MM-DD

If checked, the format of the date written to the variable is *YYYY-MM-DD*. Otherwise, the format is the local short date format as set in the Operating System.

In most cases this setting should be checked.

Settings for Database List

Group

The Database Data Group in the project that provides the list for the user to choose from. A browse button (…) is provided to select an existing group. The group should be a **Standard** database group.

In the group, if two columns are selected the first column is used as the display and the second is used as the value. So, the list the user sees comes from the first column, but the value set to the **Variable** is from the second column.

Initial

The initial value to show for the **Value** when the template is loaded in the On Demand Reports application or web portal.

A browse button (…) is provided to select the value from the same list presented to the user.

Settings for Text From File

File

A text file (*.txt) containing a list of values for the user to choose from. A browse button (…) is provided to select an existing text file or create a new text file. The file must be in the **Input** directory of the project and have the file extension *.txt*.

In addition, the values inside the text file must be separated by the semicolon character (;).
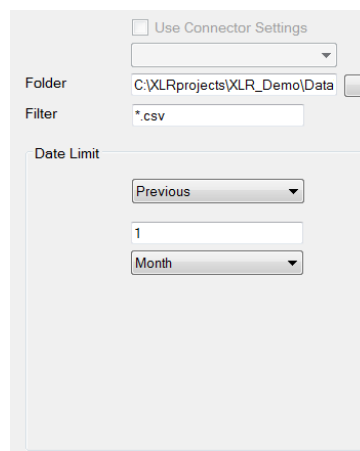
Initial

The Reports application or web portal.

A browse button (…) is provided to select the value from the same list presented to the user. initial value to show for the **Value** when the template is loaded in the On Demand

Settings for File From Folder

Folder

The folder containing the files to present to the user to select from. A browse button is provided for the setting.

If the project has any Text File connector(s) configured, the **Use Connector Settings** option is enabled. When checked, the list below is enabled displaying all the available connectors. The **Folder** and **Filter** settings are read from the connector.

Otherwise specify the **Folder** where the files are located and a **Filter** to restrict the list presented.

The **Date Limit** is provided as another filter for the list of files. This filter works off the Date Modified of every file in the **Folder** that matches the **Filter** specified. If the Date Modified is within the limit specified, it is listed, otherwise it is not. If the **Variable** option is selected, the variables must be configured in the PARAMETER panel.

Settings for Custom List

List

The list to present to the user to select from. A browse button (…) is provided to build the list.

Display	Value
apple	1
pear	2
peach	3
banana	4
orange	5

Each entry in the list can consist of a **Display** and a **Value**. **Display** is what the user sees and selects, **Value** is what is set to the **Variable**.

Initial

The initial value to show for the **Value** when the template is loaded in the On Demand Reports application or web portal.

A browse button (…) is provided to select the value from the same list presented to the user.

Settings for Tag Catalog

Catalog

The catalog configured in the project with the list of tags to display to the user.

Initial

The initial value to show for the **Value** when the template is loaded in the On Demand Reports application or web portal.

Settings for Real Time Browser and History Browser

Connector

The Real Time or History connector that provides the tags for the user to select from. A browse pushbutton (…) is provided to select from the list of available connectors.

Initial

The initial value to show for the **Value** when the template is loaded in the On Demand Reports application or web portal.

List Sources

When **Source** is set to one of the "List" options like *Database List* or *Custom List* the **Display** and **Value** parameters may be set. The **Variable** itself is set to the *Value*.

However, if the **Display** value must also be shown in the report, it can be done so by setting a Variable connection to {Variable:Display}. For example, if the **Variable** is *Filter 1*, to show the **Value**, use *{Filter 1}* to show the **Display** value use *{Filter 1:Display}*.

Cascading Parameters

When configuring a **Database List,** the underlying Database Data Group can contain variables set in the rows above in the panel so that the list is restricted based on other settings in the panel.

For example, consider an Alarms report where the user wants to see all the alarms for a specific tag between two specified dates. Now, this could be accomplished by presenting the user a PARAMETER panel where they specify the *Start Date*, *End Date* and *Tag* as separate items. However, this means that there is a chance they pick a tag that has no alarms between the start and end.

To avoid this problem for the Tag, construct a Database Data Group that queries a DISTINCT list of tags and for the **Filter**, use the *Start Date* and *End Date* variables. Now when the user clicks to select a Tag they will only see the tags that had alarms between the Start and End they specified.

As a final touch, for the *Start Date* and *End Date* set the **Reset** to *Reset All* so that if the *Start Date* or *End Date* is changed, the *Tag* resets forcing the user to select one that has alarms over that time.

TAG

The TAG panel is available for the user to specify one or more tags for the report. The advantage of this panel over the PARAMETER panel is that if multiple tags are selected from the browser they are assigned to multiple rows in the TAG panel.

Also, every tag can be configured to have a *Name*, *Nickname* and *Description*. Sometimes the *Name* can be so cryptic that the user may not recognize what it is. However, the *Nickname* and/or *Description* may be clearer and thus make it easier for the user to recognize it. With the TAG panel the **Display** can be toggled between *Name*, *Nickname* and *Description*.

Typically, this panel is configured so every row has the same settings except for **Variable** and **Prompt**.

Source

- **Tag Catalog**

  A tag browser is presented to the user with all the tags listed from the **Catalog** specified to select for the **Value**.
- **Real Time Browser**

  A tag browser is presented to the user with all the tags available from the Real Time **Connector** specified to select for the **Value**.
- **History Browser**

  A tag browser is presented to the user with all the tags available from the History **Connector** specified to select for the **Value**.

Settings

Prompt

The text displayed to the user under the **Setting** column of the panel prompting them for a value.

Reset

This setting determines what rows get reset if the value of the current row changes.

- **Reset None**

  No other rows are reset when the value of the current row changes.
- **Reset All**

  The **Value** of all other rows beneath the current row are reset when the value of the current row changes.
- **Reset Next**

  The **Value** of the row immediately beneath the current row is reset when the value of the current row changes.

Catalog

This setting is only available when **Source** is set to *Tag Catalog*.

The catalog configured in the project with the list of tags to display to the user.

Connector

This setting is only available when **Source** is set to *Real Time Browser* or *History Browser*.

The Real Time or History connector that provides the tags for the user to select from. A browse pushbutton (…) is provided to select from the list of available connectors.

Initial

The initial value to show for the **Value** when the template is loaded in the On Demand Reports application or web portal.
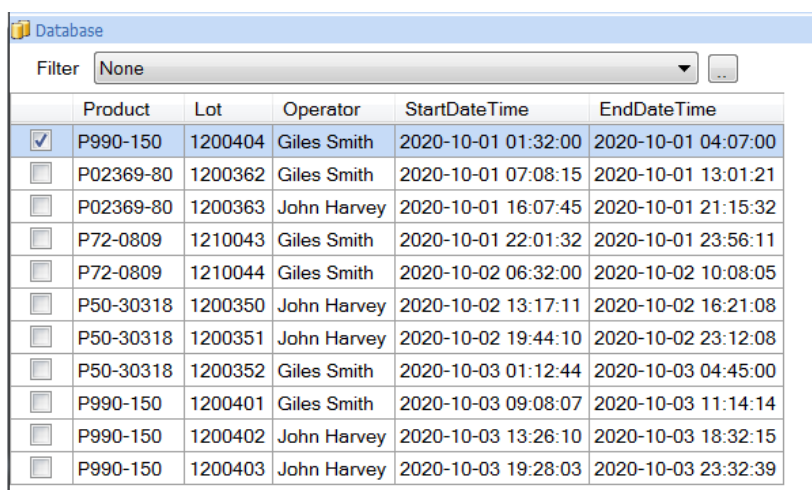
Display

The initial tag element to display when the report template is loaded in the On Demand Reports application or web portal. This can be set to show *Name*, *Nickname* or *Description*.

Note that this setting applies to every row in the panel not just the row selected.

DATABASE

The DATABASE panel is used to present records from a Database Data Group for the user to select from to generate a report. Each column selected in the group can be configured to a Variable so multiple variables can be set from one record.

	Product	Lot	Operator	StartDateTime	EndDateTime
✓	P990-150	1200404	Giles Smith	2020-10-01 01:32:00	2020-10-01 04:07:00
☐	P02369-80	1200362	Giles Smith	2020-10-01 07:08:15	2020-10-01 13:01:21
☐	P02369-80	1200363	John Harvey	2020-10-01 16:07:45	2020-10-01 21:15:32
☐	P72-0809	1210043	Giles Smith	2020-10-01 22:01:32	2020-10-01 23:56:11
☐	P72-0809	1210044	Giles Smith	2020-10-02 06:32:00	2020-10-02 10:08:05
☐	P50-30318	1200350	John Harvey	2020-10-02 13:17:11	2020-10-02 16:21:08
☐	P50-30318	1200351	John Harvey	2020-10-02 19:44:10	2020-10-02 23:12:08
☐	P50-30318	1200352	Giles Smith	2020-10-03 01:12:44	2020-10-03 04:45:00
☐	P990-150	1200401	Giles Smith	2020-10-03 09:08:07	2020-10-03 11:14:14
☐	P990-150	1200402	John Harvey	2020-10-03 13:26:10	2020-10-03 18:32:15
☐	P990-150	1200403	John Harvey	2020-10-03 19:28:03	2020-10-03 23:32:39

Database — Filter: None

A typical use for this panel is in a discrete batching environment where each time a batch is triggered the start and end of the batch along with a batch identifier is logged as a record in a database table so that time period can be used to extract data for the batch from a continuous historian.

Normally when this panel is configured it is the only panel used for the template.

Input Panel

Group

The Database Data Group to feed the data to the panel. This must be a **Standard** database group.

Settings

Column

This setting presents a list of all the available columns from the selected group. Select one to correspond with the **Variable** specified.

Hide

If checked the column is hidden in the panel. The value is still set to the Variable, the user just does not see it.

Use as Filter

This setting is only available if the Column selected is a timestamp. However, if the timestamp has an alias configured for it (e.g., MyTimestamp AS myTS) or if the group itself was manually entered under the SQL tab, this setting is not available. This setting should not be used if the timestamp is derived from a Summary function in the group (e.g., *MAX(DateAndTime)*).

If checked, at the top of the panel a **Filter** option is added which allows the user to filter the list of records in the panel based on date and time criteria.

Note that only one column can be designated as the **Filter**.

Single Selection

By default, multiple records can be selected in the panel. For every record selected, the variables are set and the report is triggered. This allows for multiple reports to be triggered at one time.

However, there are some instances where the user should only select a single row to generate the report. In those cases, this setting should be checked.

Note that this setting applies to the entire panel, not just the current row.

Format: YYYY-MM-DD

This option is only available when the selected **Column** is a timestamp.

By default, any column with a timestamp is formatted to match the local operating system. By checking this option, the date format of any timestamp is set to the universal *YYYY-MM-DD* format.

In most cases this option should be selected.

Column Headers

The headers at the top of the panel by default reflect the name of the column selected in the underlying Database Data Group. In some circumstances this can be limiting.

To overcome this, in the Database Data Group instead of selecting the column directly, configure an **Expression** to:

Column AS Alias

Add the **Expression** as to the **Selected Columns** list. Now instead of the column name, the alias is shown.

A good example of this is XLReporter's Event Frames. While the *StartDateTime* and *EndDateTime* are obvious, *Value1*, *Value2*, *Value3* and *Value4* are generic values that can be logged on the start of an event. To compensate for this, the group can be configured like this:
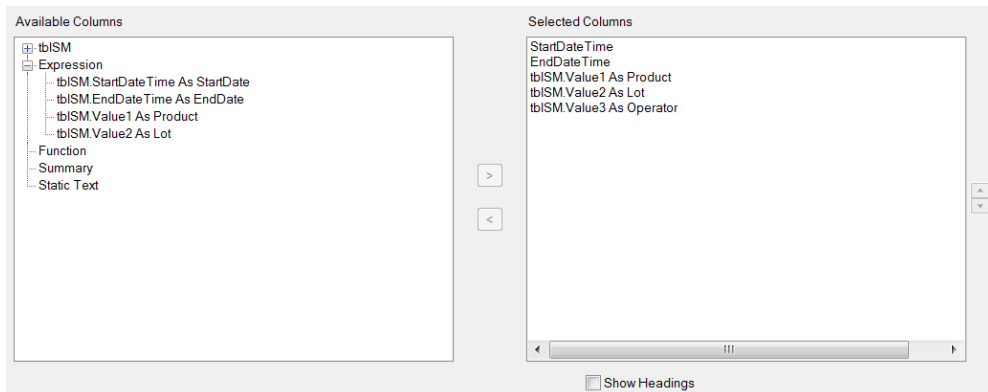
Now, instead of *Value1*, *Value2* and *Value3* at the top of the panel, *Product*, *Lot,* and *Operator* are shown instead.

Actions Tab

The **Actions** tab shows the actions that are performed when the template is **Refresh**ed. In most cases, this setting does not need changing. The following **Actions** are available:

- **UpdateBook**

  This action updates all of the worksheets in a workbook. Note that only data connections that have a defined **Scope** will be considered in the update.

- **UpdateGroupBook**

  This action updates all of the worksheets in a workbook but is restricted by the connection group number or list of group numbers specified.

  Note that irrespective of the connection group number(s) in the action, connections belonging to group zero are included for this action.

  Only connections that have a defined **Scope** are updated with this action.

- **UpdateSheet**

  This action updates a single worksheet.

- **UpdateGroupSheet**

  This action updates a single worksheet but is restricted by the connection group number or list of group numbers specified.

  Note that irrespective of the connection, group number(s) in the action, connections belonging to group zero are included for this action.

Variable Definition

As part of creating a template, variables can be used in many different areas in place of literal values. These variables are placeholders whose values can be specified by the user as part of generating a report on demand.

Every variable that is used in the template is automatically assigned an input method that is shown when the On Demand Reports application is run for that template. The following describes the default input method for certain variable types used in the template.

Date and Time Variables in Data Groups

If date or time variables are detected in groups they are assigned to the **Date Calendar** panel. If a variable is used for the end date, a limit is imposed on overall time period of the Date Calendar panel. The limit is determined as follows:

Data Groups from Historical Data

The limit is determined based on the **Interval** setting for the **Time Period**. If the **Interval** is time based (e.g., Every 5 minutes or Every 1 hour), the following rule is followed based on the unit:

Seconds

The limit is 1 day.

Minutes

If the **Interval** is a variable, the limit is 30 days; otherwise, the limit is 1 day.

Hours and Days

The limit is 30 days.

Weeks

The limit is 4 weeks.

Months

The limit is 3 months.

For all other **Interval Types**, the limit is 30 days.

Data Groups from Databases

The limit is 30 days.

Tag Variables in Data Groups

If variables are detected for tags in Data Groups from real time or historical data sources, they are assigned to the **Tag** panel with the **Source** and **Connector** set based on the connector of the group.

Other Variables

If no specific input can be determined for the variable, it is added to the **Parameter** panel with a text box input.

Report Date and Report Time

Report Date and Report Time are special variables which allow user input to any parameter in the template that is based around a relative date or time using a calendar control.

For example, a template set up to run daily to retrieve values from a historian. The History Data Group for this template would be set up with the **Time Period** as *Relative* with a **Duration** of *1 day* and **Start** at *00:00:00*.

When this template is updated by the **Scheduler** the report date is read from the operating system clock. However, to run this report in an **On Demand Reports** client or the Web Portal, the user selects the date manually using the calendar control.

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