Hook-Ups Module

Overview

The Hook-Ups module provides for the creation, viewing and editing of installation details for all prepared instrument drawings (hook-ups) within a domain.

This module takes care of important managerial tasks quickly and easily such as assigning instrument types to hook-up type, maintaining user definable hook-up databases, and providing the total quantity of items to order (from tag numbers retrieved from the Instrument Index).

Specialized reports such as the Hook-Up Item List, Tag List, and especially the Bill of Material (BOM) can all be printed to satisfy the needs of managers, team members, and clients.

The Hook-Ups module offers the user a friendly working environment for handling all of these tasks simply and effectively. You can create and manage diverse aspects of hook-up drawing details whose main aim is to generate a BOM.

The **Hook-Up Explorer** depicts the hierarchy of hook-up data. In the hierarchy, the tag numbers are linked to user-defined hook-ups (installation detail drawings), which are in turn linked to a hook-up type. You can determine the name of each hook-up type based on your specific requirements.

When the **Hook-Up Explorer** is initially opened, hook-up types are defined first, followed by hook-ups, and finally assigning tag numbers.

One library is created in the Hook-Ups module, which is in fact the plant default library. The completeness of this library is up to the user. You can pick up hook-up items are picked from the **Item List for Current Item Library** dialog box, or assign them to a specific hook-up. The item numbers and other details entered, such as Material and Total for Order, comprise the BOM.

 **Note**

- This module does not include prepackaged drawings.

Starting the Hook-Ups Module

The following procedure explains how to start the Hook-Ups module where you can create, view, and edit installation detail drawings and generate a Bill of Material.

➢ **To start the Hook-Ups module**

- Do one of the following:
  - Click  .
  - On the **Modules** menu, click **Hook-Ups**.

 **Note**

- You can open more than one module, if needed, and keep several modules running simultaneously. The number of modules that you can run simultaneously depends, of course, on your computer resources.

Working with Hook-Ups and Hook-up Types

Adding Hook-Up Types

A hook-up type is a common name of group of hook-ups that share distinguishing characteristics common to one kind of instrument. These characteristics set one hook-up type apart from another type, for example Flow, Temperature, Level, and so forth.

Adding hook-up types is the first step required to create the three levels needed to link up to the Instrument Index module where the instruments that will be chosen for a specific hook-up are obtained.

➢ To add a hook-up type

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, expand the hierarchy and right-click the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**, and then right-click the root folder Hook-Up Explorer.
2. On the shortcut menu, point to **New** and click **Hook-Up Type**.
3. In the **Hook-Up Type Properties (New)** dialog box, type a unique hook-up type name and an optional description.
4. Click **OK**.

Editing Hook-Up Type Definitions

This option enables you to modify the definition of existing hook-up types. You can select multiple hook-up types if needed.

➢ To edit hook-up type definitions

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. Do one of the following:
   - In the tree view pane, right-click a desired hook-up type.
   - In the **Entities** pane, select and right-click several hook-up types.
3. On the shortcut menu, click **Properties**.
4. In the **Hook-Up Type Properties** dialog box, modify the hook-up type name and description.
5. If you selected more than one hook-up type, click **Next** and modify the name and description for another hook-up type.
6. Click **OK**.

Assigning Hook-Up Types to an Instrument Type

Use this procedure to assign one or more hook-up types an instrument type. Your database can contain a seemingly endless number of tag numbers. To make the task of attaching multiple instruments to a specific hook-up type manageable, use a filter that allows you to assign any instrument type in the current domain to your hook-up type.

Note

- Assigning hook types to instrument types is an action independent of the **Hook-Up Explorer**. You need to assign a hook-up type to an instrument type after creating the hook-up type.

➢ To assign hook-up types to an instrument type

1. In the **Hook-Ups Module** window, do one of the following:
   - Click  .
   - On the **Actions** menu, click **Hook-Up Type – Instrument Type Assignment**.
2. In the **Hook-Up Type – Instrument Type Assignment** dialog box, under **Instrument types**, select a target instrument type.

   Tip

   - If there is a large number instrument types in the data window, in the **Find instrument type** box, type a string that represents all or part of a value that appears in the **Type** column of the data window.

3. Click **Assign**.
4. In the **Assign Hook-Up Type to Instrument Type** dialog box, select a hook-up type that you want to assign, and then click **OK**.
5. Repeat the previous four steps to assign as many instrument types to hook-up types as you need.

   Tip

   - An instrument type can be assigned to more than one hook-up, for example, FT can be assigned to the Flow hook-up type and to other hook-up types, such as Instrument Supports.

Deleting Hook-Up Types

This option enables you to delete one or more hook-up types which are not associated with any hook-ups. You cannot delete a hook-up type that has already been associated with a hook-up. To delete a hook-up type that contains hook-ups, first delete the hook-ups.

➢ To delete hook-up types

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. Do one of the following:
   - In the tree view pane, right-click a hook-up type that does not have hook-ups.
   - In the **Entities** pane, select and right-click several hook-up types that do not have hook-ups.
3. On the shortcut menu, click **Delete**.

Adding Hook-Ups to Hook-Up Types

Use this procedure to add one or more hook-ups to existing hook-up types. A hook-up is a graphical representation of an assembly drawing — a drawing prototype. Adding a hook-up to a hook-up type is a prerequisite for assigning instruments tags to hook-ups.

➢ To add hook-ups to hook-up types

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy and double-click the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. In the **Entities** pane, select and right-click hook-up types to which you want to add new hook-ups.
3. On the shortcut menu, point to **New** and click **Hook-Up**.
4. In the **Hook-Up Properties** dialog box, from the **Hook-up type** list, select the hook-up type name.
5. In the appropriate boxes, enter a unique name for the new hook-up and an optional description.
6. From the **Hook-up sub-library** list, select a sub-library to which you want to assign the hook-up.

   Note

   - If you do not work with user-defined sub-libraries, the software assigns the hook-up to the default sub-library automatically. If you work with user-defined sub-libraries, we recommend that you read the topic Assigning a Hook-Up to a Sub-Library.

7. Beside **Drawing block file name and path**, click **Browse** to navigate to the drawing block file name and path.

   Tips

   - Click **View** to open the selected drawing in the CAD application installed on your computer.
   - The path setting that appears in the **Generation output path box** is the path that you specified in the **Generate Hook-Up Drawings** dialog box. The software only displays the path if you already generated a hook-up drawing for the source hook-up.

8. Click **Next** and repeat the steps 5-7 if you want to add another hook-up to the select hook-up type.

9. From the **Hook-up type** list, select another hook-up type and add new hook-ups as you require.

10. Click **OK** to save the new hook-ups and close the dialog box.

Assigning a Hook-Up to a Sub-Library

Use this procedure to assign a hook-up to a user-defined sub-library or to change the existing hook-up sub-library assignment.

You can assign a hook-up to a sub-library when performing the following activities:

- Adding a new hook-up to a hook-up type — You can assign any new hook-up to any sub-library.
- Editing properties of an existing hook-up
- Duplicating a hook-up

When editing or duplicating hook-up properties, you can change the existing assignment of a hook-up sub-library under the following conditions:

- If the hook-up has associated tags with pipe spec data, the target user-defined sub-library must also have pipe specs suitable for association of these tags.
- The target user-defined sub-library must contain all items that are assigned to the hook-ups.

➢ To assign a hook-up to a sub-library

- In the **Hook-Up Properties** dialog box, from the **Hook-up sub-library** list, select a desired sub-library.

  Tips

  - You can always assign any hook-up to the default sub-library because it contains all hook-up items in the current item library.
  - To display pipe specs associated with the user-defined sub-library that you selected, click **Pipe Specs**. To learn how to assign pipe specs to a hook-up, see Managing Existing Item Sub-Libraries.

Editing Hook-Up Properties

This procedure enables you to edit the properties of existing hook-ups.

➢ To edit the properties of selected hook-ups

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. In the tree view pane, select a hook-up type.
3. In the **Entities** pane, select and right-click one or more hook-ups.
4. On the shortcut menu, click **Properties**.
5. In the **Hook-Up Properties** dialog box, modify the hook-up name and description as you require.

    **Note**

   - If you do not work with user-defined sub-libraries, the software assigns the hook-up to the default sub-library automatically. If you work with user-defined sub-libraries and want to assign the hook-up to another sub-library, make sure that you do not violate the assignment conditions. For details, see Assigning a Hook-Up to a Sub-Library.

6. Beside **Drawing block file name and path**, click **Browse** to navigate to the drawing block file name and path.

    **Tips**

   - Click **View** to open the selected drawing in the CAD application installed on your computer.
   - If you selected more than one hook-up, click **Next** to displays the properties of the next hook-up, or click **Previous** to displays the properties of the previous hook-up.
   - The path setting that appears in the **Generation output path box** is the path that you specified in the **Generate Hook-Up Drawings** dialog box. The software only displays the path if you already generated a hook-up drawing for the source hook-up.

Duplicating Hook-Ups

This option enables you to duplicate one or more existing hook-ups. When duplicating hook-ups, the software automatically copies the tags and items associated with the source hook-ups.

➢ To duplicate a hook-up

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. In the tree view pane, select a hook-up type.
3. In the **Entities** pane, select and right-click one or more hook-ups.
4. On the shortcut menu, click **Properties**.
5. Accept the displayed description or modify it as needed.

    **Note**

   - If you do not work with user-defined sub-libraries, the software assigns the hook-up to the default sub-library automatically. If you work with user-defined sub-libraries and want to assign the hook-up to another sub-library, make sure that you do not violate the assignment conditions. For details, see Assigning a Hook-Up to a Sub-Library.
6. Beside **Drawing block file name and path**, click **Browse** to navigate to the drawing block file name and path.

    **Tips**

   - Click **View** to open the selected drawing in the CAD application installed on your computer.
   - If you selected more than one hook-up, click **Next** to displays the properties of the next source hook-up, or click **Previous** to displays the properties of the previous source hook-up.
   - The path setting that appears in the **Generation output path box** is the path that you specified in the **Generate Hook-Up Drawings** dialog box. The software only displays the path if you already generated a hook-up drawing for the source hook-up.
7. Click **Next** and repeat the steps 5 and 6 if you want to duplicate another hook-up that you selected.

Deleting Hook-Ups

This option enables you to delete a hook-up which is not associated with any tag numbers. You cannot delete a hook-up that has already been associated with tag numbers. If an association exists, first dissociate the tag numbers from this hook-up and then delete the hook-up.

➢ To delete hook-ups

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. In the tree view pane, select a hook-up type.
3. In the **Entities** pane, select and right-click one or more hook-ups.
4. On the shortcut menu, click **Delete**.

Moving Specific Hook-Ups to Another Hook-Up Type

This procedure enables you to move one or more hook-ups from a specific hook-up type to another existing hook-up type.

➢ To move selected hook-ups to another hook-up type

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. In the tree view pane, select a source hook-up type from which you want to move one or more hook-ups.
3. In the **Entities** pane, select and right-click hook-ups that you want to move.
4. On the shortcut menu, point to **Actions** and click **Move Hook-Ups**.
5. In the **Move Hook-Ups** dialog box, select a target hook-up type.
6. Click **OK**.

Moving All Hook-Ups to Another Hook-Up Type

This procedure enables you to move all hook-ups from one or more hook-up types to another existing hook-up type.

➢ To move all hook-ups from selected hook-up types to another hook-up type

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy and double-click the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. In the **Entities** pane, select and right-click source hook-up types.
3. On the shortcut menu, point to **Actions** and click **Move Hook-Ups**.
4. In the **Move Hook-Ups** dialog box, select a target hook-up type.
5. Click **OK**.

Working with Tag Numbers

Dissociating Tag Numbers from Hook-Ups

This option enables you to remove unnecessary tag numbers from one or more hook-ups that belong to a specific hook-up type, or to several hook-up types.

➢ To dissociate tag numbers from hook-ups

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. Do one of the following:
   - In the tree view pane, select a hook-up and then, In the **Entities** pane, select and right-click one or more hook-ups.
   - In the tree view pane, select the hook-up hierarchy root node to display all the existing hook-up types in the **Entities** pane, and then, in the **Entities** pane, right-click one or more hook-up types.
3. On the shortcut menu, point to **Actions** and click **Hook-Up Tag Numbers**.
4. If in the **Explorer** you selected more than one hook-up type, in the dialog box that opens, from the **Hook-up type** list, select a desired hook-up type.
5. From the **Hook-up** list, select a hook-up from which you want to dissociate tags.
6. Under **Assigned tag numbers**, select the tags that you need to remove.
7. Click **Remove**.
8. Repeat the appropriate steps to remove tag numbers from other hook-ups.

Associating Tag Numbers with Hook-Ups

Use this procedure to assign one or more tag numbers to one or more hook-ups. The hook-ups can that to the same or different hook-up types.

➢ To associate tag numbers with hook-ups

1. Do one of the following:

   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.

2. Do one of the following:

   - In the tree view pane, select a hook-up and then, In the **Entities** pane, select and right-click one or more hook-ups.
   - In the tree view pane, select the hook-up hierarchy root node to display all the existing hook-up types in the **Entities** pane, and then, in the **Entities** pane, right-click one or more hook-up types.

    **Tip**

   - When selecting a hook-up type or several hook-up types, you can assign tags to multiple hook-ups that belong to different hook-up types. If you select a specific hook-up, you can only assign tag numbers to the selected hook-up.

3. On the shortcut menu, point to **Actions** and click **Hook-Up Tag Numbers**.
4. If in the **Explorer** you selected more than one hook-up type, in the dialog box that opens, from the **Hook-up type** list, select a desired hook-up type.
5. From the **Hook-up** list, select a hook-up to which you want to assign tag numbers.
6. Click **Assign** to open the **Assign Tag Numbers to Hook-Up** dialog box.
7. Under **Instrument type**, select an instrument type by which you want to filter tag numbers in the **Tag numbers for assignment** data window.

8. Under **Tag numbers for assignment**, select tag numbers that you want assign to the specified hook-up.

   Tips

   - Tag numbers displayed in *italics* indicate tag numbers that are already assigned to another hook-up. You can still assign these tag numbers to the current hook-up. The **Associated hook-ups** data window shows the hook-ups to which the tag number displayed in italics is assigned.

   - If the specified hook-up is assigned to a user-defined sub-library with pipe specs, the software filters the tag numbers so that only tag numbers with the appropriate pipe spec data are displayed. The software only displays tag numbers whose pipe spec data fits the pipe specs assigned to the sub-library to which the hook-up belongs.

   - You can display the available tag numbers either on the highest or lowest level of your plant hierarchy defined by the Domain Administrator. The default highest level is Plant. The default lowest level is Unit.

9. Click **Assign**.

10. Click **OK** to return to the **Hook-Up Tag Numbers** dialog box, where you can select another hook-up type or hook-up for tag assignment.

Working with Hook-Up Drawings and Blocks

Hook-Up Drawing Generation Overview

You can generate a hook-up drawing using an external CAD application such as SmartSketch, AutoCAD, or MicroStation. Generated drawings contain the hook-up block drawing, the list of assigned tag numbers, and hook-up items associated with the current hook-up. To enable hook-up drawing generation, make sure you select this option in the **Hook-Ups** section of the **Preferences** dialog box.

The hook-up drawing that you generate can contain more than one drawing sheet. This can happen if the number of tag numbers associated with the selected hook-up is bigger than the number of macros that can be accommodated on the first hook-up drawing sheet. In this case, SmartPlant Instrumentation provides two options:

- Use the same drawing on all sheets (the **Same as First** option).
- Use another pre-defined drawing on the second and all other subsequent sheets (the **General Drawing** option.

Tip

- Before you start generating hook-up drawings, it is recommended that you fill out the hook-up drawing data fields.

Hook-Up Drawing Generation Guidelines

To enable hook-up drawing generation, make sure that you select the appropriate option in the **Hook-Ups** section of the **Preferences** dialog box.

First, create the drawing in your CAD application and insert the macros according to your preferences.

Then, if you are using the **General Drawing** option, create a second drawing that will serve as your General Drawing. Define your general drawing in the **Hook-Up Drawing Preferences**.

Generating Hook-Up Drawings

The following procedure explains how to generate one or more hook-up drawings that belong to the same or different hook-up types.

➢ To generate hook-up drawings

1. Do one of the following:

   - Press F7 to open the **Domain Explorer** and then expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.

   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.

2. In the tree view pane, select a hook-up type.

3. In the **Entities** pane, select and right-click one or more hook-ups.

   Tip

   - In the **Explorer**, you can also select hook-up types instead of hook-ups. In this case, you can generate hook-up drawings that belong to all the hook-ups that are assigned to the selected hook-up types.

4. On the shortcut menu, point to **Reports** and click **Generate Hook-Up Drawings**.

5. If you want to save the generated hook-up drawing as an external CAD file, select the **Save file in format** check box, and then beside the **Path** box click **Browse** to navigate to a desired folder. To select a folder you have to select any file that exists in that folder.

   Tips

   - The file format that the software uses when saving a hook-up drawing depends on your CAD application. If you use AutoCAD, the software saves the drawing file in .dwg format. If you select MicroStation, the software saves the drawing file in .dgn format.

   - When using SmartSketch, you can save the drawings in any format available in the list. From the box below **Save file is format**, select a desired format. If you select SmartSketch, the software saves the drawing file in .sym format.

   - The output filename is the same as the hook-up name. If there are any spaces in the hook-up name, the software replaces the space with an underscore (_). The filename ends with an underscore (_) and a two-digit sequence number representing the page number of a multi-page drawing. For example, FLOW_TRANSMITTER_03.DWG.

6. If needed, select **Send to plotter / printer** to send the generated drawing to the current CAD plotter or printer.

7. If you want to apply the macro functions associated with macros, select **Use macro functions**.

   Tip

   - If you want to edit the hook-up drawing by separating the block into elements, select **Explode block**.

8. For a multi-page drawing generation, under **Drawing for subsequent pages**, click one of the following options:

   - **Same as first** — Display the generated hook-up drawing on the first page as well as on all the subsequent pages as well.

   - **General drawing** — Display the generated hook-up drawing on the first page and the general drawing on all the subsequent pages. The general drawing is a predefined drawing that you selected in the **Preferences** dialog box.

   Tip

   - For a multi-page drawing, you can enter the page number of the first generated page of the hook-up drawing in the **Generate from page** box. For example, if you enter the value 2 and then generate a hook-up drawing, the first page of the hook-up drawing displays the value 2. A multi-page drawing is a drawing in which the number of tags associated with the current hook-up is larger than the number of macros that can be accommodated in the generated hook-up drawing

Modifying Hook-Up Drawing Properties

Hook-up drawing properties appear in the title block fields. These fields contain identifying information about the drawing name, sheet number, and file name, and also information about revisions, approvals, and references to other documents. You can modify the property information using the options in the **Hook-Up Drawing List** dialog box.

See the following topics for details:

- Editing Identifying Fields
- Maintaining Hook-Up Drawing Revisions
- Revision Display Order
- Making Drawing References
- Making Approvals for Hook-Up Drawings

Editing Identifying Fields

For each hook-up drawing, SmartPlant Instrumentation displays the hook-up name and hook-up description. You can use this procedure to edit the hook-up name, description, and the output file name.

➢ To edit identifying fields

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. Do one of the following:
   - In the tree view pane, select a hook-up and then, In the **Entities** pane, select and right-click one or more hook-ups.
   - In the tree view pane, select the hook-up hierarchy root node to display all the existing hook-up types in the **Entities** pane, and then, in the **Entities** pane, right-click one or more hook-up types.
3. On the shortcut menu, point to **Actions** and click **Hook-Up Drawing List**.
4. In the **Hook-Up Drawing List** dialog box, select a row and click **Edit**.
5. In the **Drawing Name** field, type a name for the drawing.

   Note

   - If you type an existing drawing name, the software prompts you to confirm the multiple use of the name.

6. In the **Drawing Description** field, type a description.

7. To change the default output file name, do one of the following:

   - In the **Output File Name** field, type a different file name over the default name.

   - Beside the output file name string, click  to set a name of an existing file as the output file name for the current hook-up drawing.

    **Note**

   - The default output file name is the same as the hook-up name. If there are any spaces in the hook-up name, the software replaces the space with an underscore (_). The file name ends with an underscore (_) and a two-digit sequence number representing the page number of a multi-page drawing. For example, FLOW_TRANSMITTER_03.DWG. When the drawing consists of a single page, the file name ends with _01.

8. Repeat the appropriate steps of this procedure for any other hook-up drawing.

Making Drawing References

This option enables you to make a reference to a drawing and add this reference to the title block of the hook-up drawing.

➢ To make a drawing reference

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. Do one of the following:
   - In the tree view pane, select a hook-up and then, In the **Entities** pane, select and right-click one or more hook-ups.
   - In the tree view pane, select the hook-up hierarchy root node to display all the existing hook-up types in the **Entities** pane, and then, in the **Entities** pane, right-click one or more hook-up types.
3. On the shortcut menu, point to **Actions** and click **Hook-Up Drawing List**.
4. In the **Hook-Up Drawing List** dialog box, click **References** to open the **Document References** dialog box.
5. To insert a new drawing reference, click **New** and in the **Drawing Reference Properties** dialog box, do the following:
   a) Select a value from the **References** list.
   b) Type the name and description in the appropriate fields.
   c) Click **OK** to return to the **Document References** dialog box.
6. To edit a manually inserted drawing reference, select a desired row and click **Properties**, and in the **Drawing Reference Properties** dialog box, do the following:
   a) Edit the name and description values.
   b) Click **OK** to return to the **Document References** dialog box.

 **Tip**

- To delete a reference, select a desired row, and click **Delete**.

Making Approvals for Hook-Up Drawings

This option enables you to make client / vendor approvals for hook-up drawings.

➢ To make client / vendor approvals

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. Do one of the following:
   - In the tree view pane, select a hook-up and then, In the **Entities** pane, select and right-click one or more hook-ups.
   - In the tree view pane, select the hook-up hierarchy root node to display all the existing hook-up types in the **Entities** pane, and then, in the **Entities** pane, right-click one or more hook-up types.
3. On the shortcut menu, point to **Actions** and click **Hook-Up Drawing List**.
4. In the **Hook-Up Drawing List** dialog box, click **Approvals** to open the **Approvals** dialog box.
5. Click in the **By** and **Date** fields to enter values.

File Locations for Hook-Ups

You can only generate a hook-up drawing using a CAD application. The file locations for various CAD application files used for the Hook-Ups module are the same as the ones used for the Loop Drawings module. These paths appear in the **Preferences** dialog box.

Also, in the **Preferences** dialog box, you can specify independent default paths for blocks used in hook-ups.

File Locations Shared with the Loop Drawings Module

CAD folder

Contains the path to the CAD executable files. For example,

C:\Program Files\SmartSketch\program

CAD configuration folder

Contains the path to the CAD configuration file. For example,

C:\Program Files\SmartSketch\program

CAD function folder

Contains the path to the CAD function files. For example,

C:\Program Files\SmartPlant\Instrumentation\CAD\CADfunc

File Locations Independent from the Loop Drawings Module

Open drawing files from

Enables you to specify the default folder from which saved hook-up drawings are to be opened. For example,

C:\ProgramFiles\SmartPlant\ Instrumentation\CAD\Hook-Ups

Drawing block folder

Enables you to specify the path to be used as the default for new block files. For example,

C:\Program Files\SmartPlant\ Instrumentation\CAD\Blocks

Updating Paths for Hook-Up Drawings and Block Files

Use this procedure to update in the database paths for existing hook-up drawings and block files. You can update paths globally for block files associated with tag numbers and for hook-up drawings that you generated.

Note

- The paths that you specify do not overwrite the preferences settings specified for new block files and output drawings.

➢ To update paths for existing CAD drawings and block files

1. Open the Hook-Ups module.
2. On the **Actions** menu, click **Update Paths for Existing Drawings and Blocks**.
3. Under **Path for block files associated with tag numbers**, do one of the following:
   - Click **Apply to drawings in the domain or project** to apply the new path to all the <plants> in the current domain, or to the current project when the domain type is Operating owner.
   - Click **Apply to drawings in the current <plant> only** to apply the new path to the current <plant> only.
4. Type the full path to the folder where you keep your drawing blocks files or click **Browse** to navigate to the desired folder.
5. Under, **Path for generated hook-up drawings** do one of the following:
   - Click **Apply to blocks in the domain or project** to apply the new path to all the <plants> in the current domain, or to the current project when the domain type is Operating owner.
   - Click **Apply to blocks in the current <plant> only** to apply the new path to the current <plant> only.
6. Type the full path to the folder where you keep your generated hook-up drawings or click **Browse** to navigate to the desired folder.

Selecting Default Blocks

This procedure enables you to select default border and logo blocks for the hook-up drawings that you generate.

Notes

- To activate this option, in the **Preferences** dialog box, click **Use global border / logo**.
- Your selection of default blocks in the Hooks-Ups module does not influence default border and logo settings in the Loop Drawings module.

➢ To set the default border and logo for hook-up drawings

1. In the Hook-Ups module, on the **Actions** menu, click **Default General Blocks**.
2. Select a block for the default border and logo.

   Note

   - You set the contents of the **Border Block** and **Logo Block** lists in the Loop Drawings module, in the **Blocks** dialog box.

3. Click **OK**.

Hook-Up Macro Conventions

This topic illustrates the hook-up macro naming conventions and provides a list of hook-up macro names defined in SmartPlant Instrumentation. In the Hook-Ups module, all the macros belong to a HOOK-UP macro group. The HOOK-UP macro contains the following macro types ITEMS, TAG, and GENERAL, where each type has its own hook-up macro names. In addition, in the Loop Drawings module, you can use other macro types for your hook-ups and hook-up title blocks.

The hook-up macro conventions are:

- MACRO_NAME
- MACRO_NAME.X

Note

- For the macro structure MACRO_NAME.X, 'X' designates a number indicating the order of assignment to a hook-up or a tag. For example, ITEM_MODEL.8, ITEM_SIZE.10, TAG.23.

Item Information

Macro Name	Description
ITEM_NUMBER	Item number
ITEM_DESC	Item description
ITEM_QTY	Item quantity
ITEM_MFR	Item manufacturer
ITEM_MATER	Item material
ITEM_COST	Item cost
ITEM_STOR	Item store
ITEM_SIZE	Item size
ITEM_MODEL	Item model
ITEM_RATING	Item rating
ITEM_UNIT	Item unit
ITEM_QTY_NOUOM	Item unit of measure code
HU_ITEM_UDF_C01 through HU_ITEM_UDF_C10	Item custom fields 1 – 10

Item Library Information

Macro Name	Description
CURR_LIB_NAME	Current item library name
CURR_LIB_DESC	Current item library description
SUB_LIB_NAME	Item sub-library name
SUB_LIB_DESC	Item sub-library description

General Macros

Macro Name	Description
HOOKUP_UDF_C01 through HOOKUP_UDF_C10	Hook-up custom fields 1 – 10

Tag Number Information

Macro Name	Description
TAG	Tag numbers assigned to the hook-up
TAG_P&ID	P&ID drawing reference associated with the hook-up tag numbers

The following macro types are available in the Loop Drawings module for adding macros to a hook-up type title block:

Hook-Up Information

Macro Name	Description
HU_NAME	Hook-up name
HU_DESC	Hook-up description
HU_DWG	Hook-up drawing path
HU_TYP	Hook-up type

Drawing Detail

Macro Name	Description
DWG_NAME	Short description of the drawing

Revision Macros

Macro Name	Description
DWG_REV_DATE	Drawing revision date
DWG_REV_DESC	Drawing revision description
DWG_REV_NUM	Drawing revision number
REV_APPR_BY	Revision approved by
REV_CHK_BY	Revision checked by
REV_DRAWN_BY	Revision drawn by
CURR_REV_NUM	Current revision number

Title Block Information

Macro Name	Description
PROJ_DESC	Project description
PROJ_NAME	Project name
PROJ_NUM	Project number
PLNT_NAME	<Plant> name
AREA_NAME	<Area> name
UNIT_NAME	<Unit> name
UNIT_NOTE	<unit> note
UNIT_NUM	<unit> number
TOTAL_SHEET_NO	Total number of hook-up drawing pages
DATE	Date
TIME	Time

Setting New Hook-Up Macro Definitions

When setting new hook-up macro definition properties, you can customize the name, description, and macro function of an existing default macro to fit your drawing requirements. This way you save the macro under the customized name while the default macro remains unchanged in the database. Also, other users working in the same domain, or in the same project (when the domain type is Operating owner) can use the customized macro definition.

In the Hook-Ups module, you can set macro definition properties only for macro attributes that belong to the HOOK-UP macro group and are not used in loop drawings.

Tip

- This option can be useful when you want to display the same data in several places on a hook-up drawing and apply different display formats to each of the iterations. (For details of how to apply the formats, see User-Defined Macro Functions.)

➢ To set new macro definition properties

1. Open the Hook-Ups module, and do one of the following:
   - Click  .
   - On the **Tables** menu, click **Hook-Up Macro Definitions**.
2. In the **Hook-Up Macro Definitions** dialog box, filter the macro display as follows:
   a) From the **Macro type** list, select a macro type.
   b) From the **Macro attribute** list, select a macro attribute to filter the displayed macro definitions.
3. Click **New** to add a new macro definition to the list of existing macro definitions.
4. In the **Hook-Up Macro Definition Properties (New)** dialog box, filter the macro display as follows:
   a) From the **Macro type** list, select a macro type to display the appropriate macro attributes.
   b) From the **Macro attribute** list, select a macro attribute to filter the displayed macro definitions.
5. In the data window, select a default macro to be used as the basis for the new macro definition.
6. Under **User-defined properties**, in the **Name** field, type the macro name.

7. In the **Description** field, if required, overtype the default macro description with your custom description.

8. If required, select a user-defined function to apply to the macro by doing the following:

   a) Click **Function**.

   b) In the **Assign User-Defined Macro Function** dialog box, select a macro function and click **OK**.

9. Click **Apply**.

10. Click **Close** to return to the **Hook-Up Macro Definitions** dialog box and display the new macro definition in the data window.

11. In the **Hook-Up Macro Definitions** dialog box, click **Close**.

Modifying Hook-Up Macro Definition Properties

This procedure explains how to modify the name or description of hook-up macro definitions, and assign a macro function to the specified macro. In the Hook-Ups module, you can modify macro definition properties only for macro attributes that belong to the HOOK-UP macro group and are not used in loop drawings.

➢ To modify hook-up macro definition properties

1. Open the Hook-Ups module, and do one of the following:

   - Click  .
   - On the **Tables** menu, click **Hook-Up Macro Definitions**.

2. In the **Hook-Up Macro Definitions** dialog box, filter the macro display as follows:

   a) From the **Macro type** list, select a macro type.

   b) From the **Macro attribute** list, select a macro attribute to filter the displayed macro definitions.

3. In the **Macro definition properties** data window, select the macro definition for which you want to modify the properties.

    **Tip**

   - If there is a large number of macro definitions in the **Macro definition properties** data window, under **Find macro definition**, select a column heading and then type a value. For example, if you select Function as a column heading and type a macro function value, in the data window, the software locates the macro definition to which that macro function belongs.

4. Click **Properties** to open the **Hook-Up Macro Definition Properties** dialog box.

5. In the **Name** field, type the desired macro name.

6. In the **Description** field, type a macro description, if needed.

7. If required, select a user-defined function to apply to the macro by doing the following:

   a) Click **Function**.

   b) In the **Assign User-Defined Macro Function** dialog box, select a macro function and click **OK**.

8. In the **Hook-Up Macro Definition Properties** dialog box, click **OK** to display the modified macro definition in the data window of the **Hook-Up Macro Definitions** dialog box.

Deleting Hook-Up Macro Definitions

A macro definition consists of a macro name, description, and function. This procedure explains how to delete a macro definition from the list of macro definitions in the Hook-Ups module. The list of macro definitions contains both the default and the user-defined macro definitions, set per domain or per project (if the domain type is Operating owner).

In the Hook-Ups module, you can delete macro definition properties only for macro attributes that belong to the HOOK-UP macro group and are not used in loop drawings.

Note

- If you delete a macro definition from the list, you do not delete the macro itself from the database, but only the macro definition properties. If required, you can restore a deleted macro definition.

➢ To delete a hook-up macro definition

1. Open the Hook-Ups module, and do one of the following:
   - Click  .
   - On the **Tables** menu, click **Hook-Up Macro Definitions**.
2. In the **Hook-Up Macro Definitions** dialog box, filter the macro display as follows:
   a) From the **Macro type** list, select a macro type.
   b) From the **Macro attribute** list, select a macro attribute to filter the displayed macro definitions.
3. In the **Macro definition properties** data window, select the macro definition that you want to delete.

   Tip

   - If there is a large number of macro definitions in the **Macro definition properties** data window, under **Find macro definition**, select a column heading and then type a value. For example, if you select Function as a column heading and type a macro function value, in the data window, the software locates the macro definition to which that macro function belongs.

4. Click **Delete**.

Working with Hook-Up Item Libraries

Defining an Item Library

This procedure describes how to create a new item library. An item library contains fittings and associations created on a domain level. Therefore, when you enter a domain, you can have any number of relevant libraries. The number of libraries, names, and completeness are all up to your requirements.

An item library can also contain any number of user-defined sub-libraries that you can use when working with pipe specs. A new item library that you create automatically contains a default sub-library, which you can use for assigning hook-up items if you do not work with pipe specs.

➢ To create an item library

1. On the **Tables** menu, click **Item Libraries**.
2. In the **Item Libraries** dialog box, click **New**.
3. Type the new item library name and description in the appropriate fields.
4. Click **OK** to accept your values and return to the **Item Libraries** dialog box.
5. Select the **Set as current item library** check box to define the new library as the Current Item Library.

Defining a Current Item Library

The current item library is the <plant> default item library. The information is filled in to pick out parts of a specific hook-up. You can also enter description, material, rating, and so forth, to provide as much information as possible for the Bill of Material that the software creates based on this data.

➢ To set an item library as the current item library

1. On the **Tables** menu, click **Item Libraries**.
2. Select a library or click **New** to create a new one.
3. Select the **Set as current item library** check box.

Entering Data into an Item Library

A hook-up drawing is made up of individually marked parts called items. These items have to be purchased. The procedure for listing these items, and what additional data fields are offered is the subject of this section.

The service that a BOM provides you with depends upon how completely you fill in the library.

The minimum amount of data required to provide is the item number. Entering more data is left to your discretion.

Notes

- To add new items to an item library, you must first set it as your current item library.
- You can only add new items to the default sub-library, created automatically when you create an item library.

➢ To enter data into an item library

1. Set a library as your current item library.
2. Do one of the following:
   - Click  .
   - On the **Tables** menu, click **Item List for Current Item Library**.
3. From the **Item sub-library** list, select the default sub-library.
4. In the **Item List for Current Item Library** dialog box, click **New**.
5. In the **Item Properties** dialog box, enter values in the appropriate boxes as you require.

   Caution

   - The **Item number** box must have unique values.

   Note

   - In the **Spares percentage** box, you can enter numbers that include up to three decimal places.

6. From the **Manufacturer** list, select an item manufacturer. Click ... if the value you need is not available from the list.

7. From the **Unit of measure** list, select a unit of measure for the current item.

Tip

- The **Unit of measure** list displays names of units of measure automatically. If you need, you can set the software to display unit of measure codes instead of names. In the **Preferences** dialog box, on the **Hook-Ups**>**General** page, under **Hook-up item units of measure**, select **Display codes**. You can customize the codes on the **Units of Measure Codes** dialog box.

Editing the Data in the Current Item Library

This help topic contains instructions for editing item properties in the default sub-library belonging to the current item library.

Note

- You cannot edit item properties in a user-defined sub-library. When editing item properties in the default sub-library, the software updates the item properties in the user-defined libraries automatically.

➢ To edit the data in the current item library

1. Do one of the following to open the **Item List for Current Item Library** dialog box:
   - Click .
   - On the **Tables** menu, click **Item List for Current Item Library**.
2. From the **Item sub-library** list, select the default sub-library.
3. In the **Item list** data window, select a desired row.
4. Click **Properties**.
5. In the **Item Properties** dialog box, type the desired values in the appropriate boxes.

   Caution

   - The **Item number** box must have unique values. This is the minimum required value to provide the manufacturer's catalog has most of the data needed to complete this screen.

6. From the **Manufacturer** list, select an item manufacturer. Click ... if the value you need is not available from the list.
7. From the **Unit** list, select a unit of measure for the current item.
8. Click **OK**.

Deleting an Item from the Current Item Library

This option allows you to delete an item from the default sub-library belonging to the current item library. You can only delete an item that has no hook-up association. If you wish to delete an item that has a hook-up association, dissociate it first from the hook-up.

Note

- When deleting items from the default sub-library, the software also deletes these items from all of the user-defined sub libraries that exist in the current item library.

➢ To delete an item from the current item library

1. Do one of the following to open the **Item List for Current Item Library** dialog box:
   - Click  .
   - On the **Tables** menu, click **Item List for Current Item Library**.
2. From the **Item sub-library** list, select the default sub-library.
3. In the **Item list** data window, select a desired row.
4. Click **Delete**.

Filtering Current Item Library Data

Use this procedure to filter data in a sub-library belonging to the current item library.

➢ **To filter the data in the current item library**

1. Do one of the following to open the **Item List for Current Item Library** dialog box:
   - Click  .
   - On the **Tables** menu, click **Item List for Current Item Library**.
2. From the **Item sub-library** list, select a desired item sub-library.
3. Beside the Item filter box, click  .
4. In the **Item Filter** dialog box, enter the desired values in the appropriate boxes according to which you want to filter the data.

    **Tips**

   - When defining a filter condition, you can type a valid value in all or some of the boxes. You must fill in at least one box in this screen to use a filter.
   - You can also use wildcards for some filter criteria. For example, an underscore (_) can substitute a single character, percent (%) can substitute multiple characters. Using wildcards can save you time because it displays a customized list.

5. Click **OK** when done.

Creating User-Defined Sub-Libraries

Use this procedure to create user-defined sub-libraries in the library set as the current item library. You can also assign pipe specs to user-defined sub-libraries.

➢ To create a user-defined sub-library

1. On the **Tables** menu of the Hook-Ups module, click **Item Sub-Libraries**.
2. Click **New**.
3. Define the sub-library name and description.
4. Under **Associate pipe specs with item sub-library**, beside pipe specs that you want to assign to the sub-library, select check boxes.

   Tips

   - If you want to assign all of the pipe specs available in SmartPlant Instrumentation, select the **Select all** check box.
   - You can select the same pipe specs to any number of user-defined sub libraries.

Managing Existing Item Sub-Libraries

An item sub-library is a term which refers to a part of an item library and contains a specific set of hook-up item data and associations. There are two types of sub-libraries available: default sub-library and user-defined sub-library.

When managing existing item sub-libraries, you can:

- Modify the name and description of any item sub-library, including the default sub-library
- Assign pipe specs to user-defined sub-libraries
- Delete obsolete user-defined sub-libraries

➢ To manage item sub-libraries

1. On the **Tables** menu of the Hook-Ups module, click **Item Sub-Libraries**.
2. In the data window, select a sub-library and then do the following:
   - Click **Properties** to modify the sub-library name or description, and to select pipe pipes for assignment (if the sub-library is user-defined).
   - Click **Delete** to delete a sub-library that has no associated hook-ups.

Note

- You cannot delete the default sub-library.

Assigning Items to a User-Defined Sub-Library

Use this procedure to assign items that exist in the default sub-library to a user-defined sub-library.

➢ To assign items to a user-defined sub-library

1. Do one of the following to open the **Item List for Current Item Library** dialog box:
   - Click  .
   - On the **Tables** menu, click **Item List for Current Item Library**.
2. From the **Item sub-library** list, select a user-defined sub-library.
3. Click **Assign**.
4. In the **Assign Items to Sub-Library** dialog box, from the **Default sub-library item list** data window, select items for assignment.

    **Tip**

   - The data window displays all items that you added in the default sub-library that belongs to the current item library. If the list of items is long, from the **Item filter** list, select a filter, or beside the list box, click  and then set filter parameters.
5. Click **OK**.

Removing Items from a User-Defined Sub-Library

Use this procedure to remove one or more items from a user-defined sub-library that belongs to the current item library.

Note

- When removing items from the default sub-library, the software does not delete these items from the default sub-library. If you want to delete an item permanently, you need to delete it from the default sub-library that belongs to the current item library.

➢ To remove items from a user-defined sub-library

1. Do one of the following to open the **Item List for Current Item Library** dialog box:
   - Click  .
   - On the **Tables** menu, click **Item List for Current Item Library**.
2. From the **Item sub-library** list, select a user-defined sub-library.
3. In the **Item list** data window, select items that you want to remove.

   Tip

   - If the list of items is long, from the **Item filter** list, select a filter, or beside the list box, click  and then set filter parameters.

4. Click **Remove**.

Assigning Items from an Item Library to a Hook-Up

After the contents of your current item library have been completed, the next step is to select the items needed for a particular hook-up. The items selected and uniquely numbered (if not already defined in the current item library) are the identifying balloons that will appear on the hook-up drawing.

➢ To assign items from an item library to a hook-up

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. Do one of the following:
   - In the tree view pane, select a hook-up and then, In the **Entities** pane, select and right-click one or more hook-ups.
   - In the tree view pane, select the hook-up hierarchy root node to display all the existing hook-up types in the **Entities** pane, and then, in the **Entities** pane, right-click one or more hook-up types.
3. On the shortcut menu, point to **Actions** and click **Hook-Up Items**.
4. Click **Assign** to open the **Assign Sub-Library Items to Hook-Up** dialog box.
5. Select the items you want to assign.
6. Click **OK** to return to the **Hook-Up Items** dialog box.

7. Change the quantity of the assigned items if needed. Select a row, click in the **Quantity** field, and type a value.

   Tips

   - You can double-click a column heading to sort the data in ascending order, using the column that you clicked as sorting key. Double-click again to sort the data in descending order.

   - After assigning an item to a hook-up, the software generates a new sequence number automatically and displays the numbers in the **Order** column, where you can sort the items by their order of their assignment to a hook-up. You can type a new sequence number if needed. After specifying the sequence numbers, you can click **Print** to print the items in the order of their assignment to a hook-up. Also, you can open a Bill Of Material and sort the items by the item order. For more information, see Sorting Data in a Bill of Material.

8. To save the hook-up item list as an external file, click **Save As**.

9. Click **Close** when done.

Dissociating Items from a Hook-Up

Use this procedure to dissociate one or more items from a hook-up. You must dissociate an item from a hook-up prior to deleting this item from the current item library.

➢ To dissociate items from a hook-up

1. Do one of the following:
   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. Do one of the following:
   - In the tree view pane, select a hook-up and then, In the **Entities** pane, select and right-click one or more hook-ups.
   - In the tree view pane, select the hook-up hierarchy root node to display all the existing hook-up types in the **Entities** pane, and then, in the **Entities** pane, right-click one or more hook-up types.
3. On the shortcut menu, point to **Actions** and click **Hook-Up Items**.
4. In the **Hook-Up Items** dialog box, from the **Hook-up** list, select a hook-up from which you want to remove items.
5. Under **Items**, select items that you want to dissociate and then click **Remove**.

Reports and Revisions

Generating Hook-Ups Module Reports

To generate a desired report, you can either use the Hook-Ups module **Reports** menu commands, or shortcut menu commands that are depend on the entity selection in the **Domain Explorer** (or **Hook-Up Explorer**, which is only available in the Hook-Ups module).

You can generate the following reports:

- BOM — Displays data used in a Bill of Material.
- Hook-Up Tag List — Displays tag numbers assigned to hook-ups that you select.
- Hook-Up Item List — Displays items assigned to hook-ups that you select.
- Item list — Displays items defined in the current item library. If the current item library contains user-defined sub-libraries, the items are displayed per sub-library.
- Hook-Up Macros — Displays all SmartPlant Instrumentation macros used in hook-up drawings.

Generating a Bill of Material

Generating a Bill of Material (BOM) is the main purpose of the Hook-Ups module. Prior to generating a BOM, you need to do the following:

- Define three levels in the **Domain Explorer** (or in the **Hook-Up Explorer,** which is only accessible from the Hook-Ups module). The levels are: hook-up type, hook-ups assigned to the hookup type, and tag numbers assigned to the hook-ups.
- Define the appropriate libraries.

Tip

- To hide the item number row if the total quantity of that number is zero, set your Hook-Up module preferences accordingly.

➢ To generate a BOM

1. Do one of the following:
   - Press F7 to open the **Domain Explorer** and then expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.
   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.
2. In the tree view pane, select a hook-up type.
3. In the **Entities** pane, select and right-click one or more hook-ups.

   Tip

   - In the **Explorer**, you can also select hook-up types instead of hook-ups. In this case, you can generate a Bill of Material for all hook-ups that belong to the selected hook-up types. If you select all the hook-up types, you generate a Bill of Material for all the existing hook-ups.

4. On the shortcut menu, point to **Reports** and click **Bill of Material**.

5. Click **Yes** to open the print preview of the new BOM or click **No** to send it to your default printer.

Tips

- In the report print preview, you can perform the following activities:
  - Sort the BOM data as you need.
  - Group the BOM data by item manufacturer.
  - Edit the **Total For Order** field on the BOM (select **Edit mode** first).
  - Print out the tag number list when printing the BOM (select **Print tag list**).
  - Update the BOM revision by clicking  .
  - Save the BOM to an external file by clicking  . This allows you to see the changes in the BOM the next time you generate it.

Sorting Data in a Bill of Material

This option allows you to sort data fields in the **Bill of Material Report Print Preview**, before printing out a BOM report sheet.

➢ To sort data in a bill of material

1. In the Bill of Material print preview, from the **Sort by** list, select an option to arrange the fields in the **Bill of Material Report Print Preview** accordingly.

   Tip

   - Each option in the **Sort by** list corresponds to a column header in the **Bill of Material Report Print Preview**.

2. Select the **ASC** check box to display the fields in ascending order or clear the **ASC** check box to display the fields in descending order.

Generating an Item List Report

Use this procedure to generate a report of items that appear in the current item library. You can either display all items that exist to the current item library, or, if you work with user-defined sub-libraries, display only items that appear in a specific sub-library.

You can generate the item list report in any of the following ways:

- Using the **Item List** command on the **Reports** menu
- From the **Item List for Current Item Library** dialog box

➢ To generate an item list report using the Reports menu

1. On the **Reports** menu, click **Item List**.
2. Click **Yes** to open the report print preview.

   Note

   - If you click **No** when prompted to open a print preview, the software prints a reports of all items that appear in the default sub-library belonging to the current item library.

3. From the **Item sub-library** list, select a sub-library for which you want to display items.
4. From the **Sort by** list, select the item property which you want to use as a source for sorting the fields in the report.

   Tips

   - The options in the **Sort by** list correspond to the report column headers.
   - Select the **ASC** check box to display the fields in ascending order or clear the **ASC** check box to display the fields in descending order.
   - You can also apply a filter to display only those items that you want to print.
   - You can update the report revision by clicking  .
   - You can save the report to an external file by clicking  . This allows you to see the changes in the BOM the next time you generate it.

➢ **To generate an item list report from the Item List for Current Item Library dialog box**

1. Do one of the following to open the **Item List for Current Item Library** dialog box:
   - Click  .
   - On the **Tables** menu, click **Item List for Current Item Library**.
2. From the **Item sub-library** list, select a desired sub-library.
3. Click **Print**.

Generating a Hook-Up Macro Report

Use this procedure to generate report of all macros used in hook-up drawings. The report displays the macro name, description, name used in SmartPlant Instrumentation and, if applicable, the macro function.

➢ To generate a hook-up macro report

1. In the Hook-Ups module, on the **Reports** menu, click **Hook-Up Macros**.
2. In the **Macro Report Print Request** dialog box, do one of the following:
   - Click **No grouping** if you want to generate a report in which all the macros are displayed in alphabetical order.
   - Click **Group by module** if you want to generate a report in which the macros are grouped by module alphabetically.

   
   Note

   - When you group the macros by module, the software organizes the report pages according to the module titles.

3. Click **OK** to generate a report.

Maintaining Hook-Up Drawing Revisions

The revision feature is used to keep track of the changes made to the hook-up drawing during its lifetime. It is important and useful to have a chronological description of the changes, dates of change, and a list of persons who approved them. Using this procedure, you can add, edit, and delete revisions.

➢ To maintain hook-up drawing revisions

1. Do one of the following:

   - Press F7 to open the **Domain Explorer**, and expand the hierarchy to the hook-up type level in the **Hook-Ups** folder.

   - On the Hook-Ups module toolbar, click  to open the **Hook-Up Explorer**.

2. Do one of the following:

   - In the tree view pane, select a hook-up and then, In the **Entities** pane, select and right-click one or more hook-ups.

   - In the tree view pane, select the hook-up hierarchy root node to display all the existing hook-up types in the **Entities** pane, and then, in the **Entities** pane, right-click one or more hook-up types.

3. On the shortcut menu, point to **Actions** and click **Hook-Up Drawing List**.

4. In the **Hook-Up Drawing List** dialog box, select a desired row and click **Revisions**.

5. In the **Revisions** dialog box, select one of the revision numbering methods (use **P0, P1, P2**... for preliminary revisions or **0, 1, 2** /**A, B, C**, and so forth. for normal serial revisions).

    **Note**

   - When you first select a revision numbering method, several options are available to you, including preliminary revisions (designated by **P0, P1, P2**…). Once you select one of the other revision methods, you will not be able to return to the preliminary revision method and this option will be disabled.

6. Do one of the following:

   - Click a field of an existing row to update the existing revision data.
   - Click **New** to add new revision data, and then type new revision data values.

   Tip

   - As a time saver and a forget-me-not precaution, take advantage of using a default revision method. The software automatically adds a new line with the next logical character and date each time you click **New** after you select the initial method.

7. If necessary, click **Delete** to delete any previous revisions that are no longer needed.

   Tip

   - You can also maintain revisions in batch mode using global revisions. For more information, see Global Revisions: An Overview.

Revision Display Order

You can display a number of revisions in the title block of a hook-up drawing. Each revision is represented by a numbered macro and the revisions are displayed in the order of the macro numbering, beginning with the first revision (ascending order) or the last revision (descending order). You make the selection for ascending or descending order in the **Preferences** dialog box, **Hook-Ups** tag, **General** tag, **Revision macro order** list.

If the total number of revisions is greater than the number of lines available for display in the drawing, and you want to see the latest revisions, you should select to display the revisions in descending order so that the latest revision is displayed first. If you display the revisions in ascending order, you would need to re-organize the revision numbering in the CAD application every time you make a revision, in order to display the latest ones.