

Template Library

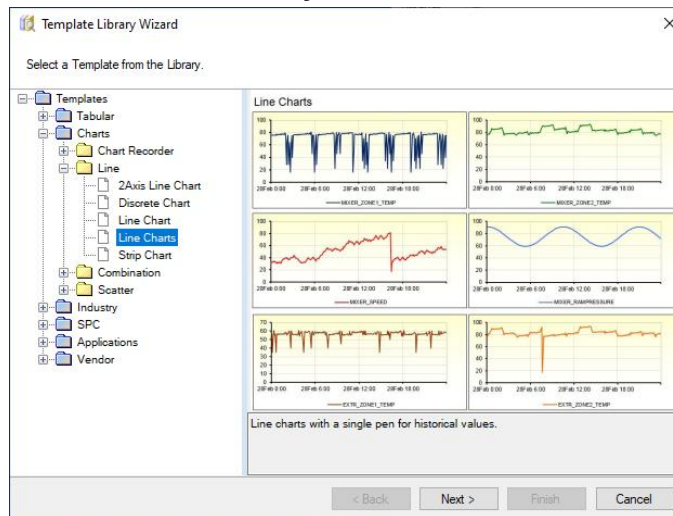
Overview

The **Template Library** is used to create fully report templates in a few easy steps.

To access, from the **Home** tab of the **Project Explorer**, select **Template, Library**.

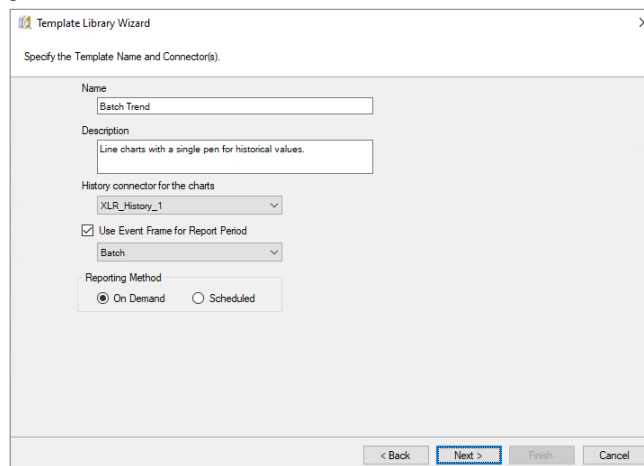
Template Library Wizard

Select a Template from the Library



The available library templates listed is based on the connectors configured in the current project. For example, if the project only contains a real time data connector, the library templates listed are those that only require a real time connector.

Select the Template Name and Connector



Enter a **Name**, a **Description** and the **Connector(s)** used to access data.

If the library template is configured for a history connector and there are **Event Frames** used in the project, the **Use Event Frame for Report Period** is enabled. By checking, all the configured **Event Frames** in the project are listed. For more information on **Event Frames**, see the **CONNECT, Setup**

Event Frames in the document library. For more information on using Event Frames with library templates, see the **Templates Using Event Frames** section below.

The **Reporting Method** determines if the template is to be used *On-Demand* or *Scheduled*.

Customize the Content of the Template

The template may have a set of values that can be customized. This can range from captions and labels in cells to the addition/removal of items. For *Scheduled* templates, the tag names are specified.

The screenshot shows the 'Template Library Wizard' dialog box with the title 'Customize the Content of the Template'. It features a tree view on the left with 'Content' and 'Variables' expanded. The main area is a table with columns 'Value' and 'Caption'. The table contains the following data:

	Value	Caption
Content	Line Charts	
Title	Line Charts	
Variables		
Tag 1	MIXER_ZONE1_TEMP	Mixer zone 1 temperature
Tag 2	MIXER_ZONE2_TEMP	Mixer zone 2 temperature
Tag 3	EXTR_ZONE1_TEMP	Extruder zone 1 temperature
Tag 4	EXTR_ZONE2_TEMP	Extruder zone 2 temperature
Tag 5	BATCH_TANKTEMP	Batch tank temperature
Tag 6		

At the bottom of the dialog are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

Not all tag names need to be specified.

The next steps are only applicable to a **Reporting Method** of *Scheduled*.

Setup Time Period

These settings define the overall **Period** of the report as well as the **Interval** used for the data spacing in the report.

The screenshot shows the 'Template Library Wizard' dialog box with the title 'Setup Time Period'. It is divided into two main sections: 'Period' and 'Interval'. The 'Period' section includes a 'Type' dropdown set to 'Relative', a 'Duration' section with 'Current' and 'Day' dropdowns, a checked 'Start At' checkbox, and a 'Start' time field set to '00:00:00'. The 'Interval' section includes radio buttons for 'Count' (set to 60), 'All', and 'Every' (selected). The 'Every' section has a numeric field set to '1' and a unit dropdown set to 'Hour'. At the bottom are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

Some templates may not allow all these settings to be modified. In addition, the **Type** and **Interval** options may change depending on the nature of the template, the data connector source(s) or if an **Event Frame** is used for the **Time Period**.

Setup Report Name

These settings define the **Report Names** for the template for the **WORKBOOK** and possibly **WORKSHEET**.

The screenshot shows the 'Template Library Wizard' dialog box with the 'Setup Report Name' step. The dialog has a title bar with a close button. Below the title bar is the text 'Setup Report Name.' and a toolbar with 'Modify' and 'Delete' buttons. The main area contains a table with columns: 'Template', 'Folder', 'Report', and 'Overwrite'. The table is divided into two sections: 'WORKBOOK' and 'WORKSHEET'. The 'WORKBOOK' section has one row with 'rtValuesLibrary.xlsx' in the 'Template' column, 'rtValuesLibrary_{MMM}{YYYY}' in the 'Report' column, and 'No' in the 'Overwrite' column. The 'WORKSHEET' section has one row with '{DD}' in the 'Report' column and 'No' in the 'Overwrite' column. At the bottom of the dialog are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

Template	Folder	Report	Overwrite
WORKBOOK			
rtValuesLibrary.xlsx		rtValuesLibrary_{MMM}{YYYY}	No
WORKSHEET			
		{DD}	No

It is recommended to accept the default values. Modifying the WORKBOOK setting to introduce a sub folder or changing the month from *{MMM}* to *{MMMM}* is perfectly acceptable.

For more information on **Report Names**, see **DESIGN, Template Studio** in the document library.

Setup a Schedule

These settings define the schedule lines used to generate reports from the template.

The screenshot shows the 'Template Library Wizard' dialog box with the 'Setup Schedule' step. The dialog has a title bar with a close button. Below the title bar is the text 'Setup Schedule.' and a toolbar with 'Add', 'Modify', 'Delete', and 'Outline' buttons. The main area contains a table with columns: 'Condition', 'Action', and 'Schedule'. The table has three rows. The first row is highlighted in green and has a checked checkbox in the 'Condition' column, 'Report of process value over a specified period.' in the 'Condition' column, and 'Report of process value over a' in the 'Action' column. The second row has a checked checkbox in the 'Condition' column, 'Continuous' in the 'Condition' column, 'Recur 1 hour(s); <every day>; 00:00:00' in the 'Schedule' column, and 'UpdateSheet' in the 'Action' column. The third row has an unchecked checkbox in the 'Condition' column. At the bottom of the dialog are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'.

Condition	Action	Schedule
<input checked="" type="checkbox"/>	Report of process value over a	
<input checked="" type="checkbox"/>	UpdateSheet	Recur 1 hour(s); <every day>; 00:00:00
<input type="checkbox"/>		

For templates that are period on time the schedule is usually complete. However, for templates based around process events, the schedule lines may contain keywords like *<StartEvent>*, *<ReportName>* or *<CollectEvent>*. In these cases, the keywords must be replaced (typically with tags from the real time data source) before the template is finished.

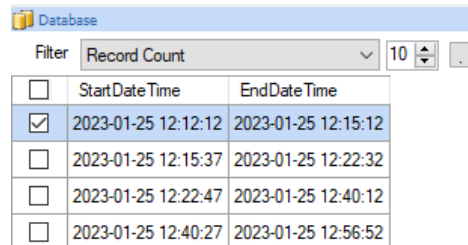
If additional publishing options are required like publishing to PDF or emailing a completed report, these actions can be added to the schedule before clicking **Finish**.

For more information on scheduling, see **REPORT, Deploy Schedule Reports** in the document library.

Templates Using Event Frames

On-Demand

If the **Use Event Frame for Report Period** option is checked for an **On-Demand** template, the template is deployed with a list of event frames. A selection in the list causes the start/end dates to be the Period of the generated report.

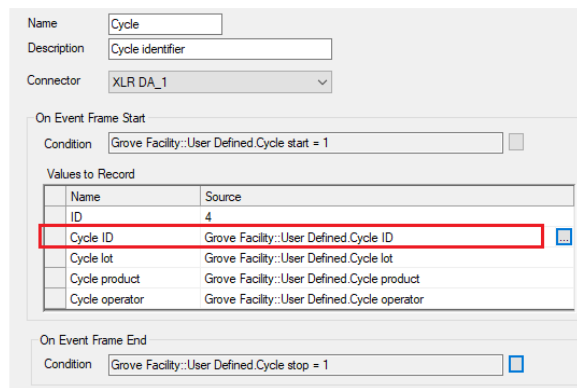


	StartDateTime	EndDateTime
<input checked="" type="checkbox"/>	2023-01-25 12:12:12	2023-01-25 12:15:12
<input type="checkbox"/>	2023-01-25 12:15:37	2023-01-25 12:22:32
<input type="checkbox"/>	2023-01-25 12:22:47	2023-01-25 12:40:12
<input type="checkbox"/>	2023-01-25 12:40:27	2023-01-25 12:56:52

The list of event frames is presented in the **Database Panel**.

Event Frame Definition

An **Event Frame** is defined using the Event Frame designer. An example configuration is as follows:



Name: Cycle
Description: Cycle identifier
Connector: XLR DA_1

On Event Frame Start
Condition: Grove Facility::User Defined.Cycle start = 1

Values to Record

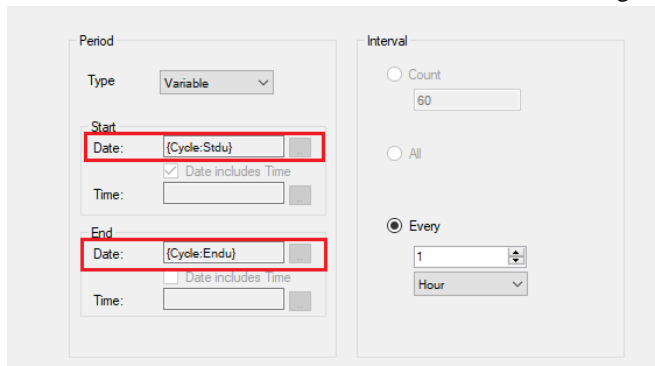
Name	Source
ID	4
Cycle ID	Grove Facility::User Defined.Cycle ID
Cycle lot	Grove Facility::User Defined.Cycle lot
Cycle product	Grove Facility::User Defined.Cycle product
Cycle operator	Grove Facility::User Defined.Cycle operator

On Event Frame End
Condition: Grove Facility::User Defined.Cycle stop = 1

In the above, the **Name Cycle** is used in various places in the template.

Scheduled

If the **Use Event Frame for Report Period** option is checked for a **Scheduled** template, the **Period** is configured to use the start and end date/time of the selected event frame. Using the example above:



Period

Type: Variable

Start
Date: {Cycle:Stdu} [calendar icon]
 Date includes Time
Time: [time picker]

End
Date: {Cycle:Endu} [calendar icon]
 Date includes Time
Time: [time picker]

Interval

Count
60

All

Every
1 [dropdown]
Hour [dropdown]

The fields **Stdu** and **Endu** represent the start/end of the frame.

If the template is configured to be scheduled, the **Report Names WORKBOOK** is set up to use a variable which is given a value in the scheduler.

Template	Folder	Report	Overwrite
WORKBOOK			
hdValuesLibrary.xlsx	{YYYY}\{MMM}	{hdValuesLibrary}	No
WORKSHEET			
*			
Template			

The **Schedule** is set up to set that variable to the first value recorded for the template.

Action: Set a Value to a Variable

Variable: hdValuesLibrary

Value: {Cycle:Cycle ID}

The variable is assigned the value at the end of event frame.

The report is produced at the end of the event frame with a delay of 5 seconds to ensure the event frame information is complete.

Condition

- Time
 - Continuous
 - Daily
 - Weekly
 - Monthly
- Event
 - RSLink_DA_1
 - XLR DA_1
 - XLRReporter
 - Condition

Connector: XLR DA_1

Tag: User Defined.Cycle stop

Condition: Equal To

Value: 1

Deadband: %

Recur:

Start: Fixed Time 12:00:00 AM

Every: 1 minutes(s)

Action Time Adjustment: 0 day(s)

Action

- Produce Reports
 - Update Workbook
 - Update Worksheet
 - Update Workbook Groups
 - Update Worksheet Groups
 - Update Action List
- Publish Reports
 - Save Workbook to Web Page
 - Save Worksheet to Web Page

Action: Update Worksheet

Worksheet: hdValuesLibrary.xlsx.Template

Delay Execution 5 Seconds

Process as Stack

Advanced

If you wish to add your own templates to the library, the following section provides a guideline on how to do so. This can be somewhat complicated, so it is strongly recommended that you consult with our technical support department to assist in implementation.

Building the Template

In order to build a template for the library, start by building a report template using the tools provided with XLRReporter.

Description

The description that is displayed when the template is selected in the Library Wizard is set either when the template is created or after it is created from the **Template** ribbon by selecting **Settings, General**.

Data Groups

Naming Convention

If your template contains Data Group connection(s), the names of the groups should start with the same name as the template. For example, if the template is named *ABC* and you have 3 data groups you want to provide with the library, all 3 of those groups should start with *ABC*.

Tag Names

When specifying tag names for the data groups in a library template, rather than using fixed names, use the variables *{Tag 1}*, *{Tag 2}*, etc. This allows the user to specify the tags they want within the **Library Wizard** (or during runtime in the template is on demand).

Scheduling

If the template you are building can be scheduled, there are 2 options available:

- The schedule is determined by settings in the **Library Wizard**
This option is most useful when the template can be scheduled on time and flexible enough to support any time period (e.g., hourly, daily, monthly).
- A default schedule is provided that is then presented to the user in the **Library Wizard**
This option is most useful when the template is designed for a specific time period or if the schedule is based on events.

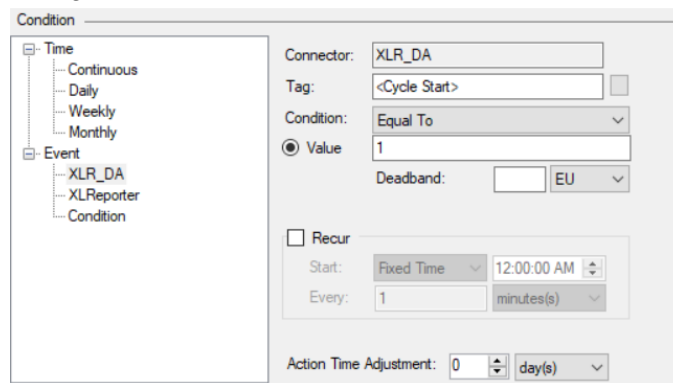
Default Schedule

To construct a default schedule, start by stopping the Scheduler if it is running.

You must first rename the existing schedule in the project. Using Windows File Explorer, go to the Input folder of your project, locate *XLRschedule.sch* and rename it to something else.

Next, open the Schedule Designer (Project Explorer, Project, Schedule, Designer) and add the schedule rows you wish to provide for the library template.

If there are settings that you need the user to specify when checking out your library template, specify them as *<Setting>*.



For example, if the Schedule is based on when a process cycle starts, rather than specifying a fixed tag name for the **Condition**, set the **Tag** to *<Cycle Start>*.

Once the schedule is complete, save it and then close the **Schedule Designer**.

Now return the *Input* folder in the Windows File Explorer. A new *XLRschedule.sch* has been created with your library template schedule. Rename this file to the same name as your library template.

Finally, restore the original schedule file name back to *XLRschedule.sch*.

Report Names

For a scheduled template in the library, the **Report Names** can either be defaulted based on user settings in the **Library Wizard** or can be specified in the template itself and displayed in the Library Wizard.

Template INI File

Every library template must have an INI file packaged with in named the same as the template. This file defines what is presented to the user for the template in the **Library Wizard**. The following describes the sections and settings within each section of the file. The syntax in the INI file is:

```
[Section]
Setting1=x
Setting2=y
```

There are many library templates available, all of which have INI files to use as examples.

SETUP

- AppLaunch

The application to launch when the **Library Wizard** is finished creating the template.

Setting	Application
0	Default. For On-Demand, the On-Demand Report application. For Scheduled, the Schedule Designer. If not specified, this is used.
1	None
2	Schedule Designer
3	On-Demand Reports application
4	Design Studio

- Connector

The number of connectors the Library Wizard prompts for. This number should match the number of entries in the CONNECTOR section (see below).

- ConnectionAdjust_Row

If the template can be configured both On-Demand or Scheduled, this is the number of rows to adjust the data connections by in the template when it is set as Scheduled to account for the headings being written to the worksheet rather than returned from the data group.

- ContentDelete_Span

The number of columns each tag specified by the user in the Library Wizard represents in the data group(s) of the template. If this is not specified, it is assumed to be 1.

A typical use case for this setting is if the data group in the template is set up to retrieve multiple calculations for the same tag. For example, if for each tag the minimum, maximum and average are returned, this setting would be 3.

- ReportMethod

The supported report methods for the template.

Setting	Method
0	Both On-Demand and Scheduled
1	On-Demand only
2	Scheduled only

- UseAsIs

If set to 1, nothing except the Name and Connector are prompted from the user in the **Library Wizard**. After the first step, the **Library Wizard** is finished, and the template is created.

CONNECTOR

A list of connectors to prompt the user for, starting at *I*. The number of connectors listed here must match the *Connector* setting in the SETUP section.

Each connector consists of 2 items semicolon separated:

- Connector description
The description of the connector to prompt the user for
- Connector name
The name of the connector used when building the library template. This will be replaced by the connector selected by the user when the **Library Wizard** creates the template.

For example, to have the user provide a real time connector for the report values to replace the XLReporter Simulator real time connector used when the library template was created, the setting would be:

[CONNECTOR]

I=Real Time connector for the process data;XLR DA_I

- EventFrames
If set to 0, this indicates that the Event Frames option should not be enabled for the Report Period even if it satisfies all the other conditions that would normally enable this setting (a single historical data source).

CONTENT

A list of settings to prompt from the user to customize the content of the template starting at *I*.

Each item consists of the following information semicolon separated:

- Prompt
The prompt shown to the user for the setting.
- Cell Reference
The cell in the template to write the value specified. The format is *Sheet!Cell* (e.g., *Template!B2*).
- Default Value
The default value to display for the item which the user can then replace if they choose.

For example, to have the user specify a title to appear in cell B2 of the template, the setting would be:

[CONTENT]

I=Title;Template!B2;My Report

TAG

A list of tags to prompt from the user to customize the content of the template starting at *I*.

Note that these are only shown for scheduled templates.

Each tag consists of the following information semicolon separated:

- Prompt/Variable
The prompt presented to the user for the tag. This is also used as the name of the variable to replace with the tag name selected in any group configured for the library template.
- Cell Reference
The cell in the template to write the caption to. This should be in the format *Sheet!Cell* (e.g., *Template!B2*).

For example, to prompt for 4 tags and write the captions to cells *C7:F7*, the settings would be:

[TAG]

1=Tag 1;Template!C7

2=Tag 2;Template!D7

3=Tag 3;Template!E7

4=Tag 4;Template!F7

TIMEPERIOD

These settings determine what is prompted for on the **Time Period** step of the **Library Wizard**. These settings are only relevant when the **Report Method** is *Scheduled*.

- Period

This setting consists of 3 items that determine the behavior of the **Period** options, semicolon separated.

- Type

The **Period Type**.

Setting	Type
0	Periodic (default if not specified)
1	Event (history data sources only)
2	Discrete (real time data sources only)

- Duration

The default **Duration** if the **Period Type** is *Periodic*.

Setting	Duration
0	Hour
1	Day (default if not specified)
2	Week
3	Month

- Enabled

If set to 0, all **Period** options are configured using the settings above and disabled, otherwise (if 1 or not specified) settings above are used as default, but options can be configured by the user.

- Interval

This setting consists of 4 items that determine the behavior of the Interval options, semicolon separated.

- Type

The **Interval type**.

Setting	Type
0	Every with all periodic options (default if not specified)
1	Every with the Event option only
2	All Samples
3	Count

- Unit

When the **Type** is 0, the interval unit.

Setting	Unit
0	Minute
1	Hour (default if not specified)
2	Day

- Value

The value for the interval. This applies when the **Type** is 0 or 3. If not specified, the value is assumed to be 1.

- Enabled

This only applies when **Type** is 0.

If set to 0, the **Every** options (**Value** and **Unit**) and disabled, otherwise (if 1 or not specified) settings above are used as default, but options can be configured by the user.

REPORTNAMES

These settings determine what is initially displayed on the **Report Names** step of the **Library Wizard**. These settings are only relevant when the **Report Method** is *Scheduled*.

- Source

If set to 0 (or not specified), the settings initially displayed are based on the settings from the Time Period step.

If set to 1, the settings initially displayed are based on the **Report Names** configured in the library template.

SCHEDULE

These settings determine what is initially displayed on the **Schedule** step of the **Library Wizard**. These settings are only relevant when the **Report Method** is *Scheduled*.

- Source

If set to 0 (or not specified), the settings initially displayed are based on the settings from the Time Period step.

If set to 1, the settings initially displayed are read from the library template schedule file.

- rv0, rv1, etc.

These are a set of reserved keywords that, if detected in the schedule rows, prompts an error to the user so that they know to replace these before finishing the **Library Wizard**.

For example, if, for the library template schedule, the keyword *<Start Cycle>* was used in place of a tag to indicate a cycle is started, *<Start Cycle>* should be added in this section so that the user cannot finish the template until *<Start Cycle>* is replaced with an actual tag. The syntax is:

[SCHEDULE]

rv0=<Start Cycle>

Image

In the Library Wizard, when a library template is selected, an image is loaded on the right side, typically displaying what a completed report from the template will look like.

The image displayed must be a .jpg file named the same as the template.

Packaging

Once the library template is complete, compress all the files into a single .zip file. This includes:

- Template workbook (.xlsx, .xld, .xml)
- Data Group(s) (.grp, .grl, .sql)
- INI file
- Image JPG file

Once zipped up, copy this file into a folder within **C:\XLReporer_library**.

If you find there is not a folder that fits the library template you have, you can add another folder within **_library**.

xlrTemplateList.ini Settings

Now that the library template has been built and zipped, to make it accessible in the **Library Wizard**, it must be added to the *xlrTemplateList.ini* file which is in **C:\XLReporter_library**.

This file consists of a **PARENT** section that defines every category folder (highest level) in the wizard as well as sections for every specified parent that contain a list of every library template for that category.

The parent name specified must be the same as the physical folder name under the **_library** folder.

For example, one of the categories in the wizard is *Tabular*. Under the **PARENT** section, *Tabular* is listed. Then, further down the file, there is a **Tabular** section with a list of templates.

The list of templates is indexed starting at 0. Templates are displayed in the wizard under the category in the same order as they are indexed.

Each template consists of 4 items semicolon separated.

- **Template File (ZIP)**
The name of the .zip file for the library template. If the library template zip file is in a subfolder (or multiple subfolders) under the parent folder, those must be specified as part of the setting.

Those subfolders will appear as folders beneath the parent folder in the wizard. It is good practice to list all library templates in the same subfolder together in this file.

- **Display Name**
The name displayed in the wizard for this library template.
- **Connector Type**
The type of connector(s) to prompt the user for the library template. If multiple connectors are required, they must be comma separated. Supported connector types are:

Setting	Connector Type
20	History connectors
501	Real Time connectors
504	Database connectors

- **Provider Type**
If the library template requires a connector from a specific provider (like the Emerson DeltaV Batch Historian), that can be specified here. If this is not required, set this to 0. For a list of available providers, please contact technical support.

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