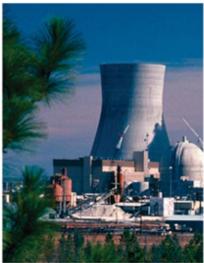
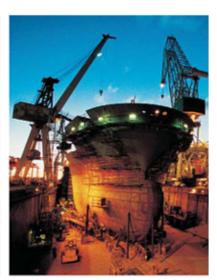
# Piping Isometric Drawings *User's Guide*

### Process, Power & Marine









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## **Preface**

This document is a user's guide for the SmartPlant® 3D Drawings and Reports task and provides command reference information and procedural instructions.

The Drawings and Reports user documentation is delivered in three separate documents:

- Orthographic Drawings User's Guide
- Piping Isometric Drawings User's Guide
- Reports User's Guide

#### SmartPlant 3D Documentation Set

The SmartPlant® 3D documentation set is available as Adobe® PDF files. The content of the PDF files is the same content as online Help. To access these PDF documents in the software, click **Help > Printable Guides**.

The documentation set is divided into four categories:

- Administrative guides contain information about installing, configuring, customizing, and troubleshooting SmartPlant 3D.
- User's guides provide command reference and how-to information for working in each SmartPlant 3D task.
- Reference data guides define the reference data workbooks. Not all tasks have reference data.
- ISOGEN guides

#### **Administrative Guides**

Project Management User's Guide - Provides instructions for setting up the databases, creating permission groups, backing up and restoring project data, assigning access permissions to the model, managing interference detection, defining and managing locations for Global Workshare, controlling duplication and consolidation of plants, tools for synchronization, regeneration of report databases, and version upgrade.

SmartPlant 3D Database Integrity Guide - Provides information about the error messages in the database integrity reports, including meaning, cause, and possible corrective action.

SmartPlant 3D Global Workshare Guide - Provides instructions for setting up the software and the databases to work in a workshare environment.

SmartPlant 3D Installation Guide - Provides instructions on installing and configuring the software on both the client and server computers.

SmartPlant 3D Installation Checklist - Provides a recommended installation workflow for installing SmartPlant 3D. The installation checklist, SP3DInstall\_Checklist.pdf and SP3DInstall\_Checklist.xls, is available in two file formats in the Help folder on the product CD.

SmartPlant 3D/IntelliShip Programmer's Guide - Provides information about custom commands, naming rules, and symbol programming.

SmartPlant 3D Integration Reference Guide - Provides information about installing, configuring, and using SmartPlant 3D in an integrated environment.

SmartPlant 3D Interference Checking Guide - Provides information on installing, configuring, and using the interference detection service.

SmartPlant 3D Interpreting Human Piping Specifications - Provides information about how to interpret human piping specifications so that you can create the corresponding piping specification in the software.

SmartPlant 3D Plant Design System (PDS) Guide - Provides all information needed to use PDS with SmartPlant 3D. Topics include referencing active PDS projects in SmartPlant 3D, exporting PDS data and importing that data into SmartPlant 3D, converting PDS reference data to SmartPlant 3D reference data, and converting EDEN symbols to Visual Basic symbols.

SmartPlant 3D Release Bulletin - Provides what's new, hardware/software requirements, and support information for the current release.

SmartPlant 3D Troubleshooting Guide - Provides information on how to resolve errors that you may encounter in the software by documenting troubleshooting tips, error messages, and to do list messages.

### **User's Guides**

Catalog User's Guide - Provides information about viewing, editing, and creating reference data and select lists (codelists).

Common User's Guide - Provides information about defining workspaces, navigating in the model, precision input, filtering, manipulating views, and running reports.

*Electrical User's Guide* - Provides information about routing electrical cable, cableway, cable tray, and conduit.

Equipment and Furnishings User's Guide - Provides information about placing equipment.

Grids User's Guide - Provides instructions for creating coordinate systems, elevation grid planes, vertical grid planes, radial cylinders, radial planes, grid arcs, and grid lines.

Hangers and Supports User's Guide - Provides instructions on placing piping, duct, cableway, and conduit supports in the model.

HVAC User's Guide - Provides instructions for routing HVAC duct.

Orthographic Drawings User's Guide - Provides information about creating and managing orthographic drawings.

Piping Isometric Drawings User's Guide - Provides information about creating and managing piping isometric drawings.

*Piping User's Guide* - Provides instructions for routing pipe and placing valves, taps, and pipe joints.

Reports User's Guide - Provides information about creating and managing spreadsheet reports.

Space Management User's Guide - Provides instructions for placing volumes (such as drawing volumes, obstruction zones) in the model.

Structural Analysis User's Guide - Provides instructions for defining loads, load cases, load combinations, and the importing and exporting of analytical data.

Structure User's Guide - Provides instructions for placing structural members such as: beams, columns, braces, slabs, openings, stairs, ladders, equipment foundations, and handrails.

Systems and Specifications User's Guide - Provides instructions for creating systems and their hierarchies and selecting which specifications are available for each system type.

SmartPlant 2D Symbols User's Guide - Provides instructions for creating cross section symbols.

#### Reference Data Guides

Drawings and Reports Reference Data Guide - Provides information about reports reference data.

Electrical Reference Data Guide - Provides information about electrical cable, cableway, cable tray, and conduit reference data.

Equipment and Furnishings Reference Data Guide - Provides information about equipment reference data and name rules.

Hangers and Supports Reference Data Guide - Provides information about hangers and supports reference data.

HVAC Reference Data Guide - Provides information about HVAC reference data.

*Piping Reference Data Guide* - Provides information about piping reference data including piping specifications, piping specification rules, piping parts, piping symbols, and name rules.

SmartPlant 2D Symbols Reference Data Guide - Provides information about the twodimensional symbols used in all tasks.

SmartPlant 3D Reference Data Guide - Provides instructions about the Bulkload utility, codelists, and the reference data common to several disciplines.

SmartPlant 3D Symbols Reference Data Guide - Provides information about the Visual Basic Part Definition Wizard and the three-dimensional symbols used in all tasks.

*Space Management Reference Data Guide* - Provides information about space management reference data.

Structure Reference Data Guide - Provides information about structural reference data and name rules.

#### **ISOGEN Guides**

*AText Reference Guide* - Provides information about alternative text for isometric drawings. This guide is from Alias, the makers of ISOGEN<sup>®</sup>.

*Option Switches Reference Guide* - Provides information about the ISOGEN option switches for isometric drawings. This guide is from Alias, the makers of ISOGEN.

*Symbol Keys Reference Guide* - Provides information about the symbol keys for isometric drawings. This guide is from Alias, the makers of ISOGEN.

#### **Documentation Comments**

Send documentation comments or suggestions to <a href="mailto:PPMdoc@intergraph.com">PPMdoc@intergraph.com</a>.

## What's New in Drawings and Reports

The following changes have been made to the Drawing and Reports task.

Version 2007 Service Pack 2

#### **Drawings (General)**

- The **Update** commands no longer delete existing output files until new output document files are successfully created. (P1 CP:121114)
- When in standalone (unregistered) environments, the drawing document **Issue** and **Revision** properties accept alphanumeric and special characters values for issue numbers and revision numbers (major and minor). For more information, see *Issue Tab (Properties Dialog Box)*, page 133 and Revision Tab (Properties Dialog Box), page 134. (P2 CP:114255)
- A new drawing document icon indicates that the drawing document has no graphic objects in the model associated with it. For example, the drawing is a Piping Isometric Drawing document created from a Pipeline System that has no pipeline parts associated with it. (P2 CP:103987)
- The **Background publish** option is supported as part of the **Publish** command, allowing you to publish your documents using a separate process while you continue working. For more information, see *Publish* Tab (Publish Dialog Box), page 230. (P3 CP:75670)

#### **Orthographic Drawings**

- You can now place section and detail views on your drawings with commands added to the 2D Drawing Editor. For more information, see the *Orthographic Drawings User's Guide.* (P2 CP:3457)
- The VHL Graphic Rules now support visible fill styles and clipped fill styles for objects selected by the filter in a view style. For more information, see the *Orthographic Drawings User's Guide*. (P2) CP:118659)
- The VHL Graphic Rules now support transparency for objects shown above or over other objects. The new **Make Transparent** option is especially useful, for example, in drawings where you need to show objects beneath a slab. For an example workflow that shows how to use this option, see the *Orthographic Drawings User's Guide*. (P2 CP:120005)
- You can add flow arrows to your orthographic drawings automatically as part of the view style definition or place them manually in an existing orthographic drawing. For more information, see the Orthographic Drawings User's Guide. (P2 CP:119271)

- You can now specify report output format when embedding a report in a composed drawing. For more information, see the *Orthographic Drawings User's Guide*. (P2 CP:120834)
- SmartFrame borders set to the background color (that is, invisible until you hover over the frame) are seen as a valid positions for annotations and dimensions. Labels are no longer offset if they cross the border of a SmartFrame. (P3 CP:117163)

#### **Piping Isometric Drawings**

• The new **Change Management** document property allows you to override the the **Drawing.Content.ChangeManagementEnabled** option in the Isometric style. For more information, see *Style Tab (Properties Dialog Box)*, page 132. (P2 CP:92891)

#### Reports

- You can include totals and summation for more than one quantity in a group when designing a report format. For more information, see the *Reports User's Guide*. (P1 CP:58880)
- Report descriptions fields in the **Report Template Editor** are now editable so you can change the descriptions and save them with the template changes. For more information, see *Reports User's Guide*. (P3 CP:57519)

Version 2007 Service Pack 1

#### **Drawings (General)**

- The **Update** commands were modified to improve update and replication performance, reducing server traffic on subsequent updates for 3D objects associated with a drawing view that did not change in a drawing document. (P2 CP:112959)
- The **ReplaceSlopedPipeonHgr.dll** is available as a custom graphic rule for view styles. It replaces a sloped pipe connected to a hanger with a point (the connection point). This graphic rule applies to Drawings by Query drawings. For more information, see the *Orthographic Drawings User's Guide*. (P2 CP:114575)
- The new **Place Drawing Area** command in the 2D Drawing Editor allows you to place a drawing area within a border templates. This command is available when you are editing a border template for which a drawing area is not defined. You can convert a MicroStation DGN or AutoCAD DWG border file to the SHA format, then add a drawing area to it for use in creating composed drawings. For more information, see *Import a Border File and Create a Drawing Area*, page 151. (P2 CP:111375)

#### **Piping Isometric Drawings**

• The procedure for creating a new isometric style is updated and includes information on how to edit the backing sheet and the isometric style XML

- files. For more information, see *Create a New Isometric Style*, page 57. (P3 CP:114551)
- You can place controls points to represent LOCATION-POINTS that output as part of the piping isometric drawing Piping Component File. For more information, see *Add Location Point Coordinates to PCF*, page 62. (P2 CP:112958)
- You can use a Reference Plane Definition file (RPDF) to reference grids for coordinate callouts on isometric drawings. For more information, see *Reference Planes (Supplementary)*, page 320. (P2 (CP:96774)

#### Reports

• The Drawings and Reports task online Help and *Drawings and Reports User's Guide* now include an appendix of descriptions and attribute mapping information for all delivered reports. For more information, see the *Reports User's Guide*. (P3 CP:81875)

Version 2007

#### **Drawings (General)**

- The 3D Model Data component setup is optimized to allow you to save the output XML and VUE files to disk, to the database, or both. For more information on setup behavior, see the *Orthographic Drawings User's Guide*.
- The shortcut menus for selected items in the Management Console and the Detail View have changed to improve performance. When you right-click nodes in the Management Console and nodes or documents in the Detail View, shortcut menus display. The items on the shortcut menu vary depending on the selected item. For the root node of the Management Console hierarchy and Folder items that have no child items beneath them, the shortcut menu includes Delete, Rename, Copy, Paste, New, and Properties. If there are any child items beneath the root node or beneath the selected folder, the following commands are added: Create Drawing(s), Refresh, Run Query, Update Now, Print, and Save As. If you are registered with SmartPlant Foundation, the Publish and Revise commands are added as well.
- Dimensions are now preserved and regenerated when a change occurs between drawing updates. The software remembers or regenerates (as needed) manually-applied drawing dimensions defined between features or elements on a single object. This includes both manual and automatic regeneration of radial and angular dimensions place using the 2D Drawing Editor **Angle Between** and **Smart Dimension** commands. Manually placed chain dimensions are also remembered the between updates.
- For **Volume** drawings, the software derives the dimension units from the style specified in the dimension template (XML file) associated with the drawing view style.

- The **Tools > Batch Management** command allows you to manage jobs that have been submitted to the batch server. For more information, see *Batch Manager Command*, page 156.
- Several changes were made to improve drawing usability. The
   Management Console now remembers the level to which the tree
   hierarchy was last expanded. The Description field on the drawing
   Properties dialog box Issue tab has been moved to make it more
   accessible. A new Filter Behavior option on the View Style Properties
   dialog box allows you to specify how you want the content of the drawing
   to be addressed with regard to the applied style rules.
- The **Status** of the drawing is now included on the **Properties** dialog box **Configuration Tab**. For more information, see *Configuration Tab* (*Properties Dialog Box*), page 138.
- A new **Batch > Print** command joins the **Batch > Update** command on the shortcut menu for documents, providing the ability to send documents to a print queue for printing on a batch server. For more information, see *Batch Print Command*, page 161. Also, the new **Batch > Refresh** command allows you to refresh drawing documents on a batch server. For more information, see *Batch Refresh Command*, page 163.
- The SmartPlant > Find Documents to Publish command generates a list
  of documents that either have not been published or have been modified
  and need to be published again or have been deleted since the last publish.
  For more information, see Find Documents to Publish Command, page
  237.
- The settings in the 2D Drawing Editor are saved between sessions for window sizes, view settings, and toolbar settings.
- The **Search Folders** component allows you to search for documents based on common properties such as out-of-date status, approval, or documents that have been published to a certain contract in integrated environment. You can create a Search Folder component in any folder in the Management Console. After running the query defined for a Search Folder, you can perform such tasks as **Update** or **Publish** as if you were working from the actual owning component location for the documents. For more information, see *Search Folders: An Overview*, page 208.
- Descriptions of the delivered graphic rules are available in the *Orthographic Drawings User's Guide*.
- Drawings now support curved structural members.
- The View in 3D command was removed from the Drawings and Reports task. The new Open Drawing command, available in any of the 3D tasks such as Common, opens existing drawings to preview against the model. For more information, see the Common User's Guide available from Help > Printable Guides.

- The Imperial Tab no longer exists on the Add Component dialog box.
   The Imperial Templates are delivered according to type on the other dialog box tabs.
- Recommendations concerning exporting 3D Model Data to SmartPlant Review added to documentation. For more information, see the *Orthographic Drawings User's Guide*.
- New information was added to distinguish between the **View > Refresh** command and the **Refresh** command available on the Management Console hierarchy items. For more information, see *Refresh Command* (*View Menu*), page 106 and *Refresh Command* (*Shortcut Menu*), page 143.

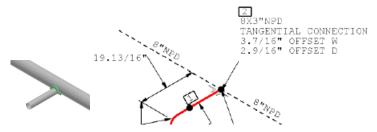
#### **Orthographic Drawings**

- You can now create composed drawings using a combination of commands available in the 3D tasks, the Drawings and Reports task, and the 2D Drawing Editor. You create the composed drawings in the 3D tasks, management them in the Drawings and Reports task, and modify the templates and the drawing layout in the 2D Drawing Editor. Composed drawings replace the previous snapshot drawing functionality in previous versions of the software. For more information, see the *Orthographic Drawings User's Guide*. Additional information can be found in the *Common User's Guide* available from **Help > Printable Guides** and in the 2D Drawing Editor Help.
- If the drawing document you are looking at in the **Detail View** has a yellow icon (for example: ✓), the drawing document is a version 6.1 legacy Snapshot drawing. You should use the **Tools > Convert Legacy Snapshots** command to convert this document to a Composed Drawing for use in the current version of the software. If you do not convert the legacy snapshot drawing, you cannot perform edit operations on the drawing, including update, revise, and publish. For more information, see the *Orthographic Drawings User's Guide*.
- Automatic layering is available in the view styles. The Layer property for
  the graphic rules allows you to specify the drawing layer for graphics
  created by the view style. For labels (used for annotation) and dimensions,
  you can add a layer definition to the rule template XML files to define the
  layer.
- Grid lines that lie on top of one another no longer display multiple labels when they reference the same grid plane. Existing templates are not impacted by the changes. You can update the XML templates for grid labels to take advantage of the new options for cliping and offset.
- Drawings by Query work with all Space Management volumes, not just drawing volumes.
- New Parallel and Parallel, Sloped orientation options are available for Primary Orientation and Secondary Orientation settings on the View

**Style Properties** dialog box. For more information, see the *Orthographic Drawings User's Guide*.

#### **Piping Isometric Drawings**

- SmartPlant 3D now works with Alias PI5.6/CC1.2.
- You can use the new **Drawing.Content.ChangeManagementEnabled** option to ensure that drawing extractions maintain the same information per drawing sheet whenever possible and to prevent impact to other drawing sheets. For more information, see *Using Piping Isometric Change Management: An Overview*, page 89.
- The software now handles updates for isometric drawings that contain lined piping.
- You can now force a new drawing sheet for a given pipeline or piperun
  extraction by inserting a **PipingMFG Limit Point** in the model. For more
  information, see *Set Isometric Break Control Points for Drawings*, page
  61.
- The software now handles the extraction and drawing generation for nonradial (tangential) rpads, rwelds, and weldolets. The first graphic shows how a tangential pipe appears in the model, and the second shows the tangential included in an isometric drawing.



- For Mitered Bends, the software now uses the SKey MIPL. This is a "Pipe" SKey and does not show up as a separate item in the MTO, as reflected in the model.
- You can add conditional component notes to the isometric styles. This is especially helpful when representing mitered bends in isometric drawings. For more information, see *ComponentNoteConditional (Labels)*, page 384.
- The new **Drawings.Content.HonorSpoolAtBranch** option allows you to drive the content for isometric drawings for pipelines according to spools. For more information, see *Control Drawing Content*, page 69.
- You can migrate isometric styles (XML files) automatically using catalog migration or by opening the style in the Isometric Style Options
   Browser. For more information, see Customizing Isometric Drawing Styles: An Overview, page 43.
- The Drawing.Welds.WeldNumberLabel option can be used in conjunction with the Drawing.Welds.ShowWeldNumber option to

- specify a weld sequence label on isometric drawings. For more information on these options, see *Welds (Drawing)*, page 289.
- The new **Drawing.Content.SupportFilter** isometric option allows you to specify a filter that determines which supports are included on an isometric drawing. For more information, see *Content (Drawing)*, page 252.

#### **Spreadsheet Reports**

- Filter-based reports now reference filters by the full path or a unique identifier instead of referencing filters by name only.
- The new **Allow runtime filter selection** checkbox in the **Report Template Editor** allows you to provide greater flexibility within report definitions. For more information, see the *Reports User's Guide*.
- You can add multiple sheets to report and define the sheet content by report query. For more information, see the *Reports User's Guide*.
- For the Project Management report, you must specify the full path of the Permission Group when defining the report content, including all parent folders.
- You can use site database names and server names as system formatting parameters for reports, such as Database Integrity reports.
- The Drawings and Reports task online Help and *Drawings and Reports User's Guide* now include an appendix of descriptions and attribute mapping information for all delivered reports. For more information, see the *Reports User's Guide*. (P3 CP:81875)

## **Drawings and Reports: An Overview**

The Drawings and Reports task creates orthographic drawings, isometric drawings, and reports from the model. This task provides an update feature to increase productivity for your company. When the 3D model changes, you can update the drawings and reports.

The Drawings and Reports task is also responsible for publishing. When your plant is registered using the SmartPlant Registration Wizard, you can publish volume and composed drawings, orthographic drawings, isometric drawings, and reports. You can also publish 3D model data using the 3D Model Data component.

The **Management Console** organizes the different document types into a customizable hierarchy. Using the component functionality of the console, you can create, edit, update, print, save, and publish the deliverables.

Before you can create components for drawings and reports, your administrator must organize the **Management Console** hierarchy with folders for each component type. Then, the administrator must complete several setup steps, including setting up drawing and report templates, creating view styles, creating appropriate filters, and specifying isometric drawing options. Default templates and view styles are delivered with the software, and you can customize them to suit your needs.

It is possible to customize templates and view styles before any objects exist in the model. However, to create drawings and reports, objects must exist in your model. For example, if you want to generate isometric drawings, you must have piping in your model.

#### **Composed Drawings**

Composed drawings are orthographic drawings created in a 3D task such as Common. The composed drawing component, available in the Drawing and Reports task **Management Console**, manages the composed drawings you create. Composed drawings are flexible, allowing you to have views that are managed by a drawing region and associate the views to volumes and other views.

#### Volume Drawings

Volume are useful for creating general arrangement or construction drawings of areas within the model. In the Volume Drawing workflows, you or your administrator must create or edit border templates. You can place drawing property labels in the title block of the template to fit your company or project. You also must configure the view styles, which are sets of rules that determine how the graphics in the three-dimensional model are represented on the drawings. View styles use filters. You can create a folder of drawing filters, with new, existing, and future filters for each discipline. You place drawing volumes in the Space Management task. You can publish Volume when they are up-to-date.

#### Orthographic Drawings by Query

The Orthographic Drawing by Query component, in conjunction with the Drawings by Query Manager component, creates drawings in mass by specifying a filter-based query to collect objects for drawings. This drawing type is appropriate for creating detail drawings of particular objects within the model. They are especially useful when creating drawings that use the same style or format for large numbers of similar objects, such as hangers or supports.

Just like composed and volume drawings, you can print, update, save into MicroStation or AutoCAD formats, or publish Orthographic Drawings by Query. When you publish Orthographic Drawings, a viewable graphic file is created; no physical data is published.

#### **Piping Isometric Drawings by Query**

Like Orthographic Drawings by Query, you create Piping Isometric Drawings by Query by specifying a filter-based query to collect the objects. The workflow requires that you create or edit border templates to fit your company or project. You or your administrator also must set the isometric options for each of the isometric styles that you need in your project.

When you publish Piping Isometric Drawings by Query, they are published as viewable graphics; no physical data is published.

#### Reports

In the Spreadsheet Reports workflow, you create report templates, which control the content and format of reports. The default file format of reports in the software is Microsoft Excel<sup>®</sup> format. The Report Template Editor provides the ability to configure your reports to use queries and special formatting.

You can publish Spreadsheet Reports just like drawings. However, the Spreadsheet Reports are published as Excel spreadsheets; no physical data is published.

#### Note

• To ensure that Microsoft Excel spreadsheets embedded in a drawing are displayed properly, users of Office 2000 are required to install Service Pack 3 for that product. For users of Office XP, in Microsoft Excel under Tools > Macro > Security > Trusted Publishers tab, check the Trust Access to Visual Basic Project option. For more information about Office 2000, Office XP, and service packs, refer to the Microsoft web site (http://www.microsoft.com/).

## Piping Isometric Drawings by Query: An Overview

Isometric drawings communicate several important types of information to a pipe fabrication workshop. This information includes pipe cut lengths, bend angles, and welds. You create isometric drawing by associating a Piping Isometric Drawing by Query component to a Query Manager. The Piping Isometric Drawing by Query component specifies the "what" portion of the query, while the Query Manager specifies the "where".

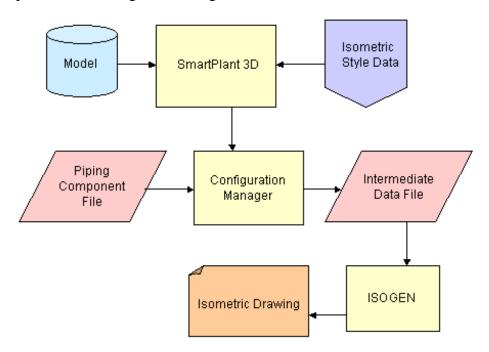
The basic workflow for creating Piping Isometric Drawings by Query is as follows:

- Create a Piping Isometric Drawing by Query component that specifies what you want to document
- Create a Drawings by Query Manager that specifies where to look for the data
- Run the filter-based query
- Create the drawings
- Update the drawings, if necessary
- Publish the drawings to a viewable graphic file; no physical data is published

Each Piping Isometric Drawing by Query component has an associated isometric style. The delivered styles are **Iso\_Pipeline**, **Iso\_Piperun**, **Iso\_PenSpool**, **Iso\_Spool**, **Iso\_WBS**, and **Iso\_Stress**. You can open the **Isometric Style Options Browser** from any of the isometric drawing styles by right-clicking the drawing style in the **Management Console** and selecting **Edit Options** on the shortcut menu. The browser allows you to set options for isometric drawing format and content.

After creating the Piping Isometric Drawings, you can open them for viewing, editing, printing, and publishing (if your plant has been registered using the SmartPlant Registration Wizard). To troubleshoot the drawings, you can use the **View Data** command to access part and reports information and log files.

The software uses a third-party engine made by Alias, ISOGEN, to generate isometric drawings from the three-dimensional model. The following illustration shows the process of creating the drawings.



The SmartPlant 3D software creates a piping component file (PCF), which is used along with the isometric style information to create an intermediate data file (IDF). The ISOGEN engine then reads the IDF and creates the isometric drawings.

#### **Administrator Setup**

Your administrator should setup appropriate isometric styles to use with the Piping Isometric Drawings by Query component. The administrator is also responsible for creating asking filters that define "what" and filters that specify "where" in the model to look for the objects. The template and the "what" filter information within the component are saved as a package.

#### **Drawings by Query Manager**

The Drawings by Query Manager uses the filter to specify "where" to look for the objects included in the drawing.

For more information on the filters necessary for setting up a Drawings by Query component, see *Drawings by Query Filters: An Overview*, page 205.

- Customizing Isometric Drawing Styles: An Overview, page 43
- Piping Isometric Drawings by Query Common Tasks, page 26

## Piping Isometric Drawings by Query Common Tasks

The following tasks are used when you create Piping Isometric Drawings by Query.

For information on filters required for creating Piping Isometric Drawings by Query, see *Drawings by Query Filters: An Overview*, page 205.

#### Setup a Piping Isometric Drawing by Query Component

Create and perform set up for a Piping Isometric Drawing by Query component. For more information, see *Setup a Piping Isometric Drawing by Query Component*, page 29. When you select a filter in **Setup**, you are specifying the "what" portion of the query. In other words, you are specifying the objects to be included in the drawing.

#### Save the Piping Isometric Drawings by Query Component as a Package

Save the Piping Isometric Drawing by Query component as a package so you can join it with a **Query Manager** to generate the query drawings. For more information, see *Save a Package*, page 111.

#### Add a Drawings by Query Manager

You create a **Drawings by Query Manager**, then set it up to specify the "where" portion of the query for the Piping Isometric Drawing by Query component. For more information, see *Create a Drawings by Query Manager*, page 34.

#### **Run the Query**

You use the **Run Query** command to execute the query specified by the Piping Isometric Drawing by Query component and the Drawings by Query Manager. For more information, see *Run Query Command*, page 36.

#### **Create or Update the Drawings**

To create or update the drawings, right-click the component and select the appropriate command. For more information, see *Updating Documents: An Overview*, page 141.

#### Viewing the Drawing Log

You can view the drawing log to see any messages associated with the drawing. For more information, see *View Log Command*, page 125.

#### **Set Drawing Properties**

You can specify the properties for the drawing component or drawing documents by right-clicking and selecting **Properties**. For more information, see *Edit Document Properties*, page 139.

#### **Viewing Piping Data**

You can view the piping extraction data by right-clicking a piping isometric drawing and selecting View Extraction Data on the shortcut menu. For more information, see View Piping Isometric Extraction Data, page 40.

#### **Publish the Piping Isometric Documents**

Publish the Piping Isometric Drawing by Query documents. You can publish only if your plant has been registered using the SmartPlant Registration Wizard. For more information, see *Publishing Documents: An Overview*, page 222.

#### **Note**

The viewable files created when you publish drawings and reports provide relationship links to the 3D Model Data. You must also publish the 3D Model Data to provide the navigation between the viewable files and the 3D Model Data. For more information, see the Orthographic Drawings *User's Guide* available from **Help > Printable Guides**.

## Setup Command (Piping Isometric Drawing by Query Component)

Sets component options for creating Piping Isometric Drawings by Query. This command is available on the right-click popup menu for the Piping Isometric Drawing by Query component.

#### **Related Topics**

- Piping Isometric Drawings by Query: An Overview, page 24
- Setup a Piping Isometric Drawing by Query Component, page 29

## Setup Dialog Box (Piping Isometric Drawing by Query Component)

Sets options on Piping Isometric Drawing components.

**Filter** - Identifies the filter to use to define the "what" portion of the query. The software uses the filter to determine the objects included in the drawings when they are generated. Select **More** in the **Filter** dropdown list to display the **Select Filter** dialog box. Click to display the **Filter Properties** dialog box. For more information on filters for Piping Isometric Drawings by Query, see *Drawings by Query Filters: An Overview*, page 205.

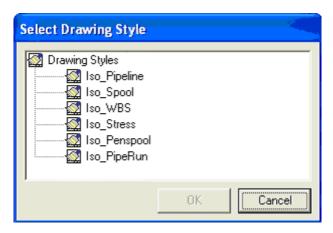
**Style** - Specifies the isometric style to use when generating the output for the piping isometric drawing. The delivered styles include **Iso\_Pipeline**, **Iso\_Piperun**, **Iso\_Spool**, **Iso\_PenSpool**, **Iso\_WBS**, and **Iso\_Stress**. Your administrator may provide more isometric styles. Click **More** in the dropdown to display the **Select Drawing Style** dialog. For more information, see *Select Drawing Style Dialog Box*, page 29.

You can click the **Properties** to access the **Isometric Style Options Browser** and edit the isometric style as needed. For more information, see *Use the Isometric Style Options Browser*, page 50.

- Setup a Piping Isometric Drawing by Query Component, page 29
- Setup Command (Piping Isometric Drawing by Query Component), page 28

### **Select Drawing Style Dialog Box**

Displays a list of all available Isometric Styles. This dialog displays when you select **More** in the **Style** dropdown on the **Setup** dialog box for a Piping Isometric Drawing component or package.



#### **Related Topics**

- Setup a Piping Isometric Drawing by Query Component, page 29
- Setup Command (Piping Isometric Drawing by Query Component), page 28
- Setup Dialog Box (Piping Isometric Drawing by Query Component), page 28

## Setup a Piping Isometric Drawing by Query Component

- 1. Right-click the folder where you want to store the new Piping Isometric Drawing by Query component, then select **New**. The **Add Component** dialog box appears.
- 2. Select the **Piping Isometric Drawing by Query** component, and then click **OK**. The Piping Isometric Drawing by Query component is created in the folder.
- 3. Right-click the Piping Isometric Drawing by Query component, and select **Setup** on the shortcut menu.

4. On the **Setup** dialog box, specify a filter in the **Filter** field. The dropdown shows the most recently selected filters. Click **More** to display the **Select Filter** dialog box and specify a filter. The filter you select is the "what" portion of the query; for example, Pipe Runs. Click **Properties** to display the current filter properties. For more information on filters for Drawings by Query, see *Drawings* by Query Filters: An Overview, page 205.

#### Note

- Select a filter that is appropriate for the isometric styles you want to
  use for this Piping Isometric Drawing by Query component. For
  example, for the Iso\_Pipeline style, the filter must contain piping and
  pipeline systems. For the Iso\_Spool and Iso\_PenSpool styles, the
  filter must contain spool assemblies.
- 5. Specify a **Style** to use for the piping isometric drawings. The delivered styles include **Iso\_Pipeline**, **Iso\_Piperun**, **Iso\_Spool**, **Iso\_PenSpool**, **Iso\_WBS**, and **Iso\_Stress**. Your administrator may provide more isometric styles. Click **More** in the dropdown to display a list of all available styles. For more information, see *Select Drawing Style Dialog Box*, page 29.
- 6. Click **Properties** to display the **Isometric Style Options Browser**. Modify options for the isometric styles you added as needed. For more information, see *Use the Isometric Style Options Browser*, page 50.
- 7. Click **OK** to create the Piping Isometric Drawing component as specified.

To use the component to generate piping isometric drawings you need to save it as a package and associate it to a **Drawings by Query Manager**. For more information, see *Create a Drawings by Query Manager*, page 34.

#### Notes

- To delete a component, right-click it and select **Delete**.
- To rename a component, right-click it and select **Rename**.

- Piping Isometric Drawings by Query: An Overview, page 24
- Setup Command (Piping Isometric Drawing by Query Component), page 28

### **Select Filter Command**

Specifies a filter for the orthographic or piping isometric drawings. The filter narrows the objects returned for the drawings.

For more information on setting up filters for Drawings by Query components, see *Drawings by Query Filters: An Overview*, page 205.

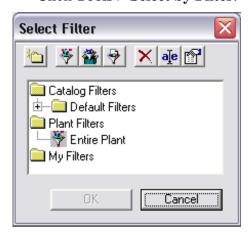
#### **Related Topics**

- Create an Isometric Drawing, page 41
- Piping Isometric Drawings by Query: An Overview, page 24

### Select Filter Dialog Box

Creates, edits, deletes, and selects filters for use with the **Define Workspace**, **Surface Style Rules**, and **Select by Filter** commands. This dialog box is also used when you run reports that require runtime filter selection. You can access this dialog box in several ways:

- Click File > Define Workspace, and select the More option in the Filter box.
- Click **Format > Surface Style Rules**, click **New** or **Modify**, and then select the **More** option in the **Filter** box.
- Click Tools > Select by Filter.



The tree view displays the following types of filters:

• Catalog Filters - These filters are used like reference data in the Catalog. For example, a catalog filter could apply to company-wide operations. Your administrator could define Company\_Filter\_1, Company\_Filter\_2, and so forth.

- **Plant Filters** These filters are available to all users assigned to a specific database model. You must have the appropriate privileges to create, edit, or delete these filters.
- My Filters These are personal filters that you create and place in the My Filters folder. They are visible only to you, the owner. You cannot see the personal filters of other users, and they cannot see your personal filters. Select a filter from one of those listed, or create a new filter to meet your specific requirements.
- New Folder Creates a new folder.
- New Filter (Simple or Asking) Displays the New Filter Properties dialog box where you can create a new filter. Asking filters allows you to specify the parameters of the search. An asking filter has built-in functionality to ask for values (with boxes that you are required to record). The values apply to properties you have already designated you will supply when the filter is run. Asking filters are portable between models.
- New Compound Filter Displays the New Compound Filter Properties dialog box where you can create a new compound filter containing the Or, And, or Not operators.
- **New SQL Filter** Displays the **New SQL Filter Properties** dialog box where you can type the text of an SQL query.
- ➤ Delete Removes a filter or folder from the Select Filter list, and delete it. If you delete a folder, the software also deletes its contents.
- **Rename** Changes the name of an existing filter or folder from the **Select Filter** list.
- **Properties** Displays the **Filter Properties** dialog box on which you can select the properties that determine your filter search criteria.

#### Notes

- If this dialog box is activated from the **Select by Filter** command, you can select multiple filters on this dialog box. Hold CTRL or SHIFT and click each filter. On **OK**, all objects that fit the selected filters are selected.
- If this dialog box is activated from the **Select by Filter** command, it clears the select set before adding objects to the select set.

## Setup Command (Drawings by Query Manager Component)

Sets options for creating a Drawings by Query Manager. This command is available on the right-click popup menu for Drawings by Query Manager components.

The Drawings by Query Manager is used in conjunction with other components, such as the orthographic drawing by query and Piping Isometric Drawing by Query components, to complete the query for objects in the model. The Drawings by Query Manager provides the filter that specifies the "where" side of the query. It tells the query "where" to look for the objects specified by the component "what" filter.

#### **Related Topics**

- Create a Drawings by Query Manager, page 34
- Piping Isometric Drawings by Query: An Overview, page 24

## Setup Dialog Box (Drawings by Query Manager Component)

Sets options for creating Drawings by Query Manager components.

**Filter** - Identifies the filter to use to define the "where" portion of the query. The software uses the filter to determine where to look for the objects requested in Orthographic Drawing by Query and Piping Isometric Drawing by Query components when they are generated. Select **More** in the dropdown list to display the **Select Filter** dialog box. Click **Properties** to display the current filter properties. For more information on filters for the Drawings by Query Manager, see *Drawings by Query Filters: An Overview*, page 205.

**Package** - Specifies the package to use in completing the query.



 You must create an Orthographic Drawing by Query or Piping Isometric Drawing by Query package before setting up the Drawings by Query Manager component. For more information, see *Save Package Command*, page 110.

- Create a Drawings by Query Manager, page 34
- Setup Command (Drawings by Query Manager Component), page 33

### Create a Drawings by Query Manager

The Drawings by Query Manager component works in conjunction with the Orthographic Drawing by Query and Piping Isometric Drawing by Query packages. Before using this command, you must create packages for your Orthographic Drawing by Query and Piping Isometric Drawing by Query components. For more information, see *Save Package Command*, page 110.

1. Right-click the folder where you want to create your **Drawings by Query Manager**. The **Add Component** dialog box appears.



- You can store the Drawings by Query Manager anywhere in the Management Console, but it is best to store it in the same location as the components with which it works.
- 2. Select the **Drawings by Query Manager** component, then click **OK**. The Drawings by Query Manager component is created in the folder.
- 3. Right-click the **Drawings by Query Manager** component and select **Setup** to specify the properties for the component. The **Setup** dialog box appears.
- 4. Specify a filter in the **Filter** field. The dropdown shows the most recently selected filters. Select **More** in the dropdown list to display the **Select Filter** dialog box and specify a filter. Click **Properties** to display the current filter properties.
  - The filter you select is the "where" portion of the query, as opposed to the "what" portion specified when you setup the Orthographic Drawing by Query or Piping Isometric Drawing by Query component. The filter you specify here tells where in the model you want to look for the objects.
  - For more information on filters for Drawings by Query, see *Drawings by Query Filters: An Overview*, page 205.
- 5. In the **Package** field, specify the Orthographic Drawing by Query or Piping Isometric Drawing by Query package you created. The dropdown contains the most recently selected packages. Select **More** to display the **Select Package** dialog box. For example, if you are defining a Drawings by Query Manager for an Orthographic Drawing by Query, select an Orthographic Drawing by Query package.

#### 6. Click **OK** to save the settings.

To create the drawings, you need to run the query. For more information, see Run Query Command, page 36.

#### Notes

- To delete a component, right-click it and select **Delete**.
- To rename a component, right-click it and select **Rename**.

- Piping Isometric Drawings by Query: An Overview, page 24
- Setup Command (Drawings by Query Manager Component), page 33

## **Run Query Command**

Runs the query associated with the selected Drawings by Query Manager component. For example, if you have a Piping Isometric Drawing by Query package associated with a Drawings by Query Manager and you execute **Run Query**, the software looks for piping in the model. The query results display beneath the style in the **Management Console** and also in the **Detail View**. Then you can create isometric drawings from the query results by right-clicking on the component and selecting **Create Drawings**.

If you have an Orthographic Drawing by Query package associated to a Drawings by Query Manager, the **Run Query** command runs the query associate with the components, collects the objects from the database, and builds the information that will be included in the drawing. Then you can create orthographic drawings from the query results by running the **Create Drawings** command on the Orthographic Drawing component.

The **Run Query** command uses the filters specified when you performed **Setup** components.

- Create Drawing Command, page 109
- Piping Isometric Drawings by Query: An Overview, page 24

# **View Extraction Data Command**

Displays part and report information for a line that has been processed. You can view the log file and Piping Component File (PCF) data for the extraction. If you have customized the style to produce report files such as the neutral file and cut pipe list, you can also view those files directly in the **Extraction Data** dialog box.

To access this command, right-click a line or isometric drawing in the tree view or list view. This command helps you to troubleshoot extraction errors.

## **Saving Extraction Data to File**

If you need to review the data in more detail or the extraction data files are too large to view in the **Extraction Data** dialog box, you can right-click the isometric drawing document and select **Save As** to save the extraction information to a file. On the **Save As** dialog box, check the **Isometric Drawings** component type, then in the **Target File Type** dropdown, specify **All Files** to save all of the extraction data files. You can also specify individual files; for example specify the **Target File Type** as **PCR File** to only save the PCR file information. For more information, see *Save As Command*, page 194.

## **Related Topics**

• View Piping Isometric Extraction Data, page 40

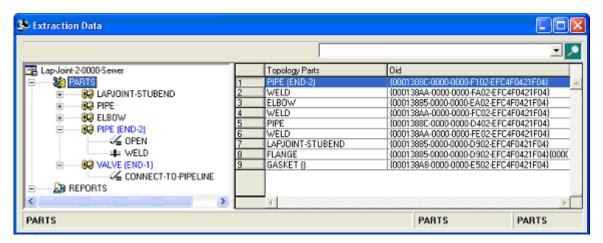
# **Extraction Data Dialog Box**

Provides troubleshooting information for the isometric drawing extraction process by displaying parts and reports. The search box at the top of this dialog box allows you to find keywords in the data. You can access this dialog box by right-clicking a piping isometric drawing and selecting **View Extraction Data** on the shortcut menu.

# Note

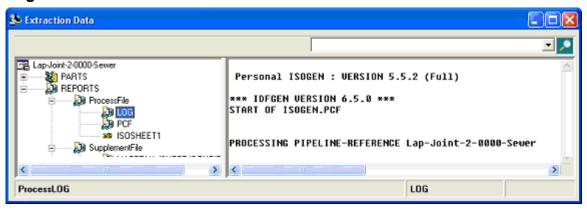
• If you need to review the data in more detail or the extraction data files are too large to view in the **Extraction Data** dialog box, you can right-click the isometric drawing document and select **Save As** to save the extraction information to a file. For more information, see *View Extraction Data Command*, page 37.

You can view the extracted parts by expanding the **Parts** node on the left side of the dialog box.

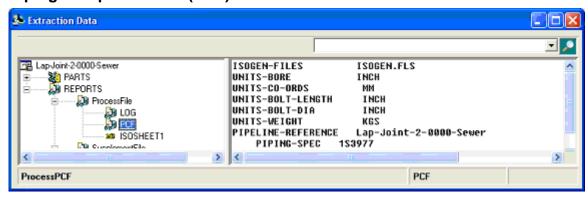


The **Reports** node includes:

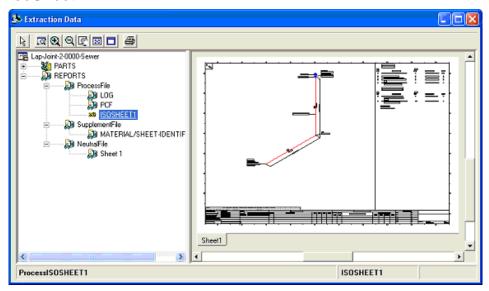
## Log File



### **Piping Component File (PCF)**

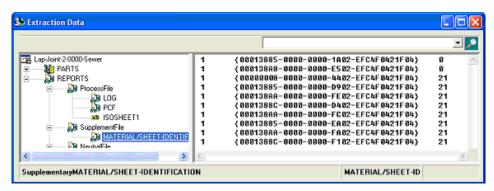


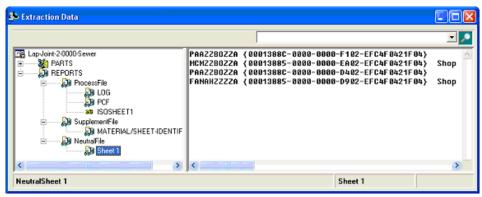
#### IsoSheet



## **Other Report Files**

Examples include Supplement file and Neutral file.



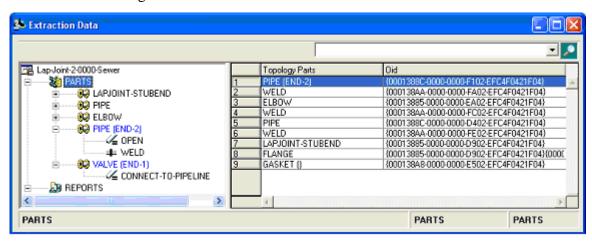


### **Related Topics**

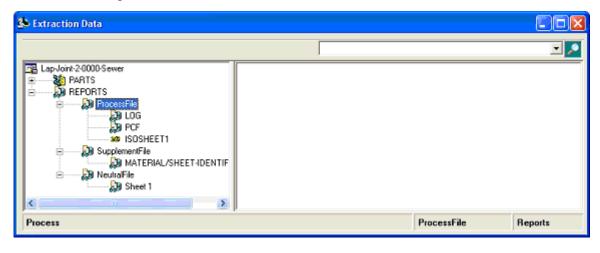
- View Extraction Data Command, page 37
- View Piping Isometric Extraction Data, page 40

# **View Piping Isometric Extraction Data**

- 1. In the **Management Console**, right-click an isometric drawing.
- 2. Select **View Extraction Data** on the shortcut menu. The dialog box displays the part and report information for the line, including the log file and Piping Component File (PCF) data.
- 3. To view the extracted parts information, select and expand the **Parts** node on the left side of the dialog box.



4. To view the report information, select and expand the **Reports** node on the left side of the dialog box.



5. Type a word into the **Search** field at the top of the dialog box and press **Enter** or click to locate the keyword in the extraction data.

# Notes

- If you have customized the style to produce report files, such as the neutral file and cut pipe list, you can also view those files directly in the dialog box.
- If you need to review the data in more detail or the extraction data files are too large to view in the **Extraction Data** dialog box, you can right-click the isometric drawing document and select **Save As** to save the extraction information to a file. For more information, see *View Extraction Data Command*, page 37.

### **Related Topics**

- Create a Piping Component File (PCF), page 60
- View Extraction Data Command, page 37

# Create an Isometric Drawing

1. In the **Management Console**, verify that at least one isometric piping drawing exists. If none exists, add a component for isometric drawings.

Setup a Piping Isometric Drawing by Query Component, page 29

2. Modify options for the isometric styles you added as needed.

Use the Isometric Style Options Browser, page 50

3. Right-click the isometric drawing style, and click **Run Query**. The software populates the **Detail View** with the available items for that style.



- To display available items for all isometric styles in a component, right-click the component in the Management Console, then click Run Query.
- 4. Right-click a folder, component, pipeline, or spool and click **Update Document(s)** to create isometric drawings.



You can extract multiple objects (for example, pipelines) if you hold
 Ctrl or Shift while you select the objects in the Management Console or Detail View.

5. To view a drawing, double-click the drawing name in the **Detail View**.

# Note

You can remove items from an isometric piping drawing component by modifying the filter and running the query again.

## **Related Topics**

- Create a Piping Component File (PCF), page 60
- Piping Isometric Drawings by Query: An Overview, page 24
- Set Isometric Break Control Points for Drawings, page 61

# Customizing Isometric Drawing Styles: An **Overview**

Isometric drawing styles control several aspects of the isometric drawing output, including the output location and the type of object used for drawing creation. Each drawing style is also associated with a set of options and a backing sheet.

To customize the isometric drawing styles for your company, you can copy and then modify the delivered isometric drawing styles.

## Isometric Drawing Styles

The delivered isometric drawing styles are **Iso\_Pipeline**, **Iso\_Piperun**, **Iso\_Spool**, Iso PenSpool, Iso WBS, and Iso Stress. Each delivered style has an associated XML file and IGR file. The XML file contains the isometric options, and the IGR file is the backing sheet for the isometric drawing.

- **Iso\_Pipeline** Creates a final isometric drawing used to construct the plant. This style creates one drawing per pipeline system. This drawing style is an example of a potential configuration for a fabrication isometric. It includes a material list.
- **Iso Piperun** Creates a draft of an isometric drawing for checking against project guidelines. This style creates one drawing per pipe run. This drawing style is an example of a drawing configuration used for checking pipeline designs prior to extracting the fabrication isometric.
- **Iso Spool** Creates an isometric drawing used in the fabrication shop to manufacture the pipe. This style uses piping spools. You can create spools using the Generate Spools command in the Piping task. Like the final isometric style, it includes a material list.
- **Iso\_PenSpool** Creates an isometric drawing that documents penetration spools that consist of a penetration plate and several piping spools. This style creates one drawing per penetration spools. You can create penetration spools using the Create Penetration Spools command in the Piping task.
- **Iso\_WBS** Creates an isometric drawing that documents a collection of parts that are assigned to one Work Breakdown Structure (WBS) item of the type **Group Iso Drawing**. This style creates one drawing per WBS
- **Iso Stress** Creates a Piping Component File (PCF) that can be output to the CAESAR II pipe stress analysis software. No drawing is created. To save the PCF file, use the Save As command. For more information, see Create a Piping Component File (PCF), page 60.

You can create other isometric drawing styles, such as a Bid style for construction contractors to bid on a project.

## Migration of Isometric Drawing Styles

Migration of isometric drawing styles occurs automatically when you do one of the following two things:

- Migrate catalog version 6.1 to version 2007 (that is 7.0). The software only migrates the isometric drawing styles that already exist in the catalog (the XML style files that already exist in the catalog database as objects). For more information, contact Intergraph Support Services. You can find support information on our web site <a href="http://support.intergraph.com">http://support.intergraph.com</a>.
- Automatically migrate your existing or modified isometric styles by opening them in the **Isometric Style Options Browser** and saving them to the catalog. For more information, see *Edit Options Command*, page 48.

## **Isometric Options**

The isometric options define the isometric drawing output, which includes symbols, dimensions, layers, drawing frame attributes, material lists, weld lists, detail sketches, and many other settings. The options are stored in XML file in the [Product Directory]\CatalogData\Symbols\PmfgIsoStyleData folder on the server.

You should modify the option control data using the **Edit Options** command. The command displays the **Isometric Style Options Browser**, which is the tool used to control centrally all the options related to the appearance and information content of the various styles of isometric drawings. If you directly manipulate the XML file, your changes may not take effect in the software.

You can also use the **Edit Options** command to import, export, and save symbol maps.

The isometric option control data is integrated within the catalog reference data. You must have access rights to the catalog reference data to edit and save the option control data.

# **Backing Sheets**

The backing sheet allows you to customize the drawing style with your company's logo, watermark, and drawing borders. The delivered backing sheets are stored as IGR files in the [Product Directory]\CatalogData\Symbols\PmfgIsoStyleData folder on the server.

A document can include two different types of sheets: working sheets and background sheets. Working sheets contain design data, and background sheets contain title block graphics, borders, company logo, and watermarks. Each working sheet can contain a reference to a background sheet. If this reference is set, the size of the background sheet determines the size of the working sheet. Also, graphics on the background sheet become visible in the working sheet.

# Note

 Graphic objects used in the background sheets must be embedded, not linked, using the Insert > Object command in the 2D Drawing Editor when editing the drawing or the drawing template.

When you create a backing sheet for isometric drawings, the backing sheet must have the following characteristics:

- It must contain a single, empty working sheet.
- It must contain a single background sheet containing the required graphics. The background sheet should be set to the appropriate size and scale.
- The working sheet must contain a reference to the background sheet.
- The working sheet must be active when you save the template.
- The working sheet should have layers set up with the required colors, unless the color is specified explicitly in the isometric options. If the working sheet does not have the required layers, the ISOGEN software creates the layers automatically and assigns them to the colors specified in the options.

## **Embedded Labels in Isometric Drawing Styles**

To enable recursive expansion of embedded labels used in isometric drawings styles, the report RFM file must set the **ToParse** flag to **Yes**, as in the following example:

```
<DATA
Column="ShortMaterialDescription"
ToParse="yes"
Visible="yes"/>
```

#### **Related Topics**

- Create a New Isometric Style, page 57
- Edit an Isometric Backing Sheet, page 59
- Use the Isometric Style Options Browser, page 50

# **Isometric Style Common Tasks**

The following tasks are used when you create new piping isometric styles.

# **Modify Drawing Border Files**

You can create or modify border files two ways. You can modify existing delivered border files. For more information, see *Modify an Existing Border File*, page 54.

If you have existing MicroStation DGN files you want to use as a drawing border, you can import them. For more information, see *Import an Existing MicroStation DGN Border*, page 55.

# **Create New Isometric Styles**

You can add new isometric styles to the delivered *BulkLoadIsoKeys.xls* file and bulkload the changes into the model data. For more information, see *Create a New Isometric Style*, page 57.

# **Use the Isometric Style Options Browser**

You can modify, save, and import style options through the **Isometric Style Options Browser**. For more information, see *Use the Isometric Style Options Browser*, page 50.

# Importing Data from the Style XML File

You can import style data from the style XML file directly through the **Isometric Style Options Browser**. When you import styles, they are shown immediately within the Browser. For more information, see *Import Data from the Style XML File*, page 52.

# **Develop the Look and Feel of Drawings**

You can change the look and feel of an isometric drawing by changing options within the **Isometric Style Options Browser**. Options can specify everything from drawing content to the system controls for output definition. For more information, see *Developing the Look and Feel of the Drawing: An Overview*, page 66.

#### **Use Alternative Text**

**AText** is an abbreviation for alternative text, an ISOGEN feature that allows you to change or remove any text on the isometric drawing. You can substitute your own text in the place of standard ISOGEN words. For more information, see *Alternative Text Options: An Overview*, page 396.

# **Map Isometric Data to Drawing Layers**

You can map layers within a previously created drawing border file to isometric data. The options used to define the mapping are found in the **Isometric Style Options Browser** in the **Drawing.Layers** and **Drawing.Definitions** options. For more information, see *Mapping Isometric Data to Drawing Layers*, page 64.

# **Configure the Material List**

You can specify three different styles for material lists on isometric drawings. You use the **Isometric Style Options Browser** to set the options for the MTO Neutral File. For more information, see *Configuring the Material List: An Overview*, page 76.

# **Assign Labels**

You assign labels to attributes within a drawing through the Isometric Style Options Browser. For more information, see *Assign Labels*, page 51.

## Populate the Title Block

You can use labels to customize the title block of a drawing. Labels are often used for single pieces of data, such as the approval date or your company name. You can use the **Isometric Style Options Browser** to specify options for the appearance and content of the title block. For more information, see *Populate the Title Block*, page 53.

# **Setting the Symbol Mapping**

You can set symbol mapping in the **Isometric Style Options Browser**. For more information, see *Symbol Mapping (SymbolMAP): An Overview*, page 392.

# **Edit Options Command**

Sets various options that affect isometric drawing output, such as dimension styles, layers, drawing frame text, material lists, and weld lists.

You can also use the **Edit Options** command to import, export, and save symbol maps. You can import isometric keys from either a bulkload spreadsheet or from a previously created and saved XML file containing isometric keys.

You can access this command by right-clicking a Piping Isometric Drawings component or package in the **Management Console**. You must have access rights to the catalog reference data to save isometric options to the Catalog database.

## **Related Topics**

• Customizing Isometric Drawing Styles: An Overview, page 43

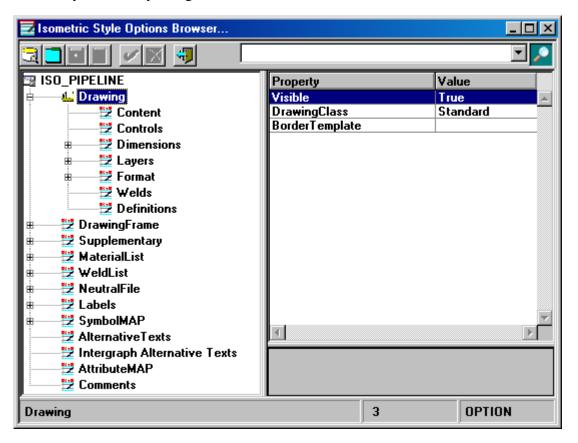
# Isometric Style Options Browser Dialog Box

Sets options for an isometric drawing style. You can use this browser to control all the options related to the appearance and information content of the various styles of isometric drawings. You can save changes permanently to the Catalog database.

The left pane of the browser window groups the options for a style. Click a node to view its corresponding table. For descriptions of the options, see *Appendix: Isometric Drawing Options*, page 246. The **SymbolMAP** node shows the current symbol mapping options available. For more information on symbols and symbol keys, see *Appendix: Symbols and Symbol Keys*, page 406.

The right pane of the browser window shows the values set for the options. The grid presents two overall types of options. One type lists the options in two columns: **Property** and **Value**. An example is the **DrawingFrame** options. The other type lists the options in a multi-column format, where each row is part of an associated collection of options. An example is **Material List.Cut List.Summary File.Column**.

You can sort the columns by clicking the column headings. For the collection-based option categories, you can insert or delete rows by pressing the **Insert** or **Delete** keys on the keyboard or by using the **Insert Row** and **Delete Row** buttons on the toolbar.



- Save to Catalog Stores the isometric style options in the reference data. You must have write permission to the reference data for the software to store your changes in the Catalog database.
- Import Data From File Imports either a bulkload spreadsheet containing the isometric keys or a previously saved XML file containing the isometric keys. This button is enabled when you select the root, SymbolMAP, AlternativeTexts, or **AttributeMAP** node in the **Options Browser**. For more information, see *Import* Data from the Style XML File, page 52.
- Save Style XML File Saves the current style option data to an XML file. You can later import it. This button is enabled when you select the root node in the **Options Browser.**
- **Catalog Style Rule Properties** Displays information about the current style, such as name, type, description, and path to the isometric drawings. This information is stored in the Catalog database. This button is enabled when you select the root node in the Options Browser.

- ✓ Insert Row Adds a new row for data to the table currently displayed in the Table section of the dialog box. The row is inserted above the selected row.
- ➤ **Delete Row** Deletes the selected row from the table displayed in the **Table** section of the dialog box.
- **Exit** Closes the dialog box and prompts you to save changes if necessary.

Search - Finds an option based on text that you type. This command searches in the **Property** column. The software returns the results in the table portion of the browser. To find an option, type text in the **Search** box in the upper right of the **Isometric Style Options Browser** and either press **Enter** or click **Search** . You can also type specific option numbers in the **Search** box. For example, you can type **?OPT:79** to find option 79.

## **Related Topics**

- Customizing Isometric Drawing Styles: An Overview, page 43
- Edit Options Command, page 48

# Use the Isometric Style Options Browser

Isometric drawing styles control several aspects of the isometric drawing output, including the output location and the type of object used for drawing creation. Each drawing style is also associated with a set of options. You modify the isometric style options using the **Edit Options** command on the right-click menu for an Isometric Piping Drawing. This command displays the **Isometric Style Options Browser**.

- Right-click a Piping Isometric component or package in the Management Console, then click Edit Options to display the Isometric Style Options Browser.
- 2. Select a style option category in the hierarchy. Expand a branch on the tree to see the options.
- 3. Edit the options as necessary in the data grid on the right-hand side of the dialog box.

# 💡 Tips

- To find an option, type text in the Search box and either press Enter or click Find to locate the option in the hierarchy.
- You can find the option and switch number for the currently selected item displayed at the lower right of the dialog box.
- For the collection-based option categories (such as **Drawing.Layers.Column**), you can insert or delete rows in the grid by press the **Insert** or **Delete** keys or by clicking **Insert Row** ✓ or **Delete Row** X.

- 4. Click **Save To Catalog** to save the changes to the Catalog database. You must have write permission to reference data to save changes to isometric styles in the catalog.
- 5. Save the option style data by selecting the root node then click Save Style XML File. To import style data, click Import Data From File.
- 6. You can view the catalog style rule properties when you click **Latalog Style** Rule Properties.

## **Related Topics**

• Customizing Isometric Drawing Styles: An Overview, page 43

# **Assign Labels**

You assign labels to attributes within a drawing through the **Isometric Style Options Browser**. There are different types of labels that can be applied. The Component Note, Continuation Note, and the Nozzle Note are used as examples below.

## **Isometric Component Note**

- Right-click a Piping Isometric Drawing component or package in the Management Console, then click Edit Options to display the Isometric Style Options Browser.
- 2. Expand **Labels.ComponentNote**. The right side of the dialog box shows the options specified as Component Notes within the current style.
- 3. To create a new Component Note, click **Insert Row**. Set the attributes for the new Component Note as needed. For example: Select **PipeSupport** from the dropdown list in the **LabelAttribute2** field.
- 4. In the **LabelName** field, click the ellipsis button to open the **Catalog Labels** dialog box. Select a label to use for the Component Note.
- 5. If you want the Component Note to be enclosed by a border or bubble, specify it in the **MessageEnclosure** field.
- 6. Click **Save to Catalog** to save the changes to the Catalog database. You must have write permission to reference data to save changes to isometric styles.
- 7. Update your document to see the new applied style.

#### **Continuation and Nozzle Note**

- 1. Right-click an isometric style in the **Management Console**, then click **Edit Options** to display the **Isometric Style Options Browser**.
- 2. Expand **Labels.END-CONNECTION-EQUIPMENT** or **END-CONNECTION-PIPELINE**. These are the labels that give you the nozzle notes and continuation notes.
- 3. Make changes as necessary.
- 4. Save to the catalog as shown in the previous example.

5. Update the document to see the new applied style.



• To enable recursive expansion of embedded labels, the report RFM file must set the **ToParse** flag to **Yes**, as in the following example:

```
<DATA
Column="ShortMaterialDescription"
ToParse="yes"
Visible="yes"/>
```

## **Related Topics**

• Labels Options: An Overview, page 382

# Import Data from the Style XML File

You can import style data from the style XML file directly through the **Isometric Style Options Browser**. When you import styles, they are shown immediately within the Browser. The level of the hierarchy selected when you invoke **Import** and all levels below it are replaced with the new values from the imported file. The following procedure uses the **Labels.DrawingFrame** level as an example.

- Right-click a Piping Isometric Drawing component or package in the Management Console, then click Edit Options to display the Isometric Style Options Browser.
- 2. Expand Labels.DrawingFrame and select DrawingFrame.
- 3. Click **Import Data From File** . The **Select File To Import** dialog appears.
- 4. Browse to the directory where the style XML file is located. For example, you may have edited the style content of the *Iso\_Pipeline.xml* file located in \*Program Files\SmartPlant\3D\Drawings\Templates\Styles*.
- 5. Select the file and click **OK** to retrieve the style information. A dialog box displays to confirm the file you selected. Click **Yes** to continue. The style option information is updated in the browser. Bulkloading is not necessary.
- 6. Click **Save to catalog** to save the changes to the Catalog database. You must have write permission to reference data to save changes to isometric styles.
- 7. Update your document to see the new applied style.

# **Related Topics**

- Customizing Isometric Drawing Styles: An Overview, page 43
- Isometric Style Common Tasks, page 46

# Populate the Title Block

You can use labels to customize the title block of a drawing. Labels are often used for single pieces of data, such as the approval date or your company name. You can use the **Isometric Style Options Browser** to specify options for the appearance and content of the title block.

The workflow for setting up attributes to populate the title block involves several steps. They are broken down as follows:

- Mapping HostAttributes to IsogenAttributes using the AttributeMAP options within the Isometric Style Options Browser.
- Assigning labels as needed using **Labels.DrawingFrame** options.
- Positioning text on the border with the **DrawingFrame.Attributes** options.

# **Mapping Attributes**

- Right-click a Piping Isometric Drawing component or package in the Management Console, then click Edit Options to display the Isometric Style Options Browser.
- 2. Select **AttributeMAP**. Notice the mapping of **HostAttributes** to **IsogenAttributes**. For example, the following graphic shows HostAttribute **Piping Specification** is mapped to IsogenAttribute **PIPING-SPEC**.

	HostAttribute	IsogenAttribute
23	Piping Specification	PIPING-SPEC



- You can customize the mapping of ISOGEN Attributes
   ATTRIBUTE11 through ATTRIBUTE99. ATTRIBUTE1 through
   ATTRIBUTE10 are reserved by Intergraph. We recommend you start
   adding your own attributes from ATTRIBUTE21.
- 3. Expand **Labels.DrawingFrame**.
- 4. Notice the mapping of **IsogenAttributes** to labels. For example, IsogenAttribute **PIPELINE-REFERENCE** is mapped to the delivered catalog label **IsoPipelineReference**.

Some of the IsogenAttributes are *hardcoded*. For example, **PIPING-SPEC** always returns to the specification of the pipeline. It does not need or accept a label.

# **Assigning Labels within the Title Block**

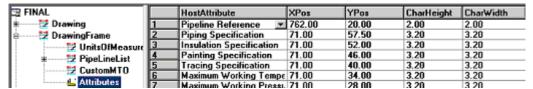
- 1. Expand Labels.DrawingFrame.
- 2. Specify the mapping of **LabelAttributes** to **LabelNames**. In the **LabelName** column, click the ellipsis button to display the **Catalog Labels** dialog box.
- 3. Expand branches of the catalog label hierarchy and select the label you want to assign to the **Label Attribute**.

# Positioning Labels on the Drawing Border

- 1. Expand **DrawingFrame.Attributes**.
- 2. Notice the mapping of **HostAttributes** to location on the drawing sheet. The following graphic shows a sample mapping.



When editing the **Drawing Frame.Attributes**, do not remove the **Pipeline Reference** from the **HostAttribute** list.



- 3. All values are listed in **mm**, measured from the origin of the sheet. For example, **Pipeline Reference** is shown in **2 mm font size at X=762mm**.
- 4. Change values as needed to position labels on the drawing border.

#### **Related Topics**

- Customizing Isometric Drawing Styles: An Overview, page 43
- Edit Options Command, page 48
- Isometric Style Options Browser Dialog Box, page 48

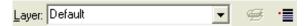
# Modify an Existing Border File

You can create a drawing border from scratch using the **2D Drawing Editor**. You use the commands available within the **2D Drawing Editor** to place graphics and create appropriate layers.

When using layers in a template, keep in mind that the software preserves the **Default** layer and any layer that begins with *User* (for example, a layer named **UserAnnotationLayer**) when you update drawings. Manual markups on other layers are not preserved.

You should name new border files with the name of the desired isometric style, such as Iso\_Pipeline or Iso\_Piperun.

- 1. Navigate to [Program Files]\SmartPlant\3D\CatalogData\Symbols\PmfgIsoStyleData and copy the appropriate existing border igr file to the Drawings\Catalog\Templates directory. You may want to create a subdirectory for the new file you are creating.
- 2. Rename the copied file with the .sha extension.
- 3. Open the copied .sha files with the **2D Drawing Editor**.
- 4. Fit the view.
- 5. Select **Tools > Layers**. The **Layer** ribbon appears.



- 6. Select **Tools > Display Manager**. On the **Layers** tab, scroll down to see the values currently set in the *.sha* file. These are the color, line type, and width values for the named layers.
- 7. Make changes as needed, save the file, and exit the **2D Drawing Editor**. The next time you use this .*sha* file as your drawing border template, the graphics will show the changes you made.

#### **Related Topics**

- Customizing Isometric Drawing Styles: An Overview, page 43
- Isometric Style Common Tasks, page 46
- Working with Layers: An Overview, page 64

# Import an Existing MicroStation DGN Border

If you have an existing MicroStation DGN file which is being used as a border (seed file), you can re-use it for your isometric drawings.

You should name new border files with the name of the desired isometric style, such as Iso\_Piperun or Iso\_Pipeline.

- 1. Using MicroStation tools, merge the seed and border file into a single DGN file.
- 2. Find the size for the required .*sha* file. For example, you may require a C-size to match your DGN file.
- 3. Navigate to the [Workstation Install Directory]\Common2D\Template directory and locate the Normal.sha file.
- 4. Right-click the file and select **Properties**. Remove the read-only flag from the file.
- 5. Open the *Normal.sha* file in the **2D Drawing Editor**.
- 6. Go to **File > Sheet Setup** and change the size of the file to match the size of the DGN file.

- 7. Save and close the file.
- 8. Open the **2D Drawing Editor** by double-clicking the *shape2dserver.exe* file in the \*Common2D\Shape2D\Bin* directory.
- 9. Select **File > Open** and open the DGN file.
- 10. Select **Edit > Select All** to select all the DGN graphics.
- 11. Select **Edit** > **Cut** to remove the DGN graphics from the working sheet.
- 12. Select **View > Background Sheets**.
- 13. Select **Edit** > **Paste** to paste the DGN graphics on the background sheet.
- 14. Remove all extra layers using *cmddeletelayer.dll*, which is located in the \Symbol2D\Bin and can be added as a custom command in the **2D Drawing Editor**.
- 15. Change the background color if necessary using **Tools > Options**. Make other changes as needed.
- 16. Select **View > Working Sheets**.
- 17. Create a layer in the working sheet with "User" as the prefix of the name (for example, a layer named **UserAnnotationLayer**).



- When using layers in a template, keep in mind that the software preserves the **Default** layer and any layer that begins with *User* when you update drawings. Manual markups on other layers are not preserved.
- 18. Save the file as a border template .*sha* file. The MicroStation graphics are saved as part of the new border template file to be used in the Drawings and Reports task.

## **Related Topics**

- Customizing Isometric Drawing Styles: An Overview, page 43
- Isometric Style Common Tasks, page 46
- Working with Layers: An Overview, page 64

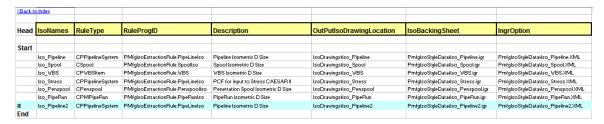
# Create a New Isometric Style

You may require different isometric styles for different types of isometric drawings. You can add new isometric styles to the delivered *BulkLoadIsoKeys.xls* and bulkload the changes into the Catalog data for use in the Drawings and Reports task. For more information on the *BulkLoadIsoKeys.xls* file, see the *Drawings and Reports Reference Data Guide*.

## Add a New Style to the BulkLoadlsoKeys Spreadsheet

- 1. Open the *BulkLoadIsoKeys.xls* file located in \*CatalogData\Bulkload\DataFiles* in Microsoft Excel.
- 2. On the **PipeMfgRules** sheet, select a style row to use as a starting point for your new style. Right-click the row and select **Copy**.
- 3. Select the End row. Right-click the row and select **Insert Copied Cells**.

For example, you might want to create a variation of the existing **Iso\_Pipeline** style called **Iso\_Pipeline2**. You would select the row containing the delivered **Iso\_Pipeline** style as the one to copy. In the graphic below, the **Iso\_Pipeline** style entry (Row 6) is copied and modified as **Iso\_Pipeline2** (Row 12).





- The OutputIsoDrawingLocation column in this spreadsheet is no longer used and modifying its values has no effect on the piping isometric drawings.
- 4. Add the letter **A** to column A for this row, as shown in the previous graphic. This tells the software to add the row when the file is bulkloaded.
- 5. Change the **IsoNames** entry for your new style. For example, in the previous example, the name is changed to **Iso Pipeline2**.
- 6. Change the value in the **IsoBackingSheet** column for your new style to the location of the backing sheet to be used with this style. For example, your backing sheet may be specified as **PmfgIsoStyleData\Iso\_Pipeline2.sha**.

# Important

• The name of the backing sheet file should match the name of the **IsoNames** entry for the new style. As you can see in the example above, the backing sheet .sha file name matches the **IsoNames** entry.

7. Change the **IngrOption** value to the location of the style XML file. For example, your new style XML file may be specified as **pmfgIsoStyleData\Iso\_Pipeline2.xml**.

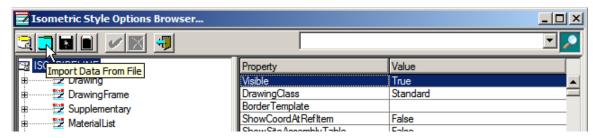
# **!** Imporant

- As with the **IsoBackingSheet** entry, the **IngrOption** style XML file should use the **IsoNames** entry as its basename. In this example, the XML file name is **Iso\_Pipeline2.xml**.
- 8. Save the *BulkLoadIsoKeys.xls* file and close Excel.

# Create the Backing Sheet and the Iso Style XML

You must create your backing sheet file for the isometric style and store it in the \PmfgIsoStyleData folder on the Symbols share.

- 1. If the new style uses the same backing sheet as another style, you can copy and rename the existing backing sheet file. In the previous example, if the backing sheets for **Iso\_Pipeline** and **Iso\_Pipeline2** are the same, go to the Symbol share \pmfgIsoStyleData folder and make a copy of **Iso\_Pipeline.igr** and rename it to **Iso\_Pipeline2.igr**.
  - To edit this file, follow the instructions in *Edit an Isometric Backing Sheet*, page 59.
- 2. To create a new Iso Style XML, go to the **Drawings and Reports** task in the software.
- Right-click any Piping Isometric drawing folder in the Management Console and select Edit Options on the shortcut menu. The Isometric Options Browser appears.
- 4. Select the top node in the Style hierarchy (the style name), then click **Import Data From File**, as shown below:



5. On the **Select File to Import** dialog box, browse to the Symbols share and locate the *PmfgIsoStyleData* folder. For example, you could select the **Iso\_Pipeline.xml** file. Make any changes necessary to the style options shown in the **Isometric Options Browser** for the new Iso Style XML. When you are done, click **Save Style XML File** and save the Iso Style XML to a different name in the Symbols share *PmfgIsoStyleData* folder. For example, for the workflow demonstrated previously, you would save the file as **Iso\_Pipeline2.xml**.

After completing the tasks shown above, bulkload the BulkLoadIsoKeys.xls file to update the model data. Make sure you bulkload using **Add/Modify/Delete** mode. To test the new Isoometric Style in SP3D, switch to the Drawings and Reports task. The new style should be available when you add a style to an Isometric Piping drawing type.

# Note

- For more information on bulkloading files, see the SmartPlant 3D Reference Data Guide.
- it is not recommended to edit XML files in a text editor. However, if you plan to do so, contact Intergraph Support Services. You can find support information on our web site <a href="http://support.intergraph.com">http://support.intergraph.com</a>.

### **Related Topics**

- Customizing Isometric Drawing Styles: An Overview, page 43
- Isometric Style Common Tasks, page 46

# Edit an Isometric Backing Sheet

Personal Isogen requires isometric backing sheets as a starting block for an isometric drawing. The backing sheet files are **Shape2D Server** documents. Only use the **Shape2D Server** application, delivered in the product \Program Files\SmartPlant\3D\Common2D\Shape2D\Bin folder, to create or edit the isometric backing sheet files.

# • Important

When you bulkload an isometric backing sheet file, specify its name with the extension IGR (.igr). For more information, see Create a New Isometric Style, page 57.

The following procedure steps you through creating a new isometric backing sheet from an existing one.

1. Go to the Symbol share *PmfgIsoStyleData* folder and copy and existing isometric backing sheet file. Rename the copied file using the name of the new style as its base name. Give the new backing sheet file a .sha extension. For example, if you create a backing sheet for a style called **Iso\_Pipeline2**, rename the copied backing sheet file Iso\_Pipeline2.sha.

# Note

- The backing sheet name should always match the name of the isometric style.
- 2. Open the new backing sheet file using the **Shape2D Server** application.

3. Edit the backing sheet as needed, then exit using **File > Save**.

# **!** Important

- Do not use **File > Save As** to save the backing sheet file.
- 4. Rename the saved file, changing only its file extension to .igr. For example, **Iso\_Pipeline2.sha** renames to **Iso\_Pipeline2.igr**.
- 5. Make sure the new backing sheet IGR file is located in the Symbol share *PfmgIsoStyleData* folder as this is where it is referenced when you bulkload the new isometric style.

#### **Related Topics**

- Customizing Isometric Drawing Styles: An Overview, page 43
- Isometric Style Common Tasks, page 46

# Create a Piping Component File (PCF)

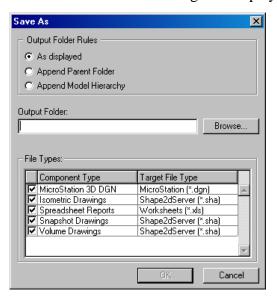
When you create a Piping Isometric document that uses the Iso\_Stress style, the software does not create drawings. Instead it creates the data necessary for a Piping Component File (PCF). You can then output the Piping Component File (PCF) to the CAESAR II pipe stress analysis software.



• You can also view the PCF data with the **View Extraction Data** command. For more information, see *View Piping Isometric Extraction Data*, page 40.

To retrieve the PCF data, you actually use the **Save As** command.

1. Right-click the Piping Isometric document that uses the Iso\_Stress style and select **Save As**. The **Save As** dialog box displays.



- 2. Specify the **Output Folder Rule** to be used. You can save the item as it appears in the **Management Console**, with its parent folder appended or with the entire model hierarchy appended.
- 3. Specify the **Output Folder** location. Click **Browse** to display a dialog box to locate the appropriate folder location.
- 4. Check the **Isometric Drawings** component type. You can select multiple component types. For more information, see Save As Dialog Box, page 194.
- 5. In the **Target File Type** dropdown for the Isometric Drawing component type, select PCR File (.pcf).
- 6. Click **OK** to save the files as specified.

The PCF file is saved to the location you specified, ready for use in stress analysis.

# **Note**

The saved drawings retain the same names they had in this task.

## **Related Topics**

- Add Location Point Coordinates to PCF, page 62
- Customizing Isometric Drawing Styles: An Overview, page 43
- Save As Command, page 194
- Set Isometric Break Control Points for Drawings, page 61

# Set Isometric Break Control Points for Drawings

The following procedure provides an example for setting an isometric break control points so that a drawing is split according to the break points.

- 1. In the Piping task, place a flange on a pipeline.
- 2. Select **Insert > Control Point**.
- 3. Set the **subtype** for the control point to **PipingMfg Limit Point**.



Make sure the parent of the control point is a **Route Connection** object.

4. Go to the Drawings and Reports task and update the drawing for the pipeline.

The updated drawing should have two sheets. The Piping Component File (PCF) should have the line ISO-SPLIT-POINT followed by the x, y, and z coordinates of the isometric break control point.

# Note

• You can create rules to use the control point subtypes to classify the control point for use in drawings and reports. For more information, see *Control Point Subtype Sheet* in the *Reference Data Guide* available from the **Help > Printable Guides** command in the software.

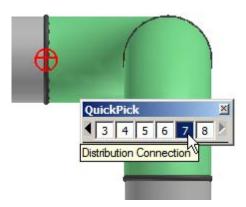
## **Related Topics**

- Create a Piping Component File (PCF), page 60
- Create an Isometric Drawing, page 41
- Customizing Isometric Drawing Styles: An Overview, page 43

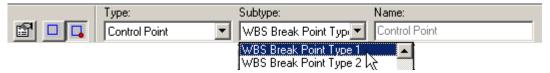
# Add Location Point Coordinates to PCF

The following procedure provides an example for setting a control point so that a drawing Piping Component File (PCF) includes location point coordinates (units in millimeters).

- 1. In the Piping task, place a control point on a pipe. Select **Insert > Control Point**.
- 2. Select the **Distribution Connection** as the parent for the control point.

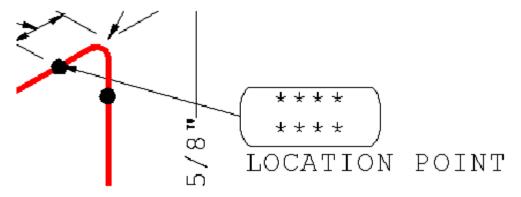


3. Set the **subtype** for the control point to **WBS Break point Type 1**.



- 4. Place the Control Point as a location point for the drawing and PCF. For example, you might want to place it on a weld.
- 5. Go to the Drawings and Reports task and update the drawing for the pipeline.

The updated drawing shows a label for the Location Point that has a label pointing to the Distribution Connection.



The Piping Component File (PCF) will include the line LOCATION-POINT followed by the x, y, and z coordinates (units in millimeters) of the control point.

# Note

You can create rules to use the control point subtypes to classify the control point for use in drawings and reports. For more information, see Control Point Subtype Sheet in the Reference Data Guide available from the **Help > Printable Guides** command in the software.

### **Related Topics**

- Create a Piping Component File (PCF), page 60
- Create an Isometric Drawing, page 41
- Customizing Isometric Drawing Styles: An Overview, page 43

# Working with Layers: An Overview

Layers are used to distinguish between graphics within a template or drawing. You can create layers in the **2D Drawing Editor** with the **Tools > Layer** command.

If you intend to create manual markups within an Isometric Piping drawing, you should have a layer in the drawing template with a name prefix of *User* (for example, a layer named **UserAnnotationLayer**). You could alternatively place your markups on the **Default** layer. The software preserves these layers when you update drawings. Other layers are not preserved.

If named layers **do not exist** in the template, the software creates them using the symbology specified in the style XML file. In the **Isometric Style Options Browser**, expand **Drawing.Layers.Columns** to create new layers within the style XML file. Map definitions to the layers under **Drawing.Definitions**. To map isometric data to drawing layers using isometric options, see *Mapping Isometric Data to Drawing Layers*, page 64.

If the named layers **do exist** in the template, use **Tools > Display Manager** in the **2D Drawing Editor** to change the symbology used within the template.

## **Related Topics**

• Isometric Style Common Tasks, page 46

# Mapping Isometric Data to Drawing Layers

The **Isometric Style Options Browser** maps layers within a previously created drawing border file to isometric data. The options used to define the mapping are the **Drawing.Layers** and **Drawing.Definitions** options.

When using layers in a template, keep in mind that the software preserves the **Default** layer and any layer that begins with "User" (for example, a layer named **UserAnnotationLayer**) when you update drawings. Manual markups on other layers are not preserved.

# **A** Warning

- Layer definitions created with Tools > Display Manager in the 2D Drawing Editor override these settings.
- 1. Right-click a Piping Isometric Drawing component or package, and click **Edit Options**. The **Isometric Style Options Browser** appears.
- 2. Expand **Drawing.Layers**. You can specify a default color to use for all layers if a color is not explicitly set.

3. Expand **Drawing.Layers.Columns**. The columns represent the mapping of the layers of the isometric drawing to the content for each layer.

# **♀** Tip

- With the isometric drawing open in the 2D Drawing Editor, you can click **Tools > Display Manager** to see a list of the layers for the isometric drawing.
- 4. Expand **Drawing.Definitions**. The definitions specify the layers on the isometric drawing. You can specify scale and line thickness.
- 5. Click **Save To Catalog** to save the changes to the Catalog database. You must have write permission to reference data to save changes to the isometric style.

When you update your drawing document, the new styles are applied.

# Note

• For more information on the drawing layer and drawing definition options, see *Layers (Drawing)*, page 273 and *Definitions (Drawing)*, page 296.

### **Related Topics**

- Isometric Style Common Tasks, page 46
- Working with Layers: An Overview, page 64

# Developing the Look and Feel of the Drawing: An Overview

You can change the look and feel of an isometric drawing by changing options within the **Isometric Style Options Browser**. Options can specify everything from drawing content to the system controls for output definition.

To set options for the drawing frame, see Set Drawing Frame Options, page 66.

To set options for drawing dimensions, see Set Drawing Dimension Options, page 69.

To control drawing content, see Control Drawing Content, page 69.

To set options for drawing controls, see Set Drawing Control Options, page 71.

To specify the drawing format, see *Specify Drawing Format*, page 71.

## **Notes**

• For more information on isometric style options, see *Appendix: Isometric Drawing Options*, page 246.

## **Related Topics**

• Customizing Isometric Drawing Styles: An Overview, page 43

# **Set Drawing Frame Options**

Using the **Drawing Frame** and **Attribute Map** options, you can specify the content and placement of drawing frame attributes on isometric drawings. Drawing frame text can include revision control information, process conditions, and miscellaneous design or specification notes, placed in the isometric drawing border or title block area. For more information on drawing frame options, see *Drawing Frame Options: An Overview*, page 299.

To specify this text, you first map ISOGEN attributes with user-defined text strings. You will use the text strings during the remainder of the attribute definition process. Then, you specify the size and position of the attribute text in the **Drawing Frame.Attributes** category.

For example, you can map the ISOGEN attributes DRG and DESCRIPTION with the strings Drawing Number and Description, respectively. When ISOGEN processes the Piping Component File (PCF) content given below, the values "CW-PipeRun1" and "Chillwater Drawing" are inserted into the title block accordingly.

# DRG CW-PipeRun1

# **DESCRIPTION Chillwater Drawing**

You also can use labels to specify drawing frame text. In the **Labels.Drawing Frame** category, you map ISOGEN attributes to label definitions in the catalog.

- 1. Right-click a Piping Isometric Drawing component or package, and click **Edit Options**. The **Isometric Style Options Browser** appears.
- 2. In the left frame of the dialog box, open the **Attribute Map** category.
- 3. Add rows or modify the rows in the grid.

# **?** Tips

- Type a meaningful text string in the **Host Attribute** column. You will use this text string in the **Drawing Frame** category.
- Select corresponding strings in the **ISOGEN Attribute** column.
- 4. Under **Drawing Frame**, click the **Attributes** category.
- 5. List all the attributes along with their corresponding locations and text sizes. Use the **Host Attribute** strings you typed in the **Attribute Map** category.
- 6. To use a label for drawing frame text, add an ISOGEN attribute to the **Labels.Drawing Frame** category, and map it to a label name and message enclosure.

# Notes

- When editing the **Drawing Frame.Attributes**, do not remove the **Pipeline Reference** from the **HostAttribute** list.
- Sample labels for drawing frame text on isometric drawings include a pipeline reference label and current date label. The templates for these labels are located in the [Product Directory]CatalogData\Symbols\Labels\Base Templates folder.

- Another example of drawing frame customization is removing the north arrow. For more information, see *Edit the North Arrow on Isometric Drawings*, page 68.
- You can customize the mapping of ISOGEN Attributes ATTRIBUTE11
  through ATTRIBUTE99. ATTRIBUTE1 through ATTRIBUTE10 are
  reserved by Intergraph. We recommend that you start adding your own
  attributes from ATTRIBUTE21.

## **Related Topics**

• Developing the Look and Feel of the Drawing: An Overview, page 66

# **Edit the North Arrow on Isometric Drawings**

- 1. Right-click a Piping Isometric Drawing component or package, and click **Edit Options**.
- 2. Open the **Drawing Frame.Attributes** category.
- 3. Click in the grid, and then press **Insert** to add a new row, or use the **Insert Row** command on the toolbar.
- 4. In the **Host Attribute** column, select **NORTH ARROW SYMBOL**.
- 5. In the **XPos** and **YPos** boxes, specify the X- and Y-coordinates of the north arrow.



- To turn the north arrow off, type **0** in the **XPos** and **YPos** boxes.
- 6. In the **CharHeight** and **CharWidth** boxes, specify the height and width.
- 7. Save the options, and extract some drawings to test.

# **Notes**

• It is not necessary to map the North Arrow Symbol attribute in the **Attribute Map** category.

### **Related Topics**

• Set Drawing Frame Options, page 66

# **Set Drawing Dimension Options**

Using the **Drawing.Dimensions** options in the **Isometric Style Options Browser**, you can specify how dimensions are used and displayed within the drawing. The options include such things as how dimensions are rounded, limits at which to suppress dimension display, and how coordinates are displayed. For example, to turn on the dimensioning for tapped branches on piping, you would do the following:

- 1. Right-click a Piping Isometric Drawing component or package, and click **Edit** Options. The Isometric Style Options Browser appears.
- 2. Expand **Drawing.Dimensions**.
- 3. Change the **TapOnPipe** option as needed. You have three setting from which to select: None, Full, or Pipe Only.
- 4. Click **Save To Catalog** to save the changes to the Catalog database. You must have write permission to reference data to save changes to the isometric style.
- 5. Update the document to see the changes made to the drawing dimensions.

## **Notes**

For more information on drawing dimension options, see *Dimensions* (Drawing), page 264.

# **Related Topics**

Developing the Look and Feel of the Drawing: An Overview, page 66

# **Control Drawing Content**

Using the **Drawing.Content** options, you can specify the content of the isometric drawing. The options allow you to set such things as turning on and off specific coordinates or excluding certain items from the drawing. For descriptions of these options, see Content (Drawing), page 252.

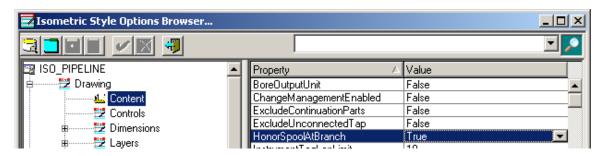
For example, if you want to exclude continuation parts from the drawing, you would set the following:

- 1. Right-click a Piping Isometric Drawing component or package, and click **Edit** Options. The Isometric Style Options Browser appears.
- 2. Expand **Drawing.Content**.
- 3. Change the **ExcludeContinuationParts** option to **True**.
- 4. Click **Save To Catalog** to save the changes to the Catalog database. You must have write permission to reference data to save changes to the isometric style.

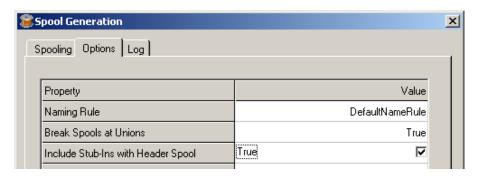
When you update your drawing document, the software excludes the continuation parts from the drawing content.

# Using the HonorSpoolAtBranch Option

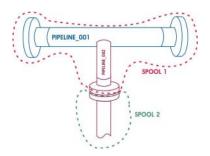
Another way you can control the content of your isometric drawings is to create your drawings on pipelines that maintain spool integrity at branches. The **Drawing.Content.HonorSpoolAtBranch** option gives you this control.



You should generate the spools with the **Include Stub-Ins with Header Spool** property set to **True** when using the **HonorSpoolAtBranch** option. For more information, see the *Piping User's Guide*, available from **Help > Printable Guides**.



For example, in the following graphic, even though the software extracts Pipeline\_001 and the stub-in and flange do not belong to the pipeline, they must be manufactured together because they are part of the same spool. Setting the **HonorSpoolAtBranch** option to **True** means that all of Spool 1 is included in the isometric drawing for Pipeline\_001 and is not included in the isometric drawing for Pipeline\_002 (provided the **Include Stub-Ins with Header Spool** was set to **True** when you generated the spools for both pipelines).



For more information on this option, see *Content (Drawing)*, page 252.

#### **Related Topics**

• Developing the Look and Feel of the Drawing: An Overview, page 66

# **Set Drawing Control Options**

You use the **Drawing.Control** options to set system controls for the isometric drawings. The options included within the **Isometric Style Options Browser** include such things as:

- **DrawingSize** Specifies a paper size for the drawing, including European and ANSI sizes.
- IsoScale Controls the finished isometric drawing size. You can increase
  or decrease the final plotted size from the size defined by DrawingSize, or
  CustomHeight and CustomWidth.
- **NoSymbolMapOK** Continues to extract the isometric pipeline if the software cannot find the SKEY of a component.

For more information on drawing control options, see *Controls (Drawing)*, page 256.

## **Related Topics**

• Developing the Look and Feel of the Drawing: An Overview, page 66

# **Specify Drawing Format**

The **Drawing.Format** options include such things as text size and skew dimensions. You use the **Isometric Style Options Browser** to specify drawing format. For example, you could do the following:

- Specify the style of the enclosure box for flange rotation angles is Round Ends with the **FlangeRotationStyle** option.
- Set the **NorthArrowBox** option to **True** to display the north arrow inside its own box.

For more information on drawing format options, see *Format (Drawing)*, page 275.

## **Related Topics**

• Developing the Look and Feel of the Drawing: An Overview, page 66

# **Creating Custom Symbols for Isometric Drawings: An Overview**

You can easily create customized symbols for your isometric drawings. Alias, the company that creates the ISOGEN software, provides a free symbol editor utility that you can use to create and modify symbols.

After creating the symbol file, you associate the file with an isometric style and test it by extracting isometric drawings.

# **Related Topics**

• Create a Custom Symbol for Isometric Drawings, page 72

# Create a Custom Symbol for Isometric Drawings

- 1. Visit the Alias <u>web site</u> (http://www.alias.ltd.uk) to download and install the free ISOGEN Editor utilities.
- 2. Click **Start > Programs > Alias Isometrics > Iso Utils > Symbols Editor** to launch the symbol editor software.
- 3. In the combo box on the ribbon, select the type of item you want to redefine. For example, select **Redefining Valves**.
- 4. Click **Symbol > New**.
- 5. On the **Add New Symbol** dialog box, specify options for the new symbol.

# 💡 Tips

- Click the ellipsis button beside the **Old Symbol Key** box to browse through a list of symbols to use as a basis for the symbol. For example, you can select **Gate Valve**.
- Select the **Copy Symbol from** box and keep the **Library** option selected.
- Click the ellipsis button beside the **Spindle Key** box to browse through the available spindles. For example, select the **01SP** spindle.
- 6. Click Create Symbol.

7. Modify the symbol as necessary.

#### **?** Tips

- Click the commands on the **Move** menu to change the location of the symbol, the start point (green circle), and the end point (red circle).
- Click in the grid to draw additional lines for the symbol. Click **Undo** on the vertical toolbar at the left to correct any mistakes. Right-click to stop drawing lines.
- When finished, click **Done** on the vertical toolbar at the left.
- 8. Click **File > Save As** and save the symbol file in .asc format.

#### **Note**

- We recommend that you use ASCII (.asc) format for the creation and maintenance of all Alias symbols. Binary (.bin) format symbol files may not be portable to future software releases.
- 9. Click **File > Exit** to close the editor.
- 10. Open the SmartPlant 3D software and switch to the Drawings and Reports task.
- 11. Right-click a Piping Isometric Drawing component or package, and select **Edit Options**.
- 12. Under Supplementary, click DataFiles.
- 13. In the **DataFileType** column, select **ASCII-SYMBOLS**.
- 14. In the **FilePath** column, click the ellipsis button and browse to the symbols library file (.asc file) you created. If necessary, select **All Files** (\*.\*) in the **Files of type** field.
- 15. Save the options to the catalog and extract some isometric drawings to test.

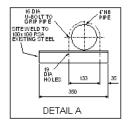
#### **Related Topics**

• Creating Custom Symbols for Isometric Drawings: An Overview, page 72

## Adding Detail Sketches to Drawings: An Overview

Detail sketches are small inserted drawings that provide additional details for components. The sketches are typically used to show more information about hangers and supports, branch connections, support lugs, and special welds.

To include detail sketches on your drawing, you must prepare symbols in a graphics package such as SmartSketch, AutoCAD, or MicroStation. Then, you can specify options that control various characteristics of the detail sketch, such as the text formatting and placement. You also must map the sketches to part class names of components. If a component belonging to a specified part class is in the drawing, the software prints a callout next to the component, and the sketch is included on the drawing. An example detail sketch follows.



The software delivers example detail sketch templates to each client in the [Product Directory]\Drawings\Templates\DetailSketches folder. These templates provide an easy way to set up detail sketches for testing and review. The sketches are the proper size with correct positioning of labels, so you can save time byre-using these templates when creating your own. Informational notes are similar to detail sketches. These note refer to pipelines, spools, or components in the drawing. An example informational note follows.



### Add a Detail Sketch

- 1. Open the **2D Drawing Editor** by double-clicking the **shape2dserver.exe** file in the \Common2D\Shape2D\Bin folder in the product directory.
- 2. Create a symbol file. You could also open one of the delivered symbol files (.sym format) and modify it. The delivered symbol files are located on each client in the [Product Directory]\Drawings\Templates\DetailSketches folder. Double-clicking these symbol files opens them in the 2D Drawing Editor. You can click the commands on the Help menu to find more information about creating and modifying symbols.
- 3. Save the symbol file.
- 4. Open the SmartPlant 3D software and switch to the Drawings and Reports task.

- 5. Right-click a Piping Isometric component or package, and click **Edit Options**.
- 6. Under **Supplementary**, set the **DetailSketches.ShowDetailSketch** option to **True**.
- 7. Set the **Path** option to the location of the symbol file. For example, set the path to **C:\Program Files\SmartPlant\3D\Drawings\Templates\DetailSketches\**. You must add the \character on the end manually.
- 8. Set other options such as the file format, label type, and sketch position.
- 9. Under **Supplementary.DetailSketches.SketchMapping**, map the part classes and symbols.



- You can find a list of part classes in the catalog by switching to the Catalog task and browsing the hierarchy to Drawings > Symbol Map.
- 10. Save the options to the catalog and extract some isometric drawings to test the detail sketches.

#### **Notes**

- The software delivers example detail sketch templates in .sym format to each client in the <code>[Product Directory]</code>\Drawings\Templates\DetailSketches folder. These templates provide an easy way to set up detail sketches for testing and review. The sketches are the proper size with correct positioning of labels, so you can save time by re-using these templates when creating your own.
- You also can create the sketch symbol in a graphics package with the capability of exporting to .dxf. Then, open the symbol in the **2D Drawing Editor** to create the symbol file.

#### **Related Topics**

• Adding Detail Sketches to Drawings: An Overview, page 74

## Configuring the Material List: An Overview

The software contains three different styles for the material lists on isometric drawings. **Fixed Layout** is the default material list for which customization is limited. **Variable Layout** allows you to specify the attributes in the columns of the material list. **User Defined** is the most customizable, allowing full control of the attributes in the columns, the number of sections in the material list, and remarks.

Set Up a Material List, page 76

A material list can contain cut list information. The cut list includes the pieces of cut pipe and their required lengths. You can specify summary files for the material list and cut list.

Set Up a Cut List, page 78

You can also specify labels that correspond to items in the material list.

Specify a Label for the Material List, page 78

#### **Related Topics**

• Customizing Isometric Drawing Styles: An Overview, page 43

## Set Up a Material List

- 1. Right-click a Piping Isometric Drawing component or package in the **Management Console** and click **Edit Options**.
- 2. Open the **Material List** category.
- 3. Select a style: **Fixed Layout**, **Variable Layout**, or **User Defined**.



- **Fixed Layout** is the default material list and is not customizable.
- Variable Layout is a customizable version of the Fixed Layout style
  and allows you to specify the attributes in the columns of the material
  list.
- **User Defined** is the most customizable of the three styles, allowing full control of the attributes in the columns, the number of sections in the material list, and remarks.
- If the **Visible** option under **DrawingFrame** is **False**, you must use the Fixed Layout material list style, because only a Fixed Layout material list can be used with an ISOGEN drawing frame.
- 4. Specify the options for the selected style.

For a summary file of the material list, open the **Material List.Summary File** category and specify the options. The following steps show and example of how to specify the material list summary file:

- 1. Set Material List.Summary File.Enabled to True.
- 2. Set Material List.Summary File.User Defined to True.
- 3. Under **Material List.Summary File.Path**, define a valid path.
- 4. Under **Material List.Summary File.Column**, define values such as the name of the attribute, a width, and the justification. To insert a new row, click in the grid and press **Insert** on the keyboard.

#### Notes

- The amount of area on the drawing that is reserved for the material list must be set properly, or overlap can occur between the piping symbology and the text of the material list. You can set the reserved area for the material list by setting the **DrawingFrame.ReservedAreaMatList** option.
- By default, bolts and gaskets are accumulated automatically in the material list by diameter. You can deactivate this feature by setting MaterialList.BoltAccumulation or MaterialList.GasketAccumulation to Suppress.
- To display a cut list with the material list on the drawing, open the **MaterialList.CutList** category and specify the necessary options.
- You can specify several different files with material list information, such as the MTO neutral file. For more information, see *Understanding Material List Files*, page 87.
- You can move components from one sort group to another in the materials list by using the **MaterialList.Transfers** category.
- You can also specify labels that correspond to items in the material list using the **Labels.Material List** category.

#### **Related Topics**

• Configuring the Material List: An Overview, page 76

## Set Up a Cut List

- 1. Right-click a Piping Isometric Drawing component or package in the **Management Console** and click **Edit Options**.
- 2. Open the Material List.Cut List category.
- 3. Select a style: **Fixed Layout** or **User Defined**.

#### **?** Tips

- **Fixed Layout** is the default cut list and is not customizable.
- User Defined is a customizable version of the cut list.
- 4. Specify the options for the selected style.

For a summary file of the cut list, open the **Material List.Cut List.Summary File** category and specify the options. The following procedure is an example of how to specify the cut list summary file.

- 1. Set Material List.Cut List.Summary File.Enabled to True.
- 2. Set Material List.Cut List.Summary File.User Defined to True.
- 3. Under Material List.Cut List.Summary File.Path, define a valid path.
- 4. Under **Material List.Cut List.Summary File.Column**, define values such as length, size, and cut piece number. To insert a new row, click in the grid and press **Insert** on the keyboard or use the **Insert Row** command on the toolbar.

#### **Related Topics**

• Configuring the Material List: An Overview, page 76

## Specify a Label for the Material List

- 1. Right-click a Piping Isometric Drawing component or package in the **Management Console** and click **Edit Options**.
- 2. Open the **Labels.Material List** category.
- 3. Under **LabelAttribute**, select an attribute. You can insert a row by clicking in the grid and pressing **Insert** on your keyboard or use the **Insert Row** command on the toolbar.
- 4. Under **LabelName**, click the browse button, and select an isometric label from the catalog.
- 5. Open the **Material List** category.

- 6. Set the **ActiveList** option to **UserDefined**.
- 7. Open the **MaterialList.UserDefined.Column** category.
- 8. Insert a row for the attribute you added.
- 9. Define the location for the attribute using the **xPosition** and **MaxChars** columns.

#### **Related Topics**

• Configuring the Material List: An Overview, page 76

## Displaying a Pipeline List: An Overview

You can specify an option to display process or design information from each pipe run on the isometric drawing. This pipeline list is an embedded Excel workbook.

#### Note

• When defining embedded report layout (sizing of columns and rows), consider the report usage first. Because of a Microsoft limitation concerning the size of Windows metafile objects within other applications, the data displayed may be incomplete. Therefore, no column should be out of screen when using 100 percent zoom for the report. Otherwise some columns are ignored when the report is embedded within the drawing. The same limitation exists for rows. To preserve the maximum number of rows displayed, the total header row(s) height should be a minimum of the overall report. Using Microsoft Excel default settings, the maximum number of columns is approximately 20 and the maximum number of rows is approximately 75 (including header rows). For more information on setting the defaults in Microsoft Excel, see your Microsoft Excel documentation.

#### **Related Topics**

• Display a Pipeline List, page 80

## Display a Pipeline List

- 1. Right-click a Piping Isometric Drawing component or package in the **Management Console**, and click **Edit Options**.
- 2. Open the **Drawing Frame** category.
- 3. Set the **PipelineList.ShowPipeLineListBox** option to **True**.

#### **Related Topics**

• Displaying a Pipeline List: An Overview, page 80

## Printing Welds on Isometric Drawings: An Overview

To enable weld output on an isometric drawing, you must configure a few items in the software.

First, you must map each type of weld to a symbol key (SKEY). You can complete this mapping by opening the **Isometric Styles Options Browser** for an isometric style and using the **Symbol Map** group of options.

Second, you must set options to show the weld symbols as well as the weld numbers on the isometric drawing. The **ShowWelds** option indicates whether the weld symbol appears on the drawing, and the **ShowWeldNumbers** option indicates if the weld number appears.

You also can specify that a weld list appear on the drawing. The columns shown in the weld list can be customized. The weld list does not appear if the option setting to display weld numbers is not also enabled. If needed, you can specify that the weld list information is also saved in a summary file.

#### **Related Topics**

Print Welds, page 81

#### **Print Welds**

- 1. Right-click a Piping Isometric Drawing component or package in the Management Console, and select Edit Options.
- 2. Open the **Drawing.Welds** category.
- 3. Set the **ShowWelds** option to **True**.
- 4. Set the **ShowWeldNumbers** option to **True**.
- 5. To display a weld list on the drawing, set the **WeldList.Visible** option to **True**.

#### **✓** Note

You can save the weld list information to a file by specifying the WeldList.SummaryFile options.

#### **Related Topics**

Printing Welds on Isometric Drawings: An Overview, page 81

## Specify a Label for the Weld List

- 1. Right-click a Piping Isometric Drawing component or package in the **Management Console**, and select **Edit Options**.
- 2. Open the **Labels.Weld List** category.
- 3. Under **LabelAttribute**, select an attribute. You can insert a row by clicking in the grid and pressing **Insert** on your keyboard or by using the **Insert Row** command on the toolbar.
- 4. Under **LabelName**, click the browse button, and select an isometric label from the catalog.
- 5. Open the **Weld List** category.
- 6. Set the **ActiveList** option to **UserDefined**.
- 7. Open the **WeldList.UserDefined.Column** category.
- 8. Insert a row for the attribute you added.
- 9. Define the location for the attribute using the **xPosition** and **MaxChars** columns.

- Print Welds, page 81
- Printing Welds on Isometric Drawings: An Overview, page 81

## Specifying Fonts on Isometric Drawings: An Overview

You can change the font that appears on isometric drawings. A font information file (*.fif*) is delivered in the workstation setup in the [*Product* 

*Directory*]\Drawings\3rdParty\Alias\ProjectManager\Data folder. You specify this file in the isometric options, and then you can select fonts for the material list and the drawing.

#### **Related Topics**

• Select Fonts, page 83

#### Select Fonts

- 1. Right-click a Piping Isometric Drawing component or package, and click **Edit Options**.
- 2. Open the **Supplementary.Data Files** folder.
- 3. In the **Data File Type** column, type **FONT-INFORMATION-FILE**.
- 4. In the **File Path** column, click the browse button and select the font information file (*.fif*) in the [*Product Directory*]\Drawings\3rdParty\Alias\ProjectManager\Data\folder.
- 5. Under **Drawing.Format**, set the **Text Font** option to the font of your choosing. This option controls the font of the text on the isometric drawing.
- 6. Under **Material List**, set the **Text Font** option to the font of your choosing. This option controls the font of the text in the material list.

#### **Related Topics**

• Specifying Fonts on Isometric Drawings: An Overview, page 83

## **Specifying Flow Arrows: An Overview**

Isometric drawings commonly have annotations to denote the direction of fluid flow through pipe as well as through pipe components. To specify flow direction in the model, switch to the Piping task. Select a pipe run and change the flow direction by clicking the circular icons on the run. Then, use the **Isometric Style Options Browser** to define when and where flow arrows are placed on isometric drawings.

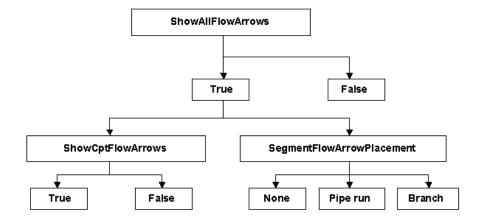
Two overall types of flow arrows exist: segment and component. Segment flow arrows appear on pipe runs, while component flow arrows appear beside components such as valves.

The options for flow arrow placement are located in the **Drawing.Content** and **Format** categories. The **ShowAllFlowArrows** option in the **Format** category toggles all flow arrows on and off.

If the **ShowAllFlowArrows** option is **True**, you can further specify component and segment arrow placement. The **SegmentFlowArrowPlacement** option is set to **None**, **Pipe run**, or **Branch** to denote how arrows are placed on the pipe. The **Pipe run** selection means a flow arrow is placed on each pipe run. The **Branch** selection means a flow arrow is placed on the first leg of each branch, including the header. If the pipeline does not branch, then no additional (there should always be at least one) flow arrow is placed even if one pipe run ends and another begins.

When you configure your isometric styles, you can set the **ShowCptFlowArrows** and **SegmentFlowArrowPlacement** options to match your company specifications. Thereafter, you can control all flow arrows on the isometric drawing by toggling the **ShowAllFlowArrows** option on or off.

The following diagram shows the relationships among the flow arrow options.



#### **Related Topics**

• Set Flow Arrow Options, page 85

## **Set Flow Arrow Options**

- 1. Right-click a Piping Isometric Drawing component or package, and click Edit Options.
- 2. Under **Drawing.Content**, set the **ShowCptFlowArrows** option.

- Set the option to **True** if you want component flow arrows to appear for this style. Set the option to False if you do not want component flow arrows to appear for this style.
- 3. Under **Drawing.Format**, set the **SegmentFlowArrowPlacement** option.

#### 💡 Tip

- Select **Pipe Run** if you want a flow arrow placed on each pipe run. Select **Branch** if you want a flow arrow placed on the first leg of each branch, including the header. If the pipeline does not branch, then no additional (there should always be at least one) flow arrow is placed even if one pipe run ends and another begins. Select **None** if you do not want any segment flow arrows on the drawing.
- 4. Under **Drawing.Format**, set the **ShowAllFlowArrows** option to either **True** or **False**. This option is a master switch that toggles all flow arrows on or off.

#### Notes

- When you configure an isometric style, set the ShowCptFlowArrows and **SegmentFlowArrowPlacement** options to match your company specifications. Thereafter, you can toggle all flow arrows on or off with the ShowAllFlowArrows option.
- When you set the **Drawing.Format.ShowAllFlowArrows** option to True, you also must set the **Drawing > Format > SegmentFlowArrowPlacement** option to a value other than **None**.

#### **Related Topics**

Specifying Flow Arrows: An Overview, page 84

## **Creating Additional Isometric Output: An Overview**

You can specify that the software create output files in addition to the isometric drawings. A list of these additional files follows.

- Bending file
- Material take-off (MTO) neutral file
- Material control file
- Printed material list file
- Cut list
- Weld file

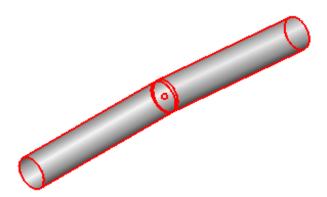
#### **Related Topics**

- Understanding Bending Files, page 86
- Understanding Material List Files, page 87
- *Understanding Weld Files*, page 88

## **Understanding Bending Files**

The main purpose of the bending file is to provide an input to a bending machine, which bends the pipe.

Here is an example of a bent pipe and its corresponding bending file information. The pipe configuration is a 2 ft pipe/5 deg bend/2 ft pipe.



	X	Y	Z	Radius	Angle
START	0.0	0.0	0.0	0.0	0.0
BEND1	-607.3	0.0	53.1	0.0	0.0
FINISH	-1216.9	0.0	53.1	0.0	0.0

The START row indicates the start point at 0, 0, 0. The BEND1 row indicates the relative coordinates of the bend location from the start point in millimeters. The distance of 607.3 mm is almost 2 ft (23.909 in). For the FINISH point, the distance of 1216.9 mm is almost 4 ft (47.909 in). The 53.1 mm distance is the absolute elevation between the start and finish points.

You can specify that a bending file is created by using the **Supplementary.Report Files** option for an isometric style. The keyword BENDING\_FILE\_APPEND places
the bending file information for each extraction consecutively in one file, and the
keyword BENDING\_FILE\_OVERWRITE erases the file and writes to it with each
extraction.

#### **Related Topics**

• Creating Additional Isometric Output: An Overview, page 86

## **Understanding Material List Files**

The software allows you to specify several different types of material list files for isometric drawings. In addition, you can include cut list information.

#### **Printed Material List**

The printed material list is a text file that contains the same information as the material list on the face of the drawing. The information is continuously appended to the file. You can specify that a printed material list file is created by using the **Supplementary.ReportFiles** category.

#### **MTO Neutral File**

The MTO neutral file can have either a plain text format or an Excel workbook format. The purpose of this file is to provide the extracted information to a material control system. You can control the objects included in the neutral file as well as the columns of information. This file is also called the Intergraph MTO neutral file.

Optionally, weld and bolt data can appear in the MTO neutral file. The data from these components can appear in columns already existing in the MTO neutral file, or you can specify new columns.

The MTO neutral file is set with the **Report.MTONeutralFile** options. For more information, see *Set Styles for the MTO Neutral File*, page 88.

#### **Material Control File**

The purpose of this file is the same as the MTO neutral file: to provide information to a material control system. This material control file is an Alias file. You can specify this file by using the **Material List.Summary File** options.

#### **Cut Pipe Report**

The cut pipe report provides a list of the pieces of cut pipe and their required lengths. To specify options for a cut list, you use the **Material List.CutList** options.

#### **Related Topics**

• Creating Additional Isometric Output: An Overview, page 86

## Set Styles for the MTO Neutral File

The following procedure shows how to set styles for an MTO Neutral File using the **Isometric Style Options Browser**.

- Right-click a Piping Isometric Drawing component or package in the Management Console, then click Edit Options to display the Isometric Style Options Browser.
- 2. Expand **NeutralFile** and change option settings as necessary.
- 3. Click **Save to catalog** to save the changes to the Catalog database. You must have write permission to reference data to save changes to isometric styles.
- 4. Update your document to see the new applied label style.

#### **Neutral File Example**

- 1. For the **NeutralFile.Enabled** option, select **True** to turn the Neutral File display on.
- 2. For the **NeutralFile.WeldData.Enabled** option, select **True** to display weld data. You can also display **BoltData** and **GasketDAta**.
- 3. To add columns for weld data, expand to **NeutralFile.WeldData.Column** and add column data as needed for your neutral file contents.
- 4. Add columns for bolts and gaskets if needed.
- 5. Save the changes to the catalog and update your document to see the new Neutral File data.

#### **Related Topics**

• Understanding Material List Files, page 87

## **Understanding Weld Files**

The weld file contains the same information as the weld list on the isometric drawing. You can specify a weld file by enabling the **Weld List.SummaryFile** options.

#### **Related Topics**

• Creating Additional Isometric Output: An Overview, page 86

## Using Piping Isometric Change Management: An **Overview**

Change Management on a piping isometric drawing refers to the fact that the same information needs to appear on the same sheet of an isometric drawing each time you extract the drawing. Change Management allows you to keep the overall drawing consistent in two ways:

- It maintains the same information per drawing sheet whenever possible.
- It prevents impact to other drawing sheets.

For example, a valve should not move from *Sheet 1* to *Sheet 2* in a piping isometric drawing simply because you added an olet to a pipe output to that same sheet. If the valve originally appeared on *Sheet 1*, it should always appear on *Sheet 1*. However, if you add a gate valve and the MTO on *Sheet 1* is full, the software adds a new sheet called *Sheet 1A*. This way the gate valve is still on *Sheet 1*, but the MTO is not overcrowded.

Also, when Change Management is enabled, you should not modify the part numbers on the isometric drawing between updates. For example, assume that you placed a gate valve and updated the isometric drawing with Change Management enabled. The part number in the MTO might be 3 for the gate valve. Now, if you insert another gate valve on the pipeline and update the isometric drawing again, the old gate valve still has a part number of 3 and the new inserted gate valve has a part number of 4. This also applies to label callouts on the isometric drawing itself.

The Change Management functionality is enabled when you set the **Drawing.Content.ChangeManagementEnabled** option to **True**. For more information on using this option, see *Use Piping Isometric Change Management*, page 91.



**Note** 

You can override the **Drawing.Content.ChangeManagementEnabled** option in the Isometric style by changing the drawing document **Change Management** property setting. For more information, see *Style Tab* (Properties Dialog Box), page 132.

#### **Spool Number Consistency**

Spool data is generated in the Piping task and stored in the model database. Therefore, spool numbers remain constant even if you re-extract a drawing.

#### Note

• If the **In Situ** spooling is active, the spool numbers could change depending on the types of changes that occurred in the model and/or settings in the spooling rules.

#### **Weld Number Consistency**

Weld number data is generated in the Piping task and stored in the model database. Therefore, weld numbers should not change even if you re-extract the drawing.

#### **Material Part Number Consistency**

Material part numbers in an MTO are driven by a label that, by default, looks for the *SequenceID* property of the part. One of the main purposes of Change Management is to have consistent part numbers on the MTO. This also applies to label call-outs for the Part number. However, Change Management does not affect your ability to apply another label, for example, to a gate valve.

#### **Component Data Continuity**

Any piping parts, components, instruments, or engineered items appearing on a given sheet do not change. If you re-extract the drawing, the components remain on the same drawing sheet. The same is true for the parts inclusion in a material list.

#### Weld Data Continuity

Welds appear on a specific sheet on a piping isometric drawing. If you re-extract the drawing, the welds do not change sheets. The same is true for the weld list.

#### **Spool Representation Continuity**

Spools appearing on a given drawing sheet do not change when you re-extract the drawing unless a new spool is added or an existing spool is deleted. The software handles additions and deletions implicitly by the material (parts and components) managed on the drawing; however, the software also maintains spool integrity. For example, if one part is moved to another drawing sheet and the spool displayed is active, the entire spool moves with the part.

#### **Material List Continuity**

Each drawing sheet has its own material list. The items on the list correspond to those shown in the drawing. When you re-extract a drawing, the material list for any given component remains constant. For example, the schematic drawing on which a given commodity appears and the material list that includes that commodity always appear on the same drawing sheet.

#### **User-Defined Isometric Break Points**

If the **Drawing.Content.ChangeManagementEnabled** option is set to **True**, the software ignores all user-defined isometric break points. Only the sheet breaks from a previous extraction of the drawing is used for change management. If isometric break points are added or deleted from the model after change management is enabled, there is no impact on revised isometric drawings.

If change management is turned off (the option is set to **False**, the software honors the isometric break points.

#### **Related Topics**

- Customizing Isometric Drawing Styles: An Overview, page 43
- Use Piping Isometric Change Management, page 91
- *Use the Isometric Style Options Browser*, page 50

## **Use Piping Isometric Change Management**

The following procedures show how you must set your isometric style options in order to use change management for piping isometric drawings.

#### Set the ChangeManagementEnabled Option

To turn change management on for piping isometric drawings, set Drawing.Content.ChangeManagementEnabled to True. For more information, see Content (Drawing), page 252.



#### Set the PipeLineSplitting Option

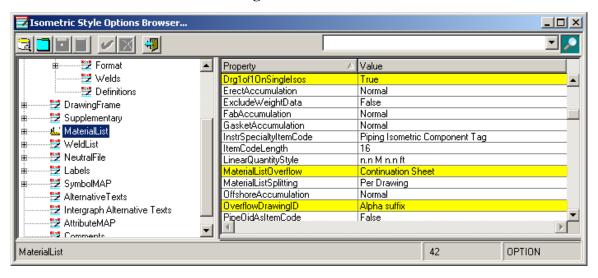
When using change management for piping isometric drawings, set the **Drawing.Controls.PipeLineSplitting** option to at least **90** (the default). For more information on this option, see *Controls (Drawing)*, page 256.



#### **Set the Material List Options**

To handle material list overflows from sheet to sheet without breaking change management, we recommend the following isometric option settings:

- 1. Set MaterialList.MaterialListOverflow to Continuation Sheet.
- 2. Set **MaterialList.OverflowDrawingID** to **Alpha suffix** (for example: 2A, 3A, and so on).
- 3. Set MaterialList.Drw1of1OnSingleIsos to True.



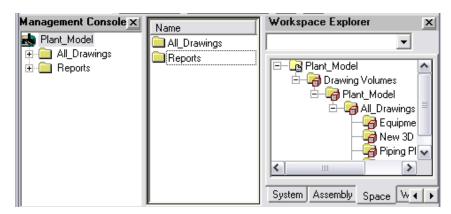
For more information on setting material list options, see *Material List Options: An Overview*, page 327.

#### **Related Topics**

• Using Piping Isometric Change Management: An Overview, page 89

## **Understanding the Windows: An Overview**

This task includes different windows or views within its interface. You can toggle the display of these windows using commands on the View menu.



The Management Console contains a hierarchy of folders and components that you create. If you right-click an item in the **Management Console**, the available menu commands vary, depending on the item and your permissions. For more information on managing folders and components in the **Management Console**, see *Managing* Documents: An Overview, page 102.

The **Detail View** shows the children of the selected item in the **Management** Console. You can sort the list in the **Detail View** just like sorting files in Windows Explorer. You can select multiple components or documents by pressing Ctrl or Shift while selecting. To specify the columns in the **Detail View**, right-click a column heading and click More. The **Detail View** is overlaid by other windows depending on the current operation. For example, when reviewing drawings using the **Open** command, a 2D viewer appears. When you edit report templates, a tabular editor appears. For more information on setting the appearance of the Detail View, see Detail View Command (View Menu), page 98.

The **Workspace Explorer** is the tabbed view of systems, assemblies, spaces, and Work Breakdown Structure (WBS) items in the software. For more information about the **Workspace Explorer**, see the *Common User's Guide* available from the **Help** > **Printable Guides** command in the software.

#### Note

Another window you use while working in this task is the **2D Drawing Editor**, which appears as a separate application window. It allows you to edit border templates, drawing templates, and backing sheets for all types of drawings.

- Viewing Icons: An Overview, page 95
- Viewing the Menus and Toolbars: An Overview, page 94

# Viewing the Menus and Toolbars: An Overview

In this task, the commands available change according to the active window, selected **Management Console** or **Detail View** item, and the specific workflow.

For example, when you edit a drawing template or open a drawing, control of the template is with the **2D Drawing Editor**. You use the 2D Drawing Editor menus and toolbars to edit the open drawing template. When you edit report templates, the report menus and commands are available.

In addition, the shortcut menu that appears when you right-click an item in the **Management Console** or in the **Detail View** differs according to the type of item. For example, some of the commands on the shortcut menu for a piping isometric drawing are different from the commands on the shortcut menu for a composed drawing component.

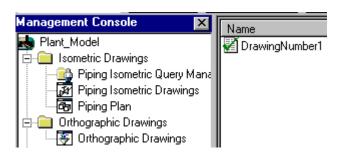
For the root node of the **Management Console** hierarchy and Folder items that have no child items beneath them, the shortcut menu includes **Delete**, **Rename**, **Copy**, **Paste**, **New**, and **Properties**. If there are any child items beneath the root node or beneath the selected folder, the following commands are added: **Create Drawing(s)**, **Refresh**, **Run Query**, **Update Now**, **Print**, and **Save As**. If you are registered with SmartPlant Foundation, the **Publish** and **Revise** commands are added as well.

Also, keep in mind that the main menu bar available in SmartPlant 3D varies by task. Some commands available in other tasks may not be available in this one.

- Specify Columns in the Detail View, page 100
- Understanding the Windows: An Overview, page 93

## Viewing Icons: An Overview

The **Management Console** and **Detail View** display different icons to show the type and status of documents.



#### **Drawing Type Icons**

- Root of the hierarchy
- ighthalf Folder
- 2 Search Folder
- 🛂 Query Manager
- de Generic Module Folder
- Volume Drawing type
- Composed Drawing type
- Orthographic Drawing type
- Piping Isometric Drawing type
- 🛅 Spreadsheet Report
- 3D Model Data type
- . MicroStation 3D DGN drawing type
- Drawing document. A status icon is always superimposed over this icon

#### **Document Status Icons**

These icons appear superimposed on the document icon and indicate document status.

- ✓ The drawing document is a version 6.1 legacy Snapshot drawing. You should use the **Tools** > **Convert Legacy Snapshots** command to convert this document to a Composed Drawing for use in the current version of the software. If you do not convert the legacy snapshot drawing, you cannot perform edit operations on the drawing, including update, revise, and publish.
- No graphic objects in the model associated with this drawing document. For example, the drawing is a Piping Isometric Drawing document created from a Pipeline System that has no pipeline parts associated with it.
- Submitted or scheduled for batch processing
- Updating or publishing
- X Out-of-date
- ✓- Up-to-date
- ♠ Error status

- Understanding Components: An Overview, page 105
- Understanding the Windows: An Overview, page 93
- *Update Document(s) Command*, page 145
- Update Now Command, page 147
- Viewing the Menus and Toolbars: An Overview, page 94

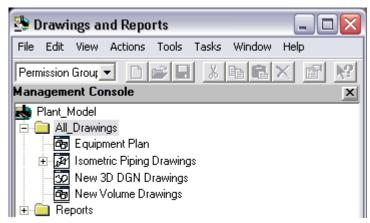
## Management Console Command (View Menu)

Toggles the display of the **Management Console**. By default, the **Management Console** is visible when you enter this task.

The Management Console contains a hierarchy of folders and components that you create. If you right-click an item in the **Management Console**, the available menu commands vary, depending on the item and your permissions. For more information on managing folders and components in the **Management Console**, see *Managing* Documents: An Overview, page 102.

#### Note

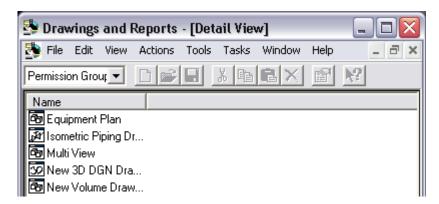
When you switch to a different task and then return to the Drawings and Reports task, the Management Console remembers the node you last selected on the console hierarchy.



- Detail View Command (View Menu), page 98
- Understanding the Windows: An Overview, page 93
- Workspace Explorer Command (View Menu), page 101

## **Detail View Command (View Menu)**

Turns the display of the **Detail View** on and off. This command is located on the **View** menu. When checked, the **Detail View** is visible in the application window. When you right-click folders or documents in the **Detail View**, shortcut menus display. The items on the shortcut menu vary depending on the selected item. For more information on the commands, see *Managing Documents: An Overview*, page 102.



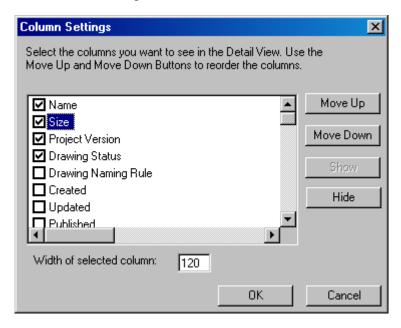
To modify the headings in the **Detail View**, right-click the column-heading area. Select **More** on the shortcut menu to display the **Column Settings** dialog box.

For more information, see *Specify Columns in the Detail View*, page 100.

- Management Console Command (View Menu), page 97
- Understanding the Windows: An Overview, page 93
- Workspace Explorer Command (View Menu), page 101

## **Column Settings Dialog Box**

Specifies the columns you want to see in the **Detail View**. You also can specify the order and width of the columns. You access this dialog box when you right-click in the column heading area of the Detail View and select **More** on the shortcut menu.



Move Up - Moves the selected column up one position. The column appears one position to the left in the **Detail View**.

**Move Down** - Moves the selected column down one position. The column appears one position to the right in the **Detail View**.

**Show** - Displays the column in the **Detail View**.

**Hide** - Hides the column in the **Detail View**.



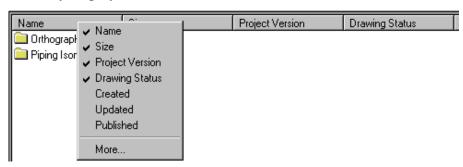
In addition to the **Show** and **Hide** commands, you can use the checkboxes beside the column names to add and remove them from the **Detail View**. Checked indicates that the column appears in the **Detail View**.

Width of selected column - Specifies the width of the column in pixels. You can specify a different column width for each column.

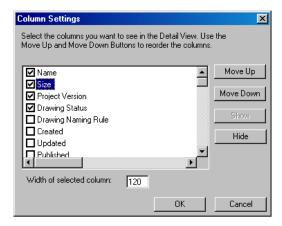
- Detail View Command (View Menu), page 98
- Specify Columns in the Detail View, page 100
- *Understanding the Windows: An Overview*, page 93
- Viewing the Menus and Toolbars: An Overview, page 94

## Specify Columns in the Detail View

1. Right-click a column heading in the **Detail View**. The shortcut menu shows the currently displayed columns with a checkmark ✓.



- 2. Add and remove columns automatically by checking and unchecking them on the shortcut menu.
- 3. To modify the appearance and order of the columns, click **More** on the shortcut menu.

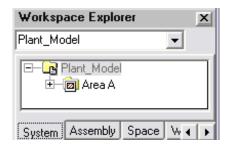


- 4. On the **Column Settings** dialog box, select the columns you want to include in the **Detail View**. Clear, or uncheck, the ones you do not want to include. You can also use the **Show** and **Hide** buttons to add and remove columns.
- 5. To change the order of the columns, click **Move Up** and **Move Down** on the **Column Settings** dialog box.
- 6. Specify the width of a column by selecting it and typing an integer in the **Width** of selected column box. You can also resize columns by dragging the edge of the column in the **Detail View**.

- Column Settings Dialog Box, page 99
- Detail View Command (View Menu), page 98
- Understanding the Windows: An Overview, page 93
- Viewing the Menus and Toolbars: An Overview, page 94

## Workspace Explorer Command (View Menu)

Toggles the display of the **Workspace Explorer** as a viewer only in the Drawings and Reports task. By default, the **Workspace Explorer** is visible when you enter this task. The **Workspace Explorer** displays the contents of the workspace in a classification hierarchy that reflects the various relationships defined for the design objects. The content represents the current objects loaded from the database into the active workspace.



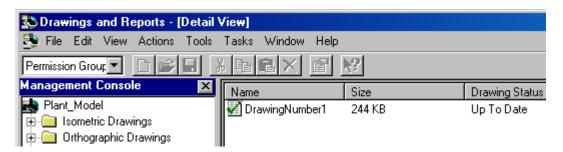
Icons appear at the left of the window objects to indicate the type of the object. For example, a file folder icon represents the plant, an equipment icon represents equipment, an I-beam icon represents a structural system, and so forth.

- Detail View Command (View Menu), page 98
- Management Console Command (View Menu), page 97
- Understanding the Windows: An Overview, page 93

## Managing Documents: An Overview

You can organize and manage your drawings and reports using the **Management** Console and Detail View.

The **Management Console** and **Detail View** work together similar to Windows Explorer. You can select multiple items for processing, sort items, and add columns in the **Detail View**.



#### Note

• When you switch to a different task and then return to the Drawings and Reports task, the **Management Console** remembers the node you last selected on the console hierarchy.

When you right-click nodes in the Management Console and nodes or documents in the Detail View, shortcut menus display. The items on the shortcut menu vary depending on the selected item. For the root node of the Management Console hierarchy and Folder items that have no child items beneath them, the shortcut menu includes Delete, Rename, Copy, Paste, New, and Properties. If there are any child items beneath the root node or beneath the selected folder, the following commands are added: Create Drawing(s), Refresh, Run Query, Update Now, Print, and Save As. If you are registered with SmartPlant Foundation, the Publish and Revise commands are added as well. You can also set up batch printing and updating for documents using the Batch commands available on the shortcut menus.

#### 💡 Tip

• By default, the **Management Console** and **Detail View** appear when you enter the task. You can turn the views on or off on the **View** menu.

- Add a Component, page 108
- Batch Print Command, page 161
- Batch Refresh Command, page 163
- Batch Update Command, page 162
- Copy Command, page 113
- Create Drawing Command, page 109
- Delete Command, page 120
- Edit Command, page 118

- New Command, page 107
- Open Command, page 119
- Paste Command, page 115
- Print Command, page 123
- Publish Command, page 229
- Refresh Command (View Menu), page 106
- Rename Command, page 122
- Revise Command, page 216
- Save Package Command, page 110
- Understanding Components: An Overview, page 105
- View Log Command, page 125

## **Using Permissions: An Overview**

Your site administrator sets permissions and creates permission groups in the Project Management task. These permissions are used in the different tasks in the software to control user access.

You can see your current permission group in the dropdown box in the upper left-hand corner of the window when in the Drawings and Reports task.



The permission group to which an item belongs can affect the actions allowed against that item. For example, the propagation of properties down the hierarchy, from parent to child, is interrupted when a node or document in a read-only permission group is encountered.

The following list shows the actions relating to drawings and reports that are affected by permission groups:

- Accessing shortcut menu commands in the Management Console and Detail View
- Creating items, such as drawings, drawing views, and drawing volumes
- Propagating properties down through the hierarchy
- Deleting items
- Updating items, such as re-extracting drawings

In addition, access to the Symbols share on the server computer affects actions such as creating and editing view styles and graphic rules.

- *Understanding the Windows: An Overview*, page 93
- Viewing the Menus and Toolbars: An Overview, page 94

## **Understanding Components: An Overview**

Several specialized components are provided, and they access commands for configuring templates and generating drawings and reports. The various types of components can be divided into two groups: application components and folder components. Many of the application components correspond to specific types of drawings, such as volume drawings and composed drawings. The Spreadsheet Reports component provides access to report-related commands. You organize drawings and reports in folders. You can add folders to the root and to other folders. Each component has a different icon and right-click menu.

You can copy and paste components with some restrictions. For example, application components cannot contain folders or other application components. If you copy a folder, you can paste it under a folder but not under another component type. If you copy a Volume Drawing component, you can paste it under a folder. If you copy other types of components, you can paste them under folders but not under other types of components.

Your administrator can assign permissions to the different components using commands in the Project Management task. For example, the administrator can set permissions so that only the piping designers have write privileges on Piping Isometric Drawings. For more information, see the *Project Management User's Guide*.

There are several types of delivered components. Their names reflect the type of drawing or report they create. When you right-click the root or a folder, then select **New**, the **Add Component** dialog box appears. The dialog box includes a **General Tab** for general types of drawings or reports and additional task-specific tabs with delivered folders and packages. For more information on the **Add Component** dialog box, see *Add Component Dialog Box*, page 107.

#### **Note**

Windows® 2000 and XP use similar components in the Microsoft®
 Management Console (MMC). For more information, see the help for your
 operating system.

- Add a Component, page 108
- Delivered Drawing Types: An Overview, page 202
- Managing Documents: An Overview, page 102
- New Command, page 107
- Viewing Icons: An Overview, page 95

## Refresh Command (View Menu)

Updates the *loaded* (expanded) content of the **Management Console**. The entire Management Console tree does not refresh unless you have all the nodes completely expanded. You can also press **F5** to update the content.

#### **Related Topics**

• Managing Documents: An Overview, page 102

### **New Command**

Adds new folders, components, or packages to the **Management Console**. Select the model root or a folder to place the new folders, components, or packages. If you have previously saved a package, the package is available to add to the **Management Console**.

If you select the model root, the **New** command creates a new folder in which to place components and packages.

#### **Related Topics**

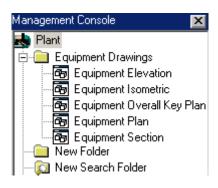
• Understanding Components: An Overview, page 105

## Add Component Dialog Box

Lists the available components, folders, and packages you can create at the selected level in the **Management Console** hierarchy. You access this dialog box when you select **New** on the shortcut menu for a folder or the model root. Select a component or package to view its description.

#### Adding at the Model Level of the Hierarchy

You can add folders when you select the model level of the hierarchy. On the **General** tab, you can select and add empty New Folders or Search Folders. From the other tabs of the dialog box, you can select folders that contain delivered packages. For example, you could select the **Equipment** tab and add the **Imperial\_Equipment Drawings**. This adds a new **Equipment Drawings** folder to the hierarchy, containing all the delivered packages for the selected equipment drawings folder.



#### Adding at the Folder Level of the Hierarchy

At folder level of the hierarchy, you can add new components. Many packages are delivered with the product and you can add new packages using the **Save Package Command**. For more information, see *Save Package Command*, page 110. You can add tabs to this dialog box when you save a package.

#### **Related Topics**

- Delivered Drawing Types: An Overview, page 202
- *New Command*, page 107
- Understanding Components: An Overview, page 105
- Viewing Icons: An Overview, page 95

## Add a Component

- 1. Right-click the top-level model item or a sub-level item in the **Management** Console or the **Detail View**.
- 2. On the shortcut menu, select **New**.
- 3. Select a folder, component, or package on one of the tabs of the **Add Component** dialog box, and click **OK**. The folder or component is added to the hierarchy. For additional information, see *Add Component Dialog Box*, page 107.
- 4. To rename the component, right-click it, then select **Rename** on the shortcut menu, or press **F2** on the keyboard.

#### Notes

- Right-click a component to access the available commands for that component.
- You can place a folder, application component, or a package under a folder in the hierarchy. For example, you can add a Piping Isometric Drawings by Query component to a folder.
- You can save a package and have it listed on the **Add Component** dialog box. When adding the package to the hierarchy, the software adds the components in the package to the active permission group. For more information, see *Save a Package*, page 111.
- You cannot add folders or other components to a Search Folder component. For more information, see *Search Folders: An Overview*, page 208.

- *Managing Documents: An Overview*, page 102
- New Command, page 107
- Understanding Components: An Overview, page 105

# **Create Drawing Command**

Generates the drawings that have not previously been created. This command is available on the right-click menu for various items in the **Management Console**.

If you select the top-level of the hierarchy, this command generates all drawings not already created for all components in the hierarchy. For example, if you have Volume Component drawings that have not been created and Isometric drawings that have not been created, both are created if you right-click the top-level hierarchy and select **Create Drawing(s)**.

You can also right-click individual components or folders for which drawings are not yet created and select **Create Drawing(s)** on the shortcut menu to generate the drawings.

After you create drawing documents, you update them to include model object content, then you can open or edit them as needed.

- Managing Documents: An Overview, page 102
- Run Query Command, page 36
- Updating Documents: An Overview, page 141

# Save Package Command

Saves the console hierarchy from the selected component down. The package saves the setup information and any template definitions that may exist on nodes within the selected hierarchy. You can access this command by right-clicking a folder or application component in the **Management Console**. You must have at least write permissions on the component to access the **Save Package** command.

When a package is placed back into the **Management Console**, it will recreate the hierarchy that was saved with the package.

Packages are also used in the setup of a Drawings by Query Manager component for the creation of orthographic and piping isometric drawings.

#### Notes

- Output documents are not saved in a package.
- If the topmost component saved in the package is a folder, then the package can be placed under the model root or a folder. If the topmost component saved in the package is an application component, then the package can only be placed under a folder.
- When you place a package, the software adds all the components to the active permission group.
- To save drawings or reports externally, see *Save As Command*, page 194.

#### **Related Topics**

- Managing Documents: An Overview, page 102
- Save a Package, page 111

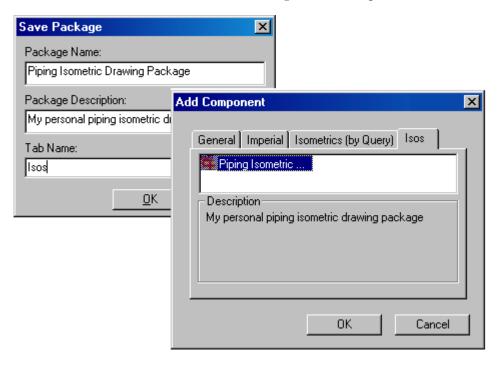
## Save Package Dialog Box

Saves all or a portion of the console hierarchy as a package for import later. You can open this dialog box by right-clicking a folder or component in the **Management Console** and selecting the **Save Package** command.

**Package Name** - Specifies a name for the package.

**Package Description** - Describes the package.

**Tab Name** - Specifies the tab of the **Add Component** dialog box on which the package appears. You can pick an existing name or type a new tab name in this field. The next time you access the **Add Component** dialog box from an existing folder, the software adds the new tab and lists the new package on the tab. For more information, see *Add Component Dialog Box*, page 107. For example, if you saved a package called Piping Isometric Drawing Package and added it to a new tab called Isos, an **Isos** tab is added to the **Add Component** dialog box:



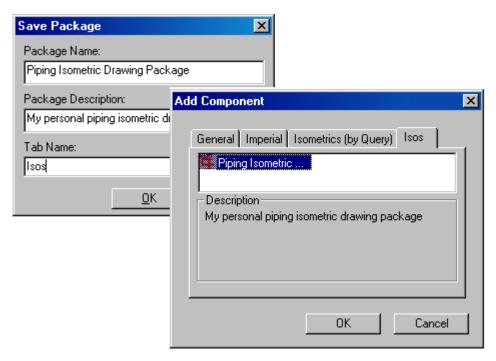
#### **Related Topics**

- Managing Documents: An Overview, page 102
- Save a Package, page 111

## Save a Package

- 1. Right-click a component in the **Management Console** or the **Detail View**.
- 2. Select **Save Package** on the shortcut menu.
- 3. On the **Save Package** dialog box, specify a name, description, and tab name. For example, you could save a Piping Isometric Drawing Package to a new tab called **Iso**.
- 4. Click **OK** to save the package.

The package is added to the **Add Component** dialog box on the specified tab. If a new tab name was specified, a new tab is added to the dialog box.



You can add the new package to the hierarchy in the **Management Console** by using the **New** command. Select the package on the **Add Component** dialog box. When you add a package, the software adds all the components to the active permission group.

- Managing Documents: An Overview, page 102
- Piping Isometric Drawings by Query Common Tasks, page 26
- Save Package Command, page 110
- Understanding Components: An Overview, page 105

# Copy Command

Copies the console hierarchy from the selected component down. The copy command does not copy documents. After you copy an item, you can paste it at another location in the hierarchy. If you copy a component, the software enforces the following rules regarding pasting:

- If you copy a folder, the **Paste** command will only work if a folder is selected. An error message will display if you use the **Paste** command on application components in this situation. This is because application components cannot have a folder beneath them in the hierarchy.
- If you copy an application component and the **Paste** command is selected on a folder, the copied application component will be pasted under the folder.



- If the application component you copy is a volume drawings or MicroStation 3D DGN component, a Paste Special dialog box displays if either component has a template or drawing volume associated with it. The dialog box gives the option to paste the component with or without the template or volume of that component.
- If you copy a volume drawings component with a template or a drawing volume associated with it, the software displays a **Paste Special** dialog box if you paste onto another volume drawings component. This dialog box give you the option to paste (1) only the template, (2) only the volume, or (3) both the template and volume. The volumes associated with the current volume drawings component being pasted are copied and associated with the new volume drawings component. The **Paste** command is not available under any other type of component.

### Note

If you copy a MicroStation 3D DGN component with a drawing volume associated with it, the software also displays the Paste Special dialog box if you paste onto another MicroStation 3D DGN component.

#### **Related Topics**

Copy an Item, page 114

## Copy an Item

- 1. Select an item in the **Management Console** or **Detail View**.
- 2. Right-click the item, then select **Copy** on the shortcut menu.

### **Notes**

- You can paste the copied item at another location in the **Management Console** hierarchy. For more information, see *Paste an Item*, page 117.
- If you copy a component, the software enforces rules regarding pasting. For more information, see *Copy Command*, page 113.

- Managing Documents: An Overview, page 102
- Understanding Components: An Overview, page 105

### **Paste Command**

Either inserts the last-copied contents into the hierarchy, modifies the template information, or creates drawing volumes, depending on the component you have selected. You must copy an item using the **Copy** command before you can paste it.

The software enforces the following rules regarding pasting:

- If you copy a folder, the **Paste** command will only work if a folder is selected. an error message is displayed if you use the **Paste** command in this situation on application components. This is because application components cannot have a folder beneath them in the hierarchy.
- If you copy an application component and the **Paste** command is selected on a folder, the copied application component will be pasted under the folder.



- If the application component you copy is a volume drawings or MicroStation 3D DGN component, a **Paste Special** dialog box displays if either component has a template or drawing volume associated with it. The dialog box gives the option to paste the component with or without the template or volume of that component.
- If you copy a volume drawings component with a template or a drawing volume associated with it, the software displaces the **Paste Special** dialog box if you paste onto another volume drawings component. This dialog box gives you the option to paste (1) only the template, or (2) only the volume, or (3) both the template and volume.

### **Note**

 If you copy a MicroStation 3D DGN component with a drawing volume associated with it, the software also displays the **Paste Special** dialog box if you paste onto another MicroStation 3D DGN component.

### **Related Topics**

• Paste an Item, page 117

## Paste Special Dialog Box

Specifies the items to paste if you copied a volume drawings or MicroStation 3D DGN component that has a template or drawing volume defined. The options provided to you depend on the component selected.

If you are pasting a hierarchy containing one or more volume drawings or MicroStation 3D DGN components into a folder, you can select one of the following options:

Copy Nodes(s), Template(s), and Volume(s) - Inserts the new components, including their respective template and drawing volumes, under the selected folder.

**Copy Node(s) and Templates(s)** - Inserts the new components, including their respective templates, under the selected folder.

**Copy Node(s) Only** - Inserts the new components under the selected folder.

If you are pasting a volume drawings component onto another volume drawings component or a MicroStation 3D DGN component onto another MicroStation 3D DGN component, you can select one of the following options:

**Copy Template(s), and Volume(s)** - Copies the template settings and drawing volumes to the selected component.

**Copy Template(s) only** - Copies only the template settings to the selected component.

**Copy Volumes(s) only** - Copies only the drawing volumes to the selected component.

- Paste an Item, page 117
- Paste Command, page 115

### Paste an Item

Before pasting an item, you must copy the item using the **Copy** command. For more information, see *Copy an Item*, page 114.

- 1. Select a location in the **Management Console** or **Detail View**.
- 2. Right-click the location, and click **Paste** on the shortcut menu. The software pastes the item under the selected location.

### Note

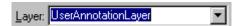
• The software enforces rules regarding pasting. For more information, see *Paste Command*, page 115.

- Managing Documents: An Overview, page 102
- Understanding Components: An Overview, page 105

### **Edit Command**

Activates the selected drawing for editing. This command is available on the right-click menu for a drawing in the **Detail View**. The drawing opens in the 2D Drawing Editor with additional commands or toolbars available for editing the drawing.

If you use native 2D Drawing Editor commands (such as Place Line or Place Dimension) to add manual markups to the template, put them on the **Default** or a layer with "User" as the prefix (for example, a layer named **UserAnnotationLayer**) to preserve the changes when you update drawings.



Your access permissions, defined in the Project Management task, affect whether or not you can edit documents.

# **Open Command**

Activates the selected document for viewing within this task. This command is available on the shortcut menu for all document types except 3D Model Data. You also can open the document by double-clicking it.

### Note

Opening a MicroStation 3D DGN document requires that the MicroStation application be loaded on the workstation.

### **Related Topics**

• Open a Document, page 119

## Open a Document

- 1. In the **Detail View**, double-click a document. You can also right-click the document, then select **Open**.
- 2. Close a document by clicking **File > Exit**.

#### Note

• To edit the document, right-click the document, the select **Edit**. If the document is a drawing, you can annotate it.

- Managing Documents: An Overview, page 102
- *Open Command*, page 119
- Understanding Components: An Overview, page 105

### **Delete Command**

Removes an item and its sub-items from the hierarchy and the database. You access this command on the right-click menu for any node or document in the hierarchy. **Undo** is not available for this action. A confirmation message appears.

You can delete an individual document by right-clicking the document and selecting **Delete** on the shortcut menu.

When you delete a drawing, its associated template and its component remain unchanged. Any associated physical volumes are deleted.

You can delete many items that are directly or indirectly related to this task. The following list provides examples.

- Components in the **Management Console**
- Documents
- Drawing volumes
- Drawing views

In some cases, deleting an item causes other items to be deleted. For example, when you delete a drawing volume, associated views are deleted. When you delete a drawing view in a generated drawing, associated volumes and documents are deleted.

In addition, the item status and your permissions can affect whether or not you can delete the item. A drawing set to Approved cannot be deleted. However, you may be able to delete a drawing set to Working.



• You can select multiple components or documents in the **Detail View** and use the **Delete** command from the right-click menu to remove those items.

- Delete an Item, page 121
- Understanding Components: An Overview, page 105

### Delete an Item

Right-click a folder, component, or document. On the shortcut menu, click **Delete**.

You cannot undo a delete operation.

#### **Note**

• The **Delete** command propagates down the hierarchy. For example, if you delete a volume component, its child components (if any) and all the drawings contained in the components are deleted as well. However, When you delete a single volume drawing, the associated template, volume, and component remain unchanged. You can update the drawing component to re-create the drawing.

- Managing Documents: An Overview, page 102
- *Understanding Components: An Overview*, page 105

### **Rename Command**

Activates the name of an item in the hierarchy. You can type a different name. The shortcut key for this command is **F2**. The following restrictions on naming exists:

- Names of items, including components and documents, cannot exceed 40 characters.
- You cannot have duplicate names at the same level in the tree.

#### **Related Topics**

- Rename an Item, page 122
- Understanding Components: An Overview, page 105

### Rename an Item

- 1. Select an item in the **Management Console** or **Detail View**.
- 2. Right-click the item, then select **Rename** on the shortcut menu or press **F2** on the keyboard.
- 3. Type a new name for the item.

### Notes

- Names of items, including components and documents, cannot exceed 40 characters.
- You cannot have duplicate names at the same level in the tree.

- Managing Documents: An Overview, page 102
- Rename Command, page 122
- Understanding Components: An Overview, page 105

## **Print Command**

Sends a print request for the selected documents to the default printer. This command is not available until you have created and updated documents. For more information, see *Updating Documents: An Overview*, page 141.

#### **Related Topics**

- Print a Document, page 124
- Understanding Components: An Overview, page 105

## Select Printer Command (File Menu)

Specifies a printer for documents. The command lists all printers available to your computer.

#### **Related Topics**

- Print a Document, page 124
- Understanding Components: An Overview, page 105

## **Select Printer Dialog Box**

Specifies a printer for documents.

Name - Specifies a printer name.

**Status** - Displays the current status of the specified printer.

**Type** - Displays the type of printer.

Where - Displays the port or location the printer uses.

- *Print a Document*, page 124
- Understanding Components: An Overview, page 105

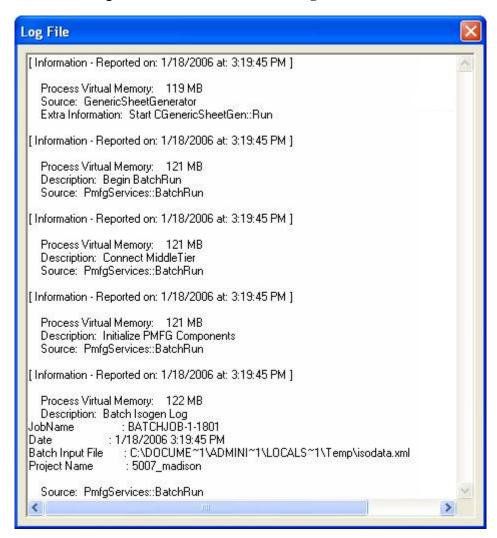
### **Print a Document**

- 1. To specify a printer, select **File > Select Printer.**
- 2. Select a folder, application component, or the root node in the Management Console to print all of the drawing and report documents beneath the selected level. You can also select a single document or multi-select documents in the Detail View. You can select multiple documents to print by pressing Ctrl or Shift and then clicking each document in the Detail View.
- 3. Right-click and select **Print** on the shortcut menu.

- Managing Documents: An Overview, page 102
- Print Command, page 123
- Understanding Components: An Overview, page 105

# **View Log Command**

Displays the log information for the selected drawing. To access this command, rightclick a drawing document and select **View Log** on the shortcut menu.



#### **Related Topics**

Piping Isometric Drawings by Query Common Tasks, page 26

# **Setting Properties: An Overview**

The software updates properties from parent nodes to child nodes and drawings in the **Management Console**.

For example, you can display the **Properties** dialog box for a folder named **Isometric Drawings**. If you set the **Division Location** property to **Huntsville**, **Alabama**, the software pushes this value to the items contained within the **Isometric Drawings** folder.

You can specify inheritance for each item on its **Properties** dialog box. If you set the override flag for a property, the property is not inherited from the parent. You can provide a new, overriding value for the property. This new value then propagates to other items deeper in the hierarchy.

### **Properties and Publishing**

Several document properties impact the publish of the document. Before you can publish documents in the software, you must configure your computer. The configuration includes installing the SmartPlant Client and SmartPlant Schema Component and registering through the SmartPlant Registration Wizard. For more information about the SmartPlant Registration Wizard, see the *SmartPlant 3D Installation Guide*, available from **Help > Printable Guides**.

Even if you have registered your plant using the SmartPlant Registration Wizard, you must set certain properties to enable the publishing capability. Properties that control publishing are found on the **WBS Tab**. For more information, see *Set Properties for Publishing Documents*, page 139.

### Note

- The software considers blanks or cleared values as override flags.
- If the drawing document you are looking at in the **Detail View** has a yellow icon (for example: ✓), the drawing document is a version 6.1 legacy Snapshot drawing. You should use the **Tools** > **Convert Legacy Snapshots** command to convert this document to a Composed Drawing for use in the current version of the software. If you do not convert the legacy snapshot drawing, you cannot perform edit operations on the drawing, including update, revise, and publish.

- Edit Document Properties, page 139
- Properties Command, page 127

# **Properties Command**

Views and edits properties for the selected document. The properties of child items are inherited from the parent item unless you set the **Override** column for the properties.

#### **Related Topics**

- Edit Document Properties, page 139
- Place a Drawing Property Label on a Template, page 198
- Setting Properties: An Overview, page 126

## **Properties Dialog Box**

Sets options for items in the **Management Console**. All items in the **Management Console** have a **Properties** command on their right-click shortcut menus. Using the **Properties** dialog box, you can control how you want properties to propagate through the hierarchy.

You can specify labels for some of the properties on the tabs. Click the browse button at the right of the table cell to display the **Choose Label** dialog box.

#### **Notes**

- The **WBS** tab is available only if you have registered your plant using the SmartPlant Registration Wizard.
- If your plant has not been registered using the SmartPlant Registration Wizard, the **Issue** tab is always available. If your plant has been registered, the **Issue** tab is available only if you have issued documents to a contract and the information is read-only. For more information, see *Issue Request Documents*, page 235.

#### **Related Topics**

- Edit Document Properties, page 139
- *Properties Command*, page 127
- Setting Properties: An Overview, page 126

## General Tab (Properties Dialog Box)

Shows general properties for a drawing item.

If you access the **Properties** dialog box after selecting multiple drawings, this tab will not be available.

**Name** - Displays the name of the property.

**Value** - Sets the current value of the property.

**Behavior** - Specifies whether to inherit or override a property in the hierarchy of items in the **Management Console**. If the property is **Inherited**, the setting comes from items higher in the hierarchy. If the property is not read-only, you can provide a new, overriding value for the property by changing the behavior setting to **Override**. This new value then propagates to other items deeper in the hierarchy. If you set the behavior to **Force Override**, the property setting is forced to items deeper in the hierarchy, even if they are set to **Inherit**.

#### **Properties**

Location- Displays the location of the file on the server.

**Published** - Indicates whether the drawing has been published.

**Size** - Displays the size of the file in KB (kilobytes).

**Size On Disk** - Displays the size of the file on disk.

#### **Related Topics**

• Properties Dialog Box, page 127

## Title Area Tab (Properties Dialog Box)

Sets options for the title area of drawings.

If you access this tab after selecting multiple drawings, these fields will appear empty, regardless of what information was defined for any of the drawings individually. Any information you add to this tab will overwrite the previously defined information in corresponding rows in the selected drawings.

**Name** - Displays the name of the property.

**Value** - Displays the current value of the property.

**Behavior** - Specifies whether to inherit or override a property in the hierarchy of items in the **Management Console**. If the property is **Inherited**, the setting comes from items higher in the hierarchy. If the property is not read-only, you can provide a new, overriding value for the property by changing the behavior setting to **Override**. This new value then propagates to other items deeper in the hierarchy. If you set the behavior to **Force Override**, the property setting is forced to items deeper in the hierarchy, even if they are set to **Inherit**.

#### **Properties**

**Border** - Specifies the border attribute that stores the name of border for the title block. This attribute also stores the dimensions of the border.

**Charge Number** - Defines the charge number for the drawing.

Charge Title - Describes the Charge Number box. The charge title text is placed to the left of the charge number.

Company Name - Specifies the name of the company for which the project is designed.

**Desc1** - Describes the drawing. This description is the first of four lines of text used to describe the drawing.

**Desc2** - Describes the drawing. This description is the second of four lines of text used to describe the drawing.

**Desc3** - Describes the drawing. This description is the third of four lines of text used to describe the drawing.

**Desc4** - Describes the drawing. This description is the fourth of four lines of text used to describe the drawing.

**Division Location** - Specifies the location of the division for which the project is designed.

**Division Name** - Specifies the name of the division for which this project is designed.

**Drawing Naming Rule** - Specifies a default or custom naming rule to the drawing. The default name rules provided include:

- Default Drawing Name Rule This is the default rule for composed and volume drawing types. It uses the drawing type name as the base for the drawing name. For example, a drawing type named "Equipment Plan" generates drawings with names "Equipment Plan-01-0001", "Equipment Plan-01-0002", "Equipment Plan-01-0003", when the location for the model is "01".
- **Default By Query Name Rule** This is the default rule for all Drawings by Query drawing types. It uses the name of the object for which the drawing is being created or the filter used to generate the drawing. For example, for object PUMP001A-01-0001, the drawing has the same name, PUMP001A-01-0001. For a drawing created from "PipingPartFilter#3", the drawing name is the same as that of the filter, "PipingPartFilter#3". The rule does not apply unique numbering because there is only one drawing for each object or filter.

• **Default Report Name Rule** - This is the default rule for all Spreadsheet Reports. It uses the name of the report as the base for the document name. For example, for report EquipLoc1, the software creates "EquipLoc1-01-0001", "EquipLoc1-01-0002", "EquipLoc1-01-0003", when the location for the model is "01".

### Note

• User-defined naming rules appear in the list if you bulkload against the **CDrawingSheet** class, which is the class for the drawing object. The rules are defined on the **NamingRules** sheet in the *GenericNamingRules.xls* workbook. For more information, see the *SmartPlant 3D Reference Data Guide* available from **Help > Printable Guides**.

**Drawing Number** - Displays the unique identifier for the drawing.

**Drawing Size** - Defines a standard note value for the border size.

**Drawing Type** - Defines the three-letter code to identify the type of drawing. For example, the type can be DGN.

**Job Number** - Defines the unique identifier assigned to a capital project or job.

Note Line - Specifies text for a miscellaneous note line.

**Plant Name** - Specifies the name of the plant or project for which the drawing is designed.

**Project Version** - Defines the number and letter sequence that identifies a particular generation of a document that was created since the last approved revision.

**Revision Numbers** - Defines the number of the current revision for this drawing.

**Sheet** - Defines the number of the page and the total number of pages that are associated with this one. For example, the value might be **3 of 5**.

**Site Location** - Specifies the site location for which the drawing is designed.

**Site Name** - Specifies the name of the site where the plant is being constructed.

**Title1** - Specifies text for the first miscellaneous title. This title is usually a description of the area shown on the drawing.

**Title2** - Specifies text for the second miscellaneous title. This title is usually a description of the type of drawing.

**Title3** - Specifies text for the third miscellaneous title.

#### **Related Topics**

• Properties Dialog Box, page 127

## Signature Area Tab (Properties Dialog Box)

Sets options for the signature area of drawings.

If you access this tab after selecting multiple drawings, these fields will appear empty, regardless of the information defined for any of the drawings individually. Any information you add to this tab overrides the previously defined information in corresponding rows in the selected drawings.

**Name** - Displays the name of the property.

**Value** - Sets the current value of the property.

**Behavior** - Specifies whether to inherit or override a property in the hierarchy of items in the **Management Console**. If the property is **Inherited**, the setting comes from items higher in the hierarchy. If the property is not read-only, you can provide a new, overriding value for the property by changing the behavior setting to **Override**. This new value then propagates to other items deeper in the hierarchy. If you set the behavior to **Force Override**, the property setting is forced to items deeper in the hierarchy, even if they are set to **Inherit**.

#### **Properties**

**Approved By** - Specifies the name of the person responsible for approving the drawing.

**Approved Date** - Specifies the date the drawing was approved.

**Checked By** - Specifies the name of the person responsible for checking the drawing.

**Checked Date** - Specifies the date the drawing was checked.

**Designed By** - Specifies the name of the person who specified or designed the information on the drawing.

**Designed Date** - Specifies the date the drawing was designed.

**Drawing Status** - Defines the status code for the drawing.

**Drawn By** - Specifies the name of the person who drew the drawing, or created it.

**Drawn Date** - Specifies the date the drawing was drawn or created.

Extra Sign By1 - Specifies the name of an extra person who is signing the drawing.

Extra Sign By2 - Specifies the name of an extra person who is signing the drawing.

**Extra Sign Date1** - Specifies the date the drawing was signed by the person whose name appears on this line.

Extra Sign Date2 - Specifies the date the drawing was signed by the person whose name appears on this line.

**Extra Sign Title1** - Defines the title of the person whose name appears on this line.

Extra Sign Title2 - Defines the title of the person whose name appears on this line.

**Mfg Rep Date** - Specifies the date that the manufacturing representative initials the drawing.

**Mfg Rep Name** - Specifies the name of the manufacturing representative who signed the drawing.

**Plant Number** - Defines the plant number.

**Proj Engineer Date** - Specifies the date the project engineer initials the drawing.

**Proj Engineer Name** - Specifies the name of the person who is the project engineer for the project using the drawing.

**Spec By** - Specifies the name of the person who specified or designed the information on this drawing.

**Spec Date** - Specifies the date this drawing was specified or designed.

#### **Related Topics**

Properties Dialog Box, page 127

# Style Tab (Properties Dialog Box)

Sets options for the style of drawings and reports.

If you access this tab after selecting multiple drawings, these fields will appear empty, regardless of the information defined for any of the drawings individually. Any information you add to this tab overrides the previously defined information in corresponding rows in the selected drawings.

**Name** - Displays the name of the property.

**Value** - Sets the current value of the property.

**Behavior** - Specifies whether to inherit or override a property in the hierarchy of items in the **Management Console**. If the property is **Inherited**, the setting comes from items higher in the hierarchy. If the property is not read-only, you can provide a new, overriding value for the property by changing the behavior setting to **Override**. This new value then propagates to other items deeper in the hierarchy. If you set the behavior to **Force Override**, the property setting is forced to items deeper in the hierarchy, even if they are set to **Inherit**.

#### **Properties**

Coordinate System - Specifies the global or an active coordinate system.

If you want to output large coordinates on your drawings, define a coordinate system using large negative coordinates. For example, if you want coordinates of **400,000 ft** output on drawings, define a coordinate system origin of **-400,000 ft** and place your model elements close to **global 0**. Select the new coordinate system in the **Coordinate System** field on the **Style** tab. For more information on defining coordinate systems, see the *Grids User's Guide* available from **Help > Printable Guides**.

**Volume Naming Rule** - Specifies the naming rule applied to the content of the drawing.

**Change Management** - Enables and disables **Change Management** for piping isometric drawings. You can override the

**Drawing.Content.ChangeManagementEnabled** option in the Isometric style with this property. You can set the property to **Enabled**, **Disabled**, or set it to **Undefined**. This property is only available when you are viewing properties for a piping isometric drawing. For more information on Change Management, see *Using Piping Isometric Change Management: An Overview*, page 89.

**Baseline Date** - Identifies a date in time when a *snapshot* of the drawing document was taken. It is a way of date-marking the document so you can more easily identify when objects have changed.

**WBS Project** - Specifies the Work Breakdown Structure (WBS) project style to be used with the drawing. This property serves as the answer to an asking filter when specified in a **View Style**.

#### **Related Topics**

• Properties Dialog Box, page 127

## Issue Tab (Properties Dialog Box)

Sets options for internal issues.

**Issue Number** - Type the issue number for the drawing. When you have selected multiple drawings or a node in the **Management Console**, this field is not available to edit, as an issue number is created for each drawing, depending on its current revision history.

**Description** - Describes briefly the scope of the issue.

**Issue Date** - Shows the date issued.

**Issue Reason** - Shows the reason the document was issued.

**Job Spec** - Identifies the job specification for the issued document.

**Revision Number** - Defines the revision number for this issue of the drawing.

#### **Unregistered**

If you access **Properties** on a single document when your plant has not been registered using the SmartPlant Registration Wizard, the **Issue** tab displays previous entries made. A new row is available to make a new entry. You can edit each field using alphanumeric and special character strings. You cannot delete a field once it has been added.

If you access **Properties** on a folder when your plant has not been registered using the SmartPlant Registration Wizard, the **Issue** tab has a single blank row for a new entry. With the exception of the **Issue Number** field, you can edit all the fields. Their values are propagated to the documents within the folder.

### Registered

If your plant is registered using the SmartPlant Registration Wizard and you have issued requests for the document, the **Issue** tab is read-only. The Issue information is retrieved for informational purposes only.

### Notes

- You can create only one issue per instance of the **Properties** dialog box. To create another issue, close the dialog box and open it again.
- For information on issuing requests for contracts when working in an integrated environment, see *Issue Request Documents*, page 235.

#### **Related Topics**

• Properties Dialog Box, page 127

## Revision Tab (Properties Dialog Box)

Sets properties for handling revisions. The **Revision** tab is always read-write (subject to user permissions).

**Revision Mark** - Specifies the letter of the current revision.

**Minor Number** - Specifies the minor revision number for the document.

**Description** - Describes briefly the scope of the revisions.

**Revised By** - Identifies the initials of the person who made the revisions.

**Rev Date** - Specifies the date of the revision.

**Check** - Identifies the initials of the person who checked the revisions.

**Check Date** - Specifies the date the revisions were checked.

**Approved By** - Identifies the initials of the person who approved the revisions.

**Approval Date** - Specifies the date the revisions were approved.

#### Unregistered

If you access **Properties** on a single document and your plant has not been registered using the SmartPlant Registration Wizard, the **Revision** tab displays previous entries made. A new row is available to make a new entry. You can edit each field using alphanumeric and special character strings. You cannot delete a field once it has been added.

If you access **Properties** on a folder and your plant has not been registered using the SmartPlant Registration Wizard, the **Revision** tab has a single blank row for a new entry. With the exception of the **Revision Mark** and **Minor Number** fields, you can edit all the fields. Their values are propagated to the documents within the folder.

#### Registered

If your plant has been registered using the SmartPlant Registration Wizard, use the **Revise** command to create revision numbers. This command reserves a revision number by adding it to the document Revision properties. The revision number is added in the form of a blank row on the **Revision** tab of the **Properties** dialog box.

After reserving the revision number, you right-click the document and select **Properties**. Go to the **Revision** tab and edit the **Revision** fields. For more information, see *Revising: An Overview*, page 215.



• You can create only one revision per instance of the **Properties** dialog box. To create another revision, close the dialog box and open it again.

#### **Related Topics**

• Properties Dialog Box, page 127

## WBS Tab (Properties Dialog Box)

Sets options for the Work Breakdown Structure (WBS) of drawings and reports. This tab is available only when your plant has been registered using the SmartPlant Registration Wizard.

If you access this tab after selecting multiple drawings, these fields appear empty, regardless of the information defined for any of the drawings individually. Any information you add to this tab overrides the previously defined information in corresponding rows in the selected drawings.

**Name** - Displays the name of the property.

**Value** - Sets the current value of the property.

**Behavior** - Specifies whether to inherit or override a property in the hierarchy of items in the **Management Console**. If the property is **Inherited**, the setting comes from items higher in the hierarchy. If the property is not read-only, you can provide a new, overriding value for the property by changing the behavior setting to **Override**. This new value then propagates to other items deeper in the hierarchy. If you set the behavior to **Force Override**, the property setting is forced to items deeper in the hierarchy, even if they are set to **Inherit**.

#### **Properties**

**Project Name** - Displays the project to which the item belongs. In SmartPlant Foundation, a project is the scope of work approved for capital expenditure (that is, a job).

**Document Type** - Specifies the type of document, such as Civil Plan.

**Document Style** - Specifies the style of document, such as Ortho for orthographic drawing.

**Discipline** - Specifies the discipline for the document. If this is a 3D Model Data document, set the property to **SmartPlant Review Document**. If it is a drawing or report document, set the discipline to match the type of document.

**Allow Publish** - Sets the document as a publishable document.

#### **Working with the Integrated Environment**

You can only publish documents after the appropriate properties are set on the **WBS** tab. The **WBS** tab is not available if the local machine login is not authenticated as a valid SmartPlant Foundation user. The properties that must be defined for publishing are: **Document Type**, **Document Style**, **Discipline**, and **Allow Publish**. For more information, see *Set Properties for Publishing Documents*, page 139.

#### **Related Topics**

• Properties Dialog Box, page 127

## Notes Tab (Properties Dialog Box)

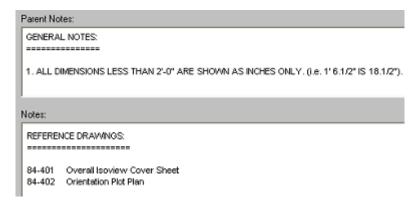
Sets notes for the item.

If you access this tab after selecting multiple drawings, these fields appear empty, regardless of the information defined for any of the drawings individually. Any information you add to this tab overrides the previously defined information in corresponding rows in the selected drawings.

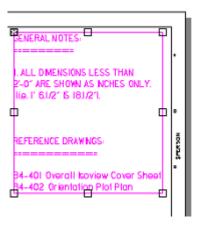
**Parent Notes** - Concatenates the notes from any parents of the currently selected item and displays the notes. This box is read-only.

Notes - Specifies notes for the currently selected item.

The following graphics demonstrate how parent notes and notes work. The first graphic shows how notes can be added at different levels of the hierarchy. The **Notes** tab shows Parent Notes from a higher-level folder or component. The Notes section shows additional information for a particular drawing document.



When the document is updated and displayed, the Note Region of the template contains the specified information.



#### **Related Topics**

Properties Dialog Box, page 127

# **Custom Tab (Properties Dialog Box)**

Sets options for user-defined properties.

If you access this tab after selecting multiple drawings, these fields appear empty, regardless of the information defined for any of the drawings individually. Any information you add to this tab override the previously defined information in corresponding rows in the selected drawings.

**Name** - Displays the name of the property.

**Value** - Sets the current value of the property.

**Behavior** - Specifies whether to inherit or override a property in the hierarchy of items in the **Management Console**. If the property is **Inherited**, the setting comes from items higher in the hierarchy. If the property is not read-only, you can provide a new, overriding value for the property by changing the behavior setting to **Override**. This new value then propagates to other items deeper in the hierarchy. If you set the behavior to **Force Override**, the property setting is forced to items deeper in the hierarchy, even if they are set to **Inherit**.

#### **Related Topics**

Properties Dialog Box, page 127

## **Configuration Tab (Properties Dialog Box)**

Displays the creation, modification, and status information for an item.

**Plant** - Displays the name of the plant. You cannot change this value.

**Permission group** - Specifies the permission group to which the item belongs. You can select another permission group if needed.

If you access this tab after selecting multiple drawings, this field will be empty, regardless of what information was defined for any of the drawings individually. Any selection you in this field will overwrite the previously defined information in the selected drawings.

**Status** - Specifies the current status of the selected **Management Console** hierarchy item or items or selected documents in the **Detail View**. Depending on your access level, you may not be able to change the status of the selected items.

**Created** - Displays the date and time the item was created.

**Created by** - Displays the user name of the person who created the item.

**Modified** - Displays the date and time the item was modified last.

**Modified by** - Displays the user name of the person who modified the item last.

#### **Related Topics**

• Properties Dialog Box, page 127

## **Choose Label Dialog Box**

Specifies a label for a document property. This dialog box displays the labels available on the SmartPlant 3D server in the \CatalogData\Symbols\Labels\Base Templates folders.

#### **Related Topics**

- Edit Document Properties, page 139
- Properties Command, page 127
- Setting Properties: An Overview, page 126

## **Edit Document Properties**

- 1. In the **Management Console**, right-click an item, and click **Properties** on the shortcut menu. The **Properties** dialog box displays.
- 2. Change the properties as needed. For example, you can set the coordinate system for the drawing on the **Style** tab or view the current approval information on the **Signature** tab.

### Notes

- If you do not want an item to acquire a property from its parent, select the **Override** column on the **Properties** dialog box. Type a new value. This value propagates to other items deeper in the hierarchy.
- The software treats blank or cleared property values as overrides.

#### **Related Topics**

• Setting Properties: An Overview, page 126

## **Set Properties for Publishing Documents**

- 1. In the **Management Console**, right-click an item, then select **Properties** on the shortcut menu.
- 2. Go to the **WBS Tab**.
- 3. Set the **Document Type** property as needed, such as Civil Plan.
- 4. Set the **Document Style** property as needed, such as Ortho for an orthographic drawing.

- 5. Set the **Discipline** property. If your plant has been registered using the SmartPlant Registration Wizard, this property adds the **Publish** command to the right-click menu for the selected document or documents. If this is a 3D Model Data document, set the property to **SmartPlant Review Document**. If it is a drawing or report document, set the discipline to match the type of document.
- 6. Set the **Allow Publish** property to **Yes**.

### Notes

- If you do not want an item to acquire a property from its parent, select the **Override** column on the **Properties** dialog box. Type a new value. This value propagates to other items deeper in the hierarchy.
- The software treats blank or cleared property values as overrides.
- Before you can publish documents, you must install the SmartPlant Client
  and the SmartPlant Schema Component and register your plant using the
  SmartPlant Registration Wizard. For more information about
  configuration, see the SmartPlant 3D Installation Guide, available from
  the Help > Printable Guides command.

- Publishing Documents: An Overview, page 222
- Setting Properties: An Overview, page 126

# **Updating Documents: An Overview**

Updating documents increases productivity because you can easily keep deliverables current. It is important to understand the different update capabilities.

#### **Note**

• If the drawing document you are looking at in the **Detail View** has a yellow icon (for example: ✓), the drawing document is a version 6.1 legacy Snapshot drawing. You should use the **Tools** > **Convert Legacy Snapshots** command to convert this document to a Composed Drawing for use in the current version of the software. If you do not convert the legacy snapshot drawing, you cannot perform edit operations on the drawing, including update, revise, and publish.

#### **Refreshing Document Contents**

The **Refresh** command on the shortcut menu for a **Management Console** hierarchy item allows you to see which documents are out-of-date. For more information, see *Refresh Command (Shortcut Menu)*, page 143.

#### **Updating Documents Using Batch Processing**

The **Update Document(s)** and **Update** commands query the model to regenerate a single document or multiple documents. For volume and composed drawings, if you have edited the previous copy of the drawing (for example, by moving a label), the software remembers those changes and re-creates them. If batch processing is configured for the selected drawings, the update is performed on the Batch Server.

The **Update Document(s)** command is available when you right-click on a parent node in the **Management Console**. For more information, see *Update Document(s) Command*, page 145. The **Update** command is available when you right-click on a single drawing in the **Detail View**. For more information, see *Update Command*, page 146. Both commands run the **Schedule Wizard**, which gives you the ability to either run the batch job now or schedule it to run later. For more information, see *Batch Update/Refresh Schedule Wizard Common Tasks*, page 165.

To manage batch jobs, use **Tools > Batch Management**. For more information, see *Manage Batch Jobs*, page 160.

### **Updating Locally**

The **Update Now** command always performs a complete regeneration on the local machine for a single selected drawing. For more information, see *Update Now Command*, page 147.

- Batch Processing: An Overview, page 154
- Refresh Document Status, page 144
- Update a Component, page 147

# Refresh Command (Shortcut Menu)

Compares the date of the last update of the document with the modification date in the model for any object that has a *positive* (can be seen) resymbolization in the drawing.

This command is not available until you generate documents. You can access this command by right-clicking an item in the **Management Console** and selecting **Refresh** on the shortcut menu. The software updates the status for all the expanded items within the parent node.

#### Note

• The **Refresh** command is not available for Spreadsheet Report documents. A Spreadsheet Report document is regenerated each time you update or print the report document. You can refresh the contents of a folder that contains reports.

For out-of-date documents X, the command behavior implies the following:

- If the object is hidden entirely and is inside the drawing volume, but the style does not resymbolize the hidden lines, the object does not participate in the "out-of-date" definition.
- The modification date used for the object in the model can be for any property even if this property has no impact on the graphic. This means that a drawing could be considered out-of-date even though the graphic is up-to-date.

For example: Ordinarily, approval status does not affect graphics. However, the view style you are using for your drawing could use a filter that sets approved objects to a specific color. A drawing document appears with an out-of-date definition because of a change to the approval status.

• Objects participating indirectly in the graphic as labels do not participate in the out-of-date definition. This means that, in rare cases, a label may be out-of-date on a drawing that is shown as up-to-date.

#### Notes

- To refresh the **Management Console** to reflect changes made to *loaded* (expanded) tree view items, use the **View** > **Refresh** command.
- You can also use the Batch > Refresh command on the shortcut menu to perform your refreshes on the batch server. Batch > Refresh is not available for Spreadsheet Report documents.

#### **Related Topics**

- Batch Refresh Command, page 163
- Refresh Command (View Menu), page 106
- Refresh Document Status, page 144
- Updating Documents: An Overview, page 141

### **Refresh Document Status**

The **Refresh** command compares the date of the last update of the document with the modification date in the model for any object that has a *positive* (can be seen) resymbolization in the drawing. For more information on how this command handles out-of-date data, see *Refresh Command (Shortcut Menu)*, page 143.

- 1. Right-click any item in the **Management Console**.
- 2. On the shortcut menu, click **Refresh**. The software checks the model for any differences. The drawing icons change to reflect the status of the documents compared to the model.

### Note

• After refreshing a folder or component, you can synchronize it with the model by right-clicking the item and then selecting **Update Document(s)** on the shortcut menu.

- Updating Documents: An Overview, page 141
- Viewing Icons: An Overview, page 95

# **Update Document(s) Command**

Updates existing drawings or reports if they are out-of-date. This command updates all the documents associated with a drawing or report component. You can also multiselect documents within the **Detail View**.

This command is available when you right-click a component in the **Management Console**.

If batch processing is configured for the selected item, the command displays the **Schedule Wizard** so you can specify whether the update should perform now or at a scheduled date and time. The update is performed on the Batch Server. For more information, see *Batch Update/Refresh Schedule Wizard Common Tasks*, page 165.

If batch processing is not configured, the command behaves the same as the **Update Now** command, performing a complete regeneration of an entire component contents on the local machine.

For volume drawings, the **Update Document(s)** command is not available until you place drawing volumes for a volume component in the Space Management task. For composed drawings, this command is not available until you create the drawings in a 3D task. For reports, this command is not available until you create the report by choosing a report template.

To view or modify the currently scheduled batch update jobs, see *Manage Batch Jobs*, page 160.

## Note

- The software preserves many of the modifications you make between regenerations of volume drawings. For example, if you annotate a volume drawing and then regenerate it, your annotations still appear on the updated drawing.
- To update a single drawing, right-click a drawing in the **Detail View** and select **Update**.

## **Related Topics**

• Updating Documents: An Overview, page 141

# **Update Command**

Updates a single document in the **Detail View**. This command is available when you right-click on a single document or a component. You can also multi-select documents within the **Detail View**.

If batch processing is configured for the selected item, the command displays the **Schedule Wizard** so you can specify whether the update should perform now or at a scheduled date and time. The update is performed on the Batch Server. For more information, see *Batch Update/Refresh Schedule Wizard Common Tasks*, page 165.

If batch processing is not configured, the command behaves the same as the **Update Now** command, performing a complete regeneration of an entire drawing on the local machine.

For volume drawings, the **Update** command is not available until you place drawing volumes for a volume component in the Space Management task. For composed drawings, this command is not available until you create the drawings in a 3D task. For reports, this command is not available until you create the report by choosing a report template.

To view or modify the currently scheduled batch update jobs, see *Manage Batch Jobs*, page 160.

## Notes

- The software preserves any modifications you make between regenerations of volume drawings. For example, if you annotate a volume drawing and then regenerate it, your annotations still appear on the updated drawing.
- The **Update** command detects when only border changes have been made and only updates the portion of the drawing that is out-of-date.
- The Update command works on a single selected drawing and behaves much the same as the Update Document(s) command, which is used for updating all documents for a selected component.

#### **Related Topics**

• Updating Documents: An Overview, page 141

# **Update Now Command**

Updates a single document in the **Detail View** or multiple documents in the **Management Console** whether or not they are out-of-date. This command is available when you right-click on a single document or on a component. This command works on your local computer regardless of the batch configuration. You can also multi-select documents within the **Detail View**.

For volume drawings, the **Update Now** command is not available until you place drawing volumes for a volume component in the Space Management task. For composed drawings, this command is not available until you create the drawings in a 3D task. For reports, this command is not available until you create the report by choosing a report template.

#### **Note**

 The software preserves many of the modifications you make between regenerations of volume drawings. For example, if you annotate a volume drawing and then regenerate it, your annotations still appear on the updated drawing.

#### **Related Topics**

• Updating Documents: An Overview, page 141

# **Update a Component**

Before you update a component, you can refresh its documents to determine which documents are out-of-date. Right-click a component in the **Management Console** tree view, and then click **Refresh**. Documents that are out-of-date show a red X icon You do not have to refresh before updating, but it can be helpful to determine which documents are out-of-date.

- 1. Right-click a component in the **Management Console** tree view. The component must contain existing drawings or reports.
- 2. On the shortcut menu, click **Update Document(s)**. The icons for the out-of-date documents change to show they are updated. If the Batch Server is configured, the command displays the **Schedule Wizard**.

Batch Update/Refresh Schedule Wizard Common Tasks, page 165

# **Notes**

 You can update an individual document by right-clicking the document in the **Detail View** and selecting **Update** or **Update Now** on the shortcut menu.

- If you place drawing property labels on a template, generate a drawing, move the labels on the drawing, and then update the drawing, the software remembers the new position of the labels on the drawing.
- If batch processing is not configured, the command behaves the same as the **Update Now** command, performing a complete regeneration of an entire component contents on the local machine.

#### **Related Topics**

Updating Documents: An Overview, page 141

# **Update a Single Drawing**

- 1. Right-click a document in the **Detail View**.
- 2. On the shortcut menu, click **Update** to update the document on the batch server now or create a schedule to run the batch job. Select **Update Now** to update locally. The icon for the out-of-date document changes to show it is updated .
- 3. If the batch server is configured, the **Schedule Wizard** appears.

  Batch Update/Refresh Schedule Wizard Common Tasks, page 165

#### **Notes**

- When using the Update command and batch processing is configured for the selected document, the update is performed on the Batch Server. If batch processing is not configured, the command behaves the same as the Update Now command, performing a complete regeneration of the entire drawing on the local machine.
- If you place drawing property labels on a template, generate a drawing, move the labels on the drawing, and then update the drawing, the software remembers the new position of the labels on the drawing.

## **Related Topics**

• Updating Documents: An Overview, page 141

# Tools Menu: An Overview

Several tools are provided to make customization of your documents within the Drawings and Reports task easier. These tools appear on the **Tools** menu in the Drawings and Reports task. Some are also available on the right-click shortcut menu associated with the **Management Console** components and documents.

## Note

 Most of the commands on the Tools menu apply strictly to Orthographic Drawing documents. For Spreadsheet Reports and Piping Isometric Drawing documents, you can use Batch Management to manage your document batch processing. You can also use Custom Command tool to set up special macro commands you use in your documents.

- Batch Manager Command, page 156
- Custom Commands, page 184
- Edit Border Template Command (Tools Menu), page 150
- Save As Command, page 194

# **Edit Border Template Command (Tools Menu)**

Opens a drawing border template in the 2D Drawing Editor for customization. You can place drawing property labels and manual graphics.

## Note

 Graphic objects used in the templates must be embedded, not linked, using the Insert > Object command in the 2D Drawing Editor when editing the drawing or the drawing template.

When you place drawing property labels, the software automatically makes the **DwgTemplate** layer active. The labels need to be on this layer so that they are preserved when you update the drawing.



If you use other native 2D Drawing Editor commands (such as Place Line or Place Dimension) to add manual markups to the template, put them on the **Default** or a layer with "User" as the prefix (for example, a layer named **UserAnnotationLayer** to preserve the changes when you update drawings.



## Notes

- You can create new border templates. For more information, see *Create Border and Layout Templates*, page 153.
- The drawing area is the area on a border template in which you place views. Each border template has a drawing area. When you create new composed drawings, a layout template and a border template merge together to form the new drawing. A single view layout arrangement works with multiple border sizes. For more information on using layouts with orthographic drawings, see the *Orthographic Drawings User's Guide*.

## Importing Border Files from Other Software

You can use border file you created in MicroStation (DGN) or AutoCAD (DWG) for use as border templates in 3D drawings. You can import the DGN or DWG file to SHA and place a drawing area within the border in order do use if for Composed Drawings. For more information, see *Import a Border File and Create a Drawing Area*, page 151.

#### **Related Topics**

Piping Isometric Drawings by Query: An Overview, page 24

# **Select Template Dialog Box**

Specifies a template. This dialog box appears when you click the **Edit Border Template** command. It also appears the first time you edit a template for a volume component. The templates listed in this dialog box are located on the **Symbols** share in the \Drawings\Catalog\Templates folder.

You can select a template on this dialog box and then click **OK**, or you can just double-click a template.

The application delivers a set of Imperial and Metric border templates. The names of the templates indicate their size. All of the delivered Imperial and Metric border templates already contain border labels. Some of the border templates also contain a label to display notes. The naming convention indicates which templates contain this label.

#### **Related Topics**

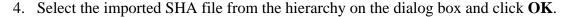
• Edit Border Template Command (Tools Menu), page 150

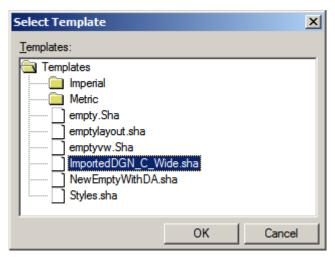
# Import a Border File and Create a Drawing Area

This procedure shows you how to import a file (MicroStation DGN or AutoCAD DWG) so you can edit it in the Drawings and Reports task.. For more information, see *Edit Border Template Command (Tools Menu)*, page 150.

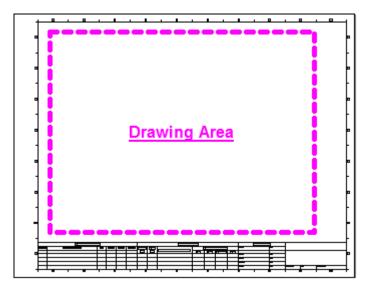
## Note

- The drawing area is the area on a border template in which you place views. Each border template has a drawing area. When you create new composed drawings, a layout template and a border template merge together to form the new drawing. A single view layout arrangement works with multiple border sizes. For more information on using layouts with orthographic drawings, see the *Orthographic Drawings User's Guide*.
- Open your DGN or DWG file in the 2D Drawing Editor. You can double-click Shape2DServer.exe in the \Program
  Files\SmartPlant\3D\Common2D\Shape2D\Bin folder to run the 2D Drawing
  Editor. Use File > Open to open the DGN or DWG border file.
- 2. Save the file as an SHA file to the **Symbol** share in the \Drawings\Catalog\templates folder and exit the 2D Drawing Editor.
- 3. In the Drawings and Reports task, select **Tools > Edit Border Template**. The **Select Template** dialog box appears.





5. The imported border file opens in the 2D Drawing Editor. Place a drawing area using the **Place Drawing Area** command in the toolbar area. Click and drag to place the drawing area. For more information, see the 2D Drawing Editor Help.



The **Place Drawing Area** command creates a rectangle object and sets the properties as needed for the drawing area. You can only place one drawing area per border template. If you open a border template that already has a drawing area specified and try to place a drawing area using this command, an error message displays.

6. Edit the template as needed, saving your changes in the 2D Drawing Editor.

After you edit your border templates, you can use a 3D task to create new composed drawings that use this border. For information on creating composed drawings, see the **Common User's Guide** available from **Help > Printable Guides**.

#### **Related Topics**

• Edit Border Template Command (Tools Menu), page 150

# **Create Border and Layout Templates**

This procedure shows you how to create a new border or layout template so you can edit it in the Drawings and Reports task. You can edit existing templates using commands on the **Tools** menu. For more information, see *Edit Border Template Command (Tools Menu)*, page 150.

- 1. Go to the *Symbol* share and locate the \*Drawings*\*Catalog*\*Templates*\*Imperial* (or *Metric*) folder.
- 2. Find an existing template .*sha* file. For example, you could use the existing border template *B\_Wide.sha*.
- 3. Right-click the .*sha* file and select **Copy**.
- 4. Right-click in the same folder and select **Paste** to paste a copy of the original .*sha* file.
- 5. Right-click the new copied file and select **Rename** to change the name of the file. For example, change it from *Copy of B\_Wide.sha* to *NewBWide.sha*.
- 6. In the Drawings and Reports task, select **Tools > Edit Border Template** if the new template is a border template. Use **Tools > Edit Layout Template** if you create a new layout template.
- 7. Edit the new template as needed, saving your changes in the 2D Drawing Editor.

After you edit your border and layout templates, go to a 3D task and create new composed drawings. For information on creating composed drawings, see the **Common User's Guide** available from **Help > Printable Guides**.

# **Batch Processing: An Overview**

With batch processing, you can make sure your documents are updated, printed, or refreshed without having to dedicate your workstation to the operation.

## **Batch Updating**

Using **Batch** > **Update**, available on the document shortcut menu, you instruct the software to update documents on a Batch Server while you continue to work on other tasks. To walk-through the **Schedule Wizard** and set up batch updates, see *Batch Update/Refresh Schedule Wizard Common Tasks*, page 165.

#### **Batch Printing**

Using the **Batch** > **Print** command available on the document shortcut menu, you can schedule batch printing jobs as needed to free up valuable processing time. To walk-through the **Schedule Wizard** and set up batch printing, see *Batch Print Schedule Wizard Common Tasks*, page 175.

#### **Batch Refreshing**

Using the **Batch** > **Refresh** command available on the document shortcut menu, you can schedule batch refresh jobs for multiple drawing document. To walk-through the **Schedule Wizard** and setup up batch refreshes, see *Batch Update/Refresh Schedule Wizard Common Tasks*, page 165.



• The **Batch** > **Refresh** is not available for Spreadsheet Report documents.

#### **Managing Batch Jobs**

The **Tools > Batch Management** command allows you to view your batch jobs and make changes. For more information, see *Manage Batch Jobs*, page 160.

#### Setting Up Batch Processing

**Batch Server** - The computer on which the batch process runs is called the Batch Server. The Batch Server must have Windows 2000 or Windows XP Professional, Microsoft Message Queuing, and SmartPlant 3D Workstation loaded. The computer designated as the Batch Server is usually one that is not being used by a user to perform daily tasks, as the process of updating large numbers of documents and drawings can consume a great deal of the computer's resources. You can have one Batch Server per site database.

# 🚺 Important

 The user who initially configures the Batch Server must be an administrator on that computer and have write permissions or better on the model, the symbols share, and any permission groups that access drawings. **Client** - The SmartPlant 3D workstations that send batch processes to the server are called clients. Microsoft Message Queuing must be configured on any clients accessing the server to perform batch operations.

If the Batch commands are not available on the shortcut menus for your documents, you are not configured to use batch processing. For more information about setting up batch, see *Configure Batch Processing*, page 177.

#### **Notes**

- Most of the scheduling is stored on the Batch Server in the form of scheduled items in the Windows Task Scheduler. After models have been assigned to the Batch Server, new processes appear in the Processes tab of the Task Manager dialog box on that computer. The Batch Manager process indicates that at least one model can use this computer as a Batch Server. For each model selected on the Setup 3D Drawings Batch Server dialog box, one Batch Server process appears in the list. If the Batch Manager or Batch Server processes are stopped, the computer does not process batch updates.
- You can also have a Batch Tier process running for each of the selected models. This process is created when the Batch Server process finds a batch job and terminates automatically after the Batch Server has been inactive for a while.
- The default timeout value for updating documents through the Batch Server is 40 minutes. For more information on setting the timeout value, contact Intergraph Support. You can find support information on our web site <a href="http://support.intergraph.com">http://support.intergraph.com</a>.

- Batch Print Command, page 161
- Batch Refresh Command, page 163
- Batch Update Command, page 162
- Updating Documents: An Overview, page 141

# **Batch Manager Command**

Displays and manages jobs that have been submitted to the batch server. The **Tools** > **Batch Manager** command displays the **Batch Manager** dialog box, which lists the pending batch jobs.

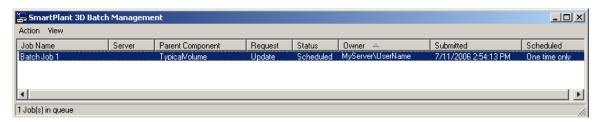
You can only modify or delete batch jobs that you own. You cannot change or delete batch jobs owned by other users.

#### **Related Topics**

- Batch Manager Dialog Box (Batch Manager Command), page 156
- *Manage Batch Jobs*, page 160
- Properties Dialog Box (Batch Manager Command), page 157
- Updating Documents: An Overview, page 141

# **Batch Manager Dialog Box (Batch Manager Command)**

Displays a list of jobs that have been submitted to the batch server and allows you to view or manage those jobs. You can open this dialog box by selecting **Tools > Batch Manager** in the Drawings and Reports environment.





Click a column header to sort the batch job table by the column definition.

**Job Name** - Displays the name of the batch job.



 Non-scheduled batch jobs use the name of the drawing or drawing component type being processed.

**Server** - Displays the name of the batch server processing the batch job.



• Batch jobs are submitted to a queue on the model database. The batch servers retrieve the jobs from the queue in a first-in/first-out order.

**Parent Component** - Identifies the name of the parent component for the batch job.

**Request** - Displays the type of the batch job request. For example, **Update** or **Print**.

**Status** - Indicates the current status of the batch job. For example: **Updating**, **Submitted**, **Scheduled**, or **Printing**.

**Owner** - Displays the name of the owner of the batch job.

**Submitted** - Shows the date and time that the batch job was submitted or scheduled.

**Scheduled** - Indicates how the batch job has been scheduled. For example: Daily, Weekly, Monthly, One time only, and so forth.

#### **Action Menu**

**Pause** - Suspends the selected idle jobs. It will not pause a job that is currently being updated.

**Resume** - Removes the hold on the paused items. This command has no effect on jobs that are already processing.

**Cancel** - Deletes the selected jobs from the queue.

**Properties** -Displays the **Properties** dialog box for the selected job. This command is inactive if multiple jobs are selected. For more information, see *Properties Dialog Box (Batch Manager Command)*, page 157.

#### View Menu

**Status** - Turns the display of the status bar on/off.

**Refresh** - Refreshes the display of the batch job list.

#### **Related Topics**

- Batch Manager Command, page 156
- *Manage Batch Jobs*, page 160

# **Properties Dialog Box (Batch Manager Command)**

Displays the current batch schedule for the selected batch jog and allows you to modify the schedule. You can open this dialog box by selecting **Action > Properties** in the **Batch Manager**.

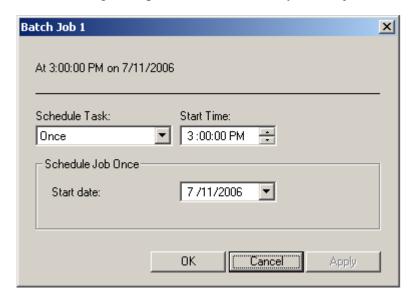
The information on this dialog box changes depending on the active schedule definition of the batch job. The active schedule definition is shown at the top of the dialog box.

**Schedule task** - Sets the type of schedule for the task. If you change this setting, the other options on the dialog box change as well.

**Start time** - Specifies the time for the batch job to start. You can select a time using the scroll button or enter a time in the format shown.

#### **Batch Jobs Scheduled Once**

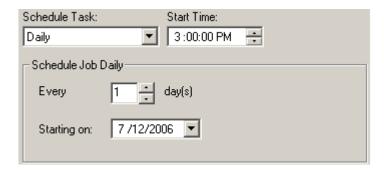
The following example shows a "once only" batch job:



Start date - Specifies the date on which the batch job update begins.

## **Batch Jobs Scheduled Daily**

If the batch job is scheduled to run daily, the **Properties** dialog box appears as follows:

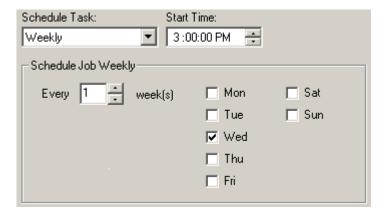


**Every** *count* **day**(**s**) - Specifies a number of days. The batch job runs once per the specified count of days. For example, if you specified **2** as the value, the batch job will run once every 2 days.

**Starting on** - Specifies the date on which the batch job schedule begins.

#### **Batch Jobs Scheduled Weekly**

If the batch job is scheduled to run weekly, the **Properties** dialog box appears as follows:

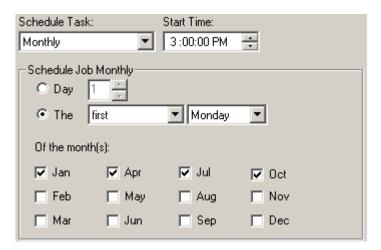


Every count week(s) - Specifies a number of weeks for which the batch job will run.

You can check as many days during the week as required. The batch job runs once per day for the specified count of weeks.

## **Batch Jobs Scheduled Monthly**

If the batch job is scheduled to run monthly, the **Properties** dialog box appears as follows:



You use the two options to specify when the batch job runs during the month. You can check as many months a required. The batch job runs once on the specified day of the specified month(s).

- Batch Manager Command, page 156
- Batch Manager Dialog Box (Batch Manager Command), page 156
- *Manage Batch Jobs*, page 160
- Properties Dialog Box (Batch Manager Command), page 157

# Manage Batch Jobs

You can only modify or delete batch jobs that you own. You cannot change or delete batch jobs owned by other users.

- 1. Select **Tools > Batch Management**. The **Batch Manager** appears, showing the currently scheduled batch jobs with their status. For more information, see *Batch Manager Dialog Box (Batch Manager Command)*, page 156.
- 2. Click a column header to sort the batch job table by the column definition.
- 3. Use the **View** menu items to **Refresh** the batch job list or toggle the **Status Bar** on or off.
- 4. Select a batch jobs, then select **Action > Pause** to suspend the idle jobs. The **Pause** command will not pause a job that is currently being updated.
- 5. Select a batch job or jobs, then select **Action > Resume** to continue processing the paused jobs. This command has no effect on jobs that are already processing.
- 6. To cancel a batch job, select it in the table, then select **Action > Cancel**.
- 7. To modify the batch schedule definition for a batch job, select it, then select **Action > Properties**. The **Properties** dialog box appears, showing the current schedule definition. For more information on modifying the properties, see *Properties Dialog Box (Batch Manager Command)*, page 157.

# 💡 Tip

 You can also right-click a batch job to display a shortcut menu for the Pause, Resume, Cancel, and Properties.

- Batch Manager Command, page 156
- Batch Print Command, page 161
- Batch Processing: An Overview, page 154
- Batch Update Command, page 162

# **Batch Print Command**

Allows you to submit document files directly to a print queue for a printer or schedule the document files to be sent to the print queue at a later date or at recurring intervals. You can set up batch print jobs for a single document or a select set of documents you select in the **Detail View**. This command is available when you right-click on a single drawing or a select set of drawings in the **Detail View**.

The **Batch** > **Print** command displays the **Schedule Wizard** so you can specify whether the drawing should be printed now or at a scheduled date and time. The batch print job runs on a batch server. If the command is not available on the shortcut menu for your documents, batch processing is not configured. To configure your batch server with the appropriate printers, see *Configure Batch Processing*, page 177.

To walk-through the **Schedule Wizard** and set up batch printing, see *Batch Print Schedule Wizard Common Tasks*, page 175.

To view and manage current batch jobs, see *Manage Batch Jobs*, page 160.

#### **Notes**

- After setting up the batch print job, the software checks to see if any of the documents are being updated. If so, the software holds the print job until the updates are complete.
- As long as a document has a file created for it, you will be able to print the
  drawing. The software does not check to see if the drawing is up-to-date,
  out of date, or in an error state.
- The **Batch Print** command is not available for a **MicroStation 3D DGN** component document file.
- If you use the **Batch Print** command to print a **3D Model Data** component file, only the XML document is printed.
- The drawing is printed on the default printer of the batch server that processes the print job.

- Batch Processing: An Overview, page 154
- *Print Command*, page 123

# **Batch Update Command**

Allows you to update documents on a Batch Server while you continue to work on other tasks. You can set up batch update jobs for a single document or a select set of documents you select in the **Detail View**. This command is available when you right-click on a single drawing or a select set of drawings in the **Detail View**.

The **Batch > Update** command displays the **Schedule Wizard** so you can specify whether the drawing should be updated now or at a scheduled date and time. The batch update job runs on a batch server. If the command is not available on the shortcut menu for your documents, batch processing is not configured. To configure your batch server with the appropriate printers, see *Configure Batch Processing*, page 177.

To walk-through the **Schedule Wizard** and set up batch updates, see *Batch Update/Refresh Schedule Wizard Common Tasks*, page 165.

To view and manage current batch jobs, see *Manage Batch Jobs*, page 160.

- Batch Processing: An Overview, page 154
- Updating Documents: An Overview, page 141

# **Batch Refresh Command**

Allows you to refresh documents on a Batch Server while you continue to work on other tasks. The **Batch** > **Refresh** command compares the date of the last update of the document with the modification date in the model for any object that has a *positive* (can be seen) resymbolization in the drawing. You can set up batch update jobs for a single document or a select set of documents you select in the **Detail View**. This command is available when you right-click on a single drawing or a select set of drawings in the **Detail View**.

The **Batch** > **Refresh** command displays the **Schedule Wizard** so you can specify whether the drawing should be updated now or at a scheduled date and time. The batch refresh job runs on a batch server. If the command is not available on the shortcut menu for your documents, batch processing is not configured. To configure your batch server with the appropriate printers, see *Configure Batch Processing*, page 177.

The **Batch > Refresh** command **Schedule Wizard** works the same as the one for the **Batch > Update** command. To walk-through the **Schedule Wizard** and set up batch refreshes, see *Batch Update/Refresh Schedule Wizard Common Tasks*, page 165.

To view and manage current batch jobs, see *Manage Batch Jobs*, page 160.

# Note

• **Batch** > **Refresh** is not available for Spreadsheet Report documents. Spreadsheet Report documents regenerate each time you run, update, or print the report. It is supported for all types of drawing documents.

- Batch Processing: An Overview, page 154
- *Update Document(s) Command*, page 145
- Update Now Command, page 147

# Schedule Wizard

The **Schedule Wizard** appears when you are configured to use batch scheduling, which is available for **Update**, **Refresh**, and **Print**. The **Batch** > **Update**, **Batch** > **Refresh**, and **Batch** > **Print** commands appear on the shortcut menu when you select document(s) or components. You can submit an existing batch job request or schedule a new one. You can also multi-select documents within the **Detail View**.

## **Note**

• **Batch** > **Refresh** is not available for Spreadsheet Report documents. Spreadsheet Report documents regenerate each time you run, update, or print the report. It is supported for all types of drawing documents.

If you access the Schedule Wizard for a document that already has a batch job scheduled, you can edit or delete the existing batch job. For more information, see *Edit or Delete Batch Jobs*, page 182.

You can also manage your existing batch jobs with **Tools > Batch Management**. For more information on using batch processing, see *Batch Processing: An Overview*, page 154.

To walk-through the **Schedule Wizard** and set up batch updates, see *Batch Update/Refresh Schedule Wizard Common Tasks*, page 165. For batch printing, see *Batch Print Schedule Wizard Common Tasks*, page 175.

# Notes

- The default timeout value for updating documents through the Batch Server is 40 minutes. For more information on setting the timeout value, contact Intergraph Support. You can find support information on our web site <a href="http://support.intergraph.com">http://support.intergraph.com</a>.
- For instructions on batch server configuration, see *Configure Batch Processing*, page 177.

- Batch Print Command, page 161
- Batch Processing: An Overview, page 154
- Batch Refresh Command, page 163
- Batch Update Command, page 162
- Updating Documents: An Overview, page 141

# Batch Update/Refresh Schedule Wizard Common Tasks

The following Schedule Wizard tasks are used when you schedule batch update or refresh jobs for drawings and reports documents.

# Note

• **Batch** > **Refresh** is not available for Spreadsheet Report documents. Spreadsheet Report documents regenerate each time you run, update, or print the report. It is supported for all types of drawing documents.

The Schedule Wizard displays when you are configured to use a batch server and select **Batch** > **Update** or **Batch** > **Refresh** from the shortcut menu for a selected document(s). For instructions on batch server configuration, see *Configure Batch Processing*, page 177.

## Submitting or Scheduling a Batch Update or Refresh Job

The initial page of the **Schedule Wizard** allows you to specify whether you want to submit a batch update or refresh job now or schedule it for later. For more information, see *Submit or Schedule Updates or Refreshes (Schedule Wizard)*, page 167.

## **Setting Batch Job Frequency**

If you selected the **Schedule the batch job** option on the initial page of the **Schedule Wizard**, the second page specifies the batch job frequency, or how often you want the batch job to update or refresh. For more information, see *Set Batch Job Frequency (Schedule Wizard)*, page 169.

## Scheduling a Daily Batch Job

When you select the **Daily** option on the second page of the **Schedule Wizard**, you specify the day and time you want the batch job to start. For more information, see *Schedule Daily Batch Job (Schedule Wizard)*, page 170.

## **Scheduling a Weekly Batch Job**

When you select the **Weekly** option on the second page of the **Schedule Wizard**, you specify the time and day you want the job to start on a per week basis. For more information, see *Schedule Weekly Batch Job (Schedule Wizard)*, page 171.

# Scheduling a Monthly Batch Job

When you select the **Monthly** option on the second page of the **Schedule Wizard**, you specify the time and day you want the batch job to start and the months in which you want the job to run. For more information, see *Schedule Monthly Batch Job* (*Schedule Wizard*), page 172.

## Scheduling a One-Time-Only Batch Job

When you select the **One time only** option on the second page of the **Schedule Wizard**, you specify the time and day you want the batch job to start. For more information, see *Schedule One-Time-Only Batch Job (Schedule Wizard)*, page 173.

## **Completing the Scheduling**

Once you have specified the frequency, date, and time settings for your batch job schedule, the final wizard page appears. This page also appears if you selected the **One time only** option on the second page of the wizard. For more information, see *Complete Schedule (Schedule Wizard)*, page 174.

For documents that have existing batch jobs, the **Schedule Wizard** initial page is different.

#### Scheduling a New Batch Job

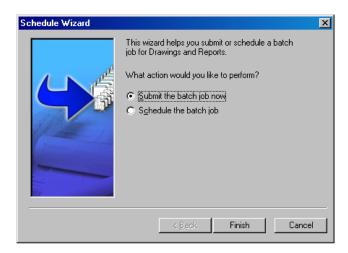
To create a new batch job for the selected document(s), select the **Schedule a new job** option. When you click **Next**, the behavior is the same as the tasks described above, starting with *Set Batch Job Frequency (Schedule Wizard)*, page 169.

#### **Editing or Deleting Existing Batch Jobs**

When you select **Batch > Update** or **Batch > Refresh** on the shortcut menu of a document that already has a scheduled batch job, you can edit or delete an existing batch job by selecting the **Edit existing job(s)** option on the second page of the Schedule Wizard. For more information, see *Edit or Delete Batch Jobs*, page 182.

# Submit or Schedule Updates or Refreshes (Schedule Wizard)

Specifies whether you want to submit a batch update or refresh job now or schedule it for later.



**Submit the batch job now** - Specifies that the job will be automatically named and submitted to the Batch Server when you click **Finish**. The batch job name defaults using the convention **BatchJob1**, **BatchJob2**, and so forth to keep the batch job name unique. This option is specified by default when you select **Update** from the shortcut menu for a document has no previously scheduled batch jobs.

**Schedule the batch job** - Specifies that you want to set a date and time for the batch job to run. Click **Next** to go to the next page of the wizard to continue scheduling the batch job. For more information, see *Set Batch Job Frequency (Schedule Wizard)*, page 169.

## Notes

- If the document from which you accessed the **Schedule Wizard** already has batch jobs scheduled, the **Schedule the batch job** option is the default selection. When you click **Next**, you can either create a new batch job for the document or edit an existing one. You can also delete an existing batch job. For more information, see *Update an Existing Batch Job (Schedule Wizard)*, page 168.
- **Batch** > **Refresh** is not available for Spreadsheet Report documents. Spreadsheet Report documents regenerate each time you run, update, or print the report. It is supported for all types of drawing documents.

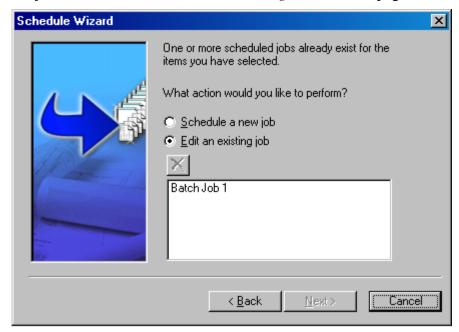
- Batch Processing: An Overview, page 154
- Schedule Wizard, page 164
- Updating Documents: An Overview, page 141

# Update an Existing Batch Job (Schedule Wizard)

Creates a new batch job for the document, edits the existing batch job, or deletes the existing batch job.

## Note

• You can also use **Tools > Batch Management** to update existing batch jobs. For more information, see *Manage Batch Jobs*, page 160.



**Schedule a new job** - Specifies that you are creating a new batch job for the document. Click **Next** to display the next page of the Schedule Wizard and define a new batch job. For more information, see *Set Batch Job Frequency (Schedule Wizard)*, page 169.

**Edit an existing job** - Specifies that you want to edit or delete an existing batch job definition. When you select this option, the table at the bottom of the page enables.

➤ **Delete** - Deletes the batch job selected in the table at the bottom of the dialog box. This button is only enabled when a batch job is selected.

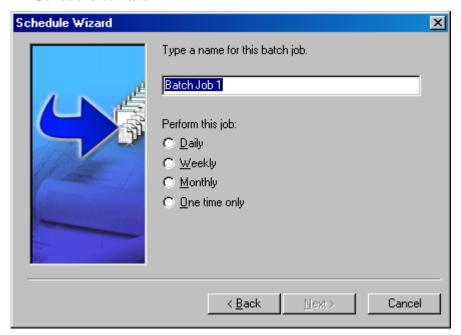
**Existing batch job table** - Lists the batch jobs for the document. To edit a batch job definition, select it in the table and click **Next** to display the next page of the Schedule Wizard. For more information, see *Set Batch Job Frequency (Schedule Wizard)*, page 169.

- Batch Processing: An Overview, page 154
- Schedule Wizard, page 164
- Updating Documents: An Overview, page 141

# Set Batch Job Frequency (Schedule Wizard)

Specifies the frequency with which you want to update or print this document or set of documents. This page of the wizard appears under two different conditions:

- If the document(s) has no previously schedule batch jobs and you select the Schedule the batch job option on the initial page of the Schedule Wizard.
- If the document(s) has previously scheduled batch jobs in existence, and
  you select the Schedule a new batch job option on the initial page of the
  Schedule Wizard.



**Type a name for this batch job.** - Specifies the batch job name. The batch job name defaults using the convention **BatchJob1**, **BatchJob2**, and so forth to keep the batch job name unique. You can change the batch job name.

**Perform this job:** - Specifies the frequency option for updating the batch job. The options are described as follows:

- **Daily** The batch job runs daily at the time specified on the next page of the wizard. For more information, see *Schedule Daily Batch Job (Schedule Wizard)*, page 170.
- Weekly The batch job runs weekly on the day and time specified on the next page of the wizard. For more information, see *Schedule Weekly Batch Job (Schedule Wizard)*, page 171.
- **Monthly** The batch job runs monthly on the month, day, and time specified on the next page of the wizard. For more information, see *Schedule Monthly Batch Job (Schedule Wizard)*, page 172.

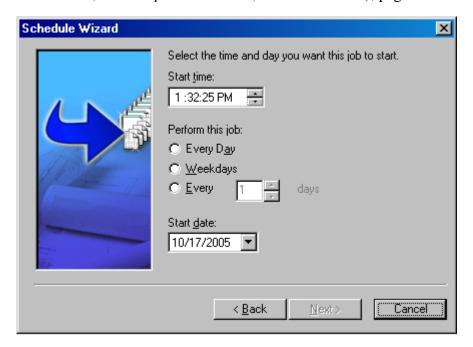
• One time only - The batch job runs the job one time only. This option goes to the final page of the wizard. For more information, see *Schedule One-Time-Only Batch Job (Schedule Wizard)*, page 173.

#### **Related Topics**

- Batch Processing: An Overview, page 154
- Schedule Wizard, page 164
- Updating Documents: An Overview, page 141

# Schedule Daily Batch Job (Schedule Wizard)

Specifies the time and day you want the batch job to start. When you click **Next**, the final wizard page displays the batch schedule settings. If the schedule is incorrect, click **Back** to return to previous wizard pages and make corrections. For more information, see *Complete Schedule (Schedule Wizard)*, page 174.



**Start time** - Specifies the time for the batch job to start. You can select a time using the scroll button or enter a time in the format shown.

**Perform the job** - Specifies the day option for updating the batch job. The options are described as follows:

- **Every Day** The batch job runs every day at the time specified at the top of the wizard page.
- **Weekdays** The batch job runs every weekday (Monday through Friday) at the time specified at the top of the wizard page.

• Every - You specify a number of days in the field provided. The batch job runs once per the specified count of days. For example, if you specified 2 as the value, the batch job runs once every 2 days.

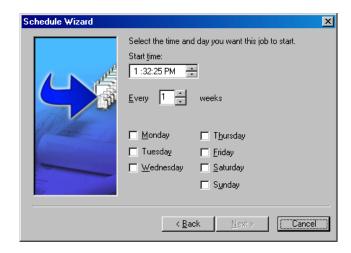
**Start date** - Specifies the date on which the batch job begins.

#### **Related Topics**

- Batch Processing: An Overview, page 154
- Schedule Wizard, page 164
- Updating Documents: An Overview, page 141

# Schedule Weekly Batch Job (Schedule Wizard)

Specifies the time and day you want the batch job to start on a weekly basis. When you click **Next**, the final wizard page displays the batch schedule settings. If the schedule is incorrect, click **Back** to return to previous wizard pages and make corrections. For more information, see *Complete Schedule (Schedule Wizard)*, page 174.



**Start time** - Specifies the time for the batch job to start. You can select a time using the scroll button or enter a time in the format shown.

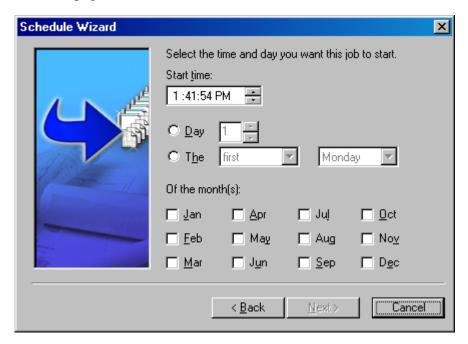
**Every** - Specifies a number of weeks. The batch job runs once per the specified count of weeks. For example, if you specified **2** as the value, the batch job will run once every 2 weeks.

**Day checkboxes** - Specifies the day of the week you want the batch job to run.

- Batch Processing: An Overview, page 154
- Schedule Wizard, page 164
- Updating Documents: An Overview, page 141

# Schedule Monthly Batch Job (Schedule Wizard)

Specifies the time and day you want the batch job to start and in which months you want the job to run. When you click **Next**, the final wizard page displays the batch schedule settings. If the schedule is incorrect, click **Back** to return to previous wizard pages and make corrections. For more information, see *Complete Schedule (Schedule Wizard)*, page 174.



**Start time** - Specifies the time for the batch job to start. You can select a time using the scroll button or enter a time in the format shown.

**Day** - Specifies a specific day of the month. The batch job runs once per the day specified. For example, if you specified **2** as the value, the batch job runs on the second day of the selected months.

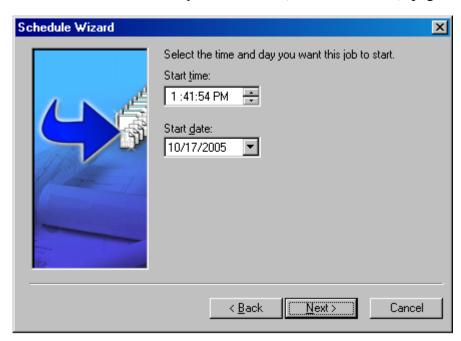
**The set weekday** - Specifies the day of the week you want the batch job to run. For example, you can set the batch job to run on the **second Tuesday** of every selected month.

Of the month(s) - Specifies the months you want the batch job to run. You can select multiple months.

- Batch Processing: An Overview, page 154
- Schedule Wizard, page 164
- Updating Documents: An Overview, page 141

# Schedule One-Time-Only Batch Job (Schedule Wizard)

Specifies the time and day you want the one-time-only batch job to start. When you click **Next**, the final wizard page displays the batch schedule settings. If the schedule is incorrect, click **Back** to return to previous wizard pages and make corrections. For more information, see *Complete Schedule (Schedule Wizard)*, page 174.



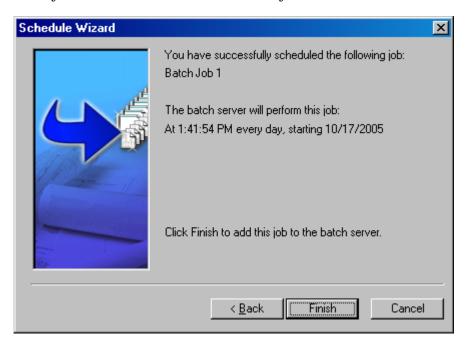
**Start time** - Specifies the time for the batch job to start. You can select a time using the scroll button or enter a time in the format shown.

**Start date** - Specifies the date on which the batch job update begins.

- Batch Processing: An Overview, page 154
- Schedule Wizard, page 164
- Updating Documents: An Overview, page 141

# Complete Schedule (Schedule Wizard)

Shows the completed schedule setup for the batch job. It displays the name of the batch job and the time and date when the job will run.



If the schedule is incorrect, click **Back** to return to previous wizard pages and make corrections. If the batch job is scheduled correctly, click **Finish** to process the batch job request.

- Batch Processing: An Overview, page 154
- Schedule Wizard, page 164
- Updating Documents: An Overview, page 141

# **Batch Print Schedule Wizard Common Tasks**

The following Schedule Wizard tasks are used when you schedule batch print jobs for drawings and reports documents.

The Schedule Wizard displays when you are configured to use a batch server and select **Batch > Print** from the shortcut menu for a selected document(s). For instructions on batch server configuration, see *Configure Batch Processing*, page 177.

## Submitting or Scheduling a Batch Print Job

The initial page of the **Schedule Wizard** allows you to specify whether you want to submit a batch print job now or schedule it for later. For more information, see *Submit or Schedule Printing (Schedule Wizard)*, page 176.

## **Setting Batch Job Frequency**

If you selected the **Schedule the batch job** option on the initial page of the **Schedule Wizard**, the second page specifies the batch job frequency, or how often you want the batch job to update. For more information, see *Set Batch Job Frequency* (*Schedule Wizard*), page 169.

## Scheduling a Daily Batch Job

When you select the **Daily** option on the second page of the **Schedule Wizard**, you specify the day and time you want the batch job to start. For more information, see *Schedule Daily Batch Job (Schedule Wizard)*, page 170.

# Scheduling a Weekly Batch Job

When you select the **Weekly** option on the second page of the **Schedule Wizard**, you specify the time and day you want the job to start on a per week basis. For more information, see *Schedule Weekly Batch Job (Schedule Wizard)*, page 171.

## Scheduling a Monthly Batch Job

When you select the **Monthly** option on the second page of the **Schedule Wizard**, you specify the time and day you want the batch job to start and the months in which you want the job to run. For more information, see *Schedule Monthly Batch Job* (*Schedule Wizard*), page 172.

## Scheduling a One-Time-Only Batch Job

When you select the **One time only** option on the second page of the **Schedule Wizard**, you specify the time and day you want the batch job to start. For more information, see *Schedule One-Time-Only Batch Job (Schedule Wizard)*, page 173.

## Completing the Scheduling

Once you have specified the frequency, date, and time settings for your batch job schedule, the final wizard page appears. This page also appears if you selected the **One time only** option on the second page of the wizard. For more information, see *Complete Schedule (Schedule Wizard)*, page 174.

For documents that have existing batch jobs, the **Schedule Wizard** initial page is different.

#### Scheduling a New Batch Job

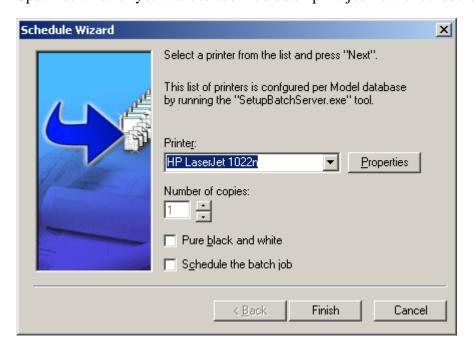
To create a new batch job for the selected document(s), select the **Schedule a new job** option. When you click **Next**, the behavior is the same as the tasks described above, starting with *Set Batch Job Frequency (Schedule Wizard)*, page 169.

## **Editing or Deleting Existing Batch Jobs**

When you select **Batch > Print** on the shortcut menu of a document that already has a scheduled batch job, you can edit or delete an existing batch job by selecting the **Edit existing job(s)** option on the second page of the Schedule Wizard. For more information, see *Edit or Delete Batch Jobs*, page 182.

# Submit or Schedule Printing (Schedule Wizard)

Specifies whether you want to submit a batch print job now or schedule it for later.



**Printer** - Specifies the printer to which the document will be submitted.

**Number of copies** - Indicates the number of copies of the document to print.

**Pure black and white** - Specifies that the document should be printed in pure black and white, with the software setting the color alterations based on colors used in the document.

**Schedule the batch job** - Specifies that you want to set a date and time for the batch job to run. Click **Next** to go to the next page of the wizard to continue scheduling the batch job. For more information, see *Set Batch Job Frequency (Schedule Wizard)*, page 169. If you do not check this box, the document prints immediately to the selected printer.

## Note

• If the document from which you accessed the **Schedule Wizard** already has batch jobs scheduled, the **Schedule the batch job** option is the default selection. When you click **Next**, you can either create a new batch job for the document or edit an existing one. You can also delete an existing batch job. For more information, see *Update an Existing Batch Job (Schedule Wizard)*, page 168.

#### **Related Topics**

- Batch Update/Refresh Schedule Wizard Common Tasks, page 165
- Schedule Wizard, page 164
- Updating Documents: An Overview, page 141

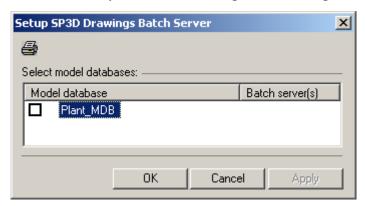
# **Configure Batch Processing**

The computer on which the batch process runs is called the Batch Server. The Batch Server must have Windows 2000 or Windows XP Professional, Microsoft Message Queuing, and SmartPlant 3D Workstation loaded. Microsoft Message Queuing must be loaded on both the Batch Server and any clients accessing the server to perform batch operations. You can have one Batch Server per site database.

The user who initially configures the Batch Server must have write permissions or better on the model, the symbols share, and any permission groups that access drawings.

- 1. Configure Microsoft Message Queuing on the Batch Server and all the clients that will use batch processing.
  - Add Message Queuing Services, page 180
- 2. Configure the Batch Server to point to the appropriate site. For more information, refer to the *Update Site Database Name and Path* procedure in the product *Installation Guide*.
- 3. Run the Batch Server Setup utility by double-clicking the SetupBatchServer.exe file, located in \SmartPlant\3D\Drawings\Middle\bin.

4. From the list in the **Setup SP3D Drawings Batch Server** dialog box, select all models that may use this server to process batch processing, and click OK.



5. Enter the appropriate user and password information. The user account information must be the same as the account currently logged into the computer.

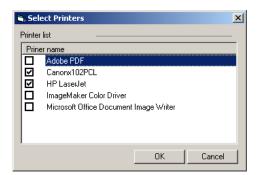


- 6. Click **Apply** to update the batch server list and verify the batch server assignments to the model. The assigned batch server should be shown in the **Batch Server(s)** column.
- 7. To configure printers for a batch server, select a batch server in the list and click ...



• If no printers are installed on the batch server, or if you do not associate a printer with a batch server, the batch server is not available for batch printing.

8. On the **Select Printers** dialog box, check the printers you want associated to the batch server and click **OK**.



## **Notes**

- Once models have been assigned to the Batch Server, new processes will appear in the Processes tab of the Task Manager dialog box on that computer. The Batch Manager process indicates that at least one model can use this computer as a Batch Server. For each model selected on the Setup 3D Drawings Batch Server dialog box, one Batch Server process appears in the list. If the Batch Manager or Batch Server processes are stopped, the computer will not process batch updates.
- You can also have a Batch Tier process running for each of the selected models. This process is created when the Batch Server process finds a batch job and terminates automatically after the Batch Server has been inactive for a while.
- A user must be logged onto the Batch Server for it to be available to process batch updates. The Batch Manager process starts automatically whenever any user is logged onto the Batch Server computer but is not available when no users are logged on.
- You should set up batch processing to run as a user that has write permissions to any permission group from which a drawing can be submitted. If the write permissions do not exist, the software cannot update the document.
- The default timeout value for updating documents through the Batch Server is 40 minutes. For more information on setting the timeout value, contact Intergraph Support Services. You can find support information on our web site <a href="http://support.intergraph.com">http://support.intergraph.com</a>.
- If you remove a batch server/model assignment (uncheck it on the **Setup SP3D Drawings Batch Server** dialog box), the software also removes the batch printer associations.

- Batch Processing: An Overview, page 154
- Remove a Model from the Batch Server, page 180
- Updating Documents: An Overview, page 141

# **Add Message Queuing Services**

Complete these steps on the Batch Server computer and on all clients using batch processing. The instructions below are for Windows XP. Other systems may vary. For more information, contact Intergraph Support Services. You can find support information on our web site <a href="http://support.intergraph.com">http://support.intergraph.com</a>.

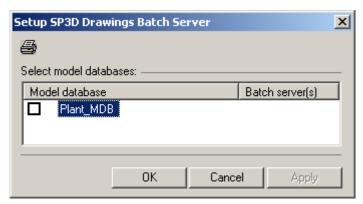
- 1. Install the **Microsoft Message Queuing** component on your computer by clicking **Control Panel > Add/Remove Programs**.
- 2. On the left side of the dialog box, click **Add/Remove Windows Components**.
- On the Window Component Wizard dialog box, select the Message Queuing box, and click Next. A status dialog appears while Windows XP starts the Message Queuing component.
- 4. Click **Finish**. **Microsoft Message Queuing** is running on the computer.

#### **Related Topics**

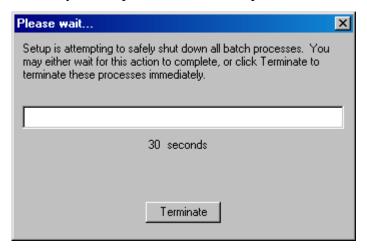
- Configure Batch Processing, page 177
- Updating Documents: An Overview, page 141

# Remove a Model from the Batch Server

- 1. Run the **Batch Server Setup** utility by double-clicking the SetupBatchServer.exe file, located in \SmartPlant\3D\Drawings\Middle\bin.
- 2. From the list in the **Setup SP3D Drawings Batch Server** dialog box, clear any check boxes for models you no longer want this computer to update using batch processing.



3. Click **OK** or **Apply**. A status dialog appears as the utility terminates the Batch Server process for the specified model database. It is recommended that you allow the utility to complete the shut down process instead of terminating immediately.



### Note

- Do not try to stop processes from the Task Manager. All models are represented on the Processes tab as a Batch Server process. If you remove some models while leaving others, you cannot tell from the Processes tab which processes should be stopped and which should continue.
- If you remove a batch server/model assignment (uncheck it on the **Setup SP3D Drawings Batch Server** dialog box), the software also removes the batch printer associations.

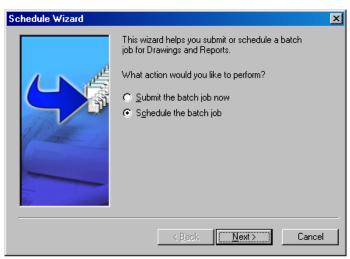
- Configure Batch Processing, page 177
- Updating Documents: An Overview, page 141

## **Edit or Delete Batch Jobs**

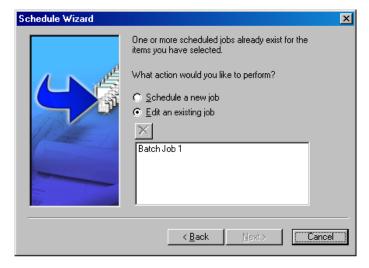
Complete the following steps to edit or delete an existing batch job.

### Note

- You can also use **Tools > Batch Management** to update existing batch jobs. For more information, see *Manage Batch Jobs*, page 160.
- 1. Right-click a document that has a batch job scheduled and select batch command you want to run: **Update**, **Print**, or **Refresh**. The **Schedule Wizard** displays.



2. The default setting is **Schedule the Batch Job**. Click **Next** to schedule a new batch job or edit the existing batch job.



3. To edit or delete an existing batch job, select the **Edit an existing job** option. The table at the bottom of the wizard page enables.

### Note

- To schedule a new batch job for this document, select the Schedule new job option and click Next to display the next page of the Schedule Wizard and create a new batch job schedule. For more information, see Set Batch Job Frequency (Schedule Wizard), page 169.
- 4. Select a batch job in the table. To delete the batch job, click **Delete** . To edit the batch job, click **Next** to display the next page of the Schedule Wizard and edit the batch job properties. For more information, see *Set Batch Job Frequency* (*Schedule Wizard*), page 169.

- Schedule Wizard, page 164
- Update an Existing Batch Job (Schedule Wizard), page 168

## **Custom Commands**

Provides end-user application programming capability for the 3D software. Using Microsoft® Visual Basic, you can create a custom command that groups a series of commands and instructions into a single command that runs as an operation in the 3D software. As a result, you can access the customized commands that directly relate to the work routine in your operation.

In Visual Basic, the **Command Wizard** helps you to build a custom command. For example, the first **Command Wizard** step prompts you to identify general information, including command name, project name, author, and company. You can start the wizard in Visual Basic by clicking **Command Wizard** on the **Add-Ins** menu. For more information about installing the **Command Wizard** and other programming resources, see the SmartPlant 3D *Installation Guide* available by clicking **Help > Printable Guides** in the software.

After adding a custom command in the 3D software, you can edit it. The **Edit Custom Command** dialog box requires you to specify the program identifier (prog\_id), command name and description, command priority, and a command line of arguments in a string.

### **Delivered Custom Commands**

The following list provides descriptions and ProgIDs for the delivered custom commands:

Custom Comman d	ProgID	Description
Check Database Integrity	SP3DCheckDatabaseIntegrity.CCheckObj	Creates records for the objects that need to be cleaned. You run this custom command directly on a database (Site, Catalog, or Model). After you run this command, you can generate a report to review the errors that the Check Database Integrity command generated. For more information on the Check Database Integrity command, see the Database Integrity Guide available from Help > Printable Guides.

Custom Comman d	ProgID	Description
Clean Database	SP3DCleanDatabaseCmd.CCheckObj	Deletes or cleans an object. This command is used when an action on the Check Database Integrity report is To Be Removed or To Be Repaired. For more information on deleting and cleaning objects in the database, see the Database Integrity Guide available from Help > Printable Guides.

Custom Comman d	ProgID	Description
Create Drawing View	MenuDrawView.CMenuDrawView	Saves and converts the contents of a three-dimensional graphic view window into a snapshot view. The command creates a rectangular object associated to a clipping volume or volumes in the three-dimensional model.
		Before you create a snapshot view using this command, you must have added at least one composed drawing type to the Management Console in the Drawings and Reports task.
		You can save additional views by updating the view contents and then saving the new design. If you used the <b>Tools &gt; Hide</b> command to avoid displaying certain objects, those objects are included in a composed drawing you create.
		You must have appropriate permissions to access composed drawing types, or you cannot use the <b>Tools</b> > <b>Snapshot View</b> command. If you have only read permission, you receive a message that alerts you to this condition.
		After you create the snapshot views, you can add them to composed drawings when you use the <b>Tools</b> > <b>New Drawing</b> or <b>Tools</b> > <b>Open Drawing</b> commands.

Custom Comman d	ProgID	Description
Find Object by OID	SP3DFindObjectByReport.FindObjects	Finds objects with integrity problems in a graphic view. Before running this command, you must define your workspace to include these objects. Run a database integrity report, and use the reported OIDs of the objects in the workspace definition. For more information on the Find Objects by OID custom command, see the Database Integrity Guide available from Help > Printable Guides.
Fix Project Root	SP3DPRJMGTRepairCmd.FixCnfgProject Root	Synchronizes the plant name in the Model database and the Site database. The name in the Site database prevails.  Note  You must run this command from a task in the model, not from Project Management.

Custom Comman d	ProgID	Description
Modify Style	ModifyStyleCmd.ModifyStyles	Modifies system-based styles existing in a custom model database. For information on creating correct style colors, see the <i>Common User's Guide</i> .  For <i>older databases</i> (created before <i>version 06.00.22.xx</i> ), run the <b>Modify Styles</b> custom command to update the database, then exit the application. Delete the old session file and open with a new session file. The new colors are available.  New databases (created after <i>version 06.00.22.xx</i> ) use the corrected colors automatically.
Remove Design Basis	IMSEngFrameworkCmd.RemoveDsgnBasi s	Removes all correlation relationships and then deletes all design basis objects in the 3D model.  This command is useful when you want to register to a different SmartPlant Foundation database.  After running this command, you must register the plant, retrieve information, and recorrelate objects.  Note  You must run this command from a task in the model, not from Project Management.

Custom Comman d	ProgID	Description
Verify P&ID Integrity	SP3DDisplayPIDService.VerifyPIDCmd	Validates the internal connections between objects on a P&ID and objects in the Model database. This command is useful when there is a problem displaying a P&ID or selecting objects on a P&ID. The command provides some basic troubleshooting statistics: Number of design basis objects, number of 3D objects (correlated), number of P&ID objects, number of deleted P&ID OIDs, and number of duplicate OIDs.

### **Related Topics**

- Create Custom Commands, page 191
- Tools Menu: An Overview, page 149

# **Custom Commands Dialog Box**

Adds and edits customized commands you have created with the Command Wizard in Microsoft® Visual Basic. For information on creating custom commands, see Create Custom Commands, page 191.

**Command names** - Lists the names of commands that have been added.

**Run** - Starts the custom command you select in the list box. For more information, see Run a Custom Command, page 192.

**Close** - Cancels the **Custom Commands** dialog box.

Edit - Opens the Edit Custom Command dialog box. You can change settings for the command, such as the program identifier (prog\_ID) and command name. For more information, see Edit a Custom Command, page 192.

**Add** - Installs the custom command into the software. For more information, see Add Custom Commands, page 191.

Delete - Removes the custom command from the software. For more information, see Delete a Custom Command, page 193.

**Clear** - Deletes the information you have typed in the boxes on the **Custom Commands** dialog box.

**Description** - Contains an identifying phrase so you can better recognize the custom command with which you are working.

### **Related Topics**

• Create Custom Commands, page 191

## **Add Custom Command Dialog Box**

Accesses a customized command you created in Microsoft® Visual Basic and saves the command within the software.

**Command ProgID** - Identifies the program identifier for the custom command you created in Visual Basic.

**Command name** - Specifies the name you assigned to the custom command.

**Description** - Describes the custom command.

**Priority** - Assigns a priority of **High**, **Normal**, or **Low**.

**Argument** - Specifies command line arguments in a string.

### **Related Topics**

• Create Custom Commands, page 191

## **Edit Custom Command Dialog Box**

Changes options for a customized command you added to the software.

**Command ProgID** - Specifies the program identifier for the custom command you created in Microsoft® Visual Basic.

**Command name** - Provides a text box for you to change the name you assigned to the custom command.

**Description** - Provides a text box to provide a descriptive phrase for the custom command.

**Priority** - Changes priority to **High**, **Normal**, or **Low**.

**Argument** - Change the command line arguments in a string.

**Reset Default** - Returns the dialog box to its default settings.

### **Related Topics**

• Create Custom Commands, page 191

### **Create Custom Commands**

1. Open Microsoft® Visual Basic.

### **→** Tips

- You do not create or modify custom commands within the software.
   You can edit the code of the command in Visual Basic. You can edit a limited number of items, such as the description of the command, using the Edit Custom Command dialog box.
- You must install the Command Wizard software in Visual Basic. The setup for the Command Wizard is located at [Product Directory]\CommonApp\Tools\CommandWizard.
- 2. In Visual Basic, click **Add-Ins > Command Wizard**.
- 3. Complete all steps on each page of the **Command Wizard**.

### **Related Topics**

• Custom Commands, page 184

## Add Custom Commands

- 1. Click **Tools > Custom Commands**.
- 2. On the **Custom Commands** dialog box, click **Add**.
- 3. On the **Add Custom Command** dialog box, type the program identifier you assigned to the command in Microsoft® Visual Basic in the **Command ProgID** box.
- 4. Type the name you assigned to the command in the **Command name** box.
- 5. Type a phrase that describes the command in the **Description** box.
- 6. If necessary, change the option in the **Priority** section.

7. Type command line arguments in a string in the **Argument** box.



• After you complete this procedure, the **Custom Commands** dialog box lists the command you added to the software. You can run the command, edit the settings, or delete the command.

### **Related Topics**

• Custom Commands, page 184

### Run a Custom Command

- 1. Click **Tools > Custom Commands**. The **Custom Commands** dialog box opens.
- 2. To start a custom command you created, select the command in the list box, and click **Run**.
- 3. After the command runs, click **Close** on the **Custom Commands** dialog box.

### **Related Topics**

• Custom Commands, page 184

### **Edit a Custom Command**

- 1. Click **Tools > Custom Commands**. The **Custom Commands** dialog box opens.
- 2. To change the options for a custom command, select the command in the list box, and click **Edit**. For example, you can change the name and description of the command.
- 3. After completing the needed changes, click **Close** on the **Custom Commands** dialog box.



• You must open the command in Microsoft® Visual Basic if you want to edit the underlying code.

### **Related Topics**

• Custom Commands, page 184

## **Delete a Custom Command**

- 1. Click **Tools > Custom Commands**. The **Custom Commands** dialog box opens.
- 2. Select the command in the list box, and click **Delete**. The software removes the command from the list box; however, the command code is not deleted.
- 3. After completing the needed changes, click **Close** on the **Custom Commands** dialog box.

### Note

• This action does not delete the DLL for the custom command. It just removes access to the custom command from the user interface.

### **Related Topics**

• Custom Commands, page 184

## Save As Command

Saves drawings and reports as specified file types to an external location, such as a share on another server. This command is not available until you generate drawings for at least one of the structures in the hierarchy. This command saves only the structures that contain drawings or reports. You can save multiple file types based on the types of documents available. You can specify the target file type for each drawing type you want to save.

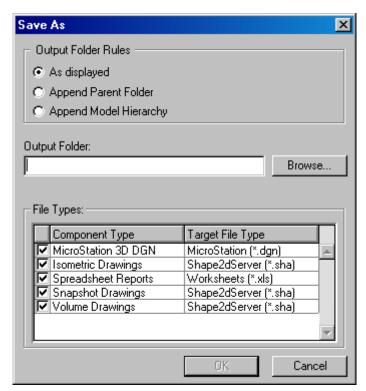
To save the hierarchy as a package, right-click the folder and select **Save Package** on the right-click menu. For more information, see *Save Package Command*, page 110.

### **Related Topics**

• Save to a File, page 196

# Save As Dialog Box

Sets options for exporting drawings. You can open this dialog box by right-clicking a folder, component, or drawing and then selecting **Save As** on the right-click menu.



**Output Folder Rules** - Specifies the how you want to save the hierarchy. The following options are provided:

- **As displayed** Specifies the selection is saved as displayed.
- **Append Parent Folder** Specifies the selected item is appended to the parent folder.
- **Append Model Hierarchy** Specifies the selected item is appended to the hierarchy starting from the root and including the selected item.

**Output Folder** - Specifies the location to which to save the package.

**Browse** - Indicates a folder in which to save the drawings. You can select a local folder or a folder on another computer on the network.

**File Type** - Specifies the file formats to save for each drawing type. Check the box next to each drawing type you want to save. Use the **Target File Type** dropdown to specify the file type to which the drawing type is saved. The file types available for each drawing type are described in the following table.

Drawing Type	Target File Types
MicroStation	MicroStation (*.dgn)
Isometric Drawings	Shape2DServer (*.sha)
	PCF file (*.pcf)
	Both (*.sha & *.pcf)
	All Files (*.*) - Includes all .sha and .pcf files, as well as all enabled supplementary files.
	MicroStation (*.dgn)
	AutoCAD (*.dxf)
	AutoCAD (*.dwg)
Spreadsheet Reports	Worksheets (*.xls)
Composed Drawings, Volume	Shape2DServer (*.sha)
Drawings, and Orthographic Drawings by Query	MicroStation (*.dgn)
	AutoCAD (*.dxf)
	AutoCAD (*.dwg)

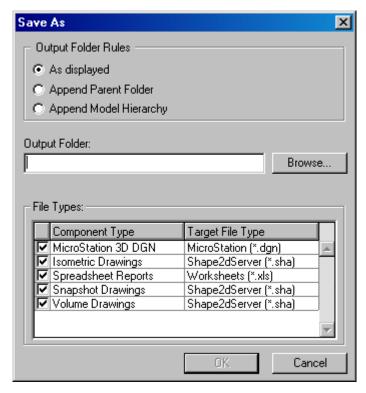
### **Related Topics**

• Save to a File, page 196

## Save to a File

Prior to following this procedure, you must have generated drawings already for at least one of the items in the **Management Console** hierarchy. The **Save As** command is not available if drawings have not been generated.

- Select a folder or component in the Management Console or documents in the Detail View. You can select multiple documents by holding Ctrl or Shift and clicking each item.
- 2. Right-click your selection, then select **Save As** on the shortcut menu. The **Save As** dialog box displays.



- 3. Specify the **Output Folder Rule** to be used. You can save the item as it appears in the **Management Console**, with its parent folder appended or with the entire model hierarchy appended.
- 4. Specify the **Output Folder** location. Click **Browse** to display a dialog box to locate the appropriate folder location.
- 5. Check the boxes for the **Component Types** you want to save. You can select multiple component types. For more information, see *Save As Dialog Box*, page 194.

- 6. In the **Target File Type** dropdowns, specify the file types you want to save. You can specify a file type for each component type selected. For example, you could use the Iso\_Stress style to create a Piping Component File (PCF) file, then when you perform a **Save As** on the document, check the **Isometric Drawings** component type and specify the **Target File Type** as **PCR File**.
- 7. Click **OK** to save the files as specified.

### Note

• The saved drawings retain the same names they had in this task.

- Create a Piping Component File (PCF), page 60
- Save As Command, page 194

# Template Commands: An Overview

Several commands are provided to help customize your drawing templates while open in the 2D Drawing Editor. The availability of the Template Commands depends on the template being edited. You can find additional information on these commands in the 2D Drawing Editor Help.

The workflows listed below apply to piping isometric drawings. Other workflows for orthographic drawings are described in the *Orthographic Drawings User's Guide*.

Place a Drawing Property Label on a Template, page 198
Place a Custom Drawing Property Label on a Template, page 199

# Place a Drawing Property Label on a Template

If you want to place a custom attribute label on a template, see *Place a Custom Drawing Property Label on a Template*, page 199.

- 1. Click **Tools > Edit Border Template**.
- 2. On the **Select Template** dialog box, select a template, and click **OK**. The template opens in the **2D Drawing Editor**.



 Always place drawing property labels in the **DwgTemplate** layer of the template. Select **Tools** > **Layers**. The **Layer** ribbon appears so you can change the layer if necessary.



3. On the toolbar, click **Place Drawing Property Label** . The **Place Drawing Property Label** ribbon appears.



- 4. In the **Label Set** list, select a label set (set of drawing properties). The list reflects the label sets within the drawing XML schema. The **Label Set** selection controls the contents of the **Fields** list and the enabling of other controls on the ribbon.
- 5. In the **Fields** list, select a field to use as your title block label.
- 6. Specify a **Function**, setting the **Function Argument** if needed.
- 7. Provide alternative text for cases when the label property could be blank.
- 8. Click **More** to expand the ribbon and set formatting options.

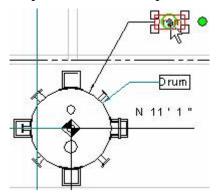


You can set options for Style, Font, Font Size, and Textbox Width.

9. Click the template to place the label. The label follows your cursor until you click to place the label.

### **♀** Tip

• To move the label after it has been placed, click and drag the label by its origin point, identified by the green circle in the middle of the label object. In the graphic below, the **Drum** label is moved. Snapping behavior is automatic. If you click and drag the **Drum** label by its origin point and hover over another label, then release the label, it snaps to the new label position.



- 10. Continue placing labels on the template as necessary.
- 11. Right-click to end the command.
- 12. Save the changes to the template before closing the **2D Drawing Editor**.

### **Related Topics**

- Publishing Title Blocks: An Overview, page 225
- Template Commands: An Overview, page 198

# Place a Custom Drawing Property Label on a Template

The following steps show how to add a custom attribute drawing property label to a drawing template. To add non-custom property labels to the template, see *Place a Drawing Property Label on a Template*, page 198.

- 1. Create a Custom Attribute workbook using Excel. This is the bulkload file for the custom attribute and names the attribute. For example, you could create a file called *CustomAttributes.xls* that contains the definition for a custom attribute.
- 2. Bulkload the Custom Attribute workbook. For more information on populating Excel workbooks and bulkloading, see the *SmartPlant 3D Reference Data Guide* available from **Help > Printable Guides**.
- 3. Create an .xsd file and add a line that defines the attribute in the dropdown list when you edit a template and use the **Place Drawing Property Label** command. For example, using **DrawingCustom1** as the attribute name, the line would be <xs:element name="DrawingCustom1">.

4. Add a line that points to the **AttributeName** property of the bulkloaded attribute. For example, using the above attribute name, the necessary line would be *<pk* name="DrawingCustom1"/>. Your .xsd file would look similar to the following:

- 5. Make sure the .xsd file is in the \Symbols\Drawings\Catalog\Labels\Border\Schema folder.
- 6. In the Drawings and Reports task, click **Tools > Edit Border Template**.
- 7. On the **Select Template** dialog box, select a template, and click **OK**. The template opens in the **2D Drawing Editor**.



 Always place drawing property labels in the **DwgTemplate** layer of the template. Select **Tools > Layers**. The **Layer** ribbon appears so you can change the layer if necessary.



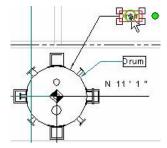
- 8. In the **Label Set** list (the first dropdown on the ribbon), select **Custom**.
- 9. In the **Fields** list (the second dropdown on the ribbon), select the Custom attribute property to use as your title block label.



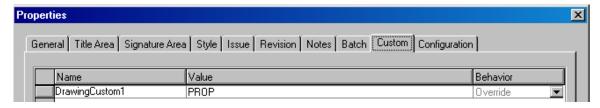
10. Click the template to place the label. The label follows your cursor until you click to place the label.



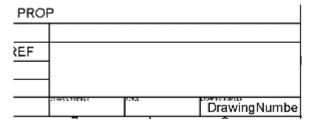
• To move the label after it has been placed, click and drag the label by its origin point, identified by the green circle in the middle of the label object. In the graphic below, the **Drum** label is moved. Snapping behavior is automatic. If you click and drag the **Drum** label by its origin point and hover over another label, then release the label, it snaps to the new label position.



- 11. Continue placing labels on the template as necessary.
- 12. Right-click to end the command.
- 13. Save the changes to the template before closing the **2D Drawing Editor**.
- 14. Update any drawing documents associated with the modified template. For more information, see *Updating Documents: An Overview*, page 141.
- 15. Right-click the drawing and select **Properties**.
- 16. Go to the **Custom** tab. The new Custom attribute property is shown on the tab.



17. To verify the custom drawing property is added to the drawing title block, right-click the drawing and select **Open**. The custom drawing property includes the Custom Property attribute in the title block.



### **Related Topics**

• Template Commands: An Overview, page 198

# **Delivered Drawing Types: An Overview**

The delivered drawing types are drawing templates that include such things as drawing borders, documentation annotation, note areas, and selection and resymbolization criteria.

Several drawing types are delivered, fully designed to meet particular drawing requirements. There are two versions of each drawing type; one using imperial (or English) units, and the other using metric units. They are accessed when you right-click a folder and select **New**. On the **Add Component** dialog box, go to the **Imperial** tab. For more information, see *Add a Component*, page 108.

You can use the delivered types as the basis for creating new drawing types, modifying the view styles or border templates as needed. You can copy a template from an existing drawing or you can copy volumes only, allowing you to create multiple drawings with the same border graphics. To copy a drawing type component, select the item on the **Management Console** hierarchy, then select **Copy**. To past the item, right-click a location in the hierarchy or in the **Detail View**, then select **Paste**.

All of the delivered drawing types provide customizable templates and view styles. The delivered **Equipment Plan** drawing type is provided as an example below:

- The **Equipment Plan** is a single view drawing plan. It includes the location of equipment, structural columns, building walls, equipment steel, vessel and mechanical steel, roads, and railroads.
- The **Equipment Plan** includes general information for coordinate systems, sheet scales, and modifications. The drawing border provides the border graphics, title block graphics, and the title block labels.

The document annotation includes the following:

- **North Arrow** The large symbol is used, which is typical for single view drawings. As of version 6.0, the north arrow is placed per the drawing view. Click and drag the symbol to position it within the Note Area if required.
- **Key Plan** The key plan is used to show the geographic position of the single grid relative to the rest of the grids of the same type in the single block.
- **Drawing Notes** This is a collection of notes consisting of general notes applicable to all drawings, notes applicable to a discipline, notes applicable to a category of drawings, and notes specific to a single drawing (such as a user-defined element or a border report).

#### **Note Area**

The Note Area is used to display drawing notes and key plans. The note area on the Equipment Plan is 5" wide on the right-hand side of the drawing border. This area extends from the top of the border down to the top of the title area border. The Note Area is optional. It is not a required element in the template.

### **View Regions**

The View Region defines the drawing view arrangements. The **Equipment Plan** defaults to a single view with a 5" Note Area and 1" margins around the drawing view.

### **Drawing View**

The **Equipment Plan** is a single view plan. The following specifications are set:

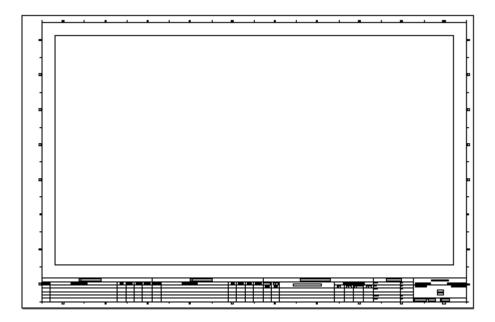
- **Direction** Set to Plan view (Looking Plan).
- **Rotation** Depends on the volume type and the Coordinate System defined, based on the grid section's X and Y size. For example, a volume placed by 4-Points in the Space Management task will rotate the view.
- Scale Set to 1/8'' = 1' or 1 = 100.
- **North Arrow** One symbol included per drawing view. Click and drag the symbol to the Note Area.
- **Annotation** The plan uses *matchline labels* to indicate the appropriate coordinate of that segment of the grid boundary along with continuations. The *matchlines* are lines that outline the boundaries of a grid by following the exterior boundaries of the collection of sectioning elements defining the grid represented in the view.
- **Drawing Volumes** The drawing volume is the queried 3D volume in the model.

### **View Styles**

The view style specifies the object filters included in the drawing if present in the queried 3D volume. It specifies how objects are displayed, including graphical representation, labeling, and dimensioning. In the **Equipment Plan**, the volume and composed drawing view style definitions are the same.

### **Title Blocks**

The title block generally displays at the bottom of a drawing template. It can include signatures, revision and issue information, and other properties associated with the drawing.



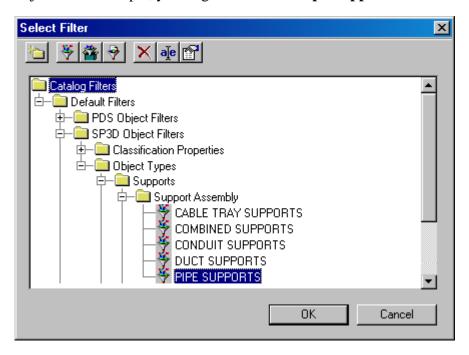
You can add drawing properties to the title block using the **Place Drawing Property Label** command when editing a template.

- Customizing Isometric Drawing Styles: An Overview, page 43
- Edit Border Template Command (Tools Menu), page 150
- Place a Drawing Property Label on a Template, page 198

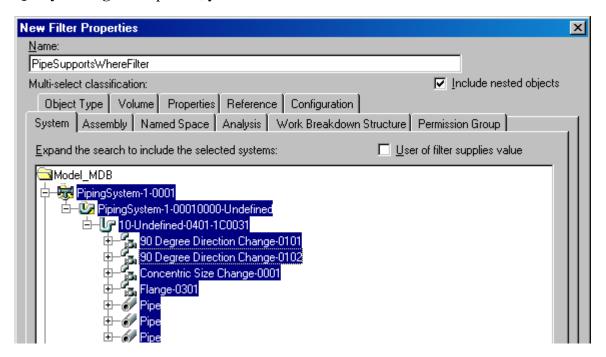
# Drawings by Query Filters: An Overview

When you create the Drawings by Query components (Orthographic, Piping Isometric, and Drawings by Query Manager), you use filters to determine the content of the documents produced. You define Orthographic and Piping Isometric Drawings by Query components using a **Setup** command to specify a *what* filter that accesses the model database and determines which objects are included in the drawings, as well as which hierarchy is traversed to create a tree in the **Management Console**. The exact position in the hierarchy is determined by the *where* filter. You define a Drawings by Query Manager component using a **Setup** command to specify a *where* filter that identifies the location of the objects included in the drawing.

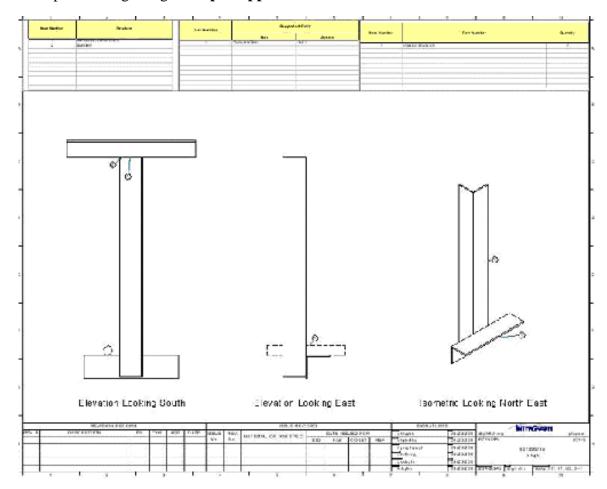
For example, if you are creating Orthographic drawings that include pipe supports, you create a new **Orthographic Drawings by Query** component. When you run **Setup** on the component, you select a normal filter that returns only pipe support objects. For example, you might choose the **Pipe Supports** filter as shown below:



After saving your **Orthographic Drawings by Query** component setup as a package, you define a Drawings by Query Manager to determine *where* in the model to collect the objects you specified in the *what* filter. When you run **Setup** on the **Drawings by Query Manager** component, you select a normal filter.



When you run the query, the software compounds the *where* filter with the *what* filter to return the desired objects. Each object is documented in a drawing using the template and rules you setup for the package. The following graphic shows an example drawing using the **Pipe Supports** filter:



For more information on defining filters, see the *Common User's Guide* available from **Help > Printable Guides**.

- Piping Isometric Drawings by Query Common Tasks, page 26
- Piping Isometric Drawings by Query: An Overview, page 24

# Search Folders: An Overview

Search Folders allow you to search for documents based on common properties such as out-of-date status, approval, or documents that have been published to a certain contract in integrated environment. You can create a Search Folder component in any folder in the Management Console. After running the query defined for a Search Folder, you can perform such tasks as **Update** or **Publish** as if you were working from the actual owning component location for the documents.

The documents found by the Search Folder query are listed in the **Detail View** as if they existed under the Search Folder component. You are able to interact with the Search Folder documents just as if you were dealing with the "real" components that own the documents. Search folders can also be used for reports.

The Search Folder Component is available by running the **New** command from the shortcut menu of a folder in the Management Console. Generally, you can create a Search Folder component under any component in the Management Console that allows you to run **New** command.

#### Search Folder Shortcut Menu

Right click on the Search Folder component to display the Search Folder shortcut menu.

**Run Query** - Runs the query specified by the Search Folder setup definition. If you have not run the Search Folder **Setup** command, this command is not available.

**Setup** - Specifies the query to run for the Search Folder. Selecting **Setup** for the Search Folder does not perform the individual setups for any of the drawing by query documents found in the Search Folder query and shown in the detail view.

**Copy** - Copies the Search Folder. It does not copy the associated documents shown in the detail view area. The Search Folder setup information is saved with the copy. After you paste the copy to a different location in the **Management Console** hierarchy, you can run **Setup** again as needed for the new Search Folder.

**Delete** - Deletes the Search Folder. It does not delete any of the documents found in the associated detail view.

**Rename** - Renames the Search Folder. It does not affect any of the documents found in the associated detail view.

**Properties** - Displays the **Configuration Properties** for the document.



• To change properties on the document, go the "owner" location of the document. The **Search Folder** does not participate in any propagation of properties to its documents.

**Save Package** - Allows you to save the Search Folder and its definition as a package to be reused in other folder location in the **Management Console**.

### Notes

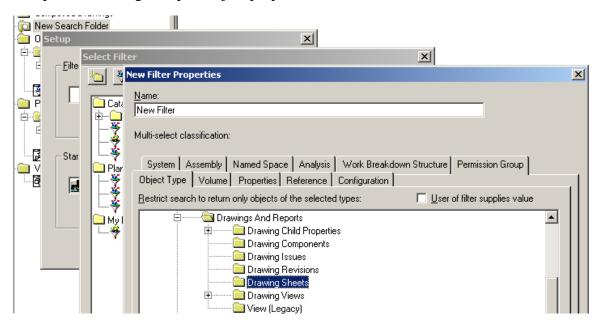
- After the search folder is placed in the console, it will follow the same localized naming convention as a normal folder. For example: "New Search Folder", "New Search Folder (2)", and so forth.
- Unlike normal folders, you cannot create components beneath a Search Folder. This includes **Paste**; however, you can **Copy** the Search Folder and paste it somewhere else in the Management Console hierarchy.
- The Search Folder does not participate in any commands executed from a higher node (for example, **Update**, **Refresh**, and **Publish**). This prevents multiple actions being run on the same documents.

- Create a Search Folder, page 213
- Setup Command (Search Folder Component), page 213
- Understanding Search Folder Filters: An Overview, page 210

# **Understanding Search Folder Filters: An Overview**

Search Folder components use filters to specify how the component identifies the documents to include in the Search Folder. you can use Drawings and Reports object properties to define filters when creating Search Folder components. This is what allows you search for documents based on common properties such as out-of-date status, approval, or documents that have been published to a certain contract in integrated environment.

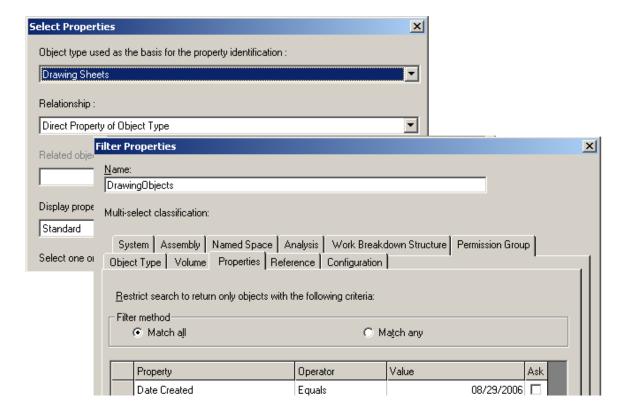
When you run **Setup** on a Search Folder component, you can create filters that check for specific drawing or report object properties.



The following examples show how you might create filters to search for specific drawing object properties:

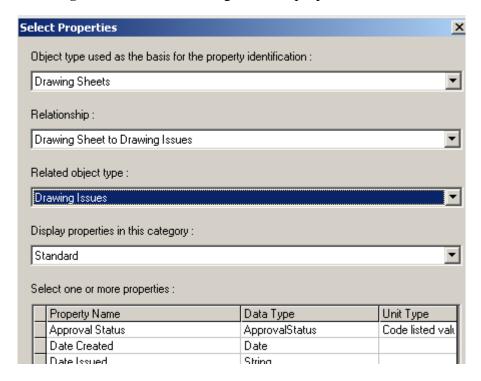
### **Basic Drawing Document Properties - Title, Area, and Signature**

You can use the **Drawing Sheet** object and its properties to look for many properties associated with the drawing documents. On the **Properties** tab of the **Filter Properties** dialog box, select **More** in the **Property** field to display the **Select Properties** dialog box. When you specify **Drawing Sheets** as the **Object type used as the basis for the property identification**, you can set the **Relationship** to **Direct Properties of Object Type** to access the Title, Area, and Signature properties on the drawing and report documents. For example, you could search specifically for the **Date Created** value on the documents.



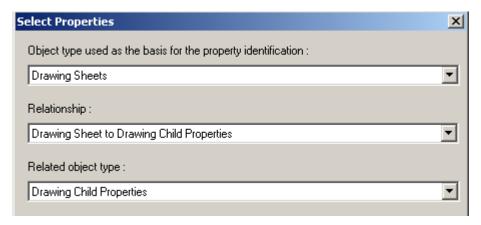
### **Issue or Revision Properties**

To search specifically for issue or revision properties on the Drawing Sheet or Drawing Component, set the **Relationship** to **Drawing Sheet** (or **Drawing Component**) to **Drawing Issues** or **Drawing Sheet** (or **Drawing Component**) to **Drawing Revisions** when setting the filter properties.



### Baseline, Style, Smartplant, or Custom User Attribute Properties

To search specifically for baseline, style, SmartPlant, or custom user attribute properties, set the **Relationship** to **Drawing Sheet to Drawing Child Properties Drawing Component to Drawing Child Properties**.



- Create a Search Folder, page 213
- Setup Command (Search Folder Component), page 213

# **Setup Command (Search Folder Component)**

Sets options for creating a Search Folder. This command is available on the Search Folder shortcut menu and displays the **Setup** dialog box.

The **Setup** dialog box specifies a filter that identifies the objects to be included in the Search Folder query. It also identifies a location that specifies the "where" side of the query. The Setup definition tells the query "where" to look for the objects specified by the component "what" filter.

### **Related Topics**

- Create a Search Folder, page 213
- Search Folders: An Overview, page 208
- Understanding Search Folder Filters: An Overview, page 210

## **Setup Dialog Box (Search Folder Component)**

Specifies the query settings for the Search Folder component.

**Filter** - Identifies the filter that defines the "what" portion of the query. The software uses the filter to determine the objects included in the drawings when they are generated. Select **More** in the **Filter** dropdown list to display the **Select Filter** dialog box. Click **Properties** to display the **Filter Properties** dialog box.

**Start From** - Specifies the location in the model from which to start the object search. Select **More** in the **Start From** combo box to display the **Select Location** dialog box.

### **Related Topics**

- *Create a Search Folder*, page 213
- Search Folders: An Overview, page 208
- Setup Command (Search Folder Component), page 213

## Create a Search Folder

- 1. Right click on a Folder object in the **Management Console** and select **New** to display the **Add Component** dialog box.
- 2. Select the **Search Folder** component and click **OK**.
- 3. Right click on the new Search Folder and select **Setup** to display the **Setup** dialog box.

- 4. Specify a filter. This is the part of the query that defines "what" is returned to the Search Folder. Select **More** in the **Filter** dropdown list to display the **Select Filter** dialog box. Click **Properties** to display the **Filter Properties** dialog box.
- 5. Set the query location. Select **More** in the **Start From** combo box to display the **Select Location** dialog box. This is the part of the query that tells the software "where" to look in the model for the objects.
- 6. Click **OK** to create the **Search Folder** as specified.

After you create the **Search Folder**, right-click it and select **Run Query**. The documents returned by the query are added to the Search Folder listing in the **Detail View**.

You can run commands from the Search Folder level to modify all of the documents within the folder, or you can modify the individual documents by selecting them in the Detail View.

### Notes

- You can rename Search Folders by right-clicking them and selecting Rename.
- Unlike normal folders, you cannot create or paste other components within the Search Folders.
- Search Folders do not participate in any commands executed from a higher node (such as **Update**, **Refresh**, or **Publish**).

- Search Folders: An Overview, page 208
- Setup Command (Search Folder Component), page 213
- Setup Dialog Box (Search Folder Component), page 213

# Revising: An Overview

The document revision process is separate from the publishing process, making it possible to revise a document locally and save it to the database without re-publishing the document. The **Revise** command is available on the right-click menu for drawings, reports, and 3D Model Data documents.

Revising and publishing are two separate actions. You specify the revision using the **Revise** command while reserving revisions in SmartPlant Foundation. Revising a document creates a Revision for the document with Major and Minor set, depending on the revision schema selected. If you are working in an integrated environment, you cannot modify the Major and Minor revision data, but you can modify the other revision information on the document.

After reserving the revision number, right-click the document and select **Properties**. Select the **Revision** tab and edit the **Revision** fields. You should update documents to include any new title block information.

You can now re-publish the document with the new revision information.

### Notes

- You can use the Revise command if your plant has been registered using the SmartPlant Registration Wizard. For more information on registering, see the *Project Management User's Guide* under Help > Printable Guides.
- If the drawing document you are looking at in the **Detail View** has a yellow icon (for example: ✓), the drawing document is a version 6.1 legacy Snapshot drawing. You should use the **Tools** > **Convert Legacy Snapshots** command to convert this document to a Composed Drawing for use in the current version of the software. If you do not convert the legacy snapshot drawing, you cannot perform edit operations on the drawing, including update, revise, and publish.

- Publishing Documents: An Overview, page 222
- Reserve Revision Numbers, page 220
- Revise a Document, page 218
- Revise Command, page 216

## **Revise Command**

Reserves revision numbers. This command is on the right-click menu for drawings, reports, and 3D Model Data documents.

Revise command while reserving revisions in SmartPlant Foundation. Revising a document creates a Revision for the document with Major and Minor set, depending on the revision schema selected. If you are working in an integrated environment, you cannot modify the Major and Minor revision data, but you can modify the other revision information on the document.

After reserving the revision number, right-click the document and select **Properties**. Select the **Revision** tab and edit the **Revision** fields. You should update documents to include any new title block information.

You can now re-publish the document with the new revision information.

### Note

 You can use the Revise command if you have registered your plant using the SmartPlant Registration Wizard. For more information on registering, see the *Project Management User's Guide* under Help > Printable Guides.

### **Related Topics**

- Publishing Documents: An Overview, page 222
- Reserve Revision Numbers, page 220
- Revise a Document, page 218
- Revising: An Overview, page 215

# **Revise Dialog Box**

Allows you to revise a document in the database of the authoring tool without publishing it or to reserve a set of revision numbers for a document within the active project or plant.

### Note

• Fields with a shaded background are read-only fields and cannot be edited.

**Selected documents** - Displays a list of the documents selected to be revised or for which you want to reserve a set of revision numbers. You populate this list by selecting documents before you use the **Revise** command.

**Engineering Tool** - Opens an authoring tool-specific dialog box that allows you to select documents to add to the **Selected documents** list.

**Revision Scheme** - If you have selected a new document or a document for which no revision scheme has been selected, choose the revision scheme to be applied from the list of available options. If you have selected a document with a defined revision scheme, that scheme is displayed here in a read-only format.

**Current Revision in Tool Major** - For existing documents, this field displays the current major revision of the document, as defined in the authoring tool, in a read-only format. For new documents, this field is empty.

**Current Revision in Tool Minor** - For existing documents, this field displays the current minor revision of the document, as defined in the authoring tool, in a read-only format. If the revision scheme does not use minor revision, or if the selected document has not yet been revised, this field is empty.

## Important

• If you do not use the **Minor** field when revising a document for the first time, the minor revision option will never be available for that document for future revisions.

**Revise in Tool Major** - From this list box, choose the next available major revision number for the document to revise it locally, without publishing the new information. If you do not want to revise the document at this time, in other words, if you want to reserve revisions numbers without revising the document, leave this field empty.

**Revise in Tool Minor** - From this list box, choose the next available minor revision number for the document to revise it locally, without publishing the new information. If you do not want to revise the document at this time, in other words, if you want to reserve revisions numbers without revising the document, leave this field empty. If minor revisions are not supported for the document, no options are available in this list.

**Reserve Revisions in Foundation Count** - For a new document, specify the quantity of revision numbers you want to reserve for the active project or plant. For an existing document, the value displayed in this field indicates the quantity of reserved revision numbers unused and still available. In this case, you can reserve more revision numbers by increasing the value displayed in this field.

# Note

When you reserve revision numbers, you do so at the level of the plant or
the active project in which you are working. Numbers reserved at the plant
level are not available for use within any project, and numbers reserved at
the project level are available only to the project from which they were
reserved.

**Reserve Revisions in Foundation Starting Major** - Indicates the next major revision number available to be reserved. For example, if the current version of the document is B and three revision number have been reserved for that document in all the projects and not yet used, this value displayed in this field is F. For a new document that has not yet been revised and for which no revision numbers have been reserved, the default value is the first major revision of the defined revision scheme.

Reserve Revisions in Foundation Starting Minor - For new documents that have not been revised, and for which no revisions have been reserved, this list box contains two options. The first option is the first minor revision of the first major revision in the defined revision scheme. Choosing this option allows for minor revisions to the document now and in the future. The other option is the leave this field empty, which indicates that minor revisions are not now, and will never be, supported for this document.

## **Note**

 Version numbers that have been reserved are listed for the document and assigned a status of Reserved. Only versions that have been published have a status of Working.

#### **Related Topics**

• Revise Command, page 216

# Revise a Document

You can revise drawings, reports, and 3D Model Data documents if you have registered your plant using the SmartPlant Registration Wizard. For more information about using the SmartPlant Registration Wizard, see the *Project Management User's Guide* under **Help > Printable Guides**.

1. Right-click a document, and select **Revise**. The **Revise** dialog box appears.



- You can also multi-select documents in the **Detail View**, or select a folder in the **Management Console** hierarchy to select all documents within the folder if they all have the same revision level.
- If the **Revise** command is not available on the shortcut menu, check the properties on the document. Right-click the document and select **Properties**. Go to the **WBS** tab and make sure you have a **Document type** and **Discipline** set for the document. For more information, see *Set Properties for Publishing Documents*, page 139.
- 2. For a new document or a document that does not yet have a defined revision scheme, select the revision scheme you want to use from the **Revision Scheme** list. If the selected document already has a defined revision scheme, this field is read-only.

3. In the **Revise in Tool** section, select the next available major and minor revision numbers.



- Any revision numbers that have been reserved by another project are
  not available and are skipped in the revision scheme, if applicable. For
  example, if the current version of the document is B and three revision
  numbers are shown as available for the document in all projects, the
  value displayed in this field is F.
- 4. In the **Count** field, choose the number of revisions you want to reserve for the active project.

# **?** Tips

- Any revision numbers you reserve are available only to the project from which you reserve them. You can also reserve numbers at the plant level; these numbers are not available to any projects, only to the plant.
- If revision numbers are currently reserved for this project, the number
  of remaining, unused revision numbers is displayed in this field. For
  example, if a user previously reserved five revision numbers for this
  document for the active project and two have been used, the value in
  this field will be "3".
- You can reserve additional numbers by adding to the value in this field. Using the example from the previous item, if you want to reserve an additional four revision numbers, choose "7" in the **Count** field.
- The Starting Major and Starting Minor fields in the Reserve Revisions in Foundation section display the first revision number available to be reserved. If no reservations have been made, these fields are empty.
- 5. Click **OK**. The document is saved to the model database. The command creates a revision record by adding it to the document Revision properties. The command also reserves the revision number.
- 6. Right-click the document and select **Properties**.
- 7. Go to the **Revision** tab and edit the values in the new revision row.
- 8. Update the document to update any document property title block information. For more information, see *Updating Documents: An Overview*, page 141.
- 9. Re-publish the document. The stored document is not updated until you publish it.

- Publishing Title Blocks: An Overview, page 225
- Revise Command, page 216
- Revising: An Overview, page 215

# **Reserve Revision Numbers**

You can reserve revision numbers for drawings, reports, and 3D Model Data documents if you have registered your plant using the SmartPlant Registration Wizard. For more information about using the SmartPlant Registration Wizard, see the *Project Management User's Guide* under **Help > Printable Guides**.

1. Right-click a document, and select **Revise**. The **Revise** dialog box appears.

## **?** Tips

- You can also multi-select documents in the **Detail View**, or select a folder in the **Management Console** hierarchy to select all documents within the folder if they all have the same revision level.
- If the Revise command is not available on the shortcut menu, check
  the properties on the document. Right-click the document and select
  Properties. Go to the WBS tab and make sure you have a Document
  type and Discipline set for the document. For more information, see
  Set Properties for Publishing Documents, page 139.
- 2. For a new document or a document that does not yet have a defined revision scheme, select the revision scheme you want to use from the **Revision Scheme** list. If the selected document already has a defined revision scheme, this field is read-only.
- 3. In the **Count** field, select the number of revisions you want to reserve for the active project.

# **→** Tip

- Any revision numbers you reserve are available only to the active project. You can also reserve numbers at the plant level. Project numbers are only available at the project level; plant numbers are only available at plant level.
- 4. If a value is shown in the field, it is the number of remaining, unused reserved numbers for this document in the active project. You can change the value if you need additional reserved numbers.

# → Tip

• If the **Starting Major** and **Starting Minor** fields are blank, no reservations have been made previously.

## 5. Click **OK**.

# **Note**

• You must revise the document at least once in order to publish it. A message appears if the document is not revised.

- Revise Command, page 216
- Revising: An Overview, page 215

# **Publishing Documents: An Overview**

When you work in an integrated environment with SmartPlant Enterprise, you must publish documents containing the drawing data and relationships before other authoring tools can share this information. You can publish your documents within the Drawings and Reports task.

Before you can publish documents in the software, you install the SmartPlant Client and the SmartPlant Schema Component, then register the plant using the SmartPlant Registration Wizard. For more information about configuration, see the *SmartPlant 3D Installation Guide*, available from the **Help > Printable Guides** command.

In a 3D task, you can use the **SmartPlant > Retrieve** command to create and update the Design Basis objects. For more information, see the *Common User's Guide*, available from the **Help > Printable Guides** command.

The **Publish** command is available for the following document types:

- 3D Model Data (SmartPlant Review file type)
- 3D Cable Data (SmartPlant Review file type)
- Orthographic Drawings (viewable file with links to data)
- Piping Isometric Drawings (viewable file with links to data)
- Reports (viewable file with links to data)

## **Notes**

- The viewable files created when you publish drawings and reports provide relationship links to the 3D Model Data. You must also publish the 3D Model Data to provide the navigation between the viewable files and the 3D Model Data.
- For a list of common tasks related to publishing, see *Publish Common Tasks*, page 227.
- If the drawing document you are looking at in the **Detail View** has a yellow icon (for example: ✓), the drawing document is a version 6.1 legacy Snapshot drawing. You should use the **Tools > Convert Legacy Snapshots** command to convert this document to a Composed Drawing for use in the current version of the software. If you do not convert the legacy snapshot drawing, you cannot perform edit operations on the drawing, including update, revise, and publish.

When you publish documents, the software:

- Publishes a visual representation of the document that you can view without SmartPlant 3D. For drawings, this is an Intergraph proprietary file, called a RAD file (.sha). For reports, the viewable file is a Microsoft Excel workbook. You can review and mark up the visual representation of the document using SmartPlant Markup or SmartSketch.
- Places the published XML file and any viewable files in the appropriate SmartPlant Foundation vault. This XML file can be retrieved when users are in other authoring tools.

SmartPlant 3D receives notification when the publish is complete. The software stores the XML file in the appropriate location and loads the data into the database. The XML file can then be retrieved as published data by other tools, such as SmartPlant Electrical.

#### Reasons to Publish

You publish documents and associated data for several reasons:

- Exchanging of data with other tools
- Sharing common data between tools
- Providing enterprise-wide accessibility to published documents
- Managing change, including workflow history, document revisions, and title block information.

#### **Revisions and Versions of Published Documents**

The first time you publish a document, the software creates a new document master and the first revision. A revision (major) is an officially recognized change to a document. A version (minor) is an intermediate update that you have published. Revisions can be published for sharing or they can go through an approval process, depending on your needs. Each revisions of a document can have multiple versions. For more information on revisions, see *Revising: An Overview*, page 215.

You can also include revision information within the title block of a drawing by placing drawing property labels within the drawing template.

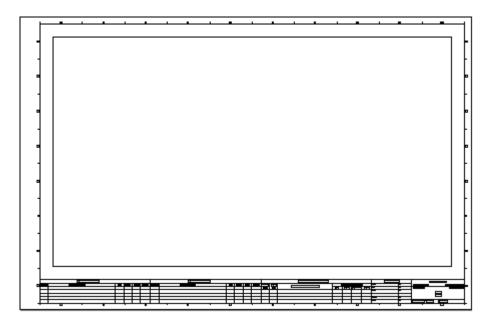
#### Note

• When you publish data from any authoring tool, you may not be able to view all the properties that you published in the SmartPlant Client. You can customize view definitions to allow you to see additional properties. For more information on defining view definitions in the SmartPlant schema, see the *SmartPlant Schema Editor User's Guide*. For further assistance with viewing data, contact Intergraph Support Services. You can find support information on our web site <a href="http://support.intergraph.com">http://support.intergraph.com</a>.

- Final Publish Command, page 241
- Publish Documents, page 234
- Publishing Title Blocks: An Overview, page 225

# Publishing Title Blocks: An Overview

The title block is generally displayed at the bottom of a drawing template. It can include signatures, revision and issue information, and other properties associated with the drawing.



You add drawing properties, such as revision information or issue requests, to the title block using the Place Drawing Property Label command when editing a template.

When you update the revision information or receive an issue request on a drawing document, the associated properties must be updated. You update the drawing document to incorporate the property changes for any drawing property labels included in the title block.

After you update the drawing document, you can re-publish it and the appropriate title block information is recorded in SmartPlant Foundation. Publishing your drawing document helps you manage the changes, including workflow history, document revisions, and title block information.

The general workflow for including information in the drawing title block is:

- 1. Edit a template and include drawing property labels for revision or issue request *Place a Drawing Property Label on a Template*, page 198.
- 2. Create drawing documents using the template.

- 3. Publish the drawings *Publish Documents*, page 234.
- 4. Revise the drawing document or receive an issue request from SmartPlant Foundation *Revise a Document*, page 218 or *Issue Request Documents*, page 235.
- 5. Update the drawing documents to include the new revision, issue, or other drawing property information in the title block.

- Delivered Drawing Types: An Overview, page 202
- Publishing Documents: An Overview, page 222
- Updating Documents: An Overview, page 141

# **Publish Common Tasks**

The following tasks are used to publish documents. If the documents are drawings or reports, the **Publish** command publishes a viewable file with links to the data. If publishing a 3D Model Data document, the software creates a SmartPlant Review file and publishes it.

#### Note

• The viewable files created when you publish drawings and reports provide relationship links to the 3D Model Data. You must also publish the 3D Model Data to provide the navigation between the viewable files and the 3D Model Data.

#### **Setting Properties for Publishing**

To use the **Publish** command, you just set certain properties on your documents. For more information, see *Set Properties for Publishing Documents*, page 139.

## **Creating and Reserving Revision Numbers**

You should create your documents by right-clicking them and selecting **Create Document(s)**. Once they are created, if you require revision numbers for the documents, use the **Revise** command to reserve the revision numbers. For more information, see *Revising: An Overview*, page 215.

## **Update the Drawings**

Update the drawings, right-click the component and select the appropriate Update command. For more information, see *Updating Documents: An Overview*, page 141.

#### **Publish Data**

If you have registered your plant using the SmartPlant Registration Wizard, you can publish your 3D Model data for retrieval and use in other tools. For more information, see *Publish Documents*, page 234. You can also use the **SmartPlant > Find Documents to Publish** command to generate a list of documents that need to be published. For more information, see *Find Documents to Publish Command*, page 237.

#### **Issue Request Documents**

You can also use the **Publish** command to issue a contract request for documents. For more information, see *Issue Request Documents*, page 235.

## **Performing a Final Publish**

You can perform a **Final Publish** when the active project has a **Merged with As-Built** status. For more information, see *Perform a Final Publish*, page 241.

### **Related Topics**

• Piping Isometric Drawings by Query Common Tasks, page 26

# **Publish Command**

Publishes the information in the selected documents. You can access the **Publish Documents** command by right-clicking a component or document.

The **Publish** command is available for the following types of documents:

- 3D Model Data (SmartPlant Review file type)
- Orthographic Drawings, including Volume and Composed drawings (viewable file with links to data)
- Piping Isometric Drawings (viewable file with links to data)
- Reports (viewable Microsoft Excel workbook file with links to data)

## Note

• The viewable files created when you publish drawings and reports provide relationship links to the 3D Model Data. You must also publish the 3D Model Data to provide the navigation between the viewable files and the 3D Model Data.

You must define the **Discipline** and **Document Type** properties to enable publishing for the documents. For more information see *Set Properties for Publishing Documents*, page 139.

You may also want to specify documents to be revised, not published, or reserve revision numbers. For more information, see *Revising: An Overview*, page 215.

To generate a list of documents that need to be published, you can use the **SmartPlant > Find Documents to Publish** command. For more information, see *Find Documents to Publish Command*, page 237.

#### **Related Topics**

- Publish Common Tasks, page 227
- Publish Documents, page 234
- Publishing Documents: An Overview, page 222
- Publishing Title Blocks: An Overview, page 225

# **Publish Dialog Box**

Provides a list of documents selected to publish.

- Document Properties Dialog Box, page 233
- Publish Command, page 229
- Publish Documents, page 234

# Publish Tab (Publish Dialog Box)

Displays properties of the selected document or documents. If only one document is selected in the tree view, the properties displayed on this tab are the properties of that one document. If multiple documents are selected, only the properties with the same value for all documents appear. Any properties with varying values across the documents appear with blank values in these fields.

You can change some of the values assigned to one or more documents by changing the value displayed in the table. The value you enter here overrides any existing values for all selected documents.

**Selected documents** - Displays a list of the documents selected for publishing. You must populate this list by selecting documents in the **Management Console** or **Detail View** before you use the **Publish** command. For each document, this list displays the name, the type of document, the workflow from which the document was last published, the revision and version numbers, the revision scheme, and the date when the document was last published.

**Engineering Tool** - Opens a dialog box to select documents to add to the **Selected documents** list. This functionality is not available in the current release.

**File System** - Opens a standard Microsoft dialog box that allows you to select documents to add to the **Selected documents** list. When you select a file with this **Select File** dialog box, the **Document Properties** dialog box appears, allowing you to specify information about the file, such as whether it is a new file; the category, type, and subtype of the document; and the name, description, and title of the document.

**Find** - Opens the **Find Documents to Publish** dialog box, which allows you to search for documents to add to the **Selected documents** list. For more information, see *Find Documents to Publish Dialog Box*, page 238.

**Last Published** - Indicates the date on which the document or documents were last published.

Name - Displays the name of the document.

**Source** - Indicates the authoring tool in which the document was created.

**Type** - Displays the type of document or documents selected.

**Issue Only** - Allows you to issue request documents without, necessarily, republishing them. Use this option when no changes were made to a drawing, and you only want to add it to a contract.

## **?** Tips

- Even with this option set, you can still publish the documents. If any of the documents have never been published, they must be published, regardless of this setting.
- You will receive an error message if you select multiple documents and activate this option when one or more of the selected documents cannot be changed. For example, the error message appears if the selected set of documents includes both a new document (for which this field can be set only to No) and current or frozen documents (for which this field can be set only to Yes). The error message prompts you to select a smaller set of documents.

**Revision** - Displays the current revision number of the selected document or documents.

## 💡 Tip

• You will receive an error message if you attempt to change the value in this field when you have selected one or more documents that have conflicting revision schemes or different possible revisions. The error message prompts you to select a smaller set of documents.

**Revision Scheme** - Displays the revision scheme applied to the selected document or documents.



You will receive an error message indicating that this field cannot be
edited if one or more of the documents you have selected are not new or
will have a revision scheme supplied by the authoring tool. The error
message prompts you to select a smaller set of documents.

**Version** - Indicates the current version of the document or documents.

**Workflow** - Indicates the workflow to which the selected document or documents are assigned.

# 💡 Tip

You will receive an error message indicating that this field cannot be
edited if one or more of the documents you have selected have conflicting
sets of possible workflows. The error message prompts you to select a
smaller set of documents.

Check and publish released claims for previously deleted items - Specifies that you want to resolve issues where deleted items were restored from an earlier version and the claim on them was released. This check takes additional time and should only be used when deleted items have been restored. This option is not supported in SmartPlant 3D in this release.

# 💡 Tip

This check box should also be activated when publishing after a backup is
restored or when releasing the claim on an object forces another tool to
release the claim on a related object that was previously deleted. In this
specific case, the tool fetches the object from As-Built again and releases
the claim.

**Operation** - Specifies the operation to perform on the selected documents.

- **Publish now** Selected documents are published immediately.
- **Background publish** Selected documents are published immediately as a separate process, allowing you to perform other tasks at the same time.
- Scheduled publish Selected documents are published in the batch mode by the authoring tool. This option is available only for tools that support batch mode and are processed by the authoring tool, not the SmartPlant Client. The documents are not published immediately. Instead, the selected documents are scheduled for publish at a later time and maybe be scheduled as a recurring operation. This option is not supported in SmartPlant 3D in this release.

**Custom** - If applicable, opens the **Custom** dialog box. This functionality is available only if defined by your project implementation team.

#### **Related Topics**

- Document Properties Dialog Box, page 233
- Find Documents to Publish Dialog Box, page 238
- Publish Command, page 229
- Publish Documents, page 234

# Issue Request Tab (Publish Dialog Box)

Displays the documents associated with a specific issue request and allows you to add documents to or remove documents from a request.

**Selected documents** - Displays a list of the documents selected for publishing. You must populate this list by selecting documents in the **Management Console** or **Detail View** before you use the **Publish** command. For each document, this list displays the name, the type of document, the workflow from which the document was last published, the revision and version numbers, the revision scheme, and the date when the document was last published.

**Engineering Tool** - Opens a dialog box to select documents to add to the **Selected documents** list. This option is not supported in SmartPlant 3D in this release.

**File System** - Opens a standard Microsoft dialog box that allows you to select documents to add to the **Selected documents** list. When you select a file with this **Select File** dialog box, the **Document Properties** dialog box appears, allowing you to specify information about the file, such as whether it is a new file; the category, type, and subtype of the document; and the name, description, and title of the document.

**Find** - Opens the **Find Documents to Publish** dialog box, which allows you to search for documents to add to the **Selected documents** list.

**Issue to** - Contains a list of all objects (contracts) that can support issue requests. When you select an item from this list, the names of any documents associated with that object appear in the table.

**Add** - Creates a new item in the table for any documents highlighted in the **Selected documents** tree view.

**Remove** - Deletes a selected document from the table.

**Document Name** - Displays the names of all documents associated with the object in the **Issue to** field.

#### **Related Topics**

- Document Properties Dialog Box, page 233
- Publish Command, page 229
- Publish Documents, page 234

# **Document Properties Dialog Box**

Provides details about a new or existing document selected for publishing. You can access this dialog box using the following procedure:

- 1. Click **File System** on the **Publish** dialog box. A Microsoft standard **Select File** dialog box appears.
- 2. Select a file to display the **Document Properties** dialog box and specify information about the file.



• An asterisk (\*) next to a field indicates that the field must be completed before the **OK** button will be enabled.

**Selected file** - Displays the name of the file you selected on the **Select File** dialog box.

**New document** - Indicates that this document has not previously been published.

**Published previously** - Indicates that the file has already been published at least once before.

**Document category** - Select a category to which to assign the document.

**Document type** - Select the type of the document. The options that appear in this list are determined by the selection you make in the **Document category** field.

**Document subtype** - If applicable, select the subtype for the document. The options that appear in this list are determined by the selection you make in the **Document type** field.

Name - Enter the name of the file as it will be known in the integrated environment.

**Descriptions** - Enter a brief description of the file. This description appears later to help you recognize the file.

**Title** - Enter the official title of the document.

#### **Related Topics**

• Publish Dialog Box, page 229

# **Publish Documents**

Before you can publish documents, you must ensure that your computer is configured properly. The configuration includes installing the SmartPlant Client and the SmartPlant Schema Component and registering the plant through the SmartPlant Registration Wizard. For more information, see the *SmartPlant 3D Installation Guide* available from the **Help > Printable Guides** command in the software.

You must use the **SmartPlant > Retrieve** command in one of the 3D tasks to import published data.



- The **SmartPlant** menu is not available in all tasks.
- 1. Right-click a component, and select **Publish**. The **Publish** dialog box appears.

Note

- If the **Publish** command is not available on the shortcut menu for the component or document, check the document properties and make sure the documents are up-to-date. For more information, see *Set Properties for Publishing Documents*, page 139.
- 2. Edit information as necessary for the selected documents.

When multiple documents are selected, only property values shared by all the selected documents appear in the table. Changing a value in the table changes that value for all of the selected documents.

3. Select **Publish now** to publish the selected documents immediately or **Background publish** to publish as a separate process so you can continue working in SmartPlant 3D.

#### Note

- The **Scheduled publish** option is not supported.
- 4. Click **OK** to publish the selected documents. For more information, see *Publishing Documents: An Overview*, page 222.

## **Notes**

- You can verify the publishing process by starting the SmartPlant Client on your computer and searching for the published document.
- When the publish is complete, the following message displays:
   Documents have been published successfully. If the View Log button is enabled, messages are available concerning the operation. These messages include errors, warning, and informational messages. Click View Log to review these messages.

#### **Related Topics**

- Issue Request Documents, page 235
- Publish Command, page 229
- Publish Dialog Box, page 229
- Publishing Documents: An Overview, page 222
- Publishing Title Blocks: An Overview, page 225

# **Issue Request Documents**

Before you can publish documents, you must ensure that your computer is configured properly. The configuration includes installing the SmartPlant Client and the SmartPlant Schema Component and registering the plant with the SmartPlant Registration Wizard. For more information, see the *SmartPlant 3D Installation Guide* available from the **Help > Printable Guides** command in the software. For more information on the steps involving the SmartPlant Foundation Desktop Client, see the *SmartPlant Foundation Desktop Client User's Guide* 

You must use the **SmartPlant > Retrieve** command in the Common task to import published data.

1. Right-click a component, and select **Publish**. The **Publish** dialog box appears.

## Note

• If the **Publish** command is not available on the shortcut menu for the component or document, check the document properties and make sure the documents are up-to-date. For more information, see *Set Properties for Publishing Documents*, page 139.

- 2. Click the **Issue Request** tab.
- 3. In the **Issue to** field, select the contract that you want to assign the document or documents.
- 4. Under **Selected documents**, select the documents that you want to associate with the specified contract.
- 5. Click Add to add the documents to the Issue Request list. To remove documents from the list, select them and click Remove. Click Engineering Tools to add documents from engineering tools, such as P&IDs or PFDs. Click File System to add documents from another file system, such as Microsoft Word documents or Microsoft Excel workbooks.
- 6. Click **OK** to issue the contract request for the selected documents.
- 7. Start SmartPlant Foundation Desktop Client on your computer and search for the published document to verify the publishing process.
- 8. Right-click the document in the Desktop Client tree view, and select **Refresh**.
- 9. Return to the Drawings and Reports task and update the document to incorporate the new Issue information. For more information, see *Updating Documents: An Overview*, page 141.
- 10. Review the Issue properties. Right-click the document and select **Properties**. Select the **Issue** tab to see the Issue information. You can also open the document to see the Issue information in the title block if you added it.
- 11. Publish the document with the updated Issue information. For more information, see *Publishing Documents: An Overview*, page 222.

# **Notes**

- Only updated documents can be published.
- You can verify the publishing process by starting the SmartPlant Client on your computer and searching for the published document.

- Publish Command, page 229
- Publish Documents, page 234
- Publishing Documents: An Overview, page 222
- Publishing Title Blocks: An Overview, page 225

# Find Documents to Publish Command

Generates a list of documents that either have not been published or have been modified and need to be published again or have been deleted since the last publish. The command is found on the **SmartPlant** menu in the Drawings and Reports task.



This command can also be accessed from using the Find button on the Publish tab of the Publish dialog box. For more information, see Publish Tab (Publish Dialog Box), page 230.

Documents must be up-to-date and the required **Discipline** property must be defined in order for the documents to be available for publishing. An error message displays if one or more of the documents found by the **Find Documents to Publish** command do not meet this criteria. All items matching the publish criteria continue through the process. For more information on setting the appropriate properties, see *Set Properties for Publishing Documents*, page 139. For more information on updating documents, see *Updating Documents: An Overview*, page 141.

The **SmartPlant > Find Documents to Publish** command looks for the following:

- Documents created but never published
- Documents modified since their last publish
- Documents deleted after being published

The command looks for documents that need to be republished in the active WBS project. For example, if **Project A** is the active project, the **Find Documents to Publish** command looks for documents in **Project A** only. You set the active WBS project in the **Active Project** box on the main toolbar. For more information, see *Managing Projects: An Overview*, page 240.

Find Documents to Publish Dialog Box

- Find Documents to Publish Dialog Box, page 238
- Find Documents to Publish, page 239
- Publishing Documents: An Overview, page 222

# Find Documents to Publish Dialog Box

Allows you to search for documents that have been updated since they were last published. Additionally, you can use this dialog box to terminate documents that were previously published but no longer exist in the authoring tool. You can access the **Find Documents to Publish** dialog in two ways:

- Select SmartPlant > Find Documents to Publish
- Click **Find** on the **Publish** command dialog box.

**Last search performed** - Displays the date when the files were last searched. The information appearing in the lists on this dialog box was found on this specified date and time. This option is not available in the current release.

**Update** - Displays the Update dialog box, which allows you to define new search criteria for finding documents to publish. This option is not available in the current release.

**Document types searched** - Indicates what types of files were considered when the last search was conducted.

**Select documents to publish** - Displays a list of files that were either updated since they were last published or files that have not yet been published. For each file, this list displays the file name and type, and the date on which the document was last published. If the file has not been published, the **Last Published** field for the document is **New**.

**Select documents to terminate** - Displays a list of all the files that were previously published, but have since been removed from the project. For each file, this list box displays the file name and type, and the date on which the document was last published.

**Select All** - Selects all the files in the associated list of documents.

**Clear All** - Clears any selected documents in the associated list.

- Find Documents to Publish Command, page 237
- Find Documents to Publish, page 239
- Publish Tab (Publish Dialog Box), page 230
- Publishing Documents: An Overview, page 222

# Find Documents to Publish

Documents must be up-to-date and the required **Discipline** property must be defined in order for the documents to be available for publishing. An error message displays if one or more of the documents found by the **Find Documents to Publish** command do not meet this criteria. For more information on setting the appropriate properties, see *Set Properties for Publishing Documents*, page 139. For more information on updating documents, see *Updating Documents: An Overview*, page 141.

1. From Drawings and Reports task, click **SmartPlant > Find Documents to Publish**.

## **Tips**

- This command is available only if you have registered the active plant using the SmartPlant Registration Wizard.
- This feature is also available by clicking the **Find** button on the **Publish** dialog box.
- The **Find Documents to Publish** command determines which documents need to be published or re-published and displays the results of the search in the **Find Documents to Publish** dialog box.
- 2. From the **Select documents to publish** list, check the boxes corresponding to the documents you want to publish.

# **→** Tip

- You can quickly select the entire list by clicking **Select All**, or you can clear the entire list by clicking **Clear All**.
- 3. Click **OK** to accept the selections. The documents selected for publishing now appear in the **Documents to Publish** list on the **Publish** dialog box and can be saved by publishing the documents. For more information, see *Publish Documents*, page 234.

- Find Documents to Publish Command, page 237
- Find Documents to Publish Dialog Box, page 238

# Managing Projects: An Overview

The Work Breakdown Structure (WBS) project is shown in the dropdown at the upper left-hand corner of the Drawings and Reports task window, next to the **Permission Group** dropdown. It shows the current active project.



In the Common task, you can create new WBS items and projects or edit existing ones. For more information, see the *Common User's Guide*.

In the Drawings and Reports task, you use projects in conjunction with publishing. The active project must be set before using the **Find Documents to Publish** and **Final Publish** commands on the **SmartPlant** menu. For more information, see *Final Publish Command*, page 241.

#### **Related Topics**

- Publishing Documents: An Overview, page 222
- Select Active Project Dialog Box, page 240

# **Select Active Project Dialog Box**

Specifies the active project. You can access the **Select Active Project** dialog box by clicking **More** in the **Active Project** box on the main toolbar. You define whether you want to look in the local **Workspace** or in the **Database** for the project by selecting the options at the top of the dialog box. The project hierarchy updates with the selection of the option.

#### **Related Topics**

• Managing Projects: An Overview, page 240

# **Final Publish Command**

Performs a final publish for all previously published documents for the active project. The **Final Publish** command is enabled only when the SmartPlant 3D project status is **Merged**. For more information on setting the project status, see the *Project Management User's Guide* in **Help > Printable Guide**.

#### Before running the **Final Publish** command:

- Delete all project documents that are not necessary before performing a Final Publish. All remaining documents are republished as part of the Final Publish operation.
- 2. Select the **Blank Project** for all project documents. This property is on the **WBS** tab of the **Properties** dialog box. For more information, see *Properties Dialog Box*, page 127.
- 3. After clearing the **Project Name** property, update the documents. For more information, see *Updating Documents: An Overview*, page 141.

For a complete list of the steps involved in **Final Publish**, see *Perform a Final Publish*, page 241.

#### **Related Topics**

- Managing Projects: An Overview, page 240
- Publish Common Tasks, page 227
- Publishing Documents: An Overview, page 222

# Perform a Final Publish

**Final Publish** is a task that is performed generally by the Project Leader because part of the workflow is performed within the Project Management task. For additional information on performing this task, see the *Project Management User's Guide* accessed under **Help > Printable Guides**.

- In the Project Management task, click Merge with As-Built on the Update
   Project Status dialog box. This changes the Work Breakdown Structure (WBS)
   assignments for all of the objects to As-Built. The project status changes to
   Merged.
- 2. Go to the Drawings and Reports task.
- 3. Delete any documents that you do not want to include in the **Final Publish**.

4. Right-click the document or folder and select **Properties**. Select the **WBS** tab. Select the **Blank Project** for all project documents. For more information, see *Properties Dialog Box*, page 127.

## 💡 Tip

- To clear the **Project Name** property for all the documents in a folder, right-click the folder and select **Properties**.
- You can also multi-select documents in the **Detail View**, then right-click and select **Properties** to clear the **Project Name** property.
- 5. Update the documents. Right-click the document or folder and select **Update**. For more information, see *Updating Documents: An Overview*, page 141.
- 6. Set the WBS project in the **Active Project** dropdown on the main toolbar. For more information, see *Managing Projects: An Overview*, page 240.
- 7. Select **SmartPlant > Final Publish**. A dialog box displays the command progress.



- The **Final Publish** command is enabled only when the SmartPlant 3D project status is **Merged**.
- 8. When **Final Publish** is complete, you can return to the Project Management task and set the project status to **Finished**.

- Final Publish Command, page 241
- Publish Common Tasks, page 227
- Publishing Documents: An Overview, page 222

# Appendix: Troubleshooting Drawings and Reports

Log files are used to review activities and errors that occur when working with documents.

## **Volume and Composed Drawings**

Two different types of drawings error logs exist: a general Drawings Error Log and error logs for each drawing sheet when generated.

The error logs reside in the following locations.

- The general Drawings Error log (Drawings.log) resides at the location specified in your Temp environment variable. For example, the path to the log might be C:\Documents and Settings\login name\Local Settings\Temp. To view your environment variable, click Start > Settings > Control Panel. Then, double-click System. On the Advanced tab, click Environment Variables.
- The error logs for the generated drawing sheets reside on the Symbols share on the SmartPlant 3D server computer. For example, the path is [Product Directory]\CatalogData\Symbols\Drawings\plant\_name\...\component\_name\Logs\DrawingNumber1.log, DrawingNumber2.log, and so forth.

#### **Isometric Drawings**

Log files for isometric drawings generated in this task reside on the Symbols share on the SmartPlant 3D server. For example, the path is [Product Directory]\CatalogData\Symbols\Drawings\plant\_name\...\component\_name\piping\_ systems. You can view a message file (.mes), a piping component file (.pcf), and log files for the batch process.

#### Reports

The log file for reports (SP3DReports.log) resides at the location specified in your Temp environment variable. For example, the path to the log might be C:\Documents and Settings\login name\Local Settings\Temp.

#### Note

 You can specify the settings for drawings error logging by toggling switches in the registry. For more information, contact Intergraph Support Services. You can find support information on our web site <a href="http://support.intergraph.com">http://support.intergraph.com</a>.

- Drawings and Reports: An Overview, page 22
- Troubleshooting Linked Servers: An Overview, page 245

# Troubleshooting Linked Servers: An Overview

If your Site/Catalog/Plant database server is different from your Reports database server, you can use linked servers for communication between the data sources. However, if linked servers are not configured correctly, the login may fail when you run queries against a linked server.

For linked servers to work correctly, the following must be true:

- The database link must be created on the Site/Catalog/Plant database server, not the Reports database server.
- The linked server must support Windows Authentication Mode.
- A user must be connected to SQL Server using Windows Authentication Mode on both servers.
- Security account delegation must be available on the client and the sending server.

For more information about setting up linked servers, see Microsoft SQL Server documentation.

## **Related Topics**

• Appendix: Troubleshooting Drawings and Reports, page 243

# **Appendix: Isometric Drawing Options**

The isometric drawing options define the drawing output, which includes drawing symbols, dimensions, layers, drawing frame, attributes, material lists, weld lists, and detail sketches. Each isometric drawing style is associated with a set of options. You can specify the options using the **Edit Options** command.

For more information about the ISOGEN options, see the Alias document titled *Option Switches Reference Guide*, available from the **Help > Printable Guides** command.

The following list describes the option folders:

- **Drawing** Defines general options for the isometric drawing style. For more information, see *Drawing General Options: An Overview*, page 250.
- **Drawing Frame** Specifies the content and format of the drawing frame on a drawing. The drawing frame area can include attribute text such as the drawing number and date. For more information, see *Drawing Frame Options: An Overview*, page 299.
- **Supplementary** Provides additional options for input and output files. For more information, see *Supplementary Options: An Overview*, page 308.
- **Material List** Provides options to control the material list report on the isometric drawing. For more information, see *Material List Options: An Overview*, page 327.
- Weld List- Controls the ISOGEN weld list on the isometric drawing and controls the way that ISOGEN counts welds. For more information, see Weld List Options: An Overview, page 366. Options that deal with the representation of welds on the drawing are in the Welds folder under Drawing. A user defined weld list is allowed only with a backing sheet. That is, if an ISOGEN-generated drawing frame is in use, only the fixed layout and variable layout styles are available.
- **Neutral File** Sets options for the material take-off neutral file. For more information, see *Neutral File Options: An Overview*, page 375.
- **Labels** Specifies options for different labels on the isometric drawing. For more information, see *Labels Options: An Overview*, page 382.
- **Symbol Map** Maps part classes and ISOGEN symbol keys. For more information, see *Symbol Mapping (SymbolMAP): An Overview*, page 392.
- Alternative Texts Specifies text on the drawing that is different from the ISOGEN text. You can substitute your own text terminology or language in place of the standard ISOGEN words on the isometric drawing. For more information, see *Alternative Text Options: An Overview*, page 396.

- **Intergraph Alternative Texts** Allows you to modify the values of text strings on isometric drawings. For more information, see *Intergraph Alternative Text Options: An Overview*, page 397.
- **Attribute Map** Maps the ISOGEN properties with user-defined strings. For more information, see *Attribute Mapping: An Overview*, page 398.
- **Comments** Allows you to add information to the isometric style file that is not included in the drawing configuration or definition, such as date created and who created the style or modifications and modification dates. For more information, see *Comments: An Overview*, page 399.

- Edit Options Command, page 48
- Isometric Style Options Browser Dialog Box, page 48

# **Alias Documentation**

The software delivery includes several documents published by Alias, the company that makes ISOGEN. These documents include:

- AText Reference Guide
- Option Switches Reference Guide
- ISOGEN SKEY Definitions

You can open these documents from the **Help > Printable Guides** command in the software.

To learn more about Alias, visit their web site (http://www.alias.ltd.uk).

- Alternative Text Options: An Overview, page 396
- Appendix: Isometric Drawing Options, page 246

# **Graphical Representation of Options**

When specifying options, you might find it helpful to view a picture of how an option changes the isometric drawing output.

For many of the options, you can refer to the Alias document titled *Option Switches Reference Guide*, available from the **Help > Printable Guides** command. You also can visit the <u>Alias web site</u> (http://www.alias.ltd.uk), from which you can download the Alias documentation.

## **Related Topics**

• Alias Documentation, page 248

# **Drawing General Options: An Overview**

Sets general options for the isometric drawing style.

The **Drawing** folder contains the following groups of options:

- **Content** Defines various options about the content of the drawing, such as whether or not to display enclosures and coordinates. For more information, see *Content (Drawing)*, page 252.
- **Controls** Defines various system controls on the isometric drawing. For more information, see *Controls* (*Drawing*), page 256.
- **Dimensions** Controls the dimensions of the different components on the isometric drawing. For more information, see *Dimensions (Drawing)*, page 264.
- **Layers** Changes the default color for layers. For more information, see *Layers* (*Drawing*), page 273.
- **Format** Defines various options about the format of the drawing, including the isometric type and enclosure shapes. For more information, see *Format (Drawing)*, page 275.
- **Welds** Specifies information about welds on the isometric drawing. For more information, see *Welds* (*Drawing*), page 289.
- **Definitions** Customizes line weight, size, and output level of the data on the isometric drawing. For more information, see *Definitions (Drawing)*, page 296.

Property	Value	Description	Option Switch/Attribute
BorderTemplate	.sha file	Specifies the customized border template file (.sha) to use. If this option is undefined, the software uses the default backing sheet template from the Catalog. Click the ellipsis button to display the <b>Open</b> dialog to locate the desired file.	SmartPlant 3D
DrawingClass	Standard System Penetration Trim	Specifies the type of drawing. For Iso_Piperun and Iso_Pipeline isometrics, select the Standard option. For System isometrics, select the System option, and for Penetration Spool isometrics, select the Penetration option.	SmartPlant 3D

Property	Value	Description	Option Switch/Attribute
Visible	True/False	Controls whether the drawing is generated.	21 pos 1, 2

# **Related Topics**

• Appendix: Isometric Drawing Options, page 246

# **Content (Drawing)**

Sets options for the content on isometric drawings.

Property	Value	Description	Option Switch/Attr ibute
BoreOutputUnit	True/F alse	Prints all bores in inches on the isometric drawing.	Intergraph option 43
ChangeManagemen tEnabled	True/F alse	Turns piping isometric change management on and off. When set to <b>True</b> , change management is turned on. By default, this option is set to <b>False</b> . For more information on piping isometric change management, see <i>Using Piping Isometric Change Management: An Overview</i> , page 89. You can also override this style option with the <b>Change Management</b> property on the piping isometric drawing document. For more information, see <i>Style Tab (Properties Dialog Box)</i> , page 132.	SmartPlant 3D
ExcludeContinuatio nParts	True/F alse	Specifies whether continuation parts are excluded from drawing content. If set to True, implied material data - such as gaskets, bolt data, and end continuation data (for example, connection-pipeline equipment) - is omitted from the drawing.  Note  You should only use the  ExcludeContinutationParts option for Spool drawings.	SmartPlant 3D
ExcludeUnconnecte dTap	True/F alse	Specifies whether unconnected taps are excluded from drawing content. If set to True, unconnected taps are excluded.	SmartPlant 3D

Property	Value	Description	Option Switch/Attr ibute
HonorSpoolAtBran	True/F alse	Includes parts of other pipelines at branches in order to maintain spool continuity on the isometric drawing. For more information on using this option, see <i>Control Drawing Content</i> , page 69.  Note  You should generate the spools with the Include Stub-Ins with Header Spool property set to True when using the HonorSpoolAtBranch option. For more information, see the <i>Piping User's Guide</i> , available from Help > Printable Guides.	SmartPlant 3D
InstrumentTagLenL imit	True/F alse	Specifies the number of characters after which the software inserts a line feed in instrument tag numbers for display in an instrument bubble. If you set this value to 1, the software inserts a line feed after the first character. If you set this value to 10, the software replaces the embedded dash within the tag number with a line feed.	SmartPlant 3D
NozzleTagLabel	True/F alse	Uses the system-defined nozzle connection note. The default setting for this option is <b>True</b> for all isometric styles.	SmartPlant 3D
PreserveUserAnnot ation	True/F alse	Preserves user annotation data during re-extraction. The user annotation layer name must be <b>PMFGUSER</b> .	SmartPlant 3D

Property	Value	Description	Option Switch/Attr ibute
RpadItemCode	True/F alse	Specifies whether an item code and material description for reinforcement pads on the material list is generated.	77 pos 3
		If you set this option to <b>True</b> , the software generates an item code and material description for reinforcement pads on the material list, and plots the symbols for reinforcement pads on the drawing. The default setting for this option is <b>False</b> .	
ShowBIP	True/F alse	Shows connection coordinates at breakin points.	5 pos 8
ShowClosedEnd	True/F alse	Shows connection coordinates at closed ends of pipe work.	5 pos 4
ShowCoordAtRefIt em	True/F alse	Shows connection coordinates at reference items. The default setting for this option is <b>False</b> .	66 pos 5
ShowCoordAtSplit Pts	True/F alse	Shows connection coordinates at split points.	66 pos 4
ShowCptFlowArro ws	True/F alse	Shows flow arrows on components.	17 pos 1
ShowCptTags	True/F alse	Shows component tags or names on graphics.	60 pos 1
ShowDrainPosition	True/F alse	Shows connection coordinates at drain positions.	5 pos 6
ShowEquipConn	True/F alse	Shows connection coordinates at equipment connections.	5 pos 2
ShowFlangeRotatio n	True/F alse	Shows flange rotation angles on the drawing.	124 pos 1
ShowMiscPosition	True/F alse	Shows connection coordinates at miscellaneous positions.	5 pos 7
ShowNozzles	True/F alse	Displays dotted nozzles on the isometric drawing.	111 pos 1
ShowOpenEnd	True/F alse	Shows connection coordinates at open ends of pipe work.	5 pos 3
ShowPipeLineCont	True/F alse	Shows coordinates for pipeline continuations.	5 pos 1

Property	Value	Description	Option Switch/Attr ibute
ShowRPads	True/F alse	Controls the automatic generation of an item code and material description on the material list and a plotted shape for the pad on the isometric drawing. The default is <b>False</b> for No generation of Item Code / Material Description and No plotted Pad shape.	77 pos 3
ShowSiteAssembly Table	True/F alse	Controls whether the flange assembly table appears on the isometric drawing or not. The default is <b>False</b> for the Site Assembly Table not to be shown.	79 pos 4
ShowSupports	True/F alse	Shows supports on the drawing.	40 pos 1
ShowTapBrnchCoo rds	True/F alse	Shows coordinates at tapped branches.	122
ShowVentPosition	True/F alse	Shows connection coordinates at vent positions.	5 pos 5
SupportFilter	User- specifi ed filter	Specifies a filter that determines which supports are included in the isometric drawing. If no filter is specified, all associated supports appear on the drawing. Click the ellipsis button in the <b>Value</b> field to display the <b>Select Filter</b> dialog box.	SmartPlant 3D

# **Controls (Drawing)**

Sets options for system controls.

Property	Value	Description	Option Switch/Att ribute
AppendBoltLengt h	True/False	Appends the bolt length to the description in the material list.	SmartPlant 3D
AutoDrawingSpli t	True/False	Invokes automatic splitting of drawings.	7 pos 1
DiagnosticLevel	LOW	Specifies an ISOGEN diagnostic level in the message file.	55 pos 1
	MEDIUM HIGH	LOW: Message file receives program version and plot messages.	
		MEDIUM: Message file receives plot and module run messages.	
		HIGH: Message file receives plot, module run, and ISOPLOT messages.	
DisconnectionMe ssage	True/False	Specifies an IDFGEN-generated diagnostic. <b>True</b> displays a message at locations where an increased tolerance is used to connect pipelines.	55 pos 2

Property	Value	Description	Option Switch/Att ribute
DrawingSize	A0 A1 A2 A3 A4 ANSI A ANSI B ANSI C	Specifies a standard paper size for the drawing.  European Sizes  A0: 841 x 1189 mm  A1: 594 x 841 mm  A2: 420 x 594 mm  A3: 297 x 420 mm  A4: 210 x 297 mm	14 pos 1, 2
	ANSI D ANSI E	ANSI Sizes  A: 8.5" x 11"  B: 11" x 17"  C: 17" x 22"  D: 22" x 34"  E: 34" x 44"	
GenerateImplied Mat IncludePipeSupp	True/False True/False	Generates implied materials, including bolts.  Includes pipe supports in implied	SmartPlant 3D SmartPlant
ort IsoScale	0 or 100 for no scaling change Integer number for scaling	materials.  Controls the finished isometric drawing size.  You can increase or decrease the final plotted isometric size from the size defined by <b>DrawingSize</b> , or <b>CustomHeight</b> and <b>CustomWidth</b> .	3D 32 pos 0

Property	Value	Description	Option Switch/Att ribute
IsometricType	Erection/Of fshore Fabrication Only Flat Spool (Flat) Flat Spool (Parallel) Spool Combined Material Erection Material Fabrication Material Spool Material	Selects the required isometric type.  Combined specifies fabrication, erection, and offshore information.  Erection/Offshore specifies an erection/offshore type isometric drawing. Fabrication Only specifies a fabrication only isometric drawing.  Flat Spool (Flat) specifies individual flat spool isometric drawings (maximum legs flat). Flat Spool (Parallel) specifies individual flat spool isometric drawings (maximum legs parallel). Spool specifies individual spool isometric drawings  As-Built orientation. Combined  Material specifies a material drawing that combines fabrication, erection, and offshore information. Erection  Material specifies an erection material drawing. Fabrication  Material specifies a fabrication material drawing. Spool Material specifies a spool material drawing.	21 pos 1, 2

Property	Value	Description	Option Switch/Att ribute
LinearWeightDen ominator	None Metric	Specifies the units for the linear weight denominator, regardless of the units used for weights.	41 pos 4
	Imperial	None - The linear denominator is the default. For example: LBS/FT when weight is in LBS, and KGS/M when weight is in KGS.	
		Metric - The linear denominator will be in meters. For example: LBS/M when weight is in LBS, and KGS/M when weight is in KGS.	
		Imperial - The linear denominator will be in feet. For example: LBS/FT when weight is in LBS, and KGS/FT when weight is in KGS.	
		You can specify the weight using the <b>Drawing &gt; Controls &gt; WeightOutput</b> option.	
MinAngleOffset	Value in degrees	Controls how the software interprets and acts on small angular deviations detected in the Pipeline Input Data. The value is set to the required angle tolerance in 1/100th of a degree. For example: Use <b>50</b> for a <b>0.5</b> degree cutoff.	115

Property	Value	Description	Option Switch/Att ribute
NoOfDrawings	Value in range 1-99	Specifies the number of drawing sheets required for split control.	7 pos 1, 2
		<b>☑</b> Note	
		This option dictates how many drawing sheets are extracted for a pipeline. Therefore, you should use this option only for special cases for single pipe runs as the setting applies to all the pipelines in a run. To use the NoOfDrawings option, you must set the Drawing.Controls.AutoDrawingSplit option to False.	
NoSymbolMapO K	True/False	Continues to extract the isometric pipeline if the software cannot find the SKEY of a component. Set this option to <b>True</b> to continue extraction of the isometric pipeline and create the drawing with the <i>token</i> SKEY symbol replacement. Set <b>NoSymbolMapOK</b> to <b>False</b> to extract the pipeline data and extraction log that contains information of unmapped symbol components.	Intergraph option 17
NorthDirection	Top Left Top Right Bottom Left	Specifies the direction that the north arrow points on the drawing.	42
	Bottom Right		
OverwritePlotFile	True/False	Overwrites and deletes any plot files existing with the same name.	31 pos 2
PCFOutputOnly	True/False	Specifies that the software creates the Piping Component File (PCF) only.	SmartPlant 3D

Property	Value	Description	Option Switch/Att ribute
PipeLineScale	0 or 100 for default scale  Integer number to increase or decrease the scaling as a percentage	Increases or decreases the scale of the pipeline portion of the isometric drawing only, while leaving all other parts such as the drawing frame, material list, title block and line summary areas un-altered. Using this property, you can re-scale the pipeline picture and all text pointing to it.	34
PipeLineSplitting	Value in range 90-110	Controls the amount of drawing data that triggers a drawing split. This value is a scale factor expressed as a percentage. Setting a value less than 100 causes less of the pipeline to appear on each drawing before automatic splitting occurs, resulting in a less crowded drawing.  This option is intended only for modest modifications of the drawing whitespace. You should specify a value in the range 90-110. If a particular value does not work, gradually adjust the value and reextract the drawing to check the results.  Note  If you set  Drawing.Content.ChangeMa nagementEnabled to True, we recommend you set this option to at least 90 to leave room for growth in the drawing content. You can gradually adjust the value and re-extract the drawing to check the results.	38

Property	Value	Description	Option Switch/Att ribute
PipeNameInCont Messages	True/False	Controls whether the pipeline name is output as part of the drawing continuation message on the isometric drawing.	38 pos 4
PlotFilePath	Path to a folder	Specifies the folder into which drawings are written. Click the browse button at the right side of the cell to display a dialog box and browse for the required directory.	ISOGEN
PostScriptSize	A0	Specifies the PostScript plotter size.	14 pos 3 and 4
	A1	European Sizes	
	A2	A0: 841 x 1189 mm	
	A3	A1: 594 x 841 mm	
	A4	A2: 420 x 594 mm	
	ANSI A	A3: 297 x 420 mm	
	ANSI B	A4: 210 x 297 mm	
	ANSI C	ANSI Sizes	
	ANSI D	A: 8.5" x 11"	
	ANSI E	B: 11" x 17"	
		C: 17" x 22"	
		D: 22" x 34"	
		E: 34" x 44"	
PrintedOutputPag eLen	Integer value	Specifies the number of lines per page on printed output.	63
SetPipeLineDisco nnected	True/False	Specifies an IDFGEN-generated diagnostic. <b>True</b> sets a pipeline to disconnected when an increased tolerance is used to connect pipelines.	55 pos 3

Property	Value	Description	Option Switch/Att ribute
TrueScale	True/False	Adjusts the length of sections of pipe to be proportional to their actual physical length if set to <b>True</b> . When set to <b>False</b> , no adjustment is made.	95 pos 3
Units	Imperial/In ch Bores Metric/Inch Bores Metric/MM Bores	Specifies the unit format for dimensions. The combination MM bore, FT-IN dimensions is invalid.	41 pos 1
ValOpr2ndOrient	True/False	Enables secondary orientation notes for valve operators.	SmartPlant 3D
WeightOutput	True/False	Specifies whether weight information appears on the drawing.	41 pos 5

# **Dimensions (Drawing)**

Sets options for dimension display on the isometric drawing.

The **Drawings Dimensions** folder contains the following groups of options:

• **Column Reference** - Specifies the column references for isometric drawings. For more information, see *Column Reference (Drawing Dimensions)*, page 270.

Property	Value	Description	Option Switch
AddRoundOff	True/False	Controls treatment of dimension round-offs. If you set this option to <b>True</b> , the software adds round-off to the next dimension. If you set it to <b>False</b> , the software does not carry round-off beyond branches.	117
AdditionalAllowances	True/False	Shows additional allowances with pipe dimensions. The default setting for this option is <b>False</b> .	9 pos 5
BranchBoreLimit	Value in range 0-999	Specifies a branch bore limit to suppress dimensions.	81 pos 4, 5, 6
BranchCptLimit	Value in range 0-99	Specifies a branch component count to suppress dimensions.	81 pos 7, 8
CoordOutputBOP	True/False	Generates BOP coordinates at changes in pipeline elevation.	SmartPlant 3D
CoordOutputBends	None Elev at changes Elev and Coords at changes Full	Controls the coordinate display at bends. <b>Full</b> means that a full set of coordinates is printed at bends on the drawing.	66 pos 2

Property	Value	Description	Option Switch
CoordOutputBranches	None  Elev at changes  Elev and Coords at changes  Full	Controls the coordinate display at branch intersections.	66 pos 3
CoordSupports	None Fabrication Erection Offshore All	Shows coordinates at different types of pipe supports.	66 pos 6
CoordType	Arrowed Witness Lines	Controls the output type for supplementary coordinates, that is, coordinates at bends or at branches. You can choose output with arrows or witness lines. This option does not apply to end connection coordinates. It also does not apply when the CoordOutputBends or CoordOutputBranches options are set to Full.	66 pos 1
DoubleUnits	True/False	Shows both imperial and metric units. The default setting for this option is <b>False</b> .	9 pos 7

Property	Value	Description	Option Switch
Format	Composite Support Reference Only Basic Full String	Controls dimension format.  Reference Only means that dimensions are reference only.  Basic means that the dimensions are in basic string format, and Full String means that the dimensions are in full string format.	9 pos 1
FtInTolerance	Value in whole inches	Defines a value below which a ft-in dimension appears in inches.	41 pos 6, 7
Gaskets	None Included Separate	Specifies gasket dimensions. You can choose to not show gasket dimensions, to include the dimension with the component, or to treat the dimension separately.	9 pos 2
ImperialFormat	Standard Dash Space Dash Stacked Dash Stacked	Controls the format of imperial measurements. <b>Standard</b> means ft/in format: 1' 2.3/4". <b>Standard Dash</b> includes a dash: 1'-2 3/4". <b>Space Dash</b> is 1'-2 3/4". <b>Stacked Dash</b> uses stacked fractions and a dash. <b>Stacked</b> uses stacked fractions and no dash.	41 pos 3
Inches	True/False	Uses only inches and no feet, if plotting with imperial units. This option overrides the <b>FtInTolerance</b> option. The default setting for this option is <b>False</b> .	41 pos 6
MetresCoordinates	mm m	Controls the output of coordinates in either mm or M.mm format.	41 pos 2

Property	Value	Description	Option Switch
MetresDimensions	mm m	Controls the output of dimensions in either mm or M.mm format.	41 pos 2
MinOffset	Value in 1/100 millimeter	Specifies a minimum distance to be recognized as real movement. This value is in 1/100 millimeters.	116
NominalSize	True/False	Specifies whether nominal sizes appear at branches or reducers.	41 pos 8
NonLinearValves	True/False	Produces arrowed dimensions for angle, 3-way, and 4-way valve and instrument legs. Otherwise, the software prints a message. The default setting for this option is <b>False</b> .	9 pos 8
Overall	None Across Branches Stop At Branches Valves/Across Branches Valves/Stop At Branches	Defines information about overall dimensions. You can specify (1) no overall dimensions, (2) overall dimensions across branches, (3) overall dimensions that stop at branches, (4) overall dimensions to valve centers and across branches, or (5) overall dimensions to valve centers, stopping at branches.	118 pos 1
SeparatePulledBend	True/False	Plots separate dimensions for the pipe and bend sections of pulled bends. The default setting for this option is <b>False</b> .	9 pos 6
StandOutComposite	Value in range 0-99	Specifies the standout distance for string-composite dimensions.	8

Property	Value	Description	Option Switch
StandOutOverall	Value in range 0-99	Provides overall dimension standout in millimeters.	118 pos 2, 3
StandOutVertical	True/False	Positions the standout dimension vertically, if possible. Otherwise, the software uses normal standout rules. The default setting for this option is <b>False</b> .	8 pos 4
SuppDimAsDim	True/False	Specifies whether support dimensions are on the same side (True) or opposite side (False) as normal dimensions.  When this option is set to False, the software ignores any distance set in the Drawing > Dimensions > SuppStandOut option.	40 pos 2
SuppFormat	None String Overall	Specifies the format for support dimensions. You can choose string format or overall format. Or, you can specify that support dimensions not be shown.	40 pos 1
SuppOptions	All Fabrication Erection Offshore Erection and Offshore	Defines selective support dimensioning. You can specify that (1) all supports are dimensioned, (2) only fabrication supports are dimensioned, (3) only erection supports are dimensioned, (4) only offshore supports are dimensioned, or (5) only erection and offshore supports are dimensioned.	40 pos 5
SuppStandOut	Value in range 0-99	Specifies the support dimension standout. The software ignores this option when the <b>Drawing</b> > <b>Dimensions</b> > <b>SuppDimAsDim</b> option is set to <b>False</b> .	40 pos 3, 4

Property	Value	Description	Option Switch
TapOnCpt	Full None Pipe Only	Specifies the dimensioning for tapped branches on inline items/flanges. <b>Pipe Only</b> means that dimensions display for pipes and pipe type components (elbows, tees, reducers, and so forth) only.	121 pos 1
TapOnPipe	Full None Pipe Only	Specifies the dimensioning for tapped branches on piping.	121 pos 2
USAStyle	True/False	Uses the USA dimensioning style.	9 pos 3
ValveBW	True/False	Displays the dimension to the center of butt weld valves.	80 pos 1
ValveCP	True/False	Displays the dimension to the center of compression valves.	80 pos 2
ValveFL	True/False	Displays the dimension to the center of flanged valves.	
ValveHY	True/False	Displays the dimension to the center of hygienic valves.	80 pos 7
ValveLimit	Value in range 0-999		
ValvePL	True/False	Displays the dimension to the center of plain valves.	80 pos 6
ValveSC	True/False	Displays the dimension to the center of screwed valves.	80 pos 3
ValveSW	True/False	Displays the dimension to the center of socket weld valves.	80 pos 4

Property	Value	Description	Option Switch
VertOption	Normal Suppressed Elevation	Provides information about vertical pipe dimensions.  Normal means that normal vertical pipe dimensions display, with elevations at intersection points when the level changes. Suppressed means that all pipeline dimensions are suppressed and replaced by elevations.  Elevation means that vertical dimensions and elevations display at all normal	119
		dimensioning locations.	

• Appendix: Isometric Drawing Options, page 246

## **Column Reference (Drawing Dimensions)**

Specifies the columns for isometric drawing dimensions.

Name	Value	Description
DimensionType	Prime Skew	Specifies the dimension type as either prime or skewed.

Name	Value	Description
Enable	True/False	Allows placement of reference dimensions from either a structural column or grid line to one item on the isometric drawing. If set to True, the placement occurs.
Enclosure	None Square Ends Round Ends Diamond Ends Circle Double Circle Ellipse	Specifies the type of enclosure to use for the column name or grid callout.
Placement	Start Point 1st Component	Specifies the placement point used for the structural reference.

Name	Value	Description
ReferenceLocation	Column	Specifies
		the
	GridLine	structural
		reference
		location as
		either a
		column on
		the object
		or a
		gridline.
StructureReferenceFilter	Selected Filter	Specifies a
		filter to use
		as the
		structural
		reference
		filter.
		Displays
		the <b>Select</b>
		Filter
		dialog box.

# Layers (Drawing)

Sets the default color for the layer.

The **Layers** folder contains the following groups of options:

• Column - Lists the layers of the isometric drawing and the content for each layer. With the isometric drawing open in the 2D Drawing Editor, you can click **Tools > Display Manager** to see a list of the layers for the isometric drawing. For more information, see *Column (Drawing Layers)*, page 274.

When using layers in a template, keep in mind that the software preserves the **Default** layer and any layer that begins with *User* (for example, a layer named **UserAnnotationLayer**) when you update drawings. Manual markups on other layers are not preserved.

Property	Value	Option Switch/ Attribute
DefaultColour	Identifies an integer value that corresponds to a color. This color is the default color for all layers, if a color is not set explicitly.	ISOGEN

#### **Related Topics**

## Column (Drawing Layers)

Lists the layers of the isometric drawing and the content for each layer. With the isometric drawing open in the 2D Drawing Editor, you can click **Tools > Display Manager** to see a list of the layers for the isometric drawing.

When using layers in a template, keep in mind that the software preserves the **Default** layer and any layer that begins with *User* (for example, a layer named **UserAnnotationLayer**) when you update drawings. Manual markups on other layers are not preserved.

Layer Number	Name	LayerColour
Identifies an integer number for the layer.	Specifies a name that describes the content of the layer. For example, delivered layers include PIPE, FITTINGS, DIMTEXT, DIMLINES, MATLIST, and others.	Specifies the optional color integer number to override the default color.

#### **Related Topics**

# Format (Drawing)

Sets options for the isometric drawing format, including text size and skew dimensions.

Property	Value	Description	Option Switch
AdditionalEnclosureS tyle	None Type 1 Square Type 1 Round Type 1 Diamond Type 2 (as PartNoStyle) Type 3 Weld Enclosure	Specifies the style for part number enclosures.	73 pos 5, 76 pos 1
AngleStyle	None All except 90/180 degree All	Controls the output of angle information for bends and elbows in the pipeline.  Note  You must set this option to None if you are using this option with the Drawing.Format.ShowBen dAngle option.	67 pos 2
BendRadius	Value between 30 and 90	Sets the bend radius in 1/10 millimeters. You should use this option only if you set the bend representation to round.	ISOGE N
BendRepresentation	Square Round	Defines how bends look on the isometric drawing.	ISOGE N

Property	Value	Description	Option Switch
ComponentLegLengt h	Value in millimeters	Specifies a plotted leg length for elbows, tees, and crosses.	95
	None	<b>☑</b> Note	
		Use this option with care as it can produce undesirable results on the drawing. The maximum suggested value is 18 (18 mm), and the minimum suggested value is 6 (6 mm).	
CptTagsStyle	Boxed Unboxed	Defines the style for tag numbers on inline items.	60 pos 1
ElbowRadius	Value between 30 and 90	Sets the elbow radius in 1/10 millimeters. You should use this option only if you set the elbow representation to round.	ISOGE N
ElbowRepresentation	Square Round	Defines how elbows look on the isometric drawing.	ISOGE N
FallCutOff	Value in the units defined by FallRepresen tation	Defines the minimum slope treated as a fall.	20
FallRepresentation	None	Specifies falling line indication for	19
	Angle	sloping pipelines.	
	Ratio		
	Gradient		
	Percentage		
	Imperial Incline		
	Metric Incline		

Property	Value	Description	Option Switch
FlangeRotationStyle	No Box Diamond Ends Round Ends Square Ends	Specifies the style of the enclosure box for flange rotation angles.	124 pos 2
FlowArrowScale	Value in range 5-15	Scales flow arrows on pipelines.	112 pos 1, 2
GhostGapDimension	0 or value between 18 mm and 60 mm	Controls the plotted length of a ghost gap element. A ghost gap element is a physical gap on the plotted isometric drawing that can be used when generating individual pipeline isometric drawings, or as a link between related, but unconnected pipelines on a system type isometric drawing.  0 - Default for the normal minimum gap as controlled by ISOGEN.  Value - User defined minimum gap dimension in whole millimeters.  The smallest allowable value is 18 mm, and the largest allowable value is 60 mm.	110
InstIDEnclosureSize	No Balloon 1 character	Specifies the size of the enclosure for instrument text. You can choose 1 through 4 characters on each of the two available lines within an	123 pos 1
	2 character 3 character	instrument balloon, or you can specify no balloon.	
	4 character		
	5 character		

Property	Value	Description	Option Switch
InstIDEnclosureStyle	No Box Diamond Ends Round Ends Triangular Ends Square Ends	Specifies the shape of the instrument name box.	123 pos 3
InstIdentification	Use Tag Use Item Code	Specifies whether to use the instrument tag or item code in the material list.	59
InsulationStyle	Alongside Pipe None Alongside Pipe and Components	Specifies whether to show insulation along pipe only or along pipe and components.	61 pos 1
MessageCircleEnclos ure	Data string consisting of @, \$, and ? characters	Controls the physical size of the circle enclosure used to contain user input messages.  The data string consists of a combination of @, \$, and ? characters.  The @ character signals a blank space.  The \$ character signals a new line.  The ? character indicates where the actual data from the declared record should be located in the padded record.	ISOGE N

Property	Value	Description	Option Switch
MessageDiamondEnc losure	Data string consisting of @, \$, and ? characters	Controls the physical size of the diamond enclosure used to contain user input messages.  For information about the data	ISOGE N
		string, see  Drawing.Format.MessageCircleE  nclosure in this topic.	
MessagePointedEnclo sure	Data string consisting of @, \$, and ? characters	Controls the physical size of the pointed enclosure used to contain user input messages.  For information about the data string, see  Drawing.Format.MessageCircleE nclosure in this topic.	ISOGE N
MessageRoundEnclos ure	Data string consisting of @, \$, and ? characters	Controls the physical size of the round enclosure used to contain user input messages.  For information about the data string, see  Drawing.Format.MessageCircleE nclosure in this topic.	ISOGE N
MessageTriangleEncl osure	Data string consisting of @, \$, and ? characters	Controls the physical size of the triangle enclosure used to contain user input messages.  For information about the data string, see  Drawing.Format.MessageCircleE nclosure in this topic.	ISOGE N
NorthArrowBox	True/False	Adds a box around the north arrow.	42
OrientationFrom	Previous Position Primary Direction	Controls the output of Skew orientation. <b>Previous Position</b> presents the orientation direction message showing rotation relative to the previous position. <b>Primary Direction</b> presents orientation direction message showing rotation from primary direction.	70 pos 3

Property	Value	Description	Option Switch
PartNoEnclSize	Default User Auto	Controls the number of characters used for the size of the circle, double circle, and ellipse enclosure styles. The default is 2, and the valid entries are from 1 to 8 characters, or set to Auto, which dynamically sizes	76 pos 3
PartNoEnclosureLS	None Square Ends Round Ends Diamond Ends Circle Double Circle Ellipse	the enclosure.  Generates correct diameter for double circle.	76 pos 2
PartNoEnclosureStyle	None Square Ends Round Ends Diamond Ends	Specifies the part number enclosure box shape.	73 pos 5, 76 pos 1
PartNoSpaces	Value in range 0-99	Controls the number of spaces for a Type 1, 2, or 3 enclosure.	73 1, 2/3, 4/6, 7
PartNoVisible	True/False	Suppresses the plotting of part numbers and associated enclosure boxes on the drawing.	76 pos 1
SegmentFlowArrowP lacement	None Pipe Run Branch	Controls flow arrow placement.  Pipe Run means the flow arrow appears on the longest header pipe feature of the run. Branch means the flow arrow appears on the branch pipes connected to header pipes.	SmartPl ant 3D

Property	Value	Description	Option Switch
ShowAllFlowArrows	True/False	Displays flow arrows on the drawing. When you set this option to <b>True</b> , you also must set the <b>Drawing.Format.SegmentFlowAr rowPlacement</b> option to a value other than <b>None</b> .	112 pos 1, 2
ShowBendAngle	True/False	Writes the bend angle length to the PCF file. Set this option to <b>True</b> to write the calculated length for a bent pipe to the PCF file.	SmartPl ant 3D
		<b>☑</b> Note	
		Use the  Drawing.Format.AngleStyl e option to write the bend angle to the isometric drawing.	
ShowBendRadius	True/False	Displays the bend radius for pipe bends on the drawings.	SmartPl ant 3D
SiteAssemblyIDEncl Size	Default User Auto	Controls the number of characters used for the size of the circle, double circle, and ellipse enclosure styles. The default is 2, and the valid entries are from 1 to 8 characters, or set to Auto, which dynamically sizes the enclosure.	79 pos 9
SiteAssemblyIDEnclosure	None Diamond Ended Round Ended Triangular Diamond Rectangular Circular	Controls the enclosure style used for site assemblies on the isometric drawing.	79 pos 3

Property	Value	Description	Option Switch
SiteAssemblyIDs	Off Numeric	Controls site assembly information on the isometric drawing.	79 pos 1
	Alphabetic	Off - Flange assembly identification not output	
		Numeric - Numeric flange assembly identification	
		Alphabetic - Alphabetic flange assembly identification	
SiteAssemblyIDsPer Drawing	True/False	Controls whether site assemblies are numbered per drawing or per pipeline.	79 pos 2
		True - Flange assembly identification per drawing	
		False - Flange assembly identification per pipeline	
SkewDimStandout	Value in range 0-99	Specifies the dimension line standout on skews.	100
SkewDimStyle	Box - normal standout	Specifies the style of the skew dimension.	99 pos 1
	Triangle - normal standout		
	Triangle - skew standout		
	Triangle - alternative		
SkewHatchCptGap	Value in range 0-99	Specifies the gap left unhatched for inline components. This value is in 1/10 millimeters.	102 pos 3, 4
SkewHatchCutOff	Value in range 0-99	Specifies the hatch line length cut off in millimeters.	101 pos 2, 4
SkewHatchDimText	Value in range 0-99	Specifies the gap left unhatched for dimensions and text. This value is in 1/10 millimeters.	102 pos 5, 6

Property	Value	Description	Option Switch
SkewHatchPipeGap	Value in range 0-99	Specifies the gap left unhatched for pipelines. This value is in 1/10 millimeters.	102 pos 1, 2
SkewHatchSpacing	Value in range 0-99	Specifies the hatching spacing in 1/10 millimeters.	101 pos 1, 2
SkewHatching	True/False	Specifies whether skew hatching is on or off.	101 pos 1, 2
SkewInVerticalBranc h	True/False	Specifies whether to show skews on branches of falling lines.	68
SkewMinCpts	Value in range 0-99	Defines the minimum number of components in a branch before a skew is shown.	70
SkewMixed	True/False	Shows 3D skew boxes and 2D skew triangles.	99 pos 2
SkewOverall	Overall Individual	Specifies the skew depiction.  Overall means a single overall box or triangle encloses the skew.  Individual means individual boxes or triangles enclose each branch.	97
SkewRepresentation	3D box 2D Skew + Fall	Specifies the skew depiction. <b>3D box</b> means the full 3D box/triangle is shown; <b>2D Skew</b> + <b>Fall</b> means the 2D skew box or triangle and the fall indicator are shown.	67
SpecBrkRepresentati on	Single Dual	Specifies single or dual specification break indication boxes.	114

Property	Value	Description	Option Switch
SpoolIDEnclosure	Square Brackets	Specifies the enclosure shape for the spool identifiers.	39 pos 3
	Diamond Ends		
	Round Ends		
	Triangular Box		
	Diamond Box		
	Square Box		
	None		
SpoolIDEnclosureSty le	Data string consisting of	Increases the size of the SpoolID enclosure.	ISOGE N
	@, \$, and ? characters	The data string consists of a combination of @, \$, and ? characters.	
		The @ character signals a blank space.	
		The \$ character signals a new line.	
		The ? character indicates where the actual data from the declared record should be located in the padded record.	

Property	Value	Description	Option Switch
SpoolIDType	Numeric None	Turns on and off the display of spool identifiers. Set this option to <b>None</b> to turn off the display of spool identifiers in the isometric drawing. Set to <b>Numeric</b> to include model spool numbers on the isometric drawing.	39 pos 1
		<b>☑</b> Notes	
		If you require alphabetic spool identifiers, you can create a spool naming rule which applies an alpha suffix to the spool numbers in the model. Naming rules are discussed further in the SmartPlant 3D/IntelliShip Programmer's Guide under Customizing Naming Rules. Contact your administrator or Intergraph Support if you need the Programmer's Guide.	
		This option can be used in the place of <b>Drawing.Content.ShowSpo olID</b> , which is no longer supported by ISOGEN.	
SupportIdentification	No Tags/Spec Ref Unboxed Tags/Tags	Specifies whether support names are shown on the isometric drawing and whether the names are boxed or unboxed. This option also controls whether supports are in the material list (BOM) and whether the tag or specification reference (item code)	64 pos 1
	Tags/Spec Ref Unboxed Tags	is in the item code field.	
	Boxed Tags		

Property	Value	Description	Option Switch
TapBrnchInlineScale	Value in range 75-125 (%)	Provides a tapped branch scaling factor for taps on inline items.such as valves and flanges.	120 pos 1, 2
		The value represents a percentage of the main pipeline size. The minimum value is 75 and the maximum is 125.	
TapBrnchPipeScale	Value in range 1-99 (%)	Provides a tapped branch scaling factor for taps on pipe type components.	120 pos 4, 5
		Examples of pipe type components are elbows, tees, reducers, and so forth. The value represents a percentage of the main pipeline size. The minimum value is 1 and the maximum is 99.	
TextFont	Font name	Specifies a font corresponding to a font entry in the <i>.fif file</i> .	4 pos 7, 8, 9
TextSize	Small: 2.1	Specifies the size of the text characters on the drawing.	4
	Medium: 2.5	characters on the drawing.	
	Large: 2.8		
	XLarge: 3.5		
	XXLarge: 4.2		
	XXXLarge: 4.9 millimeters		
	User		
TextWeight	Value in range 0-9	Specifies the thickness of the text.	4 pos 5
TextWidth	Value in range 10-99 (in 1/10 millimeters)	Specifies the character width if you are using a fixed-width font.	4 pos 3, 4

Property	Value	Description	Option Switch
TracingStyle	Alongside Pipe None Alongside Pipe and Components	Specifies where heat tracing is shown.	62
UserTextSize	Integer in range 10-99	Specifies a user-defined size in 1/10 millimeters. You should use this option only when you set <b>TextSize</b> to <b>User</b> .	4 pos 1, 2

• Appendix: Isometric Drawing Options, page 246

# **DottedSymbology (Drawing Format)**

Provides options for setting dotted symbology on specific isometric parts.

Name	Value	Description	Optio n Switc h
DottedDimensionedFilter	User- specified filter	Specifies a filter that selects all the parts that need to be shown dotted and dimensioned on the isometric drawing.	Isogen
DottedUnDimensionedFilt er	User- specified filter	Specifies a filter that selects all the parts that need to be shown dotted and undimensioned on the isometric drawing.	Isogen

Name	Value	Description	Optio n Switc h
Enabled	True/Fals e	Enables dotted symbology for parts specified by  DottedDimensionedFilter or DottedUnDimensionedFilter options. If both parts connected at a weld are dotted, the weld is dotted also. If a part is returned by both filters, the part is dimensioned.  When set to True, the  Drawing.Format.DottedSymbolo gy options are enabled.	Isogen

- Appendix: Isometric Drawing Options, page 246
- Format (Drawing), page 275

# Welds (Drawing)

Sets options for the display of welds on the isometric drawing.

Property	Value	Description	Option Switch/Attri bute
ErectSupportWeldEnclosure	Default Circle Diamon d End Round End Small Triangle Small Diamon d Square Dynami c Circle None	Specifies the style of the weld number enclosure for this weld type.	78 pos 3

Property	Value	Description	Option Switch/Attri bute
ErectWeldEnclosure	Default Circle	Sets the style of enclosure for erection welds.	75 pos 3
	Diamon d End		
	Round End		
	Small Triangle		
	Small Diamon d		
	Square		
	Dynami c Circle		
	None		
FabSupportWeldEnclos ure	Default Circle	Specifies the style of the weld number enclosure for this weld	78 pos 1
	Diamon d End	type.	
	Round End		
	Small Triangle		
	Small Diamon d		
	Square		
	Dynami c Circle		
	None		

Property	Value	Description	Option Switch/Attri bute
FabWeldEnclosure	Default Circle	Sets the style of enclosure for fabrication welds.	75 pos 1
	Diamon d End		
	Round End		
	Small Triangle		
	Small Diamon d		
	Square		
	Dynami c Circle		
	None		
OffshoreSupportWeldE nclosure	Default Circle	Specifies the style of the weld number enclosure for this weld	
	Diamon d End	type.	
	Round End		
	Small Triangle		
	Small Diamon d		
	Square		
	Dynami c Circle		
	None		

Property	Value	Description	Option Switch/Attri bute
OffshoreWeldEnclosur e	Default Circle	Sets the style of enclosure for offshore welds.	75 pos 5
	Diamon d End		
	Round End		
	Small Triangle		
	Small Diamon d		
	Dynami c Circle		
	None		
ShowErectSupportWel dNos	True/Fal se	Displays weld numbers for the specified weld type.	78 pos 3
ShowErectWeldNos	True/Fal se	Displays the erection weld numbers on the isometric drawing.	75 pos 3
ShowFabSupportWeld Nos	True/Fal se	Displays weld numbers for the specified weld type.	78 pos 1
ShowFabWeldNos	True/Fal se	Displays the fabrication weld numbers on the isometric drawing.	75 pos 1
ShowOffshoreSupport WeldNos	True/Fal se	Displays weld numbers for the specified weld type.	78 pos 5
ShowOffshoreWeldNos	True/Fal se	Displays the offshore weld numbers on the isometric drawing.	75 pos 5
ShowWeldNumbers	True/Fal se	Turns the display of weld numbers on or off. You can set this option to <b>True</b> and use the <b>Drawing.Welds.WeldNumberL abel</b> to specify a label to use with the weld number.	53 pos 1

Property	Value	Description	Option Switch/Attri bute
ShowWelds	True/Fal se	Turns the display of welds and weld numbers on or off.	53 pos 1, 54
SupportWeldNumbers	True/Fal se	Numbers support welds separately. The default is <b>False</b> .	53 pos 6
SupportWeldSeq	Continu ous Per Drawin g	Controls the numbering of support welds. If you set the <b>SupportWeldNumbers</b> option to <b>True</b> , the <b>SupportWeldSeq</b> option controls weld numbering, similar to the <b>WeldNumberSequence</b> option.	53 pos 6
SupportWeldTypeNos	True/Fal se	Controls the numbering of support welds. If you set this option to <b>True</b> , the software numbers each type of support weld in a different sequence. The default is <b>False</b> .	53 pos 6

Property	Value	Description	Option Switch/Attri bute
WeldNumberLabel	User- specifie d label	Specifies a label to use with the weld number on the isometric drawing. Click the ellipsis button in the field to display the Catalog Labels dialog box and select a label. There are two delivered weld number labels you can use with this option: Piping Isometric Weld Sequence Number and Piping isometric Weld Type and Sequence Number.	Intergraph
		<b>☑</b> Notes	
		You must set the Drawing.Welds.ShowWe IdNumbers option to True to use this option.	
		The label you select for the WeldNumberLabel cannot result in the generation of weld identifiers with spaces. We do not support weld identifiers with spaces.	
WeldNumberSize	Small (1.5 mm)	Controls the size of plotted weld numbers, if welds appear.	53 pos 1
	Medium (1.8 mm)		
	Large (2.1 mm)		

Property	Value	Description	Option Switch/Attri bute
WeldTypes	All Fabricat ion only Erection only Offshor	Controls which welds and weld numbers print on the drawing.	53 pos 1, 4; 54
	Offshor e only		

# **Definitions (Drawing)**

Customizes the layers on the isometric drawing. You can specify the scale and line thickness.

Property	Value
Definition Type	Specifies the type of definition. For example, you can choose Fitting, Variable Bore, and so forth.
Applies To	Specifies the component type. For a list of acceptable types, see the Values for "Applies To" Property table below.
DScale	Specifies an integer value for the scale. This value must be in the range 75 - 200.
Layer	Defines a number that corresponds to the layer. This number is an integer that identifies the required layer (level) to which the component type is to be assigned. This value is in the range 1 - 50.
	When using layers in a template, keep in mind that the software preserves the <b>Default</b> layer and any layer that begins with <i>User</i> (for example, a layer named <b>UserAnnotationLayer</b> ) when you update drawings. Manual markups on other layers are not preserved.
Thickness Actual	Defines the actual thickness (width) of the plotted line in millimeters (a real number). This value is in the range 0.0 to 10.0.
Thickness Logical	Specifies an integer for the required thickness. This value is in the range 0 - 99.
Upper Bore	Defines the maximum bore as an integer or real number. This value must be in the current nominal size units.
Lower Bore	Defines the minimum bore as an integer or real number. This value must be in the current nominal size units.
Colour	Specifies the integer number representing the color as defined in the output drawing software. The color mapping is defined in the <b>Mapping Values for "Colour" Property</b> table below.
Category	Specifies the category for the definition. For example, you can choose Fabrication, Erection, Offshore, and so forth.

## Values for "Applies To" Property

		- 1			
CAPS	CONTINUA TION	COUPLINGS	DIMENSI ON-LINES	DIMENSI ON-TEXT	END- CONNECT ORS
FILTERS	FLANGES	FRAME	FRAME- TEXT	General Fittings	HATCHIN G
HYGIENI C- CONNECT ORS	INSTRUME NTS	ISO-TEXT	LAGGING	MATERIA L-LIST	MISC- COMPON ENT- PLUG
MISC- COMPON ENT- RESTRICT OR	MISC- COMPONE NT- SLIPPLATE	MISC- COMPONEN T-SLIPRING	MISC- COMPON ENT- SPECBLI ND	MISC- COMPON ENTS	NOZZLE
OLETS	PENETRAT ION PLATES	PIPE- BLOCKS	PipeLine	REDUCER S	REFEREN CE-ITEM
SAFETY- DISC	SKEWS	SPEC- BREAKS	SPECIAL- STATUS	SPLIT- POINTS	SUPPORT S
TRACING	TRAPS	UNDIMENSI ONED- BRANCHES	UNIONS	VALVES	VALVES- 3WAY
VALVES- 4WAY	VALVES- ANGLE	WELD-BOX	WELDS		

### **Mapping Values for "Colour" Property**

Numeric Value	Mapped Color
0	Black
1	Blue
2	Cyan
3	Green
4	Magenta
5	Red
6	Yellow
7	White
8	Dark Blue
9	Dark Cyan
10	Dark Green
11	Dark Magenta
12	Dark Red
13	Dark Yellow
14	Dark Gray
15	Light Gray

#### **Related Topics**

## **Drawing Frame Options: An Overview**

Sets options for the drawing frame on isometric drawings.

The **Drawing Frame** folder contains the following groups of options:

- **Units of Measure** Specifies the units for drawing frame reporttext. For more information, see *Units of Measure (Drawing Frame)*, page 301.
- **Pipeline List** Creates an embedded Excel workbook object on the isometric drawing. This object contains information about multiple pipe runs on an isometric drawing. For more information, see *Pipeline List* (*Drawing Frame*), page 302.
- **CustomMTO** Calls a **ProgID** at the end of an isometric extraction to embed a custom object on the isometric drawing. Example code for this option is delivered in **Programming Resources** under \\ExampleCode\Rules\PMfgCustProcess and \\ExampleCode\Rules\PMfgIsoMLExport. For more information, see \\CustomMTO (Drawing Frame), page 305.
- **Attributes** Maps ISOGEN attributes to attributes in the software and specifies the X- and Y-coordinates of the attribute placement. For more information, see *Attributes* (*Drawing Frame*), page 307.

Property	Value	Description	Option Switch/ Attribute
BottomMargin	Value in millimeters	Specifies the distance between the outer edge of the drawing sheet and the outer line of the drawing frame at the bottom of the drawing.	13
CustomHeight	Value in millimeters	Sets the height of a non-standard paper size.	15
		• Important	
		You must use	
		CustomHeight and	
		CustomWidth together.	
		Set both to suitable	
		values or zero. For	
		PostScript output, set the	
		paper size using the	
		DrawingSize option.	

Property	Value	Description	Option Switch/ Attribute
CustomWidth	Value in millimeters	Sets the width of a non-standard paper size.	16
LeftMargin	Value in millimeters	Specifies the distance between the outer edge of the drawing sheet and the outer line of the drawing frame on the left side of the drawing.	10
ReservedAreaDrawing	Value in millimeters	Provides the distance between the bottom of the drawing area and the outer line of the drawing frame.	35 pos 1, 2, 3
ReservedAreaMatList	Value in millimeters	Provides the distance between the bottom of the material list and the outer line of the drawing frame.	35 pos 4, 5, 6
RightMargin	Value in millimeters	Specifies the distance between the outer edge of the drawing sheet and the outer line of the drawing frame on the right side of the drawing.	11
SP3DBorderData	True/False	Turns the plotting of the title block and border data from the SmartPlant 3D database on and off.	SmartPlant 3D
TopMargin	Value in millimeters	Specifies the distance between the outer edge of the drawing sheet and the outer line of the drawing frame at the top of the drawing.	12

# **Units of Measure (Drawing Frame)**

Specifies the unit of measure format for values given in the drawing frame.

Property	Value
Pressure	Specifies a label for the pressure units of measure. Click the ellipsis button in the <b>Value</b> cell to display the <b>Catalog Labels</b> dialog box and select a label to use.
Temperature	Specifies a label for the temperature units of measure. Click the ellipsis button in the <b>Value</b> cell to display the <b>Catalog Labels</b> dialog box and select a label to use.

#### **Related Topics**

## Pipeline List (Drawing Frame)

Specifies an Excel workbook object that communicates multiple pipe run information on the isometric drawing.

The **Pipeline List** folder contains the following groups of options:

- **Column** Specifies the column layout of an Excel workbook object on the isometric drawing. For more information, see *Column (Drawing Frame Pipeline List)*, page 304.
- **ReportTemplate** Specifies the report template used for the pipeline list in the drawing. For more information, see *ReportTemplate (Drawing Frame Pipeline List)*, page 304.

Property	Value	Description	Option Switch/Attri bute
BoxOrigin	Bottom Left Bottom Right Top Left	Defines the origin location of the pipeline list.	SmartPlant 3D
BoxOriginX	Value in millimet ers.	Defines the X-coordinate of the pipeline list.	SmartPlant 3D
BoxOriginY	Value in millimet ers.	Defines the Y-coordinate of the pipeline list.	SmartPlant 3D
Layer	Integer	Specifies the layer for the pipeline list. This value is in the range 1 - 50.	SmartPlant 3D
ShowPipeLineLi stBox	True/Fal se	Defines whether to display the pipeline list.	SmartPlant 3D

Property	Value	Description	Option Switch/Attri bute
UseReportTempl ate	True/Fal se	Specifies whether or not to use a report template for the pipeline list format. If this option is set to <b>True</b> , the software generates the pipeline list using the specified report template. For more information, see <i>ReportTemplate</i> ( <i>Drawing Frame Pipeline List</i> ), page 304.	SmartPlant 3D

### Note

• When defining embedded report layout (sizing of columns and rows), consider the report usage first. Because of a Microsoft limitation concerning the size of Windows metafile objects within other applications, the data displayed may be incomplete. Therefore, no column should be out of screen when using 100 percent zoom for the report. Otherwise some columns are ignored when the report is embedded within the drawing. The same limitation exists for rows. To preserve the maximum number of rows displayed, the total header row(s) height should be a minimum of the overall report. Using Microsoft Excel default settings, the maximum number of columns is approximately 20 and the maximum number of rows is approximately 75 (including header rows). For more information on setting the defaults in Microsoft Excel, see your Microsoft Excel documentation.

#### **Related Topics**

## **Column (Drawing Frame Pipeline List)**

Specifies the column layout of an Excel workbook object on the isometric drawing.

Sequenc e	HeaderColum n	Pipeline Data Attribute	Width
Specifies the order of the columns from left to right.	Sets the text heading of each column.	Sets the contents of each column. For more information, see <i>PipeLineListBox (Labels)</i> , page 391.	Specifie s the width of the column. The width must be greater than zero.

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

## ReportTemplate (Drawing Frame Pipeline List)

Specifies the report template used for the pipeline list in the drawing.

Property	Value	Description	Option Switch/Attrib ute
TemplateNa me	Report Templa te Name	Specifies a report template to use for the pipeline list. This option is only available when the  Drawing.Frame_PipeLineList.UseReport  Template option is set to True. Click More in the Value field to open the Select  Template dialog box.	SmartPlant 3D

#### **Related Topics**

# **CustomMTO (Drawing Frame)**

Calls a **ProgID** at the end of an isometric extraction to embed a custom object on the isometric drawing. Example code for this option is delivered in **Programming Resources** under \*ExampleCode*\*Rules*\*PMfgCustProcess* and \*ExampleCode*\*Rules*\*PMfgIsoMLExport*.

Property	Value	Description
Enabled	True/False	Controls whether or not a custom object, such as an MTO, will be included on an isometric drawing.
FramesProgID	COM object ProgID	Specifies a user-defined COM object for the post-process of data, such as MTO data, on the isometric drawing.
Layer	Layer number	Specifies the layer in the drawing in which the custom data is included.
Program ProgID	COM object name	Identifies the user-defined COM object for the customization of the included data, such as MTO data.

Property	Value	Description
Template Path	Path and file name	Specifies the source location of the report template to use for the custom data.

## **Attributes (Drawing Frame)**

Specifies attributes to plot in the drawing frame. You use these options with the **Attribute Map** and other **Drawing Frame** options.

Many of the attributes for the drawing frame originate from the pipe runs in the model. During an extraction, the software obtains the values for pipe run attributes from the run with the largest NPD.

For more information, see Set Drawing Frame Options, page 66.

Property	Description
HostAttribute	Specifies an attribute you want to appear in the drawing frame. This text can be any alphanumeric string. You map this string to an ISOGEN attribute in the <b>Attribute Map</b> option before the string will have meaning in the software.
	<b>✓</b> Note
	When editing the <b>Drawing Frame.Attributes</b> , do not remove the <b>Pipeline Reference</b> from the <b>HostAttribute</b> list.
XPos	Sets the X-coordinate location of the attribute text in the title block. This value is in millimeters.
YPos	Sets the Y-coordinate location of the attribute text in the title block. This value is in millimeters.
CharHeight	Specifies the character height of the attribute text. This value is in millimeters.
CharWidth	Specifies the character width of the attribute text. This value is in millimeters.
Justification	Sets the justification for the attribute text. Values are <b>Left</b> and <b>Right</b> .
RotationAngle	Sets the rotation angle for the attribute text. Specify a value in degrees.
Layer	Specifies the layer of the drawing on which you want to place the attribute text.
TextWeight	Sets the line weight for the font used in the attribute text. Specify a numeric line weight value.
Font	Specifies the font to use for the attribute text. Select a font from the dropdown list.

#### **Related Topics**

## Supplementary Options: An Overview

Sets options for various input and output files.

The **Supplementary** folder contains the following groups of options:

- **Centre of Gravity** Specifies options about the center of gravity for pipes. For more information, see *Centre of Gravity (Supplementary)*, page 309.
- **Auxiliary Programs** Lists programs that run before or after ISOGEN. For more information, see *Auxiliary Programs (Supplementary)*, page 311.
- **Bending Report** Activates and configures the bending report. For more information, see *Bending Report (Supplementary)*, page 312.
- **Site Weld File** Defines the site weld file. For more information, see *Site Weld File (Supplementary)*, page 313.
- **Additional Data** Defines the DDF file. For more information, see *Additional Data (Supplementary)*, page 315.
- **Detail Sketches** Defines detail sketches on the isometric drawing. For more information, see *Detail Sketches (Supplementary)*, page 316.
- **Reference Planes** Defines reference planes on the isometric drawing. For more information, see *Reference Planes (Supplementary)*, page 320.
- **Instrument SKEYs** Specifies user-defined symbol keys. ISOGEN treats these keys as instruments. For more information, see *Instrument SKEYs* (*Supplementary*), page 323.
- **Title Texts** Specifies user-defined text strings to be plotted on an ISOGEN-generated drawing frame. The **Visible** option for the drawing frame must be set to **False**. For more information, see *Title Texts* (*Supplementary*), page 324.
- **Report Files** Provides the names of supplementary output files. For more information, see *Report Files (Supplementary)*, page 325.
- **Data Files** Provides the names of input data files that ISOGEN uses in various functions. For more information, see *Data Files (Supplementary)*, page 326.

#### **Related Topics**

# **Centre of Gravity (Supplementary)**

Specifies options for center of gravity and weight calculations.

Property	Value	Description	Option Switch/Attribute
Enabled	True/False	Controls whether any center of gravity and weight calculations are done.	82 pos 1
ForDryPipe	Not Required  Calc C of G  Calc C of G  with Insulation  Calc C of G  with and without Insulation	Controls which center of gravity calculations are done for dry (empty) pipe.	82 pos 4
ForWetPipe	Not Required Calc C of G Calc C of G with Insulation Calc C of G with and without Insulation	Controls which center of gravity calculations are done for wet (full) pipe.	82 pos 5

Property	Value	Description	Option Switch/Attribute
PerPipeLine	True/False	Controls whether the center of gravity and weight calculations are per pipeline or per drawing/spool.	82 pos 1
		True - Calculations are per pipeline	
		False - Calculations are per drawing/spool	
ShowInsulationWeight	True/False	Controls whether insulation weight is calculated.	82 pos 3
ShowWetWeight	True/False	Controls whether wet (full) weight is calculated.	82 pos 2

# **Auxiliary Programs (Supplementary)**

Specifies information about pre- and post-processor programs.

Property	Value	Description	Option Switch/Attribute
EndProgram	Path	Specifies a post-processor program to run after ISOGEN.	ISOGEN
StartProgram	Path	Specifies a pre-processor program to run before ISOGEN.	ISOGEN
StartTimeout	Integer	Defines the number of seconds before the start program is terminated and ISOGEN starts.	ISOGEN
StopOnError	True/False	Controls whether ISOGEN runs if the pre-processor program has an error.	ISOGEN

#### **Related Topics**

# **Bending Report (Supplementary)**

Controls options for bending pipe reports.

Property	Value	Description	Option Switch/Attribute
Append	True/False	Defines whether the file is opened in appended mode or overwrite mode.	ISOGEN
Enabled	True/False	Controls whether the properties bending report is created.	ISOGEN
Path	Path to the Bending Report	Provides the path to the Bending Report.	ISOGEN
ReportContents	Full Standard	Determines the information included in the Bending Report.	ISOGEN

#### **Related Topics**

## Site Weld File (Supplementary)

Specifies information about the site weld file.

The **Site Weld File** folder contains the following groups of options:

• Column - Specifies the columns for the site weld file. For more information, see *Column (Supplementary Site Weld File)*, page 314.

Property	Value	Description	Option Switch/Attribute
Delimiter	User- defined value	Specifies a delimiter to use for the header lines that appear at the top of a SiteWeldInfo file.	ISOGEN
Enabled	True/False	Controls whether the site weld file is created.	ISOGEN
FileFormat	Fixed Delimited	Sets the format of the site weld file.	ISOGEN
HeaderLines	String for the column header	Specifies the text string for the column header. Use a backslash (\) to start a new line and pipe character ( ) to produce a vertical break. You must make sure the column headers match the column positions set in the Material List Definition file (MLD).	ISOGEN
Path	Path to the site weld file	Provides the path to the site weld file.	ISOGEN

#### **Related Topics**

## Column (Supplementary Site Weld File)

Specifies the columns for the site weld file.

Attribute Name	Width	Start
Specifies a property to appear in the column.		Specifies the starting point of the column. The valid range is 1-999.

#### **Related Topics**

# Additional Data (Supplementary)

Defines additional data for the Data Definition File (DDF).

Property	Value	Description	Option Switch/Attribute
DDFLines	Text	Specifies a block of text to be added to the DDF.	ISOGEN
Enabled	True/False	Controls whether the data in the property DDFLines is added to the DDF.	ISOGEN

#### **Related Topics**

## **Detail Sketches (Supplementary)**

Specifies the characteristics of detail sketches on the isometric drawing.

The **Detail Sketches** (**Supplementary**) folder contains the following groups of options:

• **Sketch Mapping** - Maps part classes with symbol files for the purpose of defining detailed sketches. For more information, see *Sketch Mapping* (*Supplementary Detail Sketches*), page 319

Property	Value	Description	Option Switch/Attribute
Colour	Integer	Provides the color of the label on the detail sketch.	ISOGEN
FileFormat	IGR DXF	Sets the format of the detail sketch symbols. In most cases, this setting agrees with the drawing output format. The IGR option corresponds with the Intergraph SmartSketch product.	ISOGEN
LabelLayer	Integer	Specifies the layer on which the label text resides. For example, the label text in <b>Detail A</b> is the letter <b>A</b> .	ISOGEN
LabelType	ALPHA NUMBER	Specifies whether you want sketches ordered alphabetically (A, B, C) or numerically (1, 2, 3).	ISOGEN
LabelX	Value in millimeters	Provides the X-coordinate of the label text, relative to the bottom left corner of a sketch.	ISOGEN
LabelY	Value in millimeters	Provides the Y-coordinate of the label text, relative to the bottom left corner of a sketch.	ISOGEN
NoteFormat	IGR CEL	Specifies the format of informational notes, which refer to a pipeline, spool, or component in the drawing.	ISOGEN
	DXF	component in the trawing.	

Property	Value	Description	Option Switch/Attribute
NoteHeight	Value in millimeters	Specifies the height of the informational notes.	ISOGEN
NotePosition	DEFAULT LOCAL OVERFLOW	Specifies the location of informational notes. You can choose to plot the notes along the bottom of the drawing, near the reference, or on a separate sheet.	ISOGEN
NoteWidth	Value in millimeters	Specifies the width of the informational notes.	ISOGEN
Path	Text box	Sets the detailed sketch directory containing SYM or DXF data, or sets the location of a DGN CEL file, which is a cell library.  You specify the symbol file name in Supplementary.Detail Sketches.SketchMapping (SketchSymbol column).	ISOGEN
ShowDetailSketch	True/False	Determines whether the detail sketch facility is enabled.	ISOGEN
SketchHeight	Value in millimeters	Sets the height of user- generated sketches. This setting must be the same for all sketches. The value can be an integer or decimal number but should not exceed 50 mm.	ISOGEN
SketchPosition	default local overflow	Specifies the location of the detail sketches. You can choose to plot sketches along the top of the drawing, near the reference, or on a separate sheet.	ISOGEN

Property	Value	Description	Option Switch/Attribute
SketchWidth	Value in millimeters	Sets the width of user- generated sketches. The value can be an integer or decimal number but should not exceed 50 mm.	ISOGEN
TextFont	Font name	Specifies a font corresponding to a font entry in the .fif file.	ISOGEN
TextHeight	Value in millimeters	Specifies the size of the label text. This setting overrides <b>Drawing.Format.Text Size</b> . This value can be an integer or real number.	ISOGEN
TextWeight	Value in millimeters	Specifies the thickness of the label text. This value is an integer.	ISOGEN

## Sketch Mapping (Supplementary Detail Sketches)

Maps part classes with symbol files for the purpose of defining detailed sketches.

You can map multiple symbol files to a given part class. The software places each symbol as a detail sketch on the isometric drawing and prints the appropriate number of call-outs adjacent to each occurrence of the part class.

You can also specify a label and value. If the value you specify matches the value returned by the label, the software generates a detail on the drawing.

SP3DPartClass	SketchSymbol	SketchChkLabel	SketchChkValue
Specifies the name of a part class. Part classes and their associated data are defined in the reference data. For information about creating or modifying part classes, see the SmartPlant 3D Reference Data Guide available from the Help > Printable Guides command.	Specifies the name of a symbol file for the detail sketch. The software checks to see if this file exists in the <b>Supplementary.Detail Sketches.Path</b> location.	Names the label, such as SupportPartName.	Defines a value. If this value matches the value returned by the label, then the software generates a detail on the drawing.

#### **Related Topics**

## Reference Planes (Supplementary)

Defines reference planes for the Reference Plane Definition file (RPDF). The Reference Planes options provide the ability to reference grids for coordinate callouts on isometric drawings. You also have the option to override *world* coordinates in the coordinate callouts on the isometric drawing. If you are using location points, they will honor the **Supplementary.ReferencePlanes** options, as will all end-point coordinates displayed on the drawing.

#### Reference Plane Definition Files (RPDF)

If you are using reference plane definition (**Supplementary.ReferencePlanes.Enabled = True**), you need to specify the Reference Plane Definition file location with the **Supplementary.DataFiles** option. For more information, see *Data Files* (*Supplementary*), page 326.

The Reference Plane Definition file (RPDF) is an input file, not an output file. If you set **Supplementary.ReferencePlanes.Enabled** to **True**, you must specify the location of the input data file. It is recommended that the Reference Plane Definition file be located on a share, such as the Symbols share, so that it can be used by multiple clients. The extension of the file is not important, but for recognition purposes, you may want to use the extension *.rpd*.

If the **Supplementary.ReferencePlanes.Enabled** to **True** but no file is specified using **Supplementary.DataFiles**, the relative coordinates cannot be called out in the isometric drawing.

### Note

• If the isometric drawing's Coordinate System property is set to CS\_2, the World Coordinates value for the CoordStyle and CoordStyleAtLocationPts properties below corresponds to the CS\_2 coordinate system, not global coordinates. To check this property setting, right-click the isometric drawing in the Detail View and select Properties. On the Properties dialog box, go to the Style tab to review the Coordinate System setting. For more information, see Style Tab (Properties Dialog Box), page 132.

Property	Value	Description	Option Switch/Attribute
CoordStyle	World Coordinates - Returns coordinates with respect to the global coordinate system.	Specifies the reference plane coordinate style to be used in the RPDF.	SmartPlant 3D
	Relative Coordinates - Returns coordinates (on the isometric drawing) with respect to the volume referenced in the RPDF.		
CoordStyleAtLocationPts	None World Coordinates - Returns location point coordinates with respect to the global coordinate system.  Relative Coordinates - Returns location point coordinates (on the isometric drawing) with respect to the	Specifies the coordinate style to be used for location points in the RPDF.	SmartPlant 3D
	volume referenced in the RPDF.		
Enabled	True/False	Controls whether the reference plane data is added to the RPDF.	SmartPlant 3D

Property	Value	Description	Option Switch/Attribute
LocationPtStyle	Special Text Symbol (****) Square Ended Box	If using location points, this property specifies the style used for them in the isometric drawing.	SmartPlant 3D

# **Instrument SKEYs (Supplementary)**

Specifies user-defined symbol keys.

#### **ISKEYText**

Specifies a symbol key text string.

#### **Related Topics**

# Title Texts (Supplementary)

Specifies user-defined text strings for plotting on an ISOGEN-generated drawing frame.

#### **TitleText**

Specifies a text string for the drawing frame.

#### **Related Topics**

# Report Files (Supplementary)

Provides the names of supplementary output files. One example is a file containing centerline lengths.

### **☑** Note

• To add a new row to the grid, click in the blank area of the right pane, and press **Insert** on the keyboard.

ReportFileType	FilePath
Specifies the type of output file. In some cases, this option also specifies the behavior of the file, such as append or	Browses your computer or network for a file
overwrite.	name.

### **Related Topics**

## Data Files (Supplementary)

Provides the names of input and output data files ISOGEN uses in various functions. For example, ISOGEN can calculate weights of components if a data file containing weight information is available.

### Note

• To add a new row to the grid, click in the blank area of the right pane, and press **Insert** on the keyboard.

DataFileType	FilePath
Specifies the type of input file.	Browses your computer or network for a file name.

### **Reference Plane Definition Files (RPDF)**

The Reference Plane Definition file (RPDF) is an input file, not an output file. If you set **Supplementary.ReferencePlanes.Enabled** to **True**, you must specify the location of the input data file. It is recommended that the Reference Plane Definition file be located on a share, such as the Symbols share, so that it can be used by multiple clients. The extension of the file is not important, but for recognition purposes, you may want to use the extension *.rpd*.

If the **Supplementary.ReferencePlanes.Enabled** to **True** but no file is specified using **Supplementary.DataFiles**, the relative coordinates cannot be called out in the isometric drawing.

For more information, see Reference Planes (Supplementary), page 320.

#### **Related Topics**

## Material List Options: An Overview

Sets options for controlling position, format, and contents of the parts list.

The **Material List** folder contains the following groups of options:

- **Cut List** Defines the cut pipe list on the isometric drawing. The cut piece list is a report on computed pipe lengths. For more information, see *Cut List (Material List)*, page 338.
- **Fixed Layout** Defines the original ISOGEN material list options. ISOGEN plots the column headings. For more information, see *Fixed Layout (Material List)*, page 345.
- Variable Layout Defines the alternative variable layout material list. This style is a variation of the basic fixed layout type, with additional user options for header text. For more information, see *Variable Layout* (*Material List*), page 349.
- **User Defined** Defines the user defined material list. The software prints this type of list into a drawing frame that contains a pre-existing table with header text. For more information, see *User Defined (Material List)*, page 353. A user defined material list is allowed only with a backing sheet. That is, if an ISOGEN-generated drawing frame is in use, only the fixed layout and variable layout styles are available.
- **Summary File** Controls the summary file for the material list. For more information, see *Summary File (Material List)*, page 361.
- **Transfers** Reassigns particular record types to a new sort group. For more information, see *Transfers (Material List)*, page 363.

Fixed Layout produces a simple material list. Variable Layout and User Defined are fully user-definable: Variable Layout is based on columns and lines, and User Defined is based on X- and Y-coordinate positions.

Property	Value	Description	Option Switch/At tribute
ActiveList	Fixed Variable User Define d	Controls the format of the material list.  Note  You can use only a Fixed material list with an ISOGEN drawing frame. If the Visible option under DrawingFrame is False, you must set ActiveList to Fixed.	23 pos 3
BoltAccumulation	Normal Suppre ss None	Controls how bolt components are included on or excluded from the material list. <b>None</b> means each occurrence of an item results in an individual entry on the material list.	74 pos 5
		This option does not apply to a User Defined material list, nor when the MLType option for the Fixed or Variable styles is set to Special.	
BoltDiameterUnits	As Drawin g INCH MM	Controls the units for bolt diameter. For the <b>As Drawing</b> setting, see the <b>Drawing.Controls.Units</b> option.	65 pos 2

Property	Value	Description	Option Switch/At tribute
BoltLengthUnits	As Drawin g INCH MM	Controls the units for bolt lengths. For the <b>As Drawing</b> setting, see the <b>Drawing.Controls.Units</b> option.	65 pos 1
Drg1of1OnSingleIsos	True/Fa	Specifies whether the software adds 10 to the value of the MaterialListOverflow option.	30
		If you set this option to <b>True</b> , the software adds 10 to the value of the <b>MaterialListOverflow</b> option. The <b>Drg1of1</b> option controls the output of the string <b>Drg 1 of 1</b> on single-sheet isometric drawings.	
		If you set  Drawing.Content.Change  ManagementEnabled to  True, we recommend you set this option to True.	
ErectAccumulation	Normal Pipe Only Suppre ss	Controls the accumulation of erection materials. <b>Pipe Only</b> means only piping is accumulated. <b>Suppress</b> means the erection items do not appear in the material list at all.	74 pos 2
		This option does not apply to a User Defined material list, nor when the MLType option for the Fixed or Variable styles is set to Special.	

Property	Value	Description	Option Switch/At tribute
ExcludeWeightData	True/Fa	Specifies whether to exclude weight data from the Material List and Supplementary reports. Set this option to <b>True</b> to exclude the component weight data extraction. Set <b>ExcludeWeightData</b> to <b>False</b> if Material List and Supplementary reports require component weight data.	
FabAccumulation	Normal Pipe Only Suppre ss None	Controls the accumulation of fabrication materials. Pipe Only means only pipe is accumulated. Suppress means the fabrication items do not appear in the material list at all. None means the software does not accumulate items but lists them separately in the material list.	74 pos 1
		This option does not apply to a User Defined material list, nor when the MLType option for the Fixed or Variable Layout styles is set to Special.	
GasketAccumulation	Normal Suppre ss None	Controls the accumulation of gaskets.  Note  This option does not apply to a User Defined material list, nor when the MLType option for the Fixed or Variable Layout styles is set to Special.	74 pos 4
InstrSpecialtyItemCode	Specifi ed item code	Specifies the instrument specialty item code to use in the material list.	SmartPlan t 3D

Property	Value	Description	Option Switch/At tribute
ItemCodeLength	Value in range 6	Sets the number of characters in the material list item code.	28
	- 29	✓ Notes	
		The maximum number of item code characters is 29.	
		Changes to this option cause the material list to be wider or narrower.	
LinearQuantityStyle	n.n M n.n ft	Specifies the style for linear quantities in the material list. You can choose from:	24 pos 2
	n MM n ft n in	Meters (M) or Feet: 1 decimal place	
	n.nnn M	Millimeters (MM) or Feet and Inches	
	n.nnn ft	Meters or Feet: 3 decimal places	
MaterialListOverflow	Same Sheet	Controls the overflow of the material list to subsequent	30
	Contin	drawings.	
	uation Sheet	<b>☑</b> Note	
	Silect	If you set <b>Drawing.Content.Change</b>	
		ManagementEnabled to	
		<b>True</b> , we recommend you set this option to	
		Continuation Sheet.	
MaterialListSplitting	Per Drawin g	Controls the plotting of the material list when a pipeline splits onto two or more drawings	24 pos 1
	Per Pipelin e		

Property	Value	Description	Option Switch/At tribute
OffshoreAccumulation	Normal Pipe Only Suppre ss	Controls the accumulation of offshore materials. Pipe Only means only piping is accumulated. Suppress means the offshore items do not appear in the material list at all.  Note  This option does not apply to a User Defined material list, nor when the MLType option for the Fixed or Variable Layout styles is set to Special.	74 pos 3

Property	Value	Description	Option Switch/At tribute
OverflowDrawingID	Next ID	Controls the numbering of overflow drawing sheets.	30
	Alpha suffix	This option applies only when you set the Material List.MaterialListOverflo w option to Continuation Sheet, in order to produce a second sheet displaying the material list continuation. Next ID means the second isometric drawing has the next sheet number in the sequence. Alpha Suffix means the second isometric drawing has the same sheet number as the first one, with a character suffix, for example, A, B, and so forth.  If you set Drawing.Content.Change ManagementEnabled to True, we recommend you set this option to Alpha suffix.	
PipeOidAsItemCode	Pipe Oid value	Specifies a Pipe Oid value will be used as the item code in the material list.	SmartPlan t 3D
TextFont	Font name	Specifies a font corresponding to a font entry in the .fif file.	27 pos 7, 8, 9
UserComponentQTY	Integer value	Specified user component quantity.	SmartPlan t 3D

Property	Value	Description	Option Switch/At tribute
UserDefineBoltItemCode	Catalog Label	Specifies a user-defined item code for bolts in the material list. Click the ellipsis button in the Value field to open the Catalog Label dialog box and select a label to use in the material list. If this option is set, the item code for gaskets in the material list is the value returned by the associated reports label.	Isogen
UserDefinedBoltMaterial Description	Catalog Label	Sets a material description for the bolts in the material list. Click the ellipsis button in the <b>Value</b> field to open the <b>Catalog Label</b> dialog box and select a label to use in the material list. If this option is set, the item code for description in the material list is the value returned by the associated reports label.	SmartPlan t 3D
UserDefinedGasketItemC ode	Catalog Label	Specififes a user-defined item code for gaskets in the material list. Click the ellipsis button in the Value field to open the Catalog Label dialog box and select a label to use in the material list. If this option is set, the item code for gaskets in the material list is the value returned by the associated reports label.	Isogen
UserDefinedGasketMateri alDescription	Catalog Label	Sets a material description for the gaskets in the material list. Click the ellipsis button in the Value field to open the Catalog Label dialog box and select a label to use in the material list. If this option is set, the description for gaskets in the material list is the value returned by the associated reports label.	SmartPlan t 3D

Property	Value	Description	Option Switch/At tribute
UserDefinedInstrumentM aterialDescription	Catalog Label	Sets a material description for the instruments in the material list. Click the ellipsis button in the Value field to open the Catalog Label dialog box and select a label to use in the material list. If this option is set, the description for instruments in the material list is the value returned by the associated reports label.	SmartPlan t 3D
UserDefinedItemCode	Catalog Label	Specifies a user-defined item code to use in the material list. Click the ellipsis button in the <b>Value</b> field to open the <b>Catalog Label</b> dialog box and select a label to use in the material list. If this option is set, the software uses the formatted label output value as the Item-Code of the Iso part. By default, the Item-Code is the <b>ContractorCommodityCode</b> property for the Iso part.	Isogen
UserDefinedPipeMaterial Description	Catalog Label	Sets a material description for the pipes in the material list. Click the ellipsis button in the <b>Value</b> field to open the <b>Catalog Label</b> dialog box and select a label to use in the material list. If this option is set, the description for pipes in the material list is the value returned by the associated reports label.	SmartPlan t 3D
UserDefinedSpecialtyMat erialDescription	Catalog Label	Sets a material description for the specialty items in the material list. Click the ellipsis button in the Value field to open the Catalog Label dialog box and select a label to use in the material list. If this option is set, the description for specialty items in the material list is the value returned by the associated reports label.	SmartPlan t 3D

Property	Value	Description	Option Switch/At tribute
UserDefinedSupportItem Code	Catalog Label	Specifies a user-defined item code for pipe support in the material list. Click the ellipsis button in the Value field to open the Catalog Label dialog box and select a label to use in the material list. If this option is set, the software uses the formatted label output value as the item code for pipe support in the material list.	Isogen
UserDefinedSupportMater ialDescription	Catalog Label	Sets a material description for the pipe supports in the material list. Click the ellipsis button in the Value field to open the Catalog Label dialog box and select a label to use in the material list. If this option is set, the description for pipe supports in the material list is the value returned by the associated reports label.	SmartPlan t 3D
Visible	True/Fa lse	Controls the display of the material list. If you set this option to <b>False</b> , the software turns off all material list types, except the material control file and cut list. The software controls these files separately.	23 pos 1
WeightsStyle	None Total Individ ual	Controls the output of component weights.  Total - Each component weight is a total weight.  For example: quantity x unit weight.	41 pos 5
		Individual - Each component weight is the individual weight of the component type. The quantity is not multiplied by the unit weight.	

Property	Value	Description	Option Switch/At tribute
WeldAccumulation	Normal Suppre ss None	Controls the accumulation of welds. Suppress means the welds do not appear in the material list at all. None means the software does not accumulate items but lists them separately in the material list.  Note  This option does not apply to a User Defined material list, nor when the MLType option for the Fixed or Variable Layout styles is set to Special.	74 pos 6

## **Cut List (Material List)**

Sets options for the cut list, which provides a list of pipes that are cut into smaller lengths during construction.

The **Cut List** folder contains the following groups of options:

- **Fixed Layout** Defines the fixed layout cut list format. For more information, see *Fixed Layout (Material List Cut List)*, page 340.
- **User Defined** Defines the user-defined cut list format. For more information, see *User Defined (Material List Cut List)*, page 340.
- **Summary File** Sets options for the cut list summary file. For more information, see *Summary File (Material List Cut List)*, page 343.

Property	Value	Description	Option Switch/Attribute	
ActiveList	Fixed UserDefined	Controls the format of the	ISOGEN	
	UserDefined	cut list.		
CutPieceID	Numeric	Specifies the cut piece	2 pos 3	
	Alphabetical	identifier type at the		
		appropriate		
		positions along pipelines.		
CutPieceSequence	Continuous	Specifies	2 pos 1	
	Per Drawing	whether cut piece numbers		
	T of Brawing	increase across		
		drawings.		
		If you set this		
		option to		
		Continuous, the cut piece		
		numbers		
		increase across		
		drawings.		
		Otherwise, the		
		cut piece		
		numbers start at		
		1 (or A) on each		
		drawing.		

Property	Property Value		Option Switch/Attribute
DecimalInchOutput True/False		Specifies the output of cut piece lengths in decimal inches for imperial units used.	2 pos 4
LengthToCL	True/False	Specifies the calculation of branch cut length. You can specify that the length be measured to the actual branch connection point or to the run centerline.	2 pos 5
OffShoreAllowance	NoreAllowance Value in range 0-999		22 pos 4-6
OnShoreAllowance Value in range 0-999		Controls the allowance for FFW (Field Fit Weld) or loose flanges that are onshore.	22 pos 1-3
ShopWeldAllowance	Value in range 0-999	Sets the shop test weld allowance.	22 pos 7-9
Visible	True/False	Turns the display of the cut piece list and cut piece identifiers on or off.	2 pos 1

## Fixed Layout (Material List Cut List)

Defines the fixed layout cut list format.

Property	Value	Description	Option Switch/Attribute
Content	Standard	Specifies a limited or full cut list.	2 pos 2
	Extended	Standard - Specifies the old style cut list with limited information.	
		<b>Extended</b> - Specifies the new style cut list with full information.	

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

## **User Defined (Material List Cut List)**

Defines the user-defined cut list format.

The User Defined (Cut List) folder contains the following groups of options:

• **Column** - Specifies the columns for the user defined cut list. For more information, see *Column (Material List Cut List User Defined)*, page 342

Property	Value	Description	Option Switch/Attribute
AllowOverflowDrawings	True/False	Controls whether the cut list causes an overflow drawing.	ISOGEN
DrawingLayer	Integer in the range 1 - 50	Sets the drawing layer for the cut list text.	ISOGEN
HorizontalDirection	Left Right	Sets the horizontal direction for the cut list.	ISOGEN
HorizontalSpacing	Integer	Sets the horizontal spacing required between each column of the cut pipe list output when the table is horizontally formatted or two-dimensional.	ISOGEN

Property	Value	Description	Option Switch/Attribute	
Layout	Single Vertical Single Horizontal Multiple Vertical Multiple Horizontal	Controls whether the table is horizontal, vertical, or a multiple.	ISOGEN	
MaxColumns	Integer	Defines the maximum number of columns before a new row is started when using multiple tables, or the maximum number of entries for a single horizontal table.	ISOGEN	
MaxRows	Integer	Defines the maximum number of rows before a new column is started when using multiple tables, or the maximum number of entries when the table is vertical.	ISOGEN	
StartX	Integer	Defines the bottom left X position of the first line of the cut list.	ISOGEN	
StartY	Integer	Defines the bottom left Y position of the first line of the cut list.	ISOGEN	
TextFont	Font name	Specifies a font corresponding to a font entry in the .fif file.	ISOGEN	
TextHeight	Real number	Sets the height of the text in the cut list.	ISOGEN	
TextWeight	Real number	Sets the character thickness in millimeters.	ISOGEN	

Property	Value	Description	Option Switch/Attribute
TextWidthFactor	Integer	Defines the ratio of width to height of the text in the cut list.	ISOGEN
VerticalDirection	Up Down	Sets the vertical direction for the cut list.	ISOGEN
VerticalSpacing	Integer	Sets the vertical spacing required between each row of the cut pipe list output when the table is vertically formatted or two-dimensional.	ISOGEN

• Appendix: Isometric Drawing Options, page 246

## Column (Material List Cut List User Defined)

Specifies the columns for the user defined cut list.

AttributeName	XPosition	MaxChars
Specifies a property to appear in the column.	Specifies the starting point of the column.	Sets the width of the column.

#### **Related Topics**

## **Summary File (Material List Cut List)**

Sets options for the cut list summary file.

The **Summary File (Material List Cut List)** folder contains the following groups of options:

• **Column** - Specifies the columns for a material list summary file. For more information, see *Column (Material List Cut List Summary File)*, page 344

Property	Value	Description	Option Switch/Attribute
Append	True/False	Defines whether the file is opened in appended mode or overwrite mode.	ISOGEN
Enabled	True/False	Specifies whether the summary file is created.	ISOGEN
HeaderLines	String for the column header	Specifies a text string for the column header. Use a backslash (\) to start a new line, and pipe character ( ) to produce a vertical break. You must ensure that the column headers match the column positions set in the Material List Definition file (MLD).	ISOGEN
		The HeaderLines width is defined by the length of the last line, terminated with the pipe character ( ). The length of the last line should be at least as long as the total width of data to be displayed below it.	
		Column description text in the HeaderLines field must lie in the column bounds as defined.	
		<b>☑</b> Note	
		Do not put text in columns that are not within the specified range of column.	

Property	Value	Description	Option Switch/Attribute
Path	Path to a directory	Specifies a path to the summary file.	ISOGEN
		<b>☑</b> Note	
		Do not include special characters in the summary file name.	
ShowEnclosure	True/False	Specifies whether cut list enclosures are shown.	ISOGEN
ShowHeaders	True/False	Specifies whether the header lines are shown.	ISOGEN
ShowTitles	True/False	Specifies whether the title line is shown.	ISOGEN
TitleText	String	Specifies the text for the title.	ISOGEN
UserDefined	True/False	Specifies whether the software creates the old standard material control file, or the software uses the properties of the summary file object to control the data output to the material control file.	23 pos 4

• Appendix: Isometric Drawing Options, page 246

## Column (Material List Cut List Summary File)

Specifies the columns for a material list summary file.

Attribute Name	Start	Width	Justification
Specifies a property to appear in the column.	Specifies the starting point of the column. The valid range is 1-999.	Sets the width of the column.	Sets the alignment. You can choose from left- or right-justified, or numeric.

### **Related Topics**

# **Fixed Layout (Material List)**

Sets options for the fixed layout material list format. This format produces a simple material list. You can use either a user-defined drawing frame or the standard ISOGEN drawing frame.

Property	Value	Description	Option Switch/ Attribut e
InsertBlankLines	True/Fals e	Sets whether the software inserts blank lines. If you set this option to <b>True</b> , the software inserts blank lines after single line entries in the material list.	26 pos 2
Layout	Standard Continuo us	Specifies the material list layout pattern. Select <b>Standard</b> for the standard sectioned type with group headings and component sub-group headings. Select <b>Continuous</b> for a layout without headings and sub-headings.	23 pos 5
LineSpacing	Value in range 75-125	Controls the line spacing in the material list. This value is a ratio that applies to standard line spacing. For example, a value of 90 reduces the line spacing, and a value of 115 increases the line spacing.	29
MLType	Normal Special Normal with alpha pointers	Controls the type of material list.  Normal means the software does not create a special type of material list.  Special means every item is given a separate entry except gaskets and bolts, which are accumulated. Pulled bends get U prefixes, and welds have W or B prefixes. Normal with alpha pointers means the software does not create a special type of material list. The software uses an alpha system of material list pointers (A, B, C) instead of the default numeric system.	23 pos 2

Property	Value	Description	Option Switch/ Attribut e
RightSide	True/Fals e	Sets the position of the material list. If you set this option to <b>True</b> , the material list appears on the right side of the drawing; otherwise, it appears on the left side.	25 pos 1
ShowDividingLines	True/Fals e	Specifies lines in the material list. If you set this option to <b>True</b> , dividing lines appear in the material list between groups, such as PIPES, FLANGES, or FITTINGS.  This option provides a way to separate the different groups in the material list when the list does not have headings and sub-headings.  Note  This option works only when the MaterialList.FixedLayout.Lay out option is set to Continuous and the MaterialList.FixedLayout.ML  Type is set to Special.	23 pos 5
ShowItemDescripti ons	True/Fals e	Displays descriptions in the material list.	26 pos 1

Property	Value	Description	Option Switch/ Attribut e
TextSize	Small (2.1 mm)	Controls the material list text size.	27
	Medium (2.5 mm)		
	Large (2.8 mm)		
	XLarge (3.5 mm)		
	XXLarge (4.2 mm)		
	XXXLarg e (4.9 mm)		
	User		
TextWeight	Value in range 0-9	Specifies the thickness of the text.	27 pos 5
TextWidth	Value in range 10-99 (in 1/10 millimeter )	Specifies the character width if you are using a fixed-width font.	27 pos 3, 4
TitleblockPos	Pipeline MatList	Controls the position of the title block. <b>Pipeline</b> means the title block is positioned at the bottom right corner of the pipeline drawing area. <b>MatList</b> means the title block is positioned at the bottom of the material list.	25 pos 2

Property	Value	Description	Option Switch/ Attribut e
TitleblockVisible	True/Fals e	Controls whether the title block appears on the drawing.	25 pos 2
UserTextSize	Integer in range 10-	Specifies a user-defined size in 1/10 millimeters. You should use this option only if you set <b>TextSize</b> to <b>User</b> .	27 pos 1, 2

# Variable Layout (Material List)

Sets options for the variable layout material list format. This format includes options to define column headers. You can use either a user-defined drawing frame or the standard ISOGEN drawing frame.

The **Variable Layout (Material List)** folder contains the following groups of options:

• **Column** - Specifies the columns for a variable layout material list. For more information, see *Column (Material List Variable Layout)*, page 352

Property	Value	Description	Option Switch/ Attribu te
DefaultDescripti onWidth	Value in range 0-130	Specifies the default number of characters if you use the DESCRIPTION attribute. You can override this option by setting the Width property for this column. The column width for fixed-width fonts is important only for this attribute.	ISOGE N
HeaderLines	String for the column header.	Specifies a text string for the column header. Use a backslash (\) to start a new line, and a pipe character ( ) to produce a vertical break. You must ensure that the column headers match the column positions set in the Material List Definition file (MLD).  The HeaderLines width is defined by the length of the last line, terminated with the pipe character ( ). The length of the last line should be at least as long as the total width of data to be displayed below it.  Column description text in the HeaderLines field must lie in the column bounds as defined.  Note  Note  Do not put text in columns that are not within the specified range of column.	ISOGE N

Property	Value	Description	Option Switch/ Attribu te
InsertBlankLines	True/False	Sets whether the software inserts blank lines. If you set this option to <b>True</b> , the software inserts blank lines after single line entries in the material list.	26
Layout	Standard Continuous	Specifies the material list layout pattern. Select <b>Standard</b> for the standard sectioned type with group headings and component sub-group headings. Select <b>Continuous</b> for a layout without headings and sub-headings.	23 pos 5
LineSpacing	Value in range 75- 125	Controls the line spacing in the material list. This value is a ratio that applies to standard line spacing. For example, a value of 90 reduces the line spacing, and a value of 115 increases the line spacing.	29
MLType	Normal Special Normal with alpha pointers	Controls the type of material list. <b>Normal</b> means there is no special type of material list. <b>Special</b> means every item is given a separate entry except gaskets and bolts, which are accumulated. Pulled bends get <b>U</b> prefixes, and welds have <b>W</b> or <b>B</b> prefixes. <b>Normal with alpha pointers</b> means the software does not create a special type of material list. The software uses an alpha system of material list pointers (A, B, C) instead of the default numeric system.	23 pos 2
RightSide	True/False	Sets the position of the material list. If you set this option to <b>True</b> , the material list appears on the right side of the drawing; otherwise, it appears on the left side.	25

Property	Value	Description	Option Switch/ Attribu te
ShowDividingLi nes	True/False	Specifies lines in the material list. If you set this option to <b>True</b> , dividing lines appear in the material list between groups, such as PIPES, FLANGES, or FITTINGS.	23 pos 5
		This option provides a way to separate the different groups in the material list when the list does not have headings and sub-headings.	
		<b>☑</b> Note	
		This option works only when the MaterialList.VariableLayout.L ayout option is set to Continuous.	
TextSize	Small (2.1 mm)	Controls the material list text size.	27
	Medium (2.5 mm)		
	Large (2.8 mm)		
	XLarge (3.5 mm)		
	XXLarge (4.2 mm)		
	XXXLarge (4.9 mm)		
	User		
TextWeight	Value in range 0-9	Specifies the thickness of the text.	27 pos 5
TextWidth	Value in range 10-99 (in 1/10 millimeter)	Specifies the character width if you are using a fixed-width font.	27 pos 3, 4

Property	Value	Description	Option Switch/ Attribu te
UserTextSize	Integer in range 10-99	Specifies a user-defined size in 1/10 millimeters. You should use this option only if you set <b>TextSize</b> to <b>User</b> .	27 pos 1, 2

• Appendix: Isometric Drawing Options, page 246

# Column (Material List Variable Layout)

Specifies the columns for a variable layout material list.

Attribute Name	Start	Width	Justification
Specifies a property to appear in the column.	Specifies the starting point of the column. The valid range is 1-999.	Sets the width of the column.	Sets the alignment. You can choose from left- or right-justified, or numeric.

## **Related Topics**

## **User Defined (Material List)**

Sets options for the user-defined material list format. The user-defined material list offers more flexibility than the other two material list styles.

### Note

• This style of material list requires a user-defined backing sheet.

The User Defined (Material List) folder contains the following groups of options:

- **Column** Specifies the columns for a user-defined material list. For more information, see *Column (Material List User Defined)*, page 356.
- One Section Sets options for the user-defined material list format. This format displays one section in the material list. For more information, see *One Section (Material List User Defined)*, page 356.
- **Two Section** Sets options for the user-defined material list format. This format displays two sections in the material list. For more information, see *Two Section (Material List User Defined)*, page 357.
- **Three Section** Sets options for the user-defined material list format. This format displays three sections in the material list. For more information, see *Three Section (Material List User Defined)*, page 358.
- **Remarks Box** Sets options for the user-defined material list remarks box. For more information, see *Remarks Box (Material List User Defined)*, page 360.

Property	Value	Description	Option Switch/Att ribute
ActiveSection	1, 2, 3	Defines the number of sections in the material list.	ISOGEN
CategoryHeadin gX	True/F alse	Controls whether category headings are displayed.	ISOGEN
CategoryUnderli ne	True/F alse	Controls whether category headings are underlined.	ISOGEN
DefaultDescripti onWidth	Value in range 0-130	Specifies the default number of characters if you use the DESCRIPTION attribute. You can override this option by setting the <b>Width</b> property for this column. The column width for fixed-width fonts is important only for this attribute.	ISOGEN

Property	Value	Description	Option Switch/Att ribute
DrawingLayer	Integer , range 1-50	Sets the drawing layer for material list text. For more information about drawing layers, see <i>Definitions (Drawing)</i> , page 296.	ISOGEN
GroupHeadingX	Integer (mm)	Specifies the displacement from the StartX setting for the group heading.	ISOGEN
GroupUnderline	True/F alse	Controls whether group headings are underlined.	ISOGEN
MLType	Norma  I  Special  Norma  I with alpha pointer s	Controls the type of material list. Normal means the software does not create a special type of material list. Special means every item is given a separate entry except gaskets and bolts, which are accumulated. Pulled bends get U prefixes, and welds have W or B prefixes. Normal with alpha pointers means the software does not create a special type of material list. The software uses an alpha system of material list pointers (A, B, C) instead of the default numeric system.	23 pos 2
ShowCategoryH eadings	True/F alse	Specifies whether or not the category headings appear.	ISOGEN
ShowGroupHead ings	True/F alse	Specifies whether or not the group headings appear.	ISOGEN
ShowRemarks	True/F alse	Controls the appearance of a remarks list, as defined by the separate <b>Remarks</b> options. For more information about remarks, see <i>Remarks Box (Material List User Defined)</i> , page 360.	ISOGEN
StartX	Integer	Defines the bottom left X position of the first line of the material list.	ISOGEN
StartY	Integer	Defines the bottom left Y position of the first line of the material list.	ISOGEN
TextFont	Font name	Specifies a font corresponding to a font entry in the .fif file.	ISOGEN
TextHeight	Real numbe r	Specifies the text height in millimeters. The text height applies to all sections in the material list.	ISOGEN
TextWeight	Integer	Specifies the text weight.	ISOGEN

Property	Value	Description	Option Switch/Att ribute
TextWidthFactor	Integer	Defines the ratio of width to height of the text in the material list.	ISOGEN
VerticalSpacing	Real numbe r	Specifies the vertical spacing between the lines of data. The vertical spacing applies to all sections in the material list.	ISOGEN

# Column (Material List User Defined)

Specifies the columns for a user-defined material list.

Attribute Name	XPosition	MaxChars
Specifies a property to	Specifies the starting point of the	Sets the width of
appear in the column.	column. The valid range is 1-999.	the column.

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

## One Section (Material List User Defined)

Sets options for the user-defined material list format. This format displays one section in the material list.

Property	Value	Description	Option Switch/ Attribute
Content	CONTINUOUS  FAB  ERECT  OFFSHORE  ERECT/OFFSHORE	Selects the category of data for the material list content.  CONTINUOUS means ALL items appear in the material list.  The default for this option is CONTINUOUS.	ISOGEN
ListDown	True/False	Specifies the plotting of the material list. If you set this option to <b>False</b> , the software plots data from the bottom up. The default for this option is <b>True</b> .	ISOGEN
MaxEntries	Positive Integer	Sets the maximum number of entries in the material list.	ISOGEN

### **Related Topics**

# **Two Section (Material List User Defined)**

Sets options for the user-defined material list format. This format displays two sections in the material list.

Property	Value	Description	Option Switch/ Attribute
Section1Content	FAB ERECT OFFSHORE ERECT/OFFSHORE	Selects the category of data for the material list content in Section 1. The default for this option is <b>FAB</b> .	ISOGEN
Section1Down	True/False	Specifies the plotting of the material list. If you set this option to <b>False</b> , the software plots data from the bottom up in Section 1. The default for this option is <b>True</b> .	ISOGEN
Section1MaxEntries	Integer	Sets the maximum number of entries in Section 1.	ISOGEN
Section1YOffset	Integer	Controls the Y offset for section 1 of the material list with reference to the StartX and StartY options under Material List > User Defined.	ISOGEN
Section2Content	FAB ERECT OFFSHORE ERECT/OFFSHORE	Selects the category of data for the material list content in Section 2. The default for this option is <b>ERECT</b> . This option cannot be same as <b>Section1Content</b> .	ISOGEN
Section2Down	True/False	Specifies the plotting of the material list. If you set this option to <b>False</b> , the software plots data from bottom up in Section 2. The default for this option is <b>True</b> .	ISOGEN

Property	Value	Description	Option Switch/ Attribute
Section2MaxEntries	Integer	Sets the maximum number of entries in Section 2.	ISOGEN
Section2YOffset	Integer	Controls the Y offset for section 2 of the material list with reference to the StartX and StartY options under Material List > User Defined.	ISOGEN

• Appendix: Isometric Drawing Options, page 246

## Three Section (Material List User Defined)

Sets options for the user-defined material list format. This format displays three sections in the material list.

Property	Value	Description	Option Switch/ Attribute
ListDown	True/False	Sets the plotting of the material list. If you set this option to <b>False</b> , the software plots data from the bottom up. The default for this option is <b>True</b> .	ISOGEN
Section1Content	FAB ERECT OFFSHORE ERECT/OFFSHORE	Selects the category of data for the material list content in Section 1. The default for this option is <b>FAB</b> .	ISOGEN
Section1MaxEntries	Integer	Sets the maximum number of entries in Section 1.	ISOGEN
Section1YOffset	Integer	Controls the Y offset for section 1 of the material list with reference to the StartX and StartY options under Material List > User Defined.	ISOGEN

Property	Value	Description	Option Switch/ Attribute
Section2Content	FAB ERECT OFFSHORE ERECT/OFFSHORE	Selects the category of data for the material list content in Section 2. The default for this option is <b>ERECT</b> . This option cannot be the same as <b>Section1Content</b> .	ISOGEN
Section2MaxEntries	Integer	Sets the maximum number of entries in Section 2.	ISOGEN
Section2YOffset	Integer	Controls the Y offset for section 2 of the material list with reference to the StartX and StartY options under Material List > User Defined.	ISOGEN
Section3Content	FAB ERECT OFFSHORE ERECT/OFFSHORE	Selects the category of data for the material list content in Section 3. The default for this option is <b>OFFSHORE</b> . This option cannot be the same as <b>Section1Content</b> or <b>Section2Content</b> .	ISOGEN
Section3MaxEntries	Integer	Sets the maximum number of entries in Section 3.	ISOGEN
Section3YOffset	Integer	Controls the Y offset for section 3 of the material list with reference to the StartX and StartY options under Material List > User Defined.	ISOGEN

# Remarks Box (Material List User Defined)

Sets options for the user-defined material list remarks box.

Property	Value	Description	Option Switch/ Attribut e
DrawingLayer	Integer in the range 1-50	Sets the drawing layer for material list text. For more information about drawing layers, see <i>Definitions (Drawing)</i> , page 296.	ISOGEN
MaxCharacters	Positive integer	Sets the maximum number of characters per line in the remarks box.	ISOGEN
MaxEntries	Positive integer	Sets the maximum number of entries in the remarks box.	ISOGEN
StartX	Positive real number in millimeter s	Specifies the X-coordinate (in millimeters) of the starting position for the remarks box.	ISOGEN
StartY	Positive real number in millimeter s	Specifies the Y-coordinate (in millimeters) of the starting position for the remarks box.	ISOGEN
TextHeight	Positive real number in millimeter s	Specifies the height of the characters in remarks text.	ISOGEN
TextWeight	Positive real number in millimeter s	Specifies the weight of the characters in remarks text.	ISOGEN
VerticalSpacin g	Positive real number in millimeter s	Sets the vertical spacing between the horizontal lines of remark text.	ISOGEN

### **Related Topics**

## **Summary File (Material List)**

Sets options for the material list summary file.

The Summary File (Material List) folder contains the following groups of options:

• **Column** - Specifies the columns for a material list summary file. For more information, see *Column (Material List Summary File)*, page 362.

Property	Value	Description	Option Switch/Attribute
Append	True/False	Defines whether the file is opened in appended mode or overwrite mode.	ISOGEN
Enabled	True/False	Specifies whether the summary file is created.	ISOGEN
HeaderLines	String for the column header	Specifies a text string for the column header. Use a backslash (\) to start a new line, and pipe character ( ) to produce a vertical break. You must ensure that the column headers match the column positions set in the Material List Definition file (MLD).  The HeaderLines width is defined by the length of the last line, terminated with the bar character  . The length of the last line should be at least as long as the total width of data to be displayed below it.  Column description text in the HeaderLines field must lie in the column bounds as defined.  Note  Note  Do not put text in columns that are not within the specified range of column.	ISOGEN
IncludeBolts	True/False	Specifies whether bolts are included in the summary file.	65 pos 1

Property	Value	Description	Option Switch/Attribute
Path	Path to a directory	Specifies a path to the summary file.	ISOGEN
		<b>☑</b> Note	
		Do not include special characters in the summary file name.	
ShowHeaders	True/False	Specifies whether the header lines are shown.	ISOGEN
ShowTitles	True/False	Specifies whether the title line is shown.	ISOGEN
TitleText	String	Specifies text for the title.	ISOGEN
UserDefined	True/False	Specifies whether the software creates the old standard material control file, or the software uses the properties of the summary file object to control the data output to the material control file.	23 pos 4

### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

## Column (Material List Summary File)

Specifies the columns for a material list summary file.

Attribute Name	Start	Width	Justification
Specifies a property to appear in the column.	Specifies the starting point of the column. The valid range is 1-999.	Sets the width of the column.	Sets the alignment. You can choose from left- or right-justified, or numeric.

#### **Related Topics**

### **Transfers (Material List)**

Moves components from one sort group to another. For example, by default a blind flange is listed in the Valves/Inline item group in the material list. Using the Transfers functionality, you can specify that blind flanges are listed in the Flanges group in the material list instead.

#### Note

• When you transfer components on a Variable Layout or User Defined material list, you must also change the material list headings by specifying AText -307, -308, -309, -311, -312, -313, -314, -315, -339, and -375. For more information, see the *AText Reference Guide*, available from the **Help** > **Printable Guides** command in the software or from the Alias web site (http://www.alias.ltd.uk).

RecordID	NewGroup
Specifies the record ID of the component type. Valid IDs are integers in the range 0-999. For more information, see <i>Record Identification Numbers</i> , page 364.	Specifies a new group for the component type. Available sort groups include:
	PIPE (pipe)
	VALV (valves and inline items)
	FITT (fittings)
	INST (instruments)
	FLAN (flanges)
	SUPP (supports)
	GASK (gaskets)
	MISC (miscellaneous components)
	BOLT (bolts)
	WELD (welds)

#### **Related Topics**

### **Record Identification Numbers**

### **Spool and In-Line Fitting Records**

Spool/Fitting Type	In Leg	First Branch Leg	Second Branch Leg	Out Leg	Remarks
Bend	30	-	-	31	
Elbow	35	-	-	36	
Olet	40	41	-	42	Plus a 0 record
Tee	45	46	-	47	Plus a 0 record
Cross	50	51	52	53	Plus a 0 record
Reducer (Con/Ecc)	55	-	-	-	Plus a 0 record
Tee Reducer (Con/Ecc)	60	61	-	62	Plus a 0 record
Reducing Flange	65	-	-	-	Plus a 0 record
Tee Bend/Elbow	70	71	-	72	Plus a 0 record
Angle Valve	75	-	-	76	Plus a 0 record
3 Way Valve	80	81	-	82	Plus a 0 record
4 Way Valve	85	86	87	88	Plus a 0 record
Instrument	90	91	92	93	A straight through type instrument has only 90 and 93 record ID numbers. Instrument dials have only a 90 record.
Pcom (Misc. Pipe Component)	95	-	-	96	
Pipe (Tube)	100	-	-	-	
Fixed Length Pipe	101	-	-	-	
Pipe Block (Fixed Length)	102	-	-	-	
Pipe Block (Variable Length)	103	-	-	-	
Flange	105	-	-	-	
Lap Joint Stub End	106	-	-	-	

Spool/Fitting Type	In Leg	First Branch Leg	Second Branch Leg	Out Leg	Remarks
Blank Flange (Blind)	107	-	-	-	
Gasket	110	-	-	-	
Bolt	115	-	-	-	
Weld	120	-	-	-	
Cap	125	-	-	-	
Coupling	126	-	-	-	
Union	127	-	-	-	
Valve	130	-	-	-	
Trap	132	-	-	-	
Vent	134	-	-	-	
Filter	136	-	-	-	
User Positioned Comment	149	-	-	-	Used to define position
Pipe Hanger/Support	150	-	-	-	
	180 to 199 inclusive	-	-	-	Reserved for internal ISODAT processing.
Bore Record	0	-	-	-	
End of File Marker	999	-	-	-	

Related TopicsTransfers (Material List), page 363

### Weld List Options: An Overview

Sets options for the ISOGEN weld list. For options that control weld representation on the drawing, see *Welds (Drawing)*, page 289.

#### Note

• The weld list is the report that appears on the drawing, while the weld list summary file is the weld data formatted in a text file.

The **Weld List** folder contains the following groups of options.

- **Fixed Layout** Defines the fixed layout weld list. For more information, see *Fixed Layout (Weld List)*, page 367.
- Variable Layout Defines the alternative variable layout weld list. The fixed layout list is a fixed-format list that you cannot modify. The variable layout list is a column-based list. For more information, see *Variable Layout (Weld List)*, page 368.
- **User Defined** Defines the alternative user defined weld list. The software prints this type of list into a drawing frame that contains a pre-existing table with header texts. The user defined list is a collection of start positions expressed in millimeters. For more information, see *User Defined (Weld List)*, page 370.
- **Summary File** Defines the titles section of a user-defined weld summary file and contains a series of column definitions. You can suppress the display of title and column header information to produce a more readily machine-readable summary file. For more information, see *Summary File* (*Weld List*), page 372.

Property	Value	Description	Option Switch/Attribute
ActiveList	Fixed Variable	Controls the format of the weld list.	53 pos 2
	UserDefined		
Visible	True/False	Turns on or off the display of the weld or operations summary on the drawing.	53 pos 2

#### **Related Topics**

# Fixed Layout (Weld List)

Sets options for the fixed layout weld list format. This format produces a simple weld list. You can use either a user-defined drawing frame or the standard ISOGEN drawing frame.

Property	Value	Description	Option Switch/Attribute
ShowOperationsBox	True/False	Controls whether the weld operations box is shown or not.	53 pos 2
		True - The weld operations box is shown. This operations box replaces the original weld list if the WeldList.Visible option is set to True.	
		False - The weld operations box is not shown. The original weld list is plotted if the WeldList.Visible option is set to True.	

#### **Related Topics**

### Variable Layout (Weld List)

Sets options for the variable layout weld list format. This format includes options to define column headers. You can use either a user-defined drawing frame or the standard ISOGEN drawing frame.

The Variable Layout (Weld List) folder contains the following groups of options:

• **Column** - Specifies the columns for a variable layout weld list. For more information, see *Column (Weld List Variable Layout)*, page 369.

Property	Value	Description	Option Switch/Attribute
HeaderLines	String for the column header.	Controls the column header text in the material list.  Notes  Check that the column headers match the column positions when you use this option.  Type \ to start a new line	ISOGEN
		in the column header.  Type   for a vertical break.	

#### **Related Topics**

### **Column (Weld List Variable Layout)**

Specifies the columns for a variable layout weld list.

Attribute Name	Start	Width	Justification
Specifies a property to appear in the column.	Specifies the starting point of the column. The valid range is 1-999.	Sets the width of the column. The width must be zero or greater.	Sets the alignment. You can choose from left- or right-justified, or numeric.

### **Related Topics**

### **User Defined (Weld List)**

Sets options for the user-defined weld list format. The user-defined weld list offers more flexibility than the other two weld list styles.

The User Defined (Weld List) folder contains the following groups of options:

• **Column** - Specifies the columns for a user-defined weld list. For more information, see *Column (Weld List User Defined)*, page 371.

Property	Value	Description	Option Switch/Attrib ute
DrawingLaye r	Integer, range 1- 50	Sets the drawing layer for weld list text. For more information about drawing layers, see <i>Definitions (Drawing)</i> , page 296.	ISOGEN
ListDown	True/Fal se	Sets the plotting of the weld list. If you set this option to <b>False</b> , the software plots data from the bottom up. The default for this option is <b>True</b> .	ISOGEN
MaxEntries	Integer	Sets the maximum number of entries for the weld list.	ISOGEN
StartX	Integer	Defines the bottom left X position of the first line of the weld list.	ISOGEN
StartY	Integer	Defines the bottom left Y position of the first line of the weld list.	ISOGEN
TextHeight	Real number	Specifies the text height in millimeters.	ISOGEN
TextWeight	Integer	Specifies the character thickness in millimeters.	ISOGEN
VerticalSpaci ng	Real number	Specifies the vertical spacing between each horizontal line.	ISOGEN

#### **Related Topics**

### Column (Weld List User Defined)

Specifies the columns for a user-defined weld list.

Attribute Name	XPosition	MaxChars
Specifies a property to appear in the column.		Specifies the starting point of the column. The valid range is 1-999.

### **Related Topics**

### **Summary File (Weld List)**

Sets options for the titles and column headers in a user-defined weld summary file. You can suppress the display of title and column header information in order to produce a more readily machine-readable summary file.

The **Summary File (Weld List)** folder contains the following groups of options:

• **Column** - Specifies the columns for a weld list summary file. For more information, see *Column (Weld List Summary File)*, page 374



• In order to specify a summary file, you must also enter data in the **Weld List.Summary File.Column** grid.

Property	Value	Description	Option Switch/Attribute
Append	True/False	Specifies an append file for welds. If you set this option to <b>True</b> , the software creates an append file. The current pipeline is added to an accumulation file. If you set this option to <b>False</b> , the software creates a new file.	ISOGEN
Delimiter	User- defined value	Specifies a delimiter to use for the header lines that appear at the top of a Weld List Summary file.	ISOGEN
Enabled	True/False	Controls whether the summary file is created. If you want to set this option to <b>True</b> , you first must specify the columns under <b>Weld List.Summary.Column</b> .	ISOGEN
FileFormat	Fixed	Sets the format of the site weld file.	ISOGEN
	Delimited		

Property	Value	Description	Option Switch/Attribute
HeaderLines	String containing column header lines	Controls the column header text in the weld list.  Notes	ISOGEN
		Check that the column headers match the column positions when you use this option.	
		Type \ to start a new line in the column header.	
		Type   for a vertical break.	
Path	Path to a file	Browses your computer or network for a file name.	ISOGEN
		<b>☑</b> Note	
		Do not include special characters in the summary file name.	
ShowHeaders	True/False	Controls whether column headers appear.	ISOGEN
ShowTitles	True/False	Controls whether titles appear in the weld summary file. This option overrides the setting in <b>TitleText</b> .	ISOGEN
TitleText	String containing title text	Constructs the weld summary file title block.	ISOGEN

### **Related Topics**

### **Column (Weld List Summary File)**

Specifies the columns for a weld list summary file.

Attribute Name	Start	Width	Justification
Specifies a property to appear in the column.	Specifies the starting point of the column. The valid range is 1-999.	Sets the width of the column.	Sets the alignment. You can choose from left- or right-justified, or numeric.

#### **Related Topics**

### **Neutral File Options: An Overview**

Sets options for the material take-off neutral file. This file has a .b extension and is saved in the output folder.

#### Note

• To exclude items from the neutral file, you can set properties on the items in the model. On the **Occurrence** tab of the **Properties** dialog box for an item, set the **Reporting Requirements** property to **Not to be reported**. Set the **Reporting Type** property to **<undefined value>**.

The **Neutral File** folder contains the following groups of options:

- User Attributes Specifies the user attributes for the material take-off neutral file. For more information, see *User Attributes (Neutral File)*, page 377.
- **Part Data** Specifies the part data for the material take-off neutral file. For more information, see *Part Data (Neutral File)*, page 378.
- **Weld Data** Specifies the weld data for the material take-off neutral file. For more information, see *Weld Data* (*Neutral File*), page 379.
- **Bolt Data** Specifies the bolt data for the material take-off neutral file. For more information, see *Bolt Data (Neutral File)*, page 380.
- **Gasket Data** Specifies the gasket data for the material take-off neutral file. For more information, see *Gasket Data (Neutral File)*, page 381.

Property	Value	Description	Option Switch/ Attribute
Enabled	True/False	Produces the Intergraph MTO file.	SmartPlant 3D
GeneratedBySheet	True/False	Splits the MTO neutral file by sheet.	SmartPlant 3D
GroupBPIP	True/False	Specifies whether pipe bends (BPIP) are treated as pipe in the neutral file rather than being listed separate in the .b file. When set to <b>False</b> , the .b file contains separate entries for pipe bends and pipe. If set to <b>True</b> , you only get one entry for pipe.	SmartPlant 3D

Property	Value	Description	Option Switch/ Attribute
GroupPerRun	True/False	Specifies whether a single *.b file is supported for each ISO extraction. If the ISO line count is greater than 1, <b>Enabled</b> is set to <b>True</b> , and <b>GroupPerRun</b> is set to <b>True</b> , the group neutral b file is created using the first line's name. For example, "lineName"-grp.b will contain all the data of each ISO line in the process.	SmartPlant 3D
RecordLength	256 1024	Uses standard neutral file record length of 256 or expanded length 1024.	SmartPlant 3D
Sort	True/False	Sorts the records returned on the MTO neutral file.	SmartPlant 3D

### **Related Topics**

# **User Attributes (Neutral File)**

Specifies the user attributes for the material take-off neutral file.

Name	LabelName
Specifies a name corresponding to the attribute.	Specifies the catalog label for the attribute. You can click the browse button to navigate the Catalog hierarchy.

### **Related Topics**

### Part Data (Neutral File)

Specifies the part information for the material take-off neutral file.

The Part Data (Neutral File) folder contains the following groups of options:

• **Column** - Specifies the columns for part data in the MTO neutral file. For more information, see *Column (Neutral File Part Data)*, page 378.

Property	Value	Description	<b>Option Switch</b>
Enabled	True/False	Produces part data for the MTO file.	SmartPlant 3D

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

### Column (Neutral File Part Data)

Specifies the columns for part data in the MTO neutral file.

Attribute	Start	Width
Specifies a property to appear in the column.	Specifies the starting point of the column.	Sets the width of the column.

#### **Related Topics**

### Weld Data (Neutral File)

Specifies the weld information for the material take-off neutral file.

The Weld Data (Neutral File) folder contains the following groups of options:

• Column - Specifies the columns for weld data in the MTO neutral file. For more information, see *Column (Neutral File Weld Data)*, page 379.

Property	Value	Description	Option Switch/Attribute
Enabled	True/False	Produces weld data for the MTO file.	SmartPlant 3D

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

### Column (Neutral File Weld Data)

Specifies the columns for weld data in the MTO neutral file.

Attribute	Start	Width
Specifies a property to appear in the column.	Specifies the starting point of the column.	Sets the width of the column.

#### **Related Topics**

### **Bolt Data (Neutral File)**

Specifies the bolt information for the material take-off neutral file.

The **Bolt Data** (Neutral File) folder contains the following groups of options:

• Column - Specifies the columns for bolt data in the MTO neutral file. For more information, see *Column (Neutral File Bolt Data)*, page 380.

Property	Value	Description	Option Switch/Attribute
Enabled	True/False	Produces bolt data for the MTO file.	SmartPlant 3D

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

### Column (Neutral File Bolt Data)

Specifies the columns for bolt data in the MTO neutral file.

Attribute	Start	Width
Specifies a property to appear in the column.	Specifies the starting point of the column.	Sets the width of the column.

#### **Related Topics**

### Gasket Data (Neutral File)

Specifies the gasket information for the material take-off neutral file.

The Gasket Data (Neutral File) folder contains the following groups of options:

• **Column** - Specifies the columns for gasket data in the MTO neutral file. For more information, see *Column (Neutral File Gasket Data)*, page 381.

Property	Value	Description	Option Switch/Attribute
Enabled	True/False	Produces gasket data for the MTO file.	SmartPlant 3D

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

### Column (Neutral File Gasket Data)

Specifies the columns for gasket data in the MTO neutral file.

Attribute	Start	Width
Specifies a property to appear in the column.	Specifies the starting point of the column.	Sets the width of the column.

#### **Related Topics**

### Labels Options: An Overview

Sets options for labels on the isometric drawing. You must have a Reports database and Schema in order to use labels on isometric drawings.

The **Labels** folder contains the following groups of options:

- **ComponentNote** Generates labels for specific components. For more information, see *Component Note (Labels)*, page 383.
- ComponentNoteConditional Generates labels for specific components based on test values. For more information, see *ComponentNoteConditional (Labels)*, page 384.
- **ComponentAtt** Generates labels for specific components based on component attribute. For more information, see *ComponentAtt* (*Labels*), page 385.
- **Material List** Generates labels for items in the material list. For more information, see *Material List (Labels)*, page 386.
- **Misc-Spec** Generates labels for piperun properties. For more information, see *MiscSpec* (*Labels*), page 390.
- **Weld List** Generates labels for items in the weld list. For more information, see *Weld List (Labels)*, page 387.
- **Drawing Frame** Generates labels with drawing frame text. For more information, see *Drawing Frame (Labels)*, page 388.
- **End Connection** Generates labels for end connections. For more information, see *End Connection (Labels)*, page 389.
- **PipeLineListBox** Generates labels to use for the PipeLineListBox. For more information, see *PipeLineListBox* (*Labels*), page 391.

Property	Value	Description	Option Switch/Attribute
EnableLabels	True/False	Enables reporting labels.	SmartPlant 3D
MiscSpec	True/False	Enables the use of miscellaneous specifications.	SmartPlant 3D

#### **Related Topics**

# **Component Note (Labels)**

Generates notes that point to specific components on the isometric drawing. The report label definition determines the different types of notes.

LabelAttribute2	LabelName	MessageEnclosure
Selects a component type, such as PIPE, VALVE, or PIPE-SUPPORT.	Provides the name of the label. You click the Browse button to open a dialog box and select a label definition from the catalog. Commonly, you will choose a label from the <b>Iso</b> category of labels.	Provides the type of enclosure for the label.

### **Related Topics**

### ComponentNoteConditional (Labels)

Generates notes that point to specific components on the isometric drawing. The report label definition determines the different types of notes based on a test condition.

Property	Description
LabelAttribute2	Specifies a component type, such as <b>PIPE</b> , <b>VALVE</b> , or <b>PIPE</b> -SUPPORT.
TestLabelName	Identifies a catalog label to use for the test label. Click the ellipsis in the <b>TestLabelName</b> field to open the <b>Catalog Label</b> dialog box and select a label.
MessageEnclosure	Specifies the type of enclosure for the label. The types provided are Message, Message-Square, Message-Pointed, Message-Round, Message-Circle, Message-Triangle, and Message-Diamond.
TestValues	Identifies the values to use in the test label.
OutputLabelName	Identifies a catalog label to use for the output label. Click the ellipsis in the <b>OutputLabelName</b> field to open the <b>Catalog Label</b> dialog box and select a label.

### **Related Topics**

## ComponentAtt (Labels)

Generates notes that point to specific component attributes on the isometric drawing. The report label definition determines the different types of notes based on attributes.

Property	Description
CompAttribute	Specifies a component attribute.
LabelName	Identifies a catalog label to use for the component attribute label.  Click the ellipsis in the <b>LabelName</b> field to open the <b>Catalog Label</b> dialog box and select a label.

#### **Related Topics**

# Material List (Labels)

Generates notes that correspond to items in the material list.

LabelAttribute	LabelName
Selects an attribute.	Provides the name of the label. Click the browse button to open a dialog box and select a label definition from the catalog.  MATERIAL-USER0 through  MATERIAL-USER9 are user-defined attributes reported in the material list.

### **Related Topics**

# Weld List (Labels)

Generates notes that correspond to items in the weld list.

LabelAttribute	LabelName
Selects an	Provides the name of the label. Click the ellipsis button to open the
attribute.	Catalog Labels dialog box and select a label to use. WELD-
	ATTRIBUTE1 through WELD-ATTRIBUTE10 are user-defined
	weld properties reported in the weld box or weld summary report.

### **Related Topics**

## **Drawing Frame (Labels)**

Associates drawing frame formatted text with a report label definition. You can use this option folder to specify labels for the drawing frame. For more information, see *Attribute Mapping: An Overview*, page 398.

LabelAttribute	LabelName	OidType
Selects an attribute.	Provides the name of the label. Click the ellipsis button to open the <b>Catalog Labels</b> dialog box and select a label to use.	Specifies that an Oid type can be associated with the drawing frame.

#### **Related Topics**

# **End Connection (Labels)**

Associates a drawing end connection note with a catalog report label template.

LabelAttribute3	LabelName	MessageEnclosure
Select an attribute for the label.	Provides the name of the label. Click the browse button to open a dialog box and select a label definition from the catalog. Commonly, you will choose a label from the <b>Iso</b> category of labels.	Provides the type of enclosure for the label.

### **Related Topics**

# MiscSpec (Labels)

Generates notes that correspond to items in a miscellaneous specification.

LabelAttribute	LabelName
Selects an attribute.	Provides the name of the label. Click the browse button to open a dialog box and select a label definition from the catalog. MISC-
	<b>SPEC1</b> through <b>MISC-SPEC5</b> are user-defined piperun properties used to call out attribute breaks in the isometric drawing.

### **Related Topics**

# PipeLineListBox (Labels)

Generates labels to use as part of the PipeLineListBox.

LabelAttribute	LabelName
Selects an attribute.	Provides the name of the label. Click the browse button to open a dialog box and select a label definition from the catalog. The defined values show up in <b>DrawingFrame.PipeLineList.Columns</b> so you can give the column a name and the defined attributes that map to a label. For more information, see <i>Column (Drawing Frame Pipeline List)</i> , page 304.

### **Related Topics**

### Symbol Mapping (SymbolMAP): An Overview

Defines the symbol mapping between the software and ISOGEN, which is the thirdparty software used to create isometric drawings. The symbol mapping is defined for each isometric style.

The symbol map must contain all matching data for objects in the model. If the software fails to find a matching symbol name for each object during the extraction process, a message appears. Your system administrator then must update the symbol map accordingly.

The content in this option category is similar to the PDS-to-ISOGEN map in PDS (Plant Design System).

The **SymbolMAP** folder also provides supplement definitions. For more information, see *Supplement (SymbolMAP)*, page 394.

SP3DPar	EndPrep	IsoGenSkey	ComponentClas
tClass	Code		s
Specifies a part class name for the piping compone nt. These part class names are sheet names in the <b>Piping.xl s</b> workboo k.	Specifies the codelist number for the end preparatio n of the piping componen t. For more details about the End Preparatio n codelist, see the AllCodeL ists.xls workbook .	Specifies the ISOGEN symbol key for the piping component.  Most components are mapped to an SKEY using an end preparation of 0. You can specify a wildcard for the end type. For example, when ** is specified for the end type, the software reads the End Prep from the part and assigns the correct ISOGEN end type.  Note  An important exception is the nipple. You must map two different SKEYs and associated component identifiers based on the end preparation of the nipple. In other words, the SKEY mapping for nipples always requires end-prep information. For more information, see Nipple Symbol Mapping, page 395.	Specifies the Piping Component File (PCF) identification text for the piping component. This ID must be a valid ISOGEN Component Type Identifier as described in the ISOGEN documentation, which is accessible from the Help > Printable Guides command.

#### **Note**

• In the current version of the software, any part class that represents a spectacle blind, slip ring, paddle spacer, or other part that needs to have a primary direction output on it must be mapped to one of the following SKEYs: SP, SR, or SB. Likewise, it should be mapped to the component class MISC-COMPONENT.

Because these three SKEYs are user-definable, you can change the graphics of the SKEYs if necessary, but the names of the SKEYs cannot be changed if the direction output is needed.

#### **Related Topics**

- Appendix: Isometric Drawing Options, page 246
- Appendix: Symbols and Symbol Keys, page 406

# Supplement (SymbolMAP)

Defines supplement symbol mapping for end preparation codes.

EndPrep1	EndPrepCode	EndPrepMap	Description
Provides a user reference for the symbol mapping.	Specifies a numerical value from the EndPreparation 3D codelist.	Specifies the ISOGEN allowable end condition code. For more information, see the <i>Symbol Keys Reference Guide</i> available from <b>Help &gt; Printable Guides</b> .	Provides a description of the end preparation mapping.

#### **Related Topics**

- Appendix: Isometric Drawing Options, page 246
- Appendix: Symbols and Symbol Keys, page 406
- Supplement (SymbolMAP), page 394
- Symbol Mapping (SymbolMAP): An Overview, page 392

### Nipple Symbol Mapping

You can map most components using an end preparation of 0.

However, a notable exception is the nipple. For nipples, you must use two different SKEYs and PCF component identifiers, based on the end preparation. The SKEY mapping for nipples always requires end-prep information.

The table below shows an example of SKEY mapping for the nipple.

CodeList	PartClassName	SKEY	PCFComponentID
301	Nipple	FPPL	PIPE-FIXED
331	Nipple	NRSC	COUPLING
391	Nipple	FPPL	PIPE-FIXED
301	NIP	FPPL	PIPE-FIXED
331	NIP	NRSC	COUPLING
391	NIP	FPPL	PIPE-FIXED

#### **Related Topics**

### Alternative Text Options: An Overview

Sets options for substitute text on the isometric drawing.

**AText** is an abbreviation for alternative text, an ISOGEN feature that allows you to change or remove any text on the isometric drawing.

AText operates by assigning a unique identification number to each standard text string. The software refers to this number whenever the text string that the number represents needs to change. By definition, a standard text string can be a single character, a single word, or a group of words. Furthermore, some AText is set, by default, to an all-blank word.

AText allows you to substitute your own text terminology or language in place of the standard ISOGEN words on the isometric drawing. To change alternative text, you do not have to replace all of the standard AText; you can change only one word, if needed.

For more information about AText, see the Alias document titled *AText Reference Guide*, accessible from the **Help > Printable Guides** command.

### Important

 Although the AText feature has a considerable degree of built-in flexibility, you must exercise a certain amount of care when defining your own words, particularly with respect to word lengths. As a general rule, newly defined words or word strings should be about equal in length or shorter than the text that is being replaced.

ISOGENTextID	AlternateText
Provides a value corresponding to the ISOGEN text to replace. For a listing of these values, see the Alias document titled <i>AText Reference Guide</i> , accessible from the <b>Help</b> > <b>Printable Guides</b> command.	Specifies the text you want to appear on the drawing.

### Notes

- You can click any value in the **ISOGENTextID** dropdown list. Do not type a value manually because it may not be supported.
- In the **AlternateText** column, you do not need to type single quotation marks around the text string. You can just type the text.
- You can use AText to control the output of specification break notes. If AText is set to blank, the note is disabled.

#### **Related Topics**

# **Intergraph Alternative Text Options: An Overview**

Allows you to modify the values of text strings on isometric drawings.

TextPurpose	AlternateText	
Provides a value corresponding to the text to replace. The values provided are Intergraph-specific.	Specifies the text you want to appear on the isometric drawing.	

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

## **Attribute Mapping: An Overview**

Maps ISOGEN attributes to the software attributes.

HostAttribute	IsogenAttribute
Specifies a text string for the attribute. You select this text string in the <b>Attributes</b> folder under <b>Drawing Frame</b> .	Selects an ISOGEN attribute.
<b>☑</b> Note	
The Intergraph HostAttribute <b>Drawing Number</b> must be mapped to IsogenAttribute <b>DRG</b> as of SmartPlant 3D version 6.0. In previous versions of the software, <b>Drawing Number</b> was mapped to the IsogenAttribute <b>DRAWING-NUMBER</b> .	

You can customize the mapping of ISOGEN Attributes **ATTRIBUTE11** through **ATTRIBUTE99**. **ATTRIBUTE1** through **ATTRIBUTE10** are reserved by Intergraph. We recommend that you start adding your own attributes from **ATTRIBUTE21**. The Intergraph reserved attributes are defined as follows:

Attribute Name	Definition
ATTRIBUTE1	Maximum Working Pressure
ATTRIBUTE2	Maximum Testing Temperature
ATTRIBUTE3	Maximum Testing Pressure
ATTRIBUTE4	Extracted By
ATTRIBUTE5	Checked By
ATTRIBUTE6	Approved By
ATTRIBUTE7	Parent Piping System
ATTRIBUTE8	Fluid Code
ATTRIBUTE9	Extraction Date
ATTRIBUTE10	Reserved for Future Use

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

### **Comments: An Overview**

Allows you to add information to the isometric style file that is not included in the drawing configuration or definition, such as date created and who created the style or modifications and modification dates. This section of the isometric style file act as a history. It is not included in the drawings generated using the style.

Origin	Date	Initials	Comment
Identifies the origin of the isometric style file comment. For example, if the file originally was created by Intergraph, this field contains <b>Intergraph</b> as the origin.	Specifies the date of the isometric style file creation or modification.	Identifies the initials of the person who entered the comment.	Describes the modification or action that took place with regard to the isometric style file.

#### **Related Topics**

• Appendix: Isometric Drawing Options, page 246

# **Appendix: Personal ISOGEN Return Values**

If an isometric extraction fails, ISOGEN returns an error number which can be referenced from an error message or the extraction error log within the software. Descriptions for the ISOGEN error message numbers are shown in the table below.

Error Value	Description
-1001	Failed to create the specified Pre/Post Processor.
-1002	Pre/Post Processor has crashed.
-1003	Pre/Post processor has timed out and the external process has been killed.
-1004	Pre/Post processor has timed out but the external process cannot be terminated (and is therefore still running).
-1	Error in Isogen data. Check message file.
-2	Isogen dll failed to load (possible installation problem, missing dependent file, etc.) or crash occurred during execution, which has been trapped by the error handler.
-3	Isogen thread filed to finish possible execution loop which has been terminated by Personal Isogen.
0	Iso created successfully.
1	Personal ISOGEN cannot find the isometric directory specified.
2	Invalid Style for this project. The specified Style cannot be found under the specified project.
3	Specified Project not found. The specified project cannot be found.
4	IDFGEN handshake failed. The handshake passed to the <i>idfdll.dll</i> has not been verified.
	<b>☑</b> Note
	A number of other "unexpected" failures have been found to generate this error.

Error Value	Description
5	Could not access specified PCF in TEMFILES.
6	ISOGEN DLL failed to establish current directory.
7	ISOGEN DLL failed to change directory.
8	The handshake passed to the <i>pisodll.dll</i> has not been verified.
9	Personal ISOGEN failed to produce a valid drawing. View message file for details as there are many possible causes.
10	ISOGEN DLL failed to restore working directory.
11	IDFGEN DLL failed to establish current directory.
12	IDFGEN DLL failed to change directory.
13	IDFGEN did not complete successfully. View message file for details. One common cause is that the components in the PCF do not form a connected system.
14	IDFGEN DLL failed to restore working directory.
15	IDFGEN could not delete IPISOGEN\PROGRAMS\FOR036.DAT from a previous run.
16	IDFGEN was unable to create ISOGEN.IDX file. Error opening isogen.idx. Error closing isogen.idx.

Error Value	Description
17	IDFGEN was unable to copy ISOGEN.FLS to the PROGRAMS directory. The following errors may have occurred:
	Error allocating memory to store a line.
	Zero line length encountered.
	Error opening source <i>isogen.fls</i> (in specified <b>project\isotype</b> ).
	Error opening target <i>isogen.fls</i> (in <b>pisogen\programs</b> ).
	Error closing source <i>isogen.fls</i> (in specified <b>project\isotype</b> ).
	Error closing target <i>isogen.fls</i> (in <b>pisogen\programs</b> ).
18	No description available from Alias Personal ISOGEN.
19	Personal ISOGEN handshake failed. The handshake passed to the <i>pisogen.dll has</i> not been verified.
20	Unknown Error in Personal ISOGEN. An unexpected path through the program has occurred.
21	PISOGEN DLL could not find Current Working Directory. The current directory cannot be identified.
22	PISOGEN DLL could not Change Directory to \PISOGEN\PROGRAMS.
23	ISOGEN failed to write banner to message file. (Probably cannot find message file path). The following errors may have occurred:
	Error opening isogen.fls.
	Unable to find MESSAGE line in isogen.fls.
	Error closing isogen.fls.
	Error opening message file.
	Error closing message file.

Error Value	Description
24	PISOGEN DLL has been unable to restore current working directory.
26	The following errors may have occurred:
	Error opening <i>i-gen.fls</i> for reading.
	Error opening <i>isogen.fls</i> for writing.
	Error opening options file specified in <i>i-gen.fls</i> .
	Error closing options file specified in <i>i-gen.fls</i> .
	Error opening <i>i-gen.opl</i> for writing.
	Error closing <i>i-gen.opl</i> .
	Error closing <i>i-gen.fls</i> .
	Error closing isogen.fls.
26	Problem with the specified isometric root directory.
27	Problem setting the current isometric root directory.
28	Invalid file extension.
29	Not applicable when running Isogen.
30	Warning occurred creating a POD (intermediate) file.
31	Error occurred creating a POD (intermediate) file. Error occurred during "pass 1" when the input IDF file is preprocessed.
32	Error occurred creating a POD (intermediate) file. Error occurred during "pass 2" when the POD file is being created from Isogen data.
33	Failed to load PODGRAPHICS DLL - used in the creation of graphics output files such as DWG and IGR.
34	PODGRAPHICS process failed - IE. a graphics specific process has failed - for example, user requested IGR output but SmartSketch is not installed.

Error Value	Description
35-40	Not used at this time.
41	Cannot get path to system temp directory.
42	System temp directory does not exist.
43	Unable to set bore units to those specified in the input file.
44	Unable to perform macro substitution in style ISOGEN.FLS.
45	Unable to restore original style ISOGEN.FLS.
46-49	Not used at this time.
50	Project disk is full - unable to create new output files.
51	File containing temp directory is full - unable to process file.
52-999	Not used at this time.
1000	Expected files missing in Style - E.G. no FLS, no options file.
1001	Requested units combination is inconsistent - probably means a combination of metric bore and imperial coordinates.
1002	Invalid drawing format requested.
1003	Problem deleting an ISOGEN message file.
1004	Line in the options file has invalid format.
1005	Too many switches in the options file.
1006	Too few switches in the options file.
1007	MicroStation design file output requested but MS_EXE environment variable is not defined.
1008	MicroStation design file output requested but MicroStation not installed.
1009	MS_EXE environment variable does not end with a \.
1010	ISOGEN.FLS missing in Style.
1011	Options file missing specified in ISOGEN.FLS is missing.

The following warning messages may also appear:

Error Value	Description
1999	Isogen has returned a FAIL for one or more drawings in the set. This means it has been unable to layout the drawing successfully.
2001	Inconsistent units combination (imperial coordinates and metric bores).
2022	IDFGEN has detected disconnected pipeline. Drawings have still been created that will indicate the cause of the disconnection.

#### **Related Topics**

- Edit Options Command, page 48
- Isometric Style Options Browser Dialog Box, page 48

# Appendix: Symbols and Symbol Keys

The Drawings and Reports task delivers a symbol library containing ISOGEN symbols. You can use the Alias symbol editor or the PDS Isometric Symbol Editor to modify the symbols.

Each symbol is associated with a unique code called a symbol key (SKEY). SKEYs contain 2-4 letters; the first two letters define the type of component, and the last two letters define the end type such as flanged, butt welded, or screwed. You can specify a wildcard for the end type. For example, when \*\* is specified for the end type, the software reads the End Prep from the part and assigns the correct ISOGEN end type.

You can map the symbol keys using the **Edit Options** command, which displays the **Isometric Style Options Browser**, the tool used to control all the options related to the appearance and information content of the various styles of isometric drawings.

For more information about symbols, see the Alias document titled *ISOGEN SKEY Definitions*, accessible from the **Help > Printable Guides** command.

#### Notes

- Before you modify a symbol, review the dimensions and connect points. For more information about the position of SKEY connection points, see *ISOGEN® SKEY Dimensions*, page 408.
- The @ character in the symbol keys can be replaced with an integer value in the range 1 to 9, inclusive, to denote the number of segments. Currently, regardless of the value assigned to @, the software draws the symbol per the SKEY plotted isometric shape.
- The + character in the symbol keys can be replaced with an integer value in the range 1 to 9, inclusive, to denote the bend radius.
- You can map most components using an end preparation of 0. However, a notable exception is the nipple. For nipples, you must use two different SKEYs and Piping Component File (PCF) component identifiers, based on the end preparation. In other words, the SKEY mapping for nipples always requires end-prep information.
- If, during drawing extraction, the software encounters a component that lacks SKEY mapping data, the extraction continues as long as the **Drawing.Controls.NoSymbolMapOk** option is set to **True**. The resulting drawing displays the component with an empty gap, along with an error message that points to the gap. In addition, the message file contains an error message.

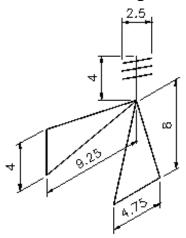
#### **Related Topics**

- *Caps (SKEYs)*, page 453
- Couplings (SKEYs), page 454

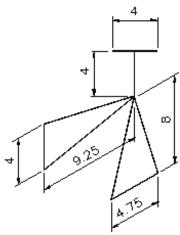
- *Crosses (SKEYs)*, page 455
- Elbows and Bends (SKEYs), page 456
- End Prep Connections, page 458
- Fixed Length Pipes (SKEYs), page 459
- Flanges (SKEYs), page 460
- Inline Filters (SKEYs), page 461
- *Instruments (SKEYs)*, page 462
- LJSE Type Flanges (SKEYs), page 465
- Miscellaneous Items (SKEYs), page 466
- Miscellaneous Pipe Components (SKEYs), page 467
- Olets (SKEYs), page 468
- *Operators (SKEYs)*, page 469
- Other End Connections (SKEYs), page 471
- *Reducers (SKEYs)*, page 472
- Tees (SKEYs), page 474
- Traps (SKEYs), page 475
- Valves (SKEYs), page 476
- *Vents (SKEYs)*, page 478
- Welds (SKEYs), page 479

## **ISOGEN® SKEY Dimensions**

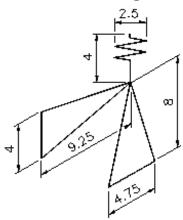
**ARFL: Valve - Angle Relief/Vent** 



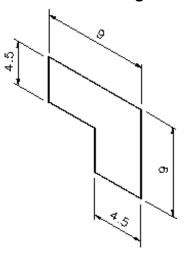
**AVFL: Valve - Angle** 



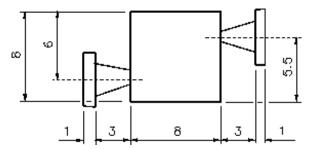
**AXFL: Valve - Angle Pressure Reducing** 



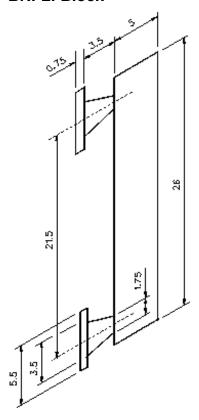
**BAFL: Block - Angle** 



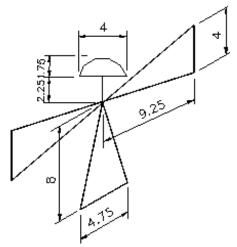
**BOFL: Block - Offset** 



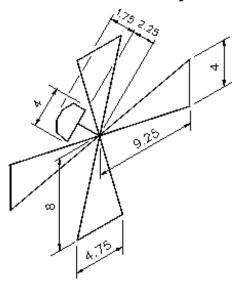
**BRFL: Block** 



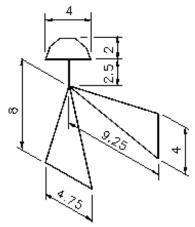
C3FL: Valve - Three-Way Control



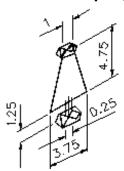
C4FL: Valve - Four-Way Control



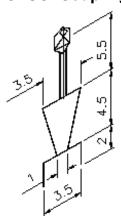
**CAFL: Valve - Angle Control** 



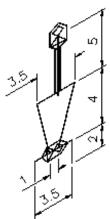
**CEBW: Coupling - Elbolet (Butt Weld)** 



**CESC: Coupling - Elbolet (Screwed)** 



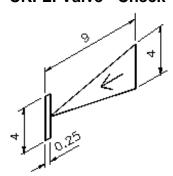
**CESW: Coupling - Elbolet (Socket Weld)** 



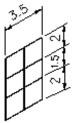
**CHFL: Hose Coupling** 



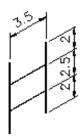
**CKFL: Valve - Check** 



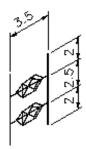
**COCP: Coupling - Compression** 



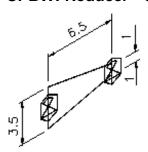
**COSC: Coupling - Screwed** 



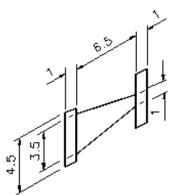
**COSW: Coupling - Socket Weld** 



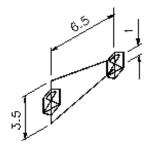
**CPBW: Reducer - Concentric Fabricated from Plate** 



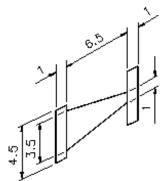
**CPFL: Reducer - Concentric Fabricated from Plate (Flanged)** 



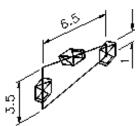
**CSBW: Reducer - Concentric Swaged From Plate** 



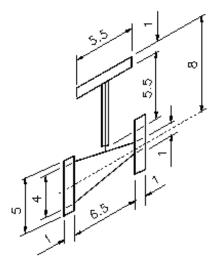
**CSFL: Reducer - Concentric Swaged From Plate (Flanged)** 



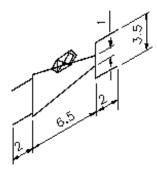
CTBW: Reducer - Concentric with a Connection (Butt Weld)



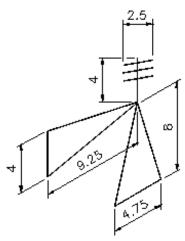
### CTFL: Reducer - Concentric with a Connection (Flanged)



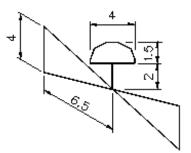
#### CTSC: Reducer - Concentric with a Connection (Screwed)



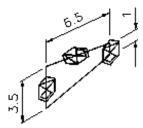
### CTSW: Concentric with a Connection (Socket Weld)



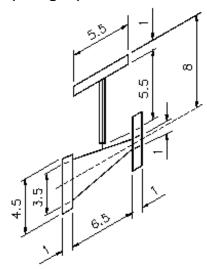
**CVFL: Valve - Control** 



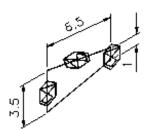
**CXBW: Reducer - Concentric with a Connection Swaged from Pipe** 



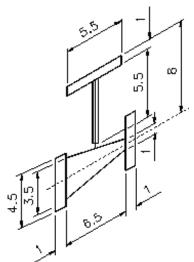
**CXFL:** Reducer - Concentric with a Connection Swaged from Pipe (Flanged)



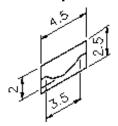
**CZBW: Reducer - Concentric with a Connection Fabricated from Plate** 



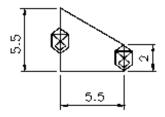
# CZFL: Reducer - Concentric with a Connection Fabricated from Plate (Flanged)



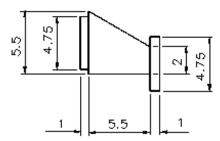
**DR: Rupture Disk** 



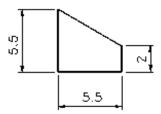
**EPBW: Reducer - Eccentric Fabricated from Plate** 



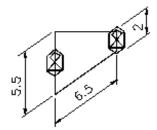
**EPFL:** Reducer - Eccentric Fabricated from Plate (Flanged)



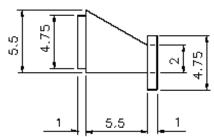
**EPSW: Reducer - Eccentric Fabricated from Plate (Socket Weld)** 



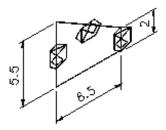
**ESBW: Reducer - Eccentric Swaged from Pipe** 



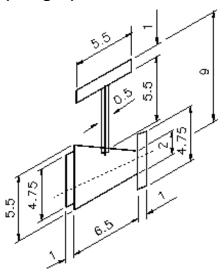
**ESFL: Reducer - Eccentric Swaged from Pipe (Flanged)** 



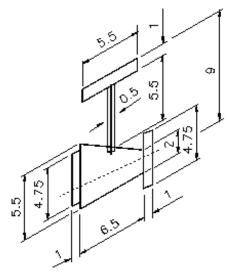
**EXBW: Reducer - Eccentric with a Connection Swaged from Pipe** 



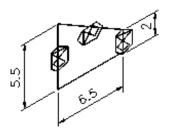
**EXFL:** Reducer - Eccentric with a Connection Swaged from Pipe (Flanged)



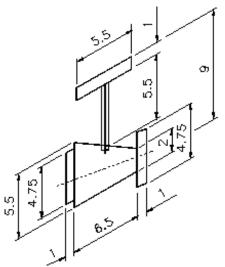
**EXFL: Expansion Bellows** 



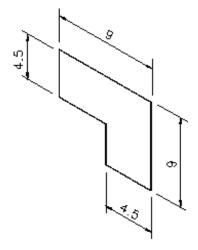
**EZBW: Reducer - Eccentric with a Connection Fabricated from Plate** 



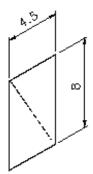
EZFL: Reducer - Eccentric with a Connection Fabricated from Plate (Flanged)



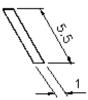
FAFL: Filter/Strainer - Angle



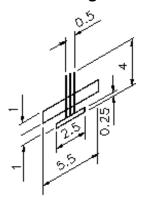
FIFL: Filter/Strainer - Straight Through



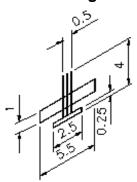
FLBL: Flange - Blind



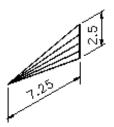
FLFL: Flange - Flared/Loose Backing



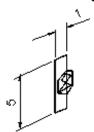
FLLB: Flange - Backing



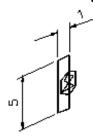
**FLOW: Flow Arrow** 



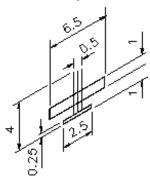
FLRC: Flange - Reducing Concentric



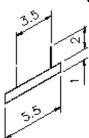
#### FLRE: Flange - Reducing Eccentric



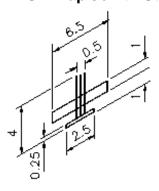
FLRG: Lap Joint - Ring Loose



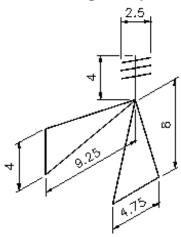
FLSC: Flange - Screwed



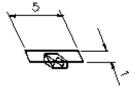
FLSE: Lap Joint - Stub End Loose



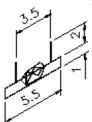
FLSJ: Flange - Slip On with J-type Weld



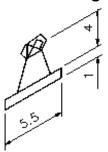
FLSO: Flange - Slip On



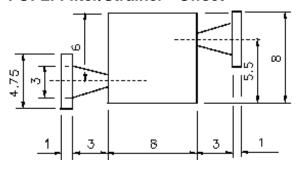
FLSW: Flange - Socket Weld



FLWN: Flange - Weld Neck



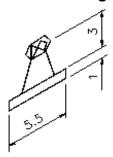
FOFL: Filter/Strainer - Offset



FOSO: Flange - Orifice (Slip On)



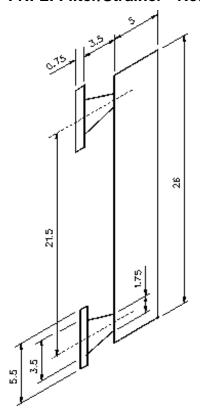
**FOWN: Flange - Orifice (Weld Neck)** 



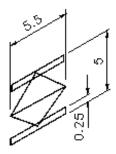
**FPPL: Fixed Length Pipe - Without Flanged Ends** 



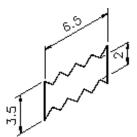
FRFL: Filter/Strainer - Return



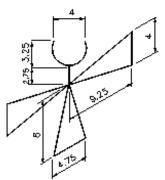
FTFL: Flame Trap



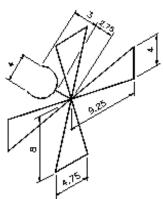
**FXFL: Filter/Strainer - Return** 



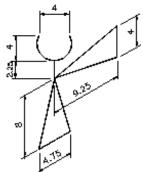
H3FL: Valve - Three-Way Control (Hand Indicator)



H4FL: Valve - Four-Way Control (Hand Indicator)



**HAFL: Valve - Angle Control (Hand Indicator)** 



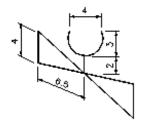
**HCSC: Olet - Half Coupling (Screwed)** 



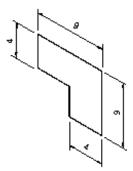
**HCSW: Olet - Half Coupling (Socket Weld)** 



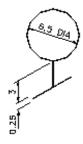
**HVFL: Valve - Control Hand Indicator** 



IAFL: Instrument - Angle



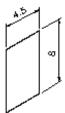
**IDFL: Instrument - Dial (Flanged)** 



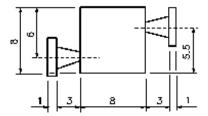
**IDPL: Instrument - Dial** 



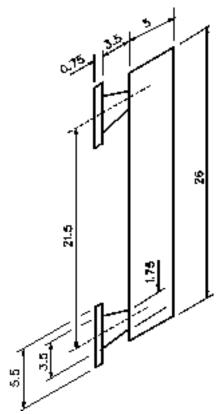
**IIFL: Instrument** 



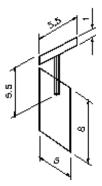
**IOFL: Instrument - Offset** 



**IRFL: Instrument - Return** 



**ITFL: Instrument - Tee** 



KABW: Cap - Butt Weld



**KACP: Cap - Compression** 



**KASC: Cap - Screwed** 



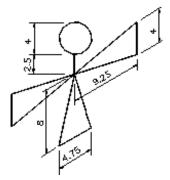
KASW: Cap - Socket Weld



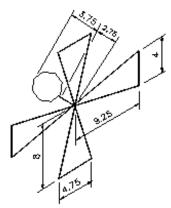
**LABW: Olet - Latrolet (Buttweld)** 



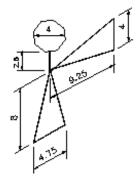
M3FL: Valve - Three-Way Control (Motorized Indicator)



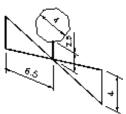
M4FL: Valve - Four-Way Control (Motorized Indicator)



**MAFL: Valve - Angle Control (Motorized Indicator)** 



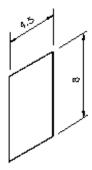
**MVFL: Valve - Control (Motorized Indicator)** 



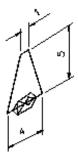
**NBSC: Nipple - Screwed** 



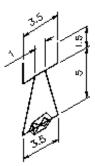
NCFL: Non-Category Item



NIPL: Olet - Nipolet (Plain End)



NISC: Olet - Nipolet (Screwed)



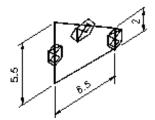
NRSC: Nippled - Screwed



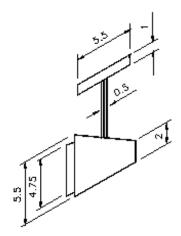
**OP: Orifice Plate** 



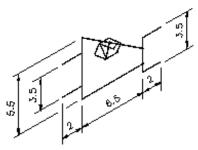
#### **OTBW: Reducer - Eccentric with a Connection (Butt Weld)**



#### **OTFL: Reducer - Eccentric with a Connection (Flanged)**



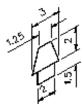
### OTSC: Reducer - Eccentric with a Connection (Screwed)



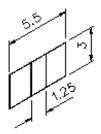
PF: Pipe Block - Fixed Length



PL: Plug



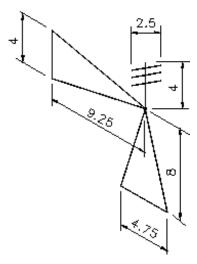
**PR: Restrictor Plate** 



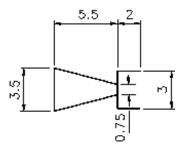
### PV: Pipe Block - Variable Length



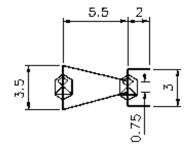
### RAFL: Valve - Angle (Relief/Vent)



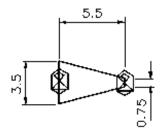
**RBSC: Reducer - Concentric (Screwed Bush)** 



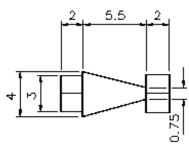
**RBSW: Reducer - Concentric (Socket Weld)** 



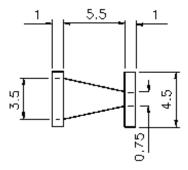
**RCBW: Reducer - Concentric (Butt Weld)** 



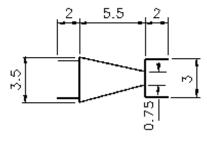
**RCCP: Reducer - Concentric (Compression)** 



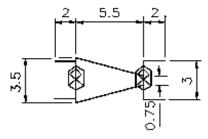
**RCFL: Reducer - Concentric (Flanged)** 



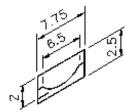
### **RCSC: Reducer - Concentric (Screwed)**



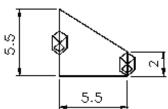
### **RCSW: Reducer - Concentric (Socket Weld)**



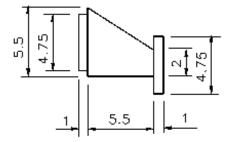
**RD: Rupture Disk** 



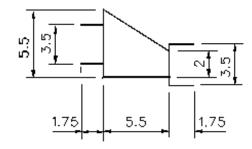
**REBW: Reducer - Eccentric (Butt Weld)** 



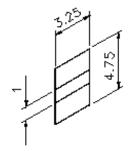
**REFL: Reducer - Eccentric (Flanged)** 



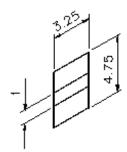
**RESC: Reducer - Eccentric (Screwed)** 



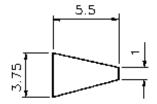
RF: Reducer - Special Reducing Flange



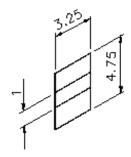
**RFPL: Reducer - Connection Block** 



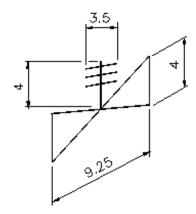
### **RNSC: Reducer - Concentric (Nipple)**



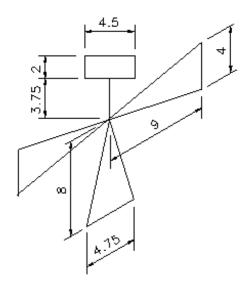
#### **RP: Restrictor Plate**



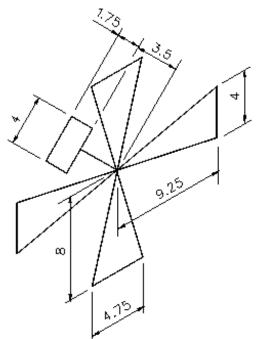
#### **RVFL: Valve - Relief/Vent**



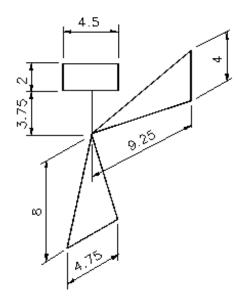
S3FL: Valve - Three-Way Control (Square Indicator)



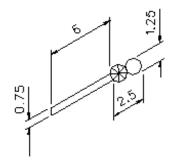
### S4FL: Valve - Four-Way Control (Square Indicator)



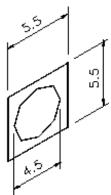
**SAFL: Valve - Angle Control (Square Indicator)** 



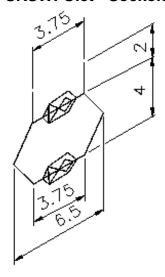
SB: Spectacle - Blind



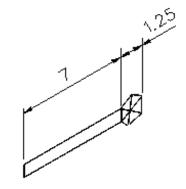
SGFL: Sight Glass



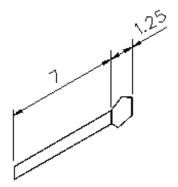
SKSW: Olet - Sockolet



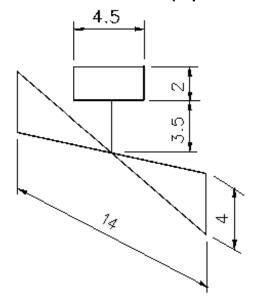
SP: Slip Plate



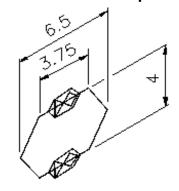
**SR: Slip Ring** 



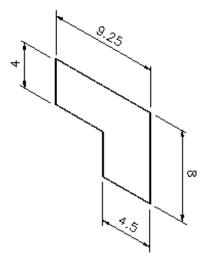
**SVFL: Valve - Control (Square Indicator)** 



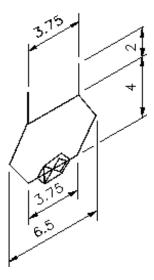
### **SWBW: Olet Sweepolet**



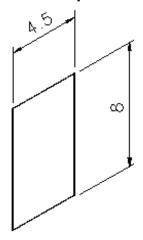
TAFL: Trap - Angle



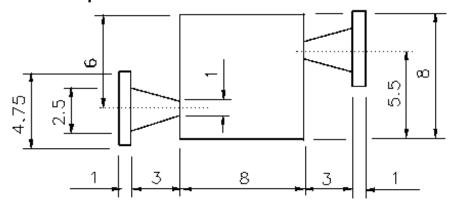
**THSC: Olet - Thredolet** 



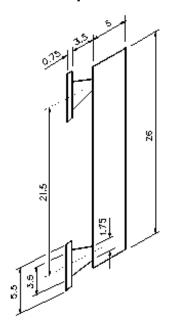
TIFL: Trap - Inline Straight Through



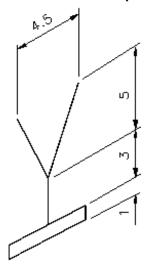
**TOFL: Trap - Offset** 



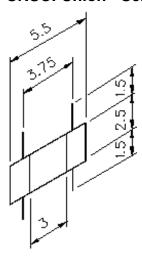
TRFL: Trap - Return



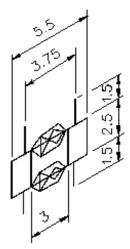
TUFL: Tundish (Funnel)



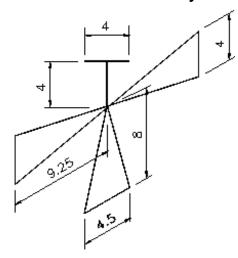
**UNSC: Union - Screwed** 



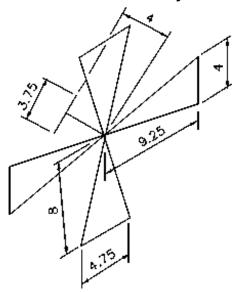
**UNSW: Union - Socket Weld** 



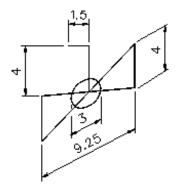
V3FL: Valve - Three-Way



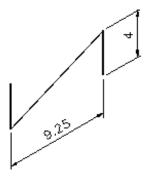
V4FL: Valve - Four-Way



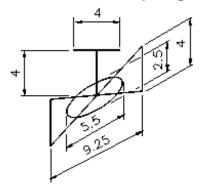
**VBFL: Valve - Ball** 



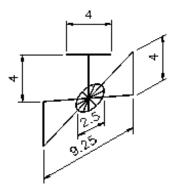
VCFL: Valve - Check



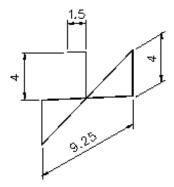
**VDFL: Valve - Diaphragm** 



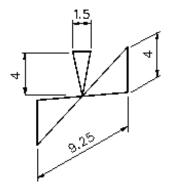
**VGFL: Valve - Globe** 



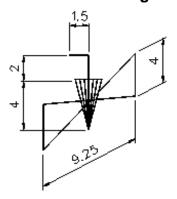
VKFL: Valve - Cock



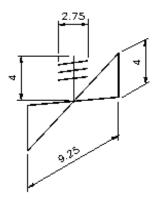
**VNFL: Valve - Needle** 



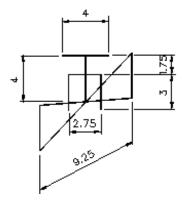
**VPFL: Valve - Plug** 



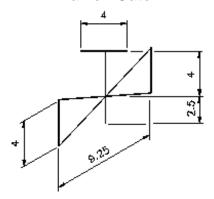
**VRFL: Valve - Relief/Vent** 



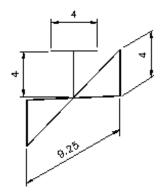
VSFL: Valve - Slide



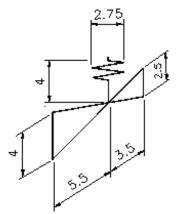
**VTFL: Valve - Gate** 



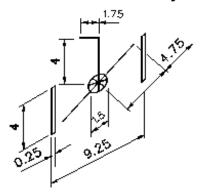
**VVFL: Valve - Basic** 



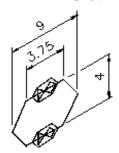
**VXFL: Valve - Pressure Reducing** 



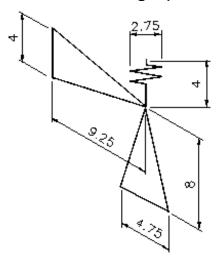
**VYFL: Valve - Butterfly** 



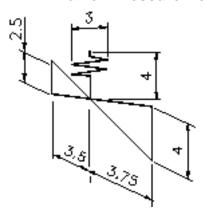
WTBW: Olet - Weldolet



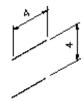
**XAFL: Valve - Angle (Pressure Reducing)** 



XVFL: Valve - Pressure Reducing



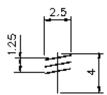
01HG: Support/Hanger



01SP: Used on valves with AV, V3, V4, VD, VG, or VV as the first two characters of their SKEYs



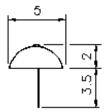
02SP: Used on valves with AR, RA, VR as the first two characters of their SKEYs.



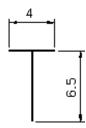
03SP: Used on valves with VB, VK, VY as the first two characters of their SKEYs.



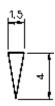
#### 04SP: Not Used



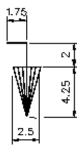
05SP: Used on valves with VT as the first two characters of their SKEYs.



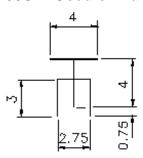
06SP: Used on valves with VN as the first two characters of their SKEYs.



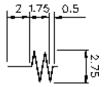
07SP: Used on valves with VP as the first two characters of their SKEYs.



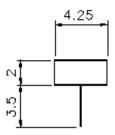
08SP: Used on valves with VS as the first two characters of their SKEYs.



09SP: Used on valves with AX, VX, or XA as the first two characters of their SKEYs.



10SP: Used on valves with SA, SV, S3, or S4 as the first two characters of their SKEYs.



11SP: Used on valves with MA, MV, M3, or M4 as the first two characters of their SKEYs.



#### **Related Topics**

# Caps (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Cap - Butt Weld	KABW	0	Y
Cap - Compression	KACP	<del>-</del> 8	Y
Cap - Screwed	KASC	3	Y
Cap - Socket Weld	KASW	3	Y

### **Related Topics**

# Couplings (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Nipple - Screwed (Running)	NRSC		Y
Nipple - Screwed (Barrel)	NBSC	0	Y
Coupling - Compression	COCP	<b>#</b>	Y
Coupling - Screwed	COSC	II	Y
Coupling - Socket Weld	COSW	Ħ	Y
Elbolet Coupling Butt Weld	CEBW	4	Y
Elbolet Coupling Screwed	CESC	¥	Y
Elbolet Coupling Socket Weld	CESW	<u>፟</u>	Y

#### **Related Topics**

# Crosses (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Cross - Butt Weld	CRBW	+	N
Cross - Compression	CRCP	<del>-</del>	N
Cross - Flanged	CRFL	<b>₽</b>	N
Cross - Screwed	CRSC	ᅷ	N
Cross - Set On	CRSO	+	N
Cross - Set On Reinforced	CRRF	4	N
Cross - Socket Weld	CRSW	<b>3</b> ₩€	N

#### **Related Topics**

### Elbows and Bends (SKEYs)

The @ character in the symbol keys can be replaced with an integer value in the range 1 to 9, inclusive, to denote the number of segments. Currently, regardless of the value assigned to @, the symbol is drawn per the SKEY plotted isometric shape. The + character in the symbol keys may be replaced with an integer value in the range 1 to 9, inclusive, to denote the bend radius.

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Elbow - Butt Weld (90 and 45)	ELBW	7	N
Elbow - Butt Weld (90 and 45) With A Connection	ETBW		N
Elbow - Butt Weld 180 Return (U Elbow)	EUBW	$\bigcap$	N
Elbow - Compression (90 and 45)	ELCP	<b>P</b>	N
Elbow - Compression (90 and 45) With A Connection	ETCP	بهلم	N
Elbow - Screwed (90 and 45) With Male Ends	EBSC	7	N
Elbow - Screwed (90 and 45) With Female Ends	ELSC	ブ	N
Elbow - Screwed - Female (90 and 45) With A Connection	ETSC	ب <u>عکد</u> ب	N
Elbow - Socket Weld	ELSW	7	N
Elbow - Socket Weld With A Connection	ETSW	بهكوم	N
Bend - Flanged (All Angles)	BEFL	$\mathcal{L}$	N
Bend - Flanged (All Angles) With A Connection	BTFL	Ի	N

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Bend - Flanged 180 Return (U Bend)	BUFL	$\bigcap$	N
Bend - Miter Flanged	MIFL		N
Bend - Miter Flanged With A Connection	MTFL	卢	N
Bend - Miter Butt Weld	MIBW	7	N
Bend - Miter Butt Weld With A Connection	MTBW		Y
Bend - Lobster Back Flanged	L@FL	7	N
Bend - Lobster Back Flanged With A Connection	T@FL	卢	N
Bend - Lobster Back Butt Weld	L@BW		N
Bend - Lobster Back Butt Weld With A Connection	T@BW		N
Bend - Pulled (All Angles)	PB+D		N
Bend - Pulled 180 Return (U Bend)	BU+D	$\bigcap$	N
Bend - Pulled (All Angles) With A Connection	TB+D		N

### **Related Topics**

### **End Prep Connections**

You can replace the \*\* characters in the symbol keys with one of the following end prep types:

End Type	<b>End Prep Codelist Value Range</b>	End Prep Type (**)
Flanged	2-199	FL (Flanged)
Male	321 - 329	LC (Liner - clamped)
	331 - 339	SC (Screwed)
	341 - 349	LC (Liner - clamped)
	351 - 359	LC (Liner - clamped)
	361 - 369	CP (Compression)
	371 - 379	SC (Screwed)
	381 - 389	SC (Screwed)
Female	420 - 429	SW (Socket Weld)
	440 - 449	SC (Screwed)
All Other Codelist Values		BW (Butt Weld)

#### **Related Topics**

# Fixed Length Pipes (SKEYs)

Description	Key	Plotted Isometric Shape	User- Definable (Yes/No)
Fixed Length Pipe - With Flanged Ends	FPFL		N
Fixed Length Pipe - Without Flanged Ends	FPPL	0	Y

#### **Related Topics**

# Flanges (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Flange - Blind (Blank)	FLBL		Y
Flange - Flared/Loose Backing	FLFL	1	Y
Flange - Loose Backing	FLLB	H	Y
Flange - Reducing Concentric	FLRC	<b></b>	Y
Flange - Reducing Eccentric	FLRE	<b>}</b>	Y
Flange - Slip On	FLSO	<b></b>	Y
Flange - Slip On With 'J' Type Weld	FLSJ	<b>}</b>	Y
Flange - Orifice Slip On	FOSO	<b></b>	Y
Flange - Socket Weld	FLSW	<b>E</b>	Y
Flange - Weld Neck	FLWN	<b>▶</b>	Y
Flange - Orifice Weld Neck	FOWN	<b>~</b>	Y

#### **Related Topics**

### Inline Filters (SKEYs)

You can replace the \*\* characters in the symbol keys with an end prep type. For more information, see *End Prep Connections*, page 458.

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Filter/Strainer - Straight Through	FI**	·	Y
Filter/Strainer - Angle	FA**	- <del>-</del> -	N
Filter/Strainer - Offset	FO**		N
Filter/Strainer - Return	FR**	[]	N

#### **Related Topics**

### Instruments (SKEYs)

You can replace the \*\* characters in the symbol keys with an end prep type. For more information, see *End Prep Connections*, page 458.

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Instrument	II**		Y
Instrument - Angle	IA**		N
Instrument - Offset	IO**		N
Instrument - Return	IR**		N
Instrument - Dial	IDPL	P	N
Instrument - Dial Flanged	IDFL	9	N
Orifice Plate	OP		Y
Restrictor Plate	PR		Y
Rupture Disk	DR	7	Y
Valve - Angle Relief/Vent	RA**	4	Y
Valve - Angle Pressure Reducing	XA**	7	Y
Valve - Control	CV**	∾	Y
Valve - Angle Control	CA**	戍	Y

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Valve - 3-Way Control	C3**	<b>%</b>	N
Valve - 4-Way Control	C4**	₩ ニニ.	N
Valve - Control Square Indicator	SV**	₩	Y
Valve - Angle Control Square Indicator	SA**	烙	Y
Valve - 3-Way Control Square Indicator	S3**	₩	N
Valve - 4-Way Control Square Indicator	S4**	<b>水二</b>	N
Valve - Control Motorized Indicator	MV**	Xo	Y
Valve - Angle Control Motorized Indicator	MA**	⋈	Y
Valve - 3-Way Control Motorized Indicator	M3**	<b>%</b>	N
Valve - 4-Way Control Motorized Indicator	M4**	<b>₩</b> ‡	N
Valve - Control Hand Indicator	HV**	∡	Y
Valve - Angle Control Hand Indicator	HA**	遂	Y
Valve - 3-Way Control Hand Indicator	H3**	₩	N
Valve - 4-Way Hand Indicator	H4**	₩ 🎞	N

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Valve - Pressure Reducing	XV**	<b>Š</b>	Y
Valve - Relief/Vent	RV**	槸	Y

**Related Topics**• Appendix: Symbols and Symbol Keys, page 406

# LJSE Type Flanges (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Lap Joint Ring (Loose Backing Flange)	FLRG	₩	Y
Lap Joint Stub End (Loose Backing Flange)	FLSE	1∬• →	Y

#### **Related Topics**

### Miscellaneous Items (SKEYs)

Description	Key	<b>Plotted Isometric Shape</b>	User-Definable (Yes/No)
Flow Indicator	FLOW	<b>-</b>	Y
Hanger/Support	01HG		Y

#### **Related Topics**

### Miscellaneous Pipe Components (SKEYs)

You can replace the \*\* characters in the symbol keys with an end prep type. For more information, see *End Prep Connections*, page 458.

Description	Key	<b>Plotted Isometric Shape</b>	User-Definable (Yes/No)
Block - Angle	BA**		N
Expansion Bellows	EX**	<b>[</b>	Y
Flame Trap	FT**	<b>Φ</b>	Y
Flexible Hose	FX**	~~	Y
Hose Coupling	CH**	×	Y
Non-Category Item	NC**		Y
Block Offset	BO**	[]	N
Plug	PL	- <b>[</b> <⊅	Y
Restrictor Plate	RP	8	Y
Block - Return	BR**	[]	N
Sight Glass	SG**		Y
Slip Plate	SP		Y
Slip Ring	SR		Y
Spectacle Blind	SB	ì	Y
Tundish (Funnel)	TU**	Y	Y

#### **Related Topics**

# Olets (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Olet - Half Coupling Screwed	HCSC	<del>بل</del> نج ا	Y
Olet - Half Coupling Socket Weld	HCSW	<del>,                                    </del>	Y
Olet - Latrolet Butt Weld	LABW	÷20	Y
Olet - Latrolet Screwed	LASC	<del>,</del>	Y
Olet - Latrolet Socket Weld	LASW	÷\$	Y
Olet - Nipolet Screwed	NISC	<u>,                                    </u>	Y
Olet - Nipolet Plain End	NIPL	<del>ب</del>	Y
Olet - Sockolet	SKSW	<u>, 45,</u>	Y
Olet - Sweepolet	SWBW	بظہ	Y
Olet - Thredolet	THSC	ب <del>ل</del> ا ا	Y
Olet - Weldolet	WTBW	بظر	Y
Instrument Tee - Flanged	ITFL	二	N

### **Related Topics**

# Operators (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Fitting used on valves with AV, V3, V4, VD, VG, and VV as the first two characters of the SKEY	01SP	T	Y
Fitting used on valves with AR, RA, and VR as the first two characters of the SKEY	02SP	#	Y
Fitting used on valves with VB, VK, and VY as the first two characters of the SKEY	03SP		Y
Fitting used on valves with VT as the first two characters of the SKEY	05SP	T	Y
Fittings used on valves with VT as the first two characters of the SKEY	06SP	$\nabla$	Y
Fittings used on valves with VP as the first two characters of the SKEY	07SP	V	Y
Fittings used on valves with VS as the first two characters of the SKEY	08SP	币	Y
Fittings used on control valves with AX, VX, and XA as the first two characters of the SKEY	09SP	*	Y
Fittings used on control valves with SA, SV, S3, and S4 as the first two characters of the SKEY	10SP	<b>一</b>	Y
Fittings used on control valves with MA, MV, M3, and M4 as the first two characters of the SKEY	11SP	9	Y
Fittings used on control valves with HA, HV, H3, and H4 as the first two characters of the SKEY	12SP	个	Y

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Fittings used on control valves with CA, CV, C3, and C4 as the first two characters of the SKEY	13SP	$\frown$	Y

### **Related Topics**

## Other End Connections (SKEYs)

Description	Key	Plotted Isometric Shape	User- Definable (Yes/No)
Erection Weld or Connection on fittings with an SW end	SW	E	Y
Erection Weld or Connection on fittings with an SC end	SC	С	Y
Erection Weld or Connection on fittings with a CP end	СР	]	Y

### Note

• For SW, SC, or CP type end connections, the software fills in the plotted shapes for erection items and leaves the shapes open for fabrication type items. If the connecting pipe fabrication category is erection, then the software overrides whatever is defined in the fitting.

### **Related Topics**

# Reducers (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Reducer - Concentric Butt Weld	RCBW	7	Y
Reducer - Concentric Fabricated From Plate	CPBW	7	Y
Reducer - Concentric Swaged From Pipe	CSBW	7	Y
Reducer - Concentric Butt Weld With a Connection	CTBW		Y
Reducer - Concentric Fabricated From Plate With a Connection	CZBW		Y
Reducer - Concentric Swaged From Pipe With a Connection	CXBW		Y
Reducer - Concentric Compression	RCCP	ECXB	Y
Reducer - Concentric Flanged	RCFL		Y
Reducer - Concentric Fabricated From Plate Flanged	CPFL	Þ	Y
Reducer - Concentric Swaged From Pipe Flanged	CSFL	D	Y
Reducer - Concentric Fabricated From Plate Flanged w/ Connection	CZFL	口	Y
Reducer - Concentric Swaged From Pipe Flanged w/ Connection	CXFL		Y
Reducer - Concentric Nipple	RNSC	Δ	Y
Reducer - Concentric Screwed	RCSC	Æ-	Y
Reducer - Concentric Screwed w/ Connection	CTSC	-1X-	Y
Reducer - Concentric Screwed Bush	RBSC	<b>−t</b> Σŧ-	Y
Reducer - Concentric Socket Weld Bush	RBSW	DE-	Y
Reducer - Eccentric Butt Weld	REBW	-6	Y

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Reducer - Eccentric Fabricated From Plate	EPBW	10	Y
Reducer - Eccentric Swaged From Pipe	ESBW	-	Y
Reducer - Eccentric Butt Weld With a Connection	OTBW	4	Y
Reducer - Eccentric Fabricated From Plate With a Connection	EZBW	<b>(</b>	Y
Reducer - Eccentric Swaged From Pipe With a Connection	EXBW	<b>(2)</b>	Y
Reducer - Eccentric Screwed	RESC	- <b>1</b>	Y
Reducer - Eccentric Screwed With a Connection	OTSC	- <b>1</b> -1-	Y
Reducer - Eccentric Flanged	REFL	1	Y
Reducer - Eccentric Fabricated From Pipe Flanged	EPFL		Y
Reducer - Eccentric Swaged From Pipe Flanged	ESFL	Д	Y
Reducer - Eccentric Flanged With a Connection	OTFL	H	Y
Reducer - Eccentric Fabricated From Plate Flanged With a Connection	EZFL	<b>₽</b>	Y
Reducer - Eccentric Swaged From Pipe Flanged With a Connection	EXFL	<b>124</b>	Y
Reducing Block	RFPL	8	Y

Related Topics
• Appendix: Symbols and Symbol Keys, page 406

## Tees (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Tee - Butt Weld	TEBW	7	N
Tee - Compression	TECP	, <u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	N
Tee - Flanged	TEFL	<u>L</u>	N
Tee - Screwed	TEFL	بعائد	N
Tee - Set On	TESO	-ZZ	N
Tee - Set On Reinforced	TERF		N
Tee - Socket Weld	TESW	بعلي	N
Tee - Swept Branch Butt Weld	TSBW	10 to	N
Tee - Swept Branch Flanged	TSFL	<b>严</b>	N
Tee - Swept Branch Compression	TSCP	بهاهر	N
Tee - Swept Branch Socket Weld	TSSW	, <del>, , , ,</del>	N

### **Related Topics**

## Traps (SKEYs)

You can replace the \*\* characters in the symbol keys with an end prep type. For more information, see *End Prep Connections*, page 458.

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Trap - In-Line (Straight Through)	TI**		Y
Trap - Angle	TA**	<b>-</b> -	N
Trap - Offset	TO**		N
Trap - Return	TR**	[	N

### **Related Topics**

## Valves (SKEYs)

You can replace the \*\* characters in the symbol keys with an end prep type. For more information, see *End Prep Connections*, page 458.

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Valve - Angle	AV**	烃	Y
Valve - Angle Pressure Reducing	AX**	뎟	Y
Valve - Angle Relief/Vent	AR**	戊	Y
Valve - Ball	VB**	<b>⋈</b>	Y
Valve -Basic	VV**	<b>戍</b>	Y
Valve - Butterfly	VY**	استدا	Y
Valve - Check	VC**	7	Y
Valve - Check	CK**	$\bowtie$	Y
Valve - Cock	VK**	<b>⋈</b>	Y
Valve - Diaphragm	VD**	<b>19</b>	Y
Valve - Gate	VT**	<b>™</b>	Y
Valve - Globe	VG**	<b>1</b>	Y
Valve - Needle	VN**	炒	Y
Valve - Plug	VP**	D <b>∮</b> J	Y
Valve - Pressure Reducing	VX**	<b>₽</b>	Y
Valve - Relief/Vent	VR**	<b>*</b>	Y
Valve - Slide	VS**	⋫	Y

### **Three-Way Valves**

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Valve - 3-Way	V3**	*	N

### **Four-Way Valves**

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Valve - 4-Way	V4**	<b>米二</b>	N

### **Related Topics**

## Vents (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Rupture Disk	RD	0)	Y

### **Related Topics**

## Welds (SKEYs)

Description	Key	Plotted Isometric Shape	User-Definable (Yes/No)
Weld - Site	WS	<del>-</del>	Y
Weld - Field Fitted	WF	<del>\X</del>	Y
Weld - Workshop	WW		Y
Weld Mitre (Shop)	WM		N
Weld Mitre (Site)	WM	<del>\</del>	N
Weld Mitre (Offshore)	WM	₩	N
Weld Mitre (Field Fit)	WMF	<del>-</del>	N
Weld Mitre (Field Fit)	WMF	₩	N
Offshore Weld	WO	₩	Y
Offshore Weld-Field Fit	WOF		Y

### **Related Topics**

## **Drawings and Reports Glossary**

#### Α

#### alternative text (AText)

An ISOGEN feature that allows you to change or remove any standard ISOGEN text on an isometric drawing.

#### annotations

Dimensions, notes, symbols, or reports placed in a drawing to provide information or comments.

#### В

#### batch extraction

A method of extracting drawings in which many drawings are extracted at a time. You can schedule the extraction process and set its recurrence.

#### **BOM (Bill Of Materials)**

An indented and exploded list of parts in a feature.

#### C

#### codelist

A set of acceptable values for a particular attribute which can be referred to by an index number or selected in a combo box. For example, the codelist for the material specification allows you to select from a set of standard entries, such as ASTM A183-F316 Stainless Steel.

#### condition rule

The condition that must be met before any rule is applied in a drawing view style.

#### cut pipe report

A list that shows the length of each piece of pipe in the pipeline.

#### D

#### detail sketch

A small drawing inset on an isometric drawing that provides more information about the fabrication or erection of a component represented in the isometric drawing.

#### dimension rule

The dimension processing for a drawing view style. This rule controls the style, units, and placement of dimensions in a drawing view.

#### G

#### graphic rule

The graphic processing rule for a drawing view style. A graphic rule could be vector hidden line (VHL), for example.

#### Н

#### **HITS** report

A diagnostic tool generated by the ISOGEN interface used to analyze the data collected from the 3D piping model when a problem extracting an isometric occurs.

#### ı

#### implied piping component

Piping components which are created in the database as part of a feature, but which are not represented graphically.

#### interactive extraction

A method of extracting drawings in which you can extract only a single isometric at a time. This method is primarily used for testing purposes.

#### **ISOGEN**

A software component that generates isometric drawings. Alias, Ltd develops ISOGEN.

#### isometric

Relating to or being a drafting system characterized by three equal axes at right angles; a view in which the horizontal lines of an element are drawn at an angle to the horizontal and all verticals are projected at an angle from the base.

#### isometric drawing

A line drawing, always shown in an isometric perspective, that is used for fabricating and erecting piping systems. An isometric drawing usually shows a complete line from one piece of equipment to another and provides all information necessary for fabrication and erection of piping.

#### isometric drawing style

A set of options that control the drawing output, including format and content. Each style has a unique set of options stored in reference data. You can use the Isometric Style Options Browser to edit the options.

#### L

#### label rule

The label processing rule for a drawing view style. A label rule could locate white space in a drawing view, for example.

#### M

#### material list

An option category that controls the format and content of the bill of materials.

#### MTO neutral file

A nongraphic output file that can be fed into a material control system. MTO stands for Material Take-Off.

#### 0

#### olet

A type of branching fitting that is preshaped to the curvature of the run pipe. Types of olets include sockolets, nipolets, and elbolets.

#### options file

A set of options that drives the ISOGEN interface.

#### orthographic

A depiction of an object created by projecting its features onto a plane along lines perpendicular to the plane.

#### Ρ

#### **PCF** (Piping Component File)

The intermediary file that SmartPlant 3D generates and delivers to the Alias ISOGEN software with the goal of creating an isometric piping drawing.

#### PDS (Plant Design System)

A comprehensive, intelligent computer-aided design and engineering application for the process and power industries. PDS consists of integrated 2D and 3D modules that correspond to engineering tasks in the plant design workflow.

#### parts

The physical components that comprise a feature and are generally selected by the software. For example, the flanges, gaskets, and the gate valve itself are examples of the parts comprising the gate valve feature.

#### port

A connection point to a pipe or a component such as a valve.

#### pipeline

A set of graphically connected pipe runs including all branches.

#### pipe run

A pipe run is a connected series of pipe components that have the same nominal piping diameter (NPD) and flow direction, and are governed by the same pipe specification.

#### pipe specification

A collection of the allowed types of piping commodities and requirements for those types that can be used in the design of a piping system to which the specification applies. These are also known as specification parts. Each individual piping specification includes additional rules that determine the types of parts that must be used in certain design circumstances as well as suggestions for parts that could be used in other circumstances.

#### R

#### repeatability

A process in which re-extracted drawings only change where modifications have been made to the model. When a drawing is re-extracted, the software recalls the repeated data to avoid changing drawing split points and part, weld, and spool numbers.

#### S

#### spool

A prefabricated portion of a piping system that is an assembly of fittings, flanges, and pipe. A spool does not include bolts, gaskets, valves, or instruments.

#### symbol key (SKEY)

A code for a symbol on an isometric drawing. For example, FLSO is the SKEY for a slip on flange.

#### U

#### update rule

The rule for a drawing view style that determines when to update the view.

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