



**Experion PKS**

**Release 516**

## Quick Builder User's Guide

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# CONTENTS

|   |           |
|---|-----------|
| <b>Contents</b> .....                                       | <b>3</b>  |
| <b>Chapter 1 - About this guide</b> .....                   | <b>11</b> |
| <b>Chapter 2 - Getting started with Quick Builder</b> ..... | <b>13</b> |
| Starting Quick Builder .....                                | 15        |
| Layout of the main window .....                             | 17        |
| Navigation pane .....                                       | 18        |
| Managing deleted items .....                                | 19        |
| List View .....   | 19        |
| Properties pane .....                                       | 21        |
| History pane .....  | 21        |
| Library pane .....  | 22        |
| Toolbar .....   | 23        |
| The Jumpbar .....   | 24        |
| Status Bar .....  | 24        |
| Shortcut menus .....  | 24        |
| Basic Quick Builder tasks .....                             | 25        |
| Enabling project components .....                           | 26        |
| Capturing changes to a project in the audit log .....       | 26        |
| Comparing online and offline configurations .....           | 28        |
| Adding items .....  | 29        |
| Deleting and restoring deleted items .....                  | 30        |
| Modifying items .....                                       | 31        |
| Filtering items .....                                       | 32        |
| Searching for items .....                                   | 34        |
| Selecting items .....                                       | 34        |
| Renaming items .....  | 35        |

|  |           |
|--|-----------|
| Duplicating items .....  | 37        |
| Copying and pasting items .....                                    | 37        |
| Pasting items from a spreadsheet .....                             | 39        |
| Dragging and dropping items .....                                  | 40        |
| Importing items from a definition file .....                       | 40        |
| Uploading an item's definition from the server .....               | 42        |
| Managing and using add-ins .....                                   | 43        |
| Building a system printer .....                                    | 45        |
| Working with projects .....  | 46        |
| Setting Quick Builder project options .....                        | 47        |
| Creating a new project .....                                       | 47        |
| Migrating old Quick Builder projects .....                         | 50        |
| Opening an existing project .....                                  | 51        |
| Exporting project data .....                                       | 52        |
| About exporting results of Floating Point data to CSV files .....  | 54        |
| Downloading a project .....  | 55        |
| Locking a project .....  | 58        |
| Opening files listed in the Results dialog box .....               | 59        |
| Improving Quick Builder's performance .....                        | 59        |
| <b>Chapter 3 - Building controllers or channels .....</b>          | <b>61</b> |
| Building controllers and channels .....                            | 62        |
| About generic and user scan task controllers .....                 | 64        |
| Creating a generic controller .....                                | 64        |
| Point parameter address syntax for a generic controller .....      | 65        |
| Creating a user scan task controller .....                         | 66        |
| Point parameter address syntax for a user scan controller .....    | 66        |
| Generic and user scan task controller and channel properties ..... | 68        |
| Main properties for a generic channel .....                        | 68        |
| Main properties for a generic controller .....                     | 70        |

|  |            |
|--|------------|
| Main properties of a user scan task channel .....      | 71         |
| Main properties for a user scan task controller .....  | 73         |
| Modifying a controller or channel after download ..... | 75         |
| About scanning .....                                   | 79         |
| Periodic scanning .....                                | 79         |
| Exception scanning .....                               | 80         |
| Demand scanning .....                                  | 80         |
| Dynamic scanning .....                                 | 81         |
| About scan packets .....                               | 81         |
| Building Controller Integration Mappings .....         | 82         |
| About Controller Integration Mappings .....            | 82         |
| Importing Integration Mappings .....                   | 85         |
| Exporting Integration Mappings .....                   | 85         |
| Creating and Modifying Integration Mappings .....      | 86         |
| Supported Controller Integration Mapping syntax .....  | 89         |
| Example RTU2020 Integration Mapping .....              | 103        |
| <b>Chapter 4 - Building servers .....</b>              | <b>106</b> |
| Creating a server .....                                | 107        |
| Main properties for a server .....                     | 107        |
| Sizing limits for the server .....                     | 108        |
| Upload and download paths for a server .....           | 108        |
| Server specific options .....                          | 108        |
| History options for a server .....                     | 110        |
| <b>Chapter 5 - Building a Flex Station .....</b>       | <b>112</b> |
| About Station types .....                              | 113        |
| About security types .....                             | 113        |
| Creating a Flex Station .....                          | 114        |
| Main properties for a rotary Station .....             | 114        |

|  |            |
|--|------------|
| Main properties for a static Station .....                             | 115        |
| <b>Chapter 6 - Building and configuring points .....</b>               | <b>118</b> |
| Building points .....  | 121        |
| Assigning points to an asset .....                                     | 121        |
| Accumulator points .....   | 122        |
| Main properties for an accumulator point .....                         | 122        |
| Alarm properties for an accumulator point .....                        | 124        |
| Analog points .....  | 126        |
| Main properties for an analog point .....                              | 126        |
| Alarm properties for an analog point .....                             | 128        |
| Control properties for an analog point .....                           | 131        |
| Auxiliary properties for an analog point .....                         | 133        |
| About drift deadbands .....  | 134        |
| Container points .....   | 135        |
| Defining the structure of a container point .....                      | 135        |
| Creating container points .....  | 136        |
| Main properties for a container point .....                            | 137        |
| Using an existing point detail display as the associated display ..... | 138        |
| Creating a point detail display for a container point .....            | 138        |
| OPC advanced points .....  | 140        |
| Main properties for an OPC advanced point .....                        | 140        |
| Importing OPC advanced point definitions from a spreadsheet .....      | 141        |
| OPC parameters for an OPC advanced point .....                         | 145        |
| Status points .....  | 145        |
| Main properties for a status point .....                               | 146        |
| Alarm properties for a status point .....                              | 148        |
| Control properties for a status point .....                            | 150        |
| Configuring the Raise and Lower buttons for OP control .....           | 154        |
| Configuring algorithm parameters .....                                 | 155        |

|   |            |
|---|------------|
| Display-related properties .....                                    | 155        |
| History collection properties .....                                 | 156        |
| Subscribing to non-scanned parameters .....                         | 159        |
| Creating or editing scripts .....                                   | 161        |
| Creating scripts .....  | 161        |
| Electronic signature related properties .....                       | 161        |
| Configuring points for electronic signatures .....                  | 162        |
| Configuring user-defined parameters .....                           | 163        |
| Adding a variable user-defined parameter .....                      | 164        |
| Adding a constant user-defined parameter .....                      | 165        |
| Adding a database reference user-defined parameter .....            | 165        |
| Adding a parameter reference user-defined parameter .....           | 166        |
| About user-defined scanned parameters .....                         | 166        |
| Adding a scanned analog user-defined parameter .....                | 169        |
| Adding a scanned status user-defined parameter .....                | 170        |
| Adding a scanned string user-defined parameter .....                | 172        |
| Adding a custom user-defined parameter .....                        | 172        |
| Adding multiple user-defined scanned parameters .....               | 173        |
| Modifying multiple user-defined scanned parameters .....            | 181        |
| Importing/uploading specialized point configurations .....          | 181        |
| Specifying point parameter addresses .....                          | 182        |
| Using Address Builder .....   | 183        |
| Using Address Builder with an Integrated Controller connected ..... | 185        |
| Automated Point Generation for an Integrated Controller .....       | 186        |
| <b>Chapter 7 - Building Equipment Templates .....</b>               | <b>192</b> |
| About building equipment templates .....                            | 193        |
| Creating equipment templates .....                                  | 194        |
| Exporting templates from the Template Library .....                 | 196        |

|   |            |
|---|------------|
| Updating equipment by modifying its equipment template .....        | 197        |
| Deleting an equipment template .....                                | 198        |
| Configuring equipment templates .....                               | 199        |
| Configuring the Template properties .....                           | 200        |
| Creating a Related Equipment table .....                            | 202        |
| Configuring Point and Equipment properties .....                    | 203        |
| Editing properties in Microsoft Excel .....                         | 209        |
| Creating a tabular view .....                                       | 209        |
| Creating a trend view .....   | 210        |
| Configuring the Summary view .....                                  | 211        |
| Template properties .....   | 214        |
| Configuring the Tabular view .....                                  | 217        |
| Summary view properties .....                                       | 220        |
| Point properties .....  | 222        |
| Equipment properties .....  | 224        |
| Shape properties .....  | 227        |
| <b>Chapter 8 - Building and configuring Equipment .....</b>         | <b>232</b> |
| Building equipment .....  | 233        |
| Importing equipment templates to the Template Library .....         | 234        |
| Modifying equipment properties .....                                | 235        |
| Details for an Equipment item .....                                 | 236        |
| Point references for an Equipment item .....                        | 236        |
| Associated items for an Equipment item .....                        | 237        |
| Relationships for an Equipment item .....                           | 237        |
| Configuring equipment relationships .....                           | 239        |
| Assigning equipment to a different asset .....                      | 240        |
| Deleting equipment .....  | 240        |
| <b>Chapter 9 - Building Electronic Flow Measurement (EFM) .....</b> | <b>242</b> |

|   |            |
|---|------------|
| Building EFM meters .....   | 243        |
| Main properties for an EFM meter .....                              | 244        |
| Collection and export properties for an EFM meter .....             | 245        |
| Managing EFM meter templates .....                                  | 247        |
| Main properties for an EFM meter template .....                     | 250        |
| Configuration Log properties for an EFM meter template .....        | 254        |
| Interval Log properties for an EFM meter template .....             | 257        |
| Daily Log properties for an EFM meter template .....                | 260        |
| Alarm and Event properties for an EFM meter template .....          | 264        |
| Configuration Record Log properties for an EFM meter template ..... | 268        |
| Ultrasonic Log properties for an EFM meter template .....           | 272        |
| Composition Log properties for an EFM meter template .....          | 275        |
| Gas Quality Log properties for an EFM meter template .....          | 278        |
| Liquid Batch Log properties for an EFM meter template .....         | 281        |
| Data Export properties for an EFM meter template .....              | 284        |
| Defining enumeration mappings for CFX .....                         | 286        |
| CFX enumeration mappings .....                                      | 288        |
| Configuring CALC data types .....                                   | 297        |
| Defining EFM CSV data export formats .....                          | 298        |
| Defining the monthly export format .....                            | 301        |
| Managing EFM schedules .....  | 302        |
| Managing meters and meter templates .....                           | 304        |
| Uploading EFM configurations from the server .....                  | 305        |
| Exporting and importing EFM configurations .....                    | 306        |
| Collecting and exporting EFM data .....                             | 306        |
| About tamper detection of EFM data .....                            | 309        |
| <b>Chapter 10 - Algorithms .....</b>                                | <b>312</b> |
| Configuring PV algorithms in Quick Builder .....                    | 313        |

|  |            |
|--|------------|
| PV Algo 4: General Arithmetic .....                            | 313        |
| PV Algo 5: Production .....                                    | 314        |
| PV Algo 7: Run Hours .....                                     | 315        |
| PV Algo 10: General Logic .....                                | 316        |
| PV Algo 12: Composite Alarm Processing .....                   | 317        |
| PV Algo 15: Integration .....                                  | 319        |
| PV Algo 16: Cyclic Task Request .....                          | 320        |
| PV Algo 20: Advanced Arithmetic .....                          | 321        |
| PV Algo 21: Advanced Logic .....                               | 322        |
| PV Algo 22: Piecewise Linearization .....                      | 323        |
| PV Algo 64: Maximum/Minimum .....                              | 324        |
| PV Algo 68: Value Transportation .....                         | 325        |
| Configuring action algorithms in Quick Builder .....           | 326        |
| Action Algo 11: Composite Alarm .....                          | 326        |
| Action Algo 68: Value Transportation .....                     | 327        |
| Action Algo 69: Status Change Task Request .....               | 328        |
| Action Algo 70: Status Change Report Request .....             | 329        |
| Action Algo 71: Queued Task Request .....                      | 329        |
| Action Algo 72: Status Value Transportation with Mapping ..... | 329        |
| Action Algo 74: Status Change USKB LED Request .....           | 331        |
| Action Algo 75: Status Point Notification .....                | 332        |
| Action Algo 76: Analog Point Notification .....                | 332        |
| Action Algo 77: Status Change Display Request .....            | 333        |
| Action Algo 78: Group Control of Points .....                  | 334        |
| Action Algo 79: Status Change Alarm Group Inhibit .....        | 335        |
| Action Algo 80: Status Change Alarm Area Inhibit .....         | 336        |
| Action Algo 92: Queued Task Request .....                      | 336        |
| Creating a composite alarm hierarchy .....                     | 337        |
| <b>Notices .....</b>   | <b>339</b> |

# ABOUT THIS GUIDE

This guide describes how to use Quick Builder to configure system items, such as controllers (other than Process Controllers), points, Flex Stations, and printers.

## Revision history

| Revision | Date        | Description                  |
|----------|-------------|------------------------------|
| A        | August 2020 | Initial release of document. |



# GETTING STARTED WITH QUICK BUILDER

In Configuration Studio, you use Quick Builder to create and maintain a configuration database that defines system items such as controllers, points and Flex Stations. (For details about configuring Console Stations, see the *Server and Client Configuration Guide*.)

When you are satisfied with your configuration, you *download* it, or selected parts of it, to the Quick Builder (online) database on the Experion server.

To modify any part of your configuration, you need to *upload* (or *backbuild*) items from the server (online) database into Quick Builder, make the required changes, and then download the changes to your server database.

You can also create an offline Quick Builder database (a database connected to an SQL server rather than an Experion server) to configure your entire system and then download that configuration to the Quick Builder database on the Experion server at a later time. This offline database is also referred to as a Quick Builder *project*.

**TIP:** Offline databases are vulnerable from a security perspective. Ensure that you save any offline databases in a secured path.

## Quick Builder support for multiple users

Multiple users can open a Quick Builder project in different nodes simultaneously and perform configuration activities.

Rules have been established within Quick Builder to handle conflicts between user actions, which means that occasionally you could be stopped from completing an update to the database if another user is performing a similar action, or if the item has been modified in some way since you started your update.

For example, if you modify, add, or delete an item and then try to download those changes to the Experion server while another user is also attempting a download, an error message is displayed and you will need to wait to download your changes until the other user's download is complete.

In this section:

*Starting Quick Builder* .....15  
*Layout of the main window* .....17  
*Basic Quick Builder tasks* .....25  
*Working with projects* .....46

# Starting Quick Builder

When starting Quick Builder, you can connect to either an online Quick Builder database on an Experion Server, or to an offline database on an SQL (non-Experion) server. When working *offline*, you can create Quick Builder *projects*, that can later be downloaded to the Quick Builder database on an Experion server.

## Prerequisites

To create a Quick Builder project you must have a minimum of *SQL Server Express* installed.

## To start Quick Builder

1. Start Configuration Studio.  
The **Connect** dialog box appears.
2. Depending on the environment you want to work in, use one of the following connection options:

| Option   | Description   |
|--|---|
| To work in the Quick Builder database on your local Experion Server. | On the <b>Local Targets</b> tab, select the system or server you would like to connect to.  |
| To work in the Quick Builder database on a remote Experion Server.   | <ol style="list-style-type: none"> <li>1. On the <b>Other Targets</b> tab, select either Experion PKS System or Experion PKS Server from the <b>Target type</b> list.</li> <li>2. Select the system or server you would like to connect to from the <b>Target name</b> list.</li> </ol> |
| To work in an offline Quick Builder database on an SQL Server.       | <ol style="list-style-type: none"> <li>1. On the <b>Other Targets</b> tab, select Quick Builder Database from the <b>Target type</b> list.</li> <li>2. Select the SQL server you would like to connect to from the <b>Target name</b> list.</li> </ol>                                  |

| Option | Description  |
|--------|--|
|        | <ol style="list-style-type: none"> <li>3. To open an existing project:                             <ol style="list-style-type: none"> <li>a. Select the <b>Open Existing Project</b> option</li> <li>b. Click <b>Search Location</b> to list the databases existing on that server.</li> <li>c. Select the database you would like to connect to from the list provided.</li> </ol> </li> <li>4. To create a new project:                             <ol style="list-style-type: none"> <li>a. Select the <b>Create Project</b> option</li> <li>b. Type a name for the new project in the <b>Project Name</b> field.</li> </ol> </li> </ol> |

3. Click **Connect**.

If you chose to connect to a Quick Builder database on an Experion server, the **Login to Server** dialog box appears. Enter your credentials and click **OK**, then skip to **step 6**.

If you chose to connect to, or create, a Quick Builder project on an SQL server, the **Enable Components** dialog box appears.

4. In the **Enable Components** tab, the check boxes indicate the components that are enabled by default for your system licence, and the number of each item that has been created for each component. Use the check boxes to enable and disable components as required, then click **OK**.

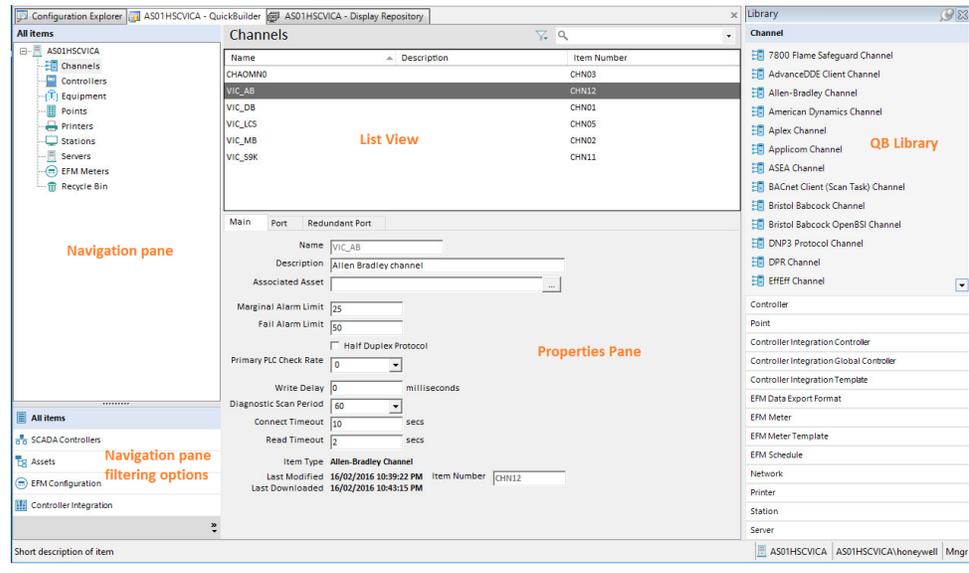
5. In the **SCADA Control** list, click any of the available options, such as **Build Channels**.

Quick Builder appears. Your Quick Builder access privileges are the same as for Configuration Studio.

# Layout of the main window

The following figure shows the layout of the Quick Builder window, regardless of whether you are working in an online or an offline database.

Figure 2-1: Quick Builder window layout



In this section:

## Navigation pane

A navigation pane on the left-hand side of the Quick Builder window contains items that can be created and configured in Quick Builder.

The following table lists the views that you can choose in the navigation pane, and the contents of those views.

| Category          | Items and descriptions  |
|-------------------|---|
| All items         | <p>Displays a tree containing all item types supported by Quick Builder:</p> <ul style="list-style-type: none"> <li>• Channels (interfaces that enable servers to communicate with controllers)</li> <li>• Controllers (field devices such as PLCs, loop controllers, and so on)</li> <li>• Points</li> <li>• Stations (the Operator interfaces)</li> </ul> <p>Quick Builder configures only Flex Stations, the standard type of Station. (For details about configuring Console Stations, see the topic titled "Configuring a Console Station" in the <i>Server and Client Configuration Guide</i>.)</p> <ul style="list-style-type: none"> <li>• Printers</li> <li>• Meters</li> <li>• Servers</li> <li>• Equipment</li> <li>• Recycle bin, which is a holding area for items that have been deleted from their parent category but have not yet been <i>permanently</i> deleted and therefore can be recovered if needed.</li> <li>• Unassigned items</li> </ul> |
| SCADA Controllers | <p>Lists channels and controllers defined for this server. Selecting a controller displays a list of the points assigned to that controller in the List view.</p>   |
| Assets            | <p>Lists assets that have been downloaded from the server. Selecting an asset displays a list of the items associated with that asset in the List view.</p> <p>Adding, editing, duplicating, and renaming operations are not permitted in the Asset view.</p>   |

| Category               | Items and descriptions   |
|------------------------|--|
| Electronic Flow Meters | Lists Electronic Flow Meters that have been defined for this server. Selecting a meter displays a list of the items associated with that meter in the List view. |
| Controller Integration | Launches the configuration forms through which points can be generated for those controllers where the Integration check box has been enabled.                   |

## Managing deleted items

The **Recycle Bin** is a holding area within the **Navigation pane**, where items you have deleted from other groups are 'marked for deletion', rather than being actually deleted.

To undelete an item and return it to its original group, right-click the item and choose **Undelete** from the shortcut menu.

Note the following points:

- Deleted items will be permanently deleted if you select the **Automatically Download Deletions** option when you download a project (and the download is successful).
- You should not permanently delete items that you have previously downloaded to the server—if you attempt to do this a warning message appears. (If you choose to delete items that have been downloaded, the project and the server database will lose synchronization—although the item will no longer exist in the project, it will still be defined in the server database.)
- Quick Builder allocates an item number to each item. Items in the **Recycle Bin** retain their numbers until you permanently delete them. This has no significance unless you reach an item number limit for your license. For example, if your license allows 40 Stations, and you have already created 40 Stations (including deleted ones), you cannot add any more until you delete/download those that have been deleted and are still being held in the **Recycle Bin**.

## List View

When you select a group of items in the Navigation pane, such as *Printers*, *Stations*, or *Points*, a list of the items that have been created within that group is displayed in List View. If no items appear in the List View, it means that none have yet been created.

You can use List View to edit, delete, and sort items.

**TIP:** As Quick Builder projects can be modified by more than one user at a time, you may find that changes made by other users sometimes appear in the List View when you move from one item to the next, or when you change focus in the Navigation pane. Refreshing the view will also display changes made by other users.

| Item type     | Description  |
|---------------|--|
| Points        | Standard points.   |
| Servers       | Servers, which use the databases created by Quick Builder.   |
| Controllers   | Controllers, the field devices such as PLCs, loop controllers, and so on.  |
| Channels      | Channels, the interfaces that enable servers to communicate with controllers.  |
| Stations      | Stations, the operator interfaces<br><br>Quick Builder configures only Flex Stations, the standard type of Station. (For details about configuring Console Stations, see the topic titled "Configuring a Console Station" in the <i>Server and Client Configuration Guide</i> .) |
| Printers      | Printers.  |
| Recycle Bin   | A holding area for deleted items, which works in the same manner as the Windows' Recycle Bin.  |
| Trends/Groups | Station displays to which you can add points.  |
| Networks      | The interface that enables servers and point servers to communicate with channels and controllers.   |

### **Customizing the List View**

By default, the **List View** contains columns displaying an item's major properties, such as its name and description. You can, however, customize the **List View** to show other properties by adding, removing, or reordering columns. You can also sort columns to be either ascending or descending, and the view will reorder accordingly.

## To customize the List View

1. Choose **ViewColumns**.  
The **Columns** dialog box appears.
2. Select the names of the columns you wish to display from the **Details** list.  
You can use the options in the **Select fields from** list to filter the columns shown in the list.
3. Use the **Move Up** and **Move Down** buttons to change the order of how the columns will appear.
4. Click **OK** to close the dialog and refresh the List View.

## Properties pane

You use the **Property Pane** to view and edit the properties of the item(s) selected in the List View.

Because an item has so many properties, they are grouped by tab. For example, if you wanted to see the display-related properties of a selected point, you would click the **Display** tab.

The **Property Pane** is *modeless*, which means that the selected item(s) change as soon as you select another item, or perform an action such as downloading.

The **Property Pane** also changes as follows when you select several items:

- Any property whose value is not identical for all selected items is grayed out. For example, if you select two status points, **Point ID** will be grayed out because every point has a unique ID.
- If the items are of different types, such accumulator and status points, the **Property Pane** only displays tabs and properties that are shared by all selected items.

If you edit a property when several items are selected, you make that same change to every selected item. For example, if you select a number of accumulator and status points, you can change the **PV Source Address** or the **PV Scan Period** because both properties are common to both point types.

## History pane

Every time a display is modified, those versions are saved and can be viewed in the **History Pane** at the bottom of the **Display Repository**.

From the **History Pane** you can perform several actions on a display version. You can:

- Approve or Reject a version read for publication to the Experion server
- Publish a display version to the Experion server
- Update a version of a display in your working folder to match the latest version on the Experion server

The display versions are listed in a table, containing the following information:

| Item              | Description  |
|-------------------|--|
| User              | The ID of the user who saved that version of the display in this database.                       |
| Date              | The date that the version was saved.   |
| Version           | The version number of the display.   |
| Action            | The system action that was performed to that version of the display.                             |
| Comment           | Comments added by the user when they saved that version of the display.                          |
| Ready to Validate | The display is ready for testing and validation prior to being published to the Experion server. |

## Library pane

The Library pane on the right hand side of the Quick Builder window contains templates that can be used to create instances of items in Quick Builder. The templates are organized into categories to identify their types:

- Channels
- Controllers
- Points
- Servers
- Printers
- Stations
- and so on

When creating and importing templates, you can create custom categories that will then appear in the Library pane. These might include industry areas, such as Oil and Gas, or Coal Seam Gas.

## Toolbar

The toolbar provides speedy access to commonly used commands.

| Button  | Description  |
|---|--|
|    | <b>Search.</b> Searches the Quick Builder database for items such as points.   |
|    | <b>Change configuration target.</b> Allows you to change to another server, system, or Quick Builder database.                               |
|    | <b>Save.</b> Saves the project.  |
|    | <b>Add.</b> Adds one or more items to the project.   |
|    | <b>Delete.</b> Moves the selected items to the Recycle Bin.  |
|  | <b>Undo.</b> Undoes the previous action.   |
|  | <b>Copy.</b> Copies the selected items to the clipboard.   |
|  | <b>Paste.</b> Pastes the clipboard's contents into the display.  |
|  | <b>Custom Filter.</b> Opens the <b>Custom Filter</b> dialog box, which you use to filter out (hide) items that are of no immediate interest. |
|  | <b>Import.</b> Opens the <b>Select file to Import...</b> dialog box, which you use to locate and select the file you want to import.         |
|  | <b>Export.</b> Opens the <b>Export</b> dialog box, which you use to export files from the current Quick Builder database.                    |
|  | <b>Download.</b> Downloads all or some of the project to the server database.  |
|  | <b>Upload.</b> Uploads configuration data from the server into a project.  |
|  | <b>Compare.</b> Compare items in the current project to those in the Quick Builder database on the server.                                   |

## The Jumpbar

You use the **Jumpbar** to quickly select an item in the **List View**. (Note that you will not be able to locate and select an item if it has been filtered out.)

To find items:

1. Click anywhere in the **Jumpbar**.
2. Type the name of the item you are searching for and press **Enter**. Quick Builder finds the first matching item.

You can use one or more wildcards (\*) to find items whose full names you do not know, for example **\*ana\***, which will return items containing the text *ana* in its name.

To select an item:

1. Click the **Jumpbar**.
2. Type the item's name and press **Enter**.

To move between items, select the item from the **Jumpbar list** and press **Enter**. The **Jumpbar** remembers the last 20 items you specified.

## Status Bar

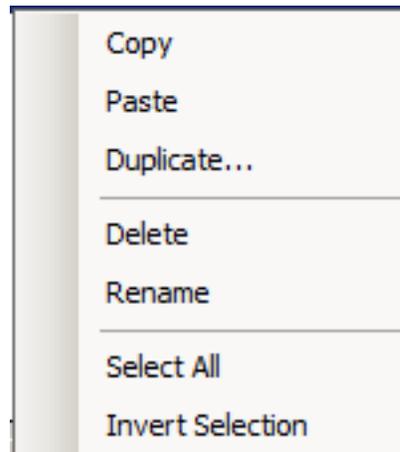
The **Status Bar** displays a short description of the selected property (or its valid values if the current value is incorrect). The right hand side of the Status bar also displays the name of the connected server, the name of the current user, and the current security level.

## Shortcut menus

If you right-click an item type icon (in List View), a shortcut menu appears that provides speedy access to commonly used commands.

In the **List View**, you can highlight multiple items before opening the shortcut menu.

*Figure 2-2: List View Shortcut menu*



## Basic Quick Builder tasks

This section outlines the basic tasks you can perform with Quick Builder.

---

In this section:

## Enabling project components

When you first start a new Quick Builder project, or when you add new component types (such as devices, points, and servers) to a project, you first need to specify them in the component manager so that you can configure them.

**TIP:** When working on the Project Component Manager to enable or disable components for a project, any other users of the project will be asked to log off and they will not be able to log back into the project until you have finished. For this reason, it is recommended that you perform this action when there is minimal user activity in the project.

## To specify the components to configure

1. From the Quick Builder menu, choose **Tools > Project Component Manager**.

The **Project Component Manager** dialog appears.

The dialog contains a list of components, such as devices, points, and servers. It also contains a list of non-Experion components.

2. Scroll through list of components and select the check box next to the items in your project you want to enable or disable.
3. Click **OK**.

A summary appears of the components being added (or removed).

4. Click **OK**.

Quick Builder adds the components to the project.

## Capturing changes to a project in the audit log

You can capture all changes made to a Quick Builder project, including details of the user who made the changes, in an audit log.

Audit logs are, by default, stored on the server on which they have been enabled. You can use a combination of Robocopy scripts and Windows Task Scheduler to automatically copy audit logs to a network share regularly.

## To enable the audit log for capturing changes to a project

1. Start Quick Builder.  
For more information, see "Starting Quick Builder" on page 15.
2. From the Quick Builder menu, select **Servers** and click the **All items** tab.  
A list of the servers for this project appears.
3. Select the server on which you want to capture changes, then click the **Server Specific Options** tab.
4. Select the **Enable audit log** checkbox  
All Quick Builder changes made to the project and to items on that server will be recorded in the audit log.  
Server Logger is used to store the log files, and Honeywell Log Viewer (HLV) can be used to view the log files. You can access the log files through a shortcut in the **Start** menu on the Experion Server.  
Note the following rules for the audit log:
  - The maximum size for a single log file is 8MB
  - The maximum number of log files is 100
  - After the maximum storage is reached (800MB), the log files will be overwritten
  - It is recommended that audit log files are stored in a secure location, and backed up periodically.

## To copy an audit log and schedule regular saves to a network share

1. From a Windows Command Prompt on the server, type **robocopy <source> <destination> [<File>[...]] [<options>]**, where:
  - a. **source** is the path to the source directory
  - b. **destination** is the path for the destination directory
  - c. **file** is the audit log file or files to be copied
  - d. **options** is a list of the options to be included in the command.  
For more information about Robocopy command options, see <https://technet.microsoft.com/en-us/library/cc733145.aspx>.

2. Press **Enter**.  
The files are copied to the specified location
3. Copy your Robocopy command syntax to a Notepad file, and save as a **.BAT** file so it can be re-run.
4. From the Windows Control Panel, click **System and Security**, and then **Administrative Tools**.
5. Right-click on **Task Scheduler** and choose **Run as Administrator**.
6. Choose **Action**, and then **Create Basic Task...**
7. Enter a name for the task and a short description, then click **Next**.
8. Select the option that best meets your scheduling requirements, then click **Next** and enter any additional scheduling information as required.
9. Select **Start a program**, then click **Next**.
10. Navigate to and select your Robocopy script, then click **Next**.
11. Review the summary details, and click **Finish**.

## Comparing online and offline configurations

You can compare items in a standalone (offline) project with those in an online Quick Builder database either while you are configuring the items, or before you download a project containing those items to the database on an Experion server.

Depending on the number of items being compared, one of the following actions will occur:

- For up to 5000 items, the comparison will occur within the Quick Builder Compare Report, as documented below.
- For between 5000 and 100,000 items, the comparison data is exported to a .TSV file, which can be viewed in Microsoft Excel, Honeywell Log Viewer, or Notepad.
- For more than 100,000 items, a message is displayed stating that the comparison could take in excess of 4 hours to complete.

A comparison report highlights any item that has changed or been added since the most recent download of this project.

After adding and configuring items, you *download* all or part of your project to the server database. Before committing to the download of any items, you can compare them with what already exists on the Experion server.

## Comparing items while configuring a project

1. At any time while working on a Quick Builder item, click  in the tool bar.  
The **Compare Report** appears, highlighting any difference that exists between the item in your project and on the Experion server.
2. Click **Close** icon to return to Quick Builder.

## Comparing items before downloading a project to the server

1. As for any download, choose the Scope of the download and check that the Summary contains the list of items you want to download to the server.
2. Click **Compare**.  
The **Compare Report** appears, highlighting any new or changed items. You can use the tool bar icons to perform actions such as
  - Jumping backwards and forwards between changed items in your project or on the server
  - Show all items, or only the ones that are different between your project and the serverClick the close icon to close the compare report.
3. After reviewing the **Compare Report**, you can choose to either **Download** the items to the Experion server, accepting the changes as they have been highlighted in the report, or **Cancel** the download to return to Quick Builder.

## Adding items

### To create new items

1. Use one of the following options to create a new item:
  - Click .
  - From the menu bar, click **Edit > Add item**.
  - Right-click on an item in the **All items** view and click **Add item**.

- From the relevant section within the **Library**, drag and drop the template for the required item into the **List View**.

The **Add Items** dialog box appears.

2. Type the number of items you want to create in the **Number of items** field. If you choose to create more than one item, extra fields appear where you can define the suffix applied to each item name. The variable used can be numbers or letters.
3. From the **Item Family** list, select the applicable family. If you used a template or a right-click menu option to invoke this dialog, this field will default to the template type or the item you had selected at the time.
4. From the **Item Type** list, select the item type.
5. In the **Name** text box, type in the name for this item, or you can accept the default provided. A summary of the details you have provided is displayed.
6. Click **OK** to add the item(s) to the list.

The new items appear in the **List View**.

As more than one user can work in a Quick Builder project at the same time, you may notice changes occurring in the List view other than those that you have made. These changes appear whenever you refresh the List view.

If an item you are adding has the same name as an item added by another user, an error message appears. If you are adding multiple items, those that do not have conflicting names will be added successfully, but you will need to add any conflicting items again using a different item name.

7. Use the properties tabs to configure the item.

## Deleting and restoring deleted items

Deleting an item moves it to the **Recycle Bin**, which means that you can restore it, or *undelete* it, if needed.

## To delete one or more items

1. Select the item(s) you want to delete in either the **Navigation pane** or the **List view**.
2. Click  (or press Delete).

You can also delete items by:

- Clicking **FileDelete** on the menu bar
- Right-clicking on an item and then clicking **Delete**.

The deleted items are moved to the **Recycle Bin**.

If you attempt to delete an item at the same time as it is being modified by another user, a message is displayed and the item is not deleted. If you attempt to delete multiple items, any items being modified will be specified in the message and not deleted, while any items not currently being modified are deleted successfully.

3. To permanently delete items from the system, select the item in the **Recycle Bin** and repeat any of the previously listed delete options.

## To restore one or more items

1. From the **Recycle Bin**, select the item(s) you want to restore.
2. Click **FileRestore** from the menu bar, or right-click on an item and then click **Restore**

The restored items return to their original locations.

If you attempt to restore an item at the same time as it is being permanently deleted by another user, a message is displayed and the item is not restored. If you attempt to restore multiple items, any items being permanently deleted will be specified in the message and not restored, while any items not currently being permanently deleted are restored successfully.

## Modifying items

There are two ways to modify items in Quick Builder:

- Modify one or more properties of one item
- Modify common properties of multiple items

**TIP:** If you attempt to download a modified item (or items) to the Experion server at the same time as another user is modifying this item or the Quick Builder project, a message is displayed and you will need to attempt the download again later.

## To modify properties of one item

1. From the **Navigation Pane** or the **List View**, select the item you would like to modify.

The properties pages for the selected item are displayed.

2. Modify the properties as required.
3. Download the modified item to the server.

## To modify common properties of multiple items

1. From the **List View**, select the items you want to modify.

To select multiple items, hold down the Shift key and click the mouse button to select sequential items, or the Control key and the mouse button to select non-sequential items.

The Properties pages are selected for the selected items. The common properties, that can be changed for all items, are shown with editable fields. Non-common properties are not editable.

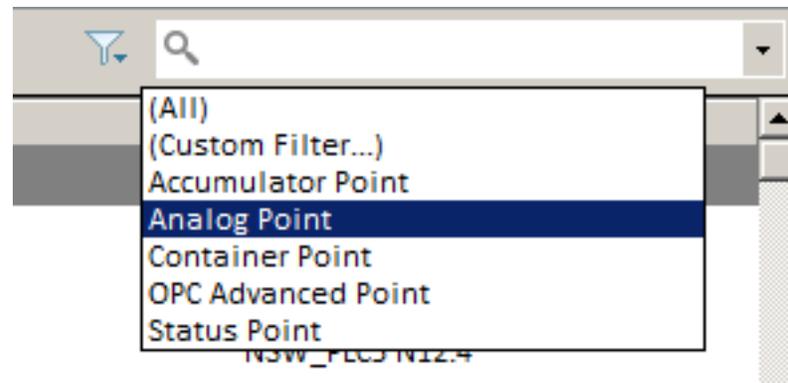
2. Modify the properties as required.
3. Download the modified items to the server.

## Filtering items

It is often easier to manage items if you filter the List View to contain only the items you want to work with.

You can filter items according to item sub-type, such as analog points, or rotary Stations. For example, if the **List View** shows all points but you only want to see analog points, select **Analog Point** from the Filter Selector.

Figure 2-3: Filter Selector



## To filter items in the List View

1. From the **Navigation Pane**, select an item, such as an asset, an equipment, or a channel, for which you would like to view items.
2. Click the Filter button to display the filter options. Options are:
  - All Items
  - Custom filter – opens the **Custom Filter** dialog where you can build custom filters based on a combination of conditions including property names, conditions, and values.
  - A list of options relevant to the item you have selected in the Navigation Pane. For example, if you selected Points, the configured point types would be listed (**Analog Point**, **Accumulator Point**, **Container Point**, and so on).
3. Select the filter you want to use.

The text in the **List View** header changes to show the filter that has been applied, for example, **Points (Status)**, and the **List View** contents update to show only items that match the filter criteria.

## To create a custom filter

1. From the **Navigation Pane**, select an item, such as an asset, an equipment, or a channel, for which you would like to view items.
2. Click the Filter button and click **Custom Filter**.  
The **Custom Filter** dialog appears.
3. Select the item types that should be part of this filter.
4. Use the controls provided to build your filter conditions. The available variables are:
  - Property name, for example, **Scripts**, **Item Name**, **Tag**.
  - Condition, for example, **Begins with**, **Contains**, **Equals**
  - Value

The list to the left of each condition statement enables you to specify **AND** or **OR** when creating multiple conditions.

Click **Save Filter** to save a custom filter for future use, or click **Load Filter** to load a previously saved custom filter.

5. Click **OK** to run the filter.

The text in the **List View** header changes to show the filter that has been applied, for example, **Points (Status)**, and the **List View** contents update to show only items that match the filter criteria.

## Searching for items

You can use the Search function to search for a *keyword* included in the name of those items in the List view.

### To search for an item using the keyword search

1. In Quick Builder type a keyword, or some characters, you would like to search for within the items listed in the List View.

The Search function also supports wild card searching, such as ? and \*. For example, a search string of **SVR?CHO1** will return items with the fourth character in the item's name being any alphanumeric, while a search string of **SVR2CH\*** will return all items with names starting with **SVR2CH**.

## Selecting items

You have the option of selecting items in List View to edit or delete properties. Selected items are shown in reverse color.

**ATTENTION:** If you select more than one item, the Property Pane only displays tabs and properties that are shared by every selected item. If the selected items have different values for a particular property, that property is grayed-out without any value. If you edit a shared property, you make that change to all selected items.

| To select  | Do this   |
|--|---|
| One item   | Click it (or the selection box to its left).  |
| All items of a particular type (points, controllers and so on) | <ol style="list-style-type: none"> <li>1. Select one item of the required type.</li> <li>2. Choose <b>EditSelect All</b>.</li> </ol>  |
| A contiguous group of items                                    | <ol style="list-style-type: none"> <li>1. Click the first item you want to select.</li> <li>2. Press and hold down the SHIFT key, and then click the last item you want to select.</li> </ol> <p>Alternatively, you can drag across the items to select</p> |

| To select                    | Do this  |
|------------------------------|--|
|                              | <p>them. (You need to start dragging to the right of the <b>Source Address</b> column.)</p> <p>If you want to clear one or more selected items, press and hold down the CTRL key and then click each item you want to clear.</p>   |
| Several non-contiguous items | <ol style="list-style-type: none"> <li>1. Click the first item that you want to select.</li> <li>2. Press and hold down the CTRL key, and then click each remaining item you want to select.</li> </ol> <p>If you want to clear one or more selected items, press and hold down the CTRL key and then click each item you want to clear.</p> |
| An item by name              | Use the Jumpbar.   |

## Renaming items

You can change an item's name—point ID in the case of a point—provided you have not downloaded it to the server.

Note the following considerations:

- The item name of an entity is automatically generated based on the renamed point ID (tag name).
- An item has been downloaded if there is a date in the **Last Downloaded** property on the **Main** tab.
- If you need to rename items that have been downloaded, see the procedure below titled "To rename downloaded item(s)." The procedure involves deleting the items from both the project and server database, and then recreating them with their new names.

**TIP:** If you attempt to download a renamed item (or items) to the Experion server at the same time as another user is modifying this item, or the name you are using has already been used, a message is displayed and you will need to either use a different name or attempt the download again later.

## To rename one or more items

1. Highlight the items you want to rename.
2. Right-click and choose **Rename** from the shortcut menu.  
The **Rename** dialog box opens.
3. If you selected:
  - One item, type the new name in the text box.
  - Several items, use the **Format** options to rename them in a systematic manner.

## To rename downloaded item(s)

1. Copy the items you want to rename to Excel.
2. In Quick Builder, delete the items you want to rename so that they are moved to the Recycle Bin.
3. Download the project. (Make sure that the **Automatically Download Deletions** option is selected.)  
If the download is successful, the items are deleted from the server database as well as from the project.
4. In Excel:
  - a. Clear the entries in the **DateDownloaded** column.
  - b. Change the **ItemName** entries to the new names.
5. Copy the modified Excel contents and paste it into the Quick Builder project.  
This re-adds the items, with their new names, to the project.
6. Save the project.
7. Download the project.  
If the download is successful, the items are re-added to the server database.

### ***Renaming example***

This example shows how to rename 10 accumulator points, giving them the prefix PLC7ACC, and a numeric suffix between 01 and 10.

1. Type **PLC7ACC** in **Prefix**.
2. Click **numeric with a** and type **2** in **character field width**.
3. Type **1** in **Start** and **1** in **Step**.

## Duplicating items

An item can be duplicated from either the Navigation Pane or the List View.

### To duplicate an item

1. From the **Navigation Pane** or the **List View**, select the item you want to duplicate.
2. Click the Duplicate icon in the toolbar, or choose **EditDuplicate Items** from the menu.

The **Duplicate** dialog box opens.

3. Type the number of duplicates in **Number of duplicates**.
4. If you are creating only one duplicate, specify the name for the duplicate in the **Name** field.
5. If you choose to create more than one duplicate, provide a name for the duplicates in the **Prefix** field and define a Suffix variable in the fields provided. You can use with numbers or letters for the suffix of each duplicate.

The **Summary** section details the changes about to be made by the Duplicate process.

6. Click **OK** to create the duplicates.

The new items are added to the **Navigation Pane** or **List View**.

If, for some reason, the duplication cannot be performed at this time, an error message appears stating the reason that the duplication cannot proceed. These reasons could include that the name you have chosen for the duplicate already exists, or another user is currently modifying the item you are trying to duplicate.

## Copying and pasting items

You can cut or copy selected items to the clipboard, where their details are stored in tab-delimited text format. You then paste the details back into the project or into another program, such as Microsoft Excel.

You can also paste item details from another program into a project, providing the data has the correct format.

## To copy one or more items to the clipboard

1. Select the items in either the **Navigation Pane** or the **List View**.
2. Use one of these options to copy the items:

- Click  in the toolbar
- On the **Edit** menu, click **Copy**
- Press **Ctrl+C**
- Right-click the selected items, and then click **Copy**

The selected items are copied to the clipboard.

If the item you are trying to copy has been locked by another user performing an update to that item, an error message appears and you will need to try the action again later.

## To paste one or more items from the clipboard

1. Use one of these options to paste the items into another Quick Builder project, or into an Excel spreadsheet:

- Click  in the toolbar
- On the **Edit** menu, click **Paste**
- Press **Ctrl+V**
- Right-click the target position for the copied items, and then click **Paste**

If a pasted item already exists in the project, Quick Builder updates that item.

While attempting to paste an item, several situations can cause an error message to display, including:

- The item being pasted having an invalid type
- An existing item of the same name failing to be updated
- The list of items failing to be updated
- An attachment to the pasted item failing to also be pasted
- An attachment intended to be detached failing to be detached

- An item being read-only, and therefore not able to be overwritten with a paste action

## Pasting items from a spreadsheet

You can paste items from a Microsoft Excel spreadsheet, providing the data has the correct format.

**TIP:** When you paste an equipment item from Excel, it and any other equipment based on the same equipment template will have the template reapplied using the most recent values stored in the equipment's custom parameters.

To determine the correct format, copy a single item from the project and paste it into a spreadsheet—the following figure shows the result for a typical point.

The first row is a heading row, which contains the property names (ItemName, Class and so on). Each of the following rows contains the definition for a single item.

If (as in the case of the following figure), you paste a point that has user-defined parameters, the spreadsheet will contain a second part. This also has a heading row, and each of the following rows contains the definition for a single parameter for one of the points listed in the first part of the spreadsheet.

Figure 2-4: Point with user-defined parameters

|   | A              | B                  | C            | D        | E          | F          | G        |
|---|----------------|--------------------|--------------|----------|------------|------------|----------|
| 1 | ItemName       | Class              | DownloadedNa | Tag      | DateModifi | DateDownl  | TagDele  |
| 2 | POIANA1        | AnalogPoint        |              | FALSE    | #####      |            | FALSE    |
| 3 |                |                    |              |          |            |            |          |
| 4 | ParentItemName | Class              | ParamName    | LinkType | HistoryFas | HistorySta | HistoryE |
| 5 | POIANA1        | FlexibleParameters | UserDefined1 | Variable | FALSE      | FALSE      | FALSE    |

These rules apply when pasting items from another application:

- The heading row(s) are required.
- If the spreadsheet contains two parts, there must be a blank row between the two parts.
- You must define (at least) the ItemName and Class properties for each item. For user-defined parameters, you must define (at least) the ParentItemName and Class properties. (You can define any remaining properties after you have pasted the items into Quick Builder.)

## To paste items from a spreadsheet

1. Use any one of these options to paste the items into a Quick Builder project:
  - Click  in the toolbar
  - Select **EditPaste** from the menu bar
  - While holding down the **Ctrl** key, press the **V** key
  - Right-click on the target position for the copied items and click **Copy**

The items are pasted from the clipboard into the project.

## Dragging and dropping items

You can select one or more items from the list view and drag them to another location in the tree view.

Before using the drag and drop feature, consider the following:

- If you drag and drop from one location to another, all items and assigned points below the selected item will be moved and all associated *location* and *full name* properties updated.
- All references and scope of responsibility (SOR) assignments will be updated to reflect the changes.
- If you drag and drop points within an Alarm Group, selected points will be moved (not copied).
- If you drag and drop points from the System Components tree to a location in an Alarm Group, selected points will be assigned (not moved) to the selected location or group.

## To drag and drop an item

1. In Quick Builder, highlight one or more items to be moved (or copied).
2. Drag and drop highlighted items to desired location.

## Importing items from a definition file

You can import the following items:

- Points from either a *point definition file* (which has a **.pnt** extension) or another project file.

- Controllers, channels, Flex Stations, and printers from a *hardware definition file* (which has a **.hdw** extension).
- Quick Builder Equipment Template files (which have an **.eqt.xml** or a **.typ.xml** extension).
- Electronic Flow Measurement (EFM) configurations from a EFM download formats (which have an **.efmsvr.xml** extension).  
These files are the files created during an upload or download between the server and Quick Builder.
- Electronic Flow Measurement (EFM) configurations from a EFM export formats (which have an **.efmdb.xml** extension).  
These files are the files created during an export of EFM data from Quick Builder.

Note the following points:

- The import function ignores any points built with Control Builder.
- If an item already exists, it is overwritten with the new values.
- If the point definition file contains specialized point configurations, some data may be lost or hidden.
- When importing EFM meter templates:
  - Experion will first create a backup copy of the meter template before it is overwritten. The name used for the backed up item will be  
`<OriginalItemName>_bk<n>`  
 where `<n>` is the index number used when there are multiple backups of the same item. If the backup name exceeds the character length limit of an item name, the `<OriginalItemName>` portion of the name will be truncated.
  - After import, any meters that were using the original meter template will use the newly imported meter template.

## To import items from a definition file

1. Choose **ToolsImport**.  
The **Import** dialog box appears.
2. Select the file that you want to import.
3. Click **OK** to import the selected file data into the current project.  
You can cancel the import by clicking **Cancel** on the progress bar.

The **Results** dialog box appears, listing the items that were imported.

If, while importing templates from a definition file, some of the items were being modified by another user, a message appears advising of the conflict and listing the templates that could not be imported.

## Uploading an item's definition from the server

If you need to make changes to items that have already been downloaded to the Experion server, you can *upload* (or *backbuild*) their definitions from the server into the current project. You can then make the necessary changes to the items and download the new definitions to the server.

Note the following points:

- If you upload any specialized point configurations, some data may be lost or hidden in Quick Builder.
- For user-defined parameters, the state of the **Never download initial value to the server** control resides in the user-defined parameters on the point, and will be included in the upload.
- When you upload an equipment item, that and any other equipment based on the same template will have the template re-applied using the most recent values stored in the equipment's custom parameters.

## To upload item definitions from the server database

1. Click .

The **Upload** dialog box opens.

2. Check that **Server Details** are correct. If they aren't, close the dialog box and change them on the **Server Details** tab for the server.
3. Select the appropriate **Scope** option.

The following options are available for uploading data from a specified server to Quick Builder.

| Option               | Description  |
|----------------------|--|
| All items in Project | Uploads all items from the server, including hardware and point configuration data, as well as the history collection rates and offsets. |

| Option                 | Description   |
|------------------------|---|
| Selected Items Only    | Uploads only the history collection rates and offsets configured on the server. This upload populates the History Options tab on the Servers properties page. |
| All Hardware on Server | Uploads only hardware configuration data. This option includes EFM configurations.  |
| All Points on Server   | Uploads only point configuration data.  |

4. (Optional. Not applicable for EFM.) If you want to use any specialized `bckbld` or `hdwbckbld` command-line parameters, click **Show Options** and type them in **Other Flags**. (For details about the parameters, see the topics on `hdwbld` and `hdwbckbld` in the *Hardware and Point Build Reference*.)
5. Check your selections in the **Summary** list, and then click **OK**.  
If another user is modifying, uploading, or downloading any items you are attempting to upload, a message appears and the upload only succeeds for any items not currently being worked on by the other user.  
You can terminate the upload by pressing the ESC key.

## Managing and using add-ins

An *add-in* is an optional software component, such as a wizard, that performs a specialized task.

Quick Builder is supplied with several add-ins. However, you can add other add-ins at any time by simply copying them to Quick Builder's **Addins** folder. The next time you start Quick Builder, the new add-ins are automatically activated so that you can use them as required.

Note the following points:

- To use an add-in, choose it from the **Tools** menu. (If it is grayed-out, activate it.)
- You can speed up Quick Builder by deactivating any add-ins that you don't require during the current session.

## To activate or deactivate add-ins

1. Choose **ToolsAdd-In Manager**.

The **Add-In Manager** dialog box opens.

2. Select or clear the add-ins as required.

Following is a table of the supplied add-ins. Deactivated add-ins appear grayed-out in the **Tools** menu.

| Add-in                    | Description   |
|---------------------------|---|
| QB Import Del Lines AddIn | Imports a *.pnt or *.hdw file and deletes items from the project's database where there is a <b>DEL [itemname]</b> within the file. |
| QB Migration Wizard       | Migrates old Quick Builder projects to the current format.  |

## Building a system printer

1. Use one of the following options to create a new system printer:

| Option  | Result  |
|---|---|
| From the <b>Printers</b> section within the <b>Library</b> , drag and drop the Printer item into the <b>List View</b> . | The new printer appears in the <b>List View</b> .   |
| Click  .                               | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. From the <b>Item Family</b> list, select the applicable family.</li> <li>2. From the <b>Item Type</b> list, select <b>Printer</b>.</li> <li>3. In the <b>Name</b> text box, type in the name for this printer, or you can accept the default provided.</li> <li>4. Click <b>OK</b> to add the printer to the list.</li> </ol> |

2. Use the **Main** tab to configure the printer.

### *Main properties for a system printer*

The **Main** tab defines the Experion system printer's basic properties.

| Property         | Description   |
|------------------|---|
| Name             | The printer's name, as defined and configured under Windows.<br><br>If the Windows printer name is more than 30 characters long, or includes a space, you must install a print driver with a suitable name. See the <i>Software Installation User's Guide</i> for more information. |
| Description      | A description of the printer.   |
| Associated asset | The asset that an operator must have access to in order to see  |

| Property                     | Description   |
|------------------------------|---|
|                              | system alarms from this system interface. If you leave the associated asset field empty, the system alarms for this system interface will be seen by anyone who has access to the system alarms for the server on which this system interface is configured.  |
| Alarm/Event Printer Language | <p>Only applicable if this is an alarm/event printer. The character set used for printing alarms and events. (But not reports, which are always printed in the Latin character set.)</p> <p>If you select:</p> <ul style="list-style-type: none"> <li>• <b>Cyrillic</b>, you must use an Epson LQ-1070 (or later) printer and set its DIP switches to <b>Bulgaria</b>.</li> <li>• <b>German</b>, you must use an Epson LQ-1070 (or later) printer and set its DIP switches to <b>Multilingual</b>.</li> </ul> |
| Item type                    | Shows the printer type.   |
| Last Modified                | The date/time on which the printer's details were last modified.  |
| Item Number                  | The printer's ID.   |
| Last Downloaded              | The date on which the item was last downloaded to the server.   |

## Working with projects

A *project* is a Quick Builder database that has been created and configured on a standalone SQL server, as opposed to an Experion server.

---

In this section:

## Setting Quick Builder project options

When you use a project to configure your system in a standalone database, rather than in the Quick Builder database on the Experion server, you can specify various Quick Builder options, both general and project-specific.

If you are working in a Quick Builder project or you have migrated databases, it is a good idea to verify that your options are correct. Your options include the server and the enabled components.

### To verify your server

1. In Quick Builder click the server icon in the Navigation pane.
2. On the **Main** tab, check that the server type matches the version of Experion that you have installed.

### To verify your enabled components

1. Choose **ToolsComponent Manager**.  
The list shows which components are enabled, as well as the number of items that have been created for each component.
2. Select or clear the check box opposite each component you want to enable/disable.

If other users are working in this project when you make changes to the enabled components, those users will be locked out of the project until your changes are complete. A message appears asking you to confirm this action.

Likewise, if another user chooses to change the enabled components for a project you are working in, you will be locked out and will need to log in again after the changes have been made.

3. Click **OK**.

### Creating a new project

When you create a new project you should specify which *components* are needed in the project. (Components include item types, such as points and controllers, as well as algorithms.) See "Setting Quick Builder project options" for more information.

**TIP:** You can substantially improve Quick Builder's performance by only enabling the components you want to use in the project. (You can enable more components later if necessary.)

Projects are created in an offline Quick Builder database while connected to a standalone SQL server and can be downloaded to an Experion server at a later time.

When creating a project, you have the choice of creating:

- An *online* project, in the Quick Builder database on an Experion server; or,
- An *offline*, or standalone, project in the Quick Builder database on either a local or remote SQL server, with the intention of downloading the project to the Quick Builder database on an Experion server at a later time.

### Prerequisites

- You must be logged on with a Windows account that belongs to the **Honeywell Station Users** Windows group.
- To be able to create a project, you must have a version of SQL Server installed. A minimum of SQL Server Express is required.

### To create a new project

1. From Configuration Studio, click **Connect** to open the **Connect** dialog.
2. Depending on whether you are creating an online or an offline project, use one of the following connection options:

| Option  | Description   |
|---|---|
| To create a project in the Quick Builder database on your local Experion Server (online project). | <ol style="list-style-type: none"> <li>1. On the <b>Local Targets</b> tab, select the system or server you would like to connect to.</li> <li>2. Click <b>Connect</b>.</li> </ol> |
| To create a project in the Quick Builder database on a remote Experion Server                     | <ol style="list-style-type: none"> <li>1. On the <b>Other Targets</b> tab, select either Experion PKS System or Experion PKS</li> </ol>   |

| Option  | Description   |
|---|---|
| (online project).   | <p>Server from the <b>Target type</b> list.</p> <ol style="list-style-type: none"> <li>2. Select the system or server you would like to connect to from the <b>Target name</b> list.</li> <li>3. Click <b>Connect</b>.</li> </ol>   |
| To create a project in Quick Builder database on an SQL Server (offline project). | <ol style="list-style-type: none"> <li>1. On the <b>Other Targets</b> tab, select <b>Quick Builder Database</b> from the <b>Target type</b> list.</li> <li>2. Select the SQL server you would like to connect to from the <b>Location</b> list.</li> <li>3. To open an existing project:               <ol style="list-style-type: none"> <li>a. Click the <b>Open Existing Project</b> option</li> <li>b. Click <b>Search Location</b> to list the databases existing on that server.</li> <li>c. Select the database you would like to connect to from the list provided.</li> </ol> </li> <li>4. To create a new project:               <ol style="list-style-type: none"> <li>a. Select the <b>Create Project</b> option</li> <li>b. Type a name for the new project in the <b>Project Name</b> field.</li> </ol> </li> <li>5. Click <b>Connect</b>.</li> </ol> |

3. When the **Enable Components** dialog box opens, enter the **System Number** and **Authorization Code** details for this server, then click **Apply** to enable the components contained in this license.

4. Alternatively, use the **Enable Components** tab to enable:
  - Specific components; or
  - All components already installed on your computer
5. Click **OK** to create the project.
  - a. While working on a project, click **Save** at any time to save the project.
  - b. As soon as you move from one item (such as a field or a tab) to another item in Quick Builder, any changes made on the previous item are automatically saved.
  - c. When closing a project, Quick Builder saves information about the project's setup, including the current views and filters. The next time you open the project, this setup is restored.
  - d. If you attempt to create and save a new online, or default, project at the same time as another user, an error message appears as there can only be one online (default) project. Multiple offline, or standalone, projects can coexist, however, with information from those projects downloaded to the online project as appropriate.

## Migrating old Quick Builder projects

The Quick Builder Project Migration wizard, which is supplied with Quick Builder, guides you through migrating old Quick Builder projects to the current format. When you start Quick Builder, the system will prompt you to perform a migration if:

- The target server contains a Microsoft Access Quick Builder database and no instance of an equivalent initialized SQL Quick Builder database
- The target server contains an initialized Quick Builder SQL database, but it has not been matched with the current client

Note that if you try to open a project that was created with components that are not installed on your current system, you will receive a message that will tell you which components are missing and ask you to either cancel the procedure or convert the project.

If you click **Convert**, the information contained in the missing component will be deleted.

Before migrating a R3xx/R4xx project you need to minimize the project because all components are enabled in old Quick Builder

projects, and migrating them in this state may impact performance. To minimize the a project before migrating:

1. Open the old version of Quick Builder
2. Select **Tools > Component Manager > Minimize Project**.  
You are now ready to migrate your Quick Builder project.

## To migrate an old project

1. When prompted, click **Next** to start the migration wizard.
2. Select the project you want to migrate, and click **Next**.  
If another user is attempting to migrate the project from another client at the same time, you will be locked out of the project until the other migration is complete.
3. Select to either overwrite the current project or create a new project.
4. Review the table supplied which lists items in the old database that will be migrated, then click **Next**.  
Where any items cannot be mapped to the same item in the new database, they are listed in the **Unresolved properties** page.
5. Map any unresolved properties, and then click **Next**.  
Any unresolved properties that are not mapped to a new property are not migrated.  
When the migration is complete, the **Migration Results** page is displayed, listing all the migrated items.
6. Click **Finish** to close the migration wizard.  
The first time Quick Builder is opened after the SQL restore it must be opened with Product Administrator access to complete the project migration.

## Opening an existing project

You can open projects on the current server to which you are connected, or projects on another server.

**ATTENTION:** You can only work with one project at a time. If you open another project or create a new one, Quick Builder closes the currently open project.

## To open an existing project

1. From Quick Builder, click **Connect** to open the **Connect** dialog.
2. Click the **Other Targets** tab.
3. Select **QuickBuilder Database** from the **Target type** list.
4. Select the SQL server from the **Location** list.
5. Select the **Open Existing Project** option and click **Search Location** to display a list of projects on that server.
6. Select the project you want to open, and click **Connect**.

Quick Builder opens, with the selected project loaded.

A maximum of 4 users can connect to an online Quick Builder project at the same time. If you try to open a project that already has 4 users connected, you will receive an error message suggesting that you try to connect again later.

## Exporting project data

You can export project data to external files. The export files contain point, hardware, or model definition information in a format that the server database can use. You can export:

- Point definitions to a *point definition file* (with a **.pnt** extension). This includes any *user-defined parameters* you have created.
- Hardware definitions to a *hardware definition file* (with a **.hdw** extension).
- Electronic Flow Measurement (EFM) definitions to an *EFM export format file* (with an **.efmdb.xml** extension).

## To export project data

1. Choose **FileExport**.  
The **Export** dialog box opens.
2. **Specify the folder in which the exported file(s) are to be created in the Folder for File(s) field.**
3. **Type the base name for the exported files in the Base Name for File(s) field.**
4. **Select the file type from the Export File Type list.**
5. Specify what you want to export by selecting the appropriate **Scope** option. Options are:

- All items relevant to file type
  - Selected items only
6. Click **Show Options** to display the available options and select the options you wish to use for this export.

| Option                         | Description   |
|--------------------------------|---|
| Export All Fields              | Exports every property of an exported item.   |
| Ignore Deleted Items           | Prevents items in the Recycle Bin being exported.   |
| Ignore Attachments             | Prevents point attachments being exported. Attachments include algorithms.  |
| Skip Items in Error            | Skips an item if its definition contains any errors.  |
| Abort if format not found      | Abort the export if the export file format specified is not found.  |
| Overwrite format extensions    | Creates an export file without the file format extension.<br><br>For example, to export a point with a base file name of <b>QBDB</b> without this option enabled, the exported file name would be <b>QBDB.pnt</b> . However, if the option was enabled, the exported file name would be <b>QBDB</b> and would not have the file format extension of <b>.pnt</b> . |
| Don't overwrite existing files | Prevents you from overwriting an existing export file with the same name.   |
| Create Single File Only        | Creates a single file, instead of multiple files.   |

7. Check your selections in the **Summary** list, and then click **Export**.  
 The **Results** dialog box opens, listing the download and log files  
 If another user is currently modifying this project, a message appears stating that the project is locked and the Export is not possible at this time.  
 You can terminate the export at any time by clicking **Cancel** on the progress bar.

### About exporting results of Floating Point data to CSV files

When exporting Floating Point data types to CSV files, values are rounded to the following *significant digits*:

| Data type         | Number of significant digits |
|-------------------|------------------------------|
| Single/Real/Float | 6                            |
| Double            | 15                           |

For example for a Real type calculation,  $1.236589563251 * 60 = 74.19537379506$  will be exported to CSV as **74.1954**.

The rounding occurs because Experion stores values in binary format, whereas CSV files store values as text strings. The export to CSV process converts the binary format to text strings and rounds values to either 6 or 15 digits, depending on the data type.

#### Examples

The following table shows how Single/Real/Float and Double values are rounded when exported to CVS files.

| Value                 | Single/Real/Float | Double           |
|-----------------------|-------------------|------------------|
| 12.345678901234567890 | 12.3457           | 12.3456789012346 |
| 1234.5678901234567890 | 1234.57           | 1234.56789012346 |
| 123456.78901234567890 | 123457            | 123456.789012346 |
| 1234567890.1234567890 | 1.23457e+09       | 1234567890.12346 |

## Downloading a project

After adding and configuring items, you *download* all or part of your project to the server database.

Note that if Electronic Signature Compliance Restriction is enabled, you must be logged on with an integrated account with a security level of engr or mngr. (An integrated account is a Windows account that has also been defined as an operator ID on the server. For more details about integrated accounts, see the *Server and Client Configuration Guide*.)

### To download all or part of a project

1. If you want to download:
  - The whole project, or items you have modified since the last download, go to step 2
  - Specific items, select those items.
2. Click  to display the **Download** dialog box.
3. Check that **Server Details** are correct. If they aren't, click **Edit** to change the server details as required.
4. Specify what you want to download by selecting the appropriate **Scope** option. Options are:
  - All items in selected server
  - Selected items (default)
  - Items changed since last download
5. If you want to select any specialized options, click **Show Options** and select the options as required. Details of each option are provided in the following table.

| Option                           | Description  |
|----------------------------------|--|
| Automatically download deletions | <p>If selected, items in the Recycle Bin are deleted from the server database when you download to the server.</p> <div style="border: 1px solid green; padding: 5px; margin: 5px 0;"> <p><b>TIP:</b> Normally, deleted items are kept in the Recycle Bin to enable users to <i>undo</i> an item's deletion from Quick Builder.</p> </div> <p>If the download is successful, the Recycle Bin is emptied.</p> |

| Option                     | Description   |
|----------------------------|---|
| <p>Rebuild scan tables</p> | <p>Select this if you want the server to rebuild the scan packets. (Note that the scan packets will only be rebuilt if no error occurs during the point configuration phase of the download operation.)</p> <p>If you are making many changes, you can save time when downloading by clearing the check box. You only need to select the check box when you perform the final download.</p> <p>(Scan tables must be rebuilt when adding new controllers or points, or when changing the scan periods of existing points. The server does not scan at the configured rate until the scan tables are rebuilt.)</p> <div data-bbox="448 701 1373 1209" style="border: 1px solid orange; padding: 5px;"> <p><b>ATTENTION:</b><br/>For SCADA systems, downloading items from Quick Builder to the server (or when using the <code>pnbtld</code> command) may cause temporary bad values on any controllers that are configured to report by exception. This is because the scanning system loads the new scanning strategy. If this occurs, values will return to normal after 1–2 seconds.</p> <p>If you want to prevent the rebuilding of the new scan strategy, clear the <b>Rebuild Scan Tables</b> check box when downloading from Quick Builder, or use the <code>-ns</code> switch in <code>pnbtld</code>. Be aware that scanning of any new or changed points will not occur until the new scanning strategy is loaded.</p> </div> |
| <p>Download all Fields</p> | <p>Downloads all parameter values, including default values, associated with the downloaded items.</p> <p>Select this option to synchronize the runtime values with Quick Builder.</p> <div data-bbox="448 1432 1373 1545" style="border: 1px solid blue; padding: 5px;"> <p><b>NOTE:</b> Typically this synchronization is achieved by uploading the Quick Builder database.</p> </div>  |
| <p>Skip Items in Error</p> | <p>Prevents an item definition being downloaded if it contains any errors.</p> <div data-bbox="448 1671 1373 1822" style="border: 1px solid green; padding: 5px;"> <p><b>TIP:</b> Select this option if you have partially defined a number of items in Quick Builder and you would like the bulk download to complete building as many items as possible.</p> </div>   |

| Option                         | Description   |
|--------------------------------|---|
| Check points off scan          | Sets each point's <b>Scanning Enabled</b> property to <i>Off Scan</i> , regardless of its setting in your project. This is useful when you are developing points, and don't want them to be scanned immediately after download.   |
| Force Hardware Building        | <p>Forces downloading of Flex Stations, channels and controllers even if there are errors.</p> <p>Note that if this is used for a:</p> <ul style="list-style-type: none"> <li>• Station, it will be rebuilt even if it is currently connected</li> <li>• Channel, the controllers and points attached to the channel may lose their reference to the channel</li> <li>• Controller, the points attached to the controller may lose their reference to the controller</li> </ul> |
| Don't overwrite existing files | <p>Prevents existing download-related files being overwritten. (Each time you perform a download, various files are created as part of the download process.)</p> <p>This option would typically be enabled when requested by Honeywell Support to help collect additional information which may assist to diagnose an issue.</p>   |
| Deletions only                 | <p>Deletes the selected point(s) in the server database. (They remain in the project.)</p> <p>This option can be used to temporarily remove items from the runtime server but keep the configuration in Quick Builder. This would be helpful if there were configuration changes that required related items to be removed from the server to complete a task. For example, moving a controller to a different channel (requires points to be deleted).</p>                     |
| Other flags                    | <p>Allows you to specify specialized <i>ptbld</i> and <i>hdwbld</i> command-line parameters. (For details, see the <i>Hardware and Point Build Reference</i>.)</p> <p>This option would typically only be used if instructed to do so by Honeywell Support.</p>   |

6. Click **OK** to close the **Download Options** dialog box.
7. Check your selections in the **Summary** list, then click **OK**.

8. If **Electronic Signature Compliance Restriction** is enabled and you are not logged on with an integrated account, the **QB User Sign-On** dialog box opens. Type a **User Name**, **Password**, and **Domain**, then click **OK**.  
Downloading starts and, when finished, the **Results** dialog box opens, listing the resultant download and log files.  
You can terminate the download by clicking **Cancel** on the progress bar.

**TIP:** If another user is also trying to download this project at the same time, the download fails and an error message appears suggesting that you try again later.

## Locking a project

Projects can be *locked*, or placed into maintenance mode by a Product Administrator for a period of time during which no changes can be made to the project.

When a project is locked, a lock icon and the text **LOCKED** appear in the bottom right area of the Status Bar. Only users with sufficient authority can lock or unlock projects. Attempting to modify items within a project while it is *locked* results in an error message appearing.

## To lock a project

1. From the **Tools** menu in Quick Builder, choose **Lock Project for Maintenance**.

The project is locked, and the lock icon and text **LOCKED** appear in the Status Bar. All current users of the project receive a message stating that **The Quick Builder project has been locked for maintenance**.

## To unlock a project

1. From the **Tools** menu in Quick Builder, choose **Release Maintenance Lock**.

The project is unlocked, and the lock icon and text **LOCKED** disappear from the Status Bar. All current users of the project receive a message stating that **The maintenance lock has been removed from the Quick Builder project**.

## Opening files listed in the Results dialog box

The **Results** dialog box lists every file created by Quick Builder when importing, downloading, or exporting project details. In addition to the point and hardware definition files (\*.pnt and \*.hdw), the list includes the following log files (\*.log).

| Log file                         | Description   |
|----------------------------------|---|
| <b>Event</b>                     | Lists events incurred for all tools within Configuration Studio.                    |
| <b>Upload</b><br><b>Download</b> | List errors that occur when connecting to the server.                               |
| <b>Import</b><br><b>Export</b>   | List any errors that occur when import/export items contain invalid configurations. |
| <b>Migration</b>                 | List any errors that occur when migrating database into Quick Builder.              |

You can view any file by double-clicking it.

## Improving Quick Builder's performance

You can substantially improve the performance of Quick Builder by disabling any components that are not required in the project (You can enable more components later if necessary.)

### To disable unused components

1. Choose **ToolsComponent Manager**.

The **Component Manager** dialog box appears, listing which components are enabled, as well as the number of items that have been created for each component.

2. Disable any components that are not required in the project, and click **OK**.



# BUILDING CONTROLLERS OR CHANNELS

This section outlines how to use Quick Builder to build and configure controllers and channels.

**TIP:** When building controllers and channels for use with equipment, or to be referenced by Equipment Templates, do not include underscores or hyphens in the names specified for the controller or channel, and avoid channel names ending in x.

In this section:

|   |    |
|---|----|
| <i>Building controllers and channels</i> .....                            | 62 |
| <i>About generic and user scan task controllers</i> .....                 | 64 |
| <i>Creating a generic controller</i> .....                                | 64 |
| <i>Creating a user scan task controller</i> .....                         | 66 |
| <i>Generic and user scan task controller and channel properties</i> ..... | 68 |
| <i>Modifying a controller or channel after download</i> .....             | 75 |
| <i>About scanning</i> .....   | 79 |
| <i>Building Controller Integration Mappings</i> .....                     | 82 |

# Building controllers and channels

To build a new controller, do one of the following:

| Option  | Result  |
|---|---|
| <p>From the <b>Controllers</b> section within the <b>Library</b>, drag and drop the <b>Controller</b> item into the <b>List View</b>.</p> | <p>The new controller(s) appears in the <b>List View</b>, and the properties tabs enable you to complete the configuration of the new controller.</p>   |
| <p>Click  .</p>  | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Number of items to Add</b> text box, type the number of controllers you want to add.</li> <li>2. From the <b>Item Family</b> list, select the applicable family.</li> <li>3. From the <b>Item Type</b> list, select <b>Controller</b>.</li> <li>4. In the <b>Name</b> text box, type in the name for this controller, or you can accept the default provided. If you have chosen to create multiple controllers, the <b>Multi – Items</b> section is enabled, and you can provide a prefix for all the controllers, or you can accept the default provided. You can also indicate whether to use a sequential number or letter to differentiate between the controllers.</li> </ol> <div style="border: 1px solid green; padding: 5px; margin: 10px 0;"> <p><b>TIP:</b> When building controllers and channels for use with equipment, or to be referenced by Equipment Templates, do not include underscores or hyphens in the names specified for the controller or channel.</p> </div> <ol style="list-style-type: none"> <li>5. Click <b>OK</b> to add the channel(s) to the list.</li> </ol> |

Use the properties tabs to configure each controller by first highlighting it in the **List View**.

Each type of controller supported by Experion has its own help file that includes detailed installation and configuration instructions specific to that controller type.

To access the help file for a specific controller, either:

- **Press F1** when you are currently editing the properties of the controller or its associated channel; or,
- From Configuration Studio, choose **HelpController Help[Controller]**, where **[Controller]** is the name of the controller for which you want help.

**To build a new channel, do one of the following:**

| Option  | Result  |
|---|---|
| From the <b>Channels</b> section within the <b>Library</b> , drag and drop the Channel item into the <b>List View</b> . | The new channel(s) appears in the <b>List View</b> , and the properties tabs enable you to complete the configuration of the new channel.   |
| Click  .                             | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Number of items to Add</b> text box, type the number of channels you want to add.</li> <li>2. From the <b>Item Family</b> list, select the applicable family.</li> <li>3. From the <b>Item Type</b> list, select <b>Channel</b>.</li> <li>4. In the <b>Name</b> text box, type in the name for this channel, or you can accept the default provided. If you have chosen to create multiple channels, the <b>Multi – Items</b> section is enabled, and you can provide a prefix for all the channels, or you can accept the default provided. You can also indicate whether to use a sequential number or letter to differentiate between the channels.</li> </ol> <div style="border: 1px solid green; padding: 5px; margin: 10px 0;"> <p><b>TIP:</b> When building controllers and channels for use with equipment, or to be referenced by Equipment Templates, do not include underscores or hyphens in the names specified for the controller or channel, and avoid channel names ending in <b>x</b>.</p> </div> <ol style="list-style-type: none"> <li>5. Click <b>OK</b> to add the channel(s) to the list.</li> </ol> |

Use the properties tabs to configure each channel by first highlighting it in the **List View**.

## About generic and user scan task controllers

There are two specialized types of controller: *generic* and *user scan task*.

### Generic controllers

You use a generic controller if you want to configure a device that is supported by the server (that is, the server can access its database) but for which there is no controller-specific Property Page in Quick Builder.

### User scan task controllers

A user scan task controller is a 'virtual controller' that treats a *user file* (a server database table) as if it were a controller.

### Notes

- A user scan task controller can have a status of disabled or failed. The database point is updated, regardless of the status.
- You can use a user scan task controller to interface with an unsupported controller. For details, see the *Application Development Guide*.
- For details about designing an efficient user file, see the *Application Development Guide*.

## Creating a generic controller

You can add generic controllers and channels to your project.

### To create a generic controller and channel:

1. Add a **Generic** channel to the project.
2. Configure the channel as appropriate.
3. Add a **Generic** controller to the project.
4. Configure the controller as appropriate, making sure that you

select the generic channel that you have just added.

5. Add points as appropriate.

## Point parameter address syntax for a generic controller

The address syntax for a point parameter in a generic controller is either:

*ControllerNameWord [Format]*

or

*ControllerNameWordBit [Width | MODE]*

| Part                  | Description   |
|-----------------------|---|
| <b>ControllerName</b> | The name of the generic controller.   |
| <b>Word</b>           | The data address (in decimal) for the parameter value in the PLC data table. Addresses range from 0001 to 8192.   |
| <b>Format</b>         | <p>For unscaled values:</p> <ul style="list-style-type: none"> <li>• <b>DBLE</b> = Double precision (64-bit) floating point</li> <li>• <b>INT2</b> = Short (16-bit) integer</li> <li>• <b>INT4</b> = Long (32-bit) integer</li> <li>• <b>REAL</b> = Single precision (32-bit) floating point number</li> </ul> <p>For scaled values (If the following formats are used, the value is assumed to be an unsigned 16-bit integer and is scaled by the range specified for the point. The following formats specify the raw range of the value in the device.):</p> <p><b>U100</b> = 0 to 100</p> <p><b>U999</b> = 0 to 999</p> <p><b>U9999</b> = 0 to 9999</p> <p><b>S9999</b> = -9999 to 9999</p> <p><b>U1023</b> = 0 to 1023</p> |
| <b>Bit</b>            | The start bit within the word (for partial integers).   |

| Part         | Description   |
|--------------|---|
|              | You cannot specify <b>Bit</b> and <b>Width</b> for analog point parameters that are used as controls.   |
| <b>Width</b> | <p>The number of bits, including the start bit, which make up the partial integer.</p> <p>The default width is dependent on the type of point and the parameter. For MD point parameters the default is 1-bit; for PV or OP status point parameters the default is the PV or OP width.</p> <p>You cannot specify <b>Bit</b> and <b>Width</b> for analog point parameters that are used as controls.</p> |
| <b>MODE</b>  | Only applicable to the MD parameter. Controls the bit width. If you specify <b>MODE</b> , the mode is 2-bit; if you don't, the mode defaults to 1-bit.  |

### Example

An analog point PV source: `CNTGEN1 003 INT2`

## Creating a user scan task controller

### To create a user scan task controller and channel:

1. Add a **User Scan Task** channel to the project.
2. Configure the channel as appropriate.
3. Add a **User Scan Task** controller to the project.
4. Configure the controller as appropriate, making sure that you select the user scan task channel that you have just added.
5. Add points as appropriate.

### Point parameter address syntax for a user scan controller

The address syntax for a point parameter in a user scan task controller is either:

*ControllerName Word [Format]*

or

*ControllerName Word Bit [Width] [MODE]*

| Part                  | Description   |
|-----------------------|---|
| <i>ControllerName</i> | The name of the user scan task.   |
| <i>Word</i>           | The data address (in decimal) for the parameter value in the PLC data table. Addresses range from 0001 to 8192.   |
| <i>Format</i>         | <p>For unscaled values:</p> <ul style="list-style-type: none"> <li>• <i>DBLE</i> = double precision (64-bit) floating point</li> <li>• <i>INT2</i> = short (16-bit) integer</li> <li>• <i>INT4</i> = long (32-bit) integer</li> <li>• <i>REAL</i> = single precision (32-bit) floating point number</li> </ul> <p>For scaled values (If the following formats are used, the value is assumed to be an unsigned 16-bit integer and is scaled by the range specified for the point. The following formats specify the raw range of the value in the device.):</p> <ul style="list-style-type: none"> <li>• <i>U100</i> = 0 to 100</li> <li>• <i>U999</i> = 0 to 999</li> <li>• <i>U9999</i> = 0 to 9999</li> <li>• <i>S9999</i> = -9999 to 9999</li> <li>• <i>U1023</i> = 0 to 1023</li> </ul> <p>If you want to use a user-defined data format, you must define the format on the server. See the section titled "About user-defined data formats" in the <i>Server and Client Configuration Guide</i> for more information.</p> |
| <i>Bit</i>            | <p>The start bit within the word (for partial integers).</p> <p>You cannot specify <i>Bit</i> and <i>Width</i> for analog point parameters that are used as controls.</p>   |
| <i>Width</i>          | <p>The number of bits, including the start bit, which make up the partial integer.</p> <p>The default width is dependent on the type of point and the parameter. For MD point parameters the default is 1-bit; for PV or OP status point parameters the default is the PV or OP width.</p> <p>You cannot specify <i>Bit</i> and <i>Width</i> for analog point parameters that are used as controls.</p>   |

| Part        | Description  |
|-------------|--|
| <i>MODE</i> | Only applicable to the MD parameter. Controls the bit width. If you specify <i>MODE</i> , the mode is 2-bit; if you don't, the mode defaults to 1-bit. |

### Example

```
An analog point PV source: RTUUSE0 003 1 INT2
```

## Generic and user scan task controller and channel properties

This section describes the properties of generic and user scan task controllers and their associated channels.

**TIP:** Every other type of controller has its own help file. If you are currently editing a controller's or channel's properties, press F1 to open its help file. (Alternatively select it from the Help menu.)

### Main properties for a generic channel

The Main tab defines the basic properties for a generic channel.

| Property         | Description   |
|------------------|---|
| Name             | The unique name of the channel. A maximum of <i>10</i> alphanumeric characters (no spaces or double quotes). Note: In Station displays, underscore characters ( <code>_</code> ) appear as spaces.  |
| Description      | (Optional) A description of the channel. A maximum of <i>132</i> alphanumeric characters, including spaces.   |
| Associated asset | The asset that an operator must have access to in order to see system alarms from this system interface. If you leave the associated asset field empty, the system alarms for this system interface will be seen by anyone who has access to the system alarms for the server on which this system interface is configured. |
| Port             | The full port description, which includes the port name, baud, and  |

| Property       | Description  |
|----------------|--|
|                | <p>parity.</p> <p>Format:</p> <p>serial port=<b>PortName</b> baud=<b>BaudRate</b> [parity=odd even none data=<b>n</b> stop=<b>n</b> checksum=<b>ChecksumType</b> duplex=half full connect=<b>nn</b> read=<b>n</b>]</p>   |
| Redundant Port | <p>The full redundant port description, which includes the port name, baud, and parity. The redundant port format is the same as that for the port, except for the port name.</p>  |
| Definition     | <p>Format:</p> <p><b>ChannelType</b> [name=<b>ChannelName</b> marg=<b>nn</b> fail=<b>nn</b>]</p> <p>Where:</p> <ul style="list-style-type: none"> <li>• <b>ChannelType</b> is the type of channel, for example <b>GEM80</b>.</li> <li>• <b>ChannelName</b> is the channel name.</li> <li>• <b>marg=nn</b> is the communications marginal alarm limit at which the channel is declared to be marginal. A high priority alarm is generated when this number of errors is reached. To calculate an acceptable limit, multiply the square root of the number of controllers on the channel with the controllers' <b>Marginal Alarm Limit</b> (generally, you specify the same value for all controllers on a particular channel). For example, if there are 9 controllers, and you have set the controllers' <b>Marginal Alarm Limit</b> to 10, the value would be <math>\sqrt{9} \times 10</math> (that is, 30).</li> <li>• <b>fail=nn</b> is the communications alarm fail limit at which the channel is declared to have failed. An urgent alarm is generated when this number of errors is reached. Set this to double the value of the marginal alarm limit.</li> </ul> |
| Item Type      | Shows the channel type.  |
| Last Modified  | Shows the date of the most recent modification to this channel's property details.   |
| Item Number    | The unique item number currently assigned to this item. You can change the item number if you need to match your current server database configuration. The number must be between 1 and the   |

| Property        | Description   |
|-----------------|---|
|                 | maximum number of channels allowed for your system (the maximum is shown on the Sizing tab for the server). |
| Last Downloaded | The date on which the item was last downloaded to the server.   |

## Main properties for a generic controller

The Main tab defines the basic properties for a generic controller.

| Property         | Description   |
|------------------|---|
| Name             | <p>The unique name of the controller. A maximum of <i>10</i> alphanumeric characters (no spaces or double quotes). Note: In Station displays, underscore characters ( <code>_</code> ) appear as spaces.</p> <p>Some controller types may impose restrictions on the name you give the controller. See the specific controller interface documentation for more information.</p>    |
| Description      | (Optional) A description of the controller. A maximum of <i>132</i> alphanumeric characters, including spaces.  |
| Associated asset | The asset that an operator must have access to in order to see system alarms from this system interface. If you leave the associated asset field empty, the system alarms for this system interface will be seen by anyone who has access to the system alarms for the server on which this system interface is configured.   |
| Channel Name     | The name of the channel on which the controller communicates. (You must have already defined the generic channel so that it appears in this list.)  |
| Definition       | <p>Defines the controller type and its communication settings. For detailed information, see the documentation supplied with the controller.</p> <p>The generic syntax is:</p> <p><b>TypeNo ID=nn [name=ControllerName marg=nn fail=nn]</b></p> <p>Where:</p> <ul style="list-style-type: none"> <li><b>TypeNo</b> is the number that identifies the type of controller.</li> </ul> |

| Property        | Description  |
|-----------------|--|
|                 | <ul style="list-style-type: none"> <li>• <b>ID=nn</b> is the controller ID number.</li> <li>• <b>ControllerName</b> is the of the controller.</li> <li>• <b>marg=nn</b> is the communications marginal alarm marginal at which the controller is declared to be marginal. When this number of errors is reached, a high priority alarm is generated. The default value is <b>25</b>.</li> <li>• <b>fail=nn</b> is the communications fail alarm limit at which the controller is declared to have failed. When this number of errors is reached, an urgent alarm is generated. Set this to double the marginal alarm limit.</li> </ul> |
| Item Type       | Shows the controller type.   |
| Last Modified   | Shows the date of the most recent modification to this controller's property details.  |
| Item Number     | The unique item number currently assigned to this item. You can change the item number if you need to match your current server database configuration. The number must be between 1 and the maximum number of channels allowed for your system (the maximum is shown on the Sizing tab for the server).   |
| Last Downloaded | The date on which the item was last downloaded to the server.  |

### Main properties of a user scan task channel

The Main tab defines the basic properties for a user scan task channel.

| Property         | Description   |
|------------------|---|
| Name             | The unique name of the channel. A maximum of <i>10</i> alphanumeric characters (no spaces or double quotes). Note: In Station displays, underscore characters ( <i>_</i> ) appear as spaces.                        |
| Description      | (Optional) A description of the channel. A maximum of <i>132</i> alphanumeric characters, including spaces.   |
| Associated asset | The asset that an operator must have access to in order to see system alarms from this system interface. If you leave the associated asset field empty, the system alarms for this system interface will be seen by |

| Property                    | Description  |
|-----------------------------|--|
|                             | <p>anyone who has access to the system alarms for the server on which this system interface is configured.</p>   |
| <p>Marginal alarm limit</p> | <p>The communications alarm marginal limit at which the channel is declared to be marginal. When this limit is reached, a high priority alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the <i>Server and Client Configuration Guide</i>.</p> <p>To change the priority of the alarm for one channel, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the <i>Server and Client Configuration Guide</i>.</p> <p>A channel barometer monitors the total number of requests and the number of times the controller did not respond or response was incorrect. The barometer increments by two or more, depending on the error, and decrements for each good call.</p> <p>To calculate an acceptable marginal alarm limit, use the formula:<br/>           Square root of the number of controllers on the channel × Marginal Alarm Limit defined on those controllers (Normally, you specify the same value for all controllers on a channel).</p> <p>For example, if there are 9 controllers on the channel and their Marginal Alarm Limit is set to 25, the value would be 3 (which is the square root of 9) × 25 = 75.</p> |
| <p>Fail Alarm Limit</p>     | <p>The communications alarm fail limit at which the channel is declared to have failed. When this barometer limit is reached, an urgent alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the <i>Server and Client Configuration Guide</i>. To change the priority of the alarm for one channel, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the <i>Server and Client Configuration Guide</i>.</p> <p>Set this to double the value specified for the channel Marginal Alarm Limit.</p>   |
| <p>Item Type</p>            | <p>Shows the channel type.</p>   |
| <p>Last Modified</p>        | <p>Shows the date of the most recent modification to this channel's property details.</p>  |

| Property        | Description  |
|-----------------|--|
| Item Number     | The unique item number currently assigned to this item. You can change the item number if you need to match your current server database configuration. The number must be between 1 and the maximum number of channels allowed for your system (the maximum is shown on the Sizing tab for the server). |
| Last Downloaded | The date on which the item was last downloaded to the server.  |

### Main properties for a user scan task controller

The Main tab defines the basic properties for a user scan task controller.

| Property             | Description   |
|----------------------|---|
| Name                 | The unique name of the controller. A maximum of 10 alphanumeric characters (no spaces or double quotes). Note: In Station displays, underscore characters ( _ ) appear as spaces.   |
| Description          | (Optional) A description of the controller. A maximum of 132 alphanumeric characters, including spaces.   |
| Associated asset     | The asset that an operator must have access to in order to see system alarms from this system interface. If you leave the associated asset field empty, the system alarms for this system interface will be seen by anyone who has access to the system alarms for the server on which this system interface is configured.   |
| Channel Name         | The name of the channel on which the controller communicates. (You must have already defined the generic channel so that it appears in this list.)  |
| Marginal alarm limit | <p>The communications alarm marginal limit at which the channel is declared to be marginal. When this limit is reached, a high priority alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the <i>Server and Client Configuration Guide</i>.</p> <p>To change the priority of the alarm for one channel, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the <i>Server and Client Configuration Guide</i>.</p> |

| Property                     | Description   |
|------------------------------|---|
|                              | <p>A channel barometer monitors the total number of requests and the number of times the controller did not respond or response was incorrect. The barometer increments by two or more, depending on the error, and decrements for each good call.</p> <p>To calculate an acceptable marginal alarm limit, use the formula: Square root of the number of controllers on the channel × Marginal Alarm Limit defined on those controllers (Normally, you specify the same value for all controllers on a channel).</p> <p>For example, if there are 9 controllers on the channel and their Marginal Alarm Limit is set to 25, the value would be 3 (which is the square root of 9) × 25 = 75.</p> |
| Fail Alarm Limit             | <p>The communications alarm fail limit at which the channel is declared to have failed. When this barometer limit is reached, an urgent alarm is generated. To change the priority of the alarm system wide, see the topic titled "Configuring system alarm priorities" in the <i>Server and Client Configuration Guide</i>. To change the priority of the alarm for one channel, see the topic titled "About configuring custom system alarm priorities for an individual channel or controller" in the <i>Server and Client Configuration Guide</i>.</p> <p>Set this to double the value specified for the channel Marginal Alarm Limit.</p>  |
| File Number<br>Record Number | <p>The file and record number of the user table that this 'controller' represents.</p>  |
| LRN Number                   | <p>The logical resource number of the user scan task to be notified of point control requests.</p> <p>This entry specifies the LRN of a user scan task written with the Application Programming Interface. (For details about writing a user scan task, see the <i>Application Development Guide</i>.)</p>  |
| Item Type                    | <p>Shows the controller type.</p>   |
| Last Modified                | <p>Shows the date of the most recent modification to this controller's property details.</p>  |
| Item Number                  | <p>The unique item number currently assigned to this item. You can change the item number if you need to match your current server</p>  |

| Property        | Description  |
|-----------------|--|
|                 | database configuration. The number must be between 1 and the maximum number of channels allowed for your system (the maximum is shown on the Sizing tab for the server). |
| Last Downloaded | The date on which the item was last downloaded to the server.  |

## Modifying a controller or channel after download

Some of the properties of channels and controllers cannot be changed after they have been downloaded to the server database. However, it is possible to delete and then rebuild the channel or controller, effectively changing the properties. The procedure is similar to modifying the controller's item number, described below.

The following procedures describe how to perform typical tasks:

- Modifying a controller's Item Number
- Move a controller to another channel (this is typically done to redistribute communications loads between channels)
- Change a channel from redundant to non-redundant

**ATTENTION:** These tasks must be performed on the primary server.

The procedures for modifying the controllers involve temporarily moving the points attached to the controller you are modifying to a temporary controller—this is necessary to prevent loss of point configuration and history data while you are modifying the controller. For clarity, the controller being modified is called *Original* and the temporary controller is called *Temporary*.

**CAUTION:** These procedures are laborious and if not followed carefully have the potential to delete point configuration and history data. You should therefore attempt these procedures only after you have fully backed up your system.

## To modify a controller's Item Number

1. Create a controller called *Temporary* that is of the same type as *Original*.
2. Arrange the points by **Source Address** and copy all the points attached to *Original* to the clipboard.
3. Paste the points into an Excel worksheet.
4. In Excel, globally change *Original* to *Temporary* to reassign the points to the controller called *Temporary*.
5. Copy the contents of the Excel worksheet to the clipboard.
6. Paste the points back into Quick Builder. This will overwrite the existing point definitions.
7. Download *Temporary* and its points. If the download is successful, the points are now assigned to *Temporary* in the server database.
8. Copy *Original* to an Excel worksheet.
9. Move *Original* to the Recycle Bin.
10. Download the project, making sure that **Automatically Download Deletions** is selected.  
If the download is successful, the *Original* controller is deleted from the server database and well as from the project.
11. In Excel:
  - a. Change **Item Number** as required.
  - b. Clear the contents of the **Date Downloaded** entry.
  - c. Copy the contents to the clipboard.
12. Paste the controller back into Quick Builder. This recreates *Original*, with its new **Item Number**.
13. Download the project.
14. Repeat steps 2 to 6, but this time globally change *Temporary* to *Original*. This effectively assigns the points back to *Original*.
15. Download the project. If the download is successful, the points are reassigned to *Original* in the server database.
16. Move *Temporary* to the Recycle Bin.
17. Download the project, making sure that the **Automatically Download Deletions** option is selected.  
If the download is successful, the *Temporary* controller is deleted from the server database as well as from the project.

## To move a controller to another channel

1. If the channel to which you want to add the controller does not already exist, create and configure it now.
2. Create controller called *Temporary* that is of the same type as *Original*.
3. Arrange the points by **Source Address** and copy all the points attached to *Original* to the clipboard.
4. Paste the points into an Excel worksheet.
5. In Excel, globally change *Original* to *Temporary*.  
This effectively reassigns the points from *Original* to *Temporary*.
6. Copy the contents of the Excel worksheet to the clipboard.
7. Paste the points back into Quick Builder to overwrite the existing point definitions.
8. Download *Temporary* and its points. If the download is successful, the points are assigned to *Temporary* in the server database.
9. Copy *Original* to an Excel worksheet.
10. Move *Original* to the Recycle bin.
11. Download the project. (Make sure that the **Automatically Download Deletions** option is selected.)  
If the download is successful, the *Original* controller is deleted from the server database as well as from the project.
12. In Excel:
  - a. Change **Channel Name** as required.
  - b. Clear the contents of the **Date Downloaded** entry.
  - c. Copy the contents to the clipboard.
13. Paste the controller back into Quick Builder. This recreates *Original*, which is now attached to the other channel.
14. Download the project.
15. Repeat steps 3 to 7, but this time globally change *Temporary* to *Original*.  
This effectively reassigns the points back to *Original*.
16. Download the project.  
If the download is successful, the points are reassigned to *Original* in the server database.

17. Move *Temporary* to the Recycle bin.
18. Download the project. (Make sure that the **Automatically Download Deletions** option is selected.)  
If the download is successful, the *Temporary* controller is deleted from the server database as well as from the project.

## To change a channel from redundant to non-redundant

1. In Quick Builder, export the channel to a local folder on the computer. See the topic titled "Exporting project data" for more information.
2. Using Notepad, open the .hdw file that was created when you exported the redundant channel.  
For example, the file is called `QBDB.hdw` and the contents of the file is as follows:

```
&Item:ModiconChan1
ADD CHN04 TRMSRV PORT=127.0.0.1:3003 CONNECT=200
READ=150
ADD CHN04D TRMSRV PORT=127.0.0.1:3004
CONNECT=200 READ=150
DEF CHN04 NAME=MODICONChan1 MAR=25 FAIL=50
&
```

Where `CHN040` is the redundant connection you want to remove.

3. Edit the line that refers to the redundant link by changing ADD to DEL and removing the remainder of the line.  
To continue the example in the previous step:

```
&Item:ModiconChan1
ADD CHN04 TRMSRV PORT=127.0.0.1:3003 CONNECT=200
READ=150
DEL CHN04D
DEF CHN04 NAME=MODICONChan1 MAR=25 FAIL=50
&
```

4. Save the .hdw file.
5. Open a Command Prompt and change the directory to the exported folder you specified at step 1.
6. Type `hdwbld QBDB.hdw`, where `QBDB` is the name of the file you edited. The non-redundant channel should now exist of the server.

7. After successfully building the channel, return to the QUICK Builder project, select the channel and upload the non-redundant channel details from the server.

## About scanning

Scanning is the process by which the server reads point parameter values from controllers.

To minimize the load on the system, it is important to plan for and implement an efficient scanning strategy, and to use the appropriate scanning methods. This section describes the various scanning methods.

### Periodic scanning

Periodic scanning involves reading parameter values at specified time intervals.

With periodic scanning, you select the appropriate scan period, ranging from seconds to minutes, for each input/output parameter. For example, if you assign a scan period of 15 seconds to the PV, the server scans the value in the controller every 15 seconds.

When choosing a scan period, consider the following factors:

- Whether the controller automatically reports changes of state. If so, periodic scanning might not be necessary.
- The rate of change of the value. If a value only changes once an hour, it is inefficient to scan that value every five seconds.
- The rate at which you need to collect history for the point (in the case of the PV parameter). A point requiring one minute snapshots needs a scan period greater than 60 seconds.
- How quickly field changes need to appear in Station displays. Dynamic values on a display are updated from the database at the configured update rate of the Station.
- The number of values that can be scanned from a controller at a particular scan rate. For example, it is unlikely that 2,000 analog values could be scanned from a controller connected to server via a serial line operating at 1200 baud.
- Whether periodic scanning is available—some controllers do not respond to scanning polls and rely on reporting by exception.

You may have to experiment to arrive at optimum scanning periods. For details about using the `lisscn` utility to analyze scanning performance, see the *Server and Client Configuration Guide*.

## Exception scanning

Exception scanning is only available if the controller supports reporting of significant events. They are set up and configured to report by exception (initiate the communication).

Significant events can be caused by events such as:

- Changes in a status point
- Significant changes in an analog point
- Analog alarms

For more information about configuring exception scanning, see the appropriate *Controller Reference*.

## Demand scanning

Demand scanning is a 'one-shot' scan of a point parameter in response to a request. Two main types of demand scanning are used:

- Scan point special
- Control confirmation

### Scan point special

A demand scan of point parameters is referred to as a *scan point special*. A scan point special is performed whenever scanning of a point is disabled and then re-enabled (for example using the **Point Detail** display). Application programs and free format reports can cause a scan point special demand scan of a point. For details, see the *Application Development Guide*.

### Control confirmation

A control confirmation demand scan is issued on the source address (if configured) after an OP, SP, MD, or an auxiliary parameter control is issued. This is to confirm that the control took place correctly. If the scanned value does not match the controlled value (within the deviation deadband), a control fail alarm may be generated.

## Dynamic scanning

**Dynamic scanning** involves scanning point parameters in response to a particular request, using a scan method that differs from its usual scan method (if any). The particular request could be to:

- Scan a parameter that is not otherwise scanned, either as a 'once-off' read, or for as long as an operator views the parameter on the display.
- Scan a parameter at an accelerated rate for as long as an operator views the parameter on the display.
- Perform a once-off scan of all parameters on a controller configured for dynamic scanning.
- Perform a time-limited (two-minute) scan of all parameters on a controller configured for dynamic scanning, either at the configured scan period (CSP) or at an accelerated rate.

See the topic titled "About dynamic scanning" in the *Server and Client Configuration Guide* for more information.

## About scan packets

A *scan packet* is the basic unit used by the server to acquire data from a controller. A scan packet represents a single input/output (transaction) with a controller—that is, one scan packet is used every time the server sends a request for data to a controller.

A scan packet can access several addresses within a controller to provide values for several points. Because the number of requests per second is generally a limiting factor, the scanning strategy should attempt to obtain the maximum number of point values in the minimum number of scan packets.

The basic requirements for including points in the same scan packet are:

- The points have the same scan period.
- The point source addresses reference the same controller.
- The number of values acquired does not exceed the scan packet size for the particular controller.
- Some controllers require that the addresses to be scanned are contiguous.

Whenever you change the point configuration, the server re-builds the scan packets in order to re-optimize scanning. For example, the server ensures that:

- If there are multiple references to an address at the same scan rate, there is only one entry in the scan packet.
- If there are multiple references to an address at different scan rates, a single entry is made at the fastest rate.

A separate scan packet is created for database addresses. Database addresses are used to scan information from other point parameters, or from files in the server database.

It is strongly recommended that you follow the instructions for optimizing scan packets—and hence maximizing scanning performance—included in the help for the specific controller.

## Building Controller Integration Mappings

### About Controller Integration Mappings

Controller Integration Mappings are XML files each of which define the SCADA point(s) that will be built for a type of program element in any given controller for which integration with the Experion Server is available.

A program element is a part of the controller program, for example; a variable, a tag, a function block or the program.

Controller Integration is available for the following controllers:

- Honeywell ControlEdge PLC
- Honeywell RTU2020
- Allen-Bradley ControlLogix

Controller Integration Mappings are supplied with Experion for these controllers. Due to the higher level of integration available for the Honeywell RTU2020 and Honeywell ControlEdge PLC, the associated Integration Mappings will not normally require any editing. However, since users of the Allen-Bradley ControlLogix may use User Defined Types that cannot be predicted, it is possible to edit existing, and create new, Integration Mappings for any supported controller type.

Existing Integration Mappings can be edited from Configuration Studio enabling the user to make changes as required.

An Integration Mapping is composed of four components:

- **Header:** Provides identification of this Integration Mapping.
- **Matches:** Defines the program element(s) that will be searched for

and the rule against which each will be matched. When any one of these matches is made the point(s) specified in the **Points** component below will be created.

- **Parameters:** Provide a way of defining configurable properties or constants used in the point definitions that are not derived from the program elements in the controller. These may vary between controllers or customer sites.
- **Points:** Defines the point(s) that will be created or updated when this Integration Mapping is matched against a program element.

## Header

The Integration Mapping header's properties are:

- **Name:** Unique name for this Integration Mapping.
- **Version:** Version of this Integration Mapping (read only).
- **Integration:** Controller type for which this Integration Mapping applies.
- **Description:** Description of this Integration Mapping.

## Matches

Defines the program element(s) that will be searched for and the rule against which each will be matched. When any one of these matches is made a point, or points, will be created using the definitions in the **Points** section below.

## Parameters

Defines parameters that are used within the **Points** section below. Each parameter can have a value defined per controller or across the whole SCADA point database. Alternatively the user is able to enter a value during the point creation in Quick Builder. See the "Automated Point Generation for an Integrated Controller" section in this guide. The following table shows some example mapping parameters:

Table 3-1: Example Mapping Parameters

| Name              | Type | Label  | Default Value |
|-------------------|------|--|---------------|
| Fast Scan Period  | Int2 | Scan period to be used for PV, SP, OP & MD.                                    | 1             |
| Slow Scan Period  | Int2 | Scan period to be used for A1, A2, A3 & A4.                                    | 60            |
| Point Name Prefix | char | Prefix to be applied to the program element name when creating the point name. | PPPP          |

## Points

Defines the points that will be created or updated when a match is made in the **Matches** section above. It is anticipated that most matches would only require a single point to be created, but it is possible to create multiple points if required for more complex program elements.

When a point is selected its Property Details are displayed.

The properties listed are some, or all, of those properties available in Quick Builder for the specific point type; analog, status, or accumulator.

Each property has a value listed or an expression that will be used to provide that property's value when a point is created, for example:

Table 3-2: Example Point Property Detail Expressions

| Property | Expression                                | Result  |
|----------|---|---|
| Name     | PropertyDetailName                        | Name of this set of property details  |
| Class    | AnalogPoint                               | An analog point will be created   |
|          | StatusPoint                               | A status point will be created  |
|          | AccumulatorPoint                          | An accumulator point will be created  |
| ItemName | [%TagPrefix%]_<br>[%#Property<br>(Name)%] | The point created will have an Item Name with the format <i>PPPP_NNNNNNNN</i><br>where:<br>PPPP = Tag Prefix (from <b>Parameters</b> section) |

| Property     | Expression         | Result  |
|--------------|--------------------|---|
|              |                    | above)<br>NNNNNNNN = Name of matched element in the controller program  |
| ScanPeriodPV | [%ScanPeriodFast%] | The point created will have a PV scan period with a value defined by ScanPeriodFast in <b>Parameters</b> above (1 sec in this example). |

## Importing Integration Mappings

Although a standard set of Integration Mappings is supplied with Experion they are not imported into Quick Builder by default. Any Integration Mapping required for point generation must be imported into Quick Builder before it can be used.

## To import an Integration Mapping into Quick Builder

1. From the Quick Builder menu, choose **File > Import...**  
The **Select File to Import** dialog appears.
2. From the **Files of Type** list, select **Controller Integration Mapping XML (\*.cim.xml)**.
3. Locate and select the Integration Mappings you want to import.
4. Click **Open**.  
The selected Integration Mappings are imported into Quick Builder. If an Integration Mapping with the same name already exists it will be overwritten.

The imported Integration Mapping can now be viewed in Quick Builder under **Controller Integration > Mappings**. For more information see the “Automated Point Generation for an Integrated Controller” section of this guide.

## Exporting Integration Mappings

Although a standard set of Integration Mappings is supplied with Experion it might be required to export an Integration Mapping so that, for example, it can be used as the basis for a new Integration Mapping, or imported into another system’s database.

## To export an Integration Mapping from Quick Builder

1. In Quick Builder navigate to **Controller Integration>Mappings**
2. Select the Integration Mapping(s) you wish to export
3. From the Quick Builder menubar, click **File > Export...**  
The **Export** dialog appears.
4. Under **File Details**
  - a. Browse to the folder to where you wish to export.the Integration Mapping(s)
  - b. Set the **Base Name for File(s)**: to an appropriate base name
  - c. Ensure the **Export File Type**: is set to *Controller Integration Mapping XML*
5. Under **Scope** select to export all the Integration Mappings or only those selected in step 2
6. Check the **Summary** details to verify what you are about to export
7. Click **OK**

The selected Integration Mapping(s) is(are) exported to the location defined in step 4a with a file name *basename.cim.xml*.

You can now browse to these Integration Mapping in *Windows Explorer* and rename them as required.

Renaming the file does not rename the Integration Mapping.

If this file is to be used as the basis for a new Integration Mapping then its Name must be changed appropriately in the Integration Mapping's Header details.

## Creating and Modifying Integration Mappings

A standard set of Integration Mappings is supplied with Experion however, if the controller program contains a tag or variable name in that is not matched in any of these Integration Mappings, then a new Integration Mapping is required. It is recommended that an existing Integration Mapping be copied, renamed and then modified to suit this requirement. It is not recommended to attempt to create a new Integration Mapping from an empty file.

## To open an existing Integration Mapping

1. From Configuration Explorer in Configuration Studio, under **Control Strategy > Controller Integration Mapping**, click **Build Controller Integration Mapping**.  
Controller Integration Mapping Builder opens.

2. From the menubar or toolbar open the required Integration Mapping; file format is \*.cim.xml.

The selected Integration Mapping will open and its file name will be displayed at the head of the Navigation pane.

## To edit an existing Integration Mapping

1. Select the Integration Mapping header and enter an appropriate new **Name** and **Description**.

It is this **Name** that identifies the new Integration Mapping in Quick Builder, not the file name.

2. Select **Matches** and add or delete program elements as required and set the Rule for any new ones.
3. Select **Parameters** and add or delete Parameters as required and set the data Type and Default Value (if required) for any new ones.
4. Select **Points** and delete properties whose values are not required to be enforced when the point generation is run. Expressions may be edited if required.

Properties cannot be added to existing point definitions. The recommended method of doing this follows.

## To add properties to existing point definitions

1. Open Quick Builder.
2. Open a point of the required type; analog, status or accumulator.
3. From the menubar select **Edit > Copy** to copy the point.
4. Return to **Controller Integration Mapping Builder, Points** view, and paste the point from the toolbar.
5. Delete unwanted properties and edit property expressions as required.

## To save an edited mapping

1. From the menubar select **File > Save As...**

The **Save As** dialog will open

2. Browse to the required path. Honeywell suggests using **C:\ProgramData\Honeywell\Experion PKS\Server\data\ControllerIntegration** if you are on the primary server, or **\\PrimaryServerName\ControllerIntegration** if you are on

another node. This mapping will then be available for importing into Quick Builder at any Experion node.

3. Enter a new file name

Using the original file name, or using **File > Save**, will overwrite the original Integration Mapping file.

4. Click **Save**.

The new Integrated Mapping file with edits will be saved.

## Supported Controller Integration Mapping syntax

This topic lists and describes the syntax of expressions that are supported within Experion Controller Integration Mappings.

## Supported Controller Integration Mapping syntax

| Description   | Syntax   | Example                                 | Result  |
|---|--|---|---|
| Simple Controller Integration Parameter                               | [%ParameterName%]  | [%Fast Scan Period%]                    | Uses the value of the parameter named “Fast Scan Period”  |
| Retrieving a property from a program, function block, or tag/variable | [%#Property(property_name)%]<br><br>See table below for valid <b>property_name</b>                   | [%#Property(property_name)%]            | See table below for examples of valid entries for <b>property_name</b> .  |
| Retrieving the property of a member of a structured tag/variable      | [%#MemberProperty(member_name,property_name)%]<br><br>See table below for valid <b>property_name</b> |   | Behaves like #Property, except rather than retrieving the property of the matched structured variable it retrieves the variable indicated by <b>member_name</b> and gets the property from that member variable based on <b>property_name</b> . |
| Retrieving the property of a pin on                                   | [%#ConnectedProperty(pin_name_syntax,property_name)%]  | [%#ConnectedProperty(OP, FullAddress)%] | Searches for the pin identified by <b>pin_name_syntax</b> on the matched block.   |

| Description   | Syntax  | Example | Result   |
|---|---|---------|--|
| <p>function block</p> <p>(RTU2020 and ControlEdge PLC only)</p>   | <p>where <b>pin_name_syntax</b> is the name of the pin on the function block whose value is required. If there are IN and OUT pins with the same name, the <b>pin_name_syntax</b> is <b>pin_name[in]</b> or <b>pin_name[out]</b> depending on which pin the mapping is required to match.</p> <p>See table below for valid <b>property_name</b></p> |         | <p>If the pin is connected to a local/global variable this query searches for the variable connected to the pin of a function identified by <b>pin_name_syntax</b>. The value of <b>property_name</b> is then retrieved for this variable.</p> <p>If the pin is connected to a different block from the matched block, do not use <b>#ConnectedProperty</b>, instead use <b>#BlockProperty</b> or <b>#IOProperty</b>.</p> <p>If the pin is connected to a numerical or string expression, e.g. 1.0, then the only property supported is "Value" and the value of the pin would be returned.</p> <p>ControlEdge PLC only: If the pin is connected to a numerical or string, or is unconnected, the "FullAddress" property can also be used.</p> |
| <p>Retrieving the property of a pin on an adjacent function block;</p> <p>where "adjacent" means "in the same</p> | <p>[%#BlockProperty(<b>adjacent_block_name</b>,<b>pin_name_syntax</b>,<b>property_name</b>)%]</p> <p>See table below for valid <b>property_name</b></p>   |         | <p>Searches for the function block named <b>adjacent_block_name</b> which is adjacent to the matched block. Then searches for the variable connected to the pin identified by <b>pin_name_syntax</b> on the adjacent block. The value of <b>property_name</b> is then retrieved for this variable.</p> <p>If the pin is connected to a numerical or string expression, e.g. 1.0, then the only property supported is "Value" and the</p>   |

| Description  | Syntax  | Example           | Result  |
|--|---|-------------------|---|
| worksheet".<br><br>(RTU2020 and ControlEdge PLC only)  |   |                   | value of the pin would be returned.<br><br>ControlEdge PLC only: If the pin is connected to a numerical or string, or is unconnected, the "FullAddress" property can also be used.  |
| Retrieving IO Channel property for a connected pin<br><br>(RTU2020 and ControlEdge PLC only) | [%#IOProperty(adjacent_block_name,pin_name_syntax,io_property_name)%]<br><br>See table below for valid io_property_name |                   | Retrieves the io_property_name of an IO Variable connected to the pin_name_syntax pin on an adjacent function block.<br><br>The allowable types of IO variables are: <ul style="list-style-type: none"> <li>• ANALOG_INPUT_TYPE</li> <li>• ANALOG_OUTPUT_TYPE</li> <li>• DIGITAL_INPUT_TYPE</li> <li>• DIGITAL_OUTPUT_TYPE</li> <li>• PULSE_INPUT_TYPE</li> </ul><br>These IO variables must be bound to an IO Channel for #IOProperty to function. |
| ControlLogix Prefix<br><br>(ControlLogix   | [%#ClgxPrefix()%)   | [%#ClgxPrefix()%) | Returns Name Name:Name: where Name = the name of the controller.  |

Chapter 3 - Building controllers or channels

| Description   | Syntax  | Example  | Result   |
|---|---|--|--|
| only)   |   | <pre>[%#ClgxPrefix()%]: [%#Property (FullAddress)%].PV.VALUE</pre> | <p>Returns the address of the PV of the matched item (FC1001) in the format <i>Controller Location</i>, where</p> <p><i>Controller = Name</i></p> <p><i>Location =</i></p> <p><i>Name:Name:PID:FC1001.PV.VALUE</i></p> |
| Retrieving Controller properties from Quick Builder | <pre>[%#Controller(property_name)%]</pre> <p>See table below for valid <b>property_name</b></p> | <pre>[%#Controller(property_ name)%]</pre>                         | See table below for examples of valid entries for <b>property_name</b> .   |

### Valid Properties

| Source of Property | Property_ Name | Applicable controller | Example of use              | Description  |
|--------------------|----------------|-----------------------|-----------------------------|--|
| Program            | Name           | ControlLogix          | [%#Property(Name)%]         | Retrieves the name of the program                  |
|                    |                | RTU2020               | [%#Property(Name)%]         | Retrieves the name of the task running the program |
|                    |                | ControlEdge PLC       | [%#Property(Name)%]         | Retrieves the name of the task running the program |
|                    | Description    | ControlLogix          | [%#Property (Description)%] | Retrieves the description of the program           |
|                    |                | RTU2020               |                             | n/a  |
|                    |                | ControlEdge PLC       |                             | n/a  |

### Chapter 3 - Building controllers or channels

| Source of Property | Property_Name | Applicable controller | Example of use | Description |
|--------------------|---------------|-----------------------|----------------|-------------|
| Function Block     | Name          | ControlLogix          |                | n/a         |

### Chapter 3 - Building controllers or channels

| Source of Property | Property_Name | Applicable controller | Example of use              | Description  |
|--------------------|---------------|-----------------------|-----------------------------|--|
|                    |               | RTU2020               | [%#Property(Name)%]         | Retrieves the name of the matched function block variable        |
|                    |               | ControlEdge PLC       | [%#Property(Name)%]         | Retrieves the name of the matched function block variable        |
|                    | Description   | ControlLogix          |                             | n/a  |
|                    |               | RTU2020               | [%#Property (Description)%] | Retrieves the description of the matched function block variable |
|                    |               | ControlEdge PLC       | [%#Property (Description)%] | Retrieves the description of the matched function block variable |
|                    | TypeName      | ControlLogix          |                             | n/a  |
|                    |               | RTU2020               | [%#Property (TypeName)%]    | Retrieves the matched function block's type                      |
|                    |               | ControlEdge PLC       | [%#Property (TypeName)%]    | Retrieves the matched function block's type                      |
|                    | FullAddress   | RTU2020               | [%#Property (FullAddress)%] | Retrieves the full address of the matched function block         |
|                    |               | ControlEdge PLC       | [%#Property (FullAddress)%] | Retrieves the full address of the matched function block         |

### Chapter 3 - Building controllers or channels

| Source of Property | Property_Name | Applicable controller | Example of use       | Description   |
|--------------------|---------------|-----------------------|----------------------|---|
|                    | Units         | ControlLogix          |                      | n/a   |
|                    |               | RTU2020               |                      | n/a   |
|                    |               | ControlEdge PLC       | [%#Property(Units)%] | Retrieves the Engineering Unit of matched variable    |
|                    | Max           | ControlLogix          |                      | n/a   |
|                    |               | RTU2020               |                      | n/a   |
|                    |               | ControlEdge PLC       | [%#Property(Max)%]   | Retrieves the Maximum range value of matched variable |
|                    | Min           | ControlLogix          |                      | n/a   |
|                    |               | RTU2020               |                      | n/a   |
|                    |               | ControlEdge PLC       | [%#Property(Min)%]   | Retrieves the Minimum range value of matched variable |

### Chapter 3 - Building controllers or channels

| Source of Property                        | Property_ Name | Applicable controller | Example of use      | Description                                    |
|---|----------------|-----------------------|---------------------|--|
| Tag/Variable (either structured or basic) | Name           | All types             | [%#Property(Name)%] | Retrieves the name of the matched tag/variable |

Chapter 3 - Building controllers or channels

| Source of Property | Property_ Name | Applicable controller | Example of use                               | Description  |
|--------------------|----------------|-----------------------|--|--|
|                    | Description    | All types             | [%#Property (Description)%]                  | Retrieves the description of the matched tag/variable  |
|                    | Value          | ControlLogix          | [%#MemberProperty (PVL,Value)%]              | Retrieves the value of PV Low alarm limit  |
|                    |                | RTU2020               |  | n/a  |
|                    |                | ControlEdge PLC       |  | n/a  |
|                    | FullAddress    | ControlLogix          | [%#Property (FullAddress)%]                  | Retrieves the OPC path to the tag; requires [%#ClgxPrefix()%][%#Property(DataType)%] as a prefix.  |
|                    |                | RTU2020               | [%#BlockProperty (HWDACA_1,AI,FullAddress)%] | Retrieves the address of the Analog Input connected to the HWDACA_1 block adjacent to the matched variable   |
|                    |                | ControlEdge PLC       | [%#BlockProperty (HWDACA_1,AI,FullAddress)%] | Retrieves the address of the Analog Input connected to the HWDACA_1 block adjacent to the matched variable.<br><br>If it is not connected or connected to constant value, then FullAddress will return the address of the function block pin itself. |
|                    | DataType       | All types             | [%#Property (DataType)%]                     | Retrieves the data type of tag/variable  |
|                    | NumElements    | Alltypes              | [%#Property (NumElements)%]                  | Retrieves the number of elements in array tag/variable   |

### Chapter 3 - Building controllers or channels

| Source of Property | Property_ Name | Applicable controller | Example of use   | Description   |
|--------------------|----------------|-----------------------|--|---|
|                    | Units          | ControlLogix          | [%#Property(Units)%]   | Retrieves the Engineering Unit of matched tag<br><br><b>ATTENTION:</b> This applies to basic tags, multidimensional arrays of basic tags, and structured types containing basic or structured type tags.    |
|                    |                | RTU2020               |  | n/a   |
|                    |                | ControlEdge PLC       | [%#Property(Units)%]   | Retrieves the Engineering Unit of matched variable  |
|                    | Max            | ControlLogix          | [%#Property(Max)%]   | Retrieves the Maximum range value of matched tag<br><br><b>ATTENTION:</b> This applies to basic tags, multidimensional arrays of basic tags, and structured types containing basic or structured type tags. |
|                    |                | RTU2020               |  | n/a   |
|                    |                | ControlEdge PLC       | [%#Property(Max)%]   | Retrieves the Maximum range value of matched variable   |
| Min                | ControlLogix   | [%#Property(Min)%]    | Retrieves the Minimum range value of matched tag<br><br><b>ATTENTION:</b> This applies to basic tags, multidimensional arrays of basic tags, and structured types containing basic or structured |   |

### Chapter 3 - Building controllers or channels

| Source of Property | Property_ Name | Applicable controller | Example of use | Description |
|--------------------|----------------|-----------------------|----------------|-------------|
|                    |                |                       |                | type tags.  |

### Chapter 3 - Building controllers or channels

| Source of Property | Property_ Name  | Applicable controller      | Example of use  | Description  |   |
|--------------------|-----------------|----------------------------|---|--|---|
|                    |                 | RTU2020                    |   | n/a  |   |
|                    |                 | ControlEdge PLC            | [%#Property(Min)%]  | Retrieves the Minimum range value of matched variable        |   |
|                    | State0Desc      | ControlLogix               | [%#Property (State0Desc)%]                                  | Retrieves the descriptor for state 0 of the matched tag      | <b>ATTENTION:</b> This applies to basic tags, multidimensional arrays of basic tags, and structured types containing basic or structured type tags. |
|                    |                 |                            | RTU2020   |  |   |
|                    |                 | ControlEdge PLC            | [%#Property (State0Desc)%]                                  | Retrieves the descriptor for state 0 of the matched variable |   |
|                    |                 |                            | ControlLogix  | [%#Property (State1Desc)%]                                   | Retrieves the descriptor for state 1of the matched tag  |
|                    | ControlEdge PLC | [%#Property (State1Desc)%] | Retrieves the descriptor for state 1of the matched variable |  |   |
|                    |                 | RTU2020                    |   |  | n/a   |
|                    | ControlEdge PLC |                            | [%#Property (State1Desc)%]                                  | Retrieves the descriptor for state 1of the matched variable  |   |
|                    |                 | Controller                 | Name  | All types  | [%#Controller(Name)%]   |

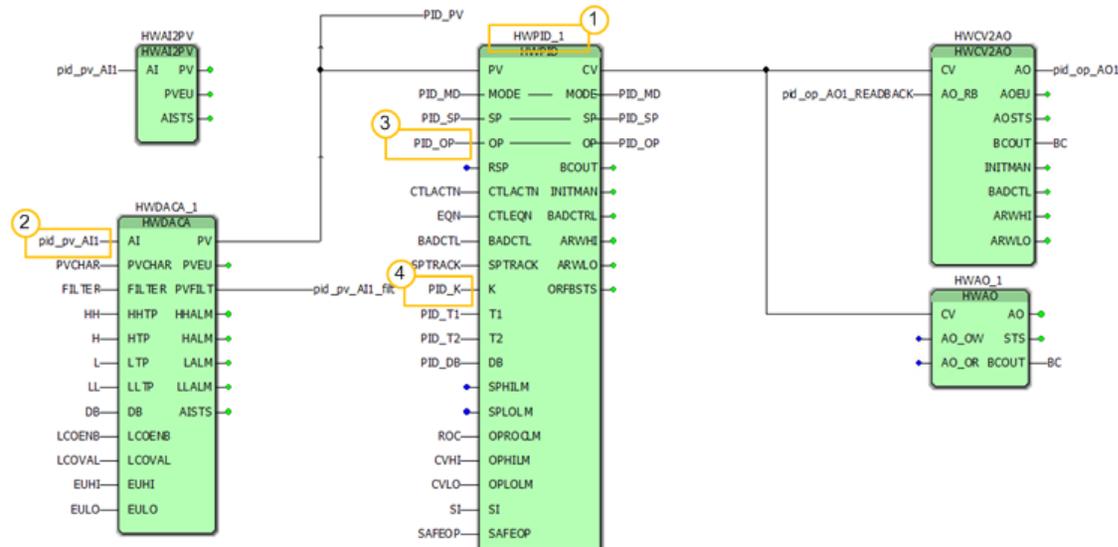
Chapter 3 - Building controllers or channels

| Source of Property               | Property_Name | Applicable controller | Example of use  | Description   |
|----------------------------------|---------------|-----------------------|---|---|
|                                  |               |                       |   | Builder database  |
|                                  | Description   | All types             | [%#Controller (Description)%]                                   | Retrieves the description of the controller from the Quick Builder database       |
|                                  | Asset         | All types             | [%#Controller(Asset)%]  | Retrieves the asset of the controller from the Quick Builder database             |
|                                  | Channel       | All types             | [%#Controller (Channel)%]                                       | Retrieves the channel name of the controller from the Quick Builder database      |
|                                  | Number        | All types             | [%#Controller (Number)%]  | Retrieves the controller number of the controller from the Quick Builder database |
| IO Channel<br><br>(RTU2020 only) | EUHigh        | All types             | [%#IOProperty(adjacent_block_name,pin_name_syntax,EUHigh)%]     | Retrieves the High value of the range in Eng Units                                |
|                                  | EULow         | All types             | [%#IOProperty(adjacent_block_name,pin_name_syntax,EULow)%]      | Retrieves the Low value of the range in Eng Units                                 |
|                                  | EUDesc        | All types             | [%#IOProperty(adjacent_block_name,pin_name_syntax,EUDesc)%]     | Retrieves the Eng Units descriptor  |
|                                  | State0Desc    | All types             | [%#IOProperty(adjacent_block_name,pin_name_syntax,State0Desc)%] | Retrieves the descriptor for state 0  |
|                                  | State1Desc    | All types             | [%#IOProperty(adjacent_block_name,pin_name_syntax,State1Desc)%] | Retrieves the descriptor for state 1  |

## Example RTU2020 Integration Mapping

This topic provides the details of an example RTU2020 Mapping together with its source ControlEdge Builder function block view.

Figure 3-1: ControlEdge Builder Function Block View



### Example Mapping Details

| Mapping Components | Item                                 | Data  |
|--------------------|--------------------------------------|---|
| Header             | Name:                                | RTU_HWPID   |
|                    | Integration:                         | RTU2020   |
|                    | Description:                         | Honeywell PID Function Block  |
| Matches            | Program Element:                     | Function Block  |
|                    | Rule:                                | HWPID   |
| Parameters         | Point Name Prefix                    | <b>blank</b><br>see item <b>(1)</b> in table below                                  |
|                    | Fast Scan Period                     | 0<br>(RTU2020 uses DNP3 class based scanning)<br>see item <b>(5)</b> in table below |
|                    | Slow Scan Period                     | 0<br>(RTU2020 uses DNP3 class based scanning)<br>see item <b>(6)</b> in table below |
| Points             | See table below for Property Details |   |

### Example Point Property Details

| Item | Quick Builder Parameter     | Mapping Expression   | Result  |
|------|-----------------------------|--|---|
| 1    | ItemName                    | [%Point Name Prefix%][%#Property(Name)%]                             | HWPID_1   |
| 2    | SourceAddressPV             | [%#Controller(Name)%] [%#BlockProperty(HWDACA_1,AI,FullAddress)%].PV | Address of analog input for PV                  |
|      | RangeHigh                   | [%#IOProperty(HWDACA_1,AI,EUHigh)%]                                  | High Range value of analog input channel        |
|      | Unit:                       | [%#IOProperty(HWDACA_1,AI,EUDesc)%]                                  | Eng Units description from analog input channel |
| 3    | Source/DestinationAddressSP | [%#Controller(Name)%] [%#ConnectedProperty(SP,FullAddress)%]         | Address of SP                                   |
| 4    | Source/DestinationAddressA1 | [%#Controller(Name)%] [%#ConnectedProperty(K,FullAddress)%]          | Address of K factor (proportional gain)         |
| 5    | ScanPeriodPV                | [%Fast Scan Period%]   | Scan period based on DNP3 class based scanning  |
| 6    | ScanPeriodSP                | [%Slow Scan Period%]   | Scan period based on DNP3 class based scanning  |

## BUILDING SERVERS

This section outlines how to use Quick Builder to build and configure servers.

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In this section:

|   |     |
|---|-----|
| <i>Creating a server</i> .....                      | 107 |
| <i>Main properties for a server</i> .....           | 107 |
| <i>Sizing limits for the server</i> .....           | 108 |
| <i>Upload and download paths for a server</i> ..... | 108 |
| <i>Server specific options</i> .....                | 108 |
| <i>History options for a server</i> .....           | 110 |

## Creating a server

### To create a server

1. Use one of the following options to create a new server:

| Option  | Result   |
|---|--|
| From the <b>Servers</b> section within the <b>Library</b> , drag and drop the Server item into the <b>List View</b> . | The new server appears in the <b>List View</b> , and the properties tabs enable you to complete the configuration of the new server.   |
| Click  .                             | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. From the <b>Item Family</b> list, select the applicable family.</li> <li>2. From the <b>Item Type</b> list, select <b>Server</b>.</li> <li>3. In the <b>Name</b> text box, type in the name for this server, or you can accept the default provided.</li> <li>4. Click <b>OK</b> to add the server to the list.</li> </ol> |

2. Use the properties tabs to configure the server.

## Main properties for a server

The **Main tab** defines basic server details, including the server name.

| Property    | Description   |
|-------------|---|
| Name        | The server's unique name. 30 alphanumeric characters maximum. |
| Server Type | The version of Experion that runs on this server.             |
| Description | A brief description of the server.                            |
| Item type   | Shows the server type.  |

| Property      | Description   |
|---------------|---|
| Last Modified | Shows the date on which this project was last modified. |

## Sizing limits for the server

The **Sizing** tab shows the size limits for each type of item. The figures in the **Limit** column are determined by your license, and the figures in the **Maximum** column are basic Experion limits.

**ATTENTION:** As the server sizing limits displayed on this property page are not read directly from the server, they may not be accurate.

## Upload and download paths for a server

The **Server Details** tab defines the upload and download paths for each server.

| Property                           | Description  |
|------------------------------------|--|
| Server Name                        | The server's computer (TCP/IP) name.<br><br>If you are running Quick Builder on the server, set the name to <b>LocalHost</b> . |
| Upload Path                        | The folder Quick Builder uses when uploading details into this project.  |
| Download Path                      | The folder Quick Builder uses when downloading details from this project.  |
| Project last downloaded on         | The date on which this project was last downloaded to the server.  |
| Last project upload from server on | The date on which this project was last uploaded from the server.  |

## Server specific options

The **Server Specific Options** tab defines options specific to this server.

| Property  | Description   |
|---|---|
| Enforce naming rules for points, parameters and areas | If selected (the default), Quick Builder enforces the naming rules. For more information about naming rules, see the <i>Server and Client Configuration Guide</i> .   |
| Allow Point Names to contain only numeric characters  | <p><b>Note:</b> This option is primarily designed to allow you to define new points on legacy systems.</p> <p>Allows you to define non-standard point IDs that contain only numbers. (Standard point names must contain at least one letter.)</p> <p>Note that points with numeric IDs cannot be used with algorithms.</p>  |
| Allow Point Names to contain full stops               | <p><b>Note:</b> This option is primarily designed to allow you to define new points on legacy systems.</p> <p>Allows you to define non-standard point IDs that contain periods (full stops). (Standard point cannot contain any periods.)</p> <p>Note that point IDs containing periods cannot be used for container points, or in a DSA system.</p>  |
| Use Electronic Signatures                             | <p>If selected, the server will request one (or two) electronic signatures before executing control on a point.</p> <p>If you configure points for electronic signature, you are requested for a password when downloading a project to (or uploading from) the server.</p> <p>Enabling this option adds the <b>Signature</b> tab for any newly created point where you can configure the electronic signature properties for that point.</p> |
| Never download initial UDP value to the server        | <p>Specifies the default download setting of initial values on user-defined parameters.</p> <p>If selected, selects the <b>Never download initial value to the server</b> check box on the point's <b>User Defined</b> tab for all newly created user-defined parameters.</p> <p>For use with topologies where a user-defined parameter is linked with a process value in a third party system.</p>   |

| Property         | Description   |
|------------------|---|
| Enable audit log | <p>If selected, all changes made to a Quick Builder project on this server are captured including details of the user who made the change.</p> <p>Server Logger is used to store the log files, and Honeywell Log Viewer (HLV) can be used to view the log files.</p> <p>You can access the log files through a shortcut in the Start menu.</p> <p>Note the following rules for the audit log:</p> <ul style="list-style-type: none"> <li>• The maximum size for a single log file is 8MB</li> <li>• The maximum number of log files is 100</li> <li>• After the maximum storage is reached (800MB), the log files will be overwritten</li> </ul> |

## History options for a server

The **History Options** tab displays the history collection rates and offset groups that have been configured on the server and uploaded to Quick Builder.



# BUILDING A FLEX STATION

This topic outlines how to use Quick Builder to build a Flex Station.

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In this section:

|   |     |
|---|-----|
| <i>About Station types</i> .....                  | 113 |
| <i>About security types</i> .....                 | 113 |
| <i>Creating a Flex Station</i> .....              | 114 |
| <i>Main properties for a rotary Station</i> ..... | 114 |
| <i>Main properties for a static Station</i> ..... | 115 |

## About Station types

Experion supports the following Station types, each of which is connected to the server in a particular manner.

| Type           | Description   |
|----------------|---|
| Rotary Station | Connects the Station to the server via a LAN but without the need for a dedicated connection. This type of connection is recommended for Stations used by management or others who do not use the Station full-time. (If a rotary Station is not used for the idle timeout period, the connection is made free so that it can be used by another rotary Station.) |
| Static Station | Connects the Station to the server via a LAN with a dedicated (permanent) connection. This is the recommended Station type for operators.   |

## About security types

There are two types of security: *operator-based security* and *Station-based security*. During initial system planning, you must select the security type appropriate to your needs.

If you use operator-based security, each user is assigned an ID and password (as well as an appropriate security level). Each user must log on to Station before being able to use it.

If you use Station-based security, there are no user IDs, only security levels. When users start Station, they are immediately assigned to the **OPER** level. If required, they can change to a higher security level. Users will need to know the password for that level on that Station.

See the *Server and Client Configuration Guide* for a detailed description of security types.

## Creating a Flex Station

### To create a Flex Station

1. Use one of the following options to create a new flex station:

| Option  | Result  |
|---|---|
| From the <b>Stations</b> section within the <b>Library</b> , drag and drop the Station item into the <b>List View</b> . | The new station appears in the <b>List View</b> , and the properties tabs enable you to complete the configuration of the new station.  |
| Click  .                               | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. From the <b>Item Family</b> list, select the applicable family.</li> <li>2. From the <b>Item Type</b> list, select <b>Stations</b>.</li> <li>3. In the <b>Name</b> box, type in the name for this station, or you can accept the default provided.</li> <li>4. Click <b>OK</b> to add the station to the list.</li> </ol> |

2. Use the properties tabs to configure the station.

## Main properties for a rotary Station

The **Main** tab defines the basic properties of a rotary Station.

| Property         | Description  |
|------------------|--|
| Name             | The Station's name.  |
| Description      | A description of the Station.  |
| Associated asset | The asset that an operator must have access to in order to see system alarms from this system interface. If you leave the associated asset field empty, the system alarms for this system interface will be seen by anyone who has |

| Property                 | Description   |
|--------------------------|---|
|                          | access to the system alarms for the server on which this system interface is configured.  |
| Operator-Based Security  | Indicates that you have operator-based security.  |
| Enable Card Image Callup | Not applicable to Experion.   |
| Image Display Time       | Not applicable to Experion.   |
| Idle Page                | The name/number of the display that Station automatically calls up if there has been no operator activity for the idle timeout period.                              |
| Item Type                | Shows the Station type as <b>Rotary</b> .   |
| Last Modified            | Shows the date/time on which the Station details were last modified.  |
| Item Number              | The unique item number assigned by Quick Builder. You can change this if you need to match an existing configuration (if you are uploading a database for example). |
| Last Downloaded          | Shows the date on which the item was last downloaded to the server.   |

## Main properties for a static Station

The **Main** tab defines the basic properties of a static Station.

| Property         | Description   |
|------------------|---|
| Name             | The Station's name.   |
| Description      | A description of the Station.   |
| Associated asset | The asset that an operator must have access to in order to see system alarms from this system interface. If you leave the associated asset field empty, the system alarms for this system interface will be seen by anyone who has access to the system alarms for the server on which this system interface is configured. |
| Update Rate      | The rate, in seconds, at which dynamic values from  |

| Property                 | Description  |
|--------------------------|--|
|                          | <p>controllers and other devices are updated in the server database.</p> <p>Care should be taken when setting this rate to ensure that you are not placing an unnecessary load on your controllers.</p> <p>To enable operators to temporarily increase this standard update rate, you can configure a function key to act as a Fast Update key. This key works like the Fast Update key on an IKB/OEP keyboard. When operators press the Fast Update key, the server obtains updates from controllers at the fast update rate described below (instead of the rate specified here) until a new display is called up.</p> <p>Note that:</p> <ul style="list-style-type: none"> <li>• This update rate does not apply to rotary Stations. You configure update rates for rotary Stations on the Connection tab of the <b>Connection Properties</b> dialog box in Station.</li> <li>• Custom displays and individual parameter values on custom displays can be configured to update at a different rate to the rate specified here.</li> </ul> |
| Fast Update Rate         | <p>The rate, in seconds, at which dynamic values available from the server are updated on Station displays.</p> <p>Note that:</p> <ul style="list-style-type: none"> <li>• This update rate does not apply to rotary Stations. You configure update rates for rotary Stations on the Connection tab of the <b>Connection Properties</b> dialog box in Station.</li> <li>• Custom displays and individual parameter values on custom displays can be configured to update at a different rate to the rate specified here.</li> </ul>  |
| Operator-Based Security  | Indicates that you want operator-based security.   |
| Enable Card Image Callup | Not applicable to Experion.  |

| Property           | Description   |
|--------------------|---|
| Image Display Time | Not applicable to Experion.   |
| Idle Page          | The name/number of the display that Station automatically calls up if there has been no operator activity for the idle timeout period.                              |
| Item Type          | Shows the Station type as <b>Static</b> .   |
| Last Modified      | The date/time on which the Station details were last modified.  |
| Item Number        | The unique item number assigned by Quick Builder. You can change this if you need to match an existing configuration (if you are uploading a database for example). |
| Last Downloaded    | The date on which the item was last downloaded to the server.   |

## BUILDING AND CONFIGURING POINTS

You can use Quick Builder to create the following types of points:

- Accumulator
- Analog
- Container
- OPC Advanced
- Status

This section describes how to create and configure each type of point.

### Tabs

The following table lists the Quick Builder tabs, and associated configuration tasks, for each point type.

| Point type  | Tab          | Go to   |
|-------------|--------------|---|
| Accumulator | Main         | "Main properties for an accumulator point" on page 122  |
|             | Display      | "Display-related properties" on page 155                |
|             | Alarms       | "Alarm properties for an accumulator point" on page 124 |
|             | History      | "History collection properties" on page 156             |
|             | Scripts      | "Creating or editing scripts" on page 161               |
|             | User Defined | "Configuring user-defined parameters" on page 163       |
|             | PV Algo      | "Configuring algorithm parameters" on page 155          |
|             | Action Algo  | "Configuring algorithm parameters" on page 155          |
| Analog      | Main         | "Main properties for an analog point" on                |

| Point type   | Tab                    | Go to   |
|--------------|------------------------|---|
|              |                        | page 126  |
|              | Display                | "Display-related properties" on page 155                |
|              | Alarms                 | "Alarm properties for an analog point" on page 128      |
|              | Control                | "Control properties for an analog point" on page 131    |
|              | Auxiliary              | "Auxiliary properties for an analog point" on page 133  |
|              | History                | "History collection properties" on page 156             |
|              | Scripts                | "Creating or editing scripts" on page 161               |
|              | User Defined           | "Configuring user-defined parameters" on page 163       |
|              | Non Scanned Parameters | "Subscribing to non-scanned parameters" on page 159     |
|              | PV Algo                | "Configuring algorithm parameters" on page 155          |
|              | Action Algo            | "Configuring algorithm parameters" on page 155          |
| Container    | Main                   | "Container points" on page 135                          |
|              | Contained Points       | "Main properties for a container point" on page 137     |
| OPC advanced | Main                   | "Main properties for an OPC advanced point" on page 140 |
|              | Display                | "Display-related properties" on page 155                |
|              | Scripts                | "Creating or editing scripts" on page 161               |
|              | User Defined           | "Configuring user-defined parameters" on page 163       |
|              | OPC Parameters         | "OPC parameters for an OPC advanced point" on page 145  |

| Point type | Tab                    | Go to   |
|------------|------------------------|---|
|            | History                | "History collection properties" on page 156         |
| Status     | Main                   | "Main properties for a status point" on page 146    |
|            | Display                | "Display-related properties" on page 155            |
|            | Alarms                 | "Alarm properties for a status point" on page 148   |
|            | Control                | "Control properties for a status point" on page 150 |
|            | History                | "History collection properties" on page 156         |
|            | Scripts                | "Creating or editing scripts" on page 161           |
|            | User Defined           | "Configuring user-defined parameters" on page 163   |
|            | Non Scanned Parameters | "Subscribing to non-scanned parameters" on page 159 |
|            | PV Algo                | "Configuring algorithm parameters" on page 155      |
|            | Action Algo            | "Configuring algorithm parameters" on page 155      |

## Building points

1. Use one of the following options to create a new point:

| Option  | Result  |
|---|---|
| <p>From the <b>Points</b> section within the <b>Library</b>, drag and drop the relevant Point item into the <b>List View</b>.</p> | <p>The new point appears in the <b>List View</b>, and the properties tabs enable you to complete the configuration of the new point.</p>  |
| <p>Click .</p>                                   | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Number of items to Add</b> text box, type the number of points you want to add.</li> <li>2. From the <b>Item Family</b> list, select the applicable family.</li> <li>3. From the <b>Item Type</b> list, select <b>Point</b>.</li> <li>4. In the <b>Name</b> text box, type in the name for this point, or you can accept the default provided. If you have chosen to create multiple points, the <b>Multi – Items</b> section is enabled, and you can provide a prefix for all the points, or you can accept the default provided. You can also indicate whether to use a sequential number or letter to differentiate between the points.</li> <li>5. Click <b>OK</b> to add the point(s) to the list..</li> </ol> |

2. Use the properties tabs to configure each point by first highlighting it in the **List View**.

## Assigning points to an asset

1. From the main Quick Builder, click on the **Asset view** filter option to display the assets that have been downloaded from the server.

2. Click the asset to which you want to assign the point.  
Any items already assigned to this asset are displayed in the **List View**.
3. From the **Library**, click the **Points** category to list the point types.
4. Select the item for the type of point you want to create. Drag and drop the item into the **List View**.  
The new point appears in the List View and you can use the Properties tab to complete the configuration of the new point.  
The point is automatically assigned to the asset.

## Accumulator points

An accumulator point is a standard point type with a fixed data structure that represents total values. For example, an accumulator point can represent the volume of water that has flowed into a tank or through a turbine.

This section contains the configuration information that is specific to accumulator points. Other tabs also appear in the properties pane for the accumulator point, but are generic to all points. They are:

- Display tab
- History tab
- Scripts tab
- User Defined tab
- PV Algo tab
- Action Algo tab

See the related topics for links to more information about each of these tabs.

### Main properties for an accumulator point

The Main tab defines the point's basic properties.

| Property | Description   |
|----------|---|
| Point ID | The point's name.<br><br>See the topic "Naming rules for points" in the chapter on "Points" in the <i>Server and Client Configuration Guide</i> . |

| Property          | Description   |
|-------------------|---|
| Enterprise Name   | An intuitive name given to a point, which can be used as an alternative to the <i>point ID</i> . It must be unique amongst entities with the same parent asset. The enterprise name property is also referred to as the Use Name on the initial Add Items screen.   |
| Description       | A description of the point that helps identify it. The description often appears in Station displays. 132 characters maximum, including spaces.   |
| Parent Asset      | <p>The asset to which the point belongs.</p> <p>Click  to select from a list of assets.</p> <p>A parent controller can also be configured to enable alarms raised on the point to appear in the System Status display instead of the Alarm Summary. Instead of selecting an asset from the list, enter <b>\$CONTROLLER</b> followed by the last four digits of the controller's item number. For example, for controller <b>RTU000018</b> you would enter <b>\$CONTROLLER0018</b>. Note that this is only possible for status points, accumulator points, and analog points.</p> |
| PV Source Address | <p>The controller name/address where the PV is stored.</p> <p>Either type the full address, or click  to specify the address using Address Builder.</p>  |
| PV Scan Period    | The interval, in seconds, at which the server scans the controller for the parameter value. Select 0 (the default) if you do not want scanning.   |
| Dynamic Scanning  | When selected, dynamic scanning is enabled for the PV parameter. The default setting for this check box is selected.  |
| Engineering Units | The engineering unit that the PV value represents.  |
| 100% Range Value  | <p>The highest register value for the PV.</p> <p>If you have scaled the PV by specifying a data format, type in the number that represents the highest register value.</p> <p>If you haven't used a data format, use the default value, <b>100%</b>.</p>  |
| Rollover Value    | Should be set to the maximum value attained by the 'physical'   |

| Property         | Description   |
|------------------|---|
|                  | counting or totalizing mechanism. The default is 4095.  |
| Scale Factor     | <p>The value used to convert the counts to engineering units. The default, 1, means that a one-to-one ratio exists between the counts and the engineering units. A value of 10 would mean that one count equals 10 engineering units.</p> <p>For example, if your engineering unit is ml/s and 1 count is equivalent to 52.5 ml/s, then the scale factor is 52.5.</p> |
| Meter Factor     | <p>The meter factor is a multiplier used for calibration of the PV value, using the following formula:</p> $PV(\text{new}) = PV(\text{old}) + (\text{scale factor} \times \text{meter factor} \times \text{raw counts})$ <p>The default value is 1.</p>   |
| PV Algo          | <p>The PV algorithm associated with this point. If you select an algorithm, the PV Algo tab appears.</p> <p>The default is <b>NONE</b>.</p>   |
| Action Algo      | <p>The action algorithm associated with this point. If you select an algorithm, the Action Algo tab appears.</p> <p>The default is <b>NONE</b>.</p>   |
| Scanning Enabled | Indicates that scanning is to be enabled as soon as you download the point.   |
| Item Type        | Shows the point type.   |
| Last Modified    | Shows the date of the most recent modification to this point's property details.  |
| Last Downloaded  | The date on which the item was last downloaded to the server.   |

### Alarm properties for an accumulator point

The **Alarms** tab specifies the characteristics of up to four alarms that an accumulator point can generate.

| Property   | Description        |
|------------|--------------------|
| Alarm Type | The type of alarm: |

| Property                         | Description  |
|----------------------------------|--|
|                                  | <ul style="list-style-type: none"> <li>• <b>None.</b> The default</li> <li>• <b>PVHigh.</b> An alarm is generated when the PV reaches or exceeds the value specified in <b>Limit</b>.</li> <li>• <b>PVHighHigh.</b> Used in conjunction with a <b>PVHigh</b> alarm to indicate a more serious alarm. The value specified in <b>Limit</b> for the <b>PVHighHigh</b> alarm must be greater than that specified for <b>PVHigh</b> alarm.</li> <li>• <b>RateOfChange.</b> An alarm is generated if the rate of change of the PV (in engineering units per second) exceeds the value specified in <b>Limit</b>.</li> </ul>  |
| <p>Priority<br/>Sub Priority</p> | <p>These two properties specify the alarm's severity, and where it appears in the list of alarms.</p> <p><b>Priority</b> can be: <b>Urgent, High, Low</b> and <b>Journal</b> (the default). All alarms, except for <b>Journal</b>, appear in the Alarm Summary display. If critical alarm support has been enabled, urgent priority alarms with a sub priority of 15 will be shown as critical priority alarms on the Alarm Summary and other displays. For information about how to enable critical alarms, see “Customizing alarm colors” in the <i>Server and Client Configuration Guide</i>. <b>Journal</b> alarms do not appear in Station as alarms, but are written to the event file.</p> <p><b>Sub-priority</b> range from 15 (highest), to 0 (lowest and default).</p> |
| <p>Limit</p>                     | <p>The PV value, in engineering units, at which an alarm is generated.</p>   |
| <p>On Delay<br/>Off Delay</p>    | <p>On Delay and an Off Delay values can be specified (in seconds) for the following alarms:</p> <ul style="list-style-type: none"> <li>• PVHigh</li> <li>• PVHighHigh</li> <li>• RateOfChange</li> </ul>   |
| <p>Alarm Message Index</p>       | <p>The index number of the message associated with alarms for this point.</p> <p>For details about creating messages, see the <i>Server and Client Configuration Guide</i>.</p>  |
| <p>Disable Alarming</p>          | <p>If selected, disables all alarms for this point.</p>  |

| Property     | Description  |
|--------------|--|
| Journal Only | Handles all alarms for the point as journaled events; alarms do not appear in the alarm summary. |

## Analog points

An analog point is a standard point type with a fixed data structure that represents continuous values. For example, an analog point can represent pressure in a boiler or temperature in a furnace.

This section contains the configuration information that is specific to analog points. Other tabs also appear in the properties pane for the analog point, but are generic to all points. They are:

- Display tab
- History tab
- Scripts tab
- User Defined tab
- Non Scanned parameters tab
- Action Algo tab
- PV Algo tab

See the related topics for links to more information about each of these tabs.

### Main properties for an analog point

The **Main** tab defines the point's basic properties.

| Property                   | Description   |
|----------------------------|---|
| Point ID                   | The point's name.<br><br>See the topic "Naming rules for points" in the chapter on "Points" in the <i>Server and Client Configuration Guide</i> .   |
| Enterprise Model Item Name | An intuitive name given to a point, which can be used as an alternative to the <i>point ID</i> . It must be unique amongst entities with the same parent asset. The item name property is also referred to as the Use Name on the initial Add Items screen. |

| Property            | Description  |
|---------------------|--|
| Description         | A description of the point that helps identify it. The description often appears in Station displays. 132 characters maximum, including spaces.  |
| Parent Asset        | <p>The asset to which the point belongs.</p> <p>Click  to select from a list of assets.</p> <p>A parent controller can also be configured to enable alarms raised on the point to appear in the System Status display instead of the Alarm Summary. Instead of selecting an asset from the list, enter "\$CONTROLLER" followed by the last four digits of the controller's item number. For example, for controller RTU000018 you would enter "\$CONTROLLER0018." Note that this is only possible for status, accumulator, and analog points.</p> |
| PV Source Address   | <p>The controller name/address where the PV is stored.</p> <p>Either type the full address, or click  to specify the address using Address Builder.</p> <p>If you select an OPC controller, the Non-Scanned Parameters tab appears.</p>   |
| PV Dynamic Scanning | When selected, dynamic scanning is enabled for the PV parameter. The default setting for this check box is selected.   |
| PV Scan Period      | The interval, in seconds, at which the server scans the controller for the parameter value. Select 0 (the default) if you do not want scanning.  |
| Engineering Units   | The engineering unit that the PV value represents.   |
| 100% Range Value    | <p>The highest register value for the PV.</p> <p>If you have scaled the PV by specifying a data format, type in the number that represents the highest register value.</p> <p>If you haven't used a data format, use the default value, <b>100%</b>.</p>   |
| 0% Range Value      | The lowest register value for the PV. If the parameter value has been scaled by specifying a scaling data format, this value equals 0% (the default) of the register range.  |
| Drift Deadband      | Specifies the percentage change in a parameter's value that is   |

| Property         | Description   |
|------------------|---|
|                  | <p>significant enough to require processing.</p> <p>Specifying a drift deadband helps reduce system load. The default is 0.000%.</p>  |
| PV Algo          | <p>The PV algorithm associated with this point. If you select an algorithm, the PV Algo tab appears.</p> <p>The default is <b>NONE</b>.</p>   |
| Action Algo      | <p>The action algorithm associated with this point. If you select an algorithm, the Act Algo tab appears.</p> <p>The default is <b>NONE</b>.</p>  |
| Scanning Enabled | <p>Indicates that scanning is to be enabled as soon as you download the point.</p>  |
| Clamp PV         | <p>If selected, the PV value is clamped to either 0% (low) or 100% (high) if the value exceeds either low or high limits set for the PV clamp.</p> <p>The PV clamp high and low limits are defined in Station using the Point Processing tab of the Alarm &amp; Point Processing display. See the <i>Server and Client Configuration Guide</i>.</p> |
| Item Type        | <p>Shows the point type.</p>  |
| Last Modified    | <p>Shows the date of the most recent modification to this point's property details.</p>   |
| Last Downloaded  | <p>The date on which the item was last downloaded to the server.</p>  |

## Alarm properties for an analog point

The **Alarms** tab specifies the characteristics of up to eight alarms that an analog point can generate.

During operation, only the highest priority alarm is displayed. Consequently, if you define more than one alarm, you need to ensure that the priority/sub priority you assign to each alarm reflects its relative importance. For example, you should assign a higher priority to a **PVHighHigh** alarm than to a **PVHigh** alarm. (If you want to assign the same priority to alarms, the alarm that appears higher in the list

takes precedence. For example, you should define the **PVHighHigh** alarm above the **PVHigh** alarm.)

| Property                 | Description   |
|--------------------------|---|
| Alarm Type               | <p>The type of alarm:</p> <ul style="list-style-type: none"> <li>• <b>DeviationHigh.</b> An alarm is generated when the PV rises above the SP by more than the value specified in <b>Limit</b>.</li> <li>• <b>DeviationLow.</b> An alarm is generated when the PV falls below the SP by more than the value specified in <b>Limit</b>. Note that the value must be negative, for example -5.</li> <li>• <b>None.</b> The default</li> <li>• <b>PVHigh.</b> An alarm is generated when the PV reaches or exceeds value specified in <b>Limit</b>.</li> <li>• <b>PVHighHigh.</b> Used in conjunction with a <b>PVHigh</b> alarm to indicate a more serious alarm. The value specified in <b>Limit</b> for the <b>PVHighHigh</b> alarm must be greater than that specified for <b>PVHigh</b> alarm.</li> <li>• <b>PVLow.</b> An alarm is generated when the PV falls below the value specified in <b>Limit</b>.</li> <li>• <b>PVLowLow.</b> Used in conjunction with a <b>PVLow</b> alarm to indicate a more serious alarm. The value specified in <b>Limit</b> for the <b>PVLowLow</b> alarm must be less than that specified for <b>PVLow</b> alarm.</li> <li>• <b>RateOfChange.</b> An alarm is generated if the rate of change of the PV (in engineering units per second) exceeds the value specified in <b>Limit</b>.</li> <li>• <b>TransmitterHigh.</b> Similar to a <b>PVHigh</b> alarm, it is typically used to indicate a failed transmitter.</li> <li>• <b>TransmitterLow.</b> Similar to a <b>PVLow</b> alarm, it is typically used to indicate a failed transmitter.</li> </ul> |
| Priority<br>Sub Priority | <p>These two properties specify the alarm's severity, and where it appears in the list of alarms.</p> <p><b>Priority</b> can be: <b>Urgent, High, Low</b> and <b>Journal</b> (the default). All alarms, except for <b>Journal</b>, appear in the Alarm Summary display. If critical alarm support has been</p>  |

| Property               | Description   |
|------------------------|---|
|                        | <p>enabled, urgent priority alarms with a sub priority of 15 will be shown as critical priority alarms on the Alarm Summary and other displays. For information about how to enable critical alarms, see “Customizing alarm colors” in the <i>Server and Client Configuration Guide</i>. Journal alarms do not appear in Station as alarms, but are written to the event file.</p> <p><b>Sub-priority</b> range from 15 (highest), to 0 (lowest and default).</p> |
| Limit                  | The PV value, in engineering units, at which an alarm is generated.   |
| On Delay<br>Off Delay  | <p>On Delay and an Off Delay values can be specified (in seconds) for the following alarms:</p> <ul style="list-style-type: none"> <li>• PVLowLow</li> <li>• PVLow</li> <li>• PVHigh</li> <li>• PVHighHigh</li> <li>• RateOfChange</li> <li>• TransmitterHigh</li> <li>• TransmitterLow</li> <li>• DeviationHigh</li> <li>• DeviationLow</li> <li>• Unreasonable Value</li> </ul>   |
| External Change Alarms | If selected, an alarm is raised if the parameter changes without the change being initiated from the server.  |
| Unreasonable Value     | Raises an alarm if the PV goes outside the reasonable value range. (The high and low limits for this range are specified in Station.)   |
| Control Fail Alarm     | Raises an alarm if the value of a control parameter, such as OP or SP, is not correct. (After issuing a new control value, the server scans the point to check the point's control  |

| Property            | Description   |
|---------------------|---|
|                     | value is correct.)  |
| Alarm Message Index | The index number of the message associated with alarms for this point.<br><br>For details about creating messages, see the <i>Server and Client Configuration Guide</i> .   |
| Alarm Deadband      | Reduces the number of alarms that are generated when the PV value is moving in and out of the alarm limit.<br><br>For example, if you select 1% and an alarm is raised because the PV exceeded a limit, no more alarms are raised unless the PV first drops more than 1% and then rises back above the alarm limit. |
| Disable Alarming    | If selected, disables all alarms for this point.  |
| Journal Only        | Handles all alarms for the point as journaled events; alarms do not appear in the alarm summary.  |

### Control properties for an analog point

The **Control** tab defines the point's control-related properties.

| Property         | Description   |
|------------------|---|
| Source Address   | The address from which the server reads (scans) the associated parameter value. The address can be a controller, a point, or a database file.<br><br>Either type the full address, or click  to specify the address using Address Builder. |
| Dest Address     | The address to which the server writes the associated parameter value. The address can be a controller, a point, or a database file.<br><br>Either type the full address, or click  to specify the address using Address Builder.          |
| Scan Period      | The interval (in seconds) between successive scans of the source address.   |
| Dynamic Scanning | When selected, dynamic scanning is enabled for the parameter. The default setting for this check box is selected.   |

| Property             | Description   |
|----------------------|---|
| Reverse Output       | Reverses source and destination parameter values. Select it if the device being controlled closes and opens on reverse signals.   |
| Reverse Mode         | Reverses the mode parameter value for the MAN state. Do not enable MD reverse on points connected to Bristol Babcock controllers and Bristol Babcock OpenBSI controllers.   |
| Control Confirmation | <p>When this check box is selected and a control action is performed on the point, displays the prompt: <b>Please confirm control request</b>. The operator must press <b>Y</b> to confirm the control action.</p> <p>If you configure the point to use electronic signatures, the server writes to the <b>Dest Address</b> only after the correct entry of the password (s).</p> |
| Low Control Limit    | <p>The lowest value that can be set for the associated parameter. The value is clamped at this value.</p> <p>For <b>OP</b>, the value is specified as a percentage of the PV output range. The default is <b>0%</b>.</p> <p>For <b>SP</b>, the value is specified in engineering units.</p>   |
| High Control Limit   | <p>The highest value that can be set for the associated parameter. The value is clamped at this value.</p> <p>For <b>OP</b>, the value is specified as a percentage of the PV output range. The default is <b>100%</b>.</p> <p>For <b>SP</b>, the value is specified in engineering units.</p>  |
| Control Deadband     | <p>The percentage deviation from the SP value that constitutes a good control. (The default value is 1.000%.) The value is calculated using the formula:</p> <p><b>(new SP value) +/- (control deadband percentage)</b></p> <p>If the PV value is not within the target range, a PV fail alarm is raised.</p>   |
| Control Timeout      | <p>The maximum time (in seconds) allowed, after a change in SP or OP, for the PV value to reach an acceptable value before a control fail alarm is raised. The default is <b>None</b> (no control timeout).</p> <p>The server checks the value every 10 seconds during the timeout period.</p>  |

| Property                        | Description  |
|---------------------------------|--|
|                                 | You must specify a value other than <b>None</b> to enable the control fail alarm.  |
| Control Level                   | <p>Only applicable if you use operator-based security.</p> <p>The minimum control level (between 0 and 255) required to perform supervisory control on this point. The default is 0.</p>   |
| Normal Mode                     | <p>The normal mode for this point, to which it is reset to after a command is issued. The modes are:</p> <ul style="list-style-type: none"> <li>• <b>AUTO</b> (default). Automatic mode. The controller (or server) controls the output and operators cannot change the output value.</li> <li>• <b>MAN</b>. Manual mode. The operator is permitted to change either the SP or OP.</li> <li>• <b>CASC</b>. Cascade mode. Only applicable to S9000, TDC, and UDC controllers. Used when the SP comes from the output of another PID loop within the controller. When in CASCade mode, operators cannot change either the SP or OP.</li> <li>• <b>COMP</b>. Computer mode. Only applicable to a TDC controller. Used when the SP comes from a computer that is performing automatic control. When in COMPuter mode, operators can change either the SP or OP.</li> </ul> |
| Disable mode checking on output | <p>If selected, operators can change parameter values regardless of point's mode.</p> <p>If cleared, the server checks the mode before allowing an operator to change a parameter value. (If the mode is set to <b>AUTO</b>, the operator is not allowed to change the OP value.)</p> <p>Note that there is no indication to an operator on Station displays that the mode checking is disabled.</p>   |
| Control Inhibit                 | Inhibits control of the point. Operators can view, but not control, the point.   |

### Auxiliary properties for an analog point

The **Auxiliary** tab is exclusive to analog points, and defines up to four auxiliary parameters. You can use these auxiliary parameters to read auxiliary data from a controller (or write auxiliary data to it).

| Property         | Description   |
|------------------|---|
| Parameter Name   | <p>The name of the auxiliary parameter. This name can be no longer than 8 alphanumeric characters, including spaces.</p> <p>If the name matches the name of an internal point parameter, the internal parameter's value tracks the value in the controller. If the value of the internal parameter is changed, that value is also written to the auxiliary parameter's destination address. In this way, for example, alarm limits in a controller are kept in synchronization with point alarm limits.</p> <div style="border: 1px solid blue; padding: 5px;"> <p><b>NOTE:</b> If the parameter has both a short name (for example <i>AL1</i>) and a long name (for example <i>Alarm1</i>), the long form will be shown on the <b>Auxiliary</b> tab of the <b>Point Detail</b> display regardless of which name is configured as the <b>Parameter Name</b>.</p> </div> |
| Source Address   | <p>The address of the auxiliary parameter. The source can be a controller, point, or database file.</p> <p>Either type the full address, or click  to specify the address using Address Builder.</p>  |
| Destination      | <p>For an SP, OP or MD parameter, type the destination address. The destination can be a controller, point, or database file.</p> <p>Either type the full address, or click  to specify the address using Address Builder.</p>  |
| Scan Period      | <p>The interval (in seconds) between which the source address is scanned. The default is 0 (no scanning).</p>   |
| Dynamic Scanning | <p>When selected, dynamic scanning is enabled for the parameter. The default setting for this check box is selected.</p>  |

## About drift deadbands

Drift deadbands eliminate unnecessary processing of analog point parameters, and therefore reduce system load.

When a parameter is scanned, processing is only performed if the value has changed by more than the deadband amount since processing last occurred. The deadband value is expressed as a percentage of the point range.

## Container points

A *container* point ties together a set of related points so that you can manage them as if they were one point. A container point is, in effect, a user-defined point type that matches your data requirements for a particular device type or scenario.

Container points are specifically designed to be used where you have numerous devices or scenarios of the same type—typical examples include compressors, tanks and security zones.

Container points have the following restrictions:

- All child points must be on the same server as the container point—that is, they cannot be on a remote server.
- Alarms raised on the *contained* (child) points are not promoted to the container point. This means that a container point never goes into alarm.
- You cannot attach an algorithm to a container point.
- You cannot include points from more than one server in the same container point.

This section contains information on how to use Quick Builder to create and configure container points.

### Defining the structure of a container point

**ATTENTION:** It is essential that you design the structure of a container point with great care. There is no easy way to change the structure of a container point type after you start adding container points in Quick Builder. Instead, you have to individually change the structure of every container point you have created.

The first step in defining a new type of a container point is to identify its *contained* (child) points. For example, you may use the following points to monitor and control a particular type of compressor:

- An analog point to monitor the pressure
- A status point to control the motor
- An accumulator point to monitor hours run

Having identified the contained points, you can give the container point type an appropriate name and define an *alias* for each

contained point. Note that periods (.) are not allowed in alias names for container points; for example, **flow.rate** is not a valid alias name.

Continuing with the compressor example, you could call the container point type **CompressType1**, and define the following aliases:

- **Pressure** (to represent the analog point)
- **Motor** (to represent the status point)
- **HoursRun** (to represent the accumulator point)

## Creating container points

There is no mechanism in Quick Builder for creating container point *templates*. Consequently, we recommend the following two-step process when adding container points:

1. Create a container point that defines its basic properties, including the aliases for the contained points. (This point becomes, in effect, the *template* for a new type of container point.)
2. Create duplicates of the *template* point and then configure each duplicate as necessary.

## To create a container point

1. Click  to add a container point.
2. In the **Add Items** dialog box, select **Point** as the item and **Container** as the point type.
3. On the **Main** tab, enter the container point details as required.
4. Click the **Contained Points** tab.
5. Add one row for each alias by clicking **Insert Point**.
6. Name each alias in accordance with your design.

| Main               | Contained Points    |
|--------------------|---------------------|
| Point ID           | RAHUL_DACA_CON_002  |
| Enterprise Model   |                     |
| Description        | Rh_DACA_301 to 600  |
| Parent Asset       | RahulSysArea        |
| Associated Display | RAHUL_DACA_Template |
| Template Type      |                     |

| Main |       | Contained Points |                         |
|------|-------|------------------|-------------------------|
|      | Alias | Contained Point  | Description (read only) |
|      | C001  | Rh_DACA_301      |                         |
|      | C002  | Rh_DACA_302      |                         |
|      | C003  | Rh_DACA_303      |                         |
|      | C004  | Rh_DACA_304      |                         |
|      | C005  | Rh_DACA_305      |                         |

### To create duplicates of the *template* container point

1. Select the container point and then choose **EditDuplicate Items**. The **Duplicate** dialog box opens.
2. Create the required number of duplicates.
3. Configure the properties of each duplicate as appropriate. This includes specifying the point associated with each alias.

### Main properties for a container point

The **Main** tab defines the basic properties of the container point. Because of the nature of a container point, it has relatively few properties.

| Property                   | Description  |
|----------------------------|--|
| Point ID                   | A unique identifier given to an entity.  |
| Enterprise Model Item Name | An intuitive name given to a point, which can be used as an alternative to the <i>point ID</i> . It must be unique amongst entities with the same parent asset. The enterprise model property is also referred to as the Use Name on the initial Add Items screen. |
| Description                | A description of the point that helps identify it. The description often appears in Station displays. 132 characters maximum, including spaces.  |
| Parent Asset               | The asset to which the point belongs.  |
| Associated Display         | The point detail (template) display that is used to show the point information.  |
| Template Type              | The name of the container point type.  |

| Property        | Description  |
|-----------------|--|
| Item Type       | Shows the point type.  |
| Last Modified   | Shows the date of the most recent modification to this point's property details. |
| Last Downloaded | The date on which the item was last downloaded to the server.                    |

## Reviewing and adding contained points

Use the **Contained Points** tab to view the points associated with a container point. You can also use this tab to add and remove points inside the container point.

## Using an existing point detail display as the associated display

If you want to use a point detail display as the associated display for the container point (specified on the point's **G**), use the following syntax:

**DisplayFileName?Point=PointID**

| Part               | Description  |
|--------------------|--|
| <b>DisplayName</b> | The filename of the point detail display (without the extension).  |
| <b>PointID</b>     | The container point's ID. For example, if you are configuring a container point called 'Chiller1', you would specify <b>Chiller1</b> . |

## Creating a point detail display for a container point

Each type of container point requires its own *point detail* display (also called a *template* display), which you create in HMIWeb Display Builder. (This display is functionally equivalent to a standard point detail displays.)

The following procedure summarizes the special steps required when creating a point detail display for a container point.

## To create a point detail display

1. On the HMIWeb Display Builder toolbar, click the arrow to the right of  and select **Display from Template**.  
The **New Display** dialog box opens.
2. Select the **Point Detail** template and click **OK**.  
A new display, based on the template, appears.
3. Add an appropriate object for each parameter you want users to see.
4. Open the Properties Window.
5. Select each of these objects in turn and, using the following table, specify the parameter's details. (For most objects, use the Data tab; for a chart, use the Details tab.)

| Property                           | Description   |
|------------------------------------|---|
| Type of database link <sup>1</sup> | Select <b>Point/Parameter</b> .   |
| Point                              | Select <b>CurrentPoint</b> .  |
| Parameter                          | <p>The syntax is: <b>Alias.Parameter</b></p> <p>Where:</p> <ul style="list-style-type: none"> <li>• <b>Alias</b> is the name you defined for the contained point</li> <li>• <b>Parameter</b> is parameter's name.</li> </ul> <p>For example, if you wanted to display the PV of a contained point whose alias is 'HoursRun', you would type: <b>HoursRun.PV</b></p> |
| Data entry allowed <sup>1</sup>    | <p>Allows users to change the parameter's value.</p> <p>If you allow data entry, select the minimum <b>Security Level</b> required to change the value.</p>   |

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<sup>1</sup>Not applicable to a chart.

## OPC advanced points

An OPC advanced point allows you to create arbitrary point parameter names to reference OPC items. An OPC advanced point also allows you to have more than eight scanned parameters, and can also have user-defined names.

This section contains the configuration information that is specific to OPC advanced points. Other tabs also appear in the properties pane for the OPC advanced point, but are generic to all points. They are:

- Display tab
- Scripts tab
- User Defined tab
- History tab

See the related topics for links to more information about each of these tabs.

### Main properties for an OPC advanced point

The **Main** tab defines the basic properties of an OPC advanced point. (An OPC advanced point represents a collection of related OPC *items*.) Note the following points:

- Having configured the properties on this tab, you then use the OPC Parameters tab to add the OPC items.
- For an introduction to OPC advanced points, and the Experion OPC Advanced Client, see the *Server and Client Configuration Guide*.
- You may find it easier to simultaneously import all the OPC advanced points from a spreadsheet.

| Property        | Description   |
|-----------------|---|
| Point ID        | The point's name.<br><br>See the topic "Naming rules for points" in the chapter on "Points" in the <i>Server and Client Configuration Guide</i> .   |
| Enterprise Name | An intuitive name given to a point, which can be used as an alternative to the <i>point ID</i> . The enterprise name is used within the full item name of a point, which shows the point's location within the asset hierarchy. |

| Property        | Description   |
|-----------------|---|
| Description     | A description of the point that helps identify it. The description often appears in Station displays. 132 characters maximum, including spaces.                   |
| Parent Asset    | The asset to which the point belongs.<br><br><b>Note:</b> All the OPC items associated with this point must belong to this area.                                  |
| Server Alias    | The server alias of the OPC Advanced Client to which this point belongs. (The server alias was specified when the OPC Advanced Client was configured in Station.) |
| Item Type       | Shows the point type.   |
| Last Modified   | Shows the date of the most recent modification to this point's property details.  |
| Last Downloaded | The date on which the item was last downloaded to the server.   |

## Importing OPC advanced point definitions from a spreadsheet

This section is only applicable if you have the Experion OPC Advanced Client option and want to map OPC items to *OPC advanced points*. (For an introduction to the Experion OPC Advanced Client, see the topic titled "Configuring the Experion OPC Advanced Client" in the *Server and Client Configuration Guide*.)

Instead of individually configuring OPC advanced points in Quick Builder, it may be easier to simultaneously import them from a Microsoft Excel spreadsheet. This is a three-part procedure, which involves:

1. Creating a spreadsheet with the required format.
2. Populating the spreadsheet.
3. Importing the point definitions.

### ***Creating a spreadsheet with the required format***

This procedure creates a spreadsheet with the required format, which contains a sample point and one or more OPC parameters attached to that point.

## To create a correctly formatted spreadsheet:

1. In Quick Builder, add one OPC advanced point.
2. Add at least one OPC parameter to the point.
3. Select the point and click  to copy it to the clipboard.
4. In Excel, choose **File > New**.
5. Click  to paste the point definition into the spreadsheet.

### Populating the spreadsheet

You must populate the spreadsheet columns as specified in the following tables.

The following figure shows a populated spreadsheet. Note how it contains two parts:

- The first part contains the heading row and a separate row for each point.
- The second part (which must be separated from the first part by a blank row) contains the heading row and a separate row for each OPC parameter (OPC item).

Because each point typically has many OPC parameters, the second part contains more rows. For example, if each point has five OPC parameters, there will be five parameter rows for each point row.

|   | A              | B             | C              | D           |       |
|---|----------------|---------------|----------------|-------------|-------|
| 1 | ItemName       | Class         | DownloadedName | Tag         | Date  |
| 2 | OpcAdvPnt001   | OPCPoint      |                | FALSE       |       |
| 3 | OpcAdvPnt002   | OPCPoint      |                | FALSE       |       |
| 4 |                |               |                |             |       |
| 5 | ParentItemName | Class         | ParamName      | HistoryFast | Histo |
| 6 | OpcAdvPnt001   | OPCParameters | PV             | TRUE        | FAL:  |
| 7 | OpcAdvPnt001   | OPCParameters | SP             | TRUE        | FAL:  |
| 8 | OpcAdvPnt002   | OPCParameters | PV             | TRUE        | FAL:  |
| 9 | OpcAdvPnt002   | OPCParameters | SP             | TRUE        | FAL:  |

Table 6-1: Point definitions (first part of the spreadsheet)

| Column   | Description   |
|----------|---|
| ItemName | Corresponds to <b>Point ID</b> on the Main tab in Quick Builder |

| Column                    | Description   |
|---------------------------|---|
| Class                     | Must be <b>OPCPoint</b> .   |
| DownloadedName            | Leave blank.  |
| Tag                       | Must be <b>FALSE</b> .  |
| DateModified              | Leave blank.  |
| DateDownloaded            | Leave blank.  |
| TagDeleted                | Must be <b>FALSE</b> .  |
| Target                    | Leave blank.  |
| ItemNumber                | Leave blank.  |
| ItemDescription           | Corresponds to <b>Description</b> on the Main tab in Quick Builder.                         |
| OPCServer                 | Corresponds to <b>Server Alias</b> on the Main tab in Quick Builder.                        |
| InstructionsDisplayNumber | Leave as <b>default</b> .   |
| Scripts                   | Leave blank.  |
| PositionInTrendSet        | Corresponds to <b>Position in Trend Set</b> on the Display tab in Quick Builder.            |
| PositionInGroup           | Corresponds to <b>Position in Group</b> on the Display tab in Quick Builder.                |
| PointGroupTemplatePage    | Corresponds to <b>Group Faceplate Template Display</b> on the Display tab in Quick Builder. |
| GroupNumber               | Corresponds to <b>Group Number</b> on the Display tab in Quick Builder.                     |
| AssociatedDisplayNumber   | Corresponds to <b>Associated Display</b> on the Display tab in Quick Builder.               |
| TrendNumber               | Corresponds to <b>Trend Number</b> on the Display tab in Quick Builder.                     |
| PointDetailPage           | Corresponds to <b>Point Detail Display</b> on the Display tab in Quick Builder.             |

| Column      | Description  |
|-------------|--|
| ParentAsset | Corresponds to <b>Parent Asset</b> on the Main tab in Quick Builder. |

Table 6-2: OPC Parameter definitions (second part of the spreadsheet)

| Column                | Description  |
|-----------------------|--|
| ParentItemName        | The Point ID of the point to which this item belongs.  |
| Class                 | Must be <b>OPCParameters</b> .   |
| ParamName             | Corresponds to <b>Parameter Name</b> on the OPC Parameters tab in Quick Builder.                       |
| HistoryFast           | Corresponds to <b>Fast history</b> on the History tab in Quick Builder.                                |
| HistoryStandard       | Corresponds to <b>Standard history</b> on the History tab in Quick Builder.                            |
| HistoryExtended       | Corresponds to <b>Extended history</b> on the History tab in Quick Builder.                            |
| HistoryException      | Corresponds to <b>Exception history</b> on the History tab in Quick Builder.                           |
| HistoryFastGating     | Leave blank.   |
| HistoryStandardGating | Leave blank.   |
| HistoryExtendedGating | Leave blank.   |
| OPCItem               | The name of the OPC item. (Corresponds to <b>OPC Item</b> on the OPC Parameters tab in Quick Builder.) |

### *Importing the point definitions*

#### To import the point definitions:

1. In Microsoft Excel, select the rows and copy them to the clipboard.
2. In Quick Builder, click  to add the points into the project.  
If a point already exists in the project, Quick Builder updates it in accordance with the spreadsheet's definition.

#### OPC parameters for an OPC advanced point

This tab defines a parameter for each OPC item you want to add to the selected OPC advanced point.)

#### To add an OPC item (point parameter)

1. Click **Insert**.
2. Type an appropriate name in **Parameter name**.
3. Specify the parameter's remaining properties.

| Property       | Description   |
|----------------|---|
| Parameter Name | The name of the OPC parameter.  |
| OPC Item       | The name of the OPC item that this parameter represents.              |
| Details        | Displays all properties and corresponding values of an OPC Parameter. |

## Status points

A status point is a standard point type with a fixed data structure that represents digital inputs or outputs. For example, a status point can represent the on and off states of a pump.

This section contains the configuration information that is specific to status points. Other tabs also appear in the properties pane for the status point, but are generic to all points. They are:

- Display tab
- History tab

- Scripts tab
- User Defined tab
- Non Scanned parameters tab
- PV Algo tab
- Action Algo tab

See the related topics for links to more information about each of these tabs.

## Main properties for a status point

The **Main** tab defines the point's basic properties.

| Property                   | Description   |
|----------------------------|---|
| Point ID                   | The point's name.<br><br>See the topic "Naming rules for points" in the chapter on "Points" in the <i>Server and Client Configuration Guide</i> .   |
| Enterprise Model Item Name | An intuitive name given to a point, which can be used as an alternative to the <i>point ID</i> . It must be unique amongst entities with the same parent asset. The item name property is also referred to as the Use Name on the initial Add Items screen.   |
| Description                | A description of the point that helps identify it. The description often appears in Station displays. 132 characters maximum, including spaces.   |
| Parent Asset               | The asset to which the point belongs.<br><br>Click  to select from a list of assets.<br><br>A parent controller can also be configured to enable alarms raised on the point to appear in the System Status display instead of the Alarm Summary. Instead of selecting an asset from the list, enter "\$CONTROLLER" followed by the last four digits of the controller's item number. For example, for controller RTU000018 you would enter "\$CONTROLLER0018." Note that this is only possible for status, accumulator, and analog points. |
| Number of States           | The number of discrete input states you want to configure.  |
| Non-consecutive            | Available only when the value in the <b>Number of States</b> list is 4 or   |

| Property            | Description   |
|---------------------|---|
| Bits                | <p><b>8.</b></p> <p>When selected, you can address up to three non-consecutive bits as the PV Source Addresses. The number of addresses is controlled by the value in the <b>Number of States</b> list. That is, a 4–state point will have two addresses and an 8–state point will have three addresses.</p> <p>If the bit addresses are consecutive (adjacent), clear this check box and address only the lowest bit required for the PV source address.</p>   |
| Reverse Bit         | <p>For a 2–state point, reverses the parameter (i.e., Bit 0).</p> <p>For a 4–state point, reverses <b>Bit 0</b> and/or <b>Bit 1</b>. Select the appropriate check boxes.</p> <p>For an 8–state point, reverses <b>Bit 0</b> and/or <b>Bit 1</b> and/or <b>Bit 2</b>. Select the appropriate check boxes.</p>  |
| PV Source Address   | <p>The controller name/address where the PV is stored.</p> <p>Either type the full address, or click  to specify the address using Address Builder.</p> <p>If you select an OPC controller, the Non-Scanned Parameters tab appears.</p> <p>When the <b>Non-consecutive Bits</b> check box is selected, you can address up to three non-consecutive bits as the PV Source Addresses. The number of addresses is controlled by the value in the <b>Number of States</b> list.</p> <p>A 4–state point will have two PV source addresses: <b>Bit 0 Source Address</b> and <b>Bit 1 Source Address</b>.</p> <p>An 8–state point will have three PV source addresses: <b>Bit 0 Source Address</b>, <b>Bit 1 Source Address</b>, and <b>Bit 2 Source Address</b>.</p> |
| PV Scan Period      | <p>The interval, in seconds, at which the server scans the controller for the parameter value. Select 0 (the default) if you do not want scanning.</p>  |
| PV Dynamic Scanning | <p>When selected, dynamic scanning is enabled for the PV parameter. The default setting for this check box is selected.</p>   |

| Property                              | Description  |
|---------------------------------------|--|
| PV Algo                               | The PV algorithm associated with this point. If you select an algorithm, the PV Algo tab appears.<br><br>The default is <b>NONE</b> .  |
| Action Algo                           | The action algorithm associated with this point. If you select an algorithm, the Action Algo tab appears.<br><br>The default is <b>NONE</b> .  |
| Scanning Enabled                      | Indicates that scanning is to be enabled as soon as you download the point.  |
| State Descriptors (State 0 – State 7) | A state descriptor describes the associated state, and can have a maximum of eight characters (no spaces allowed). For example, you might make 'Open' the state descriptor for state <b>1</b> and 'Closed' for state <b>0</b> .<br><br>For a control (output) point, there must be a unique state descriptor for each valid state. This is also recommended for a monitor (input) point. |
| Item Type                             | Shows the point type.  |
| Last Modified                         | The date of the most recent modification to this point's property details.   |
| Last Downloaded                       | The date on which the item was last downloaded to the server.  |

### Alarm properties for a status point

The **Alarms** tab specifies the characteristics of the alarms that a status point can generate.

**ATTENTION:** If you clear the **Disable Alarming** check box (that is, enable alarming) but do not specify any state alarms, a Journal alarm is raised each time the point changes state.

| Property | Description   |
|----------|---|
| Enable   | If selected, an alarm is raised when the PV changes to the specified state. |

| Property                            | Description   |
|-------------------------------------|---|
| <p>Priority</p> <p>Sub Priority</p> | <p>These two properties specify the alarm's severity, and where it appears in the list of alarms.</p> <p><b>Priority</b> can be: <b>Urgent, High, Low</b> and <b>Journal</b> (the default). All alarms, except for Journal, appear in the Alarm Summary display. If critical alarm support has been enabled, urgent priority alarms with a sub priority of 15 will be shown as critical priority alarms on the Alarm Summary and other displays. For information about how to enable critical alarms, see "Customizing alarm colors" in the <i>Server and Client Configuration Guide</i>. Journal alarms do not appear in Station as alarms, but are written to the event file.</p> <p><b>Subpriority</b> range from <b>15</b> (highest), to <b>0</b> (lowest and default).</p> |
| <p>On Delay</p> <p>Off Delay</p>    | <p>On Delay and an Off Delay values can be specified (in seconds) for each of the eight state alarms.</p>   |
| <p>External Change Alarms</p>       | <p>If selected, an alarm is raised if the parameter changes without the change being initiated from the server.</p>   |
| <p>Control Fail Alarm</p>           | <p>Raises an alarm if the value of a control parameter, such as OP or SP, is not correct. (After issuing a new control value, the server scans the point to check the point's control value is correct.)</p>  |
| <p>Alarm Message Index</p>          | <p>The index number of the message associated with alarms for this point.</p> <p>For details about creating messages, see the <i>Server and Client Configuration Guide</i>.</p>   |
| <p>Change of state events</p>       | <p>If selected, a CHANGE event is raised in the event journal whenever the PV changes state. By default, this setting is disabled.</p>  |
| <p>Ack Destination Address</p>      | <p>Enables the acknowledgement of an alarm to be registered in a controller.</p> <p>The server writes a <b>1</b> to this address when the alarm is acknowledged by an operator. Ack Destination Addresses can only be used on status points. The address must be an</p>   |

| Property                     | Description  |
|------------------------------|--|
|                              | <p>address within a real (physical) controller (not a database or point reference). The PVSOURCE address also needs to be an address within a real (physical) controller.</p> <p><b>Note:</b> You must ensure that ladder logic within the controller resets the PV to 0 when the required task has been performed.</p> <p>For example, if you have configured a process to stop when the current point goes into alarm, you could configure your process to restart when the PV of the Ack Destination Address changes to 1—that is, when the operator acknowledges the alarm.</p> <p>Either type the full address, or click <input type="checkbox"/> to specify the address using Address Builder.</p> |
| Re-alarm on state transition | <p>If selected, an alarm is raised whenever the PV changes to another alarm state.</p> <p>For example, if you make states 7 and 8 alarm states, an alarm is raised if the PV changes to state 7 and another alarm is raised if the state then changes to state 8.</p>  |
| Disable Alarming             | If selected, disables all alarms for this point.   |
| Journal Only                 | Handles all alarms for the point as journaled events; alarms do not appear in the alarm summary.   |

## Control properties for a status point

The Control tab defines the point's control-related properties.

| Property            | Description   |
|---------------------|---|
| Number of OP States | The number of possible output states for this point. The minimum is 2 (the default), the maximum is 4. Single bit outputs can only have 2 states.   |
| OP Individual Bits  | <p>Available only when the value in the <b>Number of OP States</b> list is 4.</p> <p>When selected, you can address two non-consecutive bits as the OP Source Addresses and two non-consecutive bits as the</p> |

| Property       | Description   |
|----------------|---|
|                | OP Destination Address.   |
| Reverse Output | Reverses source and destination parameter values. Select it if the device being controlled closes and opens on reverse signals.   |
| OP Reverse     | <p>Reverses source and destination parameter values. Select it if the device being controlled operates on reverse signals.</p> <p>For a 2–output-state point, reverses the parameter (i.e., Bit 0).</p> <p>For a 4–output-state point, reverses <b>Bit 0</b> and/or <b>Bit 1</b>. Select the appropriate check boxes.</p> <p>For an 8–output-state point, reverses <b>Bit 0</b> and/or <b>Bit 1</b> and/or <b>Bit 2</b>. Select the appropriate check boxes.</p>  |
| Output (OP)    | <p>When the <b>OP Individual Bits</b> check box is selected, you can address two non-consecutive bits as the OP Source Addresses and two non-consecutive bits as the OP Destination Addresses.</p> <p>Source Address:</p> <ul style="list-style-type: none"> <li>• The address(es) from which the server reads (scans) the associated parameter value.</li> </ul> <p>Either type the full address, or click  to specify the address using Address Builder.</p> <p>Dest Address:</p> <ul style="list-style-type: none"> <li>• The address(es) to which the server writes the associated parameter value.</li> </ul> <p>Either type the full address, or click  to specify the address using Address Builder.</p> |
| Source Address | <p>The address from which the server reads (scans) the associated parameter value. The address can be a controller, a point, or a database file.</p> <p>Either type the full address, or click  to specify the address using Address Builder.</p>  |
| Dest Address   | The address to which the server writes the associated   |

| Property            | Description  |
|---------------------|--|
|                     | <p>parameter value. The address can be a controller, a point, or a database file.</p> <p>Either type the full address, or click  to specify the address using Address Builder.</p>  |
| OP Scan Period      | The interval (in seconds) between successive scans of the <b>OP</b> source address(es).  |
| OP Dynamic Scanning | When selected, dynamic scanning is enabled for the OP parameter. The default setting for this check box is selected.   |
| MD Reverse          | Reverses the mode parameter value for the MAN state. Do not enable MD reverse on points connected to Bristol Babcock controllers and Bristol Babcock OpenBSI controllers.  |
| Mode (MD)           | <p>Source Address:</p> <ul style="list-style-type: none"> <li>The address from which the server reads (scans) the associated parameter value. The address can be a controller, a point, or a database file.</li> </ul> <p>Either type the full address, or click  to specify the address using Address Builder.</p> <p>Dest Address:</p> <ul style="list-style-type: none"> <li>The address to which the server writes the associated parameter value. The address can be a controller, a point, or a database file.</li> </ul> <p>Either type the full address, or click  to specify the address using Address Builder.</p> |
| MD Scan Period      | The interval (in seconds) between successive scans of the MD source address.   |
| MD Dynamic Scanning | When selected, dynamic scanning is enabled for the MD parameter. Default is selected.  |
| Pulse Width         | <p>The time (in seconds) the OP value is maintained at a non-zero value. The default value, <b>Latched</b>, latches the OP at the non-zero value.</p> <p>For example, if the value is set to 2 seconds and the operator</p>  |

| Property             | Description   |
|----------------------|---|
|                      | sets the OP to a non-zero state, the OP returns to zero after 2 seconds.  |
| Control Confirmation | <p>When this check box is selected and a control action is performed on the point , displays the prompt: <b>Please confirm control request</b>. The operator must press <b>Y</b> to confirm the control action.</p> <p>If you configure the point to use electronic signatures, the server writes to the <b>Dest Address</b> only after the correct entry of the password(s).</p>   |
| Control Timeout      | <p>The maximum time (in seconds) allowed, after a change in SP or OP, for the PV value to reach an acceptable value before a control fail alarm is raised. The default is <b>None</b> (no control timeout).</p> <p>The server checks the value every 10 seconds during the timeout period.</p> <p>You must specify a value other than <b>None</b> to enable the control fail alarm.</p>   |
| Control Level        | <p>Only applicable if you use operator-based security.</p> <p>The minimum control level (between 0 and 255) required to perform supervisory control on this point. The default is <b>0</b>.</p>   |
| Normal Mode          | <p>The normal mode for this point, to which it is reset to after a command is issued. The modes are:</p> <ul style="list-style-type: none"> <li>• <b>AUTO</b> (default). Automatic mode. The controller (or server) controls the output and operators cannot change the output value.</li> <li>• <b>MAN</b>. Manual mode. The operator is permitted to change either the SP or OP.</li> <li>• <b>CASC</b>. Cascade mode. Only applicable to S9000, TDC, and UDC controllers. Used when the SP comes from the output of another PID loop within the controller. When in CASCade mode, operators cannot change either the SP or OP.</li> <li>• <b>COMP</b>. Computer mode. Only applicable to a TDC controller. Used when the SP comes from a computer</li> </ul> |

| Property                        | Description   |
|---------------------------------|---|
|                                 | that is performing automatic control. When in COMPuTer mode, operators can change either the SP or OP.  |
| Disable mode checking on output | <p>If selected, operators can change parameter values regardless of the point's mode.</p> <p>If cleared, the server checks the mode before allowing an operator to change a parameter value. (If the mode is set to <b>AUTO</b>, the operator is not allowed to change the OP value.)</p> <p>Note that there is no indication in the displays that the mode checking is disabled.</p>   |
| Target Input State Associations | <p>These properties associate the four OP states with the appropriate input (PV) states. (The input states are defined in <b>State Descriptors</b> on the Main tab.)</p> <p>A value of <b>F</b> means 'not used.' You must specify <b>F</b> for <b>OP State 2</b> and <b>OP State 3</b> for a single-bit output and you must specify <b>F</b> for <b>OP State 4</b>, <b>OP State 5</b>, <b>OP State 6</b>, and <b>OP State 7</b> for a dual-bit output.</p> <p>Operators can control the point by using Station's <b>Raise</b> and <b>Lower</b> buttons to select a target input state.</p> |
| Control Inhibit                 | Inhibits control of the point. Operators can view, but not control, the point.  |

## Configuring the Raise and Lower buttons for OP control

To give operators control of a point's OP parameter using Station's  (**Raise**) and  (**Lower**) buttons, you must assign the appropriate parameter values to the two buttons.

For reasons of consistency, you should always assign the active state (such as On or Start) to the **Raise** button and the inactive state (such as Off or Stop) to the **Lower** button.

The following table shows the correspondence between the buttons and the OP states. (Note that if you select **Reverse Output**, you must reverse the associations—that is, you associate **Raise** with the OP state normally associated with **Lower**, and vice versa.)

| Button | Single-bit output | Dual-bit output |
|--------|-------------------|-----------------|
| Raise  | OP State 1        | OP state 2      |
| Lower  | OP State 0        | OP State 1      |

### Example

The point is single-bit output point for which the value of **State 0** is **Closed** and the value of **State 1** is **Open**. (These properties are defined on the Main tab.)

To associate the **Raise** button with **Open**, and the **Lower** button with **Closed**, you set the OP State values as follows:

- OP State 0 to 0
- OP State 1 to 1
- OP State 2 to F
- OP State 3 to F

## Configuring algorithm parameters

Algorithms are used in parameter types that change value in accumulator, analog, or status points.

When defining the point's properties in Quick Builder, you can select algorithms from the **Action Algo** and **PV Algo** lists provided on the **Main** tab. The **Action Algo** or **PV Algo** tab will then appear, enabling the algorithm's configuration.

Parameter requirements are different for each algorithm. Refer to the specific Action or PV algorithm for parameter requirements and descriptions.

## Display-related properties

The **Display** tab defines the point's display-related properties.

| Property     | Description  |
|--------------|--|
| Group Number | The number of the group to which the point is assigned. Each group is identified by a unique ID, which is an integer between 1 and 2000. |

| Property                         | Description   |
|----------------------------------|---|
| Position in Group                | The position of the point in the group, (1 to 8).   |
| Trend Number                     | The trend to which this point is assigned. Each trend is identified by a unique ID, which is an integer between 1 and 1000.   |
| Position in Trend Set            | The position of this point in the trend, (1 to 8).  |
| Trend Parameter                  | Parameter used to define what values are shown on a trend display, for example, PV.   |
| Associated Display               | The display that is called up when an operator selects the point (or its alarm in the Alarm Summary) and then clicks the <b>Associated Display</b> button on the toolbar.                                       |
| Point Detail Display             | The point detail display that is used to show detailed point information. If you leave the value as <b>default</b> , the standard detail display for the point type is used.                                    |
| Group Faceplate Template Display | The group faceplate template display that is used to display point information when the point is part of a group. If you leave the value as <b>default</b> , the standard faceplate for the point type is used. |

## History collection properties

You use the **History** tab to define the history-collection properties for SCADA (and OPC advanced) point parameters.

**ATTENTION:** The default history collection rates are configured and stored on the server. Before configuring history collection for SCADA point parameters, make sure that you have uploaded the current history collection rates from the server. You can do this by selecting the appropriate server in Quick Builder and choosing the **UploadSelected Items Only** option.

| Property   | Description   |
|------------|---|
| Parameters | Select the type of parameter for which you want to collect history.   |
| Fast       | Fast history stores snapshots of point parameter values at short regular intervals called <i>fast history intervals</i> . You can choose from |

| Property  | Description   |
|-----------|---|
|           | <p>up to eight collection rates. The initial default base rate is 5 seconds. You can add up to 3 more fast history collection rates to the default fast history groups of 5, 10, 15, 20, and 30 seconds.</p> <p>If the configured base rate for fast history collection is a value other than 1,000 or 5,000 milliseconds, you can only collect history at that one rate. For example, if your fast history collection rate was 3 seconds before you migrated to the current release of Experion, this is the rate that all points assigned to fast history collection will use. If you want to be able to assign points to different fast history collection rates, contact Honeywell technical support staff.</p> |
| Standard  | <p>Standard history stores snapshots and averages of point parameter values at regular intervals called <i>standard history intervals</i>. You can choose from up to eight standard history collection rates for snapshots. The initial default choices are: 1, 2, 5, 10, 30, and 60 minutes. Standard history averages are based on the default base rate of 1 minute. You can choose from four collection rates for averages: 6 minutes, 1 hour, 8 hours, and 24 hours.</p>   |
| Extended  | <p>Extended history stores the following snapshots of point parameter values:</p> <ul style="list-style-type: none"> <li>• 1-hour snapshots</li> <li>• 8-hour snapshots</li> <li>• 24-hour snapshots</li> </ul>   |
| Exception | <p>Whereas standard, fast, and extended history collect and store point parameter values periodically, exception history collects point parameter values but only stores them if the value of that point parameter has changed since it was last stored. The default collection rates for exception history are:</p> <ul style="list-style-type: none"> <li>• 5, 10, 15, 30, and 60 seconds</li> <li>• 5, 10, 15, 30, and 60 minutes</li> <li>• 2, 4, 6, 8, 12, and 24 hours</li> </ul> <p>Exception history only supports string values when values are collected in real-time, but supports both numeric values and string values when values are stored by history backfill by the DNP3 interface.</p>           |

| Property        | Description  |
|-----------------|--|
|                 | <p><b>NOTE:</b> Even though Exception history can collect data at the same interval as Fast history, it stores <i>by exception</i>. While this approach may help decrease controller congestion, data retrieval performance would be considerably worse than that experienced with Fast history.</p>   |
| Collection Rate | For fast, standard, and exception history, choose a rate from the drop-down list. The rates shown here are set on a server-wide basis on Station.  |
| Offset          | When collecting standard and exception history for TPS points, you can choose an offset rate from the drop-down list. The rates shown here are set on a server-wide basis on Station.  |
| Backfill Only   | <p>If the controller on which the point is built can store history, selecting this option reduces the scanning load on the server. If the option is selected, the server collects all outstanding history each time it scans the point. For example, you can collect fast history but only scan the controller at hourly intervals. The history backfill option is only supported by the DNP3 interface.</p> <p>You should select this option if you are collecting history on a point on a dial-up controller.</p> <p><b>Note:</b> If you select this option, do not specify a gating point.</p> <p>If selected for exception history, the DNP3 will not collect and store current live point parameter values in exception history. Instead, it will store values in history that come directly from the DNP3 controller event data (that is, class polls).</p> <p>Default is unselected.</p> <p>Exception history and exception history backfill:</p> <ul style="list-style-type: none"> <li>• Allows storage of exact timestamp of events from DNP3 controller</li> <li>• Stores values only when they change</li> <li>• Is good for slow moving values or if you need sub-second accurate timestamps.</li> </ul> <p>Periodic history and periodic history backfill:</p> |

| Property                              | Description   |
|---------------------------------------|---|
|                                       | <ul style="list-style-type: none"> <li>When choosing for standard history, will get averages, but note that averages will not be recalculated in backfill scenarios.</li> <li>When choosing for fast history, is good for constantly changing values.</li> </ul>  |
| Gate Point<br>Gate Parameter<br>State | Use these boxes if you want history collected only when the point parameter value is in a specific state.<br><br>Gating is used, for example, to stop history collection when a generator or motor is turned off.   |
| PHD Collection                        | Use these boxes to specify PHD collection for fast, standard, extended, and exception history. <ul style="list-style-type: none"> <li><b>Default</b> = PHD collects history for this point according to the <i>PHD collection rule</i>.</li> <li><b>Override</b> = PHD overrides the PHD collection rule and collects history for the point at this history assignment rate.</li> <li><b>Disable</b> = PHD does not collect history at this history assignment rate.</li> </ul> It is possible to assign <b>Override</b> to multiple history assignments for the same point. However, PHD will collect history assignment at only one rate. To determine the collection of history to the PHD server, see the topic titled "PHD collection rule" in the <i>Hardware and Point Build Reference</i> . |

## Subscribing to non-scanned parameters

Non-scanned parameters provide a mechanism to group related PLC stored information directly to a SCADA point without overloading the communications. For example, to access configuration properties or maintenance information that is infrequently accessed. The result is a SCADA point structure that more closely reflects what can be quite complex PLC point structures. Data is acquired only when requested by a client, such as when an Operator is calling up a display. When the Operator calls up a different display, Experion no longer acquires the parameter. By contrast, a scanned parameter is constantly acquired, regardless of whether or not any client is using it. Controls can be issued to non-scanned parameters and they can be assigned for history collection.

You can define non-scanned parameters to:

- Group related PLC stored information directly to a SCADA point without increasing the base scanning load.
- Read non-numeric data types from an OPC server.
- Add numeric parameters from an OPC server but all of the scanned parameter fields (e.g., for analog points: PV, SP, OP, MD, A1, A2, A3, and A4) have been used.

You use this tab to subscribe analog points and status points to non-scanned point parameters on an OPC controller.

Note: This tab appears only when the **PV Source Address** on the point's **Main** tab contains an OPC controller.

| Property        | Description   |
|-----------------|---|
| Add             | Adds a new parameter to the list.   |
| Delete          | Deletes the selected parameter(s) from the list.  |
| Parameter name  | The unique name of the parameter.   |
| Channel name    | The name of the OPC channel, which is shared by all non-scanned parameters under the same point.  |
| Item name       | Click  to browse to an OPC Server address space to specify the item. You can also type the full address. However, because the address format can be difficult to follow, clicking the ellipsis button is the preferred method. |
| Copy Parameter  | Copies the selected parameter to the Clipboard.   |
| Paste Parameter | Pastes a copy of the parameter from the Clipboard to the list. The new parameter's name is preceded by <b>Copy_of_</b> .  |

**ATTENTION:** When you use Quick Builder to configure non-scanned parameters that connect to a remote OPC server, your Windows account username and password must also reside on the remote OPC server. In addition, the username must be a member of the Product Administrators group on the remote OPC server.

If your Windows account does not exist or does not have sufficient privileges on the remote OPC server, you will not be able to select parameters from the list of parameters stored on the server.

Username and passwords must match on both machines.

## Creating or editing scripts

You can enhance the functionality of a point by writing scripts that run when, for example, the point goes into alarm.

To write or edit a script for the point, go to the **Scripts** tab, and click **Create New** or **Edit Existing Server Scripts** to open the Script Editor.

### Creating scripts

You can extend a point's functionality by writing *server scripts* that, for example, run when the point goes into alarm.

#### To write or edit a script for a point:

1. Select the point and click the **Scripts** tab.
2. Click **Create New** or **Edit Existing Server Scripts** to open the Script Editor.

## Electronic signature related properties

The **Signature** tab defines a point's electronic signature-related properties.

| Property                  | Description  |
|---------------------------|--|
| Electronic Signature Type | <p>The number of electronic signature(s) required to control the point:</p> <ul style="list-style-type: none"> <li>• <b>None.</b> No signature is required.</li> <li>• <b>Single.</b> The signature of an operator with control rights to the point is required.</li> <li>• <b>Double.</b> Two signatures are required.</li> </ul> |
| Reason Set Number         | <p>The number of the reason set assigned to the point. (The operator must select the appropriate reason from this set when controlling the point.)</p>   |

| Property                        | Description  |
|---------------------------------|--|
|                                 | For details about configuring a reason set, see the <i>Server and Client Configuration Guide</i> .   |
| Primary Signature Meaning       | Describes the meaning of entering the primary signature, for example: 'Issued,' 'Implemented.' It should be an approved term for your industry/work practices.     |
| Secondary Signature Meaning     | Describes the meaning of entering the secondary signature, for example: 'Confirmed,' 'Authorized.' It should be an approved term for your industry/work practices. |
| Secondary Signer Security Level | The minimum security level of the person who enters the second signature.  |

## Configuring points for electronic signatures

If your server is licensed for *electronic signatures*, you can configure a point so that when an operator attempts to control it, the server requests one (or two) electronic signatures before executing the control.

The following procedure summarizes the main steps involved in configuring points for electronic signatures.

To learn about electronic signatures, see the topic titled "Configuring Electronic Signatures" in the *Server and Client Configuration Guide*.

If you configure points for electronic signature, you are requested for a password when downloading a project to (or uploading from) the server. If this fails, then you are prompted for another user name, password and domain. After successfully logging on to the server, Quick Builder performs background logons for the rest of the session. At the next session, Quick Builder remembers the last correct user name and domain, but requires a password.

## To configure points for electronic signatures

1. Select the server item and click the **Server Specific Options** tab.
2. Select **Use Electronic Signatures**.
3. Add a point that you want to configure for electronic signature.

4. Click the **Control** tab and select **Control Confirmation**.  
The **Signature** tab is added for that point.
5. Click the **Signature** tab and configure point's electronic signature properties.
6. Configure the point's other properties as appropriate.
7. Repeat steps 3 to 6 for any other points that require electronic signatures.
8. When you have finished updating the project, upload it to the server in the normal manner.
9. Type your password when prompted.

## Configuring user-defined parameters

You can create your own (*user-defined*) parameters for a point, which can then be used to store custom or server scripting data on the server.

A user-defined parameter can be a:

- Variable (For example, you may want store a value produced by a script or entered by an operator.)
- Constant (For example, you may want to record the serial number of the device associated with the point.)
- Word/record in a database (user) file (For example, you may want to store a value produced by a custom application.)
- Parameter of another point (For example, you may want to store the PV of a related point.)
- Scanned status parameter (Can be added to an analog point and a status point.)
- Scanned analog parameter (Can be added to an analog point and a status point.)
- Scanned string parameter (Can be added to an analog point and a status point.)
- Custom parameter (This parameter type is reserved for future use.)

**TIP:** Use the **Copy Parameter** and **Paste Parameter** buttons to make a duplicate of a parameter for the current point, or to copy it to another point or to Excel for modification. Note that if you are modifying a parameter and you do not want the

parameter to be duplicated, you can copy and paste the whole point.

Use the **Add Bulk Scanned** button to add multiple scanned status parameters or scanned analog parameters in the same action.

## Adding a variable user-defined parameter

### To add a user-defined parameter – Variable

1. Select the point for which you want to define the parameter.
2. On the **User Defined** tab, click **Add**.  
A new unconfigured parameter is added to the list.
3. Type the parameter's name in **Parameter name**.
4. Select **Variable** from the **Link type** list.
5. Select the **Value type**:
  - 16 bit signed integer (INT2)
  - 32 bit signed integer (INT4)
  - 32 bit floating point (REAL)
  - 64 bit floating point (DBLE)
  - 64 bit signed integer (INT8)
  - String
6. To specify an initial value for the parameter, enter it in the **Initial value** field.
7. To update the initial value that displays in **Initial value** field when uploading points from the server, select the **Update initial value from the server during upload** check box.  
This check box is selected automatically and disabled (dimmed) when the **Never download initial value to the server** check box is selected.
8. To prevent the value in the **Initial value** field, including null, from downloading to the server, select the **Never download initial value to the server** check box.  
Note that this setting is ignored when you change the **Value type** of an existing parameter.  
To change the default value of this check box for all new user-defined parameters, go to the server's **Server Specific Options** tab

and select or clear the **Never download initial UDP value to the server** check box.

See the topic titled "Server specific options" for more information.

9. Select a security level from the **Security Level** list.

## Adding a constant user-defined parameter

### To add a user-defined parameter – Constant

1. Select the point for which you want to define the parameter.
2. On the **User Defined** tab, click **Add**.  
A new unconfigured parameter is added to the list.
3. Type the parameter's name in **Parameter name**.
4. Select **Constant** from the **Link type** list.
5. Select the **Value type**:
  - 16 bit signed integer (INT2)
  - 32 bit signed integer (INT4)
  - 32 bit floating point (REAL)
  - 64 bit floating point (DBLE)
  - String
6. Type the parameter's value in the **Constant value** field.
7. Select a security level from the **Security Level** list.

## Adding a database reference user-defined parameter

### To add a user-defined parameter – Database reference

1. Select the point for which you want to define the parameter.
2. On the **User Defined** tab, click **Add**.  
A new unconfigured parameter is added to the list.
3. Type the parameter's name in **Parameter name**.
4. Select **Database reference** from the **Link type** list.
5. Select the **Value type**:
  - 16 bit signed integer (INT2)
  - 32 bit signed integer (INT4)

- 32 bit floating point (REAL)
  - 64 bit floating point (DBLE)
  - String
  - Bit Field
6. Type the location of the parameter's value in the server database in the **File**, **Record**, and **Word** fields.
  7. For **String** value type parameters, type the string's length in the **String Length** field.
  8. For **Bit Field** value type parameters, Select the starting bit from the **Start Bit** list, and select the number of bits to use from the **Bit Width** list.
  9. Select a security level from the **Security Level** list.

## Adding a parameter reference user-defined parameter

### To add a user-defined parameter – Parameter reference

1. Select the point for which you want to define the parameter.
2. On the **User Defined** tab, click **Add**.  
A new unconfigured parameter is added to the list.
3. Type the parameter's name in **Parameter name**.
4. Select **Parameter reference** from the **Link type** list.
5. Type the point name on which the parameter is based in the **Point name** field.
6. Type the parameter name on which the parameter is based in the **Parameter name** field.
7. For history parameters, type the sample offset in the **Offset** field.
8. Select a security level from the **Security Level** list.

### About user-defined scanned parameters

User-defined scanned parameters are a subset of user-defined parameters. The only difference is that they can be scanned, whereas other user-defined parameter types cannot.

The maximum number of user-defined scanned parameters you can add to a point is **200**.

You can assign these parameters to fast, standard, extended, and exception history collection.

No additional licensing is required to add user-defined scanned parameters to points.

## Supported controllers

The following controller types support points with user-defined scanned parameters:

- ABB Totalflow
- Allen-Bradley PLC
- Bristol Babcock OpenBSI
- ControlEdge PLC
- ControlEdge RTU
- DNP3
- Enron Modbus
- Fisher ROC
- Honeywell Fail Safe Controller (FSC) PLC
- Honeywell Universal Modbus
- Modbus
- Omni Flow Computer
- OPC Client Interface
- OPC UA Controller
- Safety Manager PKS Ethernet/Serial
- Spirit IT Flow-X
- User Scan Task (Database Controller)

## Naming rules

User-defined parameter names must follow certain naming rules:

- Parameter names must be unique.  
Parameter name can contain up to 255 alphanumeric characters, with at least one alpha character.
- User-defined scanned parameter name can contain up to 180

alphanumeric characters, with at least one alpha character.

- Parameter names can contain periods (.). However, user-defined scanned parameters cannot contain periods.
- Parameter names are not case-sensitive.
- Parameter names cannot contain any of the following characters:
  - Ampersand (&)
  - Asterisk (\*)
  - Backslash (\)
  - Caret (^)
  - Colon (:)
  - Comma (,)
  - Double quote (")
  - Forward slash (/)
  - Greater than (>)
  - Less than (<)
  - Number sign (#)
  - Percent (%)
  - Period (.) Applies to user-defined scanned parameter names only. Parameter names can contain periods.
  - Question mark (?)
  - Semi-colon (;)
  - Single quote (')
  - Space
  - Tab
  - Vertical bar (|)

## Exporting and importing user-defined scanned parameters

There might be times when you need to export and import user-defined scanned parameters. For example, to bulk modify multiple user-defined scanned parameter on multiple points.

In these situations, you can copy and paste these parameters to an Excel spreadsheet. See the topic titled "Copying and pasting items" for more information.

## Adding a scanned analog user-defined parameter

You can add scanned analog user-defined parameters to analog points and to status points.

### To add a user-defined parameter – Scanned analog

1. Select the point for which you want to define the parameter.
2. On the **User Defined** tab, click **Add**.  
A new unconfigured parameter is added to the list.
3. Type the parameter's name in **Parameter name**.
4. (Optional) Type the associated parameter's name in **Associated Param**.  
This specifies the name of an internal point parameter to be associated with the new parameter.  
If it is specified, the internal parameter's value tracks the value in the controller. For example, point alarm limits are kept synchronized with the alarm limits in a controller.
5. Select **Scanned - Analog** from the **Link type** list.
6. Select a security level from the **Security Level** list.  
This configures the minimum security level required for writing the parameter value.
7. Enter the source address of the parameter in the **Source Address** box.
8. Enter the destination address of the parameter in the **Dest Address** box.
9. Select a scan period from the **Scan Period** list.
10. If you selected a scan period of **DEMAND**, select the **Dynamic Scanning** check box to turn on dynamic scanning for this parameter.
11. Enter the unit of measurement in the **Engineering Units** box.
12. To raise an external change alarm, select the **External Change Alarm** check box.  
This will raise an alarm when a point parameter value changes in the controller, and that change in value was not requested from the server.

13. Enter the 100% and 0% ranges of the engineering units in the **100% Range Value** and **0% Range Value** boxes.
14. Select an appropriate drift deadband from the **Drift Deadband (%)** list.  
The drift deadband defines what constitutes a significant change of the Input analog parameter signal. If the change is less than this drift amount, the new value will not be processed.
15. To clamp the PV, select the **Clamp PV** check box.  
This causes the analog parameter value to be clamped at the user-defined scanned parameter 0% range if it is less than the PV clamp low limit. Similarly, the PV will be clamped at at the user-defined scanned parameter 100% range if it is greater than the PV clamp high limit.
16. If applicable, select the **Reverse** check box.
17. Select an appropriate control deadband from the **Control Deadband (%)** list.  
The control deadband defines what constitutes a good control. If the PV signal, read back after a control value is issued, does not reach the **{new control value + this deadband}** within the control timeout period, then this results in a control fail alarm being generated.
18. To support the data type INT8, select the **64 bit Integer Data Type** check box.  
If this check box is not selected, the default data type is Double.

### Adding a scanned status user-defined parameter

You can add scanned status user-defined parameters to analog points and to status points.

### To add a user-defined parameter – Scanned status

1. Select the point for which you want to define the parameter.
2. On the **User Defined** tab, click **Add**.  
A new unconfigured parameter is added to the list.
3. Type the parameter's name in **Parameter name**.
4. (Optional) Type the associated parameter's name in **Associated Param**.

This specifies the name of an internal point parameter to be associated with the new parameter.

If it is specified, the internal parameter's value tracks the value in the controller. For example, points unit is kept synchronized with a numeric status value in a controller.

5. Select **Scanned - Status** from the **Link type** list.
6. Enter the source address of the parameter in the **Source Address** box.
7. Enter the destination address of the parameter in the **Dest Address** box.
8. If you select a scan period of **DEMAND** from the **Scan Period** list, select the **Dynamic Scanning** check box to turn on dynamic scanning for this parameter.
9. Select a scan period from the **Scan Period** list.
10. From the **Number of States** list, select the number of discrete input states you want to configure.
11. If applicable, select **Reverse** options:
  - For a 2–state point, reverses the parameter (i.e., Bit 0).
  - For a 4–state point, reverses **Bit 0** and/or **Bit 1**. Select the appropriate check boxes.
  - For an 8–state point, reverses **Bit 0** and/or **Bit 1** and/or **Bit 2**. Select the appropriate check boxes.
12. To raise an external change alarm, select the **External Change Alarm** check box.

This will raise an alarm when a point parameter value changes in the controller, and that change in value was not requested from the server.
13. Select a security level from the **Security Level** list.

This configures the minimum security level required for writing the parameter value.
14. In the **State Descriptions** area, enter descriptors for each state of a status point. State descriptors may be composed of any 8 alphanumeric characters.

For single-bit status points, two state descriptions must be specified; for dual-bit status points, four state descriptions, and for 3-bit points, all eight state descriptions are required.
15. In the **Target Input State Associations** area, assign target states to single-, dual-, or 3-bit status points for CLOSED/STOP/OFF and

OPEN/START/ON output states.

Specify F if you do not wish to assign a state to that OP state.

## Adding a scanned string user-defined parameter

You can add scanned string user-defined parameters to analog points and to status points.

### To add a user-defined parameter – Scanned string

1. Select the point for which you want to define the parameter.
2. On the **User Defined** tab, click **Add**.  
A new unconfigured parameter is added to the list.
3. Type the parameter's name in **Parameter name**.
4. (Optional) Type the associated parameter's name in **Associated Param**.  
This specifies the name of an internal point parameter to be associated with the new parameter.  
If it is specified, the internal parameter's value tracks the value in the controller. For example, point units are kept synchronized with units in a controller.
5. Select **Scanned - String** from the **Link type** list.
6. Enter the source address of the parameter in the **Source Address** box.
7. Select a scan period from the **Scan Period** list.
8. If you select a scan period of **DEMAND** from the **Scan Period** list, select the **Dynamic Scanning** check box to turn on dynamic scanning for this parameter.

## Adding a custom user-defined parameter

### To add a user-defined parameter – Custom

1. Select the point for which you want to define the parameter.
2. On the **User Defined** tab, click **Add**.  
A new unconfigured parameter is added to the list.
3. Type the parameter's name in **Parameter name**.

4. Select **Custom** from the **Link type** list.
5. Type a value in the **Custom Field** field.
6. Select a security level from the **Security Level** list.

**ATTENTION:** This parameter type is reserved for future use.

## Adding multiple user-defined scanned parameters

You can add multiple instances of user-defined scanned parameters to analog points and status points using the **Add Bulk Scanned** button on the **User Defined** tab. You can create multiple scanned analog parameters and multiple scanned status parameters, but only type at a time.

The maximum number of user-defined scanned parameters you can add to a point is **200**.

## To add multiple user-defined scanned parameters — Scanned analog

1. Click **Add Bulk Scanned**.  
The **Add User-defined scanned parameters** window appears.
2. Select **Scanned - Analog** from the **Link type** list.
3. In the **Number of Items** box, enter the number of parameters you want to create.

Out of a maximum of **200**, and after the current bulk add is complete, the remaining number of user-defined scanned parameters that can be added to the point will be displayed.

4. Enter name details in the **Parameter Name** area.

| Option   | Description  |
|----------|--|
| Prefix   | Enter alphabetical, numeric, and special characters to form the prefix of every parameter name.  |
| Variable | Choose the type of variable. <ul style="list-style-type: none"> <li>For <b>Numeric</b>, enter the length in the <b>Digits</b> box, followed by the <b>Start</b> number, and the <b>Step</b>.</li> <li>For <b>Letter</b>, enter the starting letter in the <b>Start</b> box.</li> </ul> |
| Suffix   | Enter alphabetical, numeric, and special characters to form the suffix of every parameter name.  |

5. Enter address details in the **Source Address** area.

| Option      | Description  |
|-------------|--|
| Controller  | Select a controller from the list.   |
| Prefix      | Enter alphabetical, numeric, and special characters to form the prefix of each source address.   |
| Variable    | Choose the type of variable. <ul style="list-style-type: none"> <li>For <b>Numeric</b>, enter the length in the <b>Digits</b> box, followed by the <b>Start</b> number, and the <b>Step</b>.</li> <li>For <b>Letter</b>, enter the starting letter in the <b>Start</b> box.</li> </ul> |
| Data Format | Enter alphabetical, numeric, and special characters to indicate the format of each source address.<br><br>The data format follows the address, separated by a space.   |
| Suffix      | Enter alphabetical, numeric, and special characters to form the suffix of each source  |

| Option                      | Description  |
|-----------------------------|--|
|                             | <p>address. The value entered is appended immediately after the variable text without a space.</p> <p>Note that the suffix can be applied, for example, when a data format is required to be added to the addresses.</p> |
| Copy to destination address | Select the check box to copy to the destination address. This enables read and write access to the register in the device.   |

6. Enter default parameter details in the **Defaults** area.

| Option                             | Description  |
|------------------------------------|--|
| Scan Period                        | Select a scan period from the <b>Scan Period</b> list.   |
| External Change Alarm              | <p>To raise an external change alarm, select the <b>External Change Alarm</b> check box.</p> <p>This will raise an alarm when a point parameter value changes in the controller, and that change in value was not requested from the server.</p> |
| Engineering Units                  | Enter the unit of measurement in the <b>Engineering Units</b> box.   |
| Dynamic Scanning                   | If you selected a scan period of <b>DEMAND</b> , select the <b>Dynamic Scanning</b> check box to turn on dynamic scanning for this parameter.  |
| 100% Range Value<br>0% Range Value | Enter the 100% and 0% ranges of the engineering units in the <b>100% Range Value</b> and <b>0% Range Value</b> boxes.  |
| Drift Deadband (%)                 | <p>Select an appropriate drift deadband from the <b>Drift Deadband (%)</b> list.</p> <p>The drift deadband defines what constitutes a significant change of the Input analog parameter signal. If the change is less than this drift amount,</p> |

| Option               | Description   |
|----------------------|---|
|                      | the new value will not be processed.  |
| Clamp Value          | To clamp the PV, select the <b>Clamp Value</b> check box.<br><br>This causes the analog parameter value to be clamped at the user-defined scanned parameter 0% range if it is less than the PV clamp low limit. Similarly, the PV will be clamped at at the user-defined scanned parameter 100% range if it is greater than the PV clamp high limit.                            |
| Control Deadband (%) | Select an appropriate control deadband from the <b>Control Deadband (%)</b> list.<br><br>The control deadband defines what constitutes a good control. If the PV signal, read back after a control value is issued, does not reach the <b>{new control value + this deadband}</b> within the control timeout period, then this results in a control fail alarm being generated. |

7. In the **History Parameter Options** area, enter history assignments that will be applied to all newly created user-defined scanned parameters.

| Option          | Description   |
|-----------------|---|
| Type            | Select the appropriate to configure <b>Fast</b> , <b>Standard</b> , <b>Extended</b> , and <b>Exception</b> history.   |
| Collection Rate | For fast, standard, and exception history, choose a rate from the drop-down list. The rates shown here are set on a server-wide basis on Station.                                     |
| Offset          | When collecting standard and exception history for TPS points, you can choose an offset rate from the drop-down list. The rates shown here are set on a server-wide basis on Station. |
| PHD Collection  | Use these boxes to specify PHD collection for fast, standard, extended, and exception history.  |

| Option | Description  |
|--------|--|
|        | <ul style="list-style-type: none"> <li>• <b>Default</b> = PHD collects history for this point according to the <i>PHD collection rule</i>.</li> <li>• <b>Override</b> = PHD overrides the PHD collection rule and collects history for the point at this history assignment rate.</li> <li>• <b>Disable</b> = PHD does not collect history at this history assignment rate.</li> </ul> <p>It is possible to assign <b>Override</b> to multiple history assignments for the same point. However, PHD will collect history assignment at only one rate. To determine the collection of history to the PHD server, see the topic titled "PHD collection rule" in the <i>Hardware and Point Build Reference</i>.</p> |

8. Click OK.

### To add multiple user-defined scanned parameters — Scanned status

1. Click **Add Bulk Scanned**.

The **Add User-defined scanned parameters** window appears.

2. Select **Scanned - Status** from the **Link type** list.

3. In the **Number of Items** box, enter the number of parameters you want to create.

Out of a maximum of **200**, and after the current bulk add is complete, the remaining number of user-defined scanned parameters that can be added to the point will be displayed.

4. Enter name details in the **Parameter Name** area.

| Option   | Description  |
|----------|--|
| Prefix   | Enter alphabetical, numeric, and special characters to form the prefix of every parameter name.  |
| Variable | <p>Choose the type of variable.</p> <ul style="list-style-type: none"> <li>• For <b>Numeric</b>, enter the length in the <b>Digits</b> box, followed by the <b>Start</b> number, and the <b>Step</b>.</li> </ul> |

| Option | Description   |
|--------|---|
|        | <ul style="list-style-type: none"> <li>For <b>Letter</b>, enter the starting letter in the <b>Start</b> box.</li> </ul> |
| Suffix | Enter alphabetical, numeric, and special characters to form the suffix of every parameter name.                         |

5. Enter address details in the **Source Address** area.

| Option                      | Description   |
|-----------------------------|---|
| Controller                  | Select a controller from the list.  |
| Prefix                      | Enter alphabetical, numeric, and special characters to form the prefix of each source address.  |
| Variable                    | <p>Choose the type of variable.</p> <ul style="list-style-type: none"> <li>For <b>Numeric</b>, enter the length in the <b>Digits</b> box, followed by the <b>Start</b> number, and the <b>Step</b>.</li> <li>For <b>Letter</b>, enter the starting letter in the <b>Start</b> box.</li> </ul> |
| Data format/Suffix          | <p>Enter alphabetical, numeric, and special characters to form the suffix of each source address.</p> <p>Note that the suffix can be applied, for example, when a data format is required to be added to the addresses.</p>   |
| Copy to destination address | Select the check box to copy to the destination address. This enables read and write access to the register in the device.  |

6. Enter default parameter details in the **Defaults** area.

| Option      | Description  |
|-------------|--|
| Scan Period | Select a scan period from the <b>Scan Period</b> list. |

| Option                          | Description  |
|---------------------------------|--|
| Number of States                | From the <b>Number of States</b> list, select the number of discrete input states you want to configure.   |
| Reverse                         | <p>If applicable, select <b>Reverse</b> options:</p> <ul style="list-style-type: none"> <li>• For a 2–state point, reverses the parameter (i.e., Bit 0).</li> <li>• For a 4–state point, reverses <b>Bit 0</b> and/or <b>Bit 1</b>. Select the appropriate check boxes.</li> <li>• For an 8–state point, reverses <b>Bit 0</b> and/or <b>Bit 1</b> and/or <b>Bit 2</b>. Select the appropriate check boxes.</li> </ul> |
| Dynamic Scanning                | If you selected a scan period of <b>DEMAND</b> , select the <b>Dynamic Scanning</b> check box to turn on dynamic scanning for this parameter.  |
| External Change Alarm           | <p>To raise an external change alarm, select the <b>External Change Alarm</b> check box.</p> <p>This will raise an alarm when a point parameter value changes in the controller, and that change in value was not requested from the server.</p>   |
| State Descriptions              | <p>In the <b>State Descriptions</b> area, enter descriptors for each state of a status point. State descriptors may be composed of any 8 alphanumeric characters.</p> <p>For single-bit status points, two state descriptions must be specified; for dual-bit status points, four state descriptions, and for 3-bit points, all eight state descriptions are required.</p>   |
| Target Input State Associations | <p>In the <b>Target Input State Associations</b> area, assign target states to single-, dual-, or 3-bit status points for CLOSED/STOP/OFF and OPEN/START/ON output states.</p> <p>Specify <b>F</b> if you do not wish to assign a state to that OP state.</p>  |

7. In the **History Parameter Options** area, enter history assignments that will be applied to all newly created user-defined scanned parameters.

| Option          | Description  |
|-----------------|--|
| Type            | Select the appropriate to configure <b>Fast</b> , <b>Standard</b> , <b>Extended</b> , and <b>Exception</b> history.  |
| Collection Rate | For fast, standard, and exception history, choose a rate from the drop-down list. The rates shown here are set on a server-wide basis on Station.  |
| Offset          | When collecting standard and exception history for TPS points, you can choose an offset rate from the drop-down list. The rates shown here are set on a server-wide basis on Station.  |
| PHD Collection  | <p>Use these boxes to specify PHD collection for fast, standard, extended, and exception history.</p> <ul style="list-style-type: none"> <li>• <b>Default</b> = PHD collects history for this point according to the <i>PHD collection rule</i>.</li> <li>• <b>Override</b> = PHD overrides the PHD collection rule and collects history for the point at this history assignment rate.</li> <li>• <b>Disable</b> = PHD does not collect history at this history assignment rate.</li> </ul> <p>It is possible to assign <b>Override</b> to multiple history assignments for the same point. However, PHD will collect history assignment at only one rate. To determine the collection of history to the PHD server, see the topic titled "PHD collection rule" in the <i>Hardware and Point Build Reference</i>.</p> |

8. Click **OK**.

Quick Builder creates the specified number of user-defined scanned parameters with the settings you chose.

You can change any of the parameters either individually or in bulk.

## Modifying multiple user-defined scanned parameters

To save time and effort, you can modify more than one user-defined scanned parameter at a time on the *same* point. For example, you want to change the engineering units for a series of **Scanned - Analog** parameters.

**TIP:** To change multiple user-defined scanned parameters for more than one point, you can export the user-defined scanned parameters to an Excel spreadsheet, make the changes, and then import them back into Quick Builder. See the section titled "Exporting and importing user-defined scanned parameters" in the topic titled "About user-defined scanned parameters" for more information.

## To modifying multiple user-defined scanned parameters

1. Select two or more user-defined scanned parameters you want to modify.

Select user-defined scanned parameters of the same type to increase the number of fields you can change at a time. For example, select only **Scanned - Analog** parameters.

Fields with same values appear in the normal state with the same value; fields with different values appear without values and with a gray background, which indicates that the value in the fields are not consistent.

2. Modify the field values as necessary.

You can modify values in fields in the normal state. You can also modify field values with a gray background. When you do, all fields will take the new value. However, you cannot modify the **Parameter Name** field.

## Importing/uploading specialized point configurations

This topic is only applicable if you have specialized point configurations and want to import or upload them into Quick Builder. (Such configurations are generally achieved by manually editing the point definition file—a process which bypasses Quick Builder.)

The following table describes what Quick Builder does when you import or upload specialized point configurations.

| Configuration  | Result   |
|--|--|
| Point assigned to more than one group display                      | Quick Builder only imports one group number, and the assignment details of the other groups are lost.  |
| Separate gating points for each history type on the same parameter | Quick Builder assigns the same gating point to all selected history types, and the assignments of the other gating points are lost.                              |
| Gating points for user-defined parameters                          | Quick Builder does not lose the gating point details. However, you cannot change them because they are not visible on the User Defined tab of the Property Page. |

**ATTENTION:** To import a point build file into Quick Builder, the "long form" file must be used. Use the **-FD** flag when running **BCKBLD** to generate a long form file if you intend to import the file into Quick Builder. Typical usage would be **BCKBLD -FD**.

## Specifying point parameter addresses

You must specify the point parameter addresses in a controller's database so that the server can read from/write to those addresses. The address syntax is specific to controller type.

**ATTENTION:** If an SP (set point) address references either a database file or a point parameter, you must only specify the SPSOURCE address. (This is because the SPSOURCE and SPDESTIN fields are the same for database and point addresses.)

| To learn about the address syntax for: | Go to:  |
|--|---|
| Generic controller                     | "Point parameter address syntax for a generic controller" on page 65            |
| User scan task controller              | <i>Point parameter address syntax for a user scan task controller</i> on page 1 |
| Any other controller                   | <i>Accessing help for a specific controller</i> on page 1                       |

# Using Address Builder

Address Builder makes it easier to specify point parameter addresses if you don't know its syntax.

## To specify an address with Address Builder

1. Click  to the right of the address box.  
The **Address Builder** dialog box opens.
2. Select the type of address you are defining from **Address Type**.  
A box for each part the address syntax appears in the **Details** section.
3. Fill in the **Details** boxes and click **OK**. To see the syntax for a particular controller:
  - a. Select **Controller** from **Address Type**.
  - b. Select the controller from **Controller**.
  - c. Press F1 to call up the help for that controller.  
To see the syntax for a:
    - Generic controller, see the topic titled "Point parameter address syntax for a generic controller."
    - User scan task controller, see the topic titled "Point parameter address syntax for a user scan task controller."

## Configuring the address syntax for a file

1. Configure the syntax parts as shown here:

| Part            | Description   |
|-----------------|---|
| File            | The file identification number to which the address refers.   |
| Record          | The record in the selected file to which the address refers.  |
| Word            | The data word number in the selected record to which the address refers.  |
| Bit             | The bit within the selected word to which the address refers.   |
| Width           | The number of bits to read/write, starting with the specified bit.  |
| Format          | The data format: <ul style="list-style-type: none"> <li>• <b>DBLE.</b> Double precision (64-bit) floating point</li> <li>• <b>INT2.</b> Short (16-bit) integer</li> <li>• <b>INT4.</b> Long (32-bit) integer</li> <li>• <b>REAL.</b> Single precision (32-bit) floating point number</li> </ul> |
| Controller Name | The controller that scans this address.   |

## Configuring the address syntax for a point

1. Configure the syntax parts as shown here:

| Part            | Description  |
|-----------------|--|
| Point Name      | The name of the point being addressed. Select the point from the list of points already added to the project file. |
| Parameter       | The point parameter to which this address applies. Select the parameter from the list.                             |
| Controller Name | The controller that scans this address.  |

## Using Address Builder with an Integrated Controller connected

Address Builder makes it easier to specify point parameter addresses if you don't know its syntax.

### To specify an address with Address Builder

1. Click  to the right of the address box.  
The **Address Builder** dialog box opens.
2. Set **Address Type** to *Controller*  
A box for each part the address syntax appears in the **Details** section.
3. Fill in the **Details** boxes and click **OK**. To see the syntax for a particular controller:
  - a. Select the controller from **Controller**.
  - b. Click  to the right of the Location box.  
A browser window will open enabling the user to browse the whole of the available address space for the selected integrated controller type (only applicable for RTU2020 and ControlLogix integrated controllers, not applicable for ControlEdge PLC).
  - c. Browse to the required controller location and click **Apply**

# Automated Point Generation for an Integrated Controller

This topic describes how to create points automatically for integrated controllers.

## Prerequisites

- The Integrated Controller has been built.
- All required Integration Mappings (standard and customized) have been imported.  
For more information about reviewing which Integration Mappings have been imported, see “To view the imported Integration Mappings”.  
For more information about importing, see “Importing Integrated Mappings” and “Creating and Modifying Integrated Mappings”.

## To automatically generate points for an integrated controller

1. Filter the Quick Builder navigation pane by clicking **Controller Integration**.

The navigation pane lists three views:

- **Controllers**
- **Mappings**
- **Global Mapping Parameters**

2. Select **Controllers**

The **List View** displays a list of all the controllers, and integration type, that have had the controller integration option enabled.

3. Select the target controller.

The **Properties Pane** will display the **Generate Points** view.

*Table 6-3: Details of the Generate Points view*

| Column          | Description   |
|-----------------|---|
| Controller Data | List of the variable names, or tag names, found in the selected controller's Experion Export File |

| Column                   | Description  |
|--------------------------|--|
| Integration Mapping Data | The mapping that has been matched for each variable name, or tag name, and the point type that will be generated for each. There may be some instances where more than one mapping has been matched; in these cases you should select which mapping is to be used. |
| Point Data               | Names of the points that will be generated depending on the Action that has been configured.<br><br>For more information on each Action, see the “Actions in the Generate Points view”.  |

Table 6-4: Actions in the Generate Points view

| Location of drop-down list | Action                  | Description  |
|----------------------------|-------------------------|--|
| Column Header              | Generate All            | Will set the Action of every visible row to Generate.  |
|                            | Reset All               | Will set the Action of every visible row to No Action.   |
|                            | Delete All              | Will set the Action of every visible row to Delete.  |
|                            | Ignore All              | Will set the Action of every visible row to Ignore.  |
|                            | Generate From Clipboard | Will set the Action of every row whose variable Name, or Tag Name, matches a name in the Clipboard (for example, copied from an Excel spreadsheet or similar) to Generate.<br><br>The clipboard must contain a single name per line. |
| Row                        | Generate                | This is the default Action for all rows.<br><br>A point will be generated or, if it already  |

| Location of drop-down list | Action    | Description   |
|----------------------------|-----------|---|
|                            |           | exists, modified to match the properties defined in the matched mapping.  |
|                            | No Action | No action will be taken on this row, no point will be generated or, if it already exists, modified. Action can be changed on a future occasion.   |
|                            | Delete    | Deletes the point defined by this row (point will be moved to the Quick Builder recycle bin)  |
|                            | Ignore    | This row will be ignored, no point will be generated. This row will be hidden if <b>Show Ignored elements</b> option is disabled.<br><br>Use this option for internal PLC/RTU variables for which Experion points are not required. |

Table 6-5: Filter options in the Generate Points view

| Filter                  | Description  |
|-------------------------|--|
| Show ignored elements   | Enable this option to show all rows where the Action has been set to Ignore.<br><br>The default state is disabled, thus all rows where the Action has been set to Ignore will be hidden. |
| Show unmatched elements | Enable this option to show all rows where the tag, or variable, has not been matched to a mapping.<br><br>The default state is disabled, thus all unmatched elements will be hidden.     |

Click **Compare Points** to highlight the differences between the existing points in the Quick Builder database and all the points in the Generate Points view for which Action is set to Generate or Delete..

4. Click **Generate Points** button to add points to the Quick Builder database.

A dialog is displayed allowing the user to select between generating **New and Modified Points** or **New points only**.

**New Points** are points that have not yet been created in the Quick Builder database.

**Modified Points** are points that have previously been created in the Quick Builder database

The *Summary* shows how many:

- New points will be generated
- Existing points will be modified
- Points will be ignored
- How many points will be deleted and moved to the recycle bin.

**Generate Points** applies to all rows in the table where the Action has been set to **Generate** or **Delete** regardless of the two filter options or any column filters that may have been applied.

## To customize Integration Mappings

1. From the **Controller Integration** navigation pane select **Controllers** and then select the target controller.
2. From the **Generate Points** view click the **Customize** tab.

The **Properties Pane** will display Integration Mapping details that can be edited if necessary.

| Section                        | Description  |
|--------------------------------|--|
| Available Integration Mappings | <p>All imported mappings of the same integration type as the target controller are listed and enabled by default.</p> <p>If you know that there are some mappings that are not relevant to the target controller then they can be disabled in order to reduce the potential number of multiple matched mappings.</p> <p>To assist with managing a large list of mappings it can be filtered and ordered.</p> |
| Integration Mapping            | Lists all parameters defined in all the selected integration mappings, each with its default value   |

| Section    | Description   |
|------------|---|
| Parameters | <p>as defined in the integration mapping.</p> <p>You can change a value from default if required.</p> <p>To assist with managing a large list of mapping parameters each column can be filtered and ordered.</p> <p>To simplify managing parameters that are used in multiple mappings, and that will always be assigned the same value, you can move them to the <b>Global Mapping Parameters</b> list. For more information, see “To create and use Global Mapping Parameters”.</p> |

## To view the imported Integration Mappings

1. From the **Controller Integration** navigation pane select **Mappings**.  
The **List View** displays a list of all the Integration Mappings that have been imported.  
This list is read-only. For more information on modifying an Integration Mapping, see “Creating and Modifying Integration mappings”.

## To create and use Global Mapping Parameters

1. From the **Controller Integration** navigation pane select **Global Mapping Parameters**.  
The **Properties Pane** displays a list of all Global Mapping Parameters.  
Global Mapping Parameters have the same name wherever they are used and will always be assigned the same value. These are intended for constant properties used across the database, such as a standard fast and slow scan period that are to be applied consistently to all points.
2. To move a global mapping parameter to Integration Mapping Parameters in the Customise tab select the parameter and click **Delete**.

The parameter will be moved from **Global Mapping Parameters** to the Integration Mapping Parameters list in the Customize tab.

3. To add a global mapping parameter click **Add** and enter the parameter name.

The global mapping parameter will be added to the list and removed from the Integration Mapping Parameters in the Customize tab.

# BUILDING EQUIPMENT TEMPLATES

You can use equipment templates to quickly and easily build equipment, such as wells, pumps, generators, and all the associated items that make up the equipment. These items typically include points and controllers.

Equipment templates are created in the **Equipment Template Builder**, and stored in the **Template Library**, in Quick Builder. Two sample templates (including a Well template and a Well Field template) are provided with Experion, and you can use these templates to create new templates.

If you modify an equipment template and import the updated template into Quick Builder, those changes will be applied to all equipment that has been built using that template. If you delete a template from the library, you will receive a warning dialog stating that any equipment based on that template will also be deleted.

---

In this section:

|   |     |
|---|-----|
| <i>About building equipment templates</i> ..... | 193 |
| <i>Creating equipment templates</i> .....       | 194 |
| <i>Configuring equipment templates</i> .....    | 199 |

## About building equipment templates

In Configuration Studio, you can create and maintain equipment templates that define equipment items.

After building a new equipment template, you import it into the Template Library in Quick Builder where you can use it to create equipment.

To modify an existing equipment template, you need to open it in the **Equipment Template Builder**, make the required changes, and then import the modified template into the Template Library in Quick Builder.

The following properties can be configured to define how equipment based on this template will be viewed in Station:

- Summary view properties, which define the content and layout of the information on the **Equipment Summary** display.
- Tabular view properties, which define the content and layout of the information on the **Equipment Detail** display.

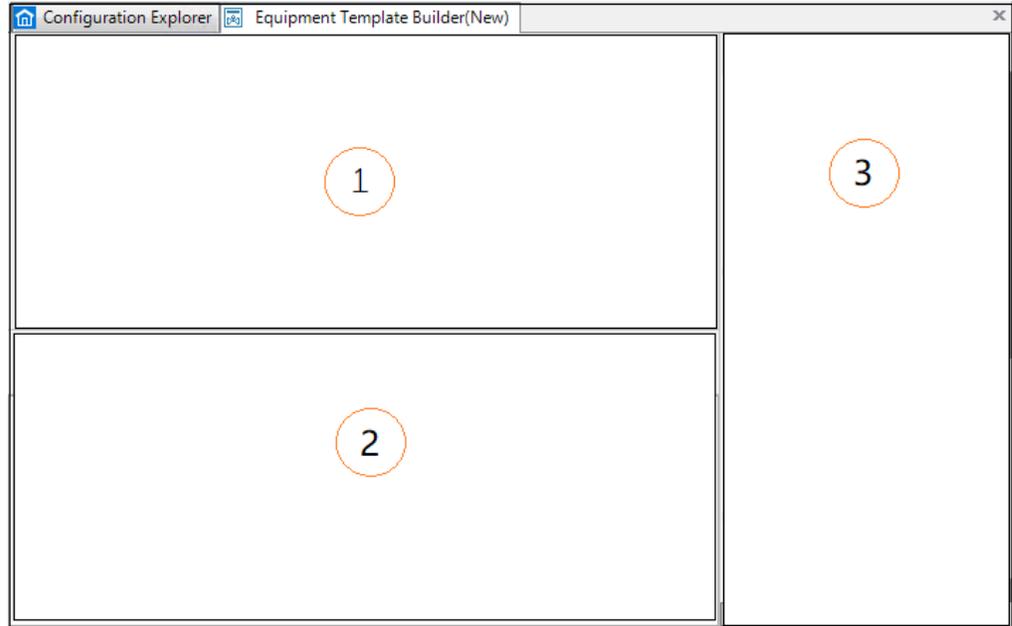
You can create more than one tabular view in a template and assign one as the default view for the **Equipment Detail** display. For example, the Detail view.

- Trend view properties, which define the content and layout of the information on a trend display. It will be called up from the **Equipment Detail** display.

You can create more than one trend view in a template.

## Layout of the Equipment Template Builder

The following figure shows the layout of the the **Equipment Template Builder**.



| Item | Description  |
|------|--|
| 1    | <p><i>Visual Editor</i></p> <p>Defines the content and layout of views for the equipment to be viewed in Station.</p>  |
| 2    | <p><i>Properties list</i></p> <p>Lists all the properties that have been defined to be associated with the equipment, including point properties and equipment properties.</p>       |
| 3    | <p><i>Property Editor</i></p> <p>Defines the property details for the relevant item selected in the <b>Visual Editor</b> or the property selected in the <b>Properties</b> list.</p> |

## Creating equipment templates

Every equipment item is based on an equipment template. You can create an equipment template either by:

- Modifying an existing template and saving it with a new name.
- Creating a new equipment template.

## Prerequisite

You have logged in to Configuration Studio with a security level of SUPV or higher.

## Creating an Equipment Template by modifying an existing template

Equipment templates are comprised of 2 files:

- An EQT file, that describes the data capture and detail part of the template; and,
- A TYP file that describes the summary part of the template. Each TYP file can be referenced by multiple EQT files.

When you create a new template based on an existing template you need to consider both parts of the template. Changes you make to an existing template, if not implemented correctly, can impact all templates referencing the TYP file used by that template.

1. From Configuration Studio, choose **Control Strategy > Equipment > Build Equipment Template**.
2. From the toolbar, click  (Open Template).
3. In the **Open Equipment Template** dialog box, locate and select the template you want to use, then click **Open**.  
The existing template opens in the **Equipment Template Builder**.
4. Choose **File > Save as** to open the **Save As** dialog box.
5. In the **File name** box, type a unique name for the new template and click **Save**.

The new template is created and saved in the template folder.

**TIP:** If you intend on changing the Summary portion of the new template, you need to type a different TYP value in the Equipment Type field. Otherwise, any changes you make to the summary section of this new template will impact all other templates that reference the TYP file from the original template.

### ***Next steps***

You are now ready to add new views and shapes and to configure your new template. For more information, see:

- "Creating a tabular view" on page 209
- "Creating a trend view" on page 210
- "Working with shapes" on page 1
- "Configuring equipment templates" on page 199.

### **Creating a new Equipment Template**

1. From Configuration Studio, choose **Control Strategy > Equipment > Build Equipment Template**.
2. From the toolbar, click  (Save) to open the **Save Equipment Template** dialog box.
3. In the **File name** box, type a unique name for the new template and click **Save**.  
The new template is created and saved in the template folder.
4. Work through each of the views to configure the template.  
For more information, see "Configuring equipment templates" on page 199.

### ***Next steps***

You are now ready to add shapes and configure your new template. For more information, see:

- "Creating a tabular view" on page 209
- "Creating a trend view" on page 210
- "Working with shapes" on page 1
- "Configuring equipment templates" on page 199.

### **Exporting templates from the Template Library**

To make changes to an existing template in the **Equipment Template Builder**, you can either edit the template's EQT and TYP files directly, or you can export the template from Quick Builder and then edit the files. For both approaches, you need to import the updated template files into Quick Builder when finished.

If you want to create a new template based on an existing template, you can export a similar template from Quick Builder to use as your starting point.

To export a template from the Template Library to the Equipment Template Builder:

1. From Configuration Studio, choose **Control Strategy > Equipment > Build Equipment** to launch Quick Builder.
2. From the toolbar, click  (Export) to open the **Export** dialog box.
3. From the **Folder for File(s)** box, select a folder for the exported equipment files.
4. In the **Base Name for File(s)** box, enter a base name for the exported files.
5. From the **Export File Type** drop-down list, select **Equipment Template/Type File**.
6. Click **OK**.

The equipment files are exported to the specified folder.

### ***Next steps***

Now that you have the existing template in your Equipment Template Builder folder, you can either [modify it and import it back into Quick Builder](#), or you can rename it and [configure it as a new equipment template](#).

## **Updating equipment by modifying its equipment template**

Every equipment item is based on an equipment template. One of the major advantages of this defined relationship and hierarchy it contains is that you can update a large number of equipment items by simply modifying the template on which they were based.

### **Prerequisite**

You have logged in to Configuration Studio with a security level of **SUPV** or higher.

To modify an equipment template:

1. From Configuration Studio, choose **Control Strategy > Equipment > Build Equipment Template** to open the **Equipment Template Builder**.
2. From the toolbar, click



(Open Template) and select a template from your template folder.

3. Work through each of the views that has been defined for the **Equipment Detail** display in the template.  
For more information, see "Configuring equipment templates" on the next page.
4. Select **File > Save** to save the modified template.
5. To keep the original version of the template intact, you can save the modified template as a new file by selecting **File > Save As...**
6. To modify the **Summary** view, type a new name for **Equipment type**, click **Copy** to save it as a new file for the template.
7. Click **OK** to save the template, and then import it into the Template Library for use in Quick Builder.

If there is equipment that will be impacted by the changes to this equipment template, a dialog box appears listing the equipment items that will be updated with the template changes. Click **OK** to proceed. After you have downloaded the equipment, and the equipment items are automatically updated.

## Deleting an equipment template

Deleting an equipment template can have an impact on equipment that has been created based on that template, and on templates that have inherited data from the template on which they were based. Make sure that you understand the relationship between the equipment and templates in your system before deleting any templates.

## Prerequisite

You have logged in to Configuration Studio with a security level of **SUPV** or higher.

To delete an equipment template:

1. From the **Template Library**, select the template to be deleted.
2. Right-click on the equipment template and click **Delete**.

A message appears asking for confirmation that you want to delete the template.

3. Click **Yes** to proceed.

The system deletes the template, and all content associated with the template, including:

- Other templates, associated equipment, any contained sub-equipment and associated items such as controllers and points.
- Inheritance links to any templates based on this template (the name of the deleted template is removed from the **Base Template** field in the template properties).
- Any entries in the Template Library for this template.

If the template cannot be deleted because it is needed for some equipment or derived templates to continue functioning, a message is displayed identifying the items in question and the template is not deleted.

## Configuring equipment templates

The Equipment Template Builder contains a Property Editor, where you can configure the properties of your equipment templates.

This involves configuring views to define the presentation of your equipment, and configuring properties to define the data represented by your equipment items.

**TIP:** You can use Microsoft Excel to perform batch updates of some of the template properties. For more information, see "Editing properties in Microsoft Excel" on page 209.

In this section:

|   |     |
|---|-----|
| <i>Configuring the Template properties</i> .....        | 200 |
| <i>Creating a Related Equipment table</i> .....         | 202 |
| <i>Configuring Point and Equipment properties</i> ..... | 203 |
| <i>Editing properties in Microsoft Excel</i> .....      | 209 |
| <i>Creating a tabular view</i> .....                    | 209 |
| <i>Creating a trend view</i> .....                      | 210 |
| <i>Configuring the Summary view</i> .....               | 211 |
| <i>Template properties</i> .....                        | 214 |

|   |     |
|---|-----|
| <i>Configuring the Tabular view</i> ..... | 217 |
| <i>Summary view properties</i> .....      | 220 |
| <i>Point properties</i> .....             | 222 |
| <i>Equipment properties</i> .....         | 224 |
| <i>Shape properties</i> .....             | 227 |

## Configuring the Template properties

The template properties define a template's basic properties.

### Prerequisites

- You have logged in to Configuration Studio with a security level of SUPV or higher.
- You have opened an equipment template in the **Equipment Template Builder**. For more information, see "Creating equipment templates" on page 194.

To configure the template properties:

1. From the **Visual Editor**, click the **Detail** tab to open the Detail view.
2. From the **Property Editor**, in the tabs **Common**, **Quick Builder**, and **Content link groups**, configure the properties, using the following as guidance:

| Property               | Description   |
|------------------------|---|
| <b>View properties</b> |   |
| Name                   | A unique identifier for this view.  |
| Label                  | The text that will appear in Station to identify this view.   |
| Description            | A short description of this view.   |
| Content link group     | The content link group that the view is associated with.<br><br>The content link groups are where you group various views in Station. The groups in the list are defined in the <b>Content link groups</b> tab. |
| <b>Common</b>          |   |

| Property                   | Description   |
|----------------------------|---|
| Name                       | A unique identifier for this template. It is recommended that you use a prefix, or namespace, to the template name, for example, <b>Honeywell.OpApps.pipeline</b> , where <i>Honeywell.OpApps</i> is the prefix. The prefix will prevent this template from overwriting other pipeline templates. |
| Label                      | The text that will appear in the Quick Builder Library to identify this template.   |
| Description                | A short description of this template.   |
| Default view               | The name of the view that you want to specify as the default view showing on the <b>Equipment Detail</b> display.   |
| Tooltip                    | Text for the tool tip that appears when you hover over this template in the Template Library.   |
| <b>Quick Builder</b>       |   |
| Category                   | The category in which this template will be listed in the Quick Builder Library.  |
| Template Version           | Template version is used when the Experion server finds multiple copies of the template. For example, in a Distributed Server Architecture. In this case, the template with the highest version number is used.   |
| Show in Library            | Indicates whether this template should be visible in the Quick Builder Library. The default value is <b>True</b> .  |
| <b>Content link groups</b> |   |
| Content link group         | Defines the groups that you can use for grouping various tabular / trend views together in Station. There are four default values: <b>trend</b> , <b>schematic</b> , <b>tabular</b> , and <b>related</b> . Each group contains the properties: <b>Name</b> , <b>Label</b> , and <b>Icon</b> .     |
| <b>Relationships</b>       |   |
| Name                       | .The name of this relationship. Click a relationship, or click + to add a new relationship, and the <b>Relationships</b> dialog appears enabling you to view or edit the relationship properties. For more information, see "Adding or editing Relationship properties" on page 1                 |

| Property            | Description  |
|---------------------|--|
| <b>Enumerations</b> |  |
| Name                | The name of the enumeration available within the template. Click an enumeration, or click + to add a new enumeration and the Enumerations dialog appears enabling you to view or edit the enumeration value. |

## Creating a Related Equipment table

A Related Equipment table displays equipment that is related through a configured relationship. The Equipment Summary of the related equipment is displayed in the original Equipment's Detail view.

To add a related equipment table:

1. From the **Visual Editor**, click + (**Add a related equipment table**) and select an equipment template file.
2. From the **Property Editor**, in the **Related equipment** tab, specify the following properties for the related equipment summary table:

| Property                 | Description   |
|--------------------------|---|
| Equipment type           | The equipment type that is relevant for this relationship.  |
| Table                    | The table that will be displayed for the related equipment. It is defined in the chosen <b>Equipment type</b> file. |
| Label prefix             | Text that will be shown before the title text in the label for this table.  |
| Label suffix             | Text that will be shown after the title text in the label for this table.   |
| Expandable               | Indicates whether the table is able to be expanded / collapsed. The default value is <b>True</b> .                  |
| Hide row count selection | Indicates whether the row count indicator is visible on the lower left of the related equipment table.              |
| Hide row                 | Indicates whether the row lock indicator and page   |

| Property       | Description   |
|----------------|---|
| lock           | navigation buttons are visible on the lower right of the related equipment table.   |
| Display Footer | Enables you to add display elements to the footer of a relationship table. You can link display elements from the equipment containing the relationship table, and this will appear under the table. You can configure the width of each display element as required. |

## Configuring Point and Equipment properties

The **Properties** list in the Equipment Template Builder has two tabs:

- The *Point Properties* tab lists the points that have been defined in an equipment template.
- The *Equipment Properties* tab defines the equipment properties for the template. Equipment properties are created as parameters on the Equipment, rather than the containing points that make up the equipment. The equipment property may reference another point parameter.

## Prerequisites

- You have logged in to Configuration Studio with a security level of SUPV or higher.
- You have opened an equipment template in the **Equipment Template Builder**. For more information, see "Creating equipment templates" on page 194.

## Configuring Point properties

To configure the properties for a point within an Equipment item:

1. From the **Properties** list, click the **Properties** tab to expand the properties list.
2. Click the **Point Properties** tab to view the list of existing properties.

**TIP:** You can type keywords in the **Filter** field to reduce the number of properties being displayed.

3. To add a property to the list, click + in the **Properties** list.
4. Configure the property details as required, using the following table as guidance:

| Property                | Description  |
|-------------------------|--|
| <b>Point Properties</b> |  |
| Type                    | Specifies the point type.<br>Valid values are <b>Analog</b> , <b>Status</b> , or <b>String</b> . The default value is <b>Analog</b> .  |
| Point                   | Specifies the name of the point.   |
| Parameter               | Specifies the parameter for the point.   |
| Description             | The description of the parameter.  |
| <b>Data Source</b>      |  |
| Source Address          | Specifies the controller name / address where the parameter value is stored.   |
| Range or Enumeration    | Only visible if the <b>Type</b> value is <b>Analog</b> .<br>Choose to configure either <b>Range</b> or <b>EnumSet</b> .  |
| Range Low               | Specifies the lower bound of the range. Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>Range</b> .   |
| Range High              | Specifies the upper bound of the range. Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>Range</b> .   |
| Range Units             | Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>Range</b> .<br>The name of the engineering units. For example, Gallons, Liters, °F, and °C. |
| Enumeration Set Value   | Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>EnumSet</b> .<br>The value part of the enumeration value / string pair.                     |
| Enumeration Set String  | Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>EnumSet</b> .<br>The string part of the enumeration value / string pair.                    |

| Property   | Description  |
|--|--|
| Number of States   | Only visible if the <b>Type</b> value is <b>Status</b> and the <b>Parameter</b> value is <b>PV</b> or <b>OP</b> .<br><br>Specifies the number of states you want to configure for status points related to the selected parameter. Valid values for <b>PV</b> are <b>2, 4, and 8</b> . Valid values for <b>OP</b> are <b>2 and 4</b> . The default value is <b>2</b> . |
| State 0 - State 7  | The states for status points related to the selected parameter.  |
| <b>Visualization</b>   |  |
| Shape  | Specifies a shape from the list of available shapes. For more information, see "Shape properties" on page 227.   |
| Display Element  | Specifies the name assigned to the shape instance that will be displayed in Station.   |
| Component  | From the list of components for the selected shape, select a component to be linked to the parameter.<br><br>Each shape is made up of components (a shape with a single component will have this blank).   |
| Label  | Specifies the text that will appear in Station to identify the display element.  |
| <b>Formatting</b> (Shape related properties, see "Shape properties" on page 227)           |  |
| <b>Behavior</b> (Shape related properties, see "Shape properties" on page 227)             |  |
| <b>Source</b> (Shape related properties, see "Shape properties" on page 227)               |  |
| <b>History</b> (Only visible if the <b>Type</b> value is <b>Analog</b> or <b>Status</b> .) |  |
| Enable Fast History  | Specifies whether the point parameter is assigned to fast history. The default value is <b>False</b> .   |
| Enable Extended History  | Specifies whether the point parameter is assigned to extended history. The default value is <b>False</b> .   |
| Enable Standard History  | Specifies whether the point parameter is assigned to standard history. The default value is <b>False</b> .   |

| Property          | Description   |
|-------------------|---|
| <b>Properties</b> |   |
| Period            | The interval, in seconds, the server scans the controller for the parameter values. The default value is 0 for no scanning. It can also be set to an Equipment Property value of the 2-byte Integer type. |
| Alarms            | Configure alarm type and priority for Analog parameters and alarm state priorities for Status parameters.   |
| Algorithm         | Configure PV algo associated with the point. Only <a href="#">algo20</a> and <a href="#">algo21</a> are supported.  |

## Configuring equipment properties

To configure the equipment properties for an equipment template:

1. From the **Properties** list, click the **Properties** tab to expand the properties list.
2. Click the **Equipment Properties** tab to view the list of existing properties.

**TIP:** You can type keywords in the **Filter** field to reduce the number of properties being displayed.

3. To add a property to the list, click + in the **Properties** list.
4. Configure the property details as required, using the following table as guidance:

| Property                    | Description  |
|-----------------------------|--|
| <b>Equipment Properties</b> |  |
| Type                        | The data type for this equipment parameter. Valid values are: <ul style="list-style-type: none"> <li>• 2-byte Integer</li> <li>• 4-byte Integer</li> <li>• Floating-point number</li> <li>• Double-precision number</li> <li>• Character String</li> </ul> |

| Property                | Description  |
|-------------------------|--|
|                         | <ul style="list-style-type: none"> <li>• Variable String</li> <li>• Enumeration</li> </ul>   |
| Name                    | The unique name of the equipment property.   |
| Description             | Specifies the description to be used in Quick Builder for the equipment property.  |
| Category                | Specifies the category that the equipment property will be grouped in when viewing in Quick Builder.   |
| <b>Data Source</b>      |  |
| Default Value           | Specifies the default value for this equipment property.   |
| Units                   | Specifies the units of measurement for this equipment property (optional).   |
| <b>Validation Rules</b> |  |
| Range Minimum           | <p>Only visible if the <b>Type</b> is Integer or number.</p> <p>Specifies the lower bound of the range. The value entered here will be used by Quick Builder as the minimum value accepted for this equipment property.</p>  |
| Range Maximum           | <p>Only visible if the <b>Type</b> is Integer or number.</p> <p>Specifies the upper bound of the range. The value entered here will be used by Quick Builder as the maximum value accepted for this equipment property.</p>  |
| Length                  | <p>Only visible if the <b>Type</b> value is <b>Character String</b> or <b>Variable String</b>.</p> <p>Specifies the maximum length for this equipment property used in Quick Builder.</p> <p>For <b>Character String</b> type, the maximum length is <b>256</b> characters. For <b>Variable String</b> types, the maximum string length is <b>8000</b> characters.</p> |
| Class Name              | Enforce a type of item, for example, AnalogPoint, or Asset.  |
| Enumeration Name        | The name of the enumeration available within the template. Only visible if the <b>Type</b> value is <b>Enumeration</b> .   |

| Property              | Description   |
|-----------------------|---|
| <b>Visualization</b>  |   |
| Shape                 | Specifies a shape from the list of available shapes. For more information, see "Shape properties" on page 227.  |
| Display Element       | It is not configured by default for equipment properties. You can configure it by selecting a shape from the list or entering the name in the Display Element field.  |
| Component             | From the list of components for the selected shape, select a component to be linked to the parameter.<br><br>Each shape is made up of components (a shape with a single component will have this blank).  |
| Label                 | Specifies the text that will appear in Station to identify the equipment property.  |
| <b>Download Flags</b> |   |
| Download Flags        | Select one or more of the following point build flags to be used when downloading this equipment property to the server (optional). <ul style="list-style-type: none"> <li>• <b>Unique</b> - Indicates whether the value for this equipment parameter should be unique across all instances of this parameter in Quick Builder.</li> <li>• <b>Auto-increment</b> - Indicates whether the default value for this equipment parameter will be automatically incremented for each item created in a bulk-build operation in Quick Builder.</li> <li>• <b>Optional</b> - Indicates whether this equipment parameter will be optional (or mandatory) when creating equipment based on this template. If it is not selected (mandatory), the user needs to enter any mandatory values when instantiating the template.</li> <li>• <b>Constant Value</b> - Indicates whether this equipment parameter will be built as a <i>constant</i> on the server. Valid values are <b>True</b> and <b>False</b>.</li> <li>• <b>Read-Only</b> - Indicates whether the default value for this equipment parameter will be ready only in Quick Builder. Valid values are <b>True</b> and <b>False</b>.</li> </ul> |

## Editing properties in Microsoft Excel

You can use Microsoft Excel to edit the properties shown in the **Properties** list. This section describes how to copy the properties from the **Equipment Template Builder** into Microsoft Excel, edit the values in Microsoft Excel, and then paste the updated properties back to the **Equipment Template Builder**.

### Prerequisites

- You have logged in to Configuration Studio with a security level of **SUPV** or higher.
- You have opened an equipment template in the **Equipment Template Builder**. For more information, see "Creating equipment templates" on page 194.

To edit properties in Microsoft Excel:

1. From the **Point Properties** tab or the **Equipment Properties** tab, in the list of existing properties, select the row of properties that you want to edit in Microsoft Excel.

**TIP:** Use the CTRL key or the SHIFT key to select multiple rows.

2. Click  (Copy selected row(s).)
3. Open a new spreadsheet in Microsoft Excel and paste the rows in the spreadsheet.
4. Edit the property details in the spreadsheet.

**TIP:** If you create new rows in the spreadsheet to paste into to the **Properties** list, leave the first column (ID) blank.

5. Copy the header and the new and/or updated rows and click  (Paste row(s)) to paste them into the relevant tab in the **Equipment Template Builder**.

The **Properties** list is updated with the pasted rows.

### Creating a tabular view

A *Tabular* view defines the layout of tables on the **Equipment Detail** display. After deciding on the layout of the table, you need to determine which parameters to include in the table.

## Prerequisites

- You have logged in to Configuration Studio with a security level of SUPV or higher.
- You have opened an equipment template in the **Equipment Template Builder**. For more information, see "Exporting templates from the Template Library" on page 196

To create a tabular view:

1. From the **Visual Editor**, either use the default **View** tab provided or click + to add a new View tab.
2. In the **Configure new view** dialog box, specify values for the following properties and click **OK**.

| Property    | Description   |
|-------------|---|
| Name        | A unique identifier for the view.   |
| Label       | The text that will appear in Station to identify this view.   |
| Description | A short description of this table contents.   |
| Group       | Specifies the <i>Group</i> to use for this Tabular view. The Group value determines where this new view appears in the Equipment Detail display in Station.<br><br>Select a group from the <b>Group</b> list to assign this new view to that group. |
| View type   | Select <b>Tabular</b> for the view type.  |

## Next steps

You can use the new tabular view to create tables for **Detail** displays. For more information about configuring tables and other display elements for inclusion on Detail displays, see "Creating a Related Equipment table" on page 202.

## Creating a trend view

A *Trend* view defines the layout and parameters of trends.

### Prerequisites

- You have logged in to Configuration Studio with a security level of **SUPV** or higher.
- You have opened an equipment template in the **Equipment Template Builder**. For more information, see "Exporting templates from the Template Library" on page 196

To create a trend view:

1. From the **Visual Editor**, click + in the toolbar to add a new view tab.
2. In the **Configure new view** dialog box, specify values for the following properties and click **OK**.

| Property    | Description   |
|-------------|---|
| Name        | A unique identifier for this view.  |
| Label       | The text that will appear in Station to identify this view.   |
| Description | A short description of this view.   |
| Group       | Specifies the <i>Group</i> to use for this Tabular view. The Group value determines where this new view appears in the Equipment Detail display in Station.<br><br>Select a group from the <b>Group</b> list to assign this new view to that group. |
| View type   | Select <b>Trend</b> for the view type.  |

### Next steps

You can use the new trend view to create trends to be displayed in the Experion App. You can also choose which trends to display Station if required.

For more information about configuring trend items, see "Configuring the Trend view" on page 1.

### Configuring the Summary view

The Summary view properties define the content and layout of the table on the **Equipment Summary** display for the equipment type and the layout of the related equipment tables for this equipment type.

This topic describes how to configure the Summary view for an equipment template using the **Equipment Template Builder**.

## Prerequisites

- You have logged in to Configuration Studio with a security level of **SUPV** or higher.
- You have opened an equipment template in the **Equipment Template Builder**. For more information, see "Creating equipment templates" on page 194.

To configure the Summary view:

1. From the **Visual Editor**, click the **Summary** tab to open the Summary view.  
The layout of the currently selected Default Table appears.
2. From the **Property Editor**, specify the following properties for the Summary view.

**TIP:** Properties are grouped by the tab on which they appear.:

| Property          | Description   |
|-------------------|---|
| <b>Common</b>     |   |
| Equipment type    | Specifies the type of the equipment. You can change the default value by selecting an existing TYP file, copying the existing layout into a new TYP file, or creating a new TYP file.<br><br>The equipment type is the general type of the equipment, and is used in the equipment visualization to group equipment into tables of the same type. |
| Default table     | From the list of tables configured in the Summary view, specifies which table will be shown on the <b>Equipment Summary</b> display.  |
| Version           | Version is used when the Experion server finds multiple copies of the equipment type. For example, in a Distributed Server Architecture. In this case, the equipment type with the highest version number is used.  |
| Summary equipment | If selected, and only one row exists in the table, a banner will be displayed instead of a table.   |

| Property  | Description  |
|---|--|
|   | The default value is <b>True</b> .   |
| Icon  | Select the icon associated with the equipment type.  |
| <b>Tables</b> (double-click a table item to display the <b>Define table</b> dialog box) |  |
| Name  | The name of the table.   |
| Label   | The label of this table that will appear on the <b>Equipment Summary</b> display.  |
| Expanded  | Indicates whether this table is expanded when the display is first invoked. The default value is <b>True</b> .   |
| Sort binding  | Specifies which of the Display Element bindings will be used to sort the table by default.   |
| Sort direction  | The order of the rows in the table, according to the <b>Sort binding</b> Field. Valid values are <b>Ascending</b> or <b>Descending</b> . The default value is <b>Ascending</b> .   |
| Order   | The order of the equipment type to be shown on the <b>Equipment Summary</b> display. For example, the equipment type with order 1 appears before the equipment type with order 2. The default value is <b>1</b> .<br><br>If two equipment types have the same order number, the default order of equipment applies which is based on the equipment type names in alphabetical order. |
| Initial page size   | The number of visible rows to be included in the table.  |
| <b>Columns</b>  |  |
| Label   | The column header of the table as it will appear on the <b>Equipment Summary</b> display.  |
| Display element   | Select a display element from the template that will be shown in this summary column.  |
| Element type  | The shape used to display the display element.   |
| Sort display element  | For equipment shapes with more than one display element part, allows you to select the display element part on which to sort.<br><br>For example, the Dual Indicator allows sorting on either the arrow  |

| Property            | Description   |
|---------------------|---|
|                     | value or the bar value.   |
| Visualization       | It is only used for the message shape. The valid value is <b>message</b> .  |
| Units               | Engineering unit to be displayed in the column header.  |
| Width               | Specifies the width of column in characters.  |
| Visible             | Specifies whether the column will be visible in the Summary view.   |
| Sortable            | Specifies whether the column can be sorted.   |
| <b>Filters</b>      |   |
| Name                | The name of the filter.   |
| Label               | The label used to select the filter.  |
| Definition          | The definition of the filter.   |
| Default sort order  | Specifies the order of the rows to sort the table by default when applying this filter.<br><br>Valid values are <b>Ascending</b> or <b>Descending</b> . The default value is <b>Ascending</b> . |
| Default sort column | Specifies which of the columns will be used to sort the table by default when applying this filter.   |

## Template properties

The Template properties define the template's basic properties. They are displayed in the Property Editor after creating or opening a tabular view.

The following table lists the details of the template properties.

| Property               | Description   |
|------------------------|---|
| <b>View properties</b> |   |
| Name                   | A unique identifier for this view.                          |
| Label                  | The text that will appear in Station to identify this view. |
| Description            | A short description of this view.                           |

| Property                   | Description   |
|----------------------------|---|
| Content link group         | The content link group that the view is associated with.<br><br>The content link groups are where you group various views in Station. The groups in the list are defined in the <b>Content link groups</b> tab.   |
| <b>Common</b>              |   |
| Name                       | A unique identifier for this template. It is recommended that you use a prefix, or namespace, to the template name, for example, <b>Honeywell.OpApps.pipeline</b> , where <i>Honeywell.OpApps</i> is the prefix. The prefix will prevent this template from overwriting other pipeline templates. |
| Label                      | The text that will appear in the Quick Builder Library to identify this template.   |
| Description                | A short description of this template.   |
| Default view               | The name of the view that you want to specify as the default view showing on the <b>Equipment Detail</b> display.   |
| Tooltip                    | Text for the tool tip that appears when you hover over this template in the Template Library.   |
| <b>Quick Builder</b>       |   |
| Category                   | The category in which this template will be listed in the Quick Builder Library.  |
| Template Version           | Template version is used when the Experion server finds multiple copies of the template. For example, in a Distributed Server Architecture. In this case, the template with the highest version number is used.   |
| Show in Library            | Indicates whether this template should be visible in the Quick Builder Library. The default value is <b>True</b> .  |
| <b>Content link groups</b> |   |
| Content link group         | Defines the groups that you can use for grouping various tabular / trend views together in Station. There are four default values: <b>trend</b> , <b>schematic</b> , <b>tabular</b> , and <b>related</b> . Each group contains the properties: <b>Name</b> , <b>Label</b> , and <b>Icon</b> .     |
| <b>Relationships</b>       |   |

| Property                    | Description   |
|-----------------------------|---|
| Name                        | The name of this relationship.  |
| Label                       | The text that will appear in the Quick Builder Library to identify this relationship.   |
| Role to Related Equipment   | The name of the role (relationship) to the related equipment. (Optional, although one of either <b>Role to</b> or <b>Role from</b> must be specified.)  |
| Role from Related Equipment | The name of the role (relationship) from the related equipment. (Optional, although one of either <b>Role to</b> or <b>Role from</b> must be specified.)  |
| Default values              | <p>Default values to be used for the related equipment in this relationship. Where the Collection property is set to <b>True</b>, more than one default can be specified separated by a semicolon.</p> <p>If the <b>Read only</b> property has been set to <b>True</b>, you must also provide a value for the <b>Default value</b>.</p> |
| Valid Equipment types       | Lists the valid equipment types for any related equipment. Values entered here will populate a list of valid equipment in the <b>Equipment Type</b> drop-down list in Quick Builder. Where multiple values are provided, separate them with a semicolon.  |
| One to many                 | Indicates whether this relationship can be a one-to-many relationship. Valid values are <b>True</b> , <b>False</b> . The default value is <b>True</b> .   |
| Read only                   | Indicates whether the related equipment defined by this relationship can be edited in Quick Builder. Valid values are <b>True</b> , <b>False</b> . If set to <b>True</b> , you must also define <b>Default values</b> so that the Relationship can be automatically generated by Quick Builder.   |
| Alarm Aggregation           | Indicates whether alarms will be aggregated between this equipment and its related equipment. Valid values are: <b>No Alarm Aggregation</b> , <b>To related equipment</b> , <b>From related equipment</b> . The default value is <b>No Alarm Aggregation</b> .  |
| <b>Enumerations</b>         |   |
| Name                        | <p>The name of the enumeration available within the template.</p> <p>Only valid for Type values of <b>Enumeration</b>.</p>  |

| Property    | Description                                       |
|-------------|---|
| Enumeration | The values associated with the named enumeration. |

## Configuring the Tabular view

The Tabular view properties define the basic properties for each table that is included in the tabular view. One example of a Tabular view is a Detail view as represented by a Detail display in Station.

The properties for a Tabular view are displayed in the Property Editor after creating or opening a table in the **Visual Editor**.

## Prerequisites

- You have logged in to Configuration Studio with a security level of SUPV or higher.
- You have opened an equipment template in the **Equipment Template Builder**. For more information, see "Creating equipment templates" on page 194.

To create a Tabular view:

1. From the **Visual Editor**, click the **Detail** tab to open the Detail view.
2. From the **Property Editor**, in the **View properties** tab, specify the following properties for this view:

| Property    | Description  |
|-------------|--|
| Name        | A unique identifier for this view.   |
| Label       | The text that will appear in Station to identify this view.  |
| Expandable  | Indicates whether the table is able to be expanded / collapsed. The default value is <b>True</b> .   |
| Is Expanded | Indicates whether the table is expanded by default.  |
| Column      | For the Station view of a template, this setting specifies the physical position of the table on the detail display. For example, <b>1</b> would result in the table being positioned in the first column. Read- |

| Property           | Description   |
|--------------------|---|
|                    | only.<br>The Experion App (mobile) view of the same template shows the order of the content as it will appear in the Experion App.  |
| Row                | For the Station view of a template, this setting specifies the physical position of the table on the detail display. For example, <b>1</b> would result in the table being positioned in the first row. Read-only.<br><br>The Experion App (mobile) view of the same template shows the order of the content as it will appear in the Experion App. |
| Description        | A short description of this view.   |
| Content link group | The content link group that the view is associated with.<br><br>The content link groups are where you group various views in Station. The groups in the list are defined in the <b>Content link groups</b> tab.   |

3. From the **Property Editor**, in the **Table** tab, specify the following properties for this table:

| Property | Description  |
|----------|--|
| Name     | A unique identifier for this table.                          |
| Label    | The text that will appear in Station to identify this table. |

4. From the **Visual Editor**, click **+** to add a row for a display element.  
5. Select the new row, click the **Link** button to open the **Link display element** dialog box.

In the **Link display element** dialog box, there is a list of options including **New point property** and **New equipment property** followed by a list of all the existing properties.

**TIP:** In the **Filter display elements** box, you can type keywords to filter the list.

6. In the **Link display element** dialog box, choose one of the following options to link a property to this display element:

| To use this option                 | Complete these steps   |
|------------------------------------|--|
| Create a new point property        | <ol style="list-style-type: none"> <li>1. Select <b>New point property</b></li> <li>2. Click <b>OK</b>.</li> </ol>                   |
| Create a new equipment property    | <ol style="list-style-type: none"> <li>1. Select <b>New equipment property</b></li> <li>2. Click <b>OK</b>.</li> </ol>               |
| Select an existing display element | <ol style="list-style-type: none"> <li>1. From the list, select an existing display element.</li> <li>2. Click <b>OK</b>.</li> </ol> |

The label of the linked item and the shape associated with the linked item are added to the row. By default, the shape **alphanumeric** is associated with a new item.

7. From the **Properties** list, in the **Point Properties** tab or the **Equipment Properties** tab, select the property that you have linked to the display element, and then configure the property details either in the **Properties** list or the **Property Editor**.

For more information, see "Configuring Point and Equipment properties" on page 203.

8. To add more display elements, repeat step [6](#) to step [7](#).
9. To add a parameter table in the Tabular view, from the **Visual Editor**, click + (**Add a parameter table**) and repeat step [4](#) to step [10](#).

**TIP:** You can also create a new table by dragging a display element row from an existing table to the blank area to the right of the columns or by dragging it over the + (**Add a parameter table**) button.

**TIP:** You can drag any of the existing parameter tables to arrange their order and positions to be displayed in this view.

## Summary view properties

The Summary view properties define the content and layout of the table on the **Equipment Summary** display for the equipment type and the layout of the related equipment tables for this equipment type. The properties are displayed in the Property Editor after opening the Summary view in the **Visual Editor**.

The following table lists the Summary view properties.

| Property          | Description   |
|-------------------|---|
| <b>Common</b>     |   |
| Equipment type    | Specifies the type of the equipment. You can change the default value by selecting an existing TYP file, copying the existing layout into a new TYP file, or creating a new TYP file.<br><br>The equipment type is the general type of the equipment, and is used in the equipment visualization to group equipment into tables of the same type. |
| Default table     | From the list of tables configured in the Summary view, specifies which table will be shown on the <b>Equipment Summary</b> display.  |
| Version           | Version is used when the Experion server finds multiple copies of the equipment type. For example, in a Distributed Server Architecture. In this case, the equipment type with the highest version number is used.  |
| Summary equipment | If selected, and only one row exists in the table, a banner will be displayed instead of a table.<br><br>The default value is <b>True</b> .   |
| Icon              | Select the icon associated with the equipment type.   |
| <b>Tables</b>     |   |
| Name              | The name of the table.  |
| Label             | The label of this table that will appear on the <b>Equipment Summary</b> display.   |

| Property             | Description  |
|----------------------|--|
| Expanded             | Indicates whether this table is expanded when the display is first invoked. The default value is <b>True</b> .   |
| Sort binding         | Specifies which of the Display Element bindings will be used to sort the table by default.   |
| Sort direction       | The order of the rows in the table, according to the <b>Sort binding</b> Field. Valid values are <b>Ascending</b> or <b>Descending</b> . The default value is <b>Ascending</b> .   |
| Order                | The order of the equipment type to be shown on the <b>Equipment Summary</b> display. For example, the equipment type with order 1 appears before the equipment type with order 2. The default value is <b>1</b> .<br><br>If two equipment types have the same order number, the default order of equipment applies which is based on the equipment type names in alphabetical order. |
| Initial page size    | The number of visible rows to be included in the table.  |
| <b>Columns</b>       |  |
| Label                | The column header of the table as it will appear on the <b>Equipment Summary</b> display.  |
| Display element      | Select a display element from the template that will be shown in this summary column.  |
| Element type         | The shape used to display the display element.   |
| Sort display element | For equipment shapes with more than one display element part, allows you to select the display element part on which to sort.<br><br>For example, the Dual Indicator allows sorting on either the arrow value or the bar value.  |
| Visualization        | It is only used for the message shape. The valid value is <b>message</b> .   |
| Units                | Engineering unit to be displayed in the column header.   |
| Width                | Specifies the width of column in characters.   |
| Visible              | Specifies whether the column will be visible in the Summary view.  |

| Property            | Description   |
|---------------------|---|
| Sortable            | Specifies whether the column can be sorted.   |
| <b>Filters</b>      |   |
| Name                | The name of the filter.   |
| Label               | The label used to select the filter.  |
| Definition          | The definition of the filter.   |
| Default sort order  | Specifies the order of the rows to sort the table by default when applying this filter.<br><br>Valid values are <b>Ascending</b> or <b>Descending</b> . The default value is <b>Ascending</b> . |
| Default sort column | Specifies which of the columns will be used to sort the table by default when applying this filter.   |

## Point properties

The **Point Properties** tab lists all the points that have been defined within the template.

After clicking a point from the **Point Properties** tab, you can configure the following property details in the Property Editor.

| Property                | Description   |
|-------------------------|---|
| <b>Point Properties</b> |   |
| Type                    | Specifies the point type.<br><br>Valid values are <b>Analog</b> , <b>Status</b> , or <b>String</b> . The default value is <b>Analog</b> . |
| Point                   | Specifies the name of the point.  |
| Parameter               | Specifies the parameter for the point.  |
| Description             | The description of the parameter.   |
| <b>Data Source</b>      |   |
| Source Address          | Specifies the controller name / address where the parameter value is stored.  |
| Range or                | Only visible if the <b>Type</b> value is <b>Analog</b> .  |

| Property               | Description   |
|------------------------|---|
| Enumeration            | Choose to configure either <b>Range</b> or <b>EnumSet</b> .   |
| Range Low              | Specifies the lower bound of the range. Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>Range</b> .  |
| Range High             | Specifies the upper bound of the range. Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>Range</b> .  |
| Range Units            | Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>Range</b> .<br><br>The name of the engineering units. For example, Gallons, Liters, °F, and °C.  |
| Enumeration Set Value  | Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>EnumSet</b> .<br><br>The value part of the enumeration value / string pair.  |
| Enumeration Set String | Only visible if the <b>Type</b> value is <b>Analog</b> and the <b>Range or Enumeration</b> value is <b>EnumSet</b> .<br><br>The string part of the enumeration value / string pair.   |
| Number of States       | Only visible if the <b>Type</b> value is <b>Status</b> and the <b>Parameter</b> value is <b>PV</b> or <b>OP</b> .<br><br>Specifies the number of states you want to configure for status points related to the selected parameter. Valid values for <b>PV</b> are <b>2</b> , <b>4</b> , and <b>8</b> . Valid values for <b>OP</b> are <b>2</b> and <b>4</b> . The default value is <b>2</b> . |
| State 0 - State 7      | The states for status points related to the selected parameter.   |
| <b>Visualization</b>   |   |
| Shape                  | Specifies a shape from the list of available shapes. For more information, see "Shape properties" on page 227.  |
| Display Element        | Specifies the name assigned to the shape instance that will be displayed in Station.  |
| Component              | From the list of components for the selected shape, select a component to be linked to the parameter.<br><br>Each shape is made up of components (a shape with a single   |

| Property   | Description  |
|--|--|
|  | component will have this blank).   |
| Label  | Specifies the text that will appear in Station to identify the display element.  |
| <b>Formatting</b> (Shape related properties, see "Shape properties" on page 227)           |  |
| <b>Behavior</b> (Shape related properties, see "Shape properties" on page 227)             |  |
| <b>Source</b> (Shape related properties, see "Shape properties" on page 227)               |  |
| <b>History</b> (Only visible if the <b>Type</b> value is <b>Analog</b> or <b>Status</b> .) |  |
| Enable Fast History  | Specifies whether the point parameter is assigned to fast history. The default value is <b>False</b> .   |
| Enable Extended History  | Specifies whether the point parameter is assigned to extended history. The default value is <b>False</b> .   |
| Enable Standard History  | Specifies whether the point parameter is assigned to standard history. The default value is <b>False</b> .   |
| <b>Properties</b>  |  |
| Period   | The interval, in seconds, the server scans the controller for the parameter values. The default value is <b>0</b> for no scanning. It can also be set to an Equipment Property value of the 2-byte Integer type. |
| Alarms   | Configure alarm type and priority for Analog parameters and alarm state priorities for Status parameters.  |
| Algorithm  | Configure PV algo associated with the point. Only <b>algo20</b> and <b>algo21</b> are supported.   |

## Equipment properties

The **Equipment Properties** tab displays all the equipment properties that have been defined within the template.

After clicking an equipment property from the **Equipment Properties** tab, you can configure the following property details in the Property Editor.

| Property                    | Description  |
|-----------------------------|--|
| <b>Equipment Properties</b> |  |
| Type                        | The data type for this equipment parameter. Valid values are: <ul style="list-style-type: none"> <li>• 2-byte Integer</li> <li>• 4-byte Integer</li> <li>• Floating-point number</li> <li>• Double-precision number</li> <li>• Character String</li> <li>• Variable String</li> <li>• Enumeration</li> </ul> |
| Name                        | The unique name of the equipment property.   |
| Description                 | Specifies the description to be used in Quick Builder for the equipment property.  |
| Category                    | Specifies the category that the equipment property will be grouped in when viewing in Quick Builder.   |
| <b>Data Source</b>          |  |
| Default Value               | Specifies the default value for this equipment property.   |
| Units                       | Specifies the units of measurement for this equipment property (optional).   |
| <b>Validation Rules</b>     |  |
| Range Minimum               | Only visible if the <b>Type</b> is Integer or number.<br>Specifies the lower bound of the range. The value entered here will be used by Quick Builder as the minimum value accepted for this equipment property.   |
| Range Maximum               | Only visible if the <b>Type</b> is Integer or number.<br>Specifies the upper bound of the range. The value entered here will be used by Quick Builder as the maximum value accepted for this equipment property.   |

| Property              | Description   |
|-----------------------|---|
| Length                | <p>Only visible if the <b>Type</b> value is <b>Character String</b> or <b>Variable String</b>.</p> <p>Specifies the maximum length for this equipment property used in Quick Builder.</p> <p>For <b>Character String</b> type, the maximum length is <b>256</b> characters. For <b>Variable String</b> types, the maximum string length is <b>8000</b> characters.</p>  |
| Class Name            | Enforce a type of item, for example, AnalogPoint, or Asset.   |
| Enumeration Name      | The name of the enumeration available within the template. Only visible if the <b>Type</b> value is <b>Enumeration</b> .  |
| <b>Visualization</b>  |   |
| Shape                 | Specifies a shape from the list of available shapes. For more information, see "Shape properties" on the next page.   |
| Display Element       | It is not configured by default for equipment properties. You can configure it by selecting a shape from the list or entering the name in the Display Element field.  |
| Component             | <p>From the list of components for the selected shape, select a component to be linked to the parameter.</p> <p>Each shape is made up of components (a shape with a single component will have this blank).</p>   |
| Label                 | Specifies the text that will appear in Station to identify the equipment property.  |
| <b>Download Flags</b> |   |
| Download Flags        | <p>Select any of the following point build flags to be used when downloading this equipment property to the server (optional).</p> <ul style="list-style-type: none"> <li>• <b>Unique</b> - Indicates whether the value for this equipment parameter should be unique across all instances of this parameter in Quick Builder.</li> <li>• <b>Auto-increment</b> - Indicates whether the default value for this equipment parameter will be automatically incremented for each item created in a bulk-build operation in Quick Builder.</li> <li>• <b>Optional</b> - Indicates whether this equipment parameter will be</li> </ul> |

| Property | Description  |
|----------|--|
|          | <p>optional (or mandatory) when creating equipment based on this template. If it is not selected (mandatory), the user needs to enter any mandatory values when instantiating the template.</p> <ul style="list-style-type: none"> <li>• <b>Constant Value</b> - Indicates whether this equipment parameter will be built as a <i>constant</i> on the server. Valid values are <b>True</b> and <b>False</b>.</li> <li>• <b>Read-Only</b> - Indicates whether the default value for this equipment parameter will be ready only in Quick Builder. Valid values are <b>True</b> and <b>False</b>.</li> </ul> |

### Shape properties

Depending on the shape selected from the **Shape** list in the **Visualization** tab, only the properties that associated with this shape will be shown in the tabs **Formatting**, **Behavior**, **Source**, and **Command**.

The following table lists all the shape-related properties.

| Property            | Description  |
|---------------------|--|
| <b>Formatting</b>   |  |
| Indicate Bad State  | If <b>True</b> , Station overrides the current color to indicate a bad value, such as a bad quality, OOS, or a lost value. The bad state color is defined in the station.ini file. The default value is <b>False</b> .         |
| Indicate Scan State | If <b>True</b> , Station overrides the current color with the system-defined color for 'off-scan'. The default value is <b>False</b> .   |
| Indicate NaN State  | If <b>True</b> , Station overrides the current color with the system-defined colors to indicate the bound data's NaN quality state. The NaN state color is defined in the station.ini file. The default value is <b>True</b> . |
| Show Milliseconds   | Specifies whether to include milliseconds for time or date-time presentation types.  |
| Duration Format     | Specifies the date time format for duration presentation type, for example, <b>D HH:MM:SS</b> .  |
| Date Format         | Specifies the date format for date and date-time presentation types, for example, <b>Short date</b> , <b>long date</b> .   |
| Time                | Specifies the time format, for example, <b>HH:MM:SS</b> .  |

| Property               | Description  |
|------------------------|--|
| Format                 |  |
| DateTime Format        | Select the format type to be displayed, for example, <b>Date format, Time format.</b>  |
| Numeric Display Format | Specifies the format of value for numeric or hexadecimal presentation types.   |
| Display Value for NaN  | Specifies the display value to show for values which are NaN.  |
| Conditional Text Color | Changes the text color based on the value. Can set ranges, for example, 0-2: green,3-5: blue; or integer values, for example, 1:blue. Can set to color names, or hex values. Can use the color palette to select a color for each range. |
| Help Summary           | Summary text for the faulthelp or alarmhelp shape.   |
| Help Details           | Detail text for the faulthelp or alarmhelp shape.  |
| Inverse Logic          | If it is set to <b>true</b> , <b>0</b> is used as the true value and everything else is false.<br>If it is set to <b>false</b> , <b>0</b> is used as the false value and everything else is true.  |
| State Mapping          | Maps values to the states for shapes. Multiple inputs should be entered in value pairs separated by the comma key. For example, 0:Good,1:Marginal.   |
| Fill Color             | Fill the color of the shape component, for example, the progress bar part of the Banner Value shape.   |
| Visible Range Origin   | Configures the fill starting point of the indicator.   |
| Visible Range Low      | Configures the lower bound of the indicator.   |
| Visible Range High     | Configures the upper bound of the indicator.   |

| Property                  | Description   |
|---------------------------|---|
| Icon                      | Indicates the path of an icon to be displayed. Station's search paths are used to locate the icon file on disk.   |
| Auto Scale Trend          | If enabled, causes the trend to scale to the range of the plot data automatically. This setting overrides any other range defined.  |
| Parameter Offset          | Sample offset for the right most sample in the trend. The larger the offset, the further back in history the first sample retrieved will be.  |
| Parameter Offset Count    | The number of samples to be shown for each plot.  |
| Parameter Offset Interval | The history interval for the retrieved data. Valid values are: <ul style="list-style-type: none"> <li>• 1 minute history (snapshot)</li> <li>• 6 minute history (average of H1M)</li> <li>• 1 hour history (average of H1M)</li> <li>• 8 hour history (average of H1M)</li> <li>• 24 hour history (average of H1M)</li> <li>• Fast history</li> <li>• 1 hour history (snapshot)</li> <li>• 8 hour history (snapshot)</li> <li>• 24 hour history (snapshot)</li> </ul> |
| Summary Card Label        | The label to show on the summary card.  |
| <b>Behavior</b>           |   |
| Enable Faceplate          | Indicates whether to invoke a faceplate for the associated point. The default value is <b>True</b> .  |
| Enable Parameter View     | Indicates whether to invoke a Parameter view for the associated point. The default value is <b>True</b> .   |
| Enable Popup              | Indicates whether to invoke a popup for the associated point, where you can specify the point's properties. The default value is <b>True</b> .  |
| Parameter                 | The name of the Parameter view that will be invoked if the value of   |

| Property           | Description  |
|--------------------|--|
| Linked View Name   | <b>Enable Parameter View</b> is True.  |
| Popup Display File | The name of the popup file that will be invoked if the value of <b>Enable Popup</b> is True.   |
| <b>Source</b>      |  |
| Security Level     | The security level required for a user to be able to edit the value of or control this display element. Valid values are <b>Read-Only, Operator, Supervisor, Engineer, Manager</b> . The default value is <b>Operator</b> .                      |
| Presentation Type  | The type of data to be presented. Affects how formatting attributes will be applied.   |
| Alarm Mode         | The mode to use for finding the alarm state. Values are <b>Aggregated</b> or <b>Local</b> . Aggregated is intended to be used on an alarm count representing the entire row. Local is intended to be used on an alarm count for a specific cell. |
| Include value      | Specifies whether the value is displayed for the shape.  |
| Include unit       | Specifies whether the units are displayed for the shape.   |
| Include alarm      | Specifies whether the alarms are displayed for the shape.  |
| Include range      | Specifies whether range minimum and range maximum are displayed for the shape.   |
| <b>Command</b>     |  |
| Action             | The action to use for this command. Valid values are <b>Navigate Internal, Navigate External, and Custom</b> .   |
| View               | The view to use for this command.  |
| Url                | The URL to use for this command.   |
| Custom Action      | The custom action to be executed for this command.   |
| Value              | The value to use for this command.   |



# BUILDING AND CONFIGURING EQUIPMENT

*Equipment* is the collective term used in Experion to represent a real world piece of equipment at a site, such as a well, pump, or generator. *Equipment Templates* are a quick and easy way to create equipment with a predefined set of associated items such as points and controllers.

This section outlines how to use Quick Builder to build and configure equipment.

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In this section:

|  |     |
|--|-----|
| <i>Building equipment</i> .....                                    | 233 |
| <i>Importing equipment templates to the Template Library</i> ..... | 234 |
| <i>Modifying equipment properties</i> .....                        | 235 |
| <i>Configuring equipment relationships</i> .....                   | 239 |
| <i>Assigning equipment to a different asset</i> .....              | 240 |
| <i>Deleting equipment</i> .....                                    | 240 |

# Building equipment

## To build new equipment

1. Use one of the following options to build a new piece of equipment:

| Option   | Result   |
|--|--|
| <p>From the Quick Builder <b>Library</b>, drag and drop an Equipment Template into the <b>List View</b>.</p> | <p>The new piece of equipment appears in the <b>List View</b>, and the properties tabs enable you to complete the configuration of the new equipment.</p>  |
| <p>Click  .</p>             | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Number of Items</b> field, type the number of equipment items you would like to create. This field defaults to <b>1</b>.</li> <li>2. From the <b>Item Family</b> list, select the applicable family. This field might be pre-populated depending on the context of any selection made prior to clicking the <b>Add Item</b> icon.</li> <li>3. From the <b>Item Type</b> list, select <b>Equipment</b>.</li> <li>4. In the <b>Name</b> text box, type in the name for this equipment, or you can accept the default provided.</li> </ol> <p>If you have chosen to create more than one equipment item, extra fields are provided where you can choose to add a prefix and/or suffix to the names generated for the equipment, therefore making them unique. The prefix and suffix values can be alphabetical or numeric.</p> <p>If the Equipment Template is configured to provide a default template name, this template derived value will override any text that you enter here.</p> |

| Option | Result   |
|--------|--|
|        | 5. Click <b>OK</b> to add the equipment to the list. |

2. Provide values for any properties without a default value that have been defined by the template as 'required'. These are indicated as mandatory fields.
3. Use the rest of the properties tabs to configure the equipment. Depending on what has been configured in the template for this equipment, many of the properties may be pre-populated, and a number of associated items will also be automatically generated. If, for some reason, the equipment cannot be created successfully a dialog will be displayed explaining of the error encountered. One example of this might be that the new equipment cannot create an associated item because the item's name clashes with an existing item that is already associated with another equipment item.

## Importing equipment templates to the Template Library

After creating or updating a template in the **Equipment Template Builder**, you need to import it into the Template Library in Quick Builder.

### Prerequisite

You have logged in to Configuration Studio with a security level of SUPV or higher.

To import a template into the Template Library:

1. From Configuration Studio, choose **Control Strategy > Equipment > Build Equipment** to launch Quick Builder.
2. From the toolbar, click  (Import) to open the **Select File to Import** dialog box.
3. Locate and select the template you want to import.

**NOTE:** A template includes an EQT file defining the various tabular / trend views in the template and a TYP file defining

In the **Equipment Summary** display, you need to import both of the files.

4. Click **OK**.

If any items will be updated when this template is imported, a dialog appears listing them.

5. Click **OK** to proceed with the template import.

If the template already exists in the library, it is overwritten by the imported template.

Any items impacted by this template are automatically updated with the template changes.

## Modifying equipment properties

Modifying equipment properties is the same as modifying properties for any other Quick Builder item.

1. Select an equipment item from the navigation pane or the List view.

2. Use the properties tabs to modify the equipment item. The properties tabs provided are specific to the equipment type and can contain tabs including **Details**, **Point References**, **Associated Items**, and **Relationships**.

Quick Builder validates the changes you have made according to the rules for the template used to create this equipment item, and highlights any changes that are invalid.

Depending on the equipment template's configuration, property changes are propagated to Point References and Associated items. Where a template rule uses an equipment's property value to control an associated item's parameter, that parameter will be overwritten every time the equipment parameter is modified. Usually as a result of the user modifying the equipment value, but also when the equipment item is imported, uploaded or pasted into Quick Builder.

3. When you have finished, you need to download the changes to the Experion server. Depending on the rules contained in the template for associated items, the changes will filter through to any associated items for this equipment item as appropriate.

## Details for an Equipment item

The Details properties tab contains parameters that define basic details for the equipment. Anything that is controlled by the Equipment Template will be predefined and cannot be changed.

| Property  | Description   |
|---|---|
| Name  | The name of this equipment item.  |
| Description   | A short description of the equipment item.  |
| Associated asset  | The asset to which this equipment item is assigned. Select the <b>Browse</b> button to display the <b>Asset Browser</b> , from where you can select an asset. |
| Template  | The Equipment template on which this equipment is based.  |
| <b>Equipment properties</b>   |   |
| Template defined properties specific to equipment built from that template. |   |
| Label   | The text that will appear in Quick Builder to identify the equipment property.  |
| Name  | The name for this equipment item, as defined in the Equipment Template Builder.   |
| Value   | The value for this equipment item. If you change this value, it will be validated according to any rules imposed by the Equipment Template.                   |
| Units   | The units of measure for this equipment parameter (optional).   |

## Point references for an Equipment item

Point References enable a point's parameters to be available as equipment parameters. The Point References tab lists the equipment parameters created for this equipment which you can use to control the points through the equipment.

The referenced point can be any SCADA or CDA point on the same server as the equipment point, whether it has been created automatically as an associated item or was preexisting. Note that each SCADA or CDA point can only be referenced from a single equipment point. For example, a SCADA point referenced by a particular meter

equipment point cannot be referenced by another meter equipment point.

**TIP:** Note that the values on this tab are READONLY. They are defined by the template, and depending on the template configuration may be updated as a consequence of changing the value of equipment parameters in the **Details** tab.

| Property          | Description   |
|-------------------|---|
| Alias             | The name of the equipment parameter to hold the point reference.  |
| Point             | The name of the point being referenced.   |
| Alarm Aggregation | Indicates whether any alarms on this point should be aggregated to the equipment. Valid values are <b>True</b> and <b>False</b> . |

### Associated items for an Equipment item

The Associated Items tab lists the items that have been automatically generated for this equipment item. This can include items such as controllers and points. The following table lists the details shown for each associated item.

| Property    | Description  |
|-------------|--|
| ItemName    | The name of the associated item.   |
| Description | A description of the associated item, for example, <b>Flow meter 1</b> .   |
| Family      | A <i>grouping</i> used to categorize the associated items. For example, all Analog, Status and Accumulator points will appear under a Family of <i>Point</i> . |

### Relationships for an Equipment item

When creating Equipment Templates, you can define relationships to help make working with equipment much more efficient and effective.

A *relationship* between equipment items means that information is shared and can be accessed from any equipment item that is part of that defined relationship. This information can include:

- Alarm details – alarms can be aggregated to appear on the equipment detail displays of other equipment items.

- Key parameter values – from one equipment detail display you can view the real time values for key parameters of related equipment. You can also create scripted calculations enabling you to see things like averages and accumulations across your related equipment.

You can also navigate easily between related equipment by using the navigation aids provided in the header of the equipment detail display for any of the related equipment items.

The Relationships tab contains information about the template defined relationships between this equipment item and other equipment items.

| Property            | Description   |
|---------------------|---|
| Relationship        | A list of the defined relationship types that can be added to this equipment item (defined by the Equipment Template).  |
| Related Equipment   | A field where the item name of related equipment can be entered. The list contains equipment already configured in the Quick Builder database for the selected Relationship.  |
| Role “From”         | The first equipment in this relationship.   |
| Role “To”           | The second equipment in this relationship.  |
| Equipment Parameter | <p>Name of the equipment point's parameter used to store the relationship. The parameter value identifies the Related Equipment.</p> <p>For example if you define a <i>Pod</i> relationship with these values:</p> <ul style="list-style-type: none"> <li>• Well name is <b>Well001</b></li> <li>• Equipment Parameter is <b>POD</b></li> <li>• Related Equipment is <b>Pod001</b></li> </ul> <p>You can access the related Pod via Well001 using <b>Well001.POD</b>, which will have a value of <b>Pod001</b>.</p> |
| Alarm aggregation   | Defines whether the alarms should aggregate to or from the related equipment.   |
| Related Equipment   | The name of the equipment that you want to be listed as Related Equipment for this equipment item. The drop down list contains equipment contained in the database of the role defined in the Role “To” column. If the equipment you wish to create the relationship is   |

| Property | Description   |
|----------|---|
|          | not in the Quick Builder database it will not be listed and you will need to type its name in the field provided. |

## Configuring equipment relationships

The types of relationships that can be configured for an equipment item are defined in the equipment's template. The **Relationships** tab can be used to configure the equipment items for the selected equipment.

### To add equipment to a relationship

1. From the **List View**, select the equipment item for which you want to configure a relationship.
2. Select the **Relationships** tab.  
Listed are the relationship types that have been defined for this equipment.
3. For each relationship type, select the equipment you want to include in this relationship from the **Related Equipment** list. The list contains equipment already configured in the Quick Builder database that can be chosen for the selected Relationship.
4. To add extra relationships (for those relationship types that allow multiple relationships), use the Add Related Equipment fields provided at the top of the table.
  - a. Select the relationship type from the **Relationship** list.
  - b. Select the name of the equipment you want to include in this relationship from the **Related Equipment** list. The list contains equipment already configured in the Quick Builder database that can be chosen for the selected Relationship.
  - c. Click **Add**.  
The relationship is added to the table with the other relationships of this type.
5. Download your changes to the server to view the relationships in the **Related Equipment** table on the detail display for this equipment item.

## Assigning equipment to a different asset

You can move equipment items from one asset to another by using a standard drag and drop action. Associated items for that equipment item will also be updated automatically.

### To assign an equipment item to a different asset

1. In the navigation pane, select **All Items**.
2. Select the **Equipment** node.
3. In the **List View**, select the equipment item you want to assign to a different asset.
4. On the **Details** tab, click the Browse button next to the **Associated Asset** field to display the **Asset Browser**.
5. Select the **Asset** you wish to assign the equipment to, then click **OK**.  
The equipment is assigned to the new asset.

## Deleting equipment

Deleting equipment is the same as deleting any other Quick Builder items, but will also result in any sub-equipment or associated items being deleted.

### To delete equipment

1. From the **All Items** view in the Navigation pane, select the **Equipment** node.  
Defined equipment items are displayed in the **List View**.
2. Select the equipment item to be deleted.
3. Use one of the following methods to delete the equipment:
  - a. Press the Delete icon on the Toolbar.
  - b. From the menu bar, select **Edit > Delete**.
  - c. Right-click on the equipment item and click **Delete**.  
A confirmation dialog box is displayed, stating that the equipment item and any included sub-equipment will be deleted.
4. Click **OK** to proceed.  
The equipment item is moved to the **Recycle Bin**.



# BUILDING ELECTRONIC FLOW MEASUREMENT (EFM)

This section outlines how to build and manage *Electronic Flow Measurement* (EFM) components using Quick Builder.

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In this section:

|   |     |
|---|-----|
| <i>Building EFM meters</i> .....                          | 243 |
| <i>Managing EFM meter templates</i> .....                 | 247 |
| <i>Defining EFM CSV data export formats</i> .....         | 298 |
| <i>Defining the monthly export format</i> .....           | 301 |
| <i>Managing EFM schedules</i> .....                       | 302 |
| <i>Managing meters and meter templates</i> .....          | 304 |
| <i>Uploading EFM configurations from the server</i> ..... | 305 |
| <i>Exporting and importing EFM configurations</i> .....   | 306 |
| <i>Collecting and exporting EFM data</i> .....            | 306 |

## Building EFM meters

To build a new EFM meter, do one of the following:

| Option   | Result  |
|--|---|
| <ol style="list-style-type: none"> <li>1. Ensure that <b>List View</b> is displaying <b>EFM Meters</b>.<br/>If necessary, select <b>EFM Meters</b> from the Navigation pane.</li> <li>2. From the <b>EFM Meter</b> section within the <b>Library</b>, drag and drop the meter item into the <b>List View</b>.</li> </ol> | <p>The new meter appears in the <b>List View</b>, and the properties tabs enable you to complete the configuration of the new meter.</p>  |
| <p>Click .</p>  | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Number of items to Add</b> text box, type the number of meters you want to add.</li> <li>2. From the <b>Item Family</b> list, select <b>EFM Meter</b>.</li> <li>3. From the <b>Item Type</b> list, select <b>EFM Meter</b>.</li> <li>4. In the <b>Name</b> text box, type in the name for this meter, or you can accept the default provided. If you have chosen to create multiple meters, the <b>Multi – Items</b> section is enabled, and you can provide a prefix for all the meters, or you can accept the default provided. You can also indicate whether to use a sequential number or letter to differentiate between the meters.</li> <li>5. Click <b>OK</b> to add the meter(s) to the list.</li> </ol> |

Use the properties tabs to configure each meter by first highlighting it in the **List View**.

## To edit an EFM meter

1. Select **EFM Meters** from the Navigation pane.  
A list of meters appears in the **List View**, with the first meter selected.
2. Select the meter you want to edit.  
The meter appears in the **List View**, and the properties tabs enable you to edit the configuration of the meter.

## Main properties for an EFM meter

The **Main** tab defines the basic properties for a meter.

| Property       | Description   |
|----------------|---|
| Tagname        | The tag name of the meter. In most cases, the meter number is also used as the tag name. This text box is read-only.  |
| Meter Number   | The unique identifier of the meter.<br>Third-party flow analysis applications use the meter number to uniquely identify the meter.  |
| Description    | (Optional) A description of the meter. A maximum of 132 alphanumeric characters, including spaces.  |
| Meter Template | <p>The template to which this meter is linked. The meter template specifies which logs can be collected and defines data export definitions. Choosing a meter template updates the following read-only fields, which are configured in the meter template:</p> <ul style="list-style-type: none"> <li>• Flow Computer = The name of the flow computer.</li> <li>• Protocol = The communications protocol used.</li> <li>• Meter Type = The type of EFM meter used.</li> <li>• Run Number = The run number used. A controller or flow computer may be connected to multiple flow meters. Each of these connections is termed as a <i>run</i> and is identified by a run number.</li> <li>• Other Descriptions = Any other description about the meter template when it was built.</li> </ul> <p>If already selected, the controller type determines which meter templates appear in this list.</p> |

| Property         | Description  |
|------------------|--|
|                  | Click  to view or edit the meter template.  |
| Controller       | The name of the controller to which this meter is attached.<br><br>If already selected, the meter template determines which controllers appear in this list.   |
| Associated Asset | Defines scope of responsibility (SOR) access to the meter. If left blank, the meter will have the same SOR as its associated controller.<br><br>Click  to display the Asset Browser so that you can choose an associated asset. |
| Meter Location   | The physical location of this meter.   |
| Item Type        | The type of item specified when this meter was created. For example, <b>EFM Meter</b> .  |
| Last Modified    | The date and time the meter properties were last modified.   |
| Last Downloaded  | The date and time the meter was last downloaded to the server.   |

### Collection and export properties for an EFM meter

The **Collection and Export** tab defines the collection logs, export logs, and schedules for a meter.

| Property     | Description   |
|--------------|---|
| Collect data | The types of logs to collect for this meter. The available choices are defined on the meter template. <ul style="list-style-type: none"> <li>• Configuration (this log is always collected)</li> <li>• Configuration Record Log</li> <li>• Interval Log</li> <li>• Daily Log</li> <li>• Alarm and Event Log</li> <li>• Alarm Log</li> <li>• Event Log</li> <li>• Audit Log</li> </ul> |

| Property                                | Description  |
|---|--|
|   | <ul style="list-style-type: none"> <li>• Ultrasonic Log</li> <li>• Composition Log</li> <li>• Gas Quality Log</li> <li>• Liquid Batch Log</li> </ul> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>ATTENTION:</b> When collecting data from a Spirit IT Flow-X meter, only records from the last 31 days are collected. Records older than 31 days are not collected.</p> </div>   |
| Export Formats                          | <p>The types of file export formats. Each meter template associated with this meter can define up to three export formats.</p>   |
| Collection and Export Schedule          | <p>The full collection and export schedule assigned to this meter.</p> <p>A full collection and export schedule is mandatory.</p> <p>Select <b>Create new Schedule</b> from the <b>Schedule Type</b> list to create a new schedule.</p> <p>Enter the time of day in the <b>At</b> box you want the full collection and export to run.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>ATTENTION:</b> A maximum of 60 EFM log collections per channel per minute can be supported for each meter, so it is recommended that you spread collection time over an appropriate period.</p> <p>If your system needs to account for <i>Daylight Savings Time (DST)</i>, you might need to adjust the time of the <b>Daily Log</b> schedule by one hour for affected meters during <i>DST</i>. This is because some meters do not support <i>DST</i> and they will collect the Daily Log one hour earlier or later than required.</p> <p>During a system time change when clocks are put back, you might be required to disable EFM collection for that period for some EFM interfaces (for example, Spirit IT Flow-X).</p> </div> |
| Additional Interval Collection Schedule | <p>The additional collection schedule assigned to this meter.</p> <p>An interval collection is optional. Use it to help distribute the load of collection, such that the load on the Collection and Export Schedule is reduced.</p>  |

| Property | Description   |
|----------|---|
|          | Select <b>Create new Schedule</b> from the list to create a new schedule.           |
|          | Enter the time of day in the <b>At</b> box you want the interval collection to run. |

## Managing EFM meter templates

You can choose to build a new meter template or import and modify the sample EFM meter templates that ship with Experion. The sample EFM meter templates support the following meter types:

- ControlWave Flow Computer
- Bristol Babcock DPC 3330 Flow Computer
- NuFlo Cameron Scanner 2000, with and without expansion boards
- Spirit IT Flow-X Flow Computer
- Fisher ROC Flow Computer
- ABB TotalFlow Flow Computer
- ControlEdge RTU Flow Computer
- Omni Enhanced Flow Computer

### To import sample EFM meter templates

1. In Quick Builder, click **File>Import**.  
The **Select file to import** dialog box appears.
2. Navigate to `<data folder>\Honeywell\Experion PKS\client\user\efm`. Where `<data folder>` is the location where Experion data is stored.

For default installations, `<data folder>` is `C:\ProgramData`. The `C:\ProgramData` folder is a system folder, which means that it is only visible if you select the **Show hidden files, folders, and drives** option button in the **Folder Options** dialog box. To change this setting in Windows Explorer, click **Organize > Folder and search options**, and then click the **View** tab.

3. Select the appropriate EFM template for the interface you want (for example, `Sample_EFM_Items.efmdb.xml` for the Enron Modbus template), and then click OK.

Quick Builder imports the selected sample meter templates, including schedules, into the project.

The two sample EFM meter templates are titled **Sample Cam Scan** and **Sample Cam Scan Expansion Board**. The difference between the two templates is that the **Rollover** value in the Interval Log contains different values for scanners with and without expansion boards.

The schedules appear in the following table.

Sample Schedules

| Schedule name            | Period   | Retries | Interval between retries |
|--------------------------|----------|---------|--------------------------|
| Daily, 1 retry           | 1 Day    | 1       | 30 minutes               |
| Daily, 3 retries         | 1 Day    | 3       | 30 minutes               |
| Daily, 5 retries         | 1 Day    | 5       | 30 minutes               |
| Every 2 hours, 2 retries | 2 Hours  | 2       | 20 minutes               |
| Hourly, 1 retry          | 1 Hour   | 1       | 10 minutes               |
| Hourly, 2 retries        | 1 Hour   | 2       | 10 minutes               |
| Twice Daily, 3 retries   | 12 Hours | 3       | 30 minutes               |

**ATTENTION:** The same schedules are created for all meter templates.

4. Click OK to dismiss the **Results** dialog box.
5. Edit the sample meter templates and schedules as necessary.

**To build a new EFM meter template, do one of the following:**

| Option  | Result   |
|---|--|
| From the <b>EFM Meter Template</b> section within the <b>Library</b> , drag | The new meter template appears in the <b>List View</b> , and the properties tabs enable you to complete the configuration of the new meter template. |

| Option  | Result  |
|---|---|
| and drop the meter template item into the <b>List View</b> .                              |   |
| Click  . | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Number of items to Add</b> text box, type the number of meter templates you want to add.</li> <li>2. From the <b>Item Family</b> list, select <b>EFM Meter Template</b>.</li> <li>3. From the <b>Item Type</b> list, select <b>EFM Meter Template</b>.</li> <li>4. In the <b>Name</b> text box, type in the name for this meter template, or you can accept the default provided. If you have chosen to create multiple meter templates, the <b>Multi – Items</b> section is enabled, and you can provide a prefix for all the meter templates, or you can accept the default provided. You can also indicate whether to use a sequential number or letter to differentiate between the meter templates.</li> <li>5. Click <b>OK</b> to add the meter template(s) to the list.</li> </ol> |

Use the properties tabs to configure each meter template by first highlighting it in the **List View**.

**To edit an EFM meter template, do one of the following:**

| Option  | Result   |
|---|--|
| Select <b>EFM Meter Template</b> from the Navigation pane.  | <p>A list of meter templates appears in the <b>List View</b>, with the first meter template selected.</p> <ol style="list-style-type: none"> <li>1. Select the meter template you want to edit. The meter template appears in the <b>List View</b>, and the properties tabs enable you to edit the configuration of the meter template.</li> </ol> |
| From the <b>Main</b> tab of an EFM meter, click  next to the <b>Meter Template</b> list box. | <p>The <b>Edit EFM Meter Template</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. Edit the configuration properties on each of the tabs.</li> </ol>  |

| Option | Result  |
|--------|---|
|        | <p>2. Click <b>Apply</b> to save the changes.</p> <p>If the meter template you are changing is used by other meters, a message appears to that effect. Click <b>Continue</b> to save the changes, or click <b>Cancel</b> to cancel your changes.</p> <p>3. Click <b>Close</b> to close the <b>Edit EFM Meter Template</b> dialog box.</p> |

### Main properties for an EFM meter template

The **Main** tab defines the basic properties for an EFM meter template, including the enabling of meter logs.

| Property                 | Description  |
|--------------------------|--|
| Name                     | <p>The unique name of the meter template. A maximum of <b>40</b> alphanumeric characters (no spaces or double quotes).</p> <p>Once downloaded to the server, the meter template name cannot be changed.</p>  |
| Meter Family<br>Protocol | <p>The type of device that meters using this template will connect with.</p> <p>The <b>Protocol</b> box is read-only and updates depending on your selection in the <b>Meter Family</b> list.</p> <p>If the you change the selection in the <b>Meter Family</b> list, any address configurations that might exist on the <b>Configuration Log</b> tab might become invalid.</p>  |
| Flow<br>Computer         | <p>The type of flow computer to which the flow meter is connected.</p>   |
| Run Number               | <p>If the flow computer supports multiple runs, the run number to which the meter is connected. Each run number must have its own meter template.</p> <p>Run number is also known as <i>tube number</i>.</p> <p>For ABB TotalFlow meters, <b>Run Number</b> is a mandatory field and must contain a non-negative integer. The default value is <b>0</b>.</p> <p>For all other meter types, it is acceptable to leave this box blank.</p> |

| Property                        | Description   |
|---------------------------------|---|
| Gas or Liquid                   | Indicates the domain in which the meter will be used. Depending on your selection, the available logs and data export options will vary. The default value is <b>Gas</b> .  |
| Meter Type                      | The type of meter the that template is for. Select or type a meter type in the box.   |
| Other Descriptions              | The description of the meter template. Maximum of <b>250</b> characters.  |
| Meter Date Format               | <b>Omni Enhanced controllers only</b><br>Specifies the date format for the meter. Values can be either <b>DDMMYY</b> or <b>MMDDYY</b> . The default value is <b>MMDDYY</b> .  |
| Enable Configuration Record Log | Select the check box to enable configuration record log collection. When selected, the <b>Configuration Record Log</b> tab appears.<br><br>See the controller's interface reference guide for the <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> values specific to that controller and flow computer.<br><br>The <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> options appear depending on the type of device selected in the <b>Meter Family</b> list. |
| Enable Interval Log             | Select the check box to enable interval log collection. When selected, the <b>Interval Log</b> tab appears.<br><br>See the controller's interface reference guide for the <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> values specific to that controller and flow computer.<br><br>The <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> options appear depending on the type of device selected in the <b>Meter Family</b> list.                         |
| Enable Daily Log                | Select the check box to enable daily log collection. When selected, the <b>Daily Log</b> tab appears.<br><br>See the controller's interface reference guide for the <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> values specific to that controller and flow computer.<br><br>The <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> options appear depending on the type of device selected in the <b>Meter Family</b>                                     |

| Property                   | Description  |
|----------------------------|--|
|                            | list.  |
| Enable Audit Log           | <p><b>Omni Enhanced controllers only.</b></p> <p>Select the check box to enable audit logging. When selected, the <b>Audit Log</b> tab appears.</p> <p>See the controller's interface reference guide for the <b>Register</b> and <b>Pointer</b> values specific to that controller and flow computer.</p>   |
| Enable Alarm and Event Log | <p><b>Not applicable for Fisher ROC controllers.</b></p> <p>Select the check box to enable alarm and event logging. When selected, the <b>Alarm and Event Log</b> tab appears.</p> <p>See the controller's interface reference guide for the <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> values specific to that controller and flow computer.</p> <p>The <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> options appear depending on the type of device selected in the <b>Meter Family</b> list.</p> |
| Enable Alarm Log           | <p><b>Fisher ROC controllers only.</b></p> <p>Select the check box to enable alarm and event logging.</p> <p>The <b>Rollover</b> option appears for a Fisher ROC meter.</p>  |
| Enable Event Log           | <p><b>Fisher ROC controllers only.</b></p> <p>Select the check box to enable alarm and event logging.</p> <p>The <b>Rollover</b> option appears for a Fisher ROC meter.</p>  |
| Enable Ultrasonic Log      | <p>Select the check box to enable ultrasonic logging. When selected, the <b>Ultrasonic Log</b> tab appears.</p> <p>See the controller's interface reference guide for the <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> values specific to that controller and flow computer.</p> <p>The <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> options appear depending on the type of device selected in the <b>Meter Family</b> list.</p>  |

| Property                       | Description   |
|--------------------------------|---|
| <p>Enable Composition Log</p>  | <p>Select the check box to enable composition logging. When selected, the <b>Composition Log</b> tab appears.</p> <p>See the controller's interface reference guide for the <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> values specific to that controller and flow computer.</p> <p>The <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> options appear depending on the type of device selected in the <b>Meter Family</b> list.</p>   |
| <p>Enable Gas Quality Log</p>  | <p>Select the check box to enable gas quality logging. When selected, the <b>Gas Quality Log</b> tab appears.</p> <p>See the controller's interface reference guide for the <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> values specific to that controller and flow computer.</p> <p>The <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> options appear depending on the type of device selected in the <b>Meter Family</b> list.</p>   |
| <p>Enable Liquid Batch Log</p> | <p>Select the check box to enable liquid batch logging. When selected, the <b>Liquid Batch Log</b> tab appears.</p> <p>See the controller's interface reference guide for the <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> values specific to that controller and flow computer.</p> <p>The <b>Archive, Type, Number, Register, Pointer,</b> and <b>Rollover</b> options appear depending on the type of device selected in the <b>Meter Family</b> list.</p> |
| <p>Item Type</p>               | <p>The type of library item specified when this item was created.</p>   |
| <p>Last Modified</p>           | <p>Shows the date of the most recent modification to this meter template.</p>   |
| <p>Last Downloaded</p>         | <p>The date on which the item was last downloaded to the server.</p>  |

## Configuration Log properties for an EFM meter template

**ATTENTION:** EFM configuration log collection requires dynamic scanning to be enabled on the meter's controller. If dynamic scanning is not enabled, an alarm will be raised when Experion attempts to collect EFM configuration logs. It is also recommended that you refer to the appropriate Interface Reference guide for your controller for any specific restrictions or guidelines for the log configuration.

The **Configuration Log** tab defines the configuration properties for an EFM meter template.

You create the configuration log by adding log entries to the list. Click **Add** and **Remove** to add or remove log entries.

| Property      | Description   |
|---------------|---|
| Property Name | <p>Lists the name of the property being collected.</p> <p>Select the property name from the list or type in the name. Because the name becomes a parameter on the meter point, the name must adhere to naming conventions. See the topic titled "Naming rules for points" in the <i>Server and Client Configuration Guide</i>.</p>  |
| Source        | <p>States from where the property value is sourced.</p> <ul style="list-style-type: none"> <li>• <i>Constant</i> = The property is a statically defined value</li> <li>• <i>Controller</i> = The property is collected from the controller</li> <li>• <i>Parameter</i> = The property is collected from a point parameter</li> </ul>  |
| Data Type     | <p>Applicable only when the <b>Source</b> value is <i>Constant</i> or <i>Controller</i>.</p> <ul style="list-style-type: none"> <li>• <i>UINT2</i> = 16-bit unsigned integer.</li> <li>• <i>UINT4</i> = 32-bit unsigned integer</li> <li>• <i>UINT8</i> = 64-bit unsigned integer.</li> <li>• <i>INT2</i> = 16-bit signed integer</li> <li>• <i>INT4</i> = 32-bit signed integer</li> <li>• <i>INT8</i> = 64-bit signed integer.</li> <li>• <i>REAL</i> = 32-bit floating point</li> <li>• <i>DBLE</i> = 64-bit floating point</li> <li>• <i>TEXT</i> = fixed-length ASCII character string. When selected, a Data</li> </ul> |

| Property           | Description  |
|--------------------|--|
|                    | Type Length field appears for you to specify the string length. This must be a positive integer.   |
| Expression         | The calculated expression of the chosen property if Data Type = <b>CALC</b> .  |
| Value or Reference | <p>When the <b>Source</b> value is:</p> <ul style="list-style-type: none"> <li>• <i>Constant</i>, the static constant value.</li> <li>• <i>Controller</i>, three text boxes appear. The first box defines the controller address location (using the syntax specific to the controller type), the second box defines the 0% range value, and the third box defines the 100% range value.</li> <li>• <i>Parameter</i>, the point parameter reference. The format for entry is &lt;point&gt;.&lt;parameter&gt;, where &lt;parameter&gt; can be a standard parameter, a multi-part parameter, or an array parameter.</li> </ul> |
| Unit               | The units of the chosen property. For example, when the property is a temperature, only temperature-related units appear in the list (for example, <i>degF</i> ).  |
| Comments           | Optional free text field.  |
| CFX v5 Gas         | <p>This column appears only when <i>FLOWCAL CFX v5 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Log can only map to CFX data points that can be included in the Meter Configuration section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>  |
| CFX v7 Gas         | <p>This column appears only when <i>FLOWCAL CFX v7 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Log can only map to CFX data points that can be included in either the Meter Configuration section, or the User Defined Attributes section, or the User Defined Characteristics section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For</p>                                 |

| Property      | Description   |
|---------------|---|
|               | <p>more information, see "Defining enumeration mappings for CFX" on page 286.</p>   |
| CFX v7 Liquid | <p>This column appears only when <i>FLOWCAL CFX v7 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Log can only map to CFX data points that can be included in the Periodic Flow Data History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>   |
| CFX v8 Gas    | <p>This column appears only when <i>FLOWCAL CFX v8 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Log can only map to CFX data points that can be included in either the Meter Configuration section, or the User Defined Attributes section, or the User Defined Characteristics section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>                                   |
| CFX v8 Liquid | <p>This column appears only when <i>FLOWCAL CFX v8 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Log can only map to CFX data points that can be included in either the Meter Configuration section, or the User Defined Attributes section, or the User Defined Characteristics section, or the Liquid Product section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| ProdView      | <p>This column appears only when <i>ProdView Export Format</i> is defined as an export format on the meter template's <b>Data Export</b> tab. The ProdView</p>  |

| Property | Description   |
|----------|---|
|          | <p>export format is compatible with the Peloton ProdView software.</p> <p>The ProdView field to which this log entry maps. Select a ProdView mapping or <b>&lt;No Mapping&gt;</b> for each property collected. The ProdView export files are collated on a daily basis, so there will be one entry exported for each record of the Daily Log.</p> |

### Interval Log properties for an EFM meter template

The **Interval Log** tab defines the interval log properties for an EFM meter template.

You create the interval log by adding log entries to the list.

**TIP:** It is also recommended that you refer to the appropriate Interface Reference guide for your controller for any specific restrictions or guidelines for the log configuration.

Click **Add** and **Remove** to add or remove log entries.

Click the **Up** and **Down** arrows to move selected rows in the list.

Click **Move to** to move a selected row to the line number specified in the text box next to the button.

| Property   | Description   |
|------------|---|
| Offset     | <p>Calculates the Bytes Offset the field is at using the data width of previous fields. This facilitates cross checking with the meter device user manual.</p> <p>Note that for a data type of <i>VARTEXT</i>, the Offset value cannot be calculated so may not be accurate.</p>  |
| Field Name | <p>Lists the name of the field being collected. The field can appear only once in the log.</p> <p>You can enter a field name if it does not appear in the list. However, this will affect mapping to FLOWCAL CFX data export fields. Note that after entering a name, you need to press the Esc key to avoid the name being overwritten by auto-select behavior.</p> <p>For Configuration Logs, the Date must be specified to collect the current time from the controller, or else the server time will be assumed</p> |

| Property  | Description   |
|-----------|---|
|           | <p>as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> <p>For Configuration Logs, the Date must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p>   |
| Data Type | <ul style="list-style-type: none"> <li>• BYTE = configurable length byte array data format. Can be used for 4-byte and 5-byte Bristol Babcock specific Julian timestamps, and for single BYTE fields.</li> <li>• CALC = calculated log field expression to reference other log field property names, delimited by curly braces "{name}." The calculation is similar to that as in PV Algo 20: Advanced Arithmetic. The references are restricted to properties only in the same log definition. You can also use CALC to include constant values in the exported logs. The result of the calculation is always stored as a Double Precision floating point, which can be converted to single precision in exports if required.</li> </ul> <p>All log types, except the Configuration Log, support the CALC data type.</p> <p>See the topics titled "Configuring CALC data types" and "PV Algo 20: Advanced Arithmetic" for more information.</p> <ul style="list-style-type: none"> <li>• UINT2 = 16-bit unsigned integer.</li> <li>• UINT4 = 32-bit unsigned integer</li> <li>• UINT8 = 64-bit unsigned integer.</li> <li>• INT2 = 16-bit signed integer</li> <li>• INT4 = 32-bit signed integer</li> <li>• INT8 = 64-bit signed integer.</li> <li>• REAL = 32-bit floating point</li> <li>• DBLE= 64-bit floating point</li> <li>• TEXT = fixed-length ASCII character string. When selected, a Data Type Length field appears for you to specify the string length. This must be a positive integer</li> <li>• VARTEXT = variable length, null terminated, ASCII character string in the log record. (<i>Flow-X only</i>)</li> </ul> |

| Property      | Description  |
|---------------|--|
| Expression    | The calculated expression of the chosen property if Data Type = <b>CALC</b> .  |
| Unit          | The units of the chosen property. For example, when the property is a temperature, only temperature-related units appear in the list (for example, <i>degF</i> ).  |
| Comments      | Optional free text field.  |
| CFX v5 Gas    | <p>This column appears only when <i>FLOWCAL CFX v5 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Interval Log can only map to CFX data points that can be included in the History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>                       |
| CFX v7 Gas    | <p>This column appears only when <i>FLOWCAL CFX v7 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Interval Log can only map to CFX data points that can be included in the Periodic Flow Data History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>    |
| CFX v7 Liquid | <p>This column appears only when <i>FLOWCAL CFX v7 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Interval Log can only map to CFX data points that can be included in the Periodic Flow Data History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| CFX v8        | This column appears only when <i>FLOWCAL CFX v8 Gas</i> is defined as an   |

| Property      | Description   |
|---------------|---|
| Gas           | <p>export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Interval Log can only map to CFX data points that can be included in the Periodic Flow Data History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>  |
| CFX v8 Liquid | <p>This column appears only when <i>FLOWCAL CFX v8 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Interval Log can only map to CFX data points that can be included in either the Periodic Flow Data History section, the Liquid Volume Percent section or the Liquid Mass Percent section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| ProdView      | <p>This column appears only when <i>ProdView Export Format</i> is defined as an export format on the meter template's <b>Data Export</b> tab. The ProdView export format is compatible with the Peloton ProdView software.</p> <p>The ProdView field to which this log entry maps. Select a ProdView mapping or <b>&lt;No Mapping&gt;</b> for each property collected. The ProdView export files are collated on a daily basis, so there will be one entry exported for each record of the Daily Log.</p>   |

## Daily Log properties for an EFM meter template

The **Daily Log** tab defines the daily log properties for an EFM meter template.

You create the daily log by adding log entries to the list.

**TIP:** It is also recommended that you refer to the appropriate Interface Reference guide for your controller for any specific restrictions or guidelines for the log configuration.

Click **Add** and **Remove** to add or remove log entries.

The order in which the log fields are defined must match the order defined in the physical flow computer. Click the **Up** and **Down** arrows to move selected rows in the list.

Click **Move to** to move a selected row to the line number specified in the text box next to the button.

| Property   | Description  |
|------------|--|
| Offset     | <p>Calculates the Bytes Offset the field is at using the data width of previous fields. This facilitates cross checking with the meter device user manual.</p> <p>Note that for a data type of <i>VARTEXT</i>, the Offset value cannot be calculated so may not be accurate.</p>   |
| Field Name | <p>Lists the name of the field being collected. The field can appear only once in the log.</p> <p>You can enter a field name if it does not appear in the list. However, this will affect mapping to FLOWCAL CFX data export fields.</p> <p>For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> <p>For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> |
| Data Type  | <ul style="list-style-type: none"> <li>• <i>BYTE</i> = configurable length byte array data format. Can be used for 4-byte and 5-byte Bristol Babcock specific Julian timestamps, and for single BYTE fields. When selected, a <b>Data Type Length</b> field appears for you to specify the string length. This must be a positive integer.</li> <li>• <i>CALC</i> = calculated log field expression to reference other log field property names, delimited by curly braces "{name}." The calculation is similar to that as in PV Algo 20: Advanced Arithmetic. The references are restricted to properties only in the same log definition. You can also use CALC to include constant values in the exported</li> </ul>  |

| Property   | Description   |
|------------|---|
|            | <p>logs. The result of the calculation is always stored as a Double Precision floating point, which can be converted to single precision in exports if required.</p> <p>All log types, except the Configuration Log, support the CALC data type.</p> <p>See the topics titled "Configuring CALC data types" and "PV Algo 20: Advanced Arithmetic" for more information.</p> <ul style="list-style-type: none"> <li>• <i>UINT2</i> = 16-bit unsigned integer.</li> <li>• <i>UINT4</i> = 32-bit unsigned integer</li> <li>• <i>UINT8</i> = 64-bit unsigned integer.</li> <li>• <i>INT2</i> = 16-bit signed integer</li> <li>• <i>INT4</i> = 32-bit signed integer</li> <li>• <i>INT8</i> = 64-bit signed integer.</li> <li>• <i>REAL</i> = 32-bit floating point</li> <li>• <i>DBLE</i> = 64-bit floating point</li> <li>• <i>TEXT</i> = fixed-length ASCII character string. When selected, a Data Type Length field appears for you to specify the string length. This must be a positive integer</li> <li>• <i>VARTEXT</i> = variable length, null terminated, ASCII character string in the log record. (<i>Flow-X</i> only)</li> </ul> |
| Expression | The calculated expression of the chosen property if Data Type = <b>CALC</b> .   |
| Unit       | The units of the chosen property. For example, when the property is a temperature, only temperature-related units appear in the list (for example, <i>degF</i> ).   |
| Comments   | Optional free text field.   |
| CFX v5 Gas | <p>This column appears only when <i>FLOWCAL CFX v5 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Daily Log can only map to CFX data points that can be included in the History section of the CFX file. However, if data is being output from the Interval Log, then Daily Log data is not output. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p>   |

| Property             | Description  |
|----------------------|--|
|                      | <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>   |
| <p>CFX v7 Gas</p>    | <p>This column appears only when <i>FLOWCAL CFX v7 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. If Interval Log is not in use, the Daily Log can map to CFX data points in the Periodic Flow Data History section, otherwise can map to data points in the Alternate Periodic Flow Data History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>    |
| <p>CFX v7 Liquid</p> | <p>This column appears only when <i>FLOWCAL CFX v7 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. If Interval Log is not in use, the Daily Log can map to CFX data points in the Periodic Flow Data History section, otherwise can map to data points in the Alternate Periodic Flow Data History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| <p>CFX v8 Gas</p>    | <p>This column appears only when <i>FLOWCAL CFX v8 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. If Interval Log is not in use, the Daily Log can map to CFX data points in the Periodic Flow Data History section, otherwise can map to data points in the Alternate Periodic Flow Data History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>    |
| <p>CFX v8 Liquid</p> | <p>This column appears only when <i>FLOWCAL CFX v8 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p>   |

| Property | Description   |
|----------|---|
|          | <p>The CFX data point to which this log entry maps. If Interval Log is not in use, the Daily Log can map to CFX data points in the Periodic Flow Data History section, the Liquid Volume Percent section or the Liquid Mass Percent section of the CFX file; otherwise it can map to data points in the Alternate Periodic Flow Data History section, the Liquid Volume Percent section, or the Liquid Mass Percent section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <div data-bbox="412 611 1373 793" style="border: 1px solid orange; padding: 5px;"> <p><b>ATTENTION:</b> The values in the Liquid Volume Percent section and the Liquid Mass Percent section are appended to the end of the Periodic Flow Data History section or the Alternate Periodic Flow Data History section.</p> </div> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| ProdView | <p>This column appears only when <i>ProdView Export Format</i> is defined as an export format on the meter template's <b>Data Export</b> tab. The ProdView export format is compatible with the Peloton ProdView software.</p> <p>The ProdView field to which this log entry maps. Select a ProdView mapping or <b>&lt;No Mapping&gt;</b> for each property collected. The ProdView export files are collated on a daily basis, so there will be one entry exported for each record of the Daily Log.</p>   |

## Alarm and Event properties for an EFM meter template

The **Alarm and Event** tab defines the alarm and event properties for an EFM meter template.

You create the Alarm and Event log by adding log entries to the list.

**TIP:** It is also recommended that you refer to the appropriate Interface Reference guide for your controller for any specific restrictions or guidelines for the log configuration.

Click **Add** and **Remove** to add or remove log entries.

Click the **Up** and **Down** arrows to move selected rows in the list.

Click **Move to** to move a selected row to the line number specified in the text box next to the button.

| Property   | Description   |
|------------|---|
| Offset     | <p>Not applicable for Bristol Babcock OpenBSI controllers and Spirit IT Flow Computers.</p> <p>Calculates the Bytes Offset the field is at using the data width of previous fields. This facilitates cross checking with the meter device user manual.</p> <p>Note that for a data type of <i>VARTEXT</i>, the Offset value cannot be calculated so may not be accurate.</p>  |
| Field Name | <p>Lists the name of the field being collected. The field can appear only once in the log.</p> <p>When you configure an <b>Address</b> field, a <b>Date</b> field, and a <b>Time</b> field, then any change events with an <b>Address/Location</b> that appears in the configuration log will trigger Experion to raise an event in the Experion Event Summary display.</p> <p>You can enter a field name if it does not appear in the list. However, this will affect mapping to FLOWCAL CFX data export fields.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>ATTENTION:</b> For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> <p>For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> </div> |
| Data Type  | <ul style="list-style-type: none"> <li>• <i>BYTE</i> = configurable length byte array data format. Can be used for 4-byte and 5-byte Bristol Babcock specific Julian timestamps, and for single <i>BYTE</i> fields.</li> <li>• <i>CALC</i> = calculated log field expression to reference other log field property names, delimited by curly braces "{name}." The calculation is similar to that as in PV Algo 20: Advanced Arithmetic. The references are restricted to properties only in the same log definition. You can also use <i>CALC</i> to include constant values in the exported</li> </ul>   |

| Property   | Description   |
|------------|---|
|            | <p>logs. The result of the calculation is always stored as a Double Precision floating point, which can be converted to single precision in exports if required.</p> <p>All log types, except the Configuration Log, support the CALC data type.</p> <p>See the topics titled "Configuring CALC data types" and "PV Algo 20: Advanced Arithmetic" for more information.</p> <ul style="list-style-type: none"> <li>• <i>UINT2</i> = 16-bit unsigned integer.</li> <li>• <i>UINT4</i> = 32-bit unsigned integer</li> <li>• <i>UINT8</i> = 64-bit unsigned integer.</li> <li>• <i>INT2</i> = 16-bit signed integer</li> <li>• <i>INT4</i> = 32-bit signed integer</li> <li>• <i>INT8</i> = 64-bit signed integer.</li> <li>• <i>REAL</i> = 32-bit floating point</li> <li>• <i>DBLE</i> = 64-bit floating point</li> <li>• <i>TEXT</i> = fixed-length ASCII character string. When selected, a Data Type Length field appears for you to specify the string length. This must be a positive integer</li> <li>• <i>VARTEXT</i> = variable length, null terminated, ASCII character string in the log record. (<i>Flow-X</i> only)</li> </ul> |
| Unit       | The units of the chosen property. For example, when the property is a temperature, only temperature-related units appear in the list (for example, <i>degF</i> ).   |
| Comments   | Optional free text field.   |
| CFX v5 Gas | <p>This column appears only when <i>FLOWCAL CFX v5 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>  |
| CFX v7     | This column appears only when <i>FLOWCAL CFX v7 Gas</i> is defined as an  |

| Property      | Description  |
|---------------|--|
| Gas           | <p>export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>  |
| CFX v7 Liquid | <p>This column appears only when <i>FLOWCAL CFX v7 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>                |
| CFX v8 Gas    | <p>This column appears only when <i>FLOWCAL CFX v8 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>                   |
| CFX v8 Liquid | <p>This column appears only when <i>FLOWCAL CFX v8 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>                |
| ProdView      | <p>This column appears only when <i>ProdView Export Format</i> is defined as an export format on the meter template's <b>Data Export</b> tab. The ProdView export format is compatible with the Peloton ProdView software.</p> <p>The ProdView field to which this log entry maps. Select a ProdView mapping or <b>&lt;No Mapping&gt;</b> for each property collected. The ProdView export files are collated on a daily basis, so there will be one entry</p> |

| Property | Description                                |
|----------|--|
|          | exported for each record of the Daily Log. |

### Configuration Record Log properties for an EFM meter template

The **Configuration Record Log** tab defines the configuration record log properties for an EFM meter template.

You create the Configuration Record log by adding log entries to the list.

**TIP:** It is also recommended that you refer to the appropriate Interface Reference guide for your controller for any specific restrictions or guidelines for the log configuration.

Click **Add** and **Remove** to add or remove log entries.

Click the **Up** and **Down** arrows to move selected rows in the list.

Click **Move to** to move a selected row to the line number specified in the text box next to the button.

**ATTENTION:** It is assumed that there is a single Configuration Record Log record for each Configuration Log record. The collection schedule for the Configuration Record Log must be at the same period as the Configuration Log. For example, if the Configuration Log collects data in daily periods as defined in the full collection schedule, the Configuration Record Log must also collect data in daily periods on the flow computer.

| Property   | Description  |
|------------|--|
| Offset     | <p>Calculates the Bytes Offset the field is at using the data width of previous fields. This facilitates cross checking with the meter device user manual.</p> <p>Note that for a data type of <i>VARTEXT</i>, the Offset value cannot be calculated so may not be accurate.</p> |
| Field Name | <p>Lists the name of the field being collected. The field can appear only once in the log.</p> <p>You can enter a field name if it does not appear in the list. However, this</p>  |

| Property         | Description   |
|------------------|---|
|                  | <p>will affect mapping to FLOWCAL CFX data export fields.</p> <div style="border: 1px solid orange; padding: 10px; margin: 10px 0;"> <p><b>ATTENTION:</b> For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> <p>For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> </div>   |
| <p>Data Type</p> | <ul style="list-style-type: none"> <li>• <i>BYTE</i> = configurable length byte array data format. Can be used for 4-byte and 5-byte Bristol Babcock specific Julian timestamps, and for single BYTE fields. When selected, a <b>Data Type Length</b> field appears for you to specify the string length. This must be a positive integer.</li> <li>• <i>CALC</i> = calculated log field expression to reference other log field property names, delimited by curly braces "{name}." The calculation is similar to that as in PV Algo 20: Advanced Arithmetic. The references are restricted to properties only in the same log definition. You can also use CALC to include constant values in the exported logs. The result of the calculation is always stored as a Double Precision floating point, which can be converted to single precision in exports if required.</li> </ul> <p>All log types, except the Configuration Log, support the CALC data type.</p> <p>See the topics titled "Configuring CALC data types" and "PV Algo 20: Advanced Arithmetic" for more information.</p> <ul style="list-style-type: none"> <li>• <i>UINT2</i> = 16-bit unsigned integer.</li> <li>• <i>UINT4</i> = 32-bit unsigned integer</li> <li>• <i>UINT8</i> = 64-bit unsigned integer.</li> <li>• <i>INT2</i> = 16-bit signed integer</li> <li>• <i>INT4</i> = 32-bit signed integer</li> </ul> |

| Property   | Description  |
|------------|--|
|            | <ul style="list-style-type: none"> <li>• <i>INT8</i> = 64-bit signed integer.</li> <li>• <i>REAL</i> = 32-bit floating point</li> <li>• <i>DBLE</i> = 64-bit floating point</li> <li>• <i>TEXT</i> = fixed-length ASCII character string. When selected, a Data Type Length field appears for you to specify the string length. This must be a positive integer</li> <li>• <i>VARTEXT</i> = variable length, null terminated, ASCII character string in the log record. (<i>Flow-X</i> only)</li> </ul>  |
| Expression | The calculated expression of the chosen property if Data Type = <b>CALC</b> .  |
| Unit       | The units of the chosen property. For example, when the property is a temperature, only temperature-related units appear in the list (for example, <i>degF</i> ).  |
| Comments   | Optional free text field.  |
| CFX v5 Gas | <p>This column appears only when <i>FLOWCAL CFX v5 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Record Log can only map to CFX data points that can be included in the Meter Configuration section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>   |
| CFX v7 Gas | <p>This column appears only when <i>FLOWCAL CFX v7 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Record Log can only map to CFX data points that can be included in either the Meter Configuration section, or the User Defined Attributes section, or the User Defined Characteristics section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| CFX v7     | This column appears only when <i>FLOWCAL CFX v7 Liquid</i> is defined as   |

| Property      | Description  |
|---------------|--|
| Liquid        | <p>an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Record Log can only map to CFX data points that can be included in either the Meter Configuration section, or the User Defined Attributes section, or the User Defined Characteristics section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>   |
| CFX v8 Gas    | <p>This column appears only when <i>FLOWCAL CFX v8 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Record Log can only map to CFX data points that can be included in either the Meter Configuration section, the User Defined Attributes section, or the User Defined Characteristics section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>                                |
| CFX v8 Liquid | <p>This column appears only when <i>FLOWCAL CFX v8 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Configuration Record Log can only map to CFX data points that can be included in either the Meter Configuration section, the User Defined Attributes section, the User Defined Characteristics section, or the Liquid Product section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| ProdView      | <p>This column appears only when <i>ProdView Export Format</i> is defined as an export format on the meter template's <b>Data Export</b> tab. The ProdView export format is compatible with the Peloton ProdView software.</p> <p>The ProdView field to which this log entry maps. Select a ProdView mapping or <b>&lt;No Mapping&gt;</b> for each property collected. The ProdView</p>  |

| Property | Description   |
|----------|---|
|          | export files are collated on a daily basis, so there will be one entry exported for each record of the Daily Log. |

### Ultrasonic Log properties for an EFM meter template

The **Ultrasonic Log** tab defines the ultrasonic properties for an EFM meter template.

You create the Ultrasonic log by adding log entries to the list.

**TIP:** It is also recommended that you refer to the appropriate Interface Reference guide for your controller for any specific restrictions or guidelines for the log configuration.

Click **Add** and **Remove** to add or remove log entries.

Click the **Up** and **Down** arrows to move selected rows in the list.

Click **Move to** to move a selected row to the line number specified in the text box next to the button.

| Property   | Description  |
|------------|--|
| Offset     | <p>Calculates the Bytes Offset the field is at using the data width of previous fields. This facilitates cross checking with the meter device user manual.</p> <p>Note that for a data type of <i>VARTEXT</i>, the Offset value cannot be calculated so may not be accurate.</p>   |
| Field Name | <p>Lists the name of the field being collected. The field can appear only once in the log.</p> <p>You can enter a field name if it does not appear in the list. However, this will affect mapping to FLOWCAL CFX data export fields.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>ATTENTION:</b> For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> <p>For Configuration Logs, the <i>Date</i> must be specified to collect the</p> </div> |

| Property  | Description  |
|-----------|--|
|           | <p>current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p>  |
| Data Type | <ul style="list-style-type: none"> <li>• <i>BYTE</i> = configurable length byte array data format. Can be used for 4-byte and 5-byte Bristol Babcock specific Julian timestamps, and for single <i>BYTE</i> fields. When selected, a <b>Data Type Length</b> field appears for you to specify the string length. This must be a positive integer.</li> <li>• <i>CALC</i> = calculated log field expression to reference other log field property names, delimited by curly braces "{name}." The calculation is similar to that as in PV Algo 20: Advanced Arithmetic. The references are restricted to properties only in the same log definition. You can also use <i>CALC</i> to include constant values in the exported logs. The result of the calculation is always stored as a Double Precision floating point, which can be converted to single precision in exports if required.</li> </ul> <p>All log types, except the Configuration Log, support the <i>CALC</i> data type.</p> <p>See the topics titled "Configuring <i>CALC</i> data types" and "PV Algo 20: Advanced Arithmetic" for more information.</p> <ul style="list-style-type: none"> <li>• <i>UINT2</i> = 16-bit unsigned integer.</li> <li>• <i>UINT4</i> = 32-bit unsigned integer</li> <li>• <i>UINT8</i> = 64-bit unsigned integer.</li> <li>• <i>INT2</i> = 16-bit signed integer</li> <li>• <i>INT4</i> = 32-bit signed integer</li> <li>• <i>INT8</i> = 64-bit signed integer.</li> <li>• <i>REAL</i> = 32-bit floating point</li> <li>• <i>DBLE</i> = 64-bit floating point</li> <li>• <i>TEXT</i> = fixed-length ASCII character string. When selected, a Data Type Length field appears for you to specify the string length. This must be a positive integer</li> <li>• <i>VARTEXT</i> = variable length, null terminated, ASCII character string in the log record. (<i>Flow-X only</i>)</li> </ul> |

| Property      | Description   |
|---------------|---|
| Expression    | The calculated expression of the chosen property if Data Type = <b>CALC</b> .   |
| Unit          | The units of the chosen property. For example, when the property is a temperature, only temperature-related units appear in the list (for example, <i>degF</i> ).   |
| Comments      | Optional free text field.   |
| CFX v5 Gas    | Not supported by this file format.  |
| CFX v7 Gas    | <p>This column appears only when <i>FLOWCAL CFX v7 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Ultrasonic Log can only map to CFX data points that can be included in the Ultrasonic Diagnostic History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>    |
| CFX v7 Liquid | <p>This column appears only when <i>FLOWCAL CFX v7 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Ultrasonic Log can only map to CFX data points that can be included in the Ultrasonic Diagnostic History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| CFX v8 Gas    | <p>This column appears only when <i>FLOWCAL CFX v8 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Ultrasonic Log can only map to CFX data points that can be included in the Ultrasonic Diagnostic History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For</p>   |

| Property      | Description   |
|---------------|---|
|               | more information, see "Defining enumeration mappings for CFX" on page 286.  |
| CFX v8 Liquid | <p>This column appears only when <i>FLOWCAL CFX v8 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Ultrasonic Log can only map to CFX data points that can be included in the Ultrasonic Diagnostic History section of the CFX file. Select <b>&lt;No Mapping&gt;</b> if the log entry does not map to a CFX data point.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| ProdView      | <p>This column appears only when <i>ProdView Export Format</i> is defined as an export format on the meter template's <b>Data Export</b> tab. The ProdView export format is compatible with the Peloton ProdView software.</p> <p>The ProdView field to which this log entry maps. Select a ProdView mapping or <b>&lt;No Mapping&gt;</b> for each property collected. The ProdView export files are collated on a daily basis, so there will be one entry exported for each record of the Daily Log.</p>   |

## Composition Log properties for an EFM meter template

The **Composition Log** tab defines the Composition properties for an EFM meter template.

You create the Composition log by adding log entries to the list.

**TIP:** It is also recommended that you refer to the appropriate Interface Reference guide for your controller for any specific restrictions or guidelines for the log configuration.

Click **Add** and **Remove** to add or remove log entries.

Click the **Up** and **Down** arrows to move selected rows in the list.

Click **Move to** to move a selected row to the line number specified in the text box next to the button.

| Property   | Description  |
|------------|--|
| Offset     | <p>Calculates the Bytes Offset the field is at using the data width of previous fields. This facilitates cross checking with the meter device user manual.</p> <p>Note that for a data type of <i>VARTEXT</i>, the Offset value cannot be calculated so may not be accurate.</p>   |
| Field Name | <p>Lists the name of the field being collected. The field can appear only once in the log.</p> <p>You can enter a field name if it does not appear in the list. However, this will affect mapping to FLOWCAL CFX data export fields.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>ATTENTION:</b> For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> <p>For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> </div> |
| Data Type  | <ul style="list-style-type: none"> <li>• <i>BYTE</i> = configurable length byte array data format. Can be used for 4-byte and 5-byte Bristol Babcock specific Julian timestamps, and for single <i>BYTE</i> fields. When selected, a <b>Data Type Length</b> field appears for you to specify the string length. This must be a positive integer.</li> <li>• <i>CALC</i> = calculated log field expression to reference other log field property names, delimited by curly braces "{name}." The calculation is similar to that as in PV Algo 20: Advanced Arithmetic. The references are restricted to properties only in the same log definition. You can also use <i>CALC</i> to include constant values in the exported logs. The result of the calculation is always stored as a Double Precision floating point, which can be converted to single precision in exports if required.</li> </ul> <p>All log types, except the Configuration Log, support the <i>CALC</i> data</p>   |

| Property   | Description   |
|------------|---|
|            | <p>type.</p> <p>See the topics titled "Configuring CALC data types" and "PV Algo 20: Advanced Arithmetic" for more information.</p> <ul style="list-style-type: none"> <li>• <i>UINT2</i> = 16-bit unsigned integer.</li> <li>• <i>UINT4</i> = 32-bit unsigned integer</li> <li>• <i>UINT8</i> = 64-bit unsigned integer.</li> <li>• <i>INT2</i> = 16-bit signed integer</li> <li>• <i>INT4</i> = 32-bit signed integer</li> <li>• <i>INT8</i> = 64-bit signed integer.</li> <li>• <i>REAL</i> = 32-bit floating point</li> <li>• <i>DBLE</i> = 64-bit floating point</li> <li>• <i>TEXT</i> = fixed-length ASCII character string. When selected, a Data Type Length field appears for you to specify the string length. This must be a positive integer</li> <li>• <i>VARTEXT</i> = variable length, null terminated, ASCII character string in the log record. (<i>Flow-X only</i>)</li> </ul> |
| Expression | The calculated expression of the chosen property if Data Type = <b>CALC</b> .   |
| Unit       | The units of the chosen property. For example, when the property is a temperature, only temperature-related units appear in the list (for example, <i>degF</i> ).   |
| Comments   | Optional free text field.   |
| CFX v5 Gas | Not supported by this file format.  |
| CFX v7 Gas | <p>This column appears only when <i>FLOWCAL CFX v7 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Composition Log can only map to CFX data points that can be included in the GQ Source output file.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>   |
| CFX v8 Gas | This column appears only when <i>FLOWCAL CFX v8 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.  |

| Property | Description   |
|----------|---|
|          | <p>The CFX data point to which this log entry maps. The Composition Log can only map to CFX data points that can be included in the GQ Source output file.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>   |
| ProdView | <p>This column appears only when <i>ProdView Export Format</i> is defined as an export format on the meter template's <b>Data Export</b> tab. The ProdView export format is compatible with the Peloton ProdView software.</p> <p>The ProdView field to which this log entry maps. Select a ProdView mapping or <b>&lt;No Mapping&gt;</b> for each property collected. The ProdView export files are collated on a daily basis, so there will be one entry exported for each record of the Daily Log.</p> |

### Gas Quality Log properties for an EFM meter template

The **Gas Quality Log** tab defines the Gas Quality properties for an EFM meter template.

You create the Gas Quality log by adding log entries to the list.

**TIP:** It is also recommended that you refer to the appropriate Interface Reference guide for your controller for any specific restrictions or guidelines for the log configuration.

Click **Add** and **Remove** to add or remove log entries.

Click the **Up** and **Down** arrows to move selected rows in the list.

Click **Move to** to move a selected row to the line number specified in the text box next to the button.

| Property | Description  |
|----------|--|
| Offset   | <p>Calculates the Bytes Offset the field is at using the data width of previous fields. This facilitates cross checking with the meter device user manual.</p> <p>Note that for a data type of <i>VARTEXT</i>, the Offset value cannot be calculated so may not be accurate.</p> |

| Property   | Description  |
|------------|--|
| Field Name | <p>Lists the name of the field being collected. The field can appear only once in the log.</p> <p>You can enter a field name if it does not appear in the list. However, this will affect mapping to FLOWCAL CFX data export fields.</p> <div style="border: 1px solid yellow; padding: 10px; margin-top: 10px;"> <p><b>ATTENTION:</b><br/>                     For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.<br/>                     For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> </div>  |
| Data Type  | <ul style="list-style-type: none"> <li>• <i>BYTE</i> = configurable length byte array data format. Can be used for 4-byte and 5-byte Bristol Babcock specific Julian timestamps, and for single BYTE fields. When selected, a <b>Data Type Length</b> field appears for you to specify the string length. This must be a positive integer.</li> <li>• <i>CALC</i> = calculated log field expression to reference other log field property names, delimited by curly braces "{name}." The calculation is similar to that as in PV Algo 20: Advanced Arithmetic. The references are restricted to properties only in the same log definition. You can also use CALC to include constant values in the exported logs. The result of the calculation is always stored as a Double Precision floating point, which can be converted to single precision in exports if required.</li> </ul> <p>All log types, except the Configuration Log, support the CALC data type.</p> <p>See the topics titled "Configuring CALC data types" and "PV Algo 20: Advanced Arithmetic" for more information.</p> <ul style="list-style-type: none"> <li>• <i>UINT2</i> = 16-bit unsigned integer.</li> <li>• <i>UINT4</i> = 32-bit unsigned integer</li> </ul> |

| Property   | Description  |
|------------|--|
|            | <ul style="list-style-type: none"> <li>• <i>UINT8</i> = 64-bit unsigned integer.</li> <li>• <i>INT2</i> = 16-bit signed integer</li> <li>• <i>INT4</i> = 32-bit signed integer</li> <li>• <i>INT8</i> = 64-bit signed integer.</li> <li>• <i>REAL</i> = 32-bit floating point</li> <li>• <i>DBLE</i> = 64-bit floating point</li> <li>• <i>TEXT</i> = fixed-length ASCII character string. When selected, a Data Type Length field appears for you to specify the string length. This must be a positive integer</li> <li>• <i>VARTEXT</i> = variable length, null terminated, ASCII character string in the log record. (<i>Flow-X only</i>)</li> </ul> |
| Expression | The calculated expression of the chosen property if Data Type = <b>CALC</b> .  |
| Unit       | The units of the chosen property. For example, when the property is a temperature, only temperature-related units appear in the list (for example, <i>degF</i> ).  |
| Comments   | Optional free text field.  |
| CFX v5 Gas | Not supported by this file format.   |
| CFX v7 Gas | <p>This column appears only when <i>FLOWCAL CFX v7 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Gas Quality Log can only map to CFX data points that can be included in the GQ Source output file, which is an auxiliary file to the CFX file.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>  |
| CFX v8 Gas | <p>This column appears only when <i>FLOWCAL CFX v8 Gas</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Gas Quality Log can only map to CFX data points that can be included in the GQ Source output file, which is an auxiliary file to the CFX file.</p> <p>Some data points require you to define enumeration mappings. For</p>   |

| Property | Description   |
|----------|---|
|          | more information, see "Defining enumeration mappings for CFX" on page 286.  |
| ProdView | <p>This column appears only when <i>ProdView Export Format</i> is defined as an export format on the meter template's <b>Data Export</b> tab. The ProdView export format is compatible with the Peloton ProdView software.</p> <p>The ProdView field to which this log entry maps. Select a ProdView mapping or <b>&lt;No Mapping&gt;</b> for each property collected. The ProdView export files are collated on a daily basis, so there will be one entry exported for each record of the Daily Log.</p> |

### Liquid Batch Log properties for an EFM meter template

The **Liquid Batch Log** tab defines the Liquid Batch properties for an EFM meter template.

You create the Liquid Batch log by adding log entries to the list.

**TIP:** It is also recommended that you refer to the appropriate Interface Reference guide for your controller for any specific restrictions or guidelines for the log configuration.

Click **Add** and **Remove** to add or remove log entries.

Click the **Up** and **Down** arrows to move selected rows in the list.

Click **Move to** to move a selected row to the line number specified in the text box next to the button.

| Property   | Description  |
|------------|--|
| Offset     | <p>Calculates the Bytes Offset the field is at using the data width of previous fields. This facilitates cross checking with the meter device user manual.</p> <p>Note that for a data type of <i>VARTEXT</i>, the Offset value cannot be calculated so may not be accurate.</p> |
| Field Name | <p>Lists the name of the field being collected. The field can appear only once in the log.</p> <p>You can enter a field name if it does not appear in the list. However, this will affect mapping to FLOWCAL CFX data export fields.</p>   |

| Property         | Description  |
|------------------|--|
|                  | <p><b>ATTENTION:</b><br/>           For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p> <p>For Configuration Logs, the <i>Date</i> must be specified to collect the current time from the controller, or else the server time will be assumed as the collection time for that log. This may introduce an offset between the Configuration Log and other log timestamps if the controller and server are in different time zones.</p>   |
| <p>Source</p>    | <p><i>Fisher ROC only</i></p> <p>Can be either:</p> <ul style="list-style-type: none"> <li>• <i>Log</i>, indicating that the sourced fields are the same as other logs in that they're collected from the latest batch information and stored as part of its history record; or,</li> <li>• <i>Controller</i>, indicating that the sourced fields are read from a register address or T:L:P location for each log record that is collected. The register address used may be indexed by a field value in the log record that was collected.</li> </ul> <p>For example, to collect the product name for the product identified in the log record, you may configure a <b>Controller</b> field with field name <b>Product Name</b> and reference the address as <i>201:X:0 AC20 STRING20</i>.</p> <p>The X indicates that the Logical point number will be indexed by the <b>Product Index</b> field defined in the log record configuration.</p> <p>Refer to the sample meter template for additional examples.</p> |
| <p>Data Type</p> | <ul style="list-style-type: none"> <li>• <i>BYTE</i> = configurable length byte array data format. Can be used for 4-byte and 5-byte Bristol Babcock specific Julian timestamps, and for single BYTE fields. When selected, a <b>Data Type Length</b> field appears for you to specify the string length. This must be a positive integer.</li> </ul>  |

| Property   | Description  |
|------------|--|
|            | <ul style="list-style-type: none"> <li>• <i>CALC</i> = calculated log field expression to reference other log field property names, delimited by curly braces "{name}." The calculation is similar to that as in PV Algo 20: Advanced Arithmetic. The references are restricted to properties only in the same log definition. You can also use <i>CALC</i> to include constant values in the exported logs. The result of the calculation is always stored as a Double Precision floating point, which can be converted to single precision in exports if required.</li> </ul> <p>All log types, except the Configuration Log, support the <i>CALC</i> data type.</p> <p>See the topics titled "Configuring <i>CALC</i> data types" and "PV Algo 20: Advanced Arithmetic" for more information.</p> <ul style="list-style-type: none"> <li>• <i>UINT2</i> = 16-bit unsigned integer.</li> <li>• <i>UINT4</i> = 32-bit unsigned integer</li> <li>• <i>UINT8</i> = 64-bit unsigned integer.</li> <li>• <i>INT2</i> = 16-bit signed integer</li> <li>• <i>INT4</i> = 32-bit signed integer</li> <li>• <i>INT8</i> = 64-bit signed integer.</li> <li>• <i>REAL</i> = 32-bit floating point</li> <li>• <i>DBLE</i> = 64-bit floating point</li> <li>• <i>TEXT</i> = fixed-length ASCII character string. When selected, a Data Type Length field appears for you to specify the string length. This must be a positive integer</li> <li>• <i>VARTEXT</i> = variable length, null terminated, ASCII character string in the log record. (<i>Flow-X only</i>)</li> </ul> |
| Expression | The calculated expression of the chosen property if Data Type = <b>CALC</b> .  |
| Definition | <p>Valid when <b>Source</b> is <i>Controller</i>.</p> <p>Contains address details for the controller. For more information, see the <i>Fisher ROC Interface Reference</i>.</p>   |
| Unit       | The units of the chosen property. For example, when the property is a temperature, only temperature-related units appear in the list (for example, <i>degF</i> ).  |
| Comments   | Optional free text field.  |
| CFX v7     | This column appears only when <i>FLOWCAL CFX v7 Liquid</i> is defined as   |

| Property      | Description  |
|---------------|--|
| Liquid        | <p>an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Liquid Batch Log can only map to CFX data points that can be included in the Batch Report section or the Custom Batch Data section of the CFX file.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p>   |
| CFX v8 Liquid | <p>This column appears only when <i>FLOWCAL CFX v8 Liquid</i> is defined as an export format on the meter template's <b>Data Export</b> tab.</p> <p>The CFX data point to which this log entry maps. The Liquid Batch Log can only map to CFX data points that can be included in the Liquid Batch Report section, the Liquid Custom Batch Data section, the Liquid Volume Percent section, or the Liquid Mass Percent section of the CFX file.</p> <p>Some data points require you to define enumeration mappings. For more information, see "Defining enumeration mappings for CFX" on page 286.</p> |
| ProdView      | <p>This column appears only when <i>ProdView Export Format</i> is defined as an export format on the meter template's <b>Data Export</b> tab. The ProdView export format is compatible with the Peloton ProdView software.</p> <p>The ProdView field to which this log entry maps. Select a ProdView mapping or <b>&lt;No Mapping&gt;</b> for each property collected. The ProdView export files are collated on a daily basis, so there will be one entry exported for each record of the Daily Log.</p>  |

## Data Export properties for an EFM meter template

The **Data Export** tab defines the export file format(s) for an EFM meter template.

### To add a new data export format:

1. Click  to display the popup menu, and then select an existing data export format or select **Create new CSV Export Format** to create a new data export format. You can add up to three data export formats, after which time this button disappears.

2. In the **Name** text box, type the name for this EFM CSV export format.
3. Select the **Include Field names in header** check box to include a header row in the CSV file.
4. In the **Description** text box, type in a description for this EFM CSV export format.
5. Click  next to **Configuration** to expand the list, and then select the check boxes next to the items you want to include in the CSV file. Use the following tools to help you search and organize items in the list.
  -  Searches for items that match the text you enter in the text box.
  -  Moves the selected row(s) to the top of the list.
  -  Moves the selected row(s) to up one row in the list.
  -  Moves the selected row(s) to the end of the list.
6. Repeat step 5 for the Interval Log, Daily Log, Alarm and Event Log, Ultrasonic Log, Composition Log, Gas Quality Log, Configuration Record Log, Audit Log and Liquid Batch Log lists.
7. Click **Create** to add the EFM CSV export format to the list.

## To remove a data export format

Click  next to the data export format to remove it.

## To edit a CSV data export format

1. If the data export format can be edited, click  to edit it. The **Edit EFM CSV Export Format** dialog appears.
2. In the **Name** text box, type in the name for this EFM CSV export format.
3. Select the **Include Field names in header** check box to include a header row in the CSV file.
4. In the **Description** text box, type in a description for this EFM CSV export format.
5. Click  next to **Configuration** to expand the list, and then select the check boxes next to the items you want to include in the CSV file.
6. Use the following tools to help you search and organize items in

the list.

-  Searches for items that match the text you enter in the text box.
  -  Moves the selected row(s) to the top of the list.
  -  Moves the selected row(s) to up one row in the list.
  -  Moves the selected row(s) to the end of the list.
7. Repeat step 5 for the Interval Log, Daily Log, Alarm and Event Log, Ultrasonic Log, Composition Log, Gas Quality Log, Configuration Record Log, Audit Log, and Liquid Batch Log lists.
  8. Click **Apply** to update the EFM CSV export format.
  9. Click **Close** to close the **Edit EFM CSV Export Format** dialog.

## Defining enumeration mappings for CFX

Some CFX data points are enumerated types. If the enumerations used by the flow computer differ from those used by CFX format, you need to define enumeration mappings. For example, **Meter Tap Type** is expressed as one ASCII character with the following enumeration defined:

- F = Flange
- P = Pipe

However, these values might be enumerated differently by the flow computer. For example, *NuFlo Cameron Scanner 2000 MicroEFM Flow Computer controllers* use the following enumeration for **Meter Tap Type**:

- 0 = Flange
- 1 = Corner
- 2 = D and D/2

In this situation, you need to define enumeration mappings so that CFX can interpret these data points correctly. When enumeration mapping is required for a data point,  appears in the **CFX 5**, **CFX 7**, and/or **CFX 8** columns on the **Configuration Log** tab, the **Interval Log** tab, the **Daily Log** tab, and the **Alarm and Event Log** tab.

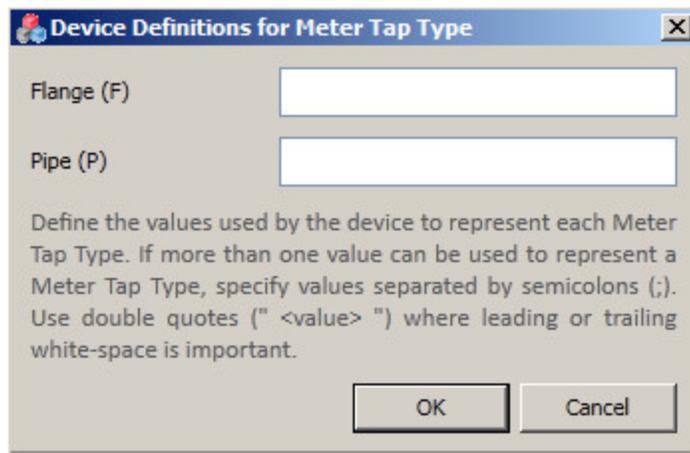
## Prerequisites

- FLOWCAL CFX v5 Gas, FLOWCAL CFX v7 Gas, and/or FLOWCAL CFX v8 Gas is defined as an export format on the meter template's Data Export tab.

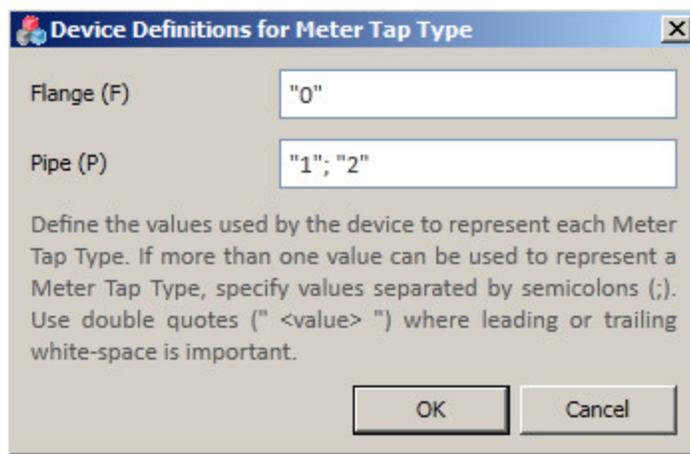
## To define an enumeration mapping for CFX

1. Click , which is located in the CFX 5, CFX 7, and/or CFX 8 columns for the row of the applicable data point.

The **Device Definitions for <Data Point>** dialog appears for the applicable data point. The fields on this dialog change according to the data point being defined. The following example shows the dialog for the **Meter Tap Type** data point.



2. Enter the appropriate values in each field, and then click OK.



3. Repeat as necessary for other data points.

## CFX enumeration mappings

This topic lists CFX data points that, if you are collecting them, might require you to map enumerations. See the topic titled "Defining enumeration mappings for CFX" for more information.

### CFX 5 data points

| Data point                          |
|-------------------------------------|
| BTU Base                            |
| Calculation Method                  |
| Chart or EFM Indicator              |
| Data Resolution                     |
| Extensions Used                     |
| Factor FWS                          |
| Factors – FA                        |
| Factors – FB                        |
| Factors – FG                        |
| Factors – FPV                       |
| Factors – FR                        |
| Factors – FT                        |
| Factors – FWV                       |
| Factors – Y                         |
| Fitting Type                        |
| Flowing Pressure Correction Enabled |
| FPV Method                          |
| Has Default Temperature             |
| Has RTD                             |

| Data point                        |
|-----------------------------------|
| Hourly Record Span                |
| Live Input – Analyses             |
| Live Input – Energy/heating Value |
| Live Input – Gravity              |
| Live Input – Temperature          |
| Meter Factor/K Factor Curve Type  |
| Meter Tap Type                    |
| Meter Type                        |
| Pipe Material                     |
| Plate Material                    |
| Power Source                      |
| Pressure Compensated              |
| Sample Type                       |
| Static Pressure Tap Location      |
| Static Pressure Type              |
| Temperature Compensated           |
| Unit for Atmospheric Pressure     |
| Unit for Corrected Volume         |
| Unit for Differential Pressure    |
| Unit for Energy                   |
| Unit for Extension                |
| Unit for Heating Value            |
| Unit for Liquid Mass              |

| Data point                            |
|---------------------------------------|
| Unit for Mass Heating Value           |
| Unit for Mass K Factor                |
| Unit for Orifice/Cone Diameter        |
| Unit for Orifice/Cone Ref Temperature |
| Unit for Pipe Diameter                |
| Unit for Pipe Length                  |
| Unit for Pipe Ref Temperature         |
| Unit for Pressure Base                |
| Unit for Raw Volume                   |
| Unit for Static Pressure              |
| Unit for Temperature                  |
| Unit for Temperature Base             |
| Unit for Uncorrected Volume           |
| Unit for Viscosity                    |
| Unit for Volume K Factor              |
| Use RTD                               |

### CFX 7 data points

| Data point             |
|------------------------|
| Alternate Data Span    |
| Calculation Method     |
| Chart or EFM Indicator |
| Data Resolution        |

| Data point                             |
|--|
| Data Span                              |
| EFM Heating Value Saturation Condition |
| Expansion Factor Method                |
| Extension Definition                   |
| Factor FWS in use                      |
| Factor FWV in use                      |
| Factors – FA                           |
| Factors – FB                           |
| Factors – FG                           |
| Factors – FPV                          |
| Factors – FR                           |
| Factors – FT                           |
| Factors – Y                            |
| Fitting Type                           |
| Flowing Pressure Correction Enabled    |
| FPV Method                             |
| Has Default Temperature                |
| Has RTD                                |
| Live Input – Analysis                  |
| Live Input – Energy/Heating Value      |
| Live Input – Gravity                   |
| Live input – Temperature               |
| Meter Factor Usage                     |

| Data point                       |
|----------------------------------|
| Meter Factor/K Factor Curve Type |
| Meter Tap Type                   |
| Meter Type                       |
| Pipe Material                    |
| Plate/Cone Material              |
| Power Source                     |
| Pressure Compensated             |
| Sample Type                      |
| Static Pressure Average          |
| Static Pressure Measurement      |
| Static Pressure Tap Location     |
| Temperature Compensated          |
| Unit for Atmospheric Pressure    |
| Unit for Corrected Volume        |
| Unit for Differential Pressure   |
| Unit for Energy                  |
| Unit for Gas Equivalent Energy   |
| Unit for Gas Equivalent Volume   |
| Unit for Gross Standard Volume   |
| Unit for Gross Volume            |
| Unit for Heating Value           |
| Unit for Indicated Volume        |
| Unit for Mass                    |

| Data point                            |
|---------------------------------------|
| Unit for Mass Heating Value           |
| Unit for Mass K Factor                |
| Unit for Measured Volume              |
| Unit for Net Standard Volume          |
| Unit for Observed Density             |
| Unit for Orifice/Cone Diameter        |
| Unit for Orifice/Cone Ref Temperature |
| Unit for Pipe Diameter                |
| Unit for Pipe Length                  |
| Unit for Pipe Ref Temperature         |
| Unit for Pressure Base                |
| Unit for Raw Volume                   |
| Unit for Static Pressure              |
| Unit for Temperature                  |
| Unit for Temperature Base             |
| Unit for Uncorrected Volume           |
| Unit for Viscosity                    |
| Unit for Volume K Factor              |
| Use RTD                               |

### CFX 8 data points

| Data point          |
|---------------------|
| Alternate Data Span |
| Calculation Method  |

| Data point                                |
|---|
| Chart or EFM Indicator                    |
| Data Resolution                           |
| Data Span                                 |
| EFM Heating Value Saturation Condition    |
| EFM Relative Density Saturation Condition |
| Extension Definition                      |
| Factor FWS in use                         |
| Factor FWV in use                         |
| Factors – FA                              |
| Factors – FB                              |
| Factors – FG                              |
| Factors – FPV                             |
| Factors – FR                              |
| Factors – FT                              |
| Factors – Y                               |
| Fitting Type                              |
| Flowing Pressure Correction Enabled       |
| Has Default Temperature                   |
| Has RTD                                   |
| Live Input – Analysis                     |
| Live Input – Energy/Heating Value         |
| Live Input – Gravity                      |
| Live input – Temperature                  |

| Data point                       |
|----------------------------------|
| Meter Factor Usage               |
| Meter Factor/K Factor Curve Type |
| Meter Tap Type                   |
| Meter Type                       |
| Pipe Material                    |
| Plate/Cone Material              |
| Power Source                     |
| Pressure Compensated             |
| Sample Type                      |
| Static Pressure Average          |
| Static Pressure Measurement      |
| Static Pressure Tap Location     |
| Temperature Compensated          |
| Unit for Actual Volume           |
| Unit for Atmospheric Pressure    |
| Unit for Corrected Volume        |
| Unit for Differential Pressure   |
| Unit for Energy                  |
| Unit for Gas Equivalent Energy   |
| Unit for Gas Equivalent Volume   |
| Unit for Gross Standard Volume   |
| Unit for Gross Volume            |
| Unit for Heating Value           |

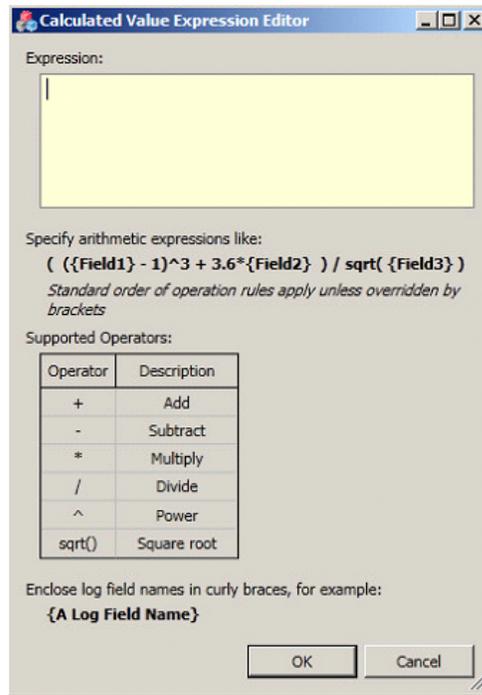
| Data point                            |
|---------------------------------------|
| Unit for Indicated Volume             |
| Unit for Mass                         |
| Unit for Mass Heating Value           |
| Unit for Mass K Factor                |
| Unit for Measured Volume              |
| Unit for Net Standard Volume          |
| Unit for Observed Density             |
| Unit for Orifice/Cone Diameter        |
| Unit for Orifice/Cone Ref Temperature |
| Unit for Pipe Diameter                |
| Unit for Pipe Length                  |
| Unit for Pipe Ref Temperature         |
| Unit for Pressure Base                |
| Unit for Raw Volume                   |
| Unit for Standard Volume              |
| Unit for Static Pressure              |
| Unit for Temperature                  |
| Unit for Temperature Base             |
| Unit for Uncorrected Volume           |
| Unit for Viscosity                    |
| Unit for Volume K Factor              |
| Use RTD                               |
| Z Method                              |

## Configuring CALC data types

The **Calculated Value Expression Editor** is where you create arithmetic calculated field values of multiple input log properties. The calculation is similar to that as in *PV Algo 20: Advanced Arithmetic*.

You can perform calculations on all meter template logs except for the Configuration Log.

Figure 9-1: Calculated Value Expression Editor



The calculated log field expression can reference other log field names, delimited by curly braces { }. The referenced log field expression can also include other CALC log field names, provided they appear higher in the list. However, you can reference only those properties in the same log. For example, if you are creating a calculation in the Daily log, you can create an expression with field names in the Daily log; you cannot reference a field name in the Gas Quality log.

## To configure a CALC data type

1. In the row of an applicable field name in a meter template log, select **CALC** as the **Data Type**.

An ellipses  appears in the Expression column to the right of **CALC**.

2. Click the ellipses .

The **Calculated Value Expression Editor** appears.

3. Type a calculation expression in the **Expression** box.

Enclose field names with curly braces ({}). For example:

`{Field1} - 1)^3 + 3.6*{Field2} ) / sqrt( {Field3}`

where **Field1**, **Field2**, and **Field3** are field names.

Maximum 1,000 characters.

Arithmetic Operators are:

- + (Plus sign) Add
- - (Minus sign) Subtract
- \* (Asterisk) Multiply
- / (Slash mark) Divide
- ^ (Caret) Power
- `sqrt()` Square root

4. Click OK to close the **Calculated Value Expression Editor**.

The result of the calculation is stored in the field.

If you export CALC data to CSV files, see the topic titled "About exporting results of Floating Point data to CSV files" for more information.

## Defining EFM CSV data export formats

EFM CSV data export formats are associated with EFM meter templates, which in turn are associated with EFM meters. They contain configuration settings for exporting EFM data from Experion to third-party billing systems for processing.

**To define a new EFM CSV data export format, do one of the following:**

| Option                   | Result   |
|--------------------------|--|
| From the <b>EFM Data</b> | The new EFM data export format appears in the <b>List View</b> . Use |

| Option   | Result  |
|--|---|
| <p><b>Export Format</b> section within the <b>Library</b>, drag and drop a data export format item into the <b>List View</b>.</p>  | <p>the <b>Main</b> tab to complete the configuration of the new EFM data export format.</p>   |
| <p>Click .</p>  | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Number of items to Add</b> text box, type the number of meters you want to add.</li> <li>2. From the <b>Item Family</b> list, select <b>EFM Data Export Format</b>.</li> <li>3. From the <b>Item Type</b> list, select EFM data export format you want to add.</li> <li>4. In the <b>Name</b> text box, type in the name for this EFM data export format, or you can accept the default provided. If you have chosen to create multiple EFM data export formats, the <b>Multi – Items</b> section is enabled, and you can provide a prefix for all the EFM data export formats, or you can accept the default provided. You can also indicate whether to use a sequential number or letter to differentiate between the EFM data export formats.</li> <li>5. Click <b>OK</b> to add the EFM data export format(s) to the list.</li> <li>6. Use the <b>Main</b> tab to complete the configuration of the new EFM data export format(s).</li> </ol> |
| <p>From the <b>Data Export</b> tab of meter template in Quick Builder, click  to display the popup menu, and then select <b>Create new CSV Export Format</b>.</p> | <p>The <b>Create EFM CSV Export Format</b> dialog appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Name</b> text box, type in the name for this EFM CSV export format.</li> <li>2. Select the <b>Include Field names in header</b> check box to include a header row in the CSV file.</li> <li>3. If required, select the <b>Use tab delimiter (*.tsv)</b> check box to create a TSV file instead of a CSV file.</li> <li>4. In the <b>Description</b> text box, type in a description for this EFM CSV export format.</li> <li>5. Click  next to <b>Configuration</b> to expand the list, and then select the check boxes next to the items you want to</li> </ol>  |

| Option | Result   |
|--------|--|
|        | <p>include in the CSV file.</p> <p>Use the following tools to help you search and organize items in the list.</p> <ul style="list-style-type: none"> <li>•  Searches for items that match the text you enter in the text box.</li> <li>•  Moves the selected row(s) to the top of the list.</li> <li>•  Moves the selected row(s) to up one row in the list.</li> <li>•  Moves the selected row(s) to down one row in the list.</li> <li>•  Moves the selected row(s) to the end of the list.</li> </ul> <p>6. Repeat step 5 for the <b>Interval Log, Daily Log, Alarm and Event Log, Configuration Record Log, Ultrasonic Log, Composition Log, and Gas Quality Log</b> lists.</p> <p>7. Click <b>Create</b> to add the EFM CSV export format to the list.</p> |

Use the properties tab to configure each EFM data export format by first highlighting it in the **List View**.

**To edit an EFM data export format, do one of the following:**

| Option  | Result  |
|---|---|
| <p>Select <b>EFM Data Export Formats</b> from the Navigation pane.</p>  | <p>A list of data export formats appears in the <b>List View</b>, with the first data export format selected.</p> <ol style="list-style-type: none"> <li>1. Select the data export format you want to edit. The schedule appears in the <b>List View</b>, and the <b>Main</b> tab enables you to edit the configuration of the data export format.</li> </ol> |
| <p>From the <b>Data Export</b> tab of an EFM meter template, click  next to the CSV data export format you want to change.</p> | <p>The <b>Edit EFM CSV Export Format</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. Edit the configuration properties on the dialog box.</li> </ol>  |

| Option | Result   |
|--------|--|
|        | <ol style="list-style-type: none"> <li>2. Click <b>Apply</b> to save the changes.</li> <li>3. Click <b>Close</b> to close the <b>Edit EFM CSV Export Format</b> dialog box.</li> </ol> |

## Defining the monthly export format

The monthly export format is associated with EFM monthly exports. It contains configuration settings for exporting cumulative EFM data in CSV files once a month from Experion to a specified location.

If the monthly export format is not defined and the **Enable Monthly export** check box is selected in Station, Experion will export Monthly Exports for the parameters **Flow Time** and **Flow Volume** if they exist on each meter.

### Prerequisite

You have started Quick Builder. For more information, see "Starting Quick Builder" on page 15.

To define the monthly export format:

1. From the **EFM Data Export Format** section within the **Library**, drag a **EFM CSV Export Format** item into the **List View**.
2. From the **List View**, select the added EFM CSV Export Format item.
3. In the **Main** tab, select the **Monthly export format** check box.  
The name **Monthly Export Format** is added in the **Name** box. The description for the monthly export format is also added in the **Description** box.
4. Click  next to **Daily Log** to expand the list, and then select the check boxes next to the items you want to include in the monthly export.

Use the following options to help you search and organize items.

| Option  | Description   |
|---|---|
|  | Searches for items that match the text you enter in the text box. |

| Option  | Description  |
|---|--|
|  | Moves the selected row(s) to the top of the list.      |
|  | Moves the selected row(s) to up one row in the list.   |
|  | Moves the selected row(s) to down one row in the list. |
|  | Moves the selected row(s) to the end of the list.      |

5. Click **Create** to add the monthly export format to the list.

To edit the monthly export format:

1. From the Navigation pane, select **EFM Data Export Formats**.
2. From the **List View**, select **Monthly Export Format**.
3. From the **Main** tab, edit the configuration of the monthly export format.

## Managing EFM schedules

**ATTENTION:** If your system needs to account for Daylight Savings Time (DST), you might need to adjust the time of the Daily Log schedule by one hour for affected meters during DST. This is because some meters do not support DST and they will collect the Daily Log one hour earlier or later than required. During a system time change when clocks are put back, you might be required to disable EFM collection for that period for some EFM interfaces (for example, Spirit IT Flow-X).

### To build a new EFM schedule

1. Use one of the following options, and then use the **Properties** tab to configure each meter template.

| Option  | Result   |
|---|--|
| From the EFM Schedule section within the Library, drag and drop the | The new EFM schedule appears in the <b>List View</b> , and the properties tab enables you to complete the configuration of the new EFM schedule. |

| Option  | Result  |
|---|---|
| EFM schedule item into the <b>List View</b> .   |   |
| Click    | <p>The <b>Add Item(s)</b> dialog box appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Number of items to Add</b> text box, type the number of meters you want to add.</li> <li>2. From the <b>Item Family list</b>, select <b>EFM schedule</b>.</li> <li>3. From the <b>Item Type</b> list, select <b>EFM schedule</b>.</li> <li>4. In the <b>Name</b> text box, type in the name for this EFM schedule, or you can accept the default provided. If you have chosen to create multiple EFM schedules, the Multi – Items section is enabled, and you can provide a prefix for all the EFM schedules, or you can accept the default provided. You can also indicate whether to use a sequential number or letter to differentiate between the EFM schedules.</li> <li>5. Click <b>OK</b> to add the EFM schedule(s) to the list.</li> </ol> |
| From the <b>Collection and Export</b> tab of an individual meter in Quick Builder, select ( <b>Create new Schedule</b> ) from the <b>Schedule Type</b> lists. | <p>The <b>Create EFM Schedule</b> dialog appears.</p> <ol style="list-style-type: none"> <li>1. In the <b>Name</b> text box, type in the name for this EFM schedule.</li> <li>2. From the <b>Every</b> list, select the period at which the schedule runs.</li> <li>3. In the with a maximum of retries text box, type number of times the schedule till try to collect and export data before abandoning the task.</li> <li>4. From the <b>Apart</b> list, time to wait between retries.</li> <li>5. Click <b>OK</b> to add the EFM schedule to the list.</li> </ol>   |

### To edit an EFM schedule

1. Use one of the following options to edit an EFM schedule.

| Option  | Result   |
|---|--|
| From the <b>Navigation pane</b> , select <b>EFM Schedules</b> . | <p>A list of EFM schedules appears in the <b>List View</b>, with the first schedule selected.</p> <p>Select the schedule you want to edit. The</p> |

| Option  | Result   |
|---|--|
|   | schedule appears in the <b>List View</b> , and the <b>Main</b> tab enables you to edit the configuration of the schedule.  |
| From the <b>Collection and Export</b> tab of an individual meter in Quick Builder, click  next to the <b>Schedule Type</b> list. | The <b>Edit EFM Schedule</b> dialog appears. <ol style="list-style-type: none"> <li>1. Edit the configuration details on the <b>Main</b> tab.</li> <li>2. Click <b>Apply</b> to save the changes.</li> <li>3. Click <b>Close</b> to close the dialog box.</li> </ol> |

## Managing meters and meter templates

### Deleting EFM components

Because of the associations between EFM components, keep in mind the following points when deleting meter templates, schedules, and data export formats:

- Meters have direct associations and/or dependencies on meter templates and schedules.
- You cannot delete meter templates and schedules if there are any meters associated with it.
- Meter templates have direct associations and/or dependencies on data export formats. Therefore, meters have indirect associations with data export formats.
- You cannot delete data export formats if there are any meter templates associated with it.

See the topic titled "Deleting and restoring deleted items" for procedures to delete and restore EFM components.

### Enabling and disabling meters

You enable or disable an EFM meter using Station. See the topic titled "Disabling or enabling a point or EFM meter" in the *Operator's Guide* for more information.

## Uploading EFM configurations from the server

If you need to make changes to Electronic Flow Measurement configurations that have already been downloaded to the server database, you can *upload* their definitions from the server into the current Quick Builder project. You can then make the necessary changes to the items and download the updated definitions to the server.

1. Click  .

The **Upload** dialog box opens.

2. Check that **Server Details** are correct. If they aren't, close the dialog box and change them on the **Server Details** tab for the server.
3. Select the appropriate **Scope** option.

The following options are available for uploading data from a specified server to Quick Builder

| Option                 | Description   |
|------------------------|---|
| All items in Project   | Uploads all items from the server, including hardware and point configuration data, as well as the history collection rates and offsets.                      |
| Selected Items Only    | Uploads only the history collection rates and offsets configured on the server. This upload populates the History Options tab on the Servers properties page. |
| All Hardware on Server | Uploads only hardware configuration data. This option includes EFM configurations.  |
| All Points on Server   | Uploads only point configuration data.  |

4. (Optional.) If you want to use any specialized *bckbld* or *hdwbckbld* command line parameters, click **Show Options** and type them in **Other Flags**. (For details about the parameters, see the topics on *hdwbld* and *hdwbckbld* in the *Hardware and Point Build Reference*.)
5. Check your selections in the **Summary** list, and then click **OK**.  
If another user is modifying, uploading, or downloading any items you are attempting to upload, a message appears and the upload

only succeeds for any items not currently being worked on by the other user.

You can terminate the upload by pressing the ESC key

## Exporting and importing EFM configurations

You can export and import EFM-related configurations, such as meter templates, data export formats, and schedules, to and from XML files.

When you export data, the **EFM Export Format** for these files is **.efmdb.xml**. To export EFM configurations, see the topic titled "Exporting project data."

When you import data, you can choose to import either a file previously exported from Quick Builder (**.efmdb.xml**) or file previously downloaded or uploaded to or from the server (**.efmsvr.xml**). To import EFM configurations, see the topic titled "Importing items from a definition file or another project."

### File location for EFM meter templates

EFM meter templates are located at:

```
<data folder>\Honeywell\Experion PKS\client\user\efm
```

Where *<data folder>* is the location where Experion data is stored. For default installations, *<data folder>* is `C:\ProgramData`. The `C:\ProgramData` folder is a system folder, which means that it is only visible if you select the **Show hidden files, folders, and drives** option button in the **Folder Options** dialog box. To change this setting in Windows Explorer, click **Organize > Folder and search options**, and then click the **View** tab.

Sample templates contain sample EFM meter templates, and for the Enron Modbus sample template, seven schedules. See the topic titled "Managing EFM meter templates" for more information.

## Collecting and exporting EFM data

### *Collection behavior*

EFM requests (an EFM request is a single log type from a single meter) are queued to the scanning subsystem every 60 seconds.

Requests are queued according to the configured EFM schedules for Interval and Full collection. If a collection fails, and retries are configured, the retries are added to the queue in the next scanning period.

An EFM request is not queued if there is already another request for the same log type for the same meter. For example, a manual scan at the same time as a scheduled scan would result in one request, not two separate requests issued at the same time.

Experion throttles the rate at which EFM requests are issued maintaining a count of the currently outstanding requests on each channel. Only enough requests will be issued to reach a maximum of 60 outstanding requests on each channel. The scanning subsystem then takes only one EFM request per channel per second off the queued requests and sends this for processing to the channel.

Each EFM request includes a hard-coded range that specifies the maximum number of records within that log that will be collected for a single request. This is set for each log type as described in “Table 10: Maximum number of records for each log type”. Therefore, a two-hourly collection of Composition log records laid down every four minutes would expect 30 records per collection (120 minutes divided by 4 minutes = 30), which would be processed through a single EFM request.

Maximum number of records for each log type

| Log type                       | Maximum number of records |
|--------------------------------|---------------------------|
| Alarm and Event (Audit)        | 100                       |
| Alarm Log                      | 100                       |
| Event Log                      | 100                       |
| Audit log (Omni Enhanced only) | 100                       |
| Composition log                | 50                        |
| Configuration Record log       | 5                         |
| Daily log                      | 5                         |
| Gas Quality log                | 50                        |
| Liquid Batch log               | 50                        |

| Log type       | Maximum number of records |
|----------------|---------------------------|
| Interval log   | 50                        |
| Ultrasonic log | 50                        |

Each controller will then limit the number of records returned in response to a single request. The response to the request includes how many additional records remain to be collected, so EFM would queue another request on the next 60 second boundary if more records are still to be collected in the meter, for example, when communications had interrupted and some collections had been missed.

EFM data collection is an additional load on top of regular channel traffic. During commissioning, and after significant communications disruptions, the data collection operation will collect all records not yet obtained. Sometimes, this load can be substantial. To avoid overloading the channels:

- Experion will throttle EFM loads on a channel-by-channel basis
- During commissioning when there may be a large number of logs to collect, avoid too many simultaneous EFM collections by staggering the enabling of meters.
- Only one EFM request per meter and log type (Interval logs, Daily logs, Ultrasonic logs, Composition logs, Gas Quality logs, Alarm and Event logs, Audit logs, Liquid Batch logs, Alarm Logs, Events Logs, Configuration logs, and Configuration Record logs) will be serviced at a time. This can include manual scans, periodic interval scans, and periodic full scans. Each additional scan will only be completed after the current outstanding scan is complete, one at a time

**ATTENTION:** If your system needs to account for Daylight Savings Time (DST), you might need to adjust the time of the **Daily Log** schedule by one hour for affected meters during DST. This is because some meters do not support DST and they will collect the Daily Log one hour earlier or later than required. During a system time change when clocks are put back, you might be required to disable EFM collection for that period for some EFM interfaces (for example, Spirit IT Flow-X).

### ***Export behavior***

- EFM data exported from Experion can be stored on the local server or on another node.
- When an export is triggered for a meter (either scheduled or requested manually), Experion will attempt to export all data on the meter that was not previously exported successfully. This means that if an export fails, the next time an export occurs for the meter, the old data (unsuccessfully exported) as well as the new data (not yet exported) will be exported.
- Once Experion has successfully exported EFM data, some cleanup and maintenance tasks are performed.
- If the Delete after option on the **EFM configuration settings** display is selected, Experion will delete exported CFX or CSV files (including TSV files, where applicable) that are older than the value specified in the **Days** box. If the **Delete after** option on the **EFM configuration settings** display is not selected, Experion will never automatically delete exported CFX or CSV files (including TSV files). Files in these locations must be deleted manually.
- Experion will export EFM data from a meter within 30 seconds of the following events:
  - A successful data collection.
  - An **Export latest collected data** or an **Export all collected data starting from** task request.
- If the location specified for the exported data falls below a set amount of disk space, an alarm is raised.

### **About tamper detection of EFM data**

When EFM data is exported, Experion monitors the data for evidence of tampering. If any evidence is found:

- An urgent alarm is raised.
- Suspect data is not exported.
- The affected meter will continue to collect data. The meter will continue to export non-suspect data, provided the data to export does not contain any suspect records.

You can choose to delete tampered data. However, this operation can cause the permanent loss of EFM data. Contact your Honeywell Technical Assistance Center for further support.

When you delete tampered EFM data, Experion deletes the suspect data from the server. In addition, this operation:

- Creates an archive of the tampered data to a file to allow for forensic analysis by your Honeywell Technical Assistance Center.
- At the meter's next collection schedule, Experion will attempt to recover the data. Note that the following historic data cannot be recovered:
  - Historic configuration data. If configuration data needs to be collected, it can only collect the latest snapshot.
  - Historic alarm and event data.



# ALGORITHMS

This section describes the *algorithms* you can attach to a point. An algorithm is a set of rules that enhances a point's functionality. The algorithm accomplishes this by processing the point data either before or after normal point processing. There are two types of algorithms:

- **Action Algorithms**—the algorithm is only used when the parameter value changes.
  - **PV Algorithms**—the algorithm is used every time the point parameter is scanned.
- 

In this section:

|   |     |
|---|-----|
| <i>Configuring PV algorithms in Quick Builder</i> .....     | 313 |
| <i>Configuring action algorithms in Quick Builder</i> ..... | 326 |
| <i>Creating a composite alarm hierarchy</i> .....           | 337 |

# Configuring PV algorithms in Quick Builder

The following PV algorithms are available in Quick Builder.

## PV Algo 4: General Arithmetic

### Description

Performs an arithmetic calculation using seven input point parameters and six constants. The result of the calculation is stored in the PV of the point to which this algorithm is attached. This algorithm is used to perform derived calculations based on analog or status points.

The calculation is as follows:

$$\text{Result} = \frac{(F1 + F2 + F3 + F4)}{(F5 + F6)} \times F7$$

Where:

$$Fn = \text{Constant}_n \times \text{IP\_Point\_ID}_n.\text{Param}_n$$

### Remarks

- If **IP\_Point\_ID\_n** is not specified (left blank), then  $F_n = \text{Constant}_n$ .
- If  $F5 + F6 = \text{zero}$ , then the divisor is automatically set to 0.000001 to avoid a divide by zero.
- If no division is required, then **Constant\_5** should be set to 0.0, and **Constant\_6** should be set to 1.0. **IP\_Point\_ID\_5** and **IP\_Point\_ID\_6** should not be defined.
- The **PVSOURCE** entry for a point to which this algorithm is attached must have **Address Type** set to **Controller**. Specify only the controller name; **Location** should be left blank.
- **Constant\_7** is not user-definable and is always equal to 1.

| Property  | Description   |
|-----------|---|
| Block No. | The algorithm block used by this algorithm for this point. Each |

| Property                             | Description  |
|--------------------------------------|--|
|                                      | <p>algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.</p> <p>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.</p> |
| Constant (F1–F6)                     | Specify up to six constants. The minimum is one <b>Constant/Input Point</b> pair and a denominator constant (to prevent a divide by zero).   |
| Input Point (F1–F7)<br>Param (F1–F7) | Select points and parameters from the list of points that have already been defined. These point parameters are used to multiply the constant.   |

## PV Algo 5: Production

### Description

This algorithm stores the shift, daily, or monthly total of an accumulator point PV to the nominated parameter of the destination point. After the total is stored, the accumulator point PV can optionally be reset to zero.

### Remarks

| Property       | Description  |
|----------------|--|
| Block No.      | <p>The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.</p> <p>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.</p> |
| Destination    | The point and parameter ID that is used to store the value at the end of the storage period. This must be an analog parameter.   |
| Storage Period | <p>The time interval between stores to the destination point parameter.</p> <p>If you specify either <b>Day</b> or <b>Month</b>, the storage will happen at the commencement of the first shift of that day or month (not at midnight).</p>  |

| Property | Description   |
|----------|---|
| Reset PV | Resets the PV value of the accumulator point to which this algorithm is attached after the run hours are stored to the destination point parameter. |

### PV Algo 7: Run Hours

For an analog point with no PV source address defined, this algorithm accumulates run hours according to a given run indicator status point used as a gate. When the gating point parameter enters the specified state, (say the end of a shift), the run hours are accumulated and sent to the PV parameter of the analog point.

Additionally, shift hours can be totaled and stored as well as the PV of an associated point. This information can be readily accessed by the Free Format report.

To use this algorithm, an analog point must have a scan period no greater than 60 seconds.

| Property                                     | Description   |
|--|---|
| Block No.                                    | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| Gating Source                                | The point, parameter, and state of that parameter that causes run hours to be accumulated. Run hours accumulate if the gating source is in this state.  |
| Gate state                                   | Gate start and stop states. Valid values are <b>single-</b> , <b>dual-</b> , or <b>triple-bit</b> .   |
| Shift Hours Destination                      | The accumulator point and parameter used to store the accumulated run hours for the shift.<br><br>This point parameter must be defined with a zero drift deadband to ensure point processing on each scan.  |
| Store Shift Total instead of Total Run Hours | Stores a shift total instead of total run hours indicated by the PV. The incremental run hours since the last shift boundary are stored.  |

| Property                            | Description   |
|-------------------------------------|---|
| Store Reset Timestamp in Descriptor | Writes the timestamp of the reset into the descriptor of the destination point.   |
| Reset on run state change           | Reset the run hours when the gating source changes from its current gating state.   |
| Associated Point                    | <p>The point for which the accumulated PV parameter value, since the last run hours reset, is stored with the run hours (for example, production tonnage).</p> <p>The run hours can be reset at any time from the <b>Algorithm Detail</b> display. For details, see the <i>Server and Client Configuration Guide</i>.</p> |

## PV Algo 10: General Logic

### Description

Performs logical combination of up to five single-bit inputs through four logic gates. The single-bit output can be sent either to the output destination of the point for which the algorithm is being defined, or to the PV source address of a database point.

A delay can be applied to the output after a transition to the target delay state. The specified delay can be relative to the current time or it can be absolute compared to the system time (in seconds after midnight).

**ATTENTION:** The point to which this algorithm is attached must be a single-bit status point with only a controller number defined in the PV source address entry for the point.

### Remarks

| Property  | Description  |
|-----------|--|
| Block No. | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block. |

| Property                                | Description   |
|---|---|
|   | See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.   |
| Input Points (A to E)<br>Param          | Select the point/parameters, from the list of points that have already been defined, that are to be used as the inputs. You must specify at least one point.  |
| F1, F2, F3 and F4                       | Select the logic function that is perform on the specified inputs. The default is <b>OR</b> .   |
| Enable Delay                            | Select to enable a transition from non-target state to target state to cause the time delay function to be initiated. If the target state is held until the delay time has expired, then the delay output becomes the target state. Note that transition to a non-target state has no effect. |
| Delay Type                              | The type of delay, which can be <b>RELATIVE</b> to the current time or <b>ABSOLUTE</b> (seconds after midnight).  |
| Delay Time                              | The delay period, in seconds, based on the selected <b>Delay Type</b> .   |
| Target State                            | The target state for the delay function, which can be either <b>1</b> (default) or <b>0</b> .   |
| Output to OP                            | Send the result of the logic to the OP destination of the point for which the algorithm is defined.   |
| Output to Database                      | Sends the result of the logic to a database point parameter address. If you select this, you must specify the <b>Database Point</b> .   |
| Database Point<br>Destination Parameter | The database point/parameter where the logic result is sent.  |

### PV Algo 12: Composite Alarm Processing

**ATTENTION:** Composite alarming is only supported for legacy systems. Newer systems should use Alarm Groups instead. The alarm icon does not support composite alarming. Composite alarming does not work over DSA or on Console Stations.

Consolidates the alarm conditions of up to 18 'subordinate' points to create a composite alarm for the 'master' point that represents the combined state of its subordinate points. (You attach this algorithm to the master point and attach *Action Algo 11: Composite Alarm* to each subordinate point.)

For example, if one subordinate point is unacknowledged (no longer in alarm) and another is in alarm but acknowledged, the master point will show the combined state, namely: unacknowledged + alarm (even though this state does not exist for any of the subordinate points).

The severity states of composite alarms are (from highest to lowest):

- Alarm and unacknowledged
- Alarm and acknowledged
- Normal and unacknowledged
- Normal

Note the following points:

- The triggering alarm must be higher than journal priority; however, composite alarming makes no further differentiation between urgent, high, and low alarm priorities.
- The master point must be a dual-bit status point, and you must configure it as follows:
  - **PV Source Address** - only specify the name of the controller (not a full hardware source address)
  - **PV Scan Period** is set to 0 (no scanning)
  - Alarming is inhibited
- A subordinate point can be of any type, and you must configure it as follows:
  - Attach action algorithm 11, and use the same block number as used by the master point
  - Enable alarming and define appropriate alarm states
- If you want to consolidate the alarm conditions of up to more than 18 points, you need to create a composite alarm hierarchy.

| Property  | Description  |
|-----------|--|
| Block No. | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique |

| Property                                    | Description   |
|---|---|
|   | <p>block number. Use the <b>alglst</b> utility to find a free block. See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.</p> <p>The same block must be used by both the master point and all of its subordinate points.</p> |
| Master point                                | The master point.   |
| Subordinate Points<br>(Point 1 to Point 18) | The subordinate points.   |

### PV Algo 15: Integration

Used for integration of rates to obtain both totals and the calculation of predicted totals. The calculations are performed as follows:

$$\text{NewRunningTotal} = \text{PointParameterValue} \times (\text{ScaleFactor}) \times (\text{TimeBetweenScans}) + \text{OldTotal}$$

$$\text{PredictedTtotal} = \text{NewTotal} + (\text{Value} \times (\text{ScaleFactor}) \times \text{TimeRemaining})$$

Period totals can be configured to reset at the end of the period and be output to the defined destinations.

One of the period totals can be optionally stored in the PV of the point for which this algorithm is being defined.

The shift, day, and month totals can be downloaded to other point parameters and can be reset.

Predicted totals are stored in the following algorithm blocks:

Algo 15 - predicted shift

Algo 17 - predicted day

Algo 19 - predicted month

Note the following points:

- The point for which this algorithm is being defined must be an analog point without a database or controller source address and have a scan period no greater than 60 seconds.
- A point parameter that is to contain the result of the time

accumulation must be built with a zero drift deadband to ensure point processing at each scan.

| Property                           | Description  |
|------------------------------------|--|
| Block No.                          | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.  |
| Period of total to be stored in PV | The period total to be stored in the PV of the point for which this algorithm is being defined:<br><br><b>NOT_STORED</b> = nothing is stored in the PV (default)<br><br><b>SHIFT</b> = new running total for shift is stored in PV<br><br><b>DAY</b> = new running total for day is stored in PV<br><br><b>MONTH</b> = new running total for month is stored in PV |
| Point to be Integrated             | The point/parameter value to be integrated.  |
| Scale Factor                       | The scale factor used to convert rate to units.  |
| Destinations for totals            | The points/parameters where the totals for the shift, day, and month are stored.   |
| Reset Shift                        | Select if you want the shift total to be reset at the end of a shift.  |
| Reset Day                          | Select if you want the day total to be reset at the end of a day.  |
| Reset Month                        | Select if you want the month total to be reset at the end of the month.  |

### PV Algo 16: Cyclic Task Request

Activates a task (typically a user-written application) on a regular basis while a status or analog point is being scanned.

For example, if you want an application to run automatically while the server is running, attaching this algorithm to a status or analog point causes the server to activate the application as long as the point is

being scanned. You can stop the task by disabling scanning for the point.

For details about writing applications, see the *Application Development Guide*.

**ATTENTION:** This algorithm can be specified for either a status or analog point that has no database or controller address defined.

| Property          | Description   |
|-------------------|---|
| Block No.         | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| Task LRN          | The Logical Resource Number of the task that is requested when the point is scanning.   |
| Task Request Rate | The task request rate in seconds. This value must be a multiple of the point scan rate.   |
| Parameter Block   | The numerical parameter(s) passed to the task. Note that if <b>Word 1</b> is set to <b>0</b> , the parameter block is not read and all other parameter values are ignored.<br><br>The format <b>Z 'xxxx'</b> is used to represent hexadecimal values.   |

## PV Algo 20: Advanced Arithmetic

### Description

Performs arithmetic calculation of multiple input point parameters and constants. The result of the calculation is stored in the PV of the point for which this algorithm is being defined.

### Remarks

| Property | Description  |
|----------|--|
| Equation | The arithmetic expression used by this algorithm for this point. |

| Property | Description  |
|----------|--|
|          | <p>Enclose the expression with quotation marks (""). For example:</p> <p><b>"((a+1)*b+c)*d+e"</b></p> <p>where <b>a</b>, <b>b</b>, <b>c</b>, <b>d</b>, and <b>e</b> are point parameters or numeric constants.</p> <p>Maximum 1,000 characters.</p> <p>Arithmetic Operators are:</p> <ul style="list-style-type: none"> <li>• + (Plus sign) Add</li> <li>• - (Minus sign) Subtract</li> <li>• * (Asterisk) Multiply</li> <li>• / (Slash mark) Divide</li> <li>• ^ (Caret) Power</li> <li>• <b>sqrt()</b> Square root</li> <li>• ~ (Tilde) Not</li> <li>• &lt; Less Than</li> <li>• &gt; Greater Than</li> <li>• = Equal</li> </ul> <p>For instances where operator characters are part of a point name, use a backslash to escape the character. For example, <b>"fic-123.pv"</b> can be used if entered as <b>"fic\ -123.pv"</b>.</p> |

## PV Algo 21: Advanced Logic

### Description

Performs logical combination of multiple single-bit inputs. The result of the calculation is stored in the PV of the point for which this algorithm is being defined. If the result is more than 3 bits, then attach the algorithm to an Analog point.

## Remarks

| Property | Description  |
|----------|--|
| Equation | <p>The logic expression used by this algorithm for this point.</p> <p>Enclose the expression with quotation marks (""). For example:</p> <p><b>"(a&amp;b) (c&amp;d)+e"</b></p> <p>where <b>a</b>, <b>b</b>, <b>c</b>, <b>d</b>, and <b>e</b> are point parameters or numeric constants, where floating point values will be truncated to integers.</p> <p>Maximum 1,000 characters.</p> <p>Logic Operators are:</p> <ul style="list-style-type: none"> <li>• + (Plus sign) Concatenation (shift left)</li> <li>• &amp; (Ampersand) And</li> <li>•   (Pipe) Or</li> <li>• ^ (Caret) Exclusive or (Xor)</li> <li>• ~ (Tilde) Not</li> <li>• &lt; Less Than</li> <li>• &gt; Greater Than</li> <li>• = Equal</li> </ul> <p>For instances where operator characters are part of a point name, use a backslash to escape the character. For example, <b>"di-123.pv"</b> can be used if entered as <b>"di\-123.pv"</b>.</p> |

### PV Algo 22: Piecewise Linearization

Linearizes the PV and SP of the point for which the algorithm is being defined using the piecewise linearization of up to six segments in order to produce, for example, true temperature for thermocouple readings. The segments are defined by assigning breakpoints.

The raw value (passed from the point being linearized) is converted to temperature by the use of linear interpolation between (up to) seven coordinates.

Up to five breakpoints along the graph can be defined. If less than five breakpoints are required, the coordinates of the unused breakpoints retain the default values 0, 0.

The SP is also linearized, both on input (source) and output (destination).

**ATTENTION:** The point for which this algorithm is defined must be an analog point with either a controller or database source address.

| Property  | Description  |
|-----------|--|
| Block No. | <p>The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.</p> <p>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.</p>   |
| %         | Percentage of range to be reached for the breakpoint to take effect. Must be in the range of 0% to 100%. A percentage of 0% indicates the end of breakpoint data.  |
| (EU)      | <p>Coordinate value for the breakpoint percentage. This value must be in the range of the point and, if temperature, can be either Celsius or Fahrenheit by choice of data values.</p> <p>You can obtain a negative gradient by defining appropriate values for the EU coordinate. In such a case, EU values decrease as the percentage values increase. Note that to ensure meaningful results, the graph must have either a positive gradient or a negative gradient, not a combination of both.</p> |

### PV Algo 64: Maximum/Minimum

For an analog point, the maximum and minimum values of the PV and the times at which they occurred are recorded over a period of a shift or a day. These values are stored at the nominated destinations and reset at the beginning of the selected period.

At the beginning of each period, the maximum and minimum values of the previous period are downloaded to the defined destination points.

| Property  | Description  |
|-----------|--|
| Block No. | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique |

| Property                          | Description   |
|-----------------------------------|---|
|                                   | <p>block number. Use the <b>alglst</b> utility to find a free block.</p> <p>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.</p>   |
| Shift Min/Max and Day Min/Max     | You separately specify the requirements for the two periods: shift and day.   |
| Enable Collection                 | Select to collect the minimum and maximum values for the associated period.   |
| Current Maximum                   | Use this to pre-set a current PV maximum value for the point to which this algorithm is attached. This value is compared with the recorded maximum value and a new maximum is set. Pre-setting is useful when uploading the database.                           |
| Current Minimum                   | Use this to pre-set a current PV minimum value for the point to which this algorithm is attached. This value is compared with the recorded minimum value and a new minimum is set. Pre-setting is useful when uploading the database.                           |
| Select Reset After Each Shift/Day | Select to reset minimum and maximum point values at the start of the associated period.   |
| Destination for Max Parameter     | <p>The point/parameter in which maximum value for the associated period is stored. The point you select must be capable of storing the value, and of being historized.</p> <p>You can use a destination point of the same type as that using the algorithm.</p> |
| Destination for Min Parameter     | <p>The point/parameter in which minimum value is stored for the associated period. The point you select must be capable of storing the value, and of being historized.</p> <p>You can use a destination point of the same type as that using the algorithm.</p> |

### PV Algo 68: Value Transportation

Used to move a value from the PV of the point, to which the algorithm is attached, to the hardware address defined by the:

- OP destination (for a status point)
- SP destination (for an analog point)

You can attach this algorithm to either an analog or status point. The PV of the point to which you attach the algorithm is sent as follows:

- For a status point, to the OP destination defined for the point
- For an analog point, to the SP destination defined for the point

**ATTENTION:** Do not use this algorithm to transfer safety or mission critical information between controllers. To transfer this type of information use a peer to peer method to transfer information directly between controllers.

Note the following points:

- If the algorithm is attached to a status point, the number of input states must match the number of output states. If this isn't the case, the algorithm won't be able to transfer data correctly and the following error will occur: 'Data not convertible'.
- Use the algorithm with care—assigning it to many points may result in a significant load on the server. (As an alternative, you should consider the equivalent Action Algo 68: Value Transportation.)
- Set the drift deadband to a reasonable value so that the algorithm does not execute for inconsequential changes.
- Using this as a PV algorithm degrades system performance. Using OP/SP source for confirmation in conjunction with using this as a PV algorithm severely degrades system performance and is not recommended.
- Do not use control timeouts in conjunction with this algorithm.

## Configuring action algorithms in Quick Builder

The following action algorithms are available in Quick Builder.

### Action Algo 11: Composite Alarm

**ATTENTION:** Composite alarming is only supported for legacy systems. Newer systems should use Alarm Groups instead. The alarm icon does not support composite alarming. Composite alarming does not work over DSA or on Console Stations.

Used only in conjunction with *PV Algo 12: Composite Alarm Processing* to consolidate alarms from a number of points.

*Action Algo 11: Composite Alarm* is assigned to all of the 'subordinate' points, and *PV Algo 12: Composite Alarm Processing* is assigned to the 'master' point.

| Property                                      | Description   |
|---|---|
| Block No.                                     | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block. See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.<br><br>The same block must be used by both the master point and all of its subordinate points. |
| Master Point                                  | The master point for this subordinate point.  |
| Points at Current Level (Point 1 to Point 18) | Lists the current point and all the other subordinate points.   |

### Action Algo 68: Value Transportation

Used to move a value from the PV of the point, to which the algorithm is attached, to the hardware address defined by the:

- OP destination (for a status point)
- SP destination (for an analog point)

You can attach this algorithm to either an analog or status point. The PV of the point to which you attach the algorithm is sent as follows:

- For a status point, to the OP destination defined for the point
- For an analog point, to the SP destination defined for the point

**ATTENTION:** Do not use this algorithm to transfer safety or mission critical information between controllers. To transfer this type of information use a method to transfer information directly between controllers.

Note the following points:

- Set the drift deadband to a reasonable value so that the algorithm does not execute for inconsequential changes.

- Using this as a PV algorithm degrades system performance. Using OP/SP source for confirmation in conjunction with using this as a PV algorithm severely degrades system performance and is not recommended.
- Do not use control timeouts in conjunction with this algorithm.

### Action Algo 69: Status Change Task Request

Activates a task each time a status point makes a transition from a non-nominated state to the specified state.

| Property               | Description   |
|------------------------|---|
| Block No.              | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| LRN of Task to Request | The Logical Resource Number of the task that is requested when the point changes to the specified state.<br><br>You can specify a system task or a custom task. (See the <i>Application Development Guide</i> for details about writing custom tasks.)  |
| Task Request State     | Select the state ( <b>0</b> to <b>7</b> ) that requests the task, or select <b>ALL</b> for all state transitions.   |
| Parameter Block        | The numerical parameter(s) passed to the task. Note that <b>Word 1</b> , <b>Word 2</b> , or <b>Word 3</b> must be a non-zero number, otherwise the parameter block is not read and all other parameter values are ignored.  |

### Notes

- The algorithm block can also be configured from the Status Change Task Request Algorithm display. Using the Point Detail display, double-click the Action algorithm number to display the Algorithm configuration.
- This algorithm must be attached to a Status point.
- This algorithm does not queue requests to the task.

The task must call GETREQ to obtain the following information in the parameter block:

Words 1–10

### Action Algo 70: Status Change Report Request

Requests the specified report to be produced when the status point changes to the report request state. A single report request is made each time the status point makes the transition from any non-specified state to the specified state.

In order for the report to print, the requested report needs to have a report printer defined as its destination.

To limit the assets from which data is reported, you need to specify the ID of an operator who is assigned to the assets you want to include.

| Property             | Description   |
|----------------------|---|
| Block No.            | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| Report to Request    | The number of the report to request when the specified state is entered by the PV value. To find the number assigned, see the <b>Reports</b> display, which shows the number assigned to each report.   |
| Report Request State | The state (0 to 7) the PV value must enter to trigger the report request.   |

### Action Algo 71: Queued Task Request

This algorithm is deprecated, and is replaced by *Action Algo 92: Queued Task Request*.

### Action Algo 72: Status Value Transportation with Mapping

When attached to a status point, this algorithm transports up to four values to up to four separate points when the status point reaches a specified state.

This is accomplished by masking each state with a bit pattern. Each of the four masks must contain the state (0 to 7) to be reached, the value to be transported, a target point, and the target point's target parameter.

**ATTENTION:** Do not use this algorithm to transfer safety or mission critical information between controllers. To transfer this type of information use a method to transfer information directly between controllers.

Note the following points:

- The PV parameter can only be used to enable and disable scanning of a point. In this case the required value should be either:
  - 1 (On Line/In Service)
  - 2 (Off Line/Out of Service)
- Some controller types can also accept a value of 0 (Reset). See the associated Controller Reference.

| Property                  | Description   |
|---------------------------|---|
| Block No.                 | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <code>alglst</code> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| Transport (states) 7 to 0 | Select the check box that represents the status point state that triggers the transportation of a value when the status point changes to this state.  |
| Value                     | The numeric value you want to send to the destination point parameter when the status point reaches the specified state.  |
| Destination               | The point to which the value is transported when the PV of the status point, to which the algorithm is attached, changes. The target point can be a status, analog, or accumulator point.   |
| Param                     | The point parameter of the destination point that receives the transported value when the status point PV changes.  |

## Action Algo 74: Status Change USKB LED Request

**ATTENTION:** This algorithm is primarily available to support existing keyboards. If you are configuring a new keyboard, see the *Server and Client Configuration Guide*.

For the defined assignable asset or Station, a change in point status causes the associated LED with a nominated key on a Universal Station keyboard (USKB) to be controlled with the characteristics specified.

For each of the states (0 through 7) of the status point for which this algorithm is defined, you can select an action for a particular LED.

**ATTENTION:** If the nominated LED is not located on the Universal Station keyboard, the control is ignored.

Every assignable asset has a corresponding number. When you configure this algorithm, you need to know the number of the assignable asset.

To obtain the number for the assignable asset, in the Station Command Zone, type **sys137.dsp** and press ENTER. Then locate the required assignable asset in the list and note its corresponding number.

| Property                            | Description   |
|-------------------------------------|---|
| Block No.                           | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| LED Action                          | The action the LED performs when the PV changes to the associated state. Select <b>NO ACTION</b> if you do not want the LED to do anything.   |
| LED No.                             | The LED that is controlled when the PV changes to the associated state. Must be a number from 0 to 99.  |
| LED Destination Area or Station No. | The Station or asset that receives LED control.<br><br>Select the type of destination from <b>LED Destination</b> , either <b>STATION</b> or <b>AREA</b> , and then type the specific Station/asset number in <b>Area or Station No.</b>  |

## Action Algo 75: Status Point Notification

Only used with a status point. Providing the gating point is in its permit state, the algorithm sends a message to a user-written application when the status of the point changes to a specified state.

The message contains the point number, the old and new PV values, the date and time of the change, and can also include optional parameters.

For information about writing applications, see the *Application Development Guide*. A sample application, `\server\user\examples\src\test9.c`, shows how to use this algorithm.

| Property   | Description   |
|--|---|
| Block No.  | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <code>alglst</code> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| Gate Point<br>Notification<br>Permit Gate<br>State | The status point, and associated state, that control message generation. Messages are only generated if the point is in the specified state.  |
| LRN<br>Number to<br>be Notified                    | The Logical Resource Number of the custom task that is notified when the point changes to the specified state(s).   |
| Notify<br>Specified<br>LRN upon<br>Reaching        | Select the states for which you want message to be generated.   |
| Optional<br>Algo Data                              | Optional parameters that are included in the message.   |

## Action Algo 76: Analog Point Notification

Only used with an analog point. Providing the gating point is in its permit state, the algorithm sends a message to a user-written application when:

- The value changes by a specified percentage from the last reported value
- The maximum time between notifications is exceeded

The message contains the point number, the old and new PV values, the date and time of the change, and can also include optional parameters.

For details about writing applications, see the *Application Development Guide*. A sample application, `\server\user\examples\src\test9.c`, shows how to use this algorithm.

| Property  | Description   |
|---|---|
| Block No.                                       | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <code>alglst</code> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| Gate Point<br>Notification Permit<br>Gate State | The status point, and associated state, that control message generation. Messages are only generated if the point is in the specified state.  |
| LRN Number to be Notified                       | The Logical Resource Number of the custom task that is notified when the point changes as specified.  |
| Significant Change                              | The percentage change from the last reported value that generates a message.  |
| Maximum Period                                  | The maximum time, in seconds, between messages.<br><br>If you only want to generate messages when the value changes by the specified value (that is, disable this option), set the value to 0.  |
| Optional Algo Data                              | Optional parameters that are included in the message.   |

### Action Algo 77: Status Change Display Request

For a status point, causes a display to appear either on a specified Station or all Stations assigned to a specified assignable asset when the status point changes to a specified state. A maximum of six display request states can be nominated.

It is recommended that for a particular state and Station, only one display is requested.

Every assignable asset has a corresponding number. When you configure this algorithm you need to know the number of the required assignable asset.

To obtain the number for the assignable asset, in the Station Command Zone, type **sys137.dsp** and press **ENTER**, locate the required assignable asset in the list, and note its corresponding number.

| Property                                   | Description   |
|--|---|
| Block No.                                  | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| Target State                               | The state that triggers the display request.  |
| Display Number                             | The page number of the requested display.<br><br>Note that you cannot specify named displays.   |
| Display Destination<br>Area or Station No. | The Station or asset where the display appears.<br><br>Select the type of destination from <b>Display Destination</b> , either <b>STATION</b> or <b>AREA</b> , and then type the specific Station/asset number in <b>Area or Station No.</b>  |

### Action Algo 78: Group Control of Points

Controls a group of status or analog points through a group control point. It sends the PV of the point for which the algorithm is defined to the nominated point/parameters in the control list.

You can optionally define a gating point (status) that prevents the PV being sent to the control points if it is in the specified state.

Use this algorithm with care; assigning it to many points may result in a significant load on the server.

| Property  | Description  |
|-----------|--|
| Block No. | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block |

| Property  | Description   |
|---|---|
|   | number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.  |
| Gate Point<br>Inhibit State                     | The status point and PV state (0 to 7) that prevents the value being sent to the point/parameters in the <b>Group Control List</b> .  |
| Group Control<br>List                           | The points/parameters to which the value is sent.   |
| Command<br>priority<br><br>Residual<br>priority | The command and residual priorities used by the server when changing the point parameters in the <b>Group Control List</b> .<br><br>(The controller only executes a command if it's command priority that is greater than or equal to the residual priority of the previous command.) |

### Action Algo 79: Status Change Alarm Group Inhibit

For a status point, alarm reporting is inhibited for the nominated group of points when the status point PV is in an alarm inhibit state. An example of a use for this algorithm is to inhibit alarm reporting on sensor points if the unit has been shut down.

| Property             | Description   |
|----------------------|---|
| Block No.            | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| Group Points         | Either select the point name from the list of points already added to the project, or, to select a server database point defined outside of this project, type in the name, to specify a point to be included in the group list. You can specify up to 19 points.   |
| Alarm Inhibit States | The alarm inhibit states for the status point PV. You can specify up to eight states.   |

## Action Algo 80: Status Change Alarm Area Inhibit

For a status point, alarm reporting is inhibited for the nominated group of assignable assets when the status point PV is in an alarm inhibit state. For example, use this algorithm to inhibit alarm reporting on sensor points if the unit has been shut down.

| Property             | Description   |
|----------------------|---|
| Block No.            | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information. |
| Area Codes           | The tag name of the asset for which alarming is inhibited.  |
| Alarm Inhibit States | The state(s) that the PV value must enter to inhibit alarming for the point.  |

## Action Algo 92: Queued Task Request

Queues a request to a task when a status point changes to a specified state(s). The point item number, the change in state and up to seven optional parameters are passed to the task.

The algorithm makes a single task request each time the status changes to a specified state. Because requests are queued, the risk of losing a request is reduced.

The requested task uses GETPRM to process the request block. The task request uses a 10-word parameter block defined in the algorithm block, but words 3, 4, and 5 are reserved for use by the algorithm.

Note the following points:

- This algorithm cannot be used in conjunction with *Action Algo 69: Status Change Task Request* to request the same task.
- To request multiple tasks on the same state change(s), configure multiple points on the same controller address. The algorithm can then be configured for each task using the different points that access the same information.

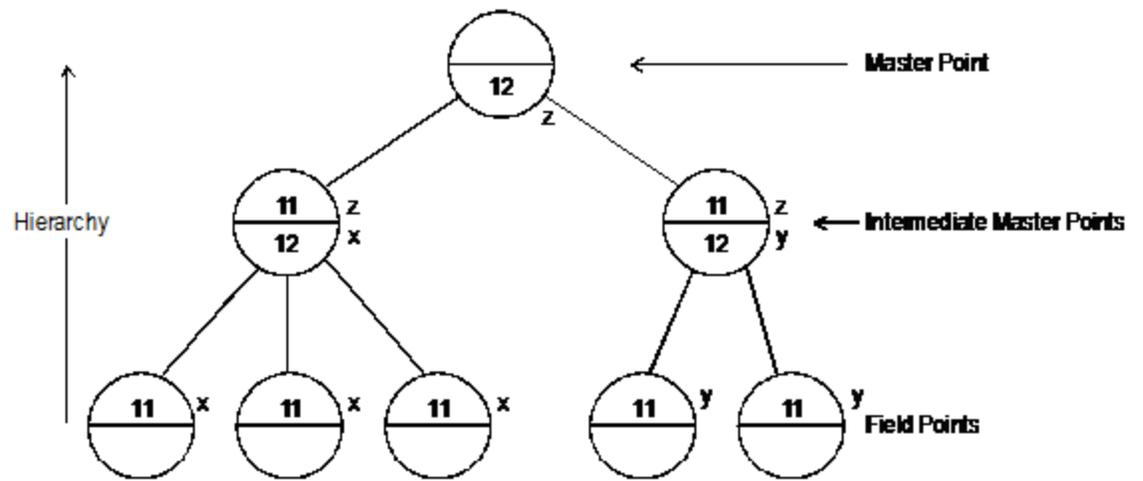
| Property               | Description  |
|------------------------|--|
| Block No.              | The algorithm block used by this algorithm for this point. Each algorithm attached to each point should be assigned a unique block number. Use the <b>alglst</b> utility to find a free block.<br><br>See the topic titled "Algorithm blocks" in the <i>Server and Client Configuration Guide</i> for more information.                      |
| LRN of Task to Request | The Logical Resource Number of the task that is requested when the point status changes to the specified state(s).<br><br>You can specify a system task, such as the Server Display program, or a custom task. (See the <i>Application Development Guide</i> for details about writing custom tasks.)  |
| States to Request Task | States (or condition settings) that trigger the task request.  |
| Parameter Block        | The numerical parameter(s) passed to the task.<br><br>Words 3, 4, 5, and 13 are used by the algorithm to pass the following values:<br><br><b>Word 3</b> = 0<br><br><b>Word 4</b> = Point item number of the status point to which algorithm is attached<br><br><b>Word 5</b> = State of the status point to which the algorithm is attached |

## Creating a composite alarm hierarchy

The following figure shows how create a composite alarm hierarchy for a large number of points using PV Algo 12: Composite Alarm Processing and Action Algo 11: Composite Alarm.

You attach Algo 11 the subordinate (field) points, whose alarms you want to consolidate. You attach both algos 11 and 12 to the intermediate master points, and attach only algo 12 to the top-level master point.

The letters (x, y and z) show how you assign block numbers.



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