SmartPlant Fusion

Administrator's Guide

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Preface

This document is the user's guide for the SmartPlant® Fusion Data Capture Administration module. This document provides information and procedural instructions to the administrator for using the SmartPlant Fusion Data Capture Administration module.

SmartPlant Fusion Product Documentation

SmartPlant Fusion documentation is available as Help and as Adobe® PDF files. To view printable guides for SmartPlant Fusion, click **Help** > **Printable Guides** in the software.

Intergraph gives its customers permission to print as many copies of the delivered PDF files as they need for their non-commercial use. Do not print the PDF files for resale or redistribution.

Installation and Overviews

- *SmartPlant Fusion Release Bulletin* - Provides information on the SmartPlant Fusion features for the current release.
- *SmartPlant Fusion Installation and Configuration Guide* – Provides installation, set up, and configuration information. It also provides information about troubleshooting the software.
- *SmartPlant Fusion Getting Started Guide* - Provides overview information to help users start working in SmartPlant Fusion.

Administrative Guide

- *SmartPlant Fusion Administrator's Guide* - Provides information such as general conceptual information, procedures, and vocabulary necessary to use the SmartPlant Fusion Data Capture Administration module.

User's Guides

- *SmartPlant Fusion Reviewer's Guide* - Provides information such as general conceptual information, procedures, and vocabulary necessary for the reviewer to use the SmartPlant Fusion Quality Control module.
- *SmartPlant Fusion Document Controller's Guide* - Provides information such as general conceptual information, procedures, and vocabulary necessary for the document controller to use the SmartPlant Fusion commands available in the SmartPlant Foundation Desktop Client and SmartPlant Fusion Data Capture Task Manager module.
- *SmartPlant Fusion Viewer's Guide* - Provides information such as general conceptual information, procedures, and vocabulary necessary for the viewer to use the SmartPlant Fusion commands and functionality available in the SmartPlant Fusion Data Capture Task Manager module, SmartPlant Fusion Web Portal and SmartPlant Foundation Desktop Client.
- *SmartPlant Fusion Pre-Processor Utility Guide* – Provides information such as general conceptual information, procedures, and vocabulary necessary for the administrator and document controller to use the SmartPlant Fusion commands available in the SmartPlant Fusion Pre-Processor Utilities module.

Customer Support

For the latest support information for this product, use a World Wide Web browser to connect to *http://support.intergraph.com* (*http://support.intergraph.com*). Also, you can submit any documentation comments or suggestions you might have on the Intergraph support site.

SECTION 1

What's New in SmartPlant Data Capture Administration?

Version 2016 R1

- You can now work with SmartPlant Fusion data in the desired project by setting the Create/Update scope to required project. For more information on setting Create/Update scope, see *Concurrent Engineering* in the *SmartPlant Foundation Desktop Client User's Guide* delivered with SmartPlant Foundation software. (CR-AM-104476)
- Central Fusion Settings is renamed to Central Settings. (CR-AM-104577)
- You can now select a folder to store the ignored files, in the General Settings page of the Central Settings module. For more information, see *Central Settings* (on page 23). (CR–AM–103448)
- You can now configure the associated column sets for each of the available business objects in the Property List module. For more information, see *Add a business object* (on page 69). (CR–AM–96823)
- You can now use an existing data reader pattern to create a new one using **Copy Data Reader Pattern**. For more information, see *Create a data reader pattern* (on page 59). (CR-AM-97859)
- You can now create SDV Job Definition in the Central Settings module, and select SDV Job Definition in the Data Reader Patterns module to generate a csv file so that the same can be imported into the target system. For more information, see *Central Settings* (on page 23) and *Create a data reader pattern* (on page 59). (CR–AM–98288)
- You can now create a new relationship between domain tag and business object if a specific interface realizes the business object. For more information, see *Map selected fields* (on page 62). (CR-AM-97861)
- You can now click Refresh to update the columns those were added in the database and to remove any columns that no longer exist in the database. For more information, see *Define the data reader pattern* (on page 60). (CR-AM-97860)
- The PDF files generated using the Document Discovery Task are now placed in a folder called PreProcessedAlternateRenditions. For more information, see *Central Settings* (on page 23). (CR-AM-96925)
- The Database Tag Discovery Task is renamed to Database Domain Discovery Task. (CR-AM-96824)
- You can now specify a folder path while creating a document discovery task. For more information, see *Create a new document discovery pattern* (on page 40). (CR-AM-96848)

Version 2016

- Administrators can set the applications for thumbnail and PDF file generation using the Central Fusion Settings File Types sub module. For more information, see *Central Settings* (on page 23). (CR-AM-66003, CR-AM-88605)
- You can auto generate PDF files using the Document Discovery Task by setting the Auto Generate PDF Files flag in the General Settings tab. For more information, see *Central Settings* (on page 23). (CR-AM-91865)
- You can make additional connections to MSACCESS, EXCEL and CUSTOM databases using the Central Fusion Settings Data Connections sub module. For more information, see *Manage data connections* (on page 56). (CR-AM-87252, CR-AM-87253)
- With the database reader you can now:
  - View, as well as select tables from a database.
  - Map database properties to properties within the Fusion Schema.
  - Consolidate domain properties to the central Fusion object.
  - Map document objects and subsequently create a three tier document in Fusion.
  - Map file objects and transfer to the Fusion vault.
  - Apply converters, such as Replace, Substring, ToLower, and ToUpper to a property.
  - Create data group patterns, so that they can be processed within a single task in a specific order.

  For more information, see *Data Reader Patterns* (on page 52). (CR-AM-92518, CR-AM-92912, CR-AM-92917, CR-AM-93286, CR-AM-94397, CR-AM-91258, CR-AM-91645, CR-AM-91833, CR-AM-87870, CR-AM-87872, CR-AM-87873, CR-AM-87874, CR-AM-87876)
- Document and Tag Discovery Patterns can be set up to use regular expressions, as an alternative to the like patterns. For more information, see *Create a new document discovery pattern* (on page 40). (CR-AM-88564, CR-AM-88565, CR-AM-88566)
- The tag list sub module has been replaced by a property list sub module that allows the schema items to be added to any Fusion object. Generated properties can be assigned to a specific scoped by property type, rather than just a string related to a secondary object. For more information, see *Property Lists* (on page 67). (CR-AM-87250, CR-AM-87251)
- The data model has been extended to include business objects such as Supplier, Model and Originator, and the Document Naming System and Tag Naming System forms have been updated to reflect these changes. For more information, see *Document Naming System (DNS)* (on page 35). (CR-AM-87079, CR-AM-82273, CR-AM-88166, CR-AM-88167, CR-AM-88481, CR-AM-88484, CR-AM-82273)
- A Tag Type Relationships sub module has been created to support new relationships between document and tag types. This relationship fully supports the new completion report. For more information, see *Tag Type Relationships* (on page 95). (CR-AM-88174, CR-AM-89039)
- The Document Naming System now allows users to control the data expansion in the QC Module using the top node and objects to expand properties. For more information, see *Document Naming System (DNS)* (on page 35). (CR-AM-91963)

- Document Discovery Groups can be created from the Document Patterns Module. For more information, see *Group document discovery patterns* (on page 50).(CR-AM-91266)
- You can now add sub modules in the SmartPlant Fusion Task Manager module by configuring methods in SmartPlant Foundation Desktop Client. For more information, see *Configure user access to SmartPlant Fusion Data Capture Task Manager sub-modules* (on page 20). (CR-AM-87255, CR-AM-87254)
- The Preview option allows you to view the files that are to be loaded or not loaded into the database before the running of the Document Discovery Task. For more information, see *Central Settings* (on page 23). (CR-AM-87255, CR-AM-87254)

Version 2015

- The Tag Discovery Patterns module is enhanced to allow group tag configuration. For example, you can now create group patterns such as V-224A/B/C to extract multiple tags like V-224A, V-224B, and V-224C. For more information, see *Create new group tag pattern* (on page 93). (CR-AM-79158)
- You can now relate an application to each file type in the **File Types** page and relate readers with applications in the **Reader Settings** page. For more information, see *Manage file types and prioritize them for content extraction* (on page 28) and *Manage reader and application relationship* (on page 31). (CR-AM-80458)
- You can now add delimiters in the **Separators and Delimiters** page. The delimiters are internally used by the software for tag extraction. The software looks for the tags that end with the characters defined as delimiters. For example, if you have the pump numbers P-100, P-101, and P-102 in a content file, and you are using the tag pattern P-### with comma "," as delimiter to search for tags, then all the tags get extracted. For more information, see *Manage the separators and delimiters* (on page 32). (CR-AM-80451)
- A new SmartPlant Fusion Document Quality Control report is added and this report provides the details on missing document attributes, missing document relationships, and on document attribute and relationship mismatches. For more information, see *Viewing Ad-hoc reports in the Desktop Client* (on page 122). (CR-AM-79165)
- The following chart reports are added in the Business Intelligence module.
  - Document Report By Document Type
  - Document Report By Project
  - Document Report By Unit

  For more information, see *Chart Reports* (on page 121). (CR-AM-84369)
- If you update the display names of the DNS items in the SmartPlant Fusion Administration module, the changes are reflected in the SmartPlant Foundation Desktop Client. For more information, see *Create a DNS item* (on page 37). (CR-AM-79179, CR-AM-80805)
- The document discovery task and content discovery task are now configuration controlled. For example, a document discovery task created in PlantA cannot be run when you are in PlantB. (CR-AM-83654)
- SmartPlant Fusion thumbnail generation application is enhanced to create a thumbnail for all the files that are processed in the document discovery task. (CR-AM-83779)
- In the Document Naming System module, you can now add new document parameters in addition to the nine existing document parameters that are delivered with SmartPlant

Fusion. For more information, see *Document Naming System (DNS)* (on page 35). (CR-AM-79173)

- You can now create tag lists with a property group name and multiple properties for each property group. The property group name is added as an interface definition that gets related to the SPFNTag interface. The properties are extracted from the content file as the tag properties during content extraction. For more information, see *Property Lists* (on page 67). (CR-AM-82994)
- The following changes were made to the Document Discovery Pattern module.
  - You can add additional document attributes that are not a part of the file name or document name in the **Document Attributes** tab. The document attributes are used to create relationships with the objects in the SmartPlant Fusion database.
  - You can now include the parent folder name of the folder from which the file pattern is selected in the document name.
  - The example name gets updated on addition or deletion of file parts by the users.
  - You can now change the directory path for a document discovery pattern without having to change the pattern itself.

  For more information, see *Document Discovery Pattern* (on page 39). (CR-AM-79180, CR-AM-79181, CR-AM-79183, CR-AM-80251)
- You can select colors to represent the relationship updates for document with configuration objects. This color coding is displayed in the **Resolve Relationship** page. For more information, see *Change the color settings for relationship changes* (on page 32). (CR-AM-82224)
- You can now load tag information from custom databases and relate them to SmartPlant Fusion tags as the following changes were made to the SmartPlant Fusion Administration module.
  - You can add and delete database connections that are used to extract tags from the existing databases in the **Data Connections** page.
  - You can create data reader patterns to extract the tags from the custom databases, and relate these tags to SmartPlant Fusion tags.

  For more information, see *Manage data connections* (on page 56) and *Data Reader Patterns* (on page 52). (CR-AM-78641, CR-AM-80219)

Version 2014

- In the Document Naming System module, you can create the Document Naming System (DNS) items that allow you to define the parts of a file name. This module allows you to relate the part of a file name to existing objects in the database. You can also define constant values for the DNS items. For more information, see *Document Naming System (DNS)* (on page 35).
- You can create Document Discovery Patterns that allow the application to selectively pick files from the file system that match the file name patterns defined in the Document Discovery Patterns. For more information, see *Document Discovery Pattern* (on page 39).
- Each file part in a Document Discovery Pattern can be defined as a DNS item, thereby allowing the application to identify the existing objects in the database and relate the documents to organizational items while processing documents in the Content Discovery Task. For more information, see *Create a new document discovery pattern* (on page 40).

- You can define the document name for the files that are loaded into the database in the Document Discovery Patterns. For more information, see *Manage document name parts and attributes* (on page 46).
- In the Central Fusion Settings module, you can set various options to configure the SmartPlant Fusion modules. The configuration options available in this module are:
  - General Settings - Allows you to set the file path to store the ignored files. In addition, you can allow the software to generate thumbnails automatically and add the period of time for which the software waits for SmartPlant Markup.
  - Color Settings - Allows you to select colors to represent the file statuses in the SmartPlant Fusion Operations module.
  - Separators - Allows you to add separators that are used to separate file parts in the Document Discovery Patterns and Tag Discovery Patterns.
  - File Types - Allows you to add file types and relate them to the SmartPlant Fusion readers.
  - UNC Path – Allows you to add shared directories as SmartPlant Fusion Vaults. The shared directories contain the files that are to be loaded into the database by the Document Discovery Tasks (DDT).

  For more information, see *Central Settings* (on page 23).
- In the Tag Naming System module, you can create the Tag Naming System (TNS) items that allow you to define the parts of a tag name. You can also define constant values for the TNS items. For more information, see *Tag Naming System* (on page 75).
- You can create master tag patterns and alias tag patterns in the Tag Discovery Pattern module. The master tag patterns and the alias tag patterns are used by the application to selectively pick master tags and alias tags from the content files. For more information, see *Tag Discovery Pattern* (on page 78).
- You can create tag types and tag subtypes in the Tag Classification module. You can also associate master tag patterns that have the tag part name “Tag Type” in them with a tag type and its subtypes. For more information, see *Tag Classification* (on page 71).
- When you select a master tag pattern that has been associated with a tag type, the tags existing in the database that match the selected master tag pattern appear in the Tags pane of the Tag Classification module. For more information, see *View tag patterns and related tags* (on page 73).
- You can relate a file type to a Reader interface, which in turn is related to an application object. By default, the file type .dwg is related to the reader interface ISPFNDrawingReader, and this is related to the SmartConverter application object. The following readers are available with the application:
  - Document Reader - The Document Reader extracts all the cross-references and linkage information contained in the Office files. For example, files with extension .doc, .docx, .xls, .xlsx, .ppt, .pptx, and .txt.
  - Drawing Reader - The Drawing Reader extracts all the cross-references and linkage information contained in the drawing files. For example, files with extension .dgn, .dwg, .igr, and .pid.
  - Image Reader - The Image Reader extracts the information contained in image files that are processed by a third party OCR engine, such as ABBYY or Adlib, and extracts the tags from it.

- Laser Scan Reader - The Laser Scan Reader captures Leica TruView HDS information created from scans taken of a plant. These TruViews are made navigable by allowing you to place tagged hotspots on plant items of interest. These tagged hotspots are named and read by SmartPlant Fusion and are correlated against all the other information items that are associated with that tagged hotspot.
- 3D Reader - The 3D Reader extracts the information contained in the output files obtained from the SmartPlant Interop Publisher (SPIOP) application.

For more information, see *Manage file types and prioritize them for content extraction* (on page 28).

- You can use preprocessed content files extracted by third-party applications in SmartPlant Fusion to extract tags.

SECTION 2

Welcome to SmartPlant Fusion Data Capture Administration

The SmartPlant Fusion Data Capture Administration module is delivered and installed with SmartPlant Fusion. This module enables you to manage the central settings, data reader patterns, document discovery patterns, document naming system, tag classification, tag discovery patterns, property lists, and tag naming system.

IMPORTANT You must set the active scope before using the SmartPlant Fusion Data Capture Administration module.

Roles govern the user access to commands and data. Users perform different roles in different configurations (different plants or projects).

NOTES

- As a SmartPlant Fusion administrator, you can configure new roles.
- You can also create users and assign SmartPlant Fusion related roles to the users.

Users and Roles

The SmartPlant Foundation security model is a flexible mechanism to control role-based user access to data and the operations that can be performed on that data.

The security model is comprised of:

- Users
- Roles, domains, and access groups
- Configurations
- Role assignments

A user is assigned a role in a configuration for example, to work as a Designer in Project1. Roles are related to access groups, which control access to the different components of the system.

The security model controls user access to:

- Application modules
- Menus and toolbars
- Shortcut menu commands
- Relationship manipulation and navigation
- Data segregation based on user and tool ownership
- Conditional data access supported by query, FTR, and reporting

NOTE The users and roles are configured by the administrator.

The following roles and their access groups are delivered with SmartPlant Fusion:

Access Group	AccessGroup Description	Roles: Fusion_AdminRole	Fusion_DocController Role	Fusion_ReviewerRole	Fusion_ViewerRole
SPFN_DocumentControl	Create and Run the Document Discovery Tasks and Content Discovery Tasks	■	■		
SPFN_DocumentUpdate	Update the documents	■	■		
SPFN_DocumentView	View the documents and their properties	■	■	■	
SPFN_Reader	Access to all the type of readers available in the application	■	■	■	■
SPFN_Reviewer	Review the documents and tags			■	
SPFN_SystemAdmin	Forms, Methods, Menus, etc	■			
SPFN_UserAdmin	Provide access to users	■			
SPFN_ViewOnly	View only access for documents and tags	■	■	■	■
SPFN_WorkflowAdmin	Configure workflow templates	■			
SPFN_WorkflowUpdate	Configure workflow step distribution matrices	■			
SPFN_WorkflowView	View workflow steps	■	■	■	
SPFN_Writer		■	■		

For more information on setting up security for users, see *SmartPlant Foundation How to Configure the Security Model Guide*.

Security Model

The security model is used to control role-based user access to the SmartPlant Fusion modules.

Access groups govern the user access to commands and relationship creation and navigation. Roles are related to access groups. Access groups are related to methods, interfaces, and view definitions. This structure provides the roles access to the different components of the system.

The following table displays the methods for the SmartPlant Fusion modules.

Module Name	Method Name
SmartPlant Fusion Data Capture Administration module	FusionAdministrationAccess
SmartPlant Fusion Quality Control module	FusionQualityControlAccess
SmartPlant Fusion Data Capture Task Manager module	FusionJobsAccess
SmartPlant Fusion PreProcessor module	FusionPreProcessorModuleAccess

Access to the SmartPlant Fusion modules are configured by relating the following access groups to the methods that are available with SmartPlant Fusion.

- SPFN_Admin access group is related to FusionAdministrationAccess method, FusionQualityControlAccess method, FusionJobsAccess method, and FusionPreProcessorModuleAccess method
- SPFN_Reviewer access group is related to FusionQualityControlAccess, and FusionJobsAccess method
- SPFN_DocumentControl access group is related to FusionJobsAccess method and FusionPreProcessorModuleAccess method
- SPFN_ViewOnly access group is related to FusionJobsAccess method

The following table illustrates what access groups are related to which methods.

Access groups	Method Name			
	FusionAdministration Access	**FusionQuality ControlAccess**	**FusionJobs Access**	**Fusion Pre-Processor ModuleAccess**
SPFN_Admin	✓	✓	✓	✓
SPFN_Reviewer	×	✓	✓	×
SPFN_DocumentControl	×	×	✓	✓
SPFN_ViewOnly	×	×	✓	×

NOTES

- The access groups that are configured and delivered with SmartPlant Fusion have access to the SmartPlant Foundation Client.
- Methods are exposed to users through their relationships with roles by way of access groups -- access groups are associated with a role and their methods are then available to users in that role. For more information about setting up security for your users, see *Configuring Security* in *SmartPlant Foundation Administrator's Guide*.

Set active scope

Before you create, modify, or view SmartPlant Fusion objects, you must set your SmartPlant Foundation Desktop Client active scope to the SmartPlant Fusion project.

1. Log on to SmartPlant Foundation Desktop Client.
2. Click **File > Set Active Scope** to open the **Set Active Scope** dialog box.

   TIP You can also set the active scope by clicking the text beside **Selected Roles**, **Query Scope**, or **Create/Update Scope** in the SmartPlant Foundation Desktop Client status bar. For more information, see *User Roles* in the *SmartPlant Foundation Desktop Client User's Guide*.
3. In the **Set Active Scope** dialog box, set the scope to the required plant or configuration top, and click **OK**.

4. Select a plant or project from the **Query Scope** in which you want to create and modify SmartPlant Fusion data**.**
5. To set the create scope, select the SmartPlant Fusion plant or project from the **Create Scope** list.

   NOTE You can select only one plant or project for the create scope.

6. Click **OK**.

   NOTE In the Documents and Tags modules of Data Capture Task Manager, the query is performed based on the **Query Scope** configuration. For all the other modules, the query is performed based on the **Create Scope** configuration without including higher configuration items.

SECTION 3

Configure user access to SmartPlant Fusion Data Capture Task Manager sub-modules

As a SmartPlant Fusion administrator, you can control user access to the Smart Plant Fusion Data Capture Task Manager sub-modules by configuring new methods.

1. Click **File > New >Administration > Method** in the Desktop Client. The **New Method** dialog box is displayed.
2. Type a name and description for the new method, in the **Name** and **Description** boxes respectively.
3. Select **Explorer Configuration** from the **Client API** list.
4. Type appropriate values in the **Query Interface Name**, **ColumnSet to present results**, and **Group Name** boxes. For example, if you want to configure Master Tag, type ISPFNMasterTag, SPFNTagCS, and Tags in the respective boxes.
5. Select the **Available on Desktop client** check box, and click **Finish**.
6. Right-click a method and select **Manage Access Groups** to assign access groups.

SECTION 4

Creating objects in SmartPlant Fusion

As a SmartPlant Fusion administrator, you can create a variety of objects within a project in the SmartPlant Foundation Desktop Client.

What do you want to do?

- *Create a master tag* (on page 21)
- *Create an asset* (on page 21)
- *Create a manufacturer* (on page 22)
- *Create a model* (on page 22)
- *Create a supplier* (on page 22)
- *Create a system* (on page 22)

Create a master tag

1. Open SmartPlant Foundation Desktop Client on a computer on which SmartPlant Fusion has been installed and configured.
2. Click **File** > **New** > **Fusion Items** > **Master Tag.**
3. In the **New Master Tag** dialog box, enter all mandatory information and click **Finish**. The master tag is created and appears in the **New Items** window.

Create an asset

1. Open SmartPlant Foundation Desktop Client on a computer on which SmartPlant Fusion has been installed and configured.
2. Click **File** > **New** > **Model and Asset** > **Asset**.
3. In the **New Asset** dialog box, select a type of asset and click **Next**.
4. Enter all mandatory information and click **Finish**. The asset is created and appears in the **New Items** window.

Create a manufacturer

Use the following steps to create a manufacturer:

1. Click **File** > **New** > **Model and Asset** > **Manufacturer**.
2. In the **New Manufacturer** dialog box, enter the name in the **Name** box.
3. Enter the information in the required boxes.
4. Click **Finish**.

Create a model

1. Open SmartPlant Foundation Desktop Client on a computer on which SmartPlant Fusion has been installed and configured.
2. Click **File** > **New** > **Model and Asset** > **Model**.
3. In the **New Model** dialog box, select a model type and click **Next**.
4. Enter all mandatory information and click **Finish**. The model is created and appears in the **New Items** window.

Create a supplier

1. Open SmartPlant Foundation Desktop Client on a computer on which SmartPlant Fusion has been installed and configured.
2. Click **File** > **New** > **Model and Asset** > **Supplier**.
3. In the **New Supplier** dialog box, enter all mandatory information and click **Finish**. The supplier is created and appears in the **New Items** window.

Create a system

1. Open SmartPlant Foundation Desktop Client on a computer on which SmartPlant Fusion has been installed and configured.
2. Click **File** > **New** > **Organization/Support Items** > **System**.
3. In the **New System** dialog box, enter all mandatory information and click **Finish**. The system is created and appears in the **New Items** window.

SECTION 5

Central Settings

In the **Central Settings** module, you can set various options to configure the SmartPlant Fusion modules.

These options include:

- **Character Ranges** - Allows you to add and delete the characters' ranges which can be addressed by SmartPlant Fusion.
- **File Types** - Allows you to add file types and relate them to SmartPlant Fusion readers.
- **General Settings** - Allows you to set the file path to the location in which the ignored files must be stored and add the period of time for which the software waits for SmartPlant Markup. In addition, you can allow the software to generate thumbnails and resolve the duplicate files automatically.

  NOTE SmartPlant Fusion will wait for a response from the SmartPlant Markup application for the period of time specified here, and will thereafter add a failure message to notify the users that SmartPlant Markup was unavailable.
- **Reader Settings** - Allows you to relate each reader existing in the software with an application
- **Resolve Duplicates Color Settings** - Allows you to select colors to represent the file statuses in the SmartPlant Fusion Resolve Duplicates module.
- **Resolve Relationships Color Settings** - Allows you to select colors to represent the document relationship updates in the SmartPlant Fusion Quality Control module.
- **Separators and Delimiters** - Allows you to add separators that are used to separate file parts in the document discovery patterns and tag parts in the tag discovery patterns. It also allows you to add delimiters that will be used to identify the end of a tag.
- **Vault UNC Path** - Allows you to provide one or more UNC path to a shared directory that will contain the files that are to be loaded into SmartPlant Fusion database, and are accessible from many computers.

Character Ranges page

Allows you to add and delete the characters ranges that will be supported by SmartPlant Fusion.

Add Character Range - Allows you to set a character range.

Delete Character Ranges - Allows you to delete one or more character ranges.

Name - Type a name for the character range set.

Upper Case Range - Allows you to type the upper case character range. For example, [A-Z].

Lower Case Range - Allows you to type the lower case character range. For example, [a-z].

IMPORTANT The character range should be enclosed within square brackets and the characters should be separated by a hyphen.

Default - Allows you to set the selected character range set as default. The selected character range set is displayed by default in the **Character Range** list of the **Document Discovery Pattern** and **Tag Discovery Pattern** module.

File Types page

Allows you to add and delete file types from the list of those that are supported by SmartPlant Foundation and also allows you to assign SmartPlant Fusion readers for each file type.

Add New File Type - Allows you to add a file type to the list.

Configure Alternate Renditions - Allows you to associate an application for converting a file type to .pdf or generating a thumbnail.

Remove File Types - Allows you to delete one or more file types from the list.

Name - Select a file type from the list.

Description - Displays the description for the selected file type.

Reader - Select a SmartPlant Fusion reader from the list to relate the selected reader to the file type.

Extension - Displays the file type extension for the selected file type.

Application - Select an application from the list to relate the selected application to the file type.

Select a file type and click the **Configure Alternate Rendition** option to set the .pdf and thumbnail rendition application.

PDF Rendition Options

Use Markup for PDF Rendition - Select this option to use SmartPlant Markup Plus for .pdf generation.

PDF Rendering Application - Type an alternate rendering application (other than SmartPlant Markup Plus) to use.

PDF Rendition Conversion Path - Type an alternate rendering conversion path.

Thumbnail Rendition Options

Use Markup for PDF Rendition - Select this option to use SmartPlant Markup Plus for thumbnail generation.

Thumbnail Rendering Application - Type an alternate rendering application (other than SmartPlant Markup Plus) to use.

Thumbnail Rendition Conversion Path - Type an alternate rendering conversion path.

NOTES

- You can select an application or a reader for each file type.
- You can select an application and a reader for a file type. If an application and reader is selected for a file type then the application take precedence. For example, if you select Image Reader (related to ABBYY application) as reader and SmartPlant Markup as application for the PDF file type, then all the PDF files in the database get processed through the SmartPlant Markup application.

General Settings page

Allows you to set the file path for vaults and ignored files. In addition to this, you can allow automatic generation of thumbnails and set the wait time for SmartPlant Markup.

Ignored Files Path - Allows you to define the file path for storing ignored files.

TIP Click **Browse** ..., and select the folder to store the ignored files.

Markup Time Out - Allows you to define the period of time, in seconds, for which the application waits for a response from SmartPlant Markup. Default timeout is set to 500 seconds.

Auto Generate Thumbnails - Select this option to allow the generation of thumbnail for each file during the document discovery task.

Auto Resolve Duplicates - Select this option to allow the software to resolve the duplicate document conflicts. This option is selected by default.

Auto Generate PDF Files- Select this option to allow the generation of a PDF for each file during the document discovery task.

NOTES

- Mandatory values are marked by an asterisk (*).
- When this **Auto Resolve Duplicates** check box is selected, if a new file is found in the document discovery task having modified date falling after the modified date of the master file or the candidate file attached to the document, the software attaches the new file to the latest version of the document, instead of creating a duplicate document. The creation of new version of the document is described for the following cases.

  Case I

  Scenario: A document exists with a master file attached to it, and a new file is found in the document discovery task, having modified date falling before the modified date of the master file attached to the document.

  Result: The new file is ignored and is not loaded into the database.

  Case II

  Scenario: A document exists with a master file and two candidate files attached to it, and a new file is found in the document discovery task, having modified date falling after the modified date of the master file attached to the document.

  Result: The new file gets attached to the latest version of the document as the master file and the candidate files are also moved to the latest version.

  Case III

  Scenario: A document exists with a master file and two candidate files attached to it, and a new file is found in the document discovery task, having modified date falling after the modified date of one of the candidate file attached to the document.

  Result: The new file gets attached to the latest version of the document as the candidate file. The master file, and the other candidate file are also moved to the latest version.

Reader Settings page

Allows you to relate an application for each reader.

Reader - Displays all the readers available in the application.

Application - Select an application from the list to relate the selected application to the reader.

Resolve Duplicates Color Status page

Defines the color settings for each file status that can be set on the duplicate files in the SmartPlant Fusion Operations module.

Color Picker - Allows you to set the color for each file status.

Reset Colors - Reverts the colors for all the file statuses back to the default values.

Resolve Relationships Color Settings page

Defines the color settings for the updates made to the document relationships in the SmartPlant Fusion Quality Control module.

Color Picker - Allows you to set the color for document relationship modification.

Reset Colors - Reverts the colors set for all the document relationship modifications back to the default values.

Separators and Delimiters page

The separators and delimiters that exist in the SmartPlant Fusion database are displayed on this page. Delimiters are internally used by the software for extraction of tags that have delimiters at the end of the tag.

Add Separators - Allows you to add one or more separators.

Delete Separators - Allows you to delete the selected separators.

Add Delimiters - Allows you to add one or more delimiters.

Delete Delimiters - Allows you to delete the selected delimiters.

Ignore Delimiters - Select this option if you want the software to ignore the delimiters while searching for tags in the content file.

UNC Path page

Allows you to add and delete UNC paths that contain the files that need to be processed in the document discovery task.

Add UNC path - Allows you to add a UNC path to the list.

Delete UNC paths - Allows you to delete one or more UNC paths from the list.

Name - Type a name for the UNC path.

UNC Path - Allows you to copy and paste a UNC path.

TIP You can also click **Browse** to navigate to the shared directory.

What do you want to do?

- *Add languages and set the characters ranges* (on page 27)
- *Manage file types and prioritize them for content extraction* (on page 28)

- *Learn more about defining the general settings* (on page 30)
- *Manage reader and application relationship* (on page 31)
- *Change the color settings for the file statuses* (on page 31)
- *Change the color settings for relationship changes* (on page 32)
- *Manage the separators and delimiters* (on page 32)
- *Manage the UNC path* (on page 33)

Add languages and set the characters ranges

The **Character Ranges** page allows you to add a range of characters from a character set. The characters within the defined character set are processed by the application during document discovery and content discovery.

View language and character ranges

1. Log in to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Central Settings.**
4. Click **Character Ranges** to view the **Character Ranges** page, where the character ranges are displayed in an item list.

Add a language and the character ranges

1. In the **Character Ranges** page, click **Add Character Range**  to add a new row at the bottom of the list.
2. Type a name for the character range set in the **Name** column.

   IMPORTANT You cannot change the name of the character range set, once it is saved to the database.
3. Click on the **Upper Case Range** column, and type the range of upper case characters enclosed within square brackets and separated by a hyphen. For example, for English language type [A-B].
4. Click on the **Lower Case Range** column, and type the range of lower case characters enclosed within square brackets and separated by a hyphen. For example, for English language type [a-b].
5. Click on the **Default** column to set the selected character range set as default.

Manage file types and prioritize them for content extraction

The **File Types** page allows you to add a file type from the list of file types supported by SmartPlant Foundation. You can relate a file type to an existing SmartPlant Fusion reader to indicate that the files with that extension can be processed by the specified SmartPlant Fusion reader. You can also relate a file type to an application to indicate that the files with that extension can be processed by the specified application.

NOTE You can select an application and a reader for a file type. If an application and reader is selected for a file type then the application take precedence. For example, if you select Image Reader (related to ABBYY application) as reader and SmartPlant Markup as application for the PDF file type, then all the PDF files in the database get processed through the SmartPlant Markup application.

You can also set the priority for processing the various file types listed in this page.

View file type hierarchy

1. Log in to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Central Settings.**
4. Click **File Types** to view the **File Types** page where the defined file types are displayed with their related reader**.**

Set the priority for the file types

If a document has files of different file types attached to the latest version, then the file with the extension that is at the top of this list will be set as master and will be further processed for the content and tag extraction.

1. In the **File Types** page, click the up arrow  to move the selected file type to the top of the list.
2. Click the down arrow  to move the selected file type to the bottom of the list.
3. Click **Save**.

Add file type hierarchy

1. In the **File Types** page, click **Add file type** to add a new row to the bottom of the list.
2. Click in the **Name** column, and select a file type from the list.

   NOTE The **Description** column and the **Extension** column are populated with corresponding values for the selected file type.

   IMPORTANT You can add only file types that are supported by SmartPlant Foundation. The description and extension for the selected file type are populated from the information available in the SmartPlant Fusion database.
3. Click in the **Reader** column, and select a reader from the list to relate it to the newly added file type.
4. Click in the **Application** column, and select an application from the list to relate it to the newly added file type.
5. Click **Save**.

Delete file type hierarchy

1. In the **File Types** page, select one or more file types from the item list.
2. Click **Delete** , and then click **Yes** to confirm the deletion.

Configure alternate renditions

1. In the **File Types** page, select one or more file types from the item list.

   IMPORTANT If you select more than one file type, the **PDF Rendition Conversion Path** and the **Thumbnail Rendition Conversion Path** are unavailable.
2. Click **Configure Alternate Renditions** to open the **Configure Alternate Renditions** window.
3. In the **Configure Alternate Renditions** window, you can configure PDF renditions in three ways. They are as follows:
   - Select the **Use Markup for PDF Rendition** check box.

     NOTES
     - When the **Use Markup for PDF Rendition** check box is selected a relationship is created between the selected, file type and the PDF file type.
     - A property named **Alternate Rendition Application** is set on this relationship indicating the application that is used to generate the PDF files. The value of this property is **dmredl -p obj.Name -pdf $OUTPUTDIR**.
   - Type the appropriate value in the **PDF Rendering Application** box.
   - Type the appropriate value in the **PDF Rendition Conversion Path** box.
4. You can configure the thumbnail renditions in three ways. They are as follows:
   - Select the **Use Markup for Thumbnail Rendition** check box.

NOTE When the **Use Markup for Thumbnail Rendition** check box is selected a relationship is created between the selected, file type and the PNG file type.

- Type the appropriate value in the **Thumbnail Rendering Application** box.
- Type the appropriate value in the **Thumbnail Rendition Conversion Path** box.

5. Click **Save**.

Learn more about defining the general settings

The **Define General Settings** page allows you to add and update application-level settings.

1. Log in to SmartPlant Foundation.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Central Settings** to view the **Define General Settings** page.
4. In the **Ignored Files Path** box, type a file path that will contain the ignored files.
5. Type a numeric value that represents the period of time, in seconds, up to which the application will wait for a response from SmartPlant Markup.
6. Select the **Auto Generate Thumbnails** check box to allow thumbnail generation for each file during the document discovery task.

   NOTE You can clear the **Auto Generate Thumbnails** check box to avoid the generation of thumbnails during the document discovery task. Thumbnail generation takes considerably more time to complete the document discovery task.
7. Select the **Auto Resolve Duplicates** check box to allow the software to resolve the duplicate document conflicts.

   When this **Auto Resolve Duplicates** check box is selected, if a new file is found in the document discovery task having modified date falling after the modified date of the master file or the candidate file attached to the document, the software attaches the new file to the latest version of the document, instead of creating a duplicate document.
8. Select the **Auto Generate PDF** check box to allow generation of .pdf files for each file during the document discovery task.

   NOTES

   - All .pdf files generated by the Document Discovery Task are in the PreProcessedAlternateRenditions folder. This folder is in the same location as the native files before the Document Discovery Task. All generated .pdf files are available in the SmartPlant Fusion database.
   - You can provide .pdf files present in the PreRocessedAlternateRenditions folder as an input to the PDF reader preprocessor module for generating the corresponding content files.
9. Click **Save**.

Manage reader and application relationship

The **Reader Settings** page allows you to relate each reader existing in the software with an application.

The following table illustrates what types of applications can be associated with a specific reader.

Reader	Application
3D Model Reader	SPFN3D, SPFNABBYY, SPFNAdlib
Document Reader	SmartPlantMarkup, SPFNABBYY, SPFNAdlib
Drawing Reader	SmartConverter
Image Reader	SPFNABBYY, SPFNAdlib
LaserScan Reader	SPFNTruView
Text Reader	SPFNText

Relate reader to an application

1. Log in to SmartPlant Foundation.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Central Settings.**
4. Click **Reader Settings** to view a list of readers and their related applications**.**
5. Double click the fields in the **Application** column to enable  .
6. Click  in the **Application** column, and select an application from the list to relate it to the reader.

Change the color settings for the file statuses

The **Resolve Duplicates Color Settings** page allows you to set a color to represent each file status in the SmartPlant Fusion Operations module.

1. Log in to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Central Settings.**
4. Click **Resolve Duplicates Color Settings** to view the **Resolve Duplicates Color Settings** page**.**
5. For each file status, click  on the color picker and select a color to represent that status.

6. Click **Save**.

Change the color settings for relationship changes

The **Resolve Relationships Color Settings** page allows you to set a color to represent each document relationship update status in the SmartPlant Fusion Quality Control module.

1. Log in to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Central Settings.**
4. Click **Resolve Relationships Color Settings** to view the **Resolve Relationships Color Settings** page**.**
5. For each document relationship update status, click  on the color picker and select a color to represent that document relationship updates.
6. Click **Save**.

Manage the separators and delimiters

The **Separators and Delimiters** page allows you to add and delete separators that can be used within file parts to create document discovery patterns and tag parts to create tag discovery patterns. You can also add and delete delimiters that are used to identify the end of a tag.

1. Log in to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Central Settings.**
4. Click **Separators and Delimiters** to view the list of separators and delimiters used in the application.
5. In the **Separators** section, type a separator in the **Enter Separators** box, and click **Add Separators** + to add a new separator.
6. Select one or more separators and click **Delete Separators**  to remove the selected separators from the list.
7. In the **Delimiters** section, type a delimiter in the **Enter Delimiters** box, and click **Add Delimiters** + to add a new delimiter.

   IMPORTANT Select the **Ignore Delimiters** check box if you want the software to ignore the delimiters while searching for tags in the content file. For example, if you have the tag P-100 は機器のタグである。 in the content file and you are using the tag pattern P-### to search for tags, you may select the **Ignore Delimiters** check box for extracting P-100 from the content file.
8. Select one or more delimiters and click **Delete Delimiters**  to remove the selected delimiters from the list.

9. Click **Save** to save the changes.

NOTES

- The delimiters are internally used by the software for tag extraction. The software looks for the tags that end with the characters defined as delimiters. For example, if you have the pump numbers P-100, P-101, P-102 in a content file, and you are using the tag pattern P-### with comma "," as delimiter to search for tags, then all the tags get extracted.
- Separator and Delimiter consist of a single character. If you add more than one character in the **Enter Separators** box and click add, each character is added as a separator. For example, if you type {} and click add, then two separators {and} get added.

Manage the UNC path

The **UNC Path** page allows you to add and update the UNC path where the files that are processed in the Document Discovery Task exist.

View UNC path

1. Log in to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Central Settings.**
4. Click **UNC Path** to view the **UNC Path** page, where the existing UNC paths are displayed in an item list.

Add a UNC path

1. In the **UNC Path** page, click **Add UNC path**  to add a new row at the bottom of the list.
2. Type a name for the UNC path in the **Name** column.

   IMPORTANT You cannot change the name of the UNC path, after it is saved to the database.
3. Click the **UNC Path** column, and type the file path.

   TIP You can click **Browse** to navigate to the folder that contains the files.
4. Click **Save**.

IMPORTANT Select the check box beside a UNC path to view it in the **Choose File Directory** page of the **Document Discovery Patterns** module.

Delete UNC path

1. In the **UNC Path** page, select one or more UNC paths from the item list.
2. Click **Delete UNC Paths** , and then click **Yes** to confirm the deletion.

SECTION 6

Document Naming System (DNS)

The Document Naming System (DNS) enables you to define the parts of a document name, as well as to identify the names of the different parts of a document and relate them to existing objects in the database.

SmartPlant Fusion is provided with the following properties that can be used to configure the document discovery patterns and set the properties on the files loaded into the database.

- SPFNDiscipline
- SPFNProject
- SPFNUnit
- SPFNDocType
- SPFNClientDocTitle
- SPFNClientDocRevision
- SPFNDocArea
- SPFNDocOriginator
- SPFNDocSystem
- SPFNDocParameter1
- SPFNDocParameter2
- SPFNDocParameter3
- SPFNDocParameter4
- SPFNDocParameter5
- SPFNDocParameter6
- SPFNDocParameter7
- SPFNDocParameter8
- SPFNDocParameter9

You can add additional document parameters in the **Document Naming System** page, by clicking on **Add New Parameter** + in the **Attribute Name** list and click **Save**.

NOTES

- The properties configured in the document discovery patterns are set on the files that are loaded into the database and can be viewed in the **Properties** window.
- As the document controller, you can view the properties added by the administrator in the SmartPlant Foundation Desktop Client.

Using the Document Naming System module

The Document Naming System module is used to create, view, edit, and delete DNS items.

NOTE Only administrators can access this module.

When you open the Document Naming System module, it displays the DNS items that already exist in the SmartPlant Fusion database in an item list.

What do you want to do?

- *View DNS items* (on page 36)
- *Create a DNS item* (on page 37)
- *Refresh DNS item list* (on page 38)
- *Edit a DNS item* (on page 38)
- *Delete a DNS item* (on page 38)

View DNS items

1. Log in to SmartPlant Foundation.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Document Naming System** to view the existing DNS items.

NOTE By default, the **Document Naming System** page appears with the DNS items **ParentDirectory** and **ParentParentDirectory**. These DNS items can be used to define the folder and parent folder of the folder from which the files are picked only as document attributes in **Document Discovery Pattern** module. These DNS items are not set for file parts.

Filtering the objects in the list view

1. To filter the results based on a specific value in any of the columns, click **Filter**  at the top of that column.
2. Select the property or properties to display the items based on the criteria in the item list.

   NOTE You can further refine the results by selecting a condition value, such as **Is equal to** or **Starts with**.
3. Click **Filter** to display the filtered results automatically in the item list.

   TIP By filtering on several properties, you can refine the results to get to a specific set of data.

Create a DNS item

1. Click **Create Document Naming System** to add a new row in the bottom of the list.
2. Type a **Name**, **Description**, **Display Name**, **Constant Value**, **Attribute Name**, **Document Relationship Name**, and **Related Interface Definition**.
3. Type a value in the **Constant Value** field to define a fixed value for a **DNS** item.
4. To change the capitalization of the DNS item value, select an option from the **Alter Case Options** list.

   You can select one of the following options:

   - **None** - Select this option if you do not want to change the capitalization of the value in the DNS item.
   - **To Lower** - Select this option if you want to change the value in the DNS item to lowercase.
   - **To Upper** - Select this option if you want to change the value in the DNS item to uppercase.
5. Type a **Top Node Name** and a **Class Relationship Name**. The DNS item appears under the defined **Top Node Name** only if you do either of the following:

   - In the **Class Relationship Name** column, type the name of the relationship that exists between the DNS item and the defined **Top Node Name**.
   - Type the Graphdef UID in the **Class Relationship Name** column. You can use a Graph Def to navigate to specific objects.

   IMPORTANT The object name defined in the **Top Node Name** and derived from the DNS item should already exist in the SmartPlant Fusion database.
6. Click **Save** to add the new DNS item in the database.

IMPORTANT If you have accidentally deleted the DNS items **ParentDirectory** and **ParentParentDirectory**, then you have to create them with the same name to use as document attributes.

NOTES

- You can add additional document parameters in the **Document Naming System** page, by clicking on **Add New Parameter** in the **Attribute Name** list and click **Save**. A display item and a column item is created for each newly created document parameter.
- Values for **Name** and **Display Name** are required.
- The **Name, Display Name, Attribute Name,** and **Document Relationship Name** for DNS items must be unique values.
- If the DNS item has a constant value defined, then the application does not validate the uniqueness of the **Attribute Name** and **Relationship Name**.
- The **Document Relationship Name** must be in the format <*Relationship_Name*>_<*Direction*>. For example, SPFNDocumentUnit_12.
- The display name of the document naming system is displayed as column header in the **List** view of the SmartPlant Desktop Client. If a document parameter is not selected to create a

document naming system then it is displayed as **Attr <Number>** in the **List** view of the SmartPlant Desktop Client.

Refresh DNS item list

- Click **Refresh Document Naming System**  to refresh the DNS item list with the latest data from the database.

IMPORTANT If you have unsaved data, it will be lost when the view is refreshed. A warning message appears to warn you that your data will be lost if you continue with the refresh operation.

Edit a DNS item

1. To edit a DNS item, double-click the row where it is listed.
2. Update the DNS item details, as necessary.

   NOTE The **Name** of a DNS item cannot be edited after it has been saved to the database.
3. Click **Save** to update the DNS item details in the database.

Delete a DNS item

1. Select one or more DNS items from the item list.
2. Click **Delete**  , and then click **Yes** to confirm the deletion.

SECTION 7

Document Discovery Pattern

The Document Discovery Patterns module allows you to define the file part names and map the part names to the standard nomenclature.

The document discovery pattern module allows the user to do the following tasks:

- View the document discovery patterns available in the database
- Create new document discovery patterns
- Copy the existing file pattern to create new ones
- Modify the existing document discovery patterns
- Delete document discovery patterns
- Run a preview report

View document discovery patterns

When you open the **Document Discovery Patterns** module, it displays the document discovery patterns that already exist in the SmartPlant Fusion database in an item list.

1. Log in to SmartPlant Foundation.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Document Discovery Patterns** to view the existing document discovery patterns.

   NOTE You can click **Preview Report** to view a summary of the files in the folder that is mapped to the document discovery pattern. The report is displayed in a Microsoft Excel file.

Filtering the objects in the list view

1. To filter the results based on a specific value in any of the columns, click **Filter**  at the top of that column.
2. Select the property or properties to display the items based on the criteria in the item list.

   NOTE You can further refine the results by selecting a condition value, such as **Is equal to** or **Starts with**.
3. Click **Filter** to display the filtered results automatically in the item list.

TIP By filtering on several properties, you can refine the results to get to a specific set of data.

Create a new document discovery pattern

1. In the **Document Discovery Patterns** page, click **Create Document Discovery Patterns** .

   NOTE The **Create Document Discovery Pattern** page appears with the name of the UNC vault paths listed in the **Choose File Directory** list. If the client runs on the application server, the root directory names are also displayed.

   IMPORTANT If the check box beside a shared path in the **UNC Path** page of the **Central Settings** module is selected, then the name of the selected **UNC Path** is displayed in the **Choose File Directory** list. The shared path is displayed as a tooltip when you pause the cursor over the name of the shared path.

2. Click the **Folder** icon to open the folder and view the files and folders within it.
3. Click the folder name to select a folder.

   NOTE The **Level to Start** box contains the value 1 and the right pane appears with the folder selected in the left pane. The folder selected in the left pane is considered the first level.

4. In the right pane, click the **Folder** icon to open the folder and view the files and folders within it. Alternatively, you can also select a folder by specifying its path. Copy and paste the path of the folder, and click **Next**.

   NOTE The **Number Of Levels** box contains the folder level selected in the right pane and the level of the folder on the right pane is populated with respect to the **Level to Start** box value, which contains the folder level selected in the left pane. By default, '*' is displayed in the **Number of Levels** box. If '*****' is selected, all files are considered for extraction from all the sub-folders under the selected folder.

5. Type a specific file pattern in the **Manual Pattern** box. Alternatively, you can select **Choose Files from File Directory** option to select a file pattern from a list of unique file names.

   NOTE Select the **Configure using Regular Expression** check box, to create document discover patterns using regular expressions. For more information, see *Edit pattern for a file part* (on page 43).

6. Click **OK** to view the file pattern in the **Document Definition Patterns** page.
7. Select a file part tile, and then do the following to make changes to the file parts:
   - **Add Part** - Allow you to add more file parts.
   - **Split Part** - Allows you to split a file part into two or more file parts.
   - **Merge Parts** - Allows you to combine two or more file parts into one file part.
   - **Set Part** - Allows you to make changes to the file part. Select the **File Type** part, and click **Set Part** to select one or more file types.
8. Select a Document Naming System item from the drop-down list box to assign it to the file part.

   NOTE A warning message appears when a Document Naming System item is not assigned to one or more of the file parts.

9. Click **Edit Document and Attribute Parts**  to navigate to the **Document Name Parts** section.
10. Add or delete the file parts to set the document name pattern.

    IMPORTANT You can add and delete constants in the document name pattern.
11. Click **Document Attributes** tab to navigate to the document attributes.
12. Add or delete document attributes to add additional attributes to the documents.
13. Click **Save** to save the document discovery pattern.
14. In the **Create Document Discovery Pattern** page, type a **Name** and **Description** for the document discovery pattern and click **OK**.

NOTES

- A warning message appears when the same **Document Naming System** item has been set for more than one file part.
- If you want to divide a single word in the file name into two file parts, select **None** within the two file parts and assign a document naming system for each file part. For example, for a file name like 1409-DS10-144.dwg you can split the part DS10 into two file parts with a **None** separator within them. The first part DS can be set to **Document Type** and 10 can be set to **Unit**.
- When you save the document discovery pattern, the example file name pattern gets updated and saved. Alternatively, you can click **Generate Example File Name**  to update the example file name. The characters and symbols in the example file name pattern are defined as per the following convention:
  - A is displayed for an Uppercase letter or *
  - a is displayed for a Lowercase letter
  - 1 is displayed for a Number
  - The values are displayed for the Constants
  - Selected separators are displayed

Manage file parts

Document discovery patterns consist of various file parts. You can perform various actions on the file parts to create the document discovery pattern.

What do you want to do?

- *Add a part* (on page 42)
- *Delete a part* (on page 42)
- *Split a part* (on page 42)
- *Merge multiple parts* (on page 43)
- *Edit pattern for a file part* (on page 43)
- *Select multiple file types* (on page 45)

- *Edit document and attribute parts* (on page 46)

Add a part

The **Add Part** command allows you to add a new file part.

1. In the **Document Discovery Parts** page, select a file part.
2. Click **Add Part**.
3. Select an option to indicate where to add the new file part.
   - **Add Left** - Adds the new file part to the left of the selected file part
   - **Add Right** - Adds the new file part to the right of the selected file part
4. Click **Accept Changes**.

   TIP If you want to abandon your changes, click **Reject Changes**.
5. Select a Document Naming System item from the drop-down list to assign it to the file name part.

   NOTES
   - If a Document Naming System item is defined as constant, then that item does not appear in the Document Naming System drop-down list of the file name part.
   - In the file parts list, **Description** is not a Document Naming System item. When you select **Description** as a file part from the list, the description value of the file attached to a document is displayed as the description value of the document.

Delete a part

The **Delete Part** command allows you to delete one or more selected file parts.

1. In the **Document Discovery Parts** page, select one or more file parts.
2. Click **Delete**.

Split a part

The **Split Part** command allows you to split a file part into two or more file parts.

1. In the **File Name Parts** page, select a file part that you want to split.
2. Click **Split Part** to split the selected part into two or more file parts.
3. In the **Split Part** section, click the splitter between the two characters where you want to split the file part.
4. Click **Accept Changes** to split the file part as indicated.

TIP If you want to abandon your changes, click **Reject Changes** .

NOTE All the file parts resulting from the split are highlighted in blue.

Merge multiple parts

The **Merge Parts** command allows you to merge two or more file parts into a single file part.

1. In the **File Name Parts** page, select two or more file parts that you want to merge.
2. Click **Merge Parts** to merge the selected parts into a single file part.

Edit pattern for a file part

The **Set Part** command allows you to change the sequence of the characters that form a search pattern for each file part.

1. In the **Document Discovery Parts** page, select a file part for which you want to update the sequence of characters or the search pattern.
2. Click **Set Part** .
3. In the **Options** section, select **Full String** or **Pattern** from the **Set By** list. Depending upon the selection made here, the options change in the following pane.
   - Select the **Full String** option from the **Set By** list to represent each of the existing characters in the file part as a variable or constant.
     - **Character Range** - Select a character range set from the list to define characters from the selected set in the pattern. The character range set that is set as default in the Character Range page of the **Central Settings** module is displayed by default in the list.
     - **Variable** - The characters in the string are set to variable. Additionally, the characters can be designated as an uppercase letter, lowercase letter, a number, or any combination of the three.
     - **Constant** - The characters in the string will be set to a constant value.
   - Select the **Pattern** option from the **Set By** list to build a specific pattern for the selected file part.
     - **Character Range** - Select a character range set from the list to define characters from the selected set in the pattern. The character range set that is set as default in the Character Range page of the **Central Settings** module is displayed by default in the list.

     IMPORTANT The upper case, lower case, and number options are available depending upon the character range set for the selected language in the Character Ranges page of the **Central Settings** module.
4. Click **Accept Changes** .

   TIP If you want to abandon your changes, click **Reject Changes** .

IMPORTANT The characters set to pattern are displayed in a simple representation on the file part. When the cursor pauses over the file part, the specific pattern is displayed.

NOTES

- The pattern corresponding to each character in the simple representation is as follows:
  - A - Any uppercase letter
  - a - Any lowercase letter
  - # - Any digit from zero to nine
- If you define a character to be either a letter or a number, then the character is displayed as a lowercase or uppercase letter depending upon the selection of lowercase or uppercase for alphabet.
- The constant value in the file parts is displayed in bold.
- New parts can use defined patterns, but only when the pattern is defined using the **Set Part** option.

Pattern Matching

Pattern-matching allows you to match each character in a string against a specific character, a wildcard character, a character list, or a character range. The following table shows the characters allowed in a pattern and what they match.

Characters in pattern	Matches in string
?	Any single character
*	Zero or more characters
#	Any single digit (0–9)
[charlist]	Any single character in charlist
[! charlist]	Any single character not in charlist

Edit pattern for file part using regular expressions

The **Set Part** command allows you to change the sequence of the characters that form a search pattern for each file part.

1. In the **Document Discovery Parts** page, select a file part for which you want to update the sequence of characters or the search pattern.
2. Click **Set Part** .
3. In the **Options** section, select **Full String** or **Pattern** from the **Set By** list. Depending upon the selection made here, the options change in the following pane.
   - Select the **Full String** option from the **Set By** list to represent each of the existing characters in the file part as a variable or constant.

- **Character Range** - Select a character range set from the list to define characters from the selected set in the pattern. The character range set that is set as default in the Character Range page of the **Central Settings** module is displayed by default in the list.
- **Variable** - The characters in the string are set to variable. Additionally, the characters can be designated as an uppercase letter, lowercase letter, a number, or any combination of the three.
- **Constant** - The characters in the string will be set to a constant value.

- Select the **Regular Expression** option from the **Set By** list to build a specific regular expression for the selected file part.
  - The following table displays the regular expressions notations corresponding to each character:

Notation	Description
\d	Digits
\p{Lu}	Uppercase letters
\p{Ll}	Lowercase letters
\p{Lo}	A letter or ideograph that does not have lowercase and uppercase variants, for example, あ

  - You must enter an example file part in the **Example** box.

4. Click **Accept Changes** .

TIP If you want to abandon your changes, click **Reject Changes** .

Select multiple file types

The **Set Part** command allows you to select multiple file types.

1. In the **Document Discovery Parts** page, select the **File Type** part.
2. Click **Set Part** to display the **File Type Option** section that lists the file types and their related readers.

   NOTE For more information on readers, see *Application object* in the *SmartPlant Fusion Document Controller's Guide*.
3. In the **File Type Option** section, select all the file types that you want to search for in the document discovery task.

   TIP You can also click **All file types** to search for all the file types supported by SmartPlant Fusion.

   IMPORTANT If you select the **All file types** option, the extension value in the document discovery pattern is set to "*", and all the file types in the selected folder are loaded with the document discovery task.

4. Click **Accept Changes** to save the changes.

   TIP If you want to abandon your changes, click **Reject Changes**.

Edit document and attribute parts

- In the **Document Definition Patterns** page, click **Edit Document and Attribute Parts** to create a document name pattern and add document attributes.

Manage document name parts and attributes

The document name pattern is composed of the file parts that are defined as document naming system items. The document name pattern may or may not consist of constants and the parent folder name in addition to the file parts. You can perform various actions on the document name parts to create the document name pattern.

You can add additional document attributes that are not a part of the file name or document name in the **Attributes** tab. The document attributes are used to create relationships with the objects in the SmartPlant Fusion database.

What do you want to do?

- *Edit a document name pattern* (on page 46)
- *Delete a document name part* (on page 47)
- *Arrange document name parts* (on page 48)
- *Edit document attributes* (on page 48)

Edit a document name pattern

1. In the **Document Name Parts** tab, select a file part.
2. Click **Add Part** to add a constant or document naming system item related to a file part in the document discovery pattern.
3. Select an option to indicate where to add the new file part.
   - **Add Left** - Adds the new file part to the left of the selected file part
   - **Add Right** - Adds the new file part to the right of the selected file part
4. Click **Accept Changes**.

   TIP If you want to abandon the changes, click **Reject Changes**.

   IMPORTANT The file parts that are created manually or that result from splitting a file part do not appear in the **Document Name Parts** page. You need to add these parts to the document name by selecting the DNS item of the part while adding a new file part.

5. Choose one of the following options from the drop-down list in the newly added file part:
   - **Document Naming System** items - Select the document naming system item related to file parts in the document discovery pattern that do not exist in the document pattern
   - **Constant** - Select this option to add a constant value in the document name
   - **Parent Directory Name** - Select this option to populate the folder name of the selected file pattern in the document name
   - **Parent-Parent Directory Name** - Select this option to populate the parent folder name of the folder from which the file pattern is selected in the document name

   TIP You can select one or more file parts, and click **Delete Part** to delete the selected file parts.
6. Rearrange the document name parts as necessary to get the required document name pattern using a drag-and-drop operation.

   TIP Click **Generate Example Document Name** to update the example document pattern.
7. Click **Close** to close the **Document Name Parts** page.
8. Click **Save** to save the document discovery pattern.
9. In the **Create Document Discovery Pattern** page, type a **Name** and **Description** for the document discovery pattern.
10. Click **OK** to save the document discovery pattern.

NOTES

- A value for the constant file part is required.
- Separators, as defined in the separator list, and the | character are not allowed as values for constants in a file part.
- Any value other than **Not Set** must be defined for all separators.
- The parent folder name of a selected file pattern can be appended as a document name part.
- The Document Naming System item list in the document name part displays the DNS items that are not defined for other document name parts. The DNS items that are defined as constants are also displayed in the list.

Delete a document name part

The **Delete Part** command allows you to delete one or more selected document name parts.

1. In the **Document Name Parts** page, select one or more file parts.
2. Click **Delete** .

Arrange document name parts

A document name is defined by arranging the file parts in a specific order such that the document conforms to the naming convention defined within company standards. Each file pattern corresponds to a document pattern. The files that match the file pattern are loaded into the application, and they get attached to a document. This name of the document is established from the document name pattern.

1. Select a document name part.
2. Drag the selected part to where you want it.

   TIP A blue line appears to indicate the cursor position.

NOTES

- If you drop a selected document part just after a document part, then there is no movement of the separators.
- If you drop a selected document part just after a separator, then the separator moves with the document name part preceding the separator.
- You cannot drop the selected document part anywhere outside the **Document Name Parts** section.

Edit document attributes

1. On the **Document Attributes** tab, click **Add Part** to add a document attribute.

   IMPORTANT The DNS items with attributes, that are neither used as file parts nor as document name parts, appear in the **Document Attributes** page.
2. Choose one of the following options from the drop-down list in the newly added attribute:
   - **Document Naming System** items - Select the document naming system item that do not exist in the document name pattern or file pattern

   TIP You can select one or more attributes, and click **Delete Part** to delete the selected file parts.
3. Click **Close** to close the **Document Attributes** tab.
4. Click **Save** to save the document discovery pattern.

NOTE By default, the **Document Naming System** page appears with the DNS items **ParentDirectory** and **ParentParentDirectory**. These DNS items can be used to define the folder and parent folder of the folder from which the files are picked as document attributes.

Delete document discovery patterns

The **Delete** command allows you to delete one or more selected document discovery patterns.

1. In the **Document Discovery Patterns** page, select one or more document discovery patterns from the list.
2. Click **Delete**, and then click **Yes** to confirm the deletion.

Copy document discovery patterns

1. In the **Document Discovery Patterns** page, click **Copy Document Discovery Pattern** to open the **Create Document Discovery Pattern From an Existing Pattern** page with the file name pattern in the **Sample file name** box by default.
2. Click **OK** to edit the existing document discovery pattern.

   TIP You can type in a new file name pattern in the **Sample file name** box to start the creation of a new document discovery pattern.
3. On the **Document Definition Patterns** page, make necessary changes to the file parts by selecting the Document Naming System from the list.
4. Click **Save** to save the document discovery pattern.

   NOTE A warning message appears when Document Naming System item is not set for one or more of the file parts.
5. Type a **Name** and **Description** for the document discovery pattern.
6. Click **OK.**

NOTE A warning message appears when the same Document Naming System item has been set for more than one file part.

Edit document discovery patterns

1. In the **Document Discovery Patterns** page, select a document discovery pattern.
2. Click **Edit Document Discovery Pattern**.

   NOTES

   - The **Document Definition Patterns** page appears with the **File Directory** box, **Example File Name** box populated with the information from the selected document discovery pattern and the file parts populated in the file part boxes.
   - If the example file name does not contain any value for the created part, then the file part takes a default value.

     For example: The file name `1409-10-45` is in the pattern `.* -/d/d/d/d- /d/d-/d/d`. In such cases, a default value `{10}` gets displayed for the file part at the time of editing.

3. If you want to change the folder, then click **Change** beside the **File Directory** box and click **OK** in the **Edit Document Discovery Pattern** page after selecting the folder.

   IMPORTANT You may change the file pattern by clicking **Next** in the **Edit Document Discovery Pattern** page, and selecting a new pattern.

4. If you want to change the file parts, make necessary changes for the file parts by selecting the Document Naming System from the list.

5. Click **Save** to save the changes you have made to the document discovery pattern.

NOTE A warning message appears when the same Document Naming System item has been set for more than one file part.

Group document discovery patterns

A group document discovery pattern consists of more than one document discovery patterns. Group document discovery pattern allows you to use multiple document discovery patterns in a single document discovery task.

SmartPlant Fusion can recognize when new or modified files are added to the folder structure. If you want SmartPlant Fusion to look at multiple folders, you can create a document group pattern and then add the schedule information to a single task.

A document discovery pattern contains directory mappings, load file definitions, and file name definitions. A document discovery task definition is incomplete without a document discovery pattern.

IMPORTANT A document pattern group cannot consist of other document pattern groups.

Create a group document discovery pattern

1. In the **Document Discovery Patterns** page, click **Create Document Discovery Pattern**  .

2. In the **Create Document Discovery Pattern page,** click the **Group Document Discovery Patterns** tab.

3. Type a name in the **Name** box.

4. Select more than one document discovery pattern from the grid on the left and click **Select Patterns**  to add the selected document discovery patterns to the group document discovery pattern.

5. Click **Save**.

NOTE The newly created group document discovery pattern is displayed in the **Document Discovery Patterns** page with a  in its corresponding **Is Group Pattern** column.

Create a document pattern group using the SmartPlant Foundation Desktop Client

The **Document Pattern Group** command allows you to create a new document discovery pattern group.

1. Click **File** > **New** > **Fusion Items** > **Document Pattern Group**.
2. In the **New Document Discovery Pattern Group** dialog box, type a name and description for the document pattern group.
3. In the **Document discovery patterns** list, select the boxes beside the document discovery patterns that you want to relate to the map group.
4. Click **Finish** to create a new document pattern group.

SECTION 8

Data Reader Patterns

In the **Data Reader Patterns** module, you can set various options to configure the SmartPlant Fusion modules.

These options include:

Data Connections - Allows you to add and delete database connections that will be used in the Data Reader Patterns module to connect to the database and extract domain tags.

Data Reader Pattern - Allows you to define database query statements to extract information from the database. A data reader pattern consists of a database connection, query statement, and data restructure instructions.

SDV Job Definitions - Allows you to select a SDV Job Definition name.

IMPORTANT

- You need to load the database scripts provided with the application into the SmartPlant Fusion database prior to using this functionality. For more information, see *Setup the SmartPlant Fusion Database for Using Data Reader Patterns* in the *SmartPlant Fusion Installation and Configuration Guide*.
- You must have Microsoft Access Database Engine (64-bit) installed on your computer to use the Microsoft Excel file as data connection.

Data Connections page

Allows you to add and delete database connections that will be used to extract domain tags from the existing databases.

Create Data Connection - Allows you to add a database connection.

Edit Data Connection - Allows you to modify an existing database connection.

Delete Data Connection - Allows you to delete one or more database connections.

Create Data Connection

Name - Type a name for the data connection.

Domain - Type the domain name that you want to create in SmartPlant Fusion database for storing the domain tags.

Connection Type - Select a database type from the list. The options are: Oracle, SQL, MS Access, Excel, and Custom.

- For Oracle:

  Data Source - Type the name of the database instance.

  Username - Type the username that is used to connect to the database.

  Password - Type the password for the user account.

- For SQL:

Data Source - Type the name of the database instance.

Database Name - Type the name of the database server.

Username - Type the username that is used to connect to the database.

Password - Type the password for the user account.

- For MS Access:

  Provider Name - Type the provider name for the database (the default is Microsoft.ACE.OLEDB.12.0).

  File Path - Type the path for the Microsoft Access database.

- For Microsoft Excel:

  Provider Name - Type the provider name for the connection to Microsoft Excel (the default is Microsoft.ACE.OLEDB.12.0).

- For Custom:

  Connection String - Type the connection string to connect to your custom database.

Create Data Reader Pattern dialog box

Allows you to create a data reader pattern, specify the class name, and select the data connection to use to connect to a database.

Name - Type a name for the data reader pattern.

Description - Type a description for the data reader pattern.

Class Name - Type the class definition name. This class definition name is used in combination with the domain name to create the objects in the SmartPlant Fusion database.

Data Connection - Select a data connection from the list. For more information on creating data connections, see *Manage data connections* (on page 56).

Define Data Reader Pattern page

In the **Define Data Reader Pattern** page, you can create a query and provide data restructure instructions. This page consists of the following panes:

Tables

Allows you to add tables or views from the database that is referenced in the selected data connection. You can also create table joins with unique names.

Add table from database - Allows you to add tables or views from the database defined in the selected data connection.

Join Tables - Allows you to join one table with another. The new table name created with the join is added in the **Tables** pane. For more information, see *Join tables* (on page 64).

Delete Tables - Allows you to delete selected tables from the **Tables** pane. You can delete the tables that are not used in the query.

Table Properties

Allows you to view the column names of the table or join that is selected in the **Tables** pane. You can add a look up file path, UOM, and condition in this pane.

Map Selected Fields – Allows you to map the selected fields to properties in SmartPlant Fusion.

Apply Converter – Allows you to change the result of the field by applying a converter such as **Replace** or **SubString**.

Name – The name of the field in the database.

Display As – Allows you to add a suffix to the name of the field in the database. The name in the **Name** box is used in the SmartPlant Fusion database (if no mapping is applied).

Mapped – Shows whether the field is mapped to a specific SmartPlant Fusion property or not.

Look up path - Allows you to add a file path to a lookup file in the **Look up path** column.

UOM - Allows you to add the unit of measurement for a property.

Where - Allows you to add a WHERE clause by clicking in the **Where** column.

Data Output

Allows you build the query and create custom properties using the following tabs.

Create Query tab

Allows you to create a query with table joins and property mappings.

Add table to query - Allows you to add tables or table joins listed in the **Tables** pane to the query.

Edit Join - Allows you to edit the type of join between two tables.

Delete table from query - Deletes the rightmost table in the **Create Query** tab.

Generate SQL - Generates and updates the query in the **SQL Query** tab.

Transpose Selected Fields - Allows you to transpose a field to restructure the data.

Preview Data - Displays the first 100 records that will be extracted by the query.

Custom Properties tab

Allows you to create custom properties.

Create new property - Allows you to create custom properties.

Edit property - Allows you to edit existing custom properties.

Delete Property - Deletes one or more selected custom properties.

SQL Query

Displays the query that is generated in the **Define Data Reader Pattern** page.

Join Tables dialog box

Allows you to join two tables and define the join type.

Name - Type a name for the join.

Right Table - Select a table name from the list that will represent the table on the right side of the join.

Join Type - Select the type of join from the list. The **Join Type** list consists of the following options:

- **Inner Join** - An inner join requires each record in the two joined tables to have matching records and creates a new result table by combining the column values of two tables (Table1 and Table2) based on the condition that specifies how the tables are to be joined.
- **Left Outer Join** - The result of a left outer join for tables Table1 and Table2 always contains all records of the left table (Table1), even if the join-condition does not find any matching record in the right table (Table2). If no matching row from the left table (Table1) exists, NULL will appear in columns from Table1 for those records that have no match in Table2.
- **Right Outer Join** - A right outer join closely resembles a left outer join, except with the treatment of the tables is reversed. Every row from the right table (Table2) will appear in the joined table at least once. If no matching row from the left table (Table1) exists, NULL will appear in columns from Table1 for those records that have no match in Table2.

Condition - Select a column from the left table, select a comparison condition operator, and select a column from the right table to compare values in two tables that have common fields.

Generate Where Clause dialog box

Allows you to specify the criteria that will be used to extract specific records.

Condition - Select a comparison condition operator from the list.

Value - Type a string for comparison.

Table - Select a column from the list for comparison.

Create Custom Property dialog box

Allows you to create a custom property by combining one or more table properties.

Name - Type a name for the custom property.

Add Table Property - Adds a table property to the left pane.

Add Constant - Adds a constant value in the custom property.

Delete Property - Removes the selected properties from the left pane.

Up and Down arrows - Allows you to move the table properties up and down in the left pane.

SDV Job Definitions Page

Allows you to select a SDV Job Definition name from the list, and generate the required csv file and control file. The SDV application reads these files and imports data into the SDV target system.

Name – Allows you to type the name of SDV Job Definition.

Description – Allows you to type the description for the new SDV Job Definition.

Target System – Allows you to type the name of the target system as created in SDV.

Control File Directory – Allows you to type the location of Control File Directory.

Username – Allows you to type the SDV username.

Target Configuration – Allows you to configure the scope on the target system. For example: `ConfigurationTop~PlantA`

What do you want to do?

- *Manage data connections* (on page 56)
- *View data reader patterns* (on page 57)
- *Create data reader patterns* (on page 58)
- *Create SDV Job Definitions* (on page 66)

Manage data connections

The **Data Connections** page allows you to add database connections. The database connections are used to import domain tags from existing databases.

Add data connections

1. Log in to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** > **Data Reader Patterns**.
3. Click **Data Connections** to view the existing data connections in an item list.
4. Click **Add Data Connection**  to open the **Create Data Connection** dialog box.
5. Type a name for the data connection in the **Name** box.
6. Type a name for the domain in which the domain tags extracted using this data connection are stored.

   IMPORTANT You should not type a domain name that already exists in the SmartPlant Fusion database. The domain typed in the **Domain** box is created in SmartPlant Fusion database after the data connection is saved.
7. Select a **Connection Type** from the list. To use a custom database as the **Connection Type**, you must perform the following steps:
   - Create a custom assembly and add it to **Settings.xml**. This custom assembly must refer to Intergraph.SPFN.Server.dll.
   - Ensure that the custom assembly contains a class that inherits Intergraph.SPFN.Server.Data.SPFNBaseProvider, available in Intergraph.SPFN.Server.dll, and override the methods as required.
   - Ensure that the instance of this class is used by SmartPlant Fusion for all the database operations on the custom connection type.

   NOTES
   - If the **Connection Type** is EXCEL, you must type the **Provider Name** for the version of Microsoft Excel installed on your computer, in the **Provider Name** box.

- If the **Connection Type** is MSACCESS, you must type the provider name for the version of Microsoft Access installed in your computer, in the **Provider Name** box. Click **Browse access file**  to provide the **File Path** of the Microsoft Access file.
- The default value for **Provider Name** is Microsoft.ACE.OLEDB.12.0.
- If the **Connection Type** is CUSTOM, you must type the connection string of the database in the **Connection String** box.

8. Type the database instance name in the **Database Source** box.

   NOTES

   - If you use the Oracle sample database delivered with SmartPlant Fusion, type the Oracle instance name in the **Database Source** box.
   - If you use the SQL Server sample database delivered with SmartPlant Fusion, type the SQL server name in the **Database Source** box.

9. Type the database server name in the **Database Name** box.
10. Type the username and password for the user account that has access to the database.

NOTES

- If you use the Oracle sample database delivered with SmartPlant Fusion, you must use the dump file name as the username. For example, if the dump file name is EQUIPLIST_Data.dmp, the username must be equiplist_data.
- If you use the SQL Server sample database delivered with SmartPlant Fusion, you must use the .bak file name as the username. For example, if the bak file name is PUMPLIST_Data.bak, the username must be PUMPLIST_Data.
- Select a data connection and click **Edit Data Connection**  to modify the data connection details.
- You can select one or more data connections and click **Delete Data Connections**  to remove the data connections from the list. To do this, you must hold down the CTRL key while you select each data connection that is to be deleted.

View data reader patterns

When you open the Data Reader Patterns module, the data reader patterns that already exist in the SmartPlant Fusion database appear in an item list.

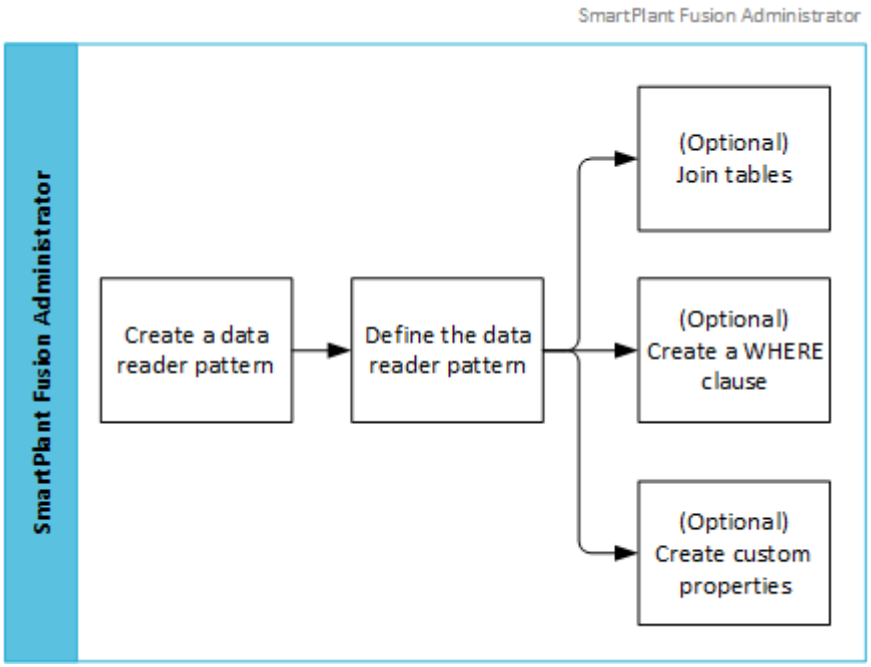
1. Log on to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Data Reader Pattern** to view the existing data reader patterns.

NOTE You may select an existing data reader pattern and click **Extract to CSV**  to extract the data into a CSV file.

Create data reader patterns

The data reader pattern is used for retrieving information from a database. It consists of predefined statements that retrieve selective data from the database. You can do the following to create a data reader pattern.

- Add table joins to combine records from different tables.
- Add look up file path to refer to a look up file. The look up file is an XML file that can be used for calculation and to modify the data display.
- Add unit of measurements for specific properties.
- Add WHERE condition to specify condition for the data to be retrieved.
- Create mappings to modify the display of the extracted data.
- Apply converters to change the data.



What do you want to do?

- *Create a data reader pattern* (on page 59)
- *Define the data reader pattern* (on page 60)
- *Join tables* (on page 64)
- *Map selected fields* (on page 62)
- *Create a WHERE clause* (on page 65)
- *Create custom properties* (on page 65)

Create a data reader pattern

You can associate a data reader pattern with a data tag discovery task to extract tags from a database. For more information on database tag discovery task, see *Create a database domain discovery tas*k in the *SmartPlant Fusion Document Controller's Guide*.

1. On the **Data Reader Patterns** page, click **Create Data Reader Pattern** .

   TIP To create a copy of the data reader pattern from an existing one, select a data reader pattern and click **Copy Data Reader Pattern** .
2. In the **Create Data Reader Pattern** dialog box, type a name and description for the new data reader pattern.
3. Select the import definition from the **SDV Import Definition** list to map the csv file into the SDV application to create a task with the created data reader pattern and the SDV Job Definition.
4. Type a class definition name in the **Class Name** box.

   NOTE The name of the objects that are created in the SmartPlant Fusion database as a result of the database domain discovery task, which uses this data reader pattern, use the format SPFN<Domain Name><Class Definition Name>. The domain name is obtained from the data connection, and the class definition name is obtained from the data reader pattern.
5. Select a **Data Connection** from the list. For more information on creating data connections, see *Manage data connections* (on page 56).

   NOTE If you select Excel as a **Data Connection**, click **Browse excel file** ... in the **File Path**, to select a Microsoft Excel file as the database.
6. Click **OK**.

Create a Data Reader Group Pattern

1. In the **Data Reader Patterns** page, select more than one data reader pattern.
2. Click **Create Data Reader Group Pattern** <ICON> to open the create data reader group pattern window.
3. In the **Create Data Reader Group Pattern** window, type a name in the **Name** box.
4. Select more than one data reader patterns from the grid on the right and click **Select Patterns** to add the selected data reader patterns to the data reader group pattern.

   NOTE The Move Up and Move Down options allow you to set the order in which the data reader pattern must be run in the data reader group pattern.
5. Click **Save**.

NOTE The newly created data reader group pattern is displayed in the **Data Reader Patterns** page with a in its corresponding **Is Group Pattern** column.

Define the data reader pattern

1. On the **Define Data Reader Pattern** page, click **Add table from database**  in the **Tables** pane.

   TIP All the tables in the database defined in the selected data connection are displayed in the **Select Tables** dialog box.

2. Select one or more check boxes beside the names of tables in the **Select Tables** dialog box, and click **OK** to add them to the list in the **Tables** pane.

   NOTE If a Microsoft Excel file is used as a database, the worksheets in the Microsoft Excel file are considered to be data tables.

3. In the **Tables** pane, select a table. The column names of the selected table are displayed in the **Table Properties** pane.

4. In the **Table Properties** pane, select one or more check boxes beside the column names to include them in the query.

5. Click **Map Selected Fields**  to map the selected fields to the existing database properties. For more information on mapping fields, see *Map selected fields* (on page 62).

6. In the **Table Properties pane**, select a column name and click **Apply Converter**  to update the property value before importing to the SmartPlant Fusion database. For more information on mapping fields, see *Convert the property values* (on page 64).

7. Select a table from the **Tables** pane.

8. In the **Create Query** pane, click **Add table to query**  to add the table to the query.

   TIP In the **Create Query** pane, if you already have a table and you try to add another table, then the **Join Tables** dialog appears. For more information about creating joins, see *Join tables* (on page 64).

9. Click **Custom Properties** to create a custom property. For more information, see *Create custom properties* (on page 65).

10. Click **Generate SQL**  to view the query in the **SQL Query** pane.

11. Click **Save** to save the data reader pattern.

NOTES

- You can type a query in the **SQL Query** pane and click **Save** to add a data reader pattern.
- In the **Tables** pane, select a table and click **Join Tables**  to join one table with another table. The new table name created with the join is added in the **Tables** pane. For more information, see *Join tables* (on page 64).
- You can add the same table multiple times with a different display name or alias name each time.

- In the **Tables** pane, select the table and click **Refresh**  to update the new columns which were added in the database and to remove any columns that no longer exist in the database. You can view the updated or deleted columns in the **Table Properties** pane.
- In the **Table Properties** pane, you can do the following:
  - You can type the look up file path in the **Look up path** column. This is required when a value is given instead of a field name and you want to transfer the value from the database into a name when it is retrieved into SmartPlant Fusion. The lookup file must be an xml file, and the format needs to be similar to the example mentioned below:

```
<Values Name="Yes/No">
      <Value ID="1" Value="Yes" />
      <Value ID="2" Value="No" />
</Values>
```

  - You can type the units of measurement in the **UOM** column. The unit of measurement is appended to the value imported from the existing database.
  - You can click **Click to add condition**  in the **Where** column against one of the table properties to define a WHERE clause for it. For more information, see *Create a WHERE clause* (on page 65).
- In the **Create Query** pane, you can do the following:
  - Select the table on the right side of the join and click **Delete**  to delete the table from the query. If you have more than one join in the **Create Query** pane, then you can delete the table on the right of the rightmost join.
  - You can select a join between two tables and click **Edit**  to modify the join type or condition of the join.
  - Click **Preview**  to view the first 100 records that will be extracted by the query as it is defined.
- Click **Transpose Selected Fields**  to restructure the data. For example, data represented in a single row can be represented as columns. You can preview the data after creating the mappings.
  - You can append the unit of measurement (UOM) of the property in the **Transpose Fields** dialog box.

Map selected fields

1. In the **Tables** pane, select a table. The column names of the selected table appear in the **Table Properties** pane.
2. In the **Table Properties** pane, select one or more check boxes beside the column names to include them in the query.
3. Click **Map Selected Fields**  to map the selected fields to the existing database properties. By default, **Name**, **Description**, and **Class ID** are mapped.
4. In the **Map Selected Fields** pane, select a business object from the **Select Mapping Class** list.

   NOTES

   - The business objects defined in the property lists module are displayed in the **Select Mapping Class** list.
   - A pattern can be mapped only to one business object at any point in time.
5. In the **Selected Fields** pane, select a column to enable the **Mapping Field** pane. The **Selected Fields** pane displays all the selected fields and the custom properties.

   TIP Click **Download Transposed Properties**  to view the transposed properties in the **Selected Fields** pane.

   NOTES

   - If the interface `ISPFTEPublishedObjectCollection` realizes the business object, then the relationship `SPFTEFComprisedOf` is created.
   - If the interface `IFDWData` realizes the business object, then the relationship `FDWComprisedOf` is created.
6. Select an option from the **Map Type** list. You can select from the following options:
   - **Property** - Select a property list from the **Property List** list and a property from the **Properties** list.
   - **RelDef** - Select a relationship from the relationship definition list.
   - **FileDef** - Select a File Attribute like FileName or FilePath. If you select the FilePath option, you need to provide the folder name (or UNC path) of the remote file.

   NOTES

   - You can select the **Consolidate** check box to transfer the domain object property to the Fusion object.
   - The **Map Fields View** displays the UML diagram of the mapped relationship.
7. Click **Save**.

Map selected fields to relationship definition

You can map the column names of the database to the relationship definition.

1. In the **Tables** pane, select a table or view. The column names of the selected table or view are displayed in the **Table Properties** pane.
2. In the **Table Properties** pane, select one or more check boxes beside the column names to include them in the query.
3. Click **Map Selected Fields**  to map the selected fields to the existing database properties. By default, **Name**, **Description**, and **Class ID** are mapped.
4. In the **Map Selected Fields** pane, select a business object from the mapping class list. The business objects defined in the property lists module are displayed in the mapping class list.
5. In the **Selected Fields** pane, select a column to enable the **Mapping Field** pane. The **Selected Fields** pane displays all the selected fields and the custom properties.
6. Set **Property** as the **Rel Def.**
7. Select a relationship definition from the **Rel Def** list. The **Rel Def** list displays all the relationship definitions realized by the selected object.

   NOTES

   - You can select the **Consolidate** check box to transfer the domain object property to the Fusion object.
   - The **Map Fields View** displays the UML diagram of the mapped relationship.
8. Click **Save**.

Map selected fields to file definition

The column names of the database can be mapped to the file definition, thereby enabling a SmartPlant Fusion user to import files into the database.

NOTES

- If more than one file with the same name result into a single document, the modified date is taken into consideration and the files are attached as different versions to the document.
- If the class definition configured for a document is SPFNDocumentMaster, the attached file is set to master. This master file can be processed for content extraction.

1. In the **Tables** pane, select a table. The column names of the selected table are displayed in the **Table Properties** pane.
2. In the **Table Properties** pane, select one or more check boxes beside the column names to include them in the query.
3. Click **Map Selected Fields**  to map the selected fields to the existing database properties. By default, **Name**, **Description**, and **Class ID** are mapped.
4. In the **Map Selected Fields** pane, select a complex object from the mapping class list. The business objects defined in the property lists module are displayed in the mapping class list.
5. In the **Selected Fields** pane, select a column to enable the **Mapping Field** pane. The **Selected Fields** pane displays all the selected fields and the custom properties.

6. Set **Map Type** as the **File Def**.
7. Select an attribute from the **File Attribute** list. The **File Attribute** list displays the **File Name** and **File Path** attributes.
8. Type the file path of the file in the **File Directory** box if you have selected **File Path** as the file attribute.
9. Click **Save**.

Convert the property values

1. In the **Table Properties** pane, select a column name and click **Apply Converter**.
2. In the **Apply Converter** dialog box, select a converter name from the list.

   The **Converter Name** list consists of the following options:

   - **SubString** - Select this option to extract one or more characters from a string. You must fill in the position of the first character you want to extract and the number of characters thereafter.
   - **ToUpper** - Select this option to change the case of any text value to uppercase
   - **ToLower** - Select this option to change the case of any text value to lowercase
   - **Replace** - Select this option to search for a string and replace it with a specific value. You must fill in the character to find and the character to replace. For example, if you type a space as the find character and do not enter a replace character, all spaces are removed from the property.
3. Click **OK**.

TIP You can extend the list of available converters by overriding the method def ConvertValue on the ISPFNConverter interface.

Join tables

You can join two tables to combine data from different tables. You can also define the type of join to limit the records that will be retrieved, depending on how the data sources are related to each other. In addition to this, you can also define the condition to compare values in two tables that have common fields.

IMPORTANT If Microsoft Excel file is used as a database, the **Join Tables** option is unavailable.

1. In the **Tables** pane, select a table name, and click **Join Tables** .

   TIP This table will be considered the left side of the join.

   NOTE If you perform a join between the Assets and Manufacturers tables in the sample sql server domain database delivered with SmartPlant Fusion, you must ensure that the **Display As** value in the Manufacturers column of both the tables is different.
2. In the **Join Tables** dialog box, add a name for the join.
3. Select a table name from the list that will represent the table on the right side of the join.
4. Select the type of join from the list.

5. To define a condition, select a column display name from the first list box, an operator from the second list box, and a column name from the third list box.

   TIP The first list box displays the column display names of the table in the left side of the join, and the third list box displays the column names of the table in the right side of the join. Typically, the column selected from the first list box represents the primary key, and the one selected in the third list box is the foreign key.

6. Click **OK**.

Create a WHERE clause

You can create a WHERE clause in the **Table Properties** pane for one or more columns. The WHERE clause is used to extract only those records that meet a specified criterion.

1. In the **Tables** pane, select a table.
2. In the **Table Properties** pane, click **Create WHERE Clause**  in the **Where** column for the appropriate table properties.
3. In the **Generate Where Clause** dialog box, select the appropriate option to create a WHERE clause.
   - **Filter by value** - Select this option to retrieve records matching a string
   - **Filter by tables** - Select this option to retrieve columns matching the criterion
4. Click **OK**.

Create custom properties

You can create custom properties by combining one or more properties. You can add delimiters within two properties to define a custom property.

1. Select a table from the **Tables** pane.
2. In the **Create Query** pane, click **Add Table**  to add a table to the query.
3. Click **Custom Properties**.
4. In the **Custom Properties** pane, click **Create Custom Property**  to create a custom property.
5. In the **Create Custom Property** dialog box, type a name for the property.
6. Select one or more properties from the **Table Properties** list, and click **Add Table Property**  to move them to the left. You will use the properties in the left pane to create the custom property.
7. Click in the **Delimiter After** column to select a delimiter from the list. The selected delimiter will follow the associated property value. For example, <PropertyItem1>_<PropertyItem2>(<PropertyItem3>) or <PropertyItem1>-<PropertyItem2>.

TIP To change the display order of the property items, select a property item and use the up and down arrows to move the property item up or down in the list.

NOTES

- You can select one or more property items and constants and then click **Delete** to remove them from the custom property list.
- If you want to add a constant value to the custom property value, click **Add Constant**.

Create SDV Job Definitions

The SDV Job Definitions Page allows you to create a new SDV job definition, and generate the required the csv file and control file.

1. Log on to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Data Reader Patterns**.
4. Click **Create SDV Job Definition** to open the Create SDV Job Definition page.
5. In the **Name** box, type the name of the new SDV Job Definition.
6. In the **Description** box, type a description for the new SDV Job Definition.
7. In the **Target System** box, type the name of the target system as created in SDV.
8. In the **Control File Directory** box, type the location of the Control File Directory.
9. In the **Username** box, type your SDV target system username.
10. In the **Target Configuration** box, type your target configuration. For example: `ConfiguratinoTOP~PlantA`
11. Click **OK**.

SECTION 9

Property Lists

The Property Lists module allows you to configure business objects and add property lists.

- Business Objects - You can configure business objects and provide keywords for them. The keywords are used to extract data from a content file.
- Property List - You can create a property group name and properties for this property group. The property group name is added as an interface definition that is related to the business object for which we are configuring the property list.
- Properties of Property List - You can create properties for a property list. These properties are extracted from the content file during content extraction as the business object properties.

NOTE Only administrators can access this module.

When you open the Property Lists module, it displays the property lists that already exist in the SmartPlant Fusion database in an item list.

The example below shows how the properties of the business object (Tag) are extracted from a content file:

Business Object Name	SPFNTag
Keyword	Tag
Property Group Name	Equipment List
Display Name	Tag Attribute Node Name/Property Name
Outer Dia	SPFNEquipment_List_Outer_Dia
Pressure	SPFNEquipment_List_Pressure

This illustration shows a section of the content file that is extracted for the tag properties.

```
<_Tag_Valve1>
<_Tag_Name>AST-001/921</_Tag_Name>
<_SPFNEquipment_List_Outer_Dia>8.95mm</_SPFNEquipment_List_Outer_Dia>
<_SPFNEquipment_List_Pressure> 120.11hm </_SPFNEquipment_List_Pressure>
</_Tag_Valve1>
```

The example below shows how the properties of the business object (asset) are extracted from a content file:

Business Object Name	SPXAsset
Keyword	Asset
Property Name	Pump List
Property Group Name	PL
Display Name	Tag Attribute Node Name/Property Name
Length	SPFNPL_Length
Depth	SPFNPL_Depth

This illustration shows a section of the content file that is extracted for the asset properties.

```
<_Asset_Pump1>
  <_Asset_Name>A123</_Asset_Name>
  <_Asset_Desc>Asset 123</_Asset_Desc>
  <_SPFNPump_List_Length>124 m</_SPFNPump_List_Length>
  <_SPFNPump_List_Depth>120 m</_SPFNPump_List_Depth>
</_Asset_Pump1>
```

It is recommended to provide a short Property Group Name when defining new Property Lists because the UIDs that are generated for the properties have the constant SPFN and the display name appended to it. For example, SPFNPL_Length. The database reader can only extract data into properties that are 30 characters in length or less.

What do you want to do?

- *Add a business object* (on page 69)
- *Add a property list* (on page 70)
- *Add property for a property list* (on page 70)

Add a business object

1. Log on to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** > **Property Lists**.
3. Click **Add Business Object** to add a new row.
4. Type the **Name, Keyword** and a **Display Name.**
5. Click **Save.**

Add a complex object

You can add complex objects representing more than one class definition such as documents as business objects.

A complex object means that all the components of the object are combined and presented in the client as a single object. Files are attached to the version. When a file is checked out and checked back in, a new version is created.

1. Click **Add Business Object** to add a new row.
2. Select the master class definition from the class definition list in the **Name** column.
3. Type the **Keyword** and **Display Name**.
4. Click **Save**.

Create a column set

You can create, edit, or delete associated column sets for any business objects.

1. In the **Business Objects (ClassDefs)** pane, click **Configure Column Sets** to open the **Configure Column Sets for <Business Object>** window.
2. In the **Configure Column Sets for <Business Object>** window, do the following:
   - In the **Column Sets** pane, click **Create Column Set** to map or configure column items based on the properties and relationships that are available for the business object.
   - In the **Details of Column Set: <Column Set>** pane, select a value from the **Property List**, and select the mapping type from the **Map Type** list**.**

     NOTES

     - To create column items for the selected column set, you must map either the properties or the relationships by selecting the appropriate map type.
     - Each column set must be associated with a property list. This ensures that the corresponding business objects are filtered when you use the column set to query the objects in the Explorer module.
3. Click **Apply** to apply changes to the column set for the selected business object.
4. Click **Save**, and go to the Property List view.

Add a property list

1. Log on to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** > **Property Lists**.
3. Click **Add Property List** to add a new row at the bottom of the list.

   NOTE Click **Select an Existing Interface** to create a property list using an existing interface.
4. Type a **Name** and **Property Group Name**.
5. Click **Save**.

NOTE If you have created a complex object, an additional **ClassDef** column in the **Property Lists (InterfaceDefs) of Business Objects** pane allows the user to map each property list name with a class definition.

Add property for a property list

1. In the **Property Lists** page, select a property list.
2. In the **Properties (PropertyDefs) of Property List** page, click **Add Property** to add a new row at the bottom of the list.
3. Type a name for the property in the **Display Name** box.

   NOTE The **Tag Attribute Node Name** is automatically populated as per the property group name and the display name.
4. Set the **Scoped By** for the property list.
5. Select an item from the **Relationship** list.
6. Click **Save**.

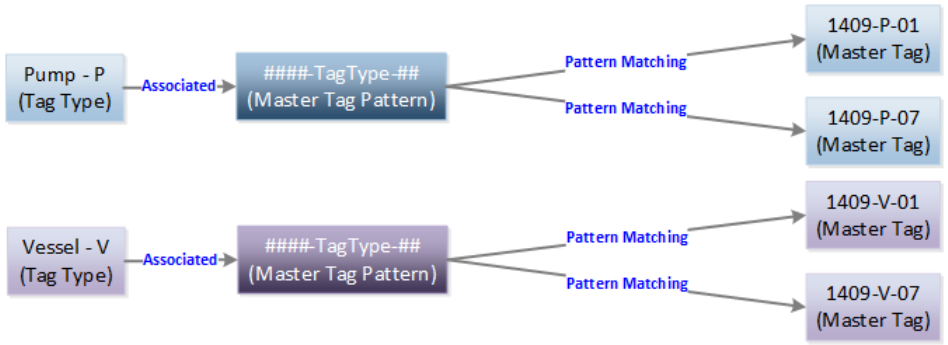
NOTE To upload documents from a folder, you must specify the folder location in the **FilePath** property. SmartPlant Foundation users must have access to the folder.

SECTION 10

Tag Classification

Tags extracted from the documents can be classified into different tag classes. SmartPlant Fusion allows you create different tag types and to relate the master tag patterns to the tag types.

The following graphic shows the relationship between the extracted tags and the tag types.



What do you want to do?

- *View tag types and related patterns* (on page 72)
- *Create a tag classification* (on page 72)
- *Edit a tag classification* (on page 72)
- *Delete tag classification* (on page 73)
- *View tag patterns and related tags* (on page 73)
- *Create a tag pattern* (on page 73)
- *Edit a tag pattern* (on page 74)
- *Delete tag patterns* (on page 74)

View tag types and related patterns

When you open the Tag Classification module, it displays the tag types already existing in the SmartPlant Fusion database in a tree view.

1. Log in to SmartPlant Foundation.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Tag Classification** to open the Tag Classification page where the existing tag types are displayed in a tree view.
4. Click a tag type node in the **Tree** view to display the related master tag patterns in the **Tag Patterns** pane and the related tags in the **Tags** pane.

   NOTE If there are not master tag patterns related to the selected tag type, then the **Tag Patterns** pane is displayed without any patterns.

Create a tag classification

The **Create Tag Classification** command allows you to add new tag types to the SmartPlant Fusion database.

1. In the **Tag Classification** page, select **Tag types** node in the tree view.
2. Click **Create Tag Classification** to open the **Create Tag Classification** dialog box.
3. Type a **Name** and **Description** for the tag type.
4. Type the name of a tag type in the **Class Occurrence** box.

   NOTE A new tag type will be created under the selected tag type.
5. Click **Save**.

NOTE If a pattern needs to be applied to all items under a parent node, then you can create the classification at the parent node. The classification pattern is created for all the nodes and sub-nodes under the selected parent node.

Edit a tag classification

The **Edit Tag Classification** command allows you to change the description of a tag type.

1. In the **Tag Classification** page, select a tag type node in the tree view.
2. Click **Edit Tag Classification** to display the **Create Tag Classification** dialog box.

   NOTE The value in the **Name** box cannot be edited.
3. Type a description or make changes to the description for the tag type in the **Description** box.
4. Click **Save**.

Delete tag classification

The **Delete Tag Classification** command allows you to delete a tag type.

1. In the **Tag Classification** page, select a tag type node in the tree view.
2. Click **Delete Tag Classification** .

View tag patterns and related tags

1. In the **Tag Classification** page, select a tag type node in the tree view to view the master tag patterns associated with it.
2. In the **Tag Patterns** pane, select a master tag pattern.

TIP The tags that are related to the selected tag type are displayed in the **Tags** pane.

Create a tag pattern

1. In the **Tag Classification** page, select a tag type node in the tree view.
2. In the **Tag Patterns** pane, click **Create and Apply Tag Pattern** to open the **Create and Apply Pattern** dialog box.
3. Select a tag pattern from the list to associate it with the selected tag type. The tag pattern that have the tag type tag part appear in the list.

   NOTE You may enter a description for the tag types in the **Description** box.
4. Select the **Applying pattern to all Sub Classification** option to associate the master tag pattern with the selected tag type and all the tag types that are available within the selected tag type node.

   NOTE If the **Applying pattern to all Sub Classification** option is selected, the **Description** box is read-only.
5. Click **Apply** to associate the selected tag pattern to the tag types.
6. Repeat steps 4-6 to associate master tag patterns with tag types.
7. Click **Save** to save the changes into the SmartPlant Fusion database.

Edit a tag pattern

The **Edit Tag Pattern** command allows you to change the description of a tag pattern.

1. In the **Tag Patterns** pane, select a master tag pattern.
2. In the **Tag Patterns** pane, click **Edit Tag Pattern** to open the **Create and Apply Pattern** dialog box.
3. Type a description or make changes to the description for the tag type in the **Description** box.

   NOTE If the **Applying pattern to all Sub Classification** option is selected, the **Description** box is read-only.
4. Click **Save**.

Delete tag patterns

The **Delete Tag Patterns** command allows you to delete one or more selected master tag patterns.

1. In the **Tag Patterns** pane, select one or more master tag patterns.
2. In the **Tag Patterns** pane, click **Delete Tag Patterns** to remove the tag patterns from the pane and to terminate the association between the tag patterns and the tag type.

SECTION 11

Tag Naming System

The Tag Naming System (TNS) enables you to define the parts of a tag name. It enables you to identify the part names of a tag and relate them to existing objects in the database.

The following SmartPlant Fusion properties can be used to configure the tag discovery patterns and set the properties on the tags created from content discovery tasks:

- SPFNTagObjArea
- SPFNTagObjAsset
- SPFNTagObjDiscipline
- SPFNTagObjModel
- SPFNTagObjSystem
- SPFNTagObjUnit

You can add additional tag parameters in the **Tag Naming System** page, by clicking **Add New Parameter** + in the **Attribute Name** list and clicking **Save**. A column item is created for each newly created tag parameter.

Using the Tag Naming System Module

The Tag Naming System module is used to create, view, edit, and delete TNS items.

NOTE Only administrators can access this module.

When you open the Tag Naming System module, it displays the TNS items that already exist in the SmartPlant Fusion database in an item list.

What do you want to do?

- *View TNS items* (on page 76)
- *Create a TNS item* (on page 76)
- *Refresh the TNS item list* (on page 77)
- *Edit a TNS item* (on page 77)
- *Delete a TNS item* (on page 77)

View TNS items

1. Log in to SmartPlant Foundation.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Tag Naming System** to view the existing TNS items.

Filtering the objects in the list view

1. To filter the results based on a specific value in any of the columns, click **Filter**  at the top of that column.
2. Select the property or properties to display the items based on the criteria in the item list.

   NOTE You can further refine the results by selecting a condition value, such as **Is equal to** or **Starts with**.
3. Click **Filter** to display the filtered results automatically in the item list.

TIP By filtering on several properties, you can refine the results to get to a specific set of data.

Create a TNS item

1. Click **Create a TNS item**  to add a new row at the bottom of the list.
2. Type a **Name**, **Description**, **Display Name**, **Constant Value**, **Attribute Name**, **Document Attribute, Tag Relationship Name**, and **Related Interface Definition** in their respective boxes.

   NOTES

   - The **Tag Relationship Name** must be in the format <*Relationship_Name*>_<*Direction*>. For example, SPFNTagModel_12.
   - The **Name, Display Name, Attribute Name,** and **Tag Relationship Name** for the tag naming system items must be unique values.
   - **Constant value** is mandatory for the TNS item with **Document Attribute.**
3. Select an option from the **Alter Case Options** list to change the capitalization of the TNS item value.

   For change of capitalization options, select one of the following:

   - **None** - Does not change the capitalization of the value in the TNS item.
   - **To Lower** - Changes the value in the TNS item to lowercase.
   - **To Upper** - Changes the value in the TNS item to uppercase.
4. Click **Save** to add the new TNS item in the database.

NOTES

- Values for **Name**, **Display Name**, and **Alter Case Options** are mandatory.

- You can add additional tag parameters in the **Tag Naming System** page, by clicking **Add New Parameter** in the **Attribute Name** list and clicking **Save**. A column item is created for each newly created tag parameter.
- If the TNS item has a constant value defined, the application does not validate the uniqueness of the **Attribute Name** and **Relationship Name**.
- The display name of the TNS item is displayed as a column header in the **List** view of SmartPlant Foundation Desktop Client. If a tag parameter is not selected to create a TNS item, it is displayed as **Attr <Number>** in the **List** view of SmartPlant Foundation Desktop Client.

Refresh the TNS item list

- Click **Refresh** to refresh the TNS item list with the latest data from the database.

IMPORTANT If you have unsaved data, it will be lost when the view is refreshed. A warning message appears to warn you that your data will be lost if you continue with the refresh operation.

Edit a TNS item

1. Double-click a row to edit a TNS item.
2. Make changes to the TNS item details.

   NOTE The **Name** of a TNS item cannot be edited after it has been saved to the database.
3. Click **Save**.

Delete a TNS item

1. Select one or more TNS items from the item list.
2. Click **Delete** , and then click Yes to confirm the deletion.

SECTION 12

Tag Discovery Pattern

The Tag Discovery Patterns module allows you to define the tag part names and map the part names to the standard nomenclature.

IMPORTANT Only administrators can access this module.

The Tag Discovery Pattern module allows you to do the following tasks:

- View the master tag patterns available in the system
- Create new master tag patterns
- Modify master tag patterns
- Copy the existing master tag patterns to create new ones
- Delete master tag patterns
- Associate alias tag patterns
- Create new alias tag patterns
- Modify alias tag patterns
- Copy existing alias tag patterns to create new ones
- Delete alias tag patterns
- Create new group tag pattern
- Modify group tag patterns

The **Tag Discovery Patterns** module is enhanced to allow group tag configuration. For example, group tags such as V-224A/B/C, 10, 20A-1000, and P1-10/20A-500 can be configured in this module to get multiple tags.

Group Tag	Expected Individual Tags
V-224A/B/C	V-224A, V-224B, V-224C
10,20A-1000	10A-1000, 20A-1000
P1-10/20A-500	P1-10A-500, P1-20A-500

NOTE In order to extract tags 10V-123, 15V-123, and 20V-123 from a group tag like {10-20}V-123 or [10-20]V-123, you can create a custom DLL to override the ExtractTagsFromCustomTagGroups method on ISPFNTagGroup interface.

View master tag patterns

When you open the **Tag Discovery Patterns** module, it displays the master tag patterns that already exist in the SmartPlant Fusion database.

1. Log in to SmartPlant Foundation.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Tag Discovery Patterns** to view the existing master tag patterns.

NOTE The **Tag Classification** column displays the tag type related to the master tag in the **Example Master Tag** column.

Filtering the objects in the list view

1. To filter the results based on a specific value in any of the columns, click **Filter**  at the top of that column.
2. Select the property or properties to display the items based on the criteria in the item list.

   NOTE You can further refine the results by selecting a condition value, such as **Is equal to** or **Starts with**.
3. Click **Filter** to display the filtered results automatically in the item list.

TIP By filtering on several properties, you can refine the results to get to a specific set of data.

Create a new master tag pattern

1. In the **Master Tag Patterns** page, click **Create Tag Pattern**  .
2. In the **Create Tag Pattern** page, type a tag pattern that represents a master tag.

   TIP You may type an example pattern and modify it during the master tag pattern creation.

   NOTES

   - The tag pattern may consist of letters, numbers, and separators.
   - Select **Configure using Regular Expression** to create a tag pattern using regular expressions. For more information, see *Understanding regular expressions* (on page 84).
3. Click **OK**.
4. Select a tag part and click **Set Part**  to make changes to the tag part pattern.
5. Select a **Tag Naming System** item from the drop-down list to assign it to the tag part.

   NOTE The tag part must be related to a tag naming system.
6. Add and delete the tag parts to set the master tag pattern.

   NOTE You can add and delete constants in the master tag pattern.
7. Click **Save**.

NOTE If the tag pattern and the example tag pattern do not match, an error message is displayed.

IMPORTANT

- The FusionTextContentRules.ini file which is used for tag extraction is created when you click **Save**. The FusionTextContentRules.ini file and the SPFHotSpotter.ini file are updated when you click **Save** after the addition of new tag patterns or the modification of existing tag patterns.
- To view the new patterns in the Tag Discovery Pattern module, you must load the delivered sample load files at the plant level.

NOTES

- The same **Tag Naming System** item cannot be set for more than one tag part.
- If you want to divide a single word in the tag pattern into two tag parts, use the **None** separator within the two tag parts and assign a tag naming system for each tag part. For example, for a tag pattern like 1409-SV10-144, you can split the part SV10 into two tag parts with a **None** separator between them. The first part SV can be set to tag type and 10 can be set to unit.
- If a master tag pattern is created using a TNS item with an associated document attribute, the document attribute value is appended as the file part for the master tag extracted.

Manage tag parts

Master tag patterns consist of multiple tag parts. You can perform various actions on the tag parts to create the master tag pattern.

What do you want to do?

- *Add a part* (on page 81)
- *Delete a part* (on page 81)
- *Edit the pattern for a tag part* (on page 81)
- *Merge multiple parts* (on page 83)
- *Split a part* (on page 83)

Add a part

The **Add Part** command allows you to add a new tag part.

1. In the **Create Master Tag Pattern** section, select a tag part.
2. Click **Add Part**.
3. Select an option to indicate where to add the new tag part.
   - **Add Left** - Adds the new tag part to the left of the selected tag part
   - **Add Right** - Adds the new tag part to the right of the selected tag part
4. Click **Apply Changes**.

TIP If you want to abandon your changes, click **Reject Changes**.

Delete a part

The **Delete Part** command allows you to delete one or more selected tag parts.

1. In the **Create Master Tag Pattern** section, select one or more tag parts.
2. Click **Delete**.

IMPORTANT If you delete a master tag pattern, then all the alias tag patterns related to the master tag pattern will also get deleted.

Edit the pattern for a tag part

The **Set Part** command allows you to change the sequence of characters that forms a search pattern for each tag part.

1. In the **Create Master Tag Pattern** page, select a tag part for which you want to update the sequence of characters or the search pattern.
2. Click **Set Part** to open the **Options** section where you can make changes to the tag part pattern.
3. In the **Options** section, select **Full String** or **Pattern** from the **Set By** list. Depending upon the selection made here, the options change in the next pane.
   - Select the **Full String** option from the **Set By** list to represent each of the existing characters in the file part as a variable or a constant.
     - **Character Range** - Select a character range set from the list to define characters from the selected set in the pattern. The character range set that is set as default in the **Character Range** page of the **Central Settings** module is displayed by default in the list.
     - **Variable** - The characters in the string are set to a variable. Additionally, characters can be designated as an uppercase letter, lowercase letter, or a number.
     - **Constant** - The characters in the string are set to a constant value.

- Select the **Pattern** option from the **Set By** list to build a specific pattern for the selected tag part.
  - **Character Range** - Select a character range set from the list to define characters from the selected set in the pattern. The character range set that is set as default in the **Character Range** page of the **Central Settings** module is displayed by default in the list.

  IMPORTANT The upper case, lower case, and number options are available depending upon the character range set for the selected language in the **Character Ranges** page of the **Central Settings** module.

4. Click **Accept Changes** .

   TIP If you want to abandon your changes, click **Reject Changes** .

IMPORTANT The characters set to **Pattern** are displayed in a simple representation on the tag part. When the cursor pauses over the tag part, the specific pattern is displayed.

NOTES

- The regular expression corresponding to each character in the simple representation is as follows:
  - A - Any uppercase letter
  - a - Any lowercase letter
  - # - Any digit from zero to nine
- If you define a character to be either a letter or a number, then the character is displayed as a lowercase or uppercase letter depending upon the selection of lowercase or uppercase for letter.
- The constant value in the tag parts is displayed in bold.
- New parts can use defined patterns, but only when the pattern is defined using the **Set Part** option.

Edit the pattern for a tag part using regular expressions

1. Select a tag part for which you want to update the sequence of characters or the search pattern.
2. Click **Set Part** to open the **Options** section where you can make changes to the tag part pattern.
3. In the **Options** section, select **Full String** or **Pattern** from the **Set By** list. Depending upon the selection made here, the options change in the next pane.
   - Select the **Full String** option from the **Set By** list to represent each of the existing characters in the file part as a variable or a constant.
     - **Variable** - The characters in the string are set to a variable. Additionally, characters can be designated as an uppercase letter, lowercase letter, or a number.
     - **Constant** - The characters in the string are set to a constant value.
   - Select the **Regular Expression** option from the **Set By** list to build a specific regular expression for the selected tag part.

- The following table displays the regular expression corresponding to each character. When you click any of the buttons mentioned in the table, the **Find Only** box displays the corresponding regular expression. For example, if you click the ABC button, \p{Lu} is displayed in the **Find Only** box.

Button	Notation	Description
123	\d	Digits
ABC	\p{Lu}	Uppercase letters
abc	\p{Ll}	Lowercase letters
Ä	\p{Lo}	A letter or ideograph that does not have lowercase and uppercase variants, for example, あ
*	[^\s]*	Any character any number of times except whitespace characters

- You must enter an example tag part in the **Example** box. The example must match the pattern configured in the **Find Only** box.

4. Click **Accept Changes** .

   TIP If you want to abandon your changes, click **Reject Changes** .

Merge multiple parts

The **Merge Parts** command allows you to merge two or more tag parts into a single tag part.

1. In the **Create Master Tag Pattern** page, select two or more tag parts that you want to merge.
2. Click **Merge Parts** to merge the selected parts into a single tag part.

Split a part

The **Split Part** command allows you to split a tag part into two or more tag parts.

1. In the **Create Master Tag Pattern** page, select a tag part that you want to split.
2. Click **Split Part** to split the selected part into two or more tag parts.
3. In the **Split Part** section, click the splitter between the two characters where you want to split the tag part.
4. Click **Accept Changes** to split the tag part as indicated.

TIP If you want to abandon your changes, click **Reject Changes**  .

NOTE All the tag parts resulting from the split are highlighted in blue.

Understanding regular expressions

IMPORTANT If you create the master tag pattern using regular expressions, the corresponding alias tag pattern must be created using regular expressions as well.

The following table displays the regular expressions and their corresponding descriptions:

Button	Notation	Description
	\d	Digits
	\p{Lu}	Uppercase letters
	\p{Ll}	Lowercase letters
	\p{Lo}	A letter or ideograph that does not have lowercase and uppercase variants, for example, あ
	[^\s]*	Any character any number of times except whitespace characters

The following table displays the additional separators used to configure regular expressions, in addition to the separators configured in the central settings:

Separator	Description
Pd	Any hyphen or dash, for example, - and —.
Pe	Any closed bracket, for example, },], and).
Po	Any punctuation character that is not a dash, bracket, quote or connector, for example, #, %, and, !.
Ps	Any open bracket, for example, {, [, and (.

The following table displays examples of regular expressions and the corresponding tags extracted:

Regular Expression	Example Tags
1409-\d{2,3}-\d\d	1409-10-10 and 1409-100-10
[あ-ん]{1,2}-\d{2,3}	あ-12,あえ-１２,あ-１２０, and あえ-123

Edit a master tag pattern

1. In the **Master Tag Patterns** page, select an existing master tag pattern.
2. Click **Edit Tag Pattern**  .

   NOTES

   - The **Edit Master Tag Pattern** page appears with the **Example Master Tag** box populated with the information from the selected master tag pattern, and the tag parts are populated in the tag part boxes.
   - You can edit a master tag if it has an alias tag associated to it.
3. Make necessary changes for the tag parts by selecting the **Tag Naming System** item from the list.

   TIP You may change the example master tag by clicking in the **Example Master Tag** box.
4. Click **Save**.

NOTES

- The FusionTextContentRules.ini file and the SPFHotSpotter.ini file that are updated when you click **Save** after adding new tag patterns or modifying of existing tag patterns.
- The tag pattern and the example tag pattern must match.
- The same **Tag Naming System** item cannot be set for more than one file part.

Copy a master tag pattern

1. In the **Master Tag Patterns** page, select an existing master tag pattern.
2. Click **Copy Master Tag Pattern**  .

   NOTE The **Copy Master Tag Pattern** page appears with the **Example Master Tag** box populated with the information from the selected master tag pattern, and the tag parts are populated in the tag part boxes.
3. Make the necessary changes for the tag parts by selecting the **Tag Naming System** item from the list.

   TIP You may change the example master tag by clicking in the **Example Master Tag** box.

4. Click **Save**.

NOTES

- The FusionTextContentRules.ini file that is used for tag extraction is created when you click **Save**. The FusionTextContentRules.ini file and the SPFHotSpotter.ini file are updated when you click **Save** after adding of new tag patterns or modifying of existing tag patterns.
- The tag pattern and the example tag pattern must match.
- Master tag patterns must be unique. You cannot save a new master tag patterns that matches an existing one.

Tag attributes

1. On the **Tag Attributes** tab, click **Add Part** to add a tag attribute. The TNS items with attributes that are not used as tag parts are displayed in the **Tag Attributes** page.
2. Select a tag naming system item from the TNS items list.

   NOTE If the TNS items with associated document attributes are used to define the tag attributes, the tag attribute value is taken from the document attribute.
3. Click **Save**.

Associate an alias tag pattern

1. In the **Master Tag Patterns** page, select an existing master tag pattern.
2. Click **Associate Alias Tag Pattern**.

   NOTE The **Associated Alias Tag Patterns** page appears with the **Example Master Tag** box and **Master Tag Definition** box populated with the information from the selected master tag pattern.
3. Click **Create Alias Tag** to add an alias tag pattern for the selected master tag.

NOTE A master tag pattern may or may not be associated with alias tag patterns.

Create an alias tag pattern

1. In the **Associated Alias Tag Patterns** page, click **Create Alias Tag Pattern** to display the tag parts in the **Create Alias Tag Pattern** section.

   NOTE If there is no alias tag pattern associated with a master tag pattern, then the tag parts of the master tag pattern are displayed in the **Create Alias Tag Pattern** section. The example alias tag pattern box also displays the example master tag pattern by default.
2. Select a tag part and click **Set Part** to make changes to the tag part pattern.

   NOTE If you create the master tag pattern using regular expressions, the corresponding alias tag pattern must be created using regular expressions.
3. Add or delete the tag parts to set the alias tag pattern.

   TIP You can add and delete constants in the alias tag pattern.

4. Click **Apply** to create the alias tag pattern.

   TIP Click **Discard** to reject the changes.

   NOTE The tag pattern and the example tag pattern must match or an error message is displayed.

5. In the **Associated Alias Tag Patterns** page, click **Save** to save the newly created alias tag patterns and relate them to the master tag pattern.

NOTES

- The FusionTextContentRules.ini file that is used for tag extraction is created when you click **Save**. The FusionTextContentRules.ini file and the SPFHotSpotter.ini file are updated when you click **Save** after adding new tag patterns or modifying of existing tag patterns.
- If you want to divide a single word in the tag pattern into two tag parts, use the **None** separator within the two tag parts and assign a tag naming system for each tag part. For example, for a tag pattern like 1409-SV10-144, you can split the part SV10 into two tag parts with a **None** separator between them. The first part SV can be set to tag type and 10 can be set to unit.

IMPORTANT You cannot edit, merge, split, and delete a tag part that is available in the master tag pattern.

What do you want to do?

- *Add a part* (on page 87)
- *Arrange the parts to build a tag pattern* (on page 88)
- *Delete a part* (on page 88)
- *Edit the pattern for a tag part* (on page 88)
- *Merge multiple parts* (on page 90)
- *Split a part* (on page 91)

Add a part

The **Add Part** command allows you to add a new tag part.

1. In the **Create Alias Tag Pattern** section, select a tag part.
2. Click **Add Part**.
3. Select an option to indicate where to add the new tag part.
   - **Add Left** - Adds the new tag part to the left of the selected tag part
   - **Add Right** - Adds the new tag part to the right of the selected tag part
4. Click **Apply Changes**.

TIP If you want to abandon your changes, click **Reject Changes**.

Arrange the parts to build a tag pattern

1. Select a tag name part.
2. Drag the selected part to where you want it.

   TIP A blue line appears to indicate the cursor position.

NOTES

- If you drop the selected tag part next to another tag part, then there is no movement of the separators.
- If you drop the selected tag part next to the separator, then the separator moves with the tag name part preceding the separator.
- You cannot drop the selected tag part anywhere outside the **Create Alias Tag Pattern** section.

Delete a part

The **Delete Part** command allows you to delete one or more selected tag parts.

1. In the **Create Alias Tag Pattern** section, select one or more tag parts.
2. Click **Delete** .

Edit the pattern for a tag part

The **Set Part** command allows you to change the sequence of characters that forms a search pattern for each tag part.

1. In the **Create Alias Tag Pattern** page, select a tag part for which you want to update the sequence of characters or the search pattern.
2. Click **Set Part** to open the **Options** section where you can make changes to the tag part pattern.
3. In the **Options** section, select **Full String** or **Pattern** from the **Set By** list. Depending upon the selection made here, the options change in the next pane.
   - Select the **Full String** option from the **Set By** list to represent each of the existing characters in the file part as a variable or a constant.
     - **Character Range** - Select a character range set from the list to define characters from the selected set in the pattern. The character range set that is set as default in the **Character Range** page of the **Central Settings** module is displayed by default in the list.
     - **Variable** - The characters in the string are set to a variable. Additionally, characters can be designated as an uppercase letter, lowercase letter, or a number.
     - **Constant** - The characters in the string are set to a constant value.
   - Select the **Pattern** option from the **Set By** list to build a specific pattern for the selected tag part.

- **Character Range** - Select a character range set from the list to define characters from the selected set in the pattern. The character range set that is set as default in the **Character Range** page of the **Central Settings** module is displayed by default in the list.

IMPORTANT The upper case, lower case, and number options are available depending upon the character range set for the selected language in the **Character Ranges** page of the **Central Settings** module.

4. Click **Accept Changes** .

TIP If you want to abandon your changes, click **Reject Changes** .

IMPORTANT The characters set to **Pattern** are displayed in a simple representation on the tag part. When the cursor pauses over the tag part, the specific pattern is displayed.

NOTES

- The regular expression corresponding to each character in the simple representation is as follows:
  - A - Any uppercase letter
  - a - Any lowercase letter
  - # - Any digit from zero to nine
- If you define a character to be either a letter or a number, then the character is displayed as a lowercase or uppercase letter depending upon the selection of lowercase or uppercase for letter.
- The constant value in the tag parts is displayed in bold.
- New parts can use defined patterns, but only when the pattern is defined using the **Set Part** option.

Edit the pattern for a tag part using regular expressions

1. Select a tag part for which you want to update the sequence of characters or the search pattern.
2. Click **Set Part** to open the **Options** section where you can make changes to the tag part pattern.
3. In the **Options** section, select **Full String** or **Pattern** from the **Set By** list. Depending upon the selection made here, the options change in the next pane.
   - Select the **Full String** option from the **Set By** list to represent each of the existing characters in the file part as a variable or a constant.
     - **Variable** - The characters in the string are set to a variable. Additionally, characters can be designated as an uppercase letter, lowercase letter, or a number.
     - **Constant** - The characters in the string are set to a constant value.
   - Select the **Regular Expression** option from the **Set By** list to build a specific regular expression for the selected tag part.

- The following table displays the regular expression corresponding to each character. When you click any of the buttons mentioned in the table, the **Find Only** box displays the corresponding regular expression. For example, if you click the  button, \p{Lu} is displayed in the **Find Only** box.

Button	Notation	Description
	\d	Digits
	\p{Lu}	Uppercase letters
	\p{Ll}	Lowercase letters
	\p{Lo}	A letter or ideograph that does not have lowercase and uppercase variants, for example, あ
	[^\s]*	Any character any number of times except whitespace characters

- You must enter an example tag part in the **Example** box. The example must match the pattern configured in the **Find Only** box.

4. Click **Accept Changes**  .

TIP If you want to abandon your changes, click **Reject Changes**  .

Merge multiple parts

The **Merge Parts**  command allows you to merge two or more tag parts into a single tag part.

1. In the **Create Alias Tag Pattern** page, select two or more tag parts that you want to merge.
2. Click **Merge Parts**  to merge the selected parts into a single tag part.

Split a part

The **Split Part** command allows you to split a tag part into two or more tag parts.

1. In the **Create Alias Tag Pattern** page, select a tag part that you want to split.
2. Click **Split Part** to split the selected part into two or more tag parts.
3. In the **Split Part** section, click the splitter between the two characters where you want to split the tag part.
4. Click **Accept Changes** to split the tag part as indicated.

   TIP If you want to abandon your changes, click **Reject Changes**.

NOTE All the tag parts resulting from the split are highlighted in blue.

Edit alias tag pattern

1. In the **Associated Alias Tag Patterns** page, select an existing alias tag pattern.
2. Click **Edit Alias Tag**.

   NOTE The **Edit Alias Tag Pattern** page appears with the **Example Alias Tag** box populated with the information from the selected alias tag pattern, and the tag parts are populated in the tag part boxes.
3. Make necessary changes for the tag parts by selecting the **Tag Naming System** item from the list.

   TIP You may change the example alias tag by clicking in the **Example Alias Tag** box.
4. Click **Apply** to save the changes you have made to the alias tag pattern.

   TIPS

   - Click **Discard** to reject the changes.
   - The tag pattern and the example tag pattern must match.
5. In the **Associated Alias Tag Patterns** page, click **Save** to save the modified alias tags patterns and relate them to the master tag pattern.

NOTES

- The FusionTextContentRules.ini file which is used for tag extraction is created when you click **Save**. The FusionTextContentRules.ini file and the SPFHotSpotter.ini file are updated when you click **Save** after the addition of new tag patterns or the modification of existing tag patterns.
- A **Tag Naming System** item can be assigned to only one tag part.

Copy alias tag pattern

1. In the **Alias Tag Patterns** page, select an existing alias tag pattern.
2. Click **Copy Alias Tag**  .

   NOTE The **Copy Alias Tag Pattern** page appears with the **Example Alias Tag** box populated with the information from the selected alias tag pattern, and the tag parts are populated in the tag part boxes.
3. Make necessary changes for the tag parts by selecting the **Tag Naming System** item from the list.

   TIP You may change the example alias tag by clicking in the **Example Alias Tag** box.
4. Click **Apply** to save the changes you have made to the alias tag pattern.

   TIPS

   - Click **Discard** to reject the changes.
   - The tag pattern and the example tag pattern must match.
5. In the **Associated Alias Tag Patterns** page, click **Save** to save the modified alias tags patterns and relate them to the master tag pattern.

NOTES

- The FusionTextContentRules.ini file which is used for tag extraction is created when you click **Save**. The FusionTextContentRules.ini file and the SPFHotSpotter.ini file are updated when you click **Save** after the addition of new tag patterns or the modification of existing tag patterns.
- Alias tag patterns must be unique. An error message is displayed if the new alias tag pattern matches an existing one.

Delete alias tag patterns

The **Delete** command allows you to delete one or more alias tag patterns.

1. In the **Associated Alias Tag Patterns** page, select one or more alias tag patterns from the list.
2. Click **Delete Alias Tags** , and then click Yes to confirm the deletion.
3. In the **Associated Alias Tag Patterns** page, click **Save** to remove the relation with the master tag pattern and to remove the selected tags from the database.

IMPORTANT The FusionTextContentRules.ini file and the SPFHotSpotter.ini file are updated when you click **Save** after the deletion of tag patterns.

Create new group tag pattern

1. In the **Master Tag Patterns** page, click **Create Tag Pattern** .
2. In the **Create Tag Pattern** page, click the **Group Tag Pattern** tab.
3. Type a tag pattern that represents a master tag in the **Example Master Tag** box.

   TIP You may type and example group tag pattern in the **Example Group Tag** box, but after you define the repetitive character and the repetitive separator, the example group tag is updated.
4. Select the **Mark Repetitive Pattern** check box to define the repetitive character and the repetitive separator.

   IMPORTANT If you select the **Mark Repetitive Pattern** check box, you must select the character and set the repetitive separator to save the group tag pattern.
5. To select the repetitive characters for the group tag pattern, select a character in the pattern and drag the blue selection handles to select the desired text.
6. Type the separator that indicates the repetitive pattern in the **Repetitive Separator** box.

   NOTE Once you define the repetitive pattern and then type a separator in the **Repetitive Separator** box that does not match the separator in the **Example Group Tag** box, the example group tag pattern value gets updated with it.
7. Click **Apply** to create a group tag pattern in the database. Click **Save** to create the group tag pattern in the database and close the window.

NOTE If you type a tag pattern in the **Example Master Tag** box and save it without selecting the **Mark Repetitive Pattern** check box, then it is considered as a Custom tag. For example, type 10V-123, if you want to extract tags like 10V-123, 15V-123, and 20V-123 from a group tag - {10-20}V-123 or [10-20]V-123. You must create a custom DLL to override the ExtractTagsFromCustomTagGroups method on ISPFNTagGroup interface.

Edit a group tag pattern

1. In the **Master Tag Patterns** page, select an existing group tag pattern.
2. Click **Edit Tag Pattern** .

   NOTE The **Edit Tag Pattern** page appears with the **Group Tag Pattern** tab populated with the information from the selected group tag pattern, and the marked repetitive tag parts.
3. Make necessary changes to the repetitive characters by using the blue selection handles and type a repetitive separator, if necessary.
4. Click **Save**.

   NOTE The FusionTextContentRules.ini file and the SPFHotSpotter.ini file are updated when you click **Save** after the addition of new tag patterns or the modification of existing tag patterns.

Delete master tag patterns

The **Delete** command allows you to delete the selected master tag and group tag patterns.

1. In the **Master Tag Patterns** page, select one or more master tag and group tag patterns from the list.
2. Click **Delete Master Tag Patterns**, and click **Yes** to confirm the deletion.

IMPORTANT The FusionTextContentRules.ini file and the SPFHotSpotter.ini file are updated when you click **Save** after the deletion of tag patterns.

SECTION 13

Tag Type Relationships

The **Tag Type Relationships** module allows you to relate tag types with document types that are available in the system.

Create document type to tag type relationships

1. Log on to SmartPlant Dashboard.
2. Click **Fusion Data Capture Administration** to open the SmartPlant Fusion Data Capture Administration module.
3. Click **Tag Type Relationships** to view the **Tag Classifications** and the **Document Classifications** panes which display the existing tag types and document types respectively, in the tree view.
4. To create a document type to tag type relationship, select one or more document types from the **Documents Classification** pane.
5. Drag the selected document types to a tag type in the **Tag Classification** pane.

NOTES

- The document types that already have a relationship with any of the parent tag types cannot be dragged to the child tag types.
- A label indicating the number of document types related to the tag type is associated to the tag type.

View document types associated with a tag type

The **Associated Document Types** tab displays the document types associated to a tag type.

1. In the **Tag Type Relationships** page, double-click a tag type in the **Tag Classification** pane.
2. Click the **Associated Document Types** tab to view the document types associated to the selected tag type.

NOTES

- The document types associated to the tag types are displayed in three different colors as explained in the following table :

Color	Description
Green	The document types to tag type relation is not saved.
Black	The document types to tag type relation is saved.

Color	Description
Red	The document types to tag type relation will be deleted if you save the changes.

- Click **Delete Document Types** to delete the document types associated with a tag type and click **Save**. The deleted document type is displayed in red color until the changes are saved.
- The **Inherited** column in the **Associated Document Types** tab displays a when the document type is related to any of the parent of the selected tag type.

Associated Tag Types

The **Associated Tag Types** tab displays the tag types associated to a document type.

1. In the **Tag Type Relationships** page, select a tag type and a document type.
2. Click the **Associated Tag Types** tab to view the tag types related to the selected document type.

NOTES

- The tag types associated to the document types are displayed in three different colors as explained in the following table:

Color	Description
Green	The document types to tag type relation is not saved.
Black	The document types to tag type relation is saved.
Red	The document type to tag type relation gets deleted if you save the changes.

- Click **Delete Tab Types** to delete the tag type associated to the document type and click **Save**. The deleted tag type is displayed in red color until the changes are saved.

SECTION 14

Run Content Discovery Task from the Command Line

The content discovery task can be started using the Windows command prompt.

NOTE The content discovery task creation executable file, **SPFNCreateCDT.exe**, is delivered in the product installation folder. By default, it is located at *<installation directory>*:\Program Files\SmartPlant\Foundation\2016\SPFDesktopClient\CurrentVersion, but this location may be changed at installation.

IMPORTANT You can only create a content discovery task when you have SmartPlant Fusion installed on the computer.

Command line arguments

The arguments that can be used with SPFNCreate.exe are listed below.

/U - identifies the database user name (required).

/P - identifies the database password (required).

/S - identifies the SmartPlant Fusion site (required).

/H - identifies the server host computer (required).

/SECURE - indicates if the SmartPlant Fusion site is secured.

/DS - identifies the document status set on the document.

The following table displays the string that corresponds to each SmartPlant Fusion reader.

Character	Document Status
0	DocumentLoaded
1	DocumentResolved
2	Document OutOfDate
3	DocumentContentExtractionFailed
4	DocumentDataExtractionFailed
5	DocumentRelationshipsCreationFailed
6	DocumentStatusTagDataExtractionFailed
7	DocumentStatusProcessed

/DR - identifies the file types related to the SmartPlant Fusion reader.

The following table displays the string that corresponds to each SmartPlant Fusion reader.

String	SmartPlant Fusion reader
3DModel	3DModel Reader
Document	Document Reader
Drawing	Drawing Reader
Image	Image Reader
Text	Text Reader
LaserScan	Laser Scan Reader
Default	Base Reader

/DP - identifies the document name pattern.

This example creates a document discovery task that processes all the documents that have the **Document Loaded** status, are Drawing files, and have a pattern that matches *doc*.

```
SPFNCreateCDT.exe /U fusionadministrator /P   /S spfnserver /H localhost
/DS 0 /DR Drawing /DP *doc*.
```

Start a content discovery task from a command prompt

1. Open a **Command Prompt** window.
2. In the **Command Prompt** window, change the folder to the product folder, for example: `C:\Program Files\SmartPlant\Foundation\2016\SPFDesktopClient\CurrentVersion.`
3. Type the following command:

   ```
   "SPFNCreateCDT.exe /U fusionadministrator /P   /S spfnserver /H
   localhost /DS 0 /DR Drawing /DP *doc*"
   ```

   NOTE A message appears to indicate the successful creation of content discovery task.

NOTES

- If the creation of the content discovery task fails, review the log file output.txt in the installation folder location for more information.
- When launching the SmartPlant Desktop Client from the command line, all parameters that begin with a slash (/) are uppercase and require a space between the parameter and the value. If the value contains spaces, it must be enclosed inside double quotation marks (“ ”).
- Please provide access for the user provided to the method `SPFNProcessJob_Create`

SECTION 15

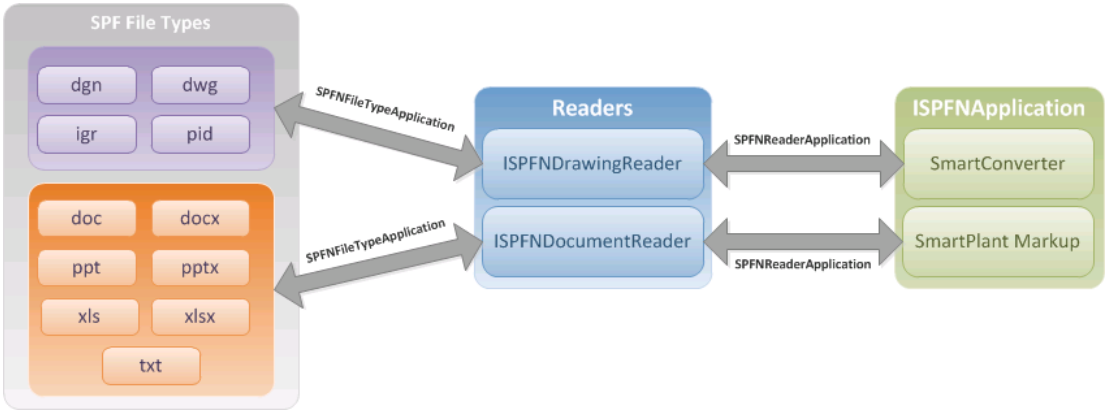
Learn more about content discovery

An application object is defined in SmartPlant Fusion to control the external application that is launched in order to extract the data content from a file. A file type is related to a reader interface, which in turn is related to an application object. By default, the file type .dwg is related to the reader interface ISPFNDrawingReader, which is related to the SmartConverter application object. Therefore, SmartConvertor is used to extract the data from the .dwg files. However, if you want to use SmartPlant Markup to extract data from a drawing, then you can attach the SmartPlant Markup application object to the ISPFNDrawingReader interface, instead of the default SmartConvertor object.

When an individual file type needs to be processed differently than the other file types in the same group, you can attach a SmartPlant Foundation file type directly to an application. For example, if the .dwg file type, which normally uses the application attached to the ISPFNDrawingReader interface, needs to be treated differently, then you can relate it directly to an application object, such as SmartPlant Markup.

NOTE If a file type is related directly to an application object, then this relationship takes precedence over application object related though a reader interface.

This diagram shows the relationship between the application objects, readers, and file types.



Document reader

The document reader looks into the PreProcessContentFiles folder, which is located in the same location as the native files prior to the content discovery task, for preprocessed content files that have been extracted from third party applications. The document reader first checks for a <Filename with extension>_ContentFile.xml file, and if that does not exist, then it looks for a <Filename with extension>_ContentFile.txt file for tag extraction. If the document reader does not find the preprocessed content files, then it uses SmartPlant Markup to process the files.

The document reader extracts all the cross-referenced and linked information contained in the text into a document. When the document is processed through the workflow with the document reader interface attached, SmartPlant Markup converts the document into two files: a viewable

format (.csf) file and a text content file (.txt) that contains all of the text identified in the document.

The Extract Content workflow step generates the text content file by adding the ISPFNContentFile interface definition to the file document and attaches the viewable .csf file to the native file object. The workflow process then continues, associating the Extract Data workflow step with the content file.

The FusionTextContentRules.ini file is automatically created whenever you save the tag discovery patterns. This file identifies any tags that match the tag pattern defined in the content file. If a match is found, the application creates either a master tag or an alias tag, based on the definition of the tag discovery pattern.

If the identified tag name is determined to be a master tag, only one tag item, the master tag, is created.If the tag name found matches the format for an alias tag, then the application creates the alias tag. An additional process checks the alias tag file to determine what the actual master tag will be called. If the master tag already exists, then the new alias tag is related to the master. It the master tag does not already exist, then the master tag is created and the alias tag is related to it.

The alias tags and the master tags are all related to the document associated with the file in which they were found.

NOTES

- If <Filename with extension>_ContentFile.xml files or <Filename with extension>_ContentFile.txt files are available for corresponding Office files, then those will be placed in the PreProcessedContentFiles folder, which is located in the same location as the native files prior to the content discovery task. For example, if the native files exist in C:\SmartPlantFusionData, then the <Filename with extension>_ContentFile.xml files should be placed in the C:\SmartPlantFusionData\PreProcessedContentFiles folder.
- If preprocessed content files are available, then the Extract Content workflow step does not use SmartPlant Markup for the content extraction. Instead, it attaches the xml file or txt file available in the PreProcessedContentFiles folder to the original file in the application. The Extract Data workflow step then extracts the tags from the <Filename with extension>_ContentFile.xml file or the <Filename with extension>_ContentFile.txt file available in the PreProcessedContentFiles folder.

  If the preprocessed content files have titleblock information, then the application extracts the document name from the titleblock and renames the document. The document gets renamed with the value within the _TitleBlock_DrawingNo tag in the XML file. For more information on Title block, see *Preprocessed Content XML File Format* in the *SmartPlant Fusion Pre-Processor Utilities Guide.*

Drawing reader

The drawing reader looks into the PreProcessedContentFiles folder, which is located in the same location as the native files prior to the content discovery task, for preprocessed content files that have been extracted from third party applications. The drawing reader first checks for <File Name with extension>_GraphicsMapFile.xml and <File Name with extension>_NavigationFile.igr. If both the files are found then it looks for <File Name with extension>_ContentFile.xml. If all the three files are available in the PreProcessedContentFiles folder, then they are related to the master file and the <File Name with extension>_ContentFile.xml is used for tag extraction. If the drawing reader does not find either <File Name with extension>_GraphicsMapFile.xml or the <File Name with extension>_NavigationFile.igr file in the PreProcessedContentFiles folder, then the application uses SmartConverter to process the files.

In absence of the preprocessed content files, the drawing reader extracts the cross-referenced and linked information available in the drawing by using the SmartConverter. Both the native image and rendered image are attached to the drawing file. An XML file containing all the acquired tags and cross references is generated and attached to the Document version. The Intergraph SmartSketch RAD hotspotter automatically extracts the tag and cross-reference information from the drawing file, using a set of rules defined in the SmartPlant Foundation SmartConverter.

NOTE If the <FileName with extension>_GraphicsMapFile.xml, <Filename with extension>_NavigationFile.igr, and <Filename with extension>_ContentFile.xml files are available for the corresponding Drawing file, they should be placed in the PreProcessedContentFiles folder, located in the same location as the native files prior to the content discovery task. For example, if the native files exist in C:\SmartPlantFusionData, you should place the <FileName with extension>_GraphicsMapFile.xml, <Filename with extension>_NavigationFile.igr, and <Filename with extension>_ContentFile.xml files in the C:\SmartPlantFusionData\PreProcessedContentFiles folder.

For example, the following is an example of the preprocessed graphics map file looks similar to this example:

```
<Mappings>
  <Mapping>
    <MapType>GraphicOID</MapType>
    <Maps>
      <Map Name="TK-1409-221" IDef="ISPFNTaggedItem" GOID="81" UID="SPFNTG_TK-1409-221" />
      <Map Name="E-1409-224" IDef="ISPFNTaggedItem" GOID="82" UID="SPFNTG_E-1409-224" />
      <Map Name="E-1409-225" IDef="ISPFNTaggedItem" GOID="83" UID="SPFNTG_E-1409-225" />
      <Map Name="V-1409-801" IDef="ISPFNTaggedItem" GOID="94" UID="SPFNTG_V-1409-801" />
      <Map Name="K-1409-801" IDef="ISPFNTaggedItem" GOID="114" UID="SPFNTG_K-1409-801" />
    </Maps>
  </Mapping>
</Mappings>
```

NOTE For more information on the preprocessed XML file format, see *Preprocessed Content XML File Format* in the *SmartPlant Fusion Pre-Processor Utilities Guide*.

Image reader

The image reader extracts the information contained within an image using an Optical Character Recognition (OCR) engine. You can use a third-party OCR engine, such as ABBYY FlexiCapture or Adlib, to extract the tag and other link information from the scanned file using a defined set of rules and patterns. The image files are processed through the third-party software, and the resulting files are processed by SmartPlant Fusion.

Processing the image files through the ABBYY results in two files: <Filename with extension>.OCR.pdf and <Filenamewith extension>_ContentFile.xml. Processing the image files through the Adlib also results in two files: <Filename with extension>.OCR.pdf and <Filename with extension>_ContentFile.txt.

NOTE You should place the output files from ABBYY or Adlib in the PreProcessedContentFiles folder, located in the same location as the native files prior to the content discovery task.

The Extract Content workflow step attaches the output files from ABBY or Adlib in the PreProcessedContentFiles folder to the same version of the document as the original file. The Extract Data workflow step then extracts the tags from the <Filename with extension>_ContentFile.xml or the <Filename with extension>_ContentFile.txt file.

For example, the following is an example of the tag information in a preprocessed file:

```
<_Tag_EquipmentSuffixes3>
   <_Tag_Name>P-1409-221A</_Tag_Name>
   <_Tag_Description>Pump</_Tag_Description>
</_Tag_EquipmentSuffixes3>
<_Tag_EquipmentItems3>
   <_Tag_Name>P-1409-222</_Tag_Name>
</_Tag_EquipmentItems3>
<_Tag_InstrumentsXX>
   <_Tag_Seq_1>PI</_Tag_Seq_1>.
   <_Tag_Seq_2>-</_Tag_Seq_2>
   <_Tag_Seq_3>100</_Tag_Seq_3>
   <_Tag_Description_Instr>Pressure
Instrument</_Tag_Description_Instr>
</_Tag_InstrumentsXX>
```

NOTES

- The representation of the XML tags within the content file is as follows:
  - _Tag_Name represents a single line tag.
  - The node containing the tag information needs to start with "<_Tag" in order for a tag to be created or updated.
  - _Tag_Description represents the description of a tag.
  - _Tag_Seq_<Number> represents the parts of a multi-line tag.
  - Other properties can be added and the name defined must be exactly the same as the property name defined in the schema (no underscore required).
- For more information on title block information, see *Preprocessed Content XML File Format* in the *SmartPlant Fusion Pre-Processor Utilities Guide*.

- The properties of a property list can be set in the preprocessed content XML file using the **Tag Attribute Node Name** of the property. For example:

```
        <_Asset_EquipmentSuffixes3>
           <_Asset_Name>61-AC-4501-01S</_Asset_Name>

<_SPFPrimaryClassification_21>Anode</_SPFPrimaryClassification_21>
           <_AssetValue>25</_AssetValue>
        </_Asset_EquipmentSuffixes3>
```

  - AssetValue is the tag attribute node name for Asset.
  - The properties of Asset support UoM.

- The relationship definition name is used to configure a relation between two business objects. For example:

```
        <_Tag_EquipmentSuffixes3>
           <_Tag_Name>V-222</_Tag_Name>
           <_SPFNPumpList_Height>10 m</_SPFNPumpList_Height>
           <_SPFNTagAsset_12>61-AC-4501-01S</_SPFNTagAsset_12>
        </_Tag_EquipmentSuffixes3>
```

  - SPFNTagAsset_12 is used to configure a relationship between the tag and the asset; SPFNTagAsset is the relationship definition UID and 12 is the direction.
  - Click **Find > Schema > Relationship Definition Name** in the SmartPlant Foundation Desktop Client, to find the relationship definition name.
  - If the business object does not exist in both the preprocessed file and the database, the relationship is not created.

- If a document is involved in the relationship, the relationship is created with the document to which the preprocessed file is attached. For example:

```
      <_Originator_EquipmentSuffixes3>
         <_Originator_Name>O-101</_Originator_Name>
         <_SPFNDocumentOriginator_21 />
      </_Originator_EquipmentSuffixes3>
```

- When you process the content discovery task with the following content file for a given document, the relationship (SPFNDocumentDocument) is created with the off page documents mentioned in content file only if the documents are present in the SmartPlant Fusion database.

```
      <_DocOPC>
           <_Document_Name>1408-10-005</_Document_Name>
      </_DocOPC>
      <_DocOPC>
           <_Document_Name>1409-10-003</_Document_Name>
      </_DocOPC>
```

Laser scan reader

The Laser scan reader captures Leica TruView HDS information created from scans taken of a plant. You make these TruViews navigable by placing tagged hotspots on plant items of interest. These tagged hotspots are named and read by SmartPlant Fusion, and then correlated with all the other information items associated with that tagged hotspot. You can then search for a tag and see it in the TruView image, or search for all other documents and drawings that contain the same tag. You can also do a photo realistic comparison between the current condition of the plant and the first installation (as-captured design basis), providing a streamed 3D CAD representation of a plant, which is mated with the information inside the SmartPlant Fusion database.

The Laser scan reader processes the main xml file that was generated when the laser scans were first created by Leica Geosystems software. After the processing, the xml files are delivered in a folder, and each is appended with the prefix Station, for example, Station<#>.xml. All the data files are stored within this folder, along with a TruView.xml file and the Station#.xml file. For TruView file processing, this folder with the TruView data must be manually moved to the LaserTrueView folder under the Web_Sites folder (which is also the Vault location). For example, <*installation directory*>:\SmartPlant Foundation 2014 Server Files\Web_Sites\<site_name>\LaserTrueView folder.

NOTE When the reader generates the tags from the XML file, the relationship between the document and the tag is more complex than the relationships created between documents and tags by other readers. This extra complexity is due to the need for x, y, and z coordinates, which must be stored on a special intermediate object, a representation item, so that the users can view the object properly in a scanned image. A special command, **View Item in Laser Scan**, allows you to navigate from the tag to the laser scan in which it appears.

3D reader

The 3D reader extracts the information contained within the output files obtained from the SmartPlant Interop Publisher (SPIOP) application. Of the output files created by SmartPlant Interop Publisher, SmartPlant Fusion uses the zvf and mdb files. The viewable zvf files are used to view the information with SmartPlant Markup, can use the 3D Pre-Processor module to extract the content from the mdb2 files into XML files. SmartPlant Fusion can then extract tags from those XML files.

NOTE The <File Name with extension>_GraphicsMapFile.xml (graphics map file) and <File Name with extension>_ContentFile.xml (content file) files generated from processing the mdb files with the 3D Pre-Processor are placed in the PreProcessedContentFiles folder.

The Extract Content workflow step reads the files available in the PreProcessedContentFiles folder, then attaches the <File Name with extension>_GraphicsMapFile.xml (graphics map file) and <File Name with extension>_ContentFile.xml (content file) to the viewable zvf file. The Extract Data workflow step then extracts the tags from the <File Name with extension>_ContentFile.xml file.

NOTES

- For models that originated from a Smart 3D model, the xrg (range) file needs to be copied to the native folder location which has .zvf and .mdb files. This file is processed by the 3D Pre-Processor module to extract the range information of a tag. The content discovery task will add the range information of the content file as tag properties.

- The types of tags that are extracted from the model are controlled by the class definitions and Moniker IDs which are defined in the template.

Text reader

The text reader extracts the information present in any text file. For the text file, no content file is generated, instead the native file is processed in the Extract Data workflow step.

During the Extract Data workflow step, the application uses the tags patterns present in the **FusionTextContentRules.ini** file to identify the tags from the text present in the native file. If a match is found, the application creates an alias tag definition. An additional process checks the alias tag file to determine what the actual master tag must be called.

NOTES

- If the tag name is identified as a master tag, only one tag item is created.
- If the tag name is identified as different, an alias tag is created with the name found in the document, addition to the master tag.
- All the alias tags and the master tags are related to the document.

SECTION 16

Thumbnail Generation

The thumbnail images for the files loaded into the SmartPlant Fusion database are used for a quick review of the file content in the SmartPlant Fusion Operations module. The **Create Thumbnail in Batch** command allows the administrator to generate thumbnail images for the duplicate files that are available in the Smart Plant Fusion database in a single click.

1. Log in to SmartPlant Foundation as administrator.
2. Set the query and create scopes to the plant for which you want to create the thumbnails.
3. Click **File > Create Thumbnail in Batch**, and then click **OK** to confirm the operation.

IMPORTANT You must start the **FusionScheduler** scheduler prior to thumbnail generation.

SECTION 17

Configure Full Text Retrieval (FTR)

FTR is a mechanism that allows SmartPlant Foundation object metadata and file content to be indexed for faster retrieval of information. It also allows content-based search in files. Full Text Retrieval (FTR) is done when an object is created, updated, or deleted and allows you to index and search for files or for properties or document content (including text) in files. The actual locations of the text occurrences within the files are also identified. The files can be text files, word processing files (such as Microsoft Word or WordPerfect), or CAD files (such as MicroStation, SmartSketch, or AutoCAD). However, only the text portions of the CAD files are indexed and available for searching.

The FTR Service provides three major functionalities:

- Data storage through a process known as FTR Indexing. For SmartPlant Foundation, FTR will support indexing of objects if the class definition has the **ISPFFTRItem** interface instantiated and the property that needs to be indexed has the FTRindicator property set to True. For Directa, the functionality is configured through Model files.
- Data retrieval through the process of FTR Searching. Once objects have been indexed in a collection, the user can search on the indexed data to retrieve objects matching the search criteria.
- Providing a GUI that displays the class definitions enabled for FTR and the property definitions that can be indexed. This feature applies to SmartPlant Foundation only.
- These three basic features to be implemented for FTR Interface support in SmartPlant Foundation are FTR Configuration, FTR Indexing, and FTR Search.

For more information, see *Configure Full Text Retrieval (FTR)* in the *SmartPlant Foundation Administrator's Guide.*

Indexing the SmartPlant Fusion documents

Server configuration

Full Text Retrieval (FTR) settings are configured in the Desktop Client. The FTR Server Configuration object is used to configure various registry keys and environment variables used by FTR with the associated site.

1. Click **Administration > FTR > Server Configuration**. The FTR Server Configuration object appears in the list view.
2. Right-click the object, and click **Update**.
3. Modify the values in this dialog box as necessary. Refer to the following sections for more information on the settings managed with this dialog box.

FTR Server Options details

Regular Indexing turn ON/OFF - Select this option to submit FTR configured objects marked for indexing for regular indexing. If this option is disabled, objects are not submitted for regular

indexing. Selecting this option creates the FTR Regular Indexing task, while disabling this option deletes the FTR Regular Indexing task from the system. By default, this option is disabled.

NOTE If FTR indexing is not required for a SmartPlant Foundation project implementation, the administrator must disable the FTR scheduler.

FTR Configuration details

Collection Name - Specifies the name of the FTR Collection into which objects are indexed and searched.

Indexing Type - Determines the timing of the indexing operation, either **Immediate** or **Periodic**. If set to **Immediate**, indexing occurs immediately after a row in an FTR collection is added, updated, or deleted, and it is immediately available for FTR searches. If set to **Periodic**, the collection is indexed only when the FTR Interface indexing server indexes the collection.

AND Token - Symbol used for searching by FTR for AND operations.

OR Token - Symbol used for searching by FTR for OR operations.

NOT Token - Symbol used for searching by FTR for NOT operations.

Locale List - Lists available locales for the system.

Language	Locale List
Chinese	cn_cn
English	en_us
Japanese	jp_jp
Korean	ko_ko

Character Code - Maps a locale name to a character set name.

Language	Character Code
Chinese	GB2312
English	ASCII
Japanese	EUC_JP
Korean	KSC_5601_1992

Term Generator - Determines the type of linguistic processing performed on search terms in the CONTAINS or LIKE predicates of SELECT statements. An empty string disables searching for inflected forms. A value of "DEFAULT" enables morphological searching.

Default Locale - Specifies the default locale used when a document is created or searched in the system.

Language	Default Locale
Chinese	cn_cn
English	en_us
Japanese	jp_jp
Korean	ko_ko

Attribute Locale - Specifies the locale used when attributes are created or searched in the system.

Language	Attribute Locale
Chinese	cn_cn
English	en_us
Japanese	jp_jp
Korean	ko_ko

Relevance Method - Indicates the relevance method used when sorting results.

Rewind Index Log - Indicates if the index log should be cleared before the index is refreshed.

Search Server Driver - Sets the ODBC driver for indexing and searching.

FTR Server details

Main Server Host - Specifies the name of the server on which the FTR service is running. This value is typically the name of the machine where SmartPlant Foundation (FTR Service) and FTR RT are installed. Object metadata is indexed on this server. This host is designated as the main FTR server host and can be the same machine as the SmartPlant Foundation application server or a different machine on which FTR is installed.

Server Virtual Directory - Specifies the name of the virtual directory (as configured in IIS) that the SmartPlant Foundation server will use for FTR operations.

Additional FTR server hosts - Specifies all the hosts where FTR web service is configured and where FTR collection needs to be searched during FTR search. Content Indexing of files is performed on the machines where the files are stored in vaults. Every file server should have FTR installed to index the file content. All the file server hosts on which file contents are being indexed should be selected to ensure that FTR search can process all the indexed collections.

FTR Stop Properties details

Stop Properties - Sets all properties that are not to be indexed. Stop properties must be separated by a comma.

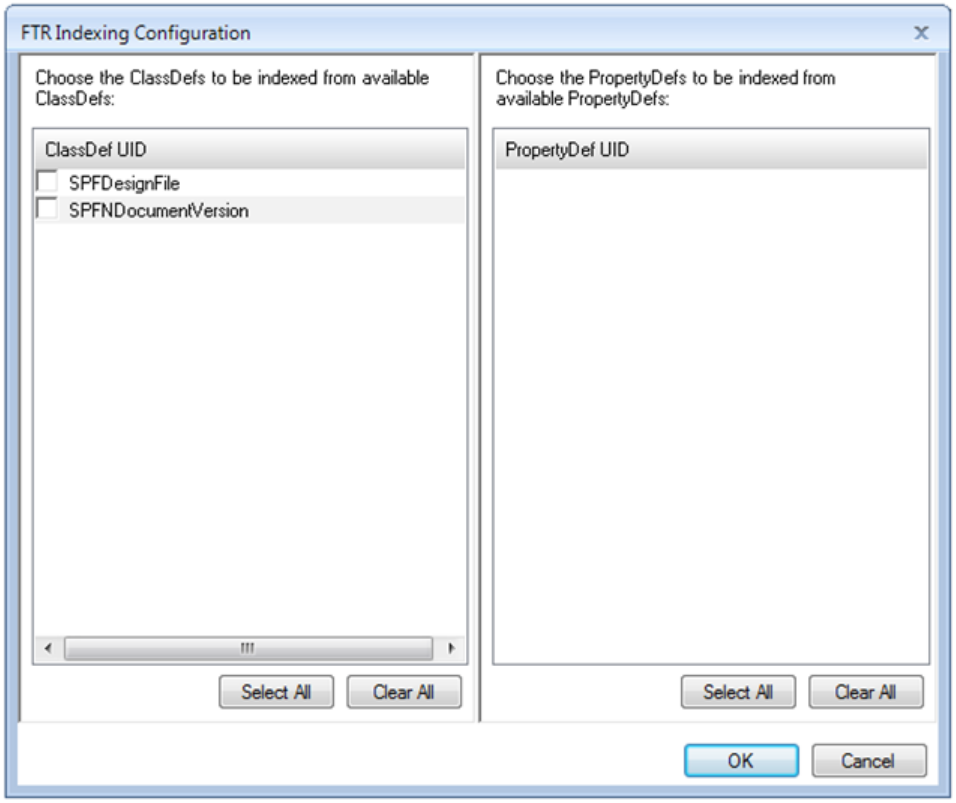
FTR Stop properties are the properties which will not get indexed even though they are configured for Indexing. For e.g.., the property “OBID”. I can configure this property for Indexing and if I include this in the Stop Properties list (comma separated one), this will not get indexed.

Also properties like creation dates, unique Id, etc.., all come under this category. This concept is mainly for the flexibility of the end users and they can stop a property being indexed without doing schema changes

Indexing configuration

1. Click **Administration > FTR > Indexing Configuration**.

   The following dialog box allows you to configure the indexing of class definition objects. You can add or remove class definition objects from indexing.



2. In the left pane, all class definitions that realize the interface definition ISPFFTRItem are listed. A class definition is enabled for FTR indexing only when selected, which in turn sets the **SPFFTREnabled** property on ISPFFTRItem to **True**.

   In the right pane, select the property definitions to be indexed. When the selection is complete, the property definition **SPFFTRIndicator** is set to **True**.

   NOTE The **Enable FTR Indexing** and **Disable FTR Indexing** commands are available on the shortcut menu of the property definition items.

3. Click **OK**.

FTR Search

The FTR Search command in the SmartPlant Foundation Desktop Client allows you to search the FTR index for objects containing your specified search text.

1. In the SmartPlant Foundation Desktop Client, click **Find > FTR Search**.
2. Enter the search text in the box in the **Search Details** section.

   TIP Although an asterisk (*) can be used by itself or as the leading character for a search, it is recommended to use a character to the left of this operator to enhance performance.
3. Click ＋ to expand the Advanced Search Criteria section. Select the Content check box if you want to include content in your search. Select the Properties check box to search only object properties.
4. Select Display matching files to display matching file objects including files.
5. Click OK.

   NOTE FTR searches in SmartPlant Foundation return document objects that contain the specified search text. A document object is a parent object that may contain attached files and meta data about other document objects. The specified search text may be in any or all of the attached files. For example, if your search returns one document object with several attached files, you will need to look in each attached file for the specified search text.

SECTION 18

Manage Document Relationships

During the content discovery task, if the attributes defined on the document match with an existing object in the database, a relationship is created with that object. For example, if the Unit attribute on the document is SPFNUnit and SPFNUnit exists as a functional unit in the database, then a relationship of type SPFNDocumentUnit is created between the document and the unit. The **Update Relationships** command allows you to update the relationship of the documents to objects in the database.

1. Click **Find > Fusion Items > Documents**.
2. On the **Find** dialog box, type the name or part of the name of the document you want to find. You can use wildcards.
3. Click **OK** to find objects with the criteria you specified.
4. Right-click on a processed document and click **Update Latest Version** in the shortcut menu to update the attributes of the document.

   NOTE You can update the document attributes with the document index and click **Update Relationship**s on the shortcut menu to update the document relationships.
5. Select one or more documents for which you have updated attributes and click **Update Relationships** on the shortcut menu to update the document relationships.

SECTION 19

Viewing reports

The SmartPlant Fusion reporting functionality allows you to run custom reports to retrieve information from the database.

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Open XML Reports

Reports can be set up to write data into a configured Microsoft Word template. The Office Open XML report can be run from the shortcut menu of an object. Configuration specifies a template document that contains the Microsoft Word template file and an XML control file that identifies the report to run (view definition), and mapping to the text controls in the Microsoft Word document.

The Office Open XML reporting mechanism is a more convenient alternative to the **Run and Attach Report** command available in SPF 4.4. The SPF 4.4 mechanism used style sheets to format the report, requiring programming knowledge, whereas the Open XML solution uses simple mapping to a pre-configured Microsoft Word template. In order to create a Microsoft Word template for a report, you must create content controls in the Microsoft Word file using controls available from the Developer tab in Microsoft Word.

The Office Open XML report has a template document that identifies the template Microsoft Word document, and control file to map the view definition properties to content controls in the Microsoft Word file. The report can be run and viewed from the short menu of an object, and with configuration, the system can also attach the report file to the object from which it is run.

The following items are required to generate a report using Office Open XML:

- View Definition
- Control XML file
- Microsoft Word template file
- New Template document object in SmartPlant Fusion

Reports Model

OpenXMLReport Client API

The OpenXMLReport Client API is used to generate the Office Open XML report

Argument	Name	Type	Description
Arg1	Template Name	String	This parameter indicates the template document name stored in SmartPlant Foudation.
Arg2	Save and Attach Report	Boolean	If this parameter is set to TRUE the generated report is attached to the object from which it was run.
Arg3	Report Configuration	String	This parameter indicates the relationship definition and file class definition to be used to attach the report. Format: Reldef~FileClassDef For example, SPFReportFileComposition~SPFReportFile

Configure the Microsoft Word template document

You must define the text locations in the Microsoft Word document to populate the data. The **Developer** tab must be enabled in order to place controls in the document. You can select the available controls from the Controls group and place wherever you need to populate the data.

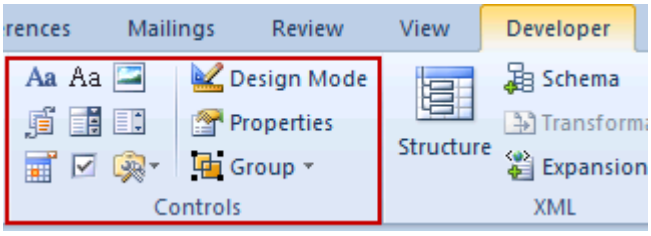
NOTE For populating data in a table, the content control needs to be placed in the first row only. You can view the controls clearly when you turn on the design mode.

The following figure shows a sample of document report with form controls and tables.

Perform the following steps to create and format a Microsoft Word file to be used as the template for your report.

1. Use the **File > Options** dialog to select the **Developer Ribbon** from the **Customize Ribbon** section.
2. Use the **Developer** tab.

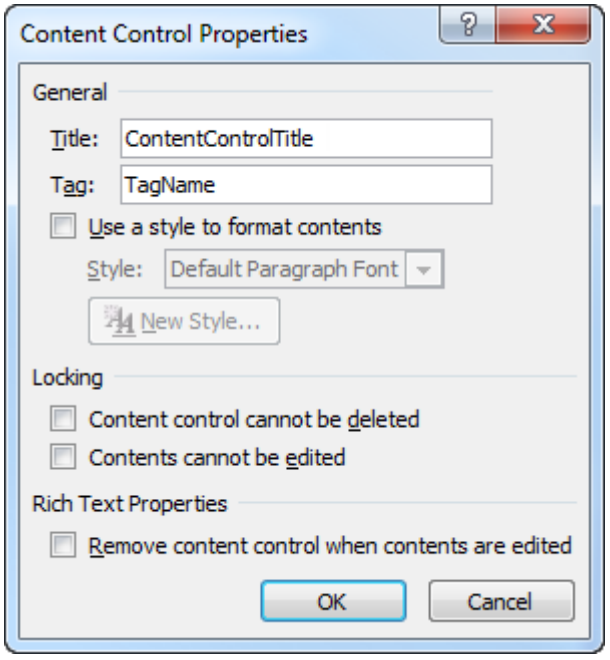
3. Insert a text control in the document at the location that you want to insert some data from the report.



4. Place the control in the Microsoft Word document where ever you want to display data in the report.

   NOTE Switch to Design mode to clearly see where you have placed the text boxes.

5. Set the properties for the content control.



6. In the **Locking** section, you can protect the controls from deleting and editing.

7. If the template consists of tables, the content controls are placed under the row subsequent to the header row.

   NOTE In a table the first column header and the subsequent headers are designed in a way that they hold a parent-child hierarchy. A column header should follow a logical hierarchy for which the subsequent headers act as child. In other words, the parent attribute or the column header draws a relationship to the child or the subsequent folders. For example, the first column header can be Document Name and the second header derived from Document Name can be a Document Revision and the third header derived from Document Revision is File Names as the headers follow a logical hierarchy.

   Save the Microsoft Word document template.

IMPORTANT If you have added additional parameters in the Document Naming System module, then you need to manually add them to the Microsoft Word template and also to the XML control file.

Map view definitions to the Microsoft Word document

An XML control file is used to link the content controls in the Microsoft Word document to the view definitions in SmartPlant Foundation.

As seen in the following example, the XML file has four basic sections, which are described in the table below.

```
1  <ViewDef Name ="SPFNDocReport"/>

2  <Controls source ="SPFNDocReport.Name" target ="txtName"/>
   <Controls source ="SPFNDocReport.Description" target ="txtDescription"/>
   <Controls source ="SPFNDocReport.Title" target ="txtTitle"/>
   <Controls source ="SPFNDocReport.Revision" target ="txtRevision"/>
    <Controls source ="SPFNDocReport.Document Status" target ="txtDocStatus"/>
   <Controls source ="SPFNDocReport.Project" target ="txtProjectCode"/>
   <Controls source ="SPFNDocReport.Discipline" target ="txtDiscipline"/>
   <Controls source ="SPFNDocReport.Unit" target ="txtUnit"/>
 <Controls source ="SPFNDocReport.Attr 1" target ="txtAttr1"/>
 <Controls source ="SPFNDocReport.Attr 2" target ="txtAttr2"/>
 <Controls source ="SPFNDocReport.Attr 3" target ="txtAttr3"/>

3  <Tables>
   <Table ViewDef="SPFNDocReport">
     <Column source ="Master Tag Name" target="txtMasterTagName"/>
     <Column source ="Master Tag Description" target ="MasterTagDescription"/>
     <Column source ="Master Tag Classification" target ="MasterTagClassification"/>
   </Table>

   <Table ViewDef="SPFNDocReport">
     <Column source ="Alias Tag Name" target="txtAliasTagName"/>
     <Column source ="Alias Master Tag Name" target="txtAliasMasterTagName"/>
   </Table>

   <Table ViewDef="SPFNDocReport">
     <Column source ="File Name" target="txtFileName"/>
     <Column source ="File Description" target="txtFileDescription"/>
   </Table>

   </Tables>
</ControlMapping>
```

1 The **<ViewDef>** nodes allow you to list all the view definitions that can provide data to the report. For each of these nodes, you will provide the name of one view definition using the syntax in this example, ViewDef Name = "ExternalXmtlReportViewDef".

NOTE You can configure one or more view definitions.

2 Each **<Controls>** node represents one content control in the Microsoft Word document, not displayed in a table, and links it to a specific view definitions using the following syntax: <Controls source="ViewDefinitionName.ViewDefinitionPropertyName" target="TagName"/> where TagName is the Tag property of the control in the Microsoft Word template file.

3 If the Microsoft Word document includes data to be displayed inside a table, use the <Tables> node to group all table information together inside specific <Table> nodes for each table in the template.

NOTE The <ViewDef> attribute value can be configured to populate the control in a table of the Microsoft Word file with the view definition and the <source> attribute with names of both properties.

IMPORTANT If you have added additional parameters in the Document Naming System module, then you need to manually add them to the Microsoft Word template and also to the XML control file.

Store the Microsoft Word template in SmartPlant Fusion

Before the new report template can be used, you must create a new template document in SmartPlant Foundation to manage both the Microsoft Word document and the XML control file.

IMPORTANT Fusion Administrator can only create a template document.

Create a template document using the Report Templates classification under Document Types and attach both the word template file and the xml control file to the new document.

IMPORTANT To edit the new report template, you must check out the template, modify it, and then check the template back into SmartPlant Fusion.

Attach the Word document and the XML control file, and click **Finish**. The new template document is displayed in the Desktop Client **New Items** window.

View an Open XML report in the Desktop Client

The **Generate Report** command allows you to view the appropriate report for the selected objects. There are three types of reports.

- A document report displays the following:
  - Document properties
  - Master tags and alias tags, extracted from the document
  - A list of files attached to the latest version and that have the viewable property set to True
- A laser scan document report includes the following:
  - Document properties
  - Master tags, extracted from the document
  - A list of files attached to the latest version and that have the viewable property set to True
- A tag document report includes the following:

- Tag properties
- A list of the documents related to the tag
- A list of the laser scans related to the tag
- A list of alias tags related to the master tag

NOTE A tag document report can be generated from a master tag but not from an alias tag.

Generate a document report

1. Click **Find > Fusion Items > Fusion Documents**.
2. In the **Find** dialog box, type the name or some part of the name of the document you want to find. You can use wildcards.
3. Click **OK** to find objects with the criteria you specified.
4. Right-click a document, and click **Generate Report** on the shortcut menu.
5. In the **File Download** dialog box, click **Open** to view the report in Microsoft Word.

   TIPS

   - You can click **Save** to save the document report in the file system.
   - You can generate a laser scan document report from a laser scan document object or a tag document report from a master tag object.

View a report

1. Right-click a document that already has a document report attached to it.
2. Click **View Report** on the shortcut menu to open the report in Microsoft Word.

Show a report

1. Right-click a document that already has a document report attached to it.
2. Click **Show Report** on the shortcut menu to display the results of the report in the list view.

Save a report in the Desktop Client

1. Right-click the document version for which you want to save a local copy of the attached files, and click **Files > Save Target As**.

   TIPS

   - From the list, select each file that you want to copy.
   - If a file references other files, the **Save Target As** command also copies all its referenced files to your computer.
2. Specify where you want the software to place the local copy of the file in the **Path** box.
3. Click **OK**.

Viewing Business Intelligence reports

The SmartPlant Business Intelligence is delivered and installed with SmartPlant Foundation Desktop Client version 2014, and higher, and provides a convenient way to easily produce summary statistical information from your database. SmartPlant Foundation data warehouse information can be displayed as graphical chart reports, which you can drill down for further details. The SmartPlant Business Intelligence is powered by the same viewing technology as the existing SmartPlant Foundation Desktop Client ad hoc reports.

Open the Business Intelligence module

Click the **Business Intelligence** panel in SmartPlant Dashboard to start SmartPlant Business Intelligence.

NOTES

- You can select tool commands from the main toolbar to perform various actions, such as creating a new chart report or editing existing chart reports.
- More than one chart report can be displayed in the graphics results pane. You can alternate between reports by clicking on each tab.
- You can view, resize, print, and export the chart report in the graphics results pane, as well as drill down to see more detailed information on the properties displayed in the chart report.
- Click **Minimize** to reduce the **Reports** pane to a side tab. This lets the displayed chart report result fill the application window. Click the tab to expand the reports pane into the main application window.

For more information about the Business Intelligence module, see *SmartPlant Foundation Business Intelligence User's Guide*.

Chart reports

You can configure chart reports using the Business Intelligence module to view the information available in the SmartPlant Fusion database. After the installation of SmartPlant Fusion, you can view two SmartPlant Fusion specific chart reports in the Business Intelligence module.

- **Document Status Report** - This chart report displays all the document statuses as categories and the number of documents against each category is represented by discrete value.
- **Reader and Document Status Report** - This chart report displays all the SmartPlant Fusion readers as categories and the number of documents processed by each reader grouped by document statuses.
- **Document Report By Discipline** - This chart report displays all the disciplines as categories and the number of documents against each category is represented by discrete value.
- **Document Report By Document Type** - This chart report displays all the document types as categories and the number of documents against each category is represented by discrete value.
- **Document Report By Project** - This chart report displays all the projects as categories and the number of documents against each category is represented by discrete value.
- **Document Report By Unit** - This chart report displays all the units as categories and the number of documents against each category is represented by discrete value.

Document Status Report

This report allows you to categorize documents depending on their statuses for a given period of time.

You can define criteria for the following properties:

- **Name** - Represents the name of the document.
- **Last Updated Date** - Indicates the date on which the document was last updated.

Reader and Document Status Report

This report allows you to categorize documents depending on the SmartPlant Fusion reader that has been used for processing the documents. This report also groups the documents with the same document status for each reader type.

You can define criteria for the following properties:

- **Name** - Represents the name of the document.
- **Last Updated Date** - Indicates the date on which the document was last updated.

Document Report By Discipline

This report allows you to categorize documents depending on their relationship with disciplines.

Document Report By Document Type

This report allows you to categorize documents depending on their relationship with document types.

Document Report By Project

This report allows you to categorize documents depending on their relationship with projects.

Document Report By Unit

This report allows you to categorize documents depending on their relationship with units.

NOTE For more information on creating and editing chart reports, see *SmartPlant Foundation Business Intelligence User's Guide*.

Viewing Ad-hoc reports in the Desktop Client

Ad-hoc reports provide a fast way to view plant information. The format, or layout, of a report is fully configurable. You can save these layout definitions as custom reports that you can reuse.

As part of creating and running a report, you select an existing report template. The items displayed are based on the report template that you selected. The report template, which is defined by an administrator in SmartPlant Foundation Desktop Client, includes a view definition and a Microsoft Excel file. The view definition determines what objects, relationships, and properties are to be included in the report. The Microsoft Excel file specifies the layout of the report. For more information about creating report definitions, see the *How to Configure Reports* guide.

For more information about creating ad-hoc reports, see *Ad-hoc Reports* in the *SmartPlant Foundation Desktop Client User's Guide*.

Fusion Document Status Report - This report provides the document details of the documents available in the SmartPlant Fusion database that match the criteria provided during the report generation.

Fusion Document Discovery Task Report - This report provides the details of all the document discovery tasks with their details that are available in the SmartPlant Fusion database, that match the criteria provided during the report generation.

Fusion Content Discovery Task Report - This report provides the details of all the content discovery tasks with their details that are available in the SmartPlant Fusion database, that match the criteria provided during the report generation.

Fusion Document Quality Control Report - This report provides the details of missing document attributes, missing document relationships, and on document attribute and document relationship mismatch.

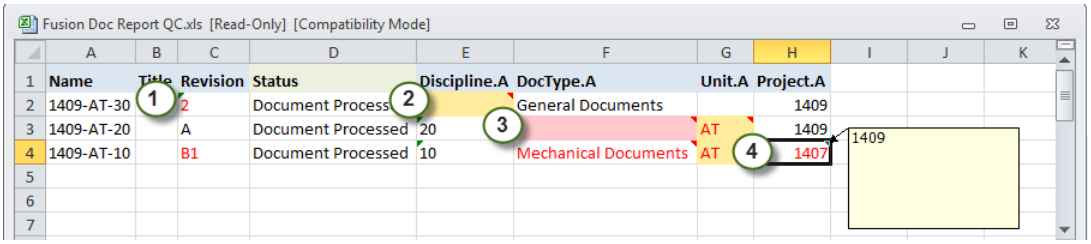
NOTES

- The document status report output is an Excel file which gets exported as Fusion Document Status Report.xlsx.
- The records within the report are by default sorted by the document names listed in it.
- If you have added additional parameters in the Document Naming System module, use the **Edit Report Definition** command to add them in the reports. For more information about editing report definitions, see *Ad-hoc Reports* in the *SmartPlant Foundation Desktop Client User's Guide*.

Understanding the Fusion Document Quality Control report

The Fusion Document Quality Control report displays a list of processed documents. It provides a detailed report on the processed documents that have missing document attributes, missing relationships with the corresponding objects in the database, and also document attribute and document relationship mismatch.

The following graphic shows the Fusion Document Quality Control report generated for three processed documents.



1. Red text without a comment represents that a document attribute exists but corresponding database object does not exist in the SmartPlant Fusion database.
2. Cell highlighted with yellow represents that either the document attribute or the document relationship is missing.
3. Cell highlighted with pink represents a mandatory relationship without attribute value.
4. Red text with a comment represents that there is a mismatch between the document attribute and document relationship. The database object to which the document is related is displayed as a comment in that cell.

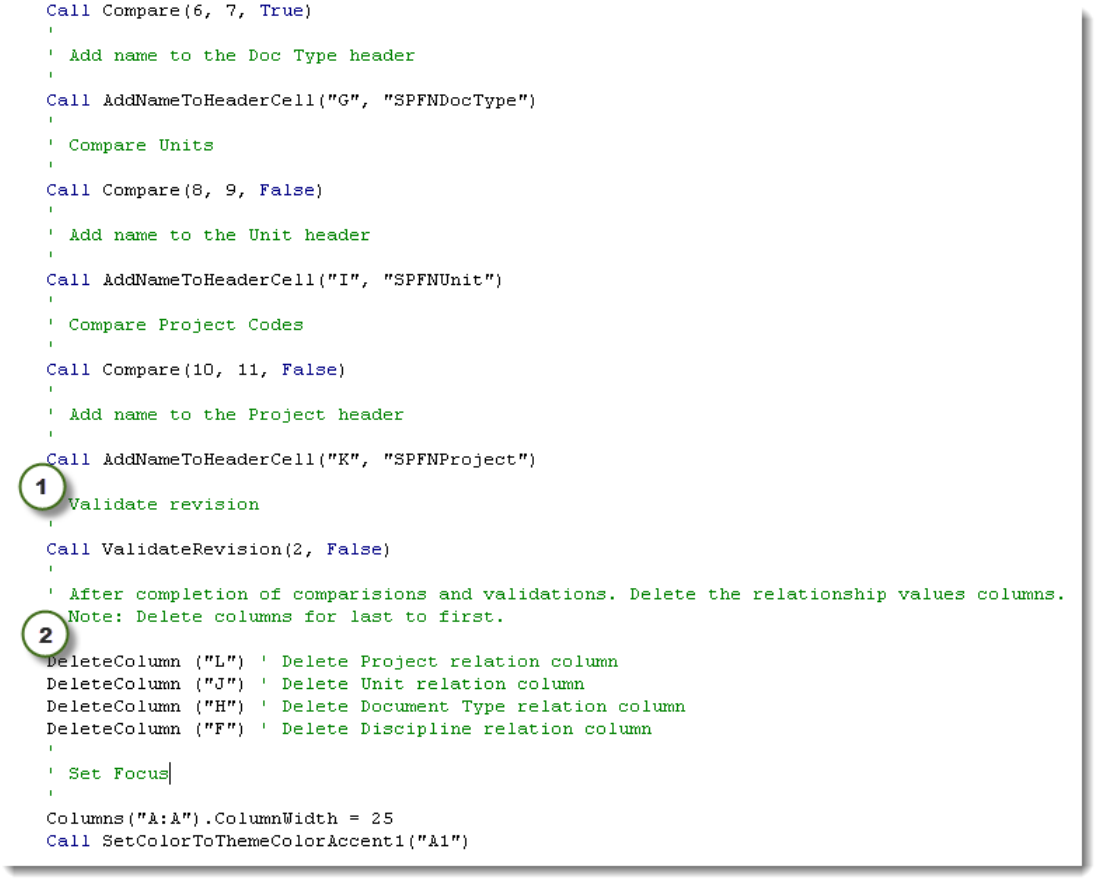
NOTE You can configure the SPFNDocReportQC view definition to view additional attributes of each document in this report. For more information about defining view definitions in the SmartPlant schema, see *Working with View Definitions* and *Create a View Definition* in the *Schema Editor User's Guide*.

Working with the Fusion Document Quality Control report

You need to update the macro for the Fusion Document Report QC to run the report with additional document attributes.

1. Click **Find > Template Documents**.
2. Type ***Fusion Doc Report QC Template*** in the search box, and click **OK**.
3. Right-click the template document.
4. On the shortcut menu, click **Edit > Check Out** to check out the excel template file.
5. Open the template file and press **ALT+F11** to open the macro editor. Alternatively, you can click **View > Macros**, then select **ReformatData** and click **Edit**.
6. In the **Project - VBAProject** window, expand the **Modules** node.
7. Double-click on **Module1** node. Let us consider adding a document attribute "Folder" as a document attribute "SPFNDocParameter1" and update the macro to generate the report with it.

The image below illustrates the macro file.



```
Call Compare(6, 7, True)
'
' Add name to the Doc Type header
'
Call AddNameToHeaderCell("G", "SPFNDocType")
'
' Compare Units
'
Call Compare(8, 9, False)
'
' Add name to the Unit header
'
Call AddNameToHeaderCell("I", "SPFNUnit")
'
' Compare Project Codes
'
Call Compare(10, 11, False)
'
' Add name to the Project header
'
Call AddNameToHeaderCell("K", "SPFNProject")
'
' Validate revision
'
Call ValidateRevision(2, False)
'
' After completion of comparisions and validations. Delete the relationship values columns.
' Note: Delete columns for last to first.
'
DeleteColumn ("L") ' Delete Project relation column
DeleteColumn ("J") ' Delete Unit relation column
DeleteColumn ("H") ' Delete Document Type relation column
DeleteColumn ("F") ' Delete Discipline relation column
'
' Set Focus
'
Columns("A:A").ColumnWidth = 25
Call SetColorToThemeColorAccent1("A1")
```

1
2

Add the following lines just below this line - `Call AddNameToHeaderCell ("K", "SPFNProject")`

```
' Compare Folder
'
Call Compare(12, 13, True)
'
' Add name to the Folder header
'
Call AddNameToHeaderCell("M", "SPFNDocParameter1")
```

And add the following line above this line: `DeleteColumn ("L") ' Delete Project relation column`

```
DeleteColumn ("N") ' Delete Folder relation column
```

8. Click **File > Save**.
9. Open SmartPlant Foundation.
10. Right-click on the template document.

11. On the shortcut menu, click **Edit > Check In** to check in the excel template file.

Run Ad-hoc report

1. Click **Find > Reports**.
2. Type ***Fusion*** in the search box, and click **OK**.
3. Right-click the report to view.
4. On the shortcut menu, click **Run Report**.
5. Click **Open** or **Save** on the **File Download** dialog box. Depending on the type of report and how the report was configured, the **File Download** dialog box may appear.

NOTE The **Prompt for Values** dialog box allows you to enter criteria for the document name and document status. It is not mandatory to provide filter criteria during the report generation. If you do not provide any filter criteria, then the report will display the document status report for all the documents available in the SmartPlant Fusion database.

Glossary

3D reader

Validates tags, creates and cross-references the tags to the documents, and extracts visual file and tag data from the 3D models.

alias tag

A tag that is named differently, but represents the master tag in the system.

business objects

Complex objects representing more than one class definition.

content discovery task

Extracts content from the master file, creates and relates, relates master and alias tags to the documents, and relates documents to the organizational items.

database domain discovery task

A process that uses a defined database reader pattern to connect to a database and extract documents and tags along with their properties as defined within the pattern.

database reader

Reads data directly from a database. Administrators can define specific tables and fields to be transferred so that they can be used for data comparisons.

database reader pattern

Defines the database tables and properties that need to be extracted and mapped to classes and properties within SmartPlant Fusion.

delimiter

Identifies the end of a tag.

document attribute

A constant which allows additional information to be added to the data created in SmartPlant Fusion.

document discovery

Reads documents (typically office generate files) and using patterns loads them into SmartPlant Fusion.

document discovery pattern

Defines the base directory that needs to be crawled, the file name pattern to extract and the document name pattern that needs to be created. Additionally, document attributes can also be defined.

document discovery task

A process that uses a document discovery pattern to crawl a directory system and load documents and files that match the specified file pattern. After which thumbnails are created and related to the document.

document index

A defined excel list or a defined data object within SmartPlant Fusion that defines metadata about a file. This is referenced when files are loaded into the system and if a match is found the file will be loaded with the properties defined from the document index.

document name pattern

Defines a document name for files with a specific file name pattern comprised of the parts, constants, and documents attributes.

document naming system

Defines the parts of a file name. Additional information can be defined to define constants and relate them to existing objects in the database when data extraction occurs.

domain tag

A representation of the tag, specifically from a discipline within a domain.

drawing reader

Extracts cross-referenced and linked information contained in a drawing file.

duplicate document

A document with multiple files attached but different file types or multiple versions of the same document attached to it.

file index

Specifies the file name, associated name, and attributes for a document before it is processed by the document discovery task.

file name parts

Sections that represent data in a file name.

file name pattern

Consists of one or more file parts with each file part being defined as a document naming system item.

file properties or attributes

Values that are stored on the file object. The data is transferred to the document if the file is selected for data extraction.

hotspotting

Hyperlinks in a document on the area where the tag exists in the file.

image reader

Extracts tag and other related information contained within any image using an Optical Recognition (OCR) engine.

laser scan reader

Captures Leica TruView HDS information created form plant scans.

master file

The file that is used for data and content extraction.

master tags

Extracted tags that follow a set of standard naming conventions in a project or a plant that the engineers should follow for defining tag names.

orphan tags

Tags that are not related to any document or domain tag.

property group

A group of properties.

property list

Allows you to create property group names (interface definition names) and properties (property definitions), which can be related to a business object (class definitions).

regular expression

A pattern that is used for tag matching and defining selected file parts.

separator

Separates file parts and tag parts. Common separators include a dash (-), slash (/), tilde (~), and so forth. For example, the instrument tag LCV-157 uses the separator to separate the tag name (LCV) from the drawing name (157).

tag discovery pattern

Used to extract the master and alias tags from the content of a master file.

tag naming system

Defines the parts of a tag name and relates them to existing objects in the database.

text reader

Captures simple text files and processes the data directly without needing an application to extract the data.

thumbnail

A small size image representation of a larger file intended to make it easier and faster to manage it.

thumbnail rendition

Generates .png images for various file extensions.

title block

The portion of a drawing that contains information about the drawing, such as who created the drawing, when it was created, who approved it, and so on. The type of information included in the title block varies by drawing type, industry, and organization.

transpose

Returns a vertical range of range of cells as a horizontal range, or vice versa.

UoM

A unit of measurement.

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