

Enhanced Reports

Enhanced Report Utility: An Overview

The Enhanced Report Utility allows you to generate graphical reports for entities such as loops, cables, and terminal strips. Enhanced reports make use of a generic engine that draws various wiring objects based on database query retrieval. For example, in the case of a Panel-Strip report, the report engine gathers the appropriate terminals, groups them according to their terminal strips, sorts them in order according to the information in the database and displays the appropriate connections.

Each enhanced report provides information on the database at a certain moment, such as connected or disconnected wires in a loop.

Enhanced reports are compatible with other commercial software packages. You can save enhanced reports in formats that are compatible with SmartSketch, AutoCAD, or MicroStation. For more information about version compatibility in these formats, in the SmartPlant Instrumentation [Readme](#) file, click the [Version Compatibility](#) link.

To simplify your work, you can define a layout and assign it to a group of similar reports instead of having to manipulate each individual report.

You can also define custom symbols for certain reports and associate these symbols with specific SmartPlant Instrumentation entities. Afterwards, you can place these symbols in a desired location on a drawing sheet. On subsequent generation of the report for the entity, the graphical elements always appear in the positions where you initially placed them. For details of how to create custom symbols, see the [Symbol Editor Online Help](#).

For details of how to associate a symbol with an entity in an enhanced report, see [Associate a Symbol with an Entity](#).

For details of how to modify enhanced reports after generation, see [Working with Enhanced Reports: An Overview](#).

Working with Report Layouts

Defining Enhanced Report Layouts

An enhanced report layout is a group of settings for one or more enhanced report entities of a particular report type such as Enhanced SmartLoop or SmartPlant Cable Layout reports. These settings configure the display of the related generated drawings.

A layout includes a template for specifying the page size, a title block, various view options, macros and redlining, title block alignment, and working area margins.

To make use of a layout, you select one or more enhanced report entities and then you select a layout and assign it to the entities. Your user-defined layout settings then apply to all drawings that you generate for those entities. Layouts are available for the following entities, which appear in the **Domain Explorer** or in one of the other Explorers:

- Select one or more loops to define layouts for:
 - Enhanced SmartLoop report
 - Enhanced Fieldbus Loop report
- Select one or more cables to define layouts for:
 - Cable Layout report
- Select one or more panels or strips to define layouts for:
 - Panel-Strip report
 - DCS/PLC report
 - Internal Cross-Wiring report
 - Strip Signals report
 - PA Amplifier report
- In the **Segment Manager** (for fieldbus entities), select one or more fieldbus segments or tags to define layouts for:
 - Enhanced SmartLoop report
 - Enhanced Fieldbus Loop report

- You can define layouts from the following supporting tables:
 - **Telecom Line Numbers** (in the [Instrument Index](#) module)
 - **Single Speaker** (in the [Instrument Index](#) module Standard Browser)
 - **Cable Harnesses** (in the [Wiring](#) module)
 - **Network Classes** (in the [Wiring](#) module)



Notes

- You can assign an enhanced report layout to more than one entity; however, each entity can be assigned to only one layout.
- If you do not define any layouts, the software automatically assigns the default layout settings to all the selected entities. You can modify the default layout settings in the **Preferences** dialog box per report type.
- You can edit, duplicate, or delete existing user-defined enhanced report layouts, other than default layouts.
- If you duplicate an enhanced report layout, the software duplicates in the target layout any attributes that apply at the layout level such as macros and redlining defined per layout.

Define General Enhanced Report Layout Properties

Use this procedure to set various general and display properties for a group of enhanced reports.

➤ To define general layout properties

1. Display the **Enhanced Report Layouts** dialog box for the desired entity.
2. From the **Report type** list, if more than one report type is available for the selected entity, select the report type that you require.
3. Do one of the following:
 - Click **New** to define a new enhanced report layout.
 - Highlight an existing layout and click **Properties** to modify the existing settings.
 - Highlight an existing layout and click **Duplicate** to duplicate the existing settings.
4. In the **Layout Properties** dialog box, click the **General** tab and do the following:
 - a) In the **Layout** field, type a name for the layout that you want to create.
 - b) If required, in the **Description** field, type a new description of the layout.
 - c) From the **Wire representation** and **Cross-wire representation** lists, select one of the following options to determine how the software represents connectors in enhanced reports:
 - Select **Diagonal** to represent connectors as straight diagonal lines between the short horizontal lines that come from the terminals.
 - Select **Orthogonal** to represent connectors as lines consisting of horizontal and vertical sections.



Tip

- For a visual comparison of these options, see [Connector Representation Examples](#).
- d) Beside the **Template file name and path** field, click **Browse** and navigate to the layout template file and path that you require.
 - e) Beside the **Title block file name and path** field, click **Browse** and navigate to the title block file and path that you require.
5. Click the **View** tab and select the desired options.
 6. Click **OK** to return to the **Enhanced Report Layouts** dialog box.

Set the Title Block Position

Use this procedure to set the position of the title block and the drawing area offset relative to the title block for one or more entities for which you want to generate an enhanced report.

➤ To set the title block position

1. Display the **Enhanced Report Layouts** dialog box for the desired entity.
2. From the **Report type** list, if more than one report type is available for the selected entity, select the report type that you require.
3. Do one of the following:
 - Click **New** to define a new enhanced report layout.
 - Highlight an existing layout and click **Properties** to modify the existing settings.
 - Highlight an existing layout and click **Duplicate** to duplicate the existing settings.
4. In the **Layout Properties** dialog box, click the **Title Block** tab.
5. Do one of the following:
 - In the **Alignment** window, drag the title block icon to one of the corners of the graphic or along one of its edges.
 - Select values in the **Horizontal** and **Vertical** lists that position the title block where you want it.
 - Click **Reset** to specify the default settings (title block in bottom left corner with the drawing area above).



Notes

- The alignment options apply only when you use a symbol file (.sym) for the title block. They do not apply when you use the normal.sma template, which already includes a title block.
 - The alignment specifies the location of the title block origin. Shipped title blocks have their origin at the bottom left corner, and it is recommended that you specify this position for the origin of any custom title blocks that you create.
 - The alignment of the title block has no effect on its orientation. The design of the title block symbol is what determines its orientation.
6. In the **Drawing area relative to title block** list, select an option to specify where the drawing area should be located in relation to the title block.

Specify the Title Block Size Manually

The software defines the drawing area automatically according to the outer dimensions of the title block symbols used in a report. For example, if the title block is aligned horizontally at the bottom of a report, the software automatically allocates the area above the block for displaying generated drawing elements. If your title block occupies a large area of the page, on generating an enhanced report, the generated drawing elements may be displayed incorrectly. For example, you could add headings at the top of a drawing sheet or vertical lines stretching from the page top to the title block symbol at the bottom of the page.

To display the drawing elements correctly in such cases, you must specify the title block size manually to ensure that the software does not place any generated drawing elements where they would overlap the title block.

➤ To specify the title block size manually

1. Open the **Layout Properties** dialog box.
2. Click the **Title Block** tab and under the **Size** group box, select **Set size**.
3. From the **Units** list, select the units for the title block height or width.
4. In the **Maximum size** box, type a value for the maximum height or width that you want the software to allocate for the title block.



Note

- The dimension affected, height or width, depends on the alignment specified for the title block.

Set the Working Area Margins

This is a useful procedure for presetting the position of the strips for a group of enhanced reports or for ensuring that margins are consistent when collecting a group of drawings in a book.

➤ To set the working area margins

1. Display the **Enhanced Report Layouts** dialog box for the desired entity.
2. From the **Report type** list, if more than one report type is available for the selected entity, select the report type that you require.
3. Do one of the following:
 - Click **New** to define a new enhanced report layout.
 - Highlight an existing layout and click **Properties** to modify the existing settings.
 - Highlight an existing layout and click **Duplicate** to duplicate the existing settings.
4. In the **Layout Properties** dialog box, click the **Working Area** tab.
5. In the **Units** list, select the units that you want to use for defining the margins: inches, millimeters, or twips.



Note

- Twips are screen-independent units to ensure that the proportion of screen elements are the same on all display systems. There are 1440 twips in an inch and 567 twips in a centimeter.

6. Do one of the following:
 - In the **Working area margins** window, drag the edges to the desired position.
 - Enter values in the **Left**, **Right**, **Top**, and **Bottom** boxes as required.
 - Click **Reset** to specify the default settings (all four margins set to 20 twips).



Notes

- When you set the working area margins, the defined area includes the title block. The software generates the drawing starting from the top left corner at the position relative to the title block that you specified on the **Title Block** tab.
- If any drawing elements extend beyond the right and bottom limits of the working area, those elements are displayed on a new sheet.
- The working area margins define the initial page margins during drawing generation only. Once you have generated a report, you can modify it anywhere on the sheet, including the region defined beyond the working area.

Assign a Layout to Enhanced Report Entities

Use this procedure to assign an enhanced report layout to one or more entities.

➤ To assign a layout

1. Select one or more entities in an Explorer window and display the **Enhanced Report Layouts** dialog box for the entities.
2. From the **Report type** list, if more than one report type is available for the selected entity, select the report type that you require.
3. In the **Enhanced Report Layouts** dialog box, highlight the layout that you require.
4. Click **Assign** to assign this layout to the selected entities.

Duplicate an Enhanced Report Layout

Use this procedure to duplicate an enhanced report layout.

➤ To duplicate a layout

1. Display the **Enhanced Report Layouts** dialog box for the desired entity.
2. From the **Report type** list, if more than one report type is available for the selected entity, select the report type that you require.
3. Highlight the layout that you want to duplicate.
4. Click **Duplicate** to open the **Layout Properties** dialog box with the source layout values.
5. Edit the settings in the layout as you require.



Note

- When you duplicate an enhanced report layout, the software duplicates in the target layout any attributes that apply at the layout level such as macros and redlining defined per layout.

Delete an Enhanced Report Layout

This option enables you to delete a user-defined enhanced layout which is no longer in use. An enhanced layout is a layout assigned to loops and wiring entities for generating drawings and reports using the Enhanced Report Utility.



Caution

- On deleting a layout which is in use, the software re-assigns all the assigned entities to the default layout settings.

➤ To delete a user-defined layout

1. Display the **Enhanced Report Layouts** dialog box for the desired entity.
2. From the **Report type** list, if more than one report type is available for the selected entity, select the report type that you require.
3. Highlight the layout that you want to delete.
4. Click **Delete**.

Report Generation

Generating Enhanced Reports

Using the Enhanced Report Utility, you can generate reports in single or batch mode.



Note

- When printing enhanced reports to .pdf files in batch mode, you must use GNU Ghostscript or Acrobat Distiller. For further details, see [SmartPlant Instrumentation Server Installation Guide](#), [SmartPlant Instrumentation Server Configuration](#).

Among the available enhanced reports are the following:

- Enhanced SmartLoop
- Cable Layout
- Panel-Strip
- Wiring Equipment Connections
- Fieldbus Segment Wiring
- Telecom Communication Line
- Fieldbus Loop
- Telecom Network Class
- Strip Signals
- Telecom Single Speaker
- Telecom PA Amplifier
- Cable Harness

Generating an Enhanced Cable Layout Report

You can generate a SmartPlant Cable Layout report for any non-default cable. The report displays the cable sets and wires, and the panels, strips, and terminals to which the cable ends may be attached.

➤ To generate an Enhanced Cable Layout report

1. Start the [Wiring](#) module.
2. On the **Reports** menu, point to **Cable Layout**, and click **Style 1** or **Style 2**.
3. In the **Cable Selection for Layout** dialog box, type values in the fields under **Search parameters** if you need to find cables that meet a specific set of criteria.
4. Click **Find** to display the cables.
5. Highlight one or more cables (hold down **Ctrl** for multiple selection).



Caution

- The software requires a large amount of memory to display graphical items in enhanced report previews. For this reason, we recommend that you do not select a large number of cables at once for previewing reports.

6. Select **Enable enhanced report**.
7. Click **Print**, and at the preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- On the **General** page of the **Preferences** dialog box, you can set the software to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured to enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.
- If, in the Enhanced Report Utility, you save custom changes for this report, the software does not save changed positions of entities on the drawing sheet.

Generating an Enhanced Panel-Strip Report

You can generate a SmartPlant Panel-Strip report for any device at the strip level. The report displays the selected device, the device adjacent to it, and the strip level connections between them.

➤ To generate an enhanced Panel-Strip report

1. Start the [Wiring](#) module.
2. On the **Reports** menu, point to **Panel - Strip**, and click **With Adjacent Connections**.
3. In the **Panel-Strip Selection** dialog box, type values in the fields under **Search parameters** if you need to find panels that meet a specific set of criteria.
4. Click **Find** to display the strips.
5. Highlight one or more strips (hold down **Ctrl** for multiple selection).



Caution

- The software requires a large amount of memory to display graphical items in enhanced report previews. For this reason, we recommend that you do not select a large number of strips at once for previewing reports.

6. Under **Enhanced report options**, select **Enable enhanced report**.
7. If desired, specify multiple rows or columns for the enhanced report by typing values in the **Number of rows** and **Number of columns** fields.



Note

- If you specify more than one row or column for the report, all the editing options in the Enhanced Report Utility, such as macros, SmartText, and so forth, are disabled.

8. Click **Print**, and at the preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.

**Notes**

- On the **General** page of the **Preferences** dialog box, you can set the software to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured to enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating a Wiring Equipment Connections Report

You can generate and print a SmartPlant I/O Tag Assignment report for a particular DCS/PLC in the [Wiring](#) module. These reports are associated with DCS/PLC cabinets only. These cabinets require a different drawing due to their multi connections as specified:

A SmartPlant I/O Tag Assignment report displays **all** the connections from a DCS/PLC and forward, in contrast to the **Panel Strip** diagram, which displays only the connection to the adjacent device in a particular strip.

➤ To generate a Wiring Equipment Connections report

1. Start the [Wiring](#) module.
2. On the **Reports** menu, click **Wiring Equipment Connections**.
3. In the **Wiring Equipment Connections** dialog box, type values in the fields under **Search parameters** if you need to find panels that meet a specific set of criteria.
4. Click **Find** to display the strips.
5. Highlight one or more strips (hold down **Ctrl** for multiple selection).



Caution

- The software requires a large amount of memory to display graphical items in enhanced report previews. For this reason, we recommend that you do not select a large number of strips at once for previewing reports.
6. Click **Print**, and at the preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- On the **General** page of the **Preferences** dialog box, you can set the software to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured to enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating a Segment Wiring Report

Use this procedure to display an enhanced report for a fieldbus segment.



Notes

- You must install the Enhanced Report Utility on your local machine to be able to generate the communication line report. For details, see [Enhanced Report Utility Installation Guide](#).
- You can also generate detailed enhanced reports for loops within a fieldbus segment.

➤ To generate a segment wiring report

1. Start the [Wiring](#) module.
2. In the **Fieldbus Segment Manager**, select the desired segment.
3. Do one of the following
 - On the **Actions** menu, click **Enhanced Segment Wiring**.
 - Right-click the required segment and on the shortcut menu, click **Enhanced Segment Wiring**.
4. At the print preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- In the **General** tab folder of the **Preferences** dialog box, you can set SmartPlant Instrumentation to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating a Communication Line Report

You can generate a report that displays the connection path of all field device panels on a selected communication line. The connection path includes all the connected panels, their terminals and ports.



Note

- You must install the Enhanced Report Utility on your local machine to be able to generate the communication line report. For details, see [Enhanced Report Utility Installation Guide](#).

➤ To generate a communication line report

1. In the **Wiring Module** window, on the **Reports** menu, point to **Reports > Telecom**, and then click **Communication Line Report**.
2. In the **Communication Line Selection** dialog box, select a communication line and click **OK**.
3. At the print preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- In the **General** tab folder of the **Preferences** dialog box, you can set SmartPlant Instrumentation to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating a Fieldbus Loop Report

You can generate a fieldbus loop report for any fieldbus tag in a segment. The report displays the tag and all of its wiring connections in the loop.

➤ To generate a fieldbus loop report

1. Start the [Wiring](#) module.
2. In the **Fieldbus Segment Manager**, select a tag in the desired segment.
3. Do one of the following
 - On the **Actions** menu, click **Enhanced Fieldbus Loop**.
 - Right-click the required segment and on the shortcut menu, click **Enhanced Fieldbus Loop**.
4. At the print preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- On the **General** page of the **Preferences** dialog box, you can set the software to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured to enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating a Network Class Report

You can generate a report that displays all the equipment cards and channel connections of all field device panels for a selected network class.



Note

- You must install the Enhanced Report Utility on your local machine to be able to generate the communication line report. For details, see [Enhanced Report Utility Installation Guide](#).

➤ To generate a network class report

1. In the **Wiring Module** window, on the **Reports** menu, point to **Reports > Telecom**, and then click **Network Class Report**.
2. In the **Network Class Selection** dialog box, select a network class and click **OK**.
3. At the print preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- In the **General** tab folder of the **Preferences** dialog box, you can set SmartPlant Instrumentation to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating a Strip Signal Report

You can generate and print a SmartPlant Strip Signal report for any panel strip in the [Wiring](#) module. A Strip Signal report displays **all** the connections from either side of a strip, in contrast to the **Panel Strip** diagram, which displays only the connection to the adjacent device in a particular strip.

➤ To generate a Strip Signal report

1. Start the [Wiring](#) module.
2. On the **Reports** menu, click **Panel-Strip Signals**.
3. In the **Panel-Strip Selection** dialog box, type values in the fields under **Search parameters** if you need to find panels that meet a specific set of criteria.
4. Click **Find** to display the strips.
5. Highlight one or more strips (hold down **Ctrl** for multiple selection).



Caution

- The software requires a large amount of memory to display graphical items in enhanced report previews. For this reason, we recommend that you do not select a large number of strips at once for previewing reports.
6. Click **Print**, and at the preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- On the **General** page of the **Preferences** dialog box, you can set the software to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured to enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating a Single Speaker Report

You can generate a report that displays the connections for a selected single speaker tag number.



Note

- You must install the Enhanced Report Utility on your local machine to be able to generate the communication line report. For details, see [Enhanced Report Utility Installation Guide](#).

➤ To generate a single speaker report

1. In the **Wiring Module** window, on the **Reports** menu, point to **Reports > Telecom**, and then click **Single Speaker Report**.
2. In the **Enter Tag Number** dialog box, do one of the following:
 - Type the tag number of a telecom tag.
 - Click **Find** to open the **Find Telecom Tag** dialog box and select a tag number.
3. At the print preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- In the **General** tab folder of the **Preferences** dialog box, you can set SmartPlant Instrumentation to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating a PA Amplifier Report

You can generate a report that displays the complete PA (public announcements) speaker network connected to a specific amplifier.



Note

- You must install the Enhanced Report Utility on your local machine to be able to generate the communication line report. For details, see [Enhanced Report Utility Installation Guide](#).

➤ To generate a PA amplifier report

1. In the **Wiring Module** window, on the **Reports** menu, point to **Reports > Telecom**, and then click **PA Amplifier Report**.
2. In the **PA Amplifier Selection** dialog box, click **Find** to display available telecom panels and strips.
3. Select the strip that you require and click **Print**.
4. At the print preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- In the **General** tab folder of the **Preferences** dialog box, you can set SmartPlant Instrumentation to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating a Cable Harness Report

The Cable Harness report displays details of every cable in a particular harness, which includes the cable sets and wires, and the panels, strips, and terminals to which the cable ends may be attached. If you select more than one cable harness, the software generates a separate enhanced report for each cable harness.

➤ To generate a Cable Harness report

1. Start the [Wiring](#) module.
2. On the **Reports** menu, click **Cable Harness**.
3. In the **Cable Harness Selection** dialog box, in the **Cable harness** field under **Search parameters**, type the name of a specific cable harness that you want to find, or leave the field blank if you want to display all the cable harnesses.
4. Click **Find** to display the cable harnesses.
5. Under **Search results**, highlight one or more cable harnesses (hold down **Ctrl** for multiple selection).



Caution

- The software requires a large amount of memory to display graphical items in enhanced report previews. For this reason, we recommend that you do not select a large number of cables at once for previewing reports.
6. If required, under **Print options**, select **Page break per cable** to display details of each cable on a separate sheet of the report.
 7. Click **Print**, and at the preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated report. Choose this option if you want to modify or annotate the report.
 - Click **No** to start printing the report without displaying its print preview.



Notes

- On the **General** page of the **Preferences** dialog box, you can set the software to display a print preview always, never or with your approval.
- If you select not to preview a report, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured to enable report generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.
- If, in the Enhanced Report Utility, you save custom changes for this report, the software does not save changed positions of entities on the drawing sheet.

Enhanced SmartLoop Reports

Generating Enhanced SmartLoop Reports

Use the Enhanced Report Utility to generate Enhanced SmartLoop reports automatically. You can perform loop drawing generation in single or batch mode.



Note

- When generating Enhanced SmartLoop reports in batch mode, the software applies the generation method defined in the **Preferences** dialog box, on the page **Enhanced Reports > Enhanced SmartLoop > View**. The available settings are Per Loop and Per Signal.

➤ To generate Enhanced SmartLoop drawings

1. In the **Loop Explorer**, select one or more loops.



Tip

- If among the loops that you selected there are loops assigned to the Manual method (symbol **M** in the **Loop Explorer**), the software skips these loops when generating drawings in batch mode.
2. On the shortcut menu, point to **Reports** and click **Generate Loop Drawings**.
 3. In the **Generate Loop Drawings** dialog box, from the **Generation method** list, select **Enhanced SmartLoop**.
 4. Specify automatic save options if required.
 5. Click **OK**, and at the preview prompt, do one of the following:
 - Click **Yes** to open the print preview of the generated drawing. Choose this option if you want to modify or annotate the drawing.
 - Click **No** to start printing the drawing without displaying its print preview.



Tips

- On the **General** page of the **Preferences** dialog box, you can set one of the following options to display a print preview: **Always**, **Never**, or **Ask user**.
- If you select not to preview a drawing, and you are using Acrobat Distiller as your default printer, make sure that Distiller is configured to enable drawing generation without prompting for the output file location. To do this, open the Distiller **Preferences** dialog box and under **Output Options**, clear the check boxes **Ask for PDF file destination** and **Ask to replace existing PDF file**.

Generating Enhanced SmartLoop Reports from Wiring Signals

From the [Wiring](#) module **Connection** window, you can select one or more cables, cable sets, or wires that have signals and generate an Enhanced SmartLoop drawing for each loop that is associated with the signals.

➤ To generate Enhanced SmartLoop drawings from wiring signals

1. In the [Wiring](#) module, select a cable or panel that includes one or more tag signals.
2. Right-click the selected entity and on the shortcut menu, point to **Actions** and click **Connection**.
3. In the **Connection** window, select one or more cables, cable sets, or wires.
4. Do one of the following:
 - On the **Reports** menu, click **Generate Enhanced SmartLoop**.
 - On the shortcut menu, click **Generate Enhanced SmartLoop**.


Enhanced SmartLoop Drawing Generation Methods

You can generate Enhanced SmartLoop drawings using the following methods:

- Per Loop
- Per Signal
- By Custom Symbol

You select the required method per loop in the **Domain Explorer** (or in the **Loop Explorer**, which is only accessible from the [Loop Drawings](#) module). You can also specify in the **Preferences** dialog box which generation method to use by default and whether to display each signal on a separate drawing sheet when you select **Per Signal** as the generation method.

➤ To change the generation method

1. Do one of the following:
 - Press F7 to open the **Domain Explorer** and then expand the hierarchy to the loop level in the **Loops** folder.
 - On the [Loop Drawings](#) module toolbar, click  to open the **Loop Explorer**.
2. Do one of the following:
 - In the tree view pane, right-click a desired loop.
 - In the **Entities** pane, select and right-click several loops.
3. On the shortcut menu, point to **Apply Generation Method > Enhanced SmartLoop**, and click the desired generation method.

Customizing New Background Sheets

SmartPlant Instrumentation comes shipped with several predefined templates (background sheets), with which you generate enhanced reports. The templates are saved per layout, meaning that they affect all the entities that are associated with the selected layout. This procedure explains how to create new templates, customize them to the required size, orientation, and title block placement, and associate them with specific reports, in the **Preferences** dialog box.

To create a new background sheet you use the following main steps:

- Creating a file with the required background sheet size and orientation (landscape, portrait).
- Creating a file with the appropriate title block with which the background sheet is associated.
- Associating the created files with the required loop setting.



➤ To create the size and orientation background sheet file

1. In the SMARTPLANT\INSTRUMENTATION\RAD\TEMPLATE folder, open an existing predefined template file, for example, A4WIDE.SMA
2. On the **File** menu, click **Sheet setup**.
3. On the **Size and Scale** tab, select the **Standard** radio button and from the list, select the required sheet size.
4. On the **File** menu, click **Save as**.
5. Enter the required file name, for example A4WIDE.SMA, and click **Save**.

Creating a Title Block File

This procedure explains how to create a file with a title block that can be superimposed over a file with a background sheet. The title block file is created to fit the target background sheet size.

➤ To create a title block file

1. In the SMARTPLANT\INSTRUMENTATION\RAD\TEMPLATE\TYPES\ folder, in the required report type folder, open an existing title block file (.sma).
2. On the **File** menu, click **Sheet Setup**.
3. On the **Size and Scale** tab, select the **Standard** radio button and from the list, select the required sheet size.
4. Select the title block, and click .
5. Fit the title block to the sheet size, and click .
6. Place the cursor on the lowest, leftmost corner of the selected title block and click it once.
7. On the **File** menu, click **Save as**.
8. Enter the required title block name, make sure that the entered name distinguishes the title block from other title blocks in that folder, for example, A4wide and A4tall.

Serial Fire and Gas Loops

The Enhanced Report Utility provides the ability to generate multi-tag loop drawings where all the tags have the same functional type (flow, pressure, temperature etc). The Enhanced Report Utility supports the display of two or more tags with the same functional type connected in a line. A common use of this feature is to represent gas or fire detectors, which are usually positioned in a sequential arrangement in a row. Other devices can also be grouped in this way.



Notes

- These loops with their tags are created in the [Instrument Index](#) module.
- The standard SmartLoop cannot display more than two tags with the same functional type in a line.

Defining Shared Symbol and Template Paths for Several Users

This procedure explains how to join the symbol folders of several machines that have the Enhanced Report Utility installed into one shared folder. You can use this procedure to define such a path to a common template folder as well. These folders are important to define because in this way you ensure that the background sheets and symbols are identical to all the users.

➤ To set the symbol and background sheet saving folders

- Add the following lines to the INTOOLS.INI file under the **SmartLoop** section:
`SymbolsPath="e:\smartloopprjct\symbols1",`
`TemplatePath="e:\smartloopprjct\Templatel"`




Note

- The folder and drive may differ from the example.

Creating Filters for Entities

You can create one or more filters for filtering macros and redlining for an entity in an Enhanced SmartLoop report, according to selected properties of the entity.

➤ To create a filter for an entity

1. In the **Loop Explorer**, highlight and right-click the desired loop.
2. On the shortcut menu, point to **Actions** and click **Define Filter for Entity**.
3. From the **Filter for** list, select an entity.
4. Click  beside the **Filter** list.
5. In the **Entity Filters** dialog box, click **New** to add a row to the data window.




Note

- The entity that you selected in the **Define Filter for Entity** dialog box appears automatically in the **Entity** column.
6. Type a name for the filter in the **Filter** column.
 7. Click **OK** to save the settings and close the **Entity Filters** dialog box.
 8. In the **Define Filter for Entity** dialog box, set the filter conditions for the created filter.

Editing Filters for Entities

In the **Entity Filters** dialog box, you can edit your filter data defined for an entity selected in the **Define Filter for Entity** dialog box.

➤ To edit a filter for an entity

1. In the **Loop Explorer**, highlight and right-click a required loop.
2. On the shortcut menu, point to **Actions** and click **Define Filter for Entity**.
3. From the **Filter for** list, select an entity.
4. Click  beside the **Filter** list.
5. In the **Entity Filters** dialog box, edit the values under the **Filter** and **Description** columns as you require.



Tip

- You can type a required filter name in the **Find filter** box; the corresponding row in the data window is highlighted as you type.

Deleting Filters for Entities


This option allows you to permanently delete a filter from the **Entity Filters** dialog box.



Caution

- If you delete a filter, all filter conditions defined for an entity associated with this filter are lost.

➤ To delete a filter for an entity

1. In the **Loop Explorer**, highlight and right-click the required loop.
2. On the shortcut menu, point to **Actions** and click **Define Filter for Entity**.
3. From the **Filter for** list, select an entity.
4. Click  beside the **Filter** list.
5. In the **Entity Filters** dialog box, in the data window, select the filter that you want to delete.
6. Click **Delete**.
7. When prompted, click **Yes** to remove the highlighted row from the data window.



Note

- In the **Define Filter for Entity** dialog box, the filter is deleted from the **Filter** list defined for the item selected in the **Filter for** list.

Setting Filter Conditions for Entity Properties


This option enables you to define the conditions which you can use for filtering macros and redlining that you add to an Enhanced SmartLoop report. In the SmartPlant Instrumentation database, a filter is associated with a specific entity, so that you cannot use the same filter for another entity. If necessary, you can define several filters for the same entity.

➤ To set filter conditions for entity properties

1. In the **Loop Explorer**, highlight and right-click the required loop.
2. On the shortcut menu, point to **Actions** and click **Define Filter for Entity**.
3. From the **Filter for** list, select an entity.
4. From the **Filter** list, select a filter.



Note

- To create a new filter, click  beside the **Filter** list to open the **Entity Filters** dialog box, where you can define a set of filters for the selected item.

5. Click **Edit** to enable access to the command buttons on the right.



Note

- When clicked, the **Edit** button changes to **Apply**.

6. Click **Add** to append a new data row.
7. Click the **Browser** data field to highlight a browser from the list.



Note

- Options in the **Browser** list appear in accordance with the selected item.

8. From the **Property** column, select one of the entity properties.

**Note**

- If the property that you are looking for does not appear in the list, **select Display browser** list, and in the **Browser** list that appears in the data window, select another browser.
9. To define an appropriate conditional expression for the filter, do the following:
 - a) Click the **Operator** data field and select a suitable operator to determine how the selected field will relate to the expression in the **Value** field
 - b) In the **Value** data field, to determine how the selected field will be specified, do one of the following:
 - Select a value from the list of values registered in SmartPlant Instrumentation for the selected field.
 - Type a text field value.
 - c) Depending on whether you want to add another filtering condition, in the **Logic** data field, do one of the following:
 - Leave the **Logic** field empty if you have defined only one filtering condition.
 - Click the **Logic** field and select either **And** or **Or** if you have defined several filter conditions. Selecting **And** includes the following expression in the filtering condition. Selecting **Or** accepts either the previous or the following expression in the filtering condition.
 10. Click **Verify** to check the validity of the current filtering condition.

Changing the Terminal Type Symbols

This option enables you to select a symbol for terminals according to their type. When you generate a drawing, the data related to the terminal and its symbol is automatically retrieved and displayed (this data is defined in the [Wiring](#) module).


➤ To change terminal type symbols

1. Start the [Wiring](#) module.
2. In the **Wiring Explorer**, expand the device panel that you require to display its strips and terminals.
3. Right-click a terminal and on the shortcut menu, click **Properties**.
4. In the **Terminal Properties** dialog box, in the **Type** list, select a terminal type.

Prioritizing the Tag Display in a Loop Drawing

When generating a drawing, the Enhanced Report Utility retrieves the data related to the location of each tag within the specific loop and displays it according to a predetermined order. You can change this order, giving each tag within the loop its own sequential priority (numeric sequence).

➤ To set priorities between tags within a loop

1. Start the [Instrument Index](#) module
2. Click  to open an Instrument Index Standard Browser view.
3. In the **Seq** column, change the priority-within-a-loop number for the required tags.
4. Press the **Enter** key to save the new priority settings.

Using Custom Symbols

Generating Reports with Custom Symbols: An Overview

There are several enhanced reports that the software generates using custom symbols. These include the layout reports – Room Layout, Panel Layout and Rack Layout – which always use custom symbols, and also the Enhanced SmartLoop and Fieldbus Loop reports, which use custom symbols when you generate them using the [By custom symbols](#) generation method. You design custom symbols using the Symbol Editor. For details of how to create custom symbols, see the [Symbol Editor Online Help](#).

Before you can generate Room Layout, Panel Layout and Rack Layout reports, you must specify in the **Preferences** dialog box the correct path on the **File Locations** page for the particular report under **Symbol folder**. When you generate Enhanced SmartLoop and Fieldbus Loop reports using generation method [By custom symbols](#), you must specify a path under **Custom symbol folder**.

You can open the **Domain Explorer** and associate symbols with entities. When you use the custom symbol generation method, with the Explorer open in the Enhanced Report Utility, you can drag entities to place their symbols in the desired position on the drawing sheet.

There are two ways of working with terminal symbols when using the custom symbol generation method:

1. Associating a symbol with a panel, where the symbol exactly represents the panel-strip-terminal configuration and dragging the entire panel. You do this when you want to display the entire panel on the drawing sheet.
2. Associating a symbol with a terminal and with the terminals displayed in the lower pane, selecting the terminals that you want to display and dragging them onto the drawing sheet. The software displays the terminals with their associated strips and panels, together with the appropriate macros.



Note

- If you do not associate the terminals with any symbols, the software associates the first selected terminal by default with the symbol FirstTerminal.sym, which includes panel, strip, and terminal macros. The software associates all subsequent terminals with the symbol Terminal.sym, which includes terminal macros only.

Associating Symbols

This procedure enables you to associate a custom symbol with a SmartPlant Instrumentation entity. In the Enhanced Report Utility, you can drag the entity from the **Domain Explorer** onto a drawing sheet and in doing so place the symbol for that entity in the desired location.

➤ To associate symbols with an entity

1. In the **Domain Explorer**, select the desired entity, for example, a particular panel.
2. Right-click the entity and click **Properties**.
3. Click the **Associate Symbols** tab.
4. Click **New**.
5. In the **Report Type** column, select the desired report type.
6. Beside the **Symbol File** column, click **Browse**.
7. Navigate to the desired .sym file.
8. Repeat steps 4 -7 to associate symbols with the entity for other report types.



Notes

- You can associate each entity with one symbol only per available report type.
- You can associate the same symbol with more than one entity if you desire.

Dissociating Symbols

This procedure enables you to dissociate a custom symbol from an entity.

➤ To dissociate symbols from an entity

1. In the **Domain Explorer**, select the desired entity, for example, a particular panel.
2. Right-click the entity and click **Properties**.
3. Click the **Associate Symbols** tab.
4. Select the line with the report type where you want to dissociate the symbol.
5. Do one of the following:
 - Delete the file path that appears under the **Symbol File** column.
 - Click **Delete** to delete the entire line.
6. If necessary, repeat the previous steps for symbols of other report types associated with the entity.