

# SmartPlant Foundation

# Configuration and Administration II

## *Course Guide Volume 2*

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February 2007

Version 3.8

Process, Power & Marine



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# SmartPlant Foundation Configuration and Administration II *Course Guide*

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# **SmartPlant®** SPF Configuration and *Foundation* Administration II (SPFA2)

## ***Course Outline***

### **Day 1**

#### **1. The SmartPlant Schema Model: An Overview**

- Class Definitions
- Interface Definitions
- Relationships
- Property Definitions
- Shared Object Definitions

# **SmartPlant® Foundation SPF Configuration and Administration II (SPFA2)**

- Smartplant Foundation Structure
  - SPF Databases
  - Schema Load Process
  - Resetting IIS
-  Activity – Loading the Modified Schema's into SPF

## **2. Schema Object Administration**

- Starting Schema Object Administration
- Class Definitions
- Interface Definitions

# **SmartPlant® Foundation SPF Configuration and Administration II (SPFA2)**

- **Property Definitions**
- **Enumerated List Sets**
- **Viewing and Modifying Navigation Objects**
- **Edge Definitions in Schema Object Admin**
- **Graph Definitions in Schema Object Admin**
- **View Definitions in Schema Object Admin**
- **Class View Maps**
- **RelDef Security**
- **Access Control**
- **Configuring SmartPlant Foundation E-mail**
- **Email Digest Setup**
- **Introduction to Vault Replication**

# **SmartPlant® Foundation** SPF Configuration and Administration II (SPFA2)



**Activity – Schema Object Administration**

## **3. SmartPlant Forms**

- Converting to a Form
  - Form Builder Editor
  - Configuring the Engineering Numbering System
  - Additional Form Builder Functions
- Activities – Generating and Modifying Forms**

# **SmartPlant® Foundation** SPF Configuration and Administration II (SPFA2)

## Day 2

### 4. Understanding the Loader Interface

- Load File Formats
- Processing Load Files
- Introduction to SmartPlant Loader Manager
  -  Activity 1 – Loading SPF Users and Groups
  -  Activity 2 – Create Data Load File

# **SmartPlant®** **Foundation** **SPF Configuration and Administration II (SPFA2)**

## **5. Introduction to Methods**

- **Configuring Methods**
- **Setting Method Security**
- **Attaching Methods**
- **Configuring New Menu Items**
- **Adding Menu Item Security**
  -  **Activity 1 – Configuring Methods**
  -  **Activity 2 – Configuring Menu Items**

# **SmartPlant® Foundation** SPF Configuration and Administration II (SPFA2)

## Day 3

- Additional Model Components
- Context Sensative Menus
- Creating Toolbar and Menu Methods
- Creating New Toolbar Item
- Adding Toolbar Security
- Defining Custom Icons
- Testing Toolbars and Menus
- Units of Measurement
- UOM Sets

# **SmartPlant®** **SPF Configuration and** **Foundation** **Administration II (SPFA2)**

- Revision Schemes
  - Activity 3 - Configuring Toolbars and Menus

## **6. SmartPlant Change Manager (Workflow)**

(with an interactive activity during the chapter)

- User Groups and Change Management
- Creating Workflows
- Viewing Workflows
- Attaching Workflows
- Other Workflow Functions
- Maintain Calendar Work Week

# **SmartPlant® Foundation SPF Configuration and Administration II (SPFA2)**

- **Maintain Calendar Work Week**
- **Options**
- **Using Workflows**
- **Setting the Active Scope**
- **Submitting a Document to the Workflow**
- **Viewing a Workflow**
- **Workflow Signoffs**
- **Workflow History**

# **SmartPlant®** **SPF Configuration and** ***Foundation*** **Administration II (SPFA2)**

## **7. Introduction to Transmittals**

- **Transmittal Project Roles**
  - **Transmittal Structure**
  - **Transmittal Administrative Setup**
  - **Transmittal Users and User Groups**
  - **Modifying Transmittal Workflows**
  - **Distribution Matrix Overview**
  - **Creating a New Reason for Issue**
-  **Activity 1 – Transmittal Administrative Setup**

# **SmartPlant® Foundation SPF Configuration and Administration II (SPFA2)**

- Creating an Internal Transmittal
  - Creating a Transmittal Section
  - Expanding the Transmittal Structure
  - Creating an External Transmittal
  - Saving a Transmittal Template
  - Create a Transmittal for a Selected Set of Documents
  - Creating a Transmittal from a Template
-  Activity 2 – Creating Transmittals

# **SmartPlant®** **SPF Configuration and** **Foundation** **Administration II (SPFA2)**

## **Day 4**

### **8. Using and Managing Transmittals**

- Searching for Transmittals
- Processing a Transmittal
- Preparing a Transmittal
- Approve Transmittal
- Issuing a Transmittal and Recipient Response
- Completing a Transmittal
- Exporting a Transmittal Structure
- Transmittal Manipulations
- Activity – Using and Managing Transmittals

# **SmartPlant® Foundation SPF Configuration and Administration II (SPFA2)**

## **9. Adhoc Reporting**

- **Creating a Report Graph Definition**
  - **Creating a Report View Definition**
  - **Custom Line List Adhoc Report Contents**
  - **Creating a Graph Definition for the Line List Report**
  - **Creating a View Definition for the Line List Report**
  - **Adding View Definition Security**
  - **Generating a Report**
  - **Additional Adhoc Report Options**
  - **Generating a Line List Adhoc Report**
-  **Activity – Creating and Running Reports**

# **SmartPlant® Foundation SPF Configuration and Administration II (SPFA2)**

## **10. Creating Custom Enum Trees and Plant Hierarchies**

- Modeling the Custom Enum List Tree
  - Configuring the EnumListType Tree Structure in SPF
  - Testing the Custom Enum Tree
  - Creating a Custom Plant Hierarchy in the Schema Editor
  - Configuring the PBS Hierarchy in SPF
  - Testing the Custom PBS Hierarchy
-  Activity – Creating Custom Enum Trees and Plant Hierarchies

# **SmartPlant®** **Foundation** **SPF Configuration and Administration II (SPFA2)**

## **11. Introduction to the SPF Upgrade Wizard**

- Upgrade wizard control file
- Upgrade Wizard
- Appendix Log File

## **12. Creating and Using Datasheets**

- Working with Datasheets in the Schema Object Model
- Creating Document Templates
- Editing a Document Template
- Mapping a String Property Value

# **SmartPlant® Foundation** SPF Configuration and Administration II (SPFA2)

- Creating a Report Definition
- Adding a Report Definition to the Interface Definition
- Adding a Method to the Interface Definition
- Testing Datasheet Functionality
- Using Datasheets Offline

# **SmartPlant® Foundation** SPF Configuration and Administration II (SPFA2)

## Day 5

### **13. Introduction to the SmartPlant Adapter for Microsoft Excel**

- Install and Configure Prerequisites
- SmartPlant Adapter for Microsoft Excel Delivered Components
- Review the Menus and Methods
- Review the delivered SmartPlant Adapter for Microsoft Excel Tool Metadata
- Configure the SmartPlant Adapter for Microsoft Excel Owning Group

# **SmartPlant® Foundation SPF Configuration and Administration II (SPFA2)**

- Configure the SmartPlant SmartPlant Adapter for Microsoft Excel Samples
- Update the Plant, Area, and Unit in the sample Excel file
  - Lab 1
  - Create the Excel EquipmentList Document Type
  - Update the ExcelEquipmentList Class Definition
  - Creating/Updating the Component Schema
  - Update the ExcelEquipment class definition
  - Creating/Updating the Tool Schema (Map) File

# **SmartPlant® Foundation SPF Configuration and Administration II (SPFA2)**

- Create and Map the Equipment Types Enumerated List
- Create and Map the Steam Out Req Enumerated List
- Create and Map the psi Unit of Measure
- Create and Map the F Unit of Measure
- Create the Equipment MapClassDef
- Map the Equipment MapClassDef
- Create the Plant MapClassDef
- Create the Unit MapClassDef
- Create the Plant to Equipment MapRelDef
- Create the Equipment to Unit MapRelDef

# **SmartPlant® Foundation SPF Configuration and Administration II (SPFA2)**

- View the Completed Mappings
- Load the SmartPlant Schema additions into SmartPlant Foundation
- Creating/Validate the Document Template
- Publishing the Excel File
- Grant view access to the published relationships
- Create the edge/graph/view definitions
- Configure the view definition as the default view
- Create the menu and method to find the Excel Equipment Lists
- View the published file and data

# **SmartPlant®** *Foundation* **SPF Configuration and Administration II (SPFA2)**

- Updating the SmartPlant P&ID Tool Metadata
- Retrieving the Excel File into SmartPlant P&ID

## **Wrap up and Dismissal**



# SPF Configuration and Administration II (SPFA2)

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# Table of Contents



<b>1. The SmartPlant Schema Model: An Overview</b>	<b>1-3</b>
<b>1.1 Class Definitions</b>	<b>1-4</b>
<b>1.2 Interface Definitions</b>	<b>1-5</b>
<b>1.3 Relationships</b>	<b>1-7</b>
1.3.1 Componentization Relationship	1-9
1.3.2 Realizes Relationship	1-10
1.3.3 Implies Relationship	1-11
<b>1.4 Property Definitions</b>	<b>1-12</b>
1.4.1 Exposes Relationship	1-14
1.4.2 ScopedBy Relationship	1-15
1.4.3 Contains Relationship	1-16
<b>1.5 Shared Object Definitions</b>	<b>1-17</b>
<b>1.6 SPF Databases</b>	<b>1-18</b>
<b>1.7 SmartPlant Foundation Structure</b>	<b>1-19</b>
<b>1.8 Schema Load Process</b>	<b>1-20</b>
<b>1.9 Resetting IIS</b>	<b>1-27</b>
<b>1.10 Activity – Loading the Modified Schema's into SPF</b>	<b>1-31</b>
<b>2. Schema Object Administration</b>	<b>2-3</b>
<b>2.1 Starting Schema Object Administration</b>	<b>2-5</b>
<b>2.2 Class Definitions</b>	<b>2-7</b>
2.2.1 Viewing a Class Definition	2-8
2.2.2 Update a Class Definition	2-11
2.2.3 Delete a Class Definition	2-14
<b>2.3 Interface Definitions</b>	<b>2-16</b>
2.3.1 Viewing an Interface Definition	2-17
2.3.2 Update an Interface Definition	2-19
2.3.3 Delete an Interface Definition	2-20
<b>2.4 Property Definitions</b>	<b>2-22</b>
2.4.1 Viewing a Property Definition	2-23
2.4.2 Update a Property Definition	2-27
2.4.3 Delete a Property Definition	2-29
<b>2.5 Enumerated List Sets</b>	<b>2-31</b>
2.5.1 Viewing Enumerated Sets	2-32
2.5.2 Update an Enumerated Set	2-36
2.5.3 Delete an Enumerated Set	2-38
2.5.4 Viewing Enumerated Level Sets	2-40
<b>2.6 Viewing and Modifying Navigation Objects</b>	<b>2-43</b>
2.6.1 Edge Definitions in Schema Object Administration	2-44
2.6.2 Viewing Edge Definitions	2-45
2.6.3 Creating Edge Definitions	2-48
2.6.4 Setting Edge Definition Security	2-53
2.6.5 EdgeDefs with Conditions	2-56

2.6.6 Graph Definitions in Schema Object Administration _____	2-59
2.6.7 Creating Graph Definitions _____	2-63
2.6.8 View Definitions in Schema Object Administration _____	2-67
2.6.9 Creating View Definitions _____	2-68
<b>2.7 Class View Maps _____</b>	<b>2-74</b>
2.7.1 Creating Class View Maps _____	2-75
2.7.2 Setting Class View Map Security _____	2-79
<b>2.8 RelDef Security _____</b>	<b>2-81</b>
<b>2.9 Access Control _____</b>	<b>2-88</b>
<b>2.10 Configuring SmartPlant Foundation E-mail _____</b>	<b>2-99</b>
2.10.1 Testing the E-mail Configuration _____	2-101
<b>2.11 Email Digest _____</b>	<b>2-105</b>
2.11.1 Email Digest Setup _____	2-107
<b>2.12 Introduction to Vault Replication _____</b>	<b>2-109</b>
2.12.1 Setting up a standalone File Server _____	2-110
2.12.2 Setting up Vaults for Replication _____	2-112
2.12.3 Setting up Users for Replication _____	2-113
2.12.4 File Replication Mechanisms _____	2-115
2.12.5 Using Robocopy for SPF Replication _____	2-116
2.12.6 Constant Synchronization _____	2-118
2.12.7 Periodic Synchronization _____	2-119
2.12.8 Recovery options _____	2-120
2.12.9 Installation as a Service _____	2-120
<b>2.13 Activity – Schema Object Administration _____</b>	<b>2-121</b>
 <b>3. SmartPlant Forms _____</b>	<b>3-3</b>
<b>3.1 Converting to a Form _____</b>	<b>3-3</b>
<b>3.2 Form Builder Editor _____</b>	<b>3-6</b>
3.2.1 Form Editing _____	3-7
3.2.2 Modifying Data Form Sections _____	3-10
3.2.3 Modifying Display Items _____	3-15
3.2.4 Display Item to a Form Relationships _____	3-29
<b>3.3 Configuring the Engineering Numbering System _____</b>	<b>3-32</b>
<b>3.4 Additional Form Builder Functions _____</b>	<b>3-43</b>
<b>3.5 Activity – Generating and Modifying Forms _____</b>	<b>3-45</b>
 <b>4. Understanding the Loader Interface _____</b>	<b>4-3</b>
<b>4.1 Load File Formats _____</b>	<b>4-6</b>
4.1.1 Object Types _____	4-8
4.1.2 Field Types _____	4-12
4.1.3 Relationship Data _____	4-13
4.1.4 Attach a File _____	4-15

<b>4.2 Processing Load Files</b>	<b>4-17</b>
<b>4.3 Introduction to SmartPlant Loader</b>	<b>4-24</b>
4.3.1 Starting the SmartPlant Loader	4-26
4.3.2 Creating SmartPlant Database Connections	4-27
4.3.3 The SmartPlant Loader Queue	4-31
4.3.4 Testing Database Connections and Options	4-32
4.3.5 SmartPlant Loader Log	4-35
4.3.6 SmartPlant Loader Properties	4-37
<b>4.4 Activity 1 – Loading SPF Users and Groups</b>	<b>4-39</b>
<b>4.7 Activity 2 – Create Data Load File</b>	<b>4-41</b>

<b>5. <i>Introduction to Methods</i></b>	<b>5-3</b>
<b>5.1 Configuring Methods</b>	<b>5-9</b>
5.1.1 Setting Method Security	5-20
<b>5.2 Attaching Methods</b>	<b>5-23</b>
<b>5.3 Configuring New Menu Items</b>	<b>5-28</b>
5.3.1 Adding Menu Item Security	5-33
<b>5.4 Activity 1 – Configuring Methods</b>	<b>5-37</b>
<b>5.5 Activity 2 – Configuring Menu Items</b>	<b>5-41</b>
<b>5.6 Additional Model Components</b>	<b>5-43</b>
<b>5.7 Context Sensitive Menus</b>	<b>5-44</b>
<b>5.8 Configuring Toolbar and Menu Methods</b>	<b>5-46</b>
5.8.1 Creating New Toolbar Item	5-51
5.8.2 Adding Toolbar Security	5-54
5.8.3 Defining Custom Icons	5-56
<b>5.9 Testing Toolbars</b>	<b>5-60</b>
<b>5.10 Testing Menus</b>	<b>5-62</b>
<b>5.11 Units of Measurement</b>	<b>5-64</b>
5.11.1 UOM Sets	5-66
<b>5.12 Revision Schemes</b>	<b>5-68</b>
<b>5.13 Activity 3 – Configuring Toolbars and Menus</b>	<b>5-71</b>

<b>6. <i>Introduction to SPF Change Management Administration</i></b>	<b>6-3</b>
<b>6.1 User Groups and Change Management</b>	<b>6-4</b>
<b>6.2 Creating Workflows</b>	<b>6-7</b>
6.2.1 Step Types	6-9
6.2.2 Update a Step Type	6-11
6.2.3 Step Classes	6-13
6.2.4 Create a Step Class	6-16
6.2.5 Steps	6-18

---

6.2.6 Create a Step _____	6-21
6.2.7 Using Reasons for Receipt_____	6-23
6.2.8 Create a Reason For Receipt _____	6-25
6.2.9 Workflow Check Lists_____	6-28
6.2.10 Workflow Statuses_____	6-31
6.2.11 Building a Workflow _____	6-33
<b>6.3 Viewing Workflows _____</b>	<b>6-49</b>
<b>6.4 Attaching Workflows _____</b>	<b>6-52</b>
<b>6.5 Other Workflow Functions_____</b>	<b>6-57</b>
6.5.1 Maintain Calendar Work Week _____	6-58
6.5.2 Options _____	6-60
<b>6.6 Using Workflows _____</b>	<b>6-65</b>
6.6.1 Setting the Active Scope _____	6-66
6.6.2 Submitting a Document to the Workflow _____	6-68
6.6.3 Attaching a Workflow _____	6-73
6.6.4 Viewing a Workflow _____	6-76
6.6.5 Workflow Signoffs _____	6-80
<b>6.7 Workflow History _____</b>	<b>6-98</b>
<b>7. SPF Transmittal Overview _____</b>	<b>7-3</b>
<b>7.1 Transmittal Project Roles _____</b>	<b>7-7</b>
<b>7.2 Transmittal Structure _____</b>	<b>7-9</b>
<b>7.3 Transmittal Administrative Setup _____</b>	<b>7-11</b>
7.3.1 Creating a Department / Office _____	7-12
7.3.2 External Organizations _____	7-15
7.3.3 Creating a Supplier _____	7-18
7.3.4 Creating a Contract _____	7-21
7.3.5 Transmittal Users and User Groups _____	7-24
<b>7.4 Modifying Transmittal Workflows _____</b>	<b>7-29</b>
<b>7.5 Distribution Matrix Overview _____</b>	<b>7-38</b>
7.5.1 Creating an Internal Transmittal Matrix _____	7-40
7.5.2 Creating an External Transmittal Matrix _____	7-47
<b>7.6 Creating a New Reason For Issue _____</b>	<b>7-53</b>
<b>7.7 Activity 1 – Transmittal Administrative Setup _____</b>	<b>7-57</b>
<b>7.8 Creating an Internal Transmittal _____</b>	<b>7-67</b>
7.8.1 Creating a Transmittal Section _____	7-73
7.8.2 Expanding the Transmittal Structure _____	7-76
<b>7.9 Creating an External Transmittal _____</b>	<b>7-78</b>
<b>7.10 Saving a Transmittal Template _____</b>	<b>7-80</b>
<b>7.11 Create a Transmittal for a Selected Set of Documents _____</b>	<b>7-82</b>
<b>7.12 Creating a Transmittal from a Template _____</b>	<b>7-85</b>
<b>7.13 Activity 2 – Creating Transmittals _____</b>	<b>7-87</b>

<b>8. Using and Managing Transmittals</b>	<b>8-3</b>
<b>8.1 Searching for Transmittals</b>	<b>8-7</b>
<b>8.2 Processing a Transmittal</b>	<b>8-13</b>
8.2.1 Preparing a Transmittal	8-16
8.2.2 Approve Transmittal	8-25
8.2.3 Issuing a Transmittal and Recipient Response	8-33
<b>8.3 Completing a Transmittal</b>	<b>8-41</b>
<b>8.4 Exporting a Transmittal Structure</b>	<b>8-50</b>
<b>8.5 Transmittal Manipulations</b>	<b>8-57</b>
8.5.1 Updating Transmittals	8-57
8.5.2 Canceling a Transmittal	8-59
8.5.3 Terminating Transmittals	8-61
8.5.4 Terminating Transmittal Sections	8-63
<b>8.6 Activity – Using and Managing Transmittals</b>	<b>8-65</b>
 <b>9. Adhoc Reporting</b>	<b>9-3</b>
<b>9.1 Creating a Report Graph Definition</b>	<b>9-5</b>
<b>9.2 Creating a Report View Definition</b>	<b>9-12</b>
<b>9.3 Custom Line List Adhoc Report Contents</b>	<b>9-18</b>
9.3.1 Creating a Graph Definition for the Line List Report	9-22
9.3.2 Creating a View Definition for the Line List Report	9-27
<b>9.4 Loading Report Navigation Objects</b>	<b>9-35</b>
<b>9.5 Adding View Definition Security</b>	<b>9-37</b>
<b>9.6 Generating a Report</b>	<b>9-41</b>
9.6.1 Additional Adhoc Report Options	9-52
<b>9.7 Generating a Line List Adhoc Report</b>	<b>9-59</b>
<b>9.8 Activity – Creating and Running Adhoc Reports</b>	<b>9-65</b>
 <b>10. Creating Custom Enum Trees and Plant Hierarchies</b>	<b>10-3</b>
<b>10.1 Creating a Custom Enum List Tree Structure</b>	<b>10-4</b>
10.1.1 Modeling the Custom Enum List Tree	10-5
10.1.2 Configuring the EnumListType Tree Structure in SPF	10-24
10.1.3 Testing the Custom Enum Tree	10-48
<b>10.2 Creating a Custom Plant Hierarchy</b>	<b>10-52</b>
10.2.1 Creating the Custom Hierarchy in the Schema Editor	10-53
10.2.2 Configuring the PBS Hierarchy in SPF	10-68
10.2.3 Testing the Custom PBS Hierarchy	10-74
<b>10.3 Activity – Creating a Custom Enum Tree</b>	<b>10-79</b>

<b>11. Introduction to the SPF Upgrade Wizard</b>	<b>11-3</b>
<b>11.1 Upgrade wizard control file</b>	<b>11-5</b>
<b>11.2 Upgrade Wizard</b>	<b>11-7</b>
11.2.1 Welcome screen	11-8
11.2.2 Information for SPF Loader	11-15
11.2.3 Final Review	11-17
11.2.4 Completed and Upgrade Status	11-21
<b>11.3 Appendix Log File</b>	<b>11-22</b>
<b>12. Introduction to Datasheets</b>	<b>12-3</b>
<b>12.1 Objectives</b>	<b>12-4</b>
<b>12.2 Working with Datasheets in the Schema Object Model</b>	<b>12-5</b>
12.2.1 The SmartPlant Schema	12-7
12.2.2 Starting the Schema Editor	12-8
12.2.3 Editing an Open Schema File	12-14
12.2.4 Schema File Tree View	12-15
<b>12.3 Creating Document Templates</b>	<b>12-18</b>
<b>12.4 Editing a Document Template</b>	<b>12-28</b>
12.4.1 The Editor Window	12-29
12.4.2 Mapping the String Property Value	12-31
<b>12.5 Create a Report Definition</b>	<b>12-35</b>
12.5.1 Adding a Report Definition to the Interface Definition	12-41
12.5.2 Adding a Method to the Interface Definition	12-48
<b>12.6 Testing Datasheet Functionality</b>	<b>12-52</b>
12.6.1 Using Datasheets Offline	12-61
<b>12.7 Activity – Creating and Using Datasheets</b>	<b>12-69</b>
<b>13. Introduction to the SmartPlant Adapter for Microsoft Excel</b>	<b>13-3</b>
<b>13.1 Install and Configure Prerequisites</b>	<b>13-3</b>
<b>13.2 SmartPlant Adapter for Microsoft Excel Delivered Components</b>	<b>13-4</b>
<b>13.3 Review the Menus and Methods</b>	<b>13-5</b>
<b>13.4 Review the delivered SmartPlant Adapter for Microsoft Excel Tool Metadata</b>	<b>13-8</b>
<b>13.5 To Review the delivered SmartPlant Foundation Workflow</b>	<b>13-12</b>
13.5.1 What is the Work Process for Publishing an Excel file?	13-14
13.5.2 Configure the SmartPlant Adapter for Microsoft Excel Owning Group	13-17
<b>13.6 Configure the SmartPlant SmartPlant Adapter for Microsoft Excel Samples</b>	<b>13-19</b>
13.6.1 Update the Plant, Area, and Unit in the sample Excel file	13-19
<b>13.7 Lab 1</b>	<b>13-22</b>
<b>13.8 Create the Excel EquipmentList Document Type</b>	<b>13-22</b>

<b>13.9 Update the ExcelEquipmentList Class Definition</b>	<b>13-37</b>
13.9.1 Creating/Updating the Component Schema	13-39
<b>13.10 Update the ExcelEquipment class definition</b>	<b>13-46</b>
13.10.1 Creating/Updating the Tool Schema (Map) File	13-48
<b>13.11 Create and Map the Equipment Types Enumerated List</b>	<b>13-49</b>
<b>13.12 Create and Map the Steam Out Req Enumerated List</b>	<b>13-58</b>
<b>13.13 Create and Map the psi Unit of Measure</b>	<b>13-64</b>
<b>13.14 Create and Map the F Unit of Measure</b>	<b>13-67</b>
<b>13.15 Create the Equipment MapClassDef</b>	<b>13-69</b>
<b>13.16 Map the Equipment MapClassDef</b>	<b>13-75</b>
<b>13.17 Create the Plant MapClassDef</b>	<b>13-79</b>
<b>13.18 Create the Unit MapClassDef</b>	<b>13-81</b>
<b>13.19 Create the Plant to Equipment MapRelDef</b>	<b>13-82</b>
<b>13.20 Create the Equipment to Unit MapRelDef</b>	<b>13-86</b>
<b>13.21 View the Completed Mappings</b>	<b>13-87</b>
<b>13.22 Load the SmartPlant Schema additions into SmartPlant Foundation</b>	<b>13-93</b>
<b>13.23 Configuring SmartPlant Foundation User Access</b>	<b>13-95</b>
<b>13.24 Creating the Document Template</b>	<b>13-96</b>
<b>13.25 Validate the Document Template</b>	<b>13-108</b>
<b>13.26 Publishing the Excel File</b>	<b>13-113</b>
<b>13.27 Grant view access to the published relationships</b>	<b>13-116</b>
<b>13.28 Create the edge definitions</b>	<b>13-117</b>
<b>13.29 Create the ExcelEquipment graph definition</b>	<b>13-121</b>
<b>13.30 Create the ExcelEquipment view definition</b>	<b>13-122</b>
<b>13.31 Configure the view definition as the default view</b>	<b>13-128</b>
<b>13.32 Create the menu and method to find the Excel Equipment Lists</b>	<b>13-130</b>
<b>13.33 View the published file and data</b>	<b>13-132</b>
<b>13.34 Updating the SmartPlant P&amp;ID Tool Metadata</b>	<b>13-135</b>
13.34.1 Retrieving the Excel File into SmartPlant P&ID	13-138



# 8

C H A P T E R

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## Using and Managing Transmittals



## 8. Using and Managing Transmittals

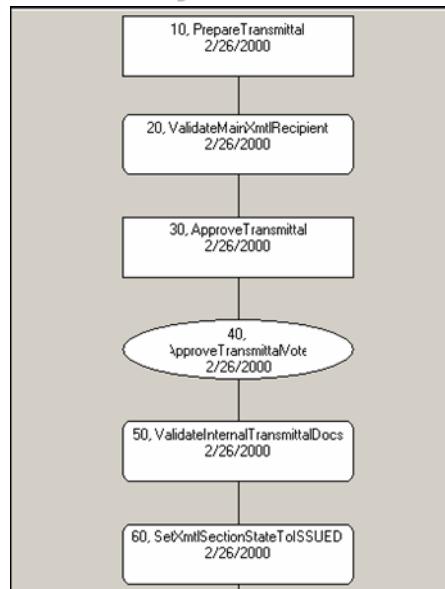
In this chapter the commands to use and manage transmittals will be covered. This includes the discussion of the delivered transmittal workflows. In addition to the transmittal workflows, the ability to search for transmittals, update, cancel and terminate transmittals will also be covered in this chapter.

The last topic to be discussed is the Transmittal Export functionality. This allows you to take transmittal files and copy them on to a file system as a structure so that they can be put on a media such as a CD or DVD for distribution.

The initial creation of a transmittal submits it to a *Transmittal Workflow*, which will process it through a series of predefined steps. There are two workflows delivered with the SmartPlant Foundation. The **InternalTransmittalLifeCycle** workflow is designed to process internal transmittals.

### InternalTransmittalLifeCycle

- To the right are the first steps in the Internal Transmittal workflow.



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The InternalTransmittalLifeCycle workflow contains a mixture of automated processing and manual intervention steps. The workflow begins with a **Prepare** step where an assignee has the responsibility to make sure the documents are attached to the transmittal section and the correct recipients have been set up.

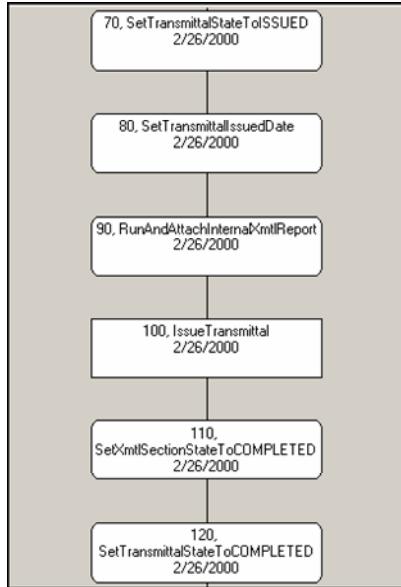
Next, this information is automatically validated and the transmittal is sent to an **Approve** step, which is another manual processing step in the workflow. In this step, an assignee will verify the transmittal recipients and that the correct documents have been attached.

Once the transmittal has been approved it will again go through an automatic validation process and then an **Issue** step which is also automated.



## Internal Transmittal Life Cycle

### Internal Transmittal workflow steps (con't)



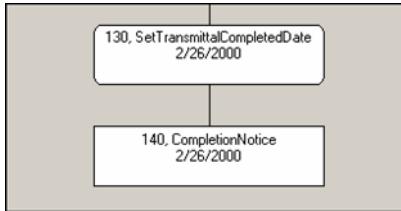
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As part of the automated Issue process, a transmittal summary report will be generated and attached to the transmittal. The workflow will pause at this point waiting for the recipient responses. The **Recipient Response Management** is usually handled by a designated contact, the **Document Controller**.



## Internal Transmittal Life Cycle

### Internal Transmittal workflow steps (con't)



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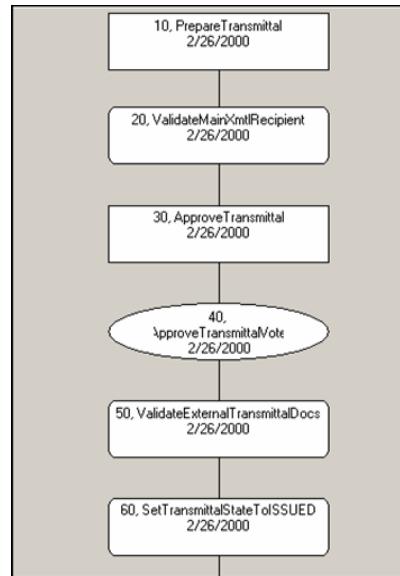
After all of the responses have been recorded by the Document Controller, the transmittal is moved to a Completed state (status) where it will wait for a user to act on the **Completion Notice** step.

The **ExternalTransmittalLife** is a workflow designed to process external transmittals.



## ExternalTransmittalLifeCycle

- To the right are the first steps in the External Transmittal workflow.



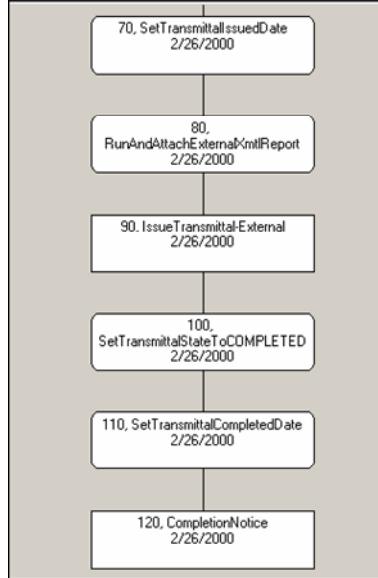
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The ExternalTransmittalLife workflow works very much in the same manner as the InternalTransmittalLifeCycle.



## ExternalTransmittalLifeCycle

- External Transmittal workflow steps (con't)



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## 8.1 Searching for Transmittals

SmartPlant Foundation provides the capability to retrieve transmittal objects from the database according to specified search requirements. In this section we want to cover the command sequences used to find transmittal objects.

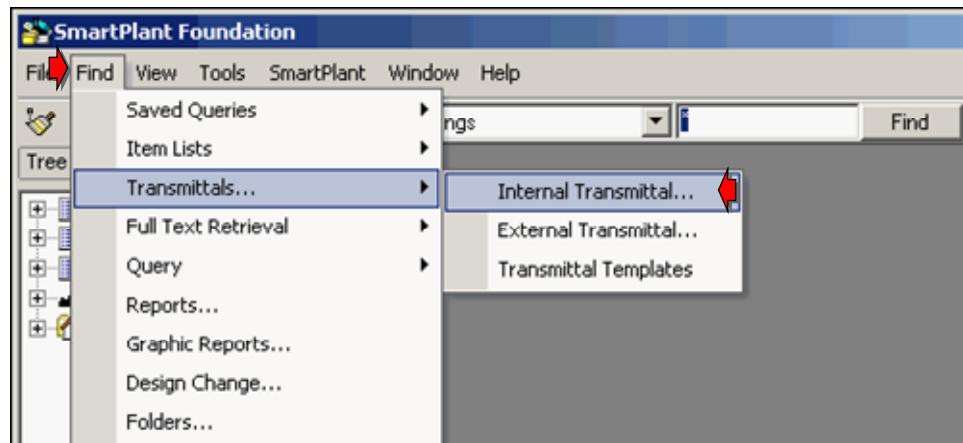
Users can perform searches for *Internal* or *External* transmittals and *Transmittal Templates*.

There may be the need to search for a specific type of transmittal. In this example, searching for internal transmittals is discussed.



### Searching for Internal Transmittals

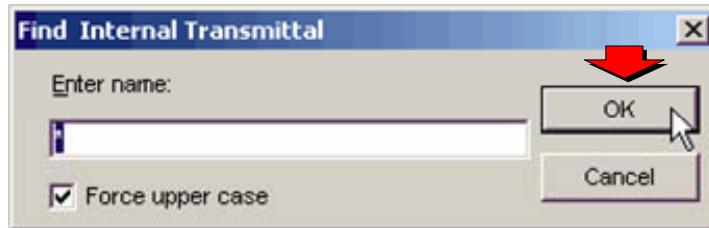
- From the menu, select **Find > Transmittals > Internal Transmittal...**



The *Find Internal Transmittal* dialog will display.

## Searching for Internal Transmittals

- Enter the search criteria to locate any existing Internal Transmittals.



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---

A window will be displayed containing the results of the *Find* command.

## Searching for Internal Transmittals

The objects returned by the search are displayed in a *Find* results window.

A screenshot of the 'Find Internal Transmittal = "\*" results window. It has a title bar 'Find Internal Transmittal = "\*"'. The table has columns: Name, Type, Issue State, Status, Owning Group, and Creation D. A red arrow points to the first row of the table, which contains data for an internal transmittal.

Name	Type	Issue State	Status	Owning Group	Creation D
INT REF REV	SPFInternalTrans...	RESERVED	RESERVED - (WF-S)	UPDATE	10/8/2006

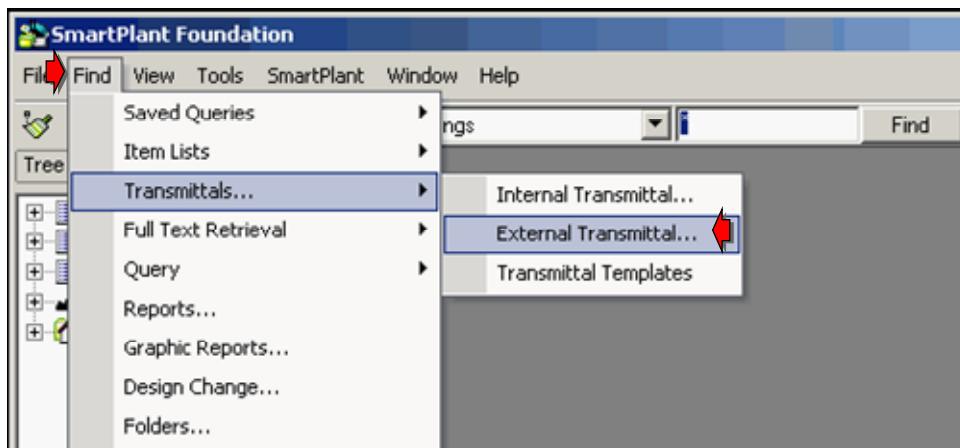
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Searching for *External* transmittals is performed the same way as searching for an Internal transmittal. The document controller, who may be the single contact point within a company or organization, would use this search to locate an outgoing packet of documents. This packet might be destined for a supplier or an external company.

## Searching for External Transmittals

- From the menu, select **Find > Transmittals > External Transmittal...**



The *Find External Transmittal* dialog will display.

## Searching for External Transmittals

- Enter the search criteria to locate any existing Internal Transmittals.



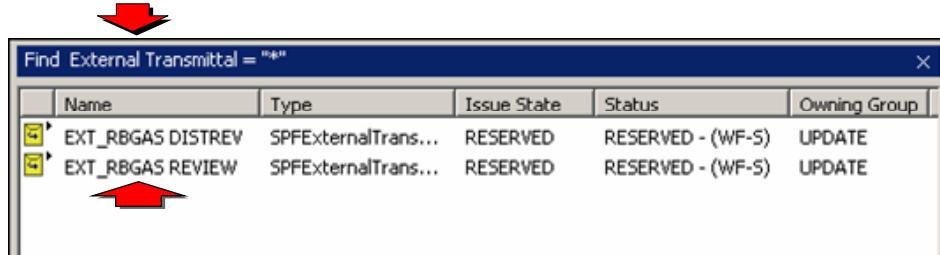
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---

The external transmittals are displayed in a new results window.

## Searching for External Transmittals

The objects returned by the search are displayed in a *Find* results window.



A screenshot of a 'Find' results window titled 'Find External Transmittal = "t"'. It contains a table with columns: Name, Type, Issue State, Status, and Owning Group. Two rows are listed, both for 'EXT\_RBGBAS DISTREV' and 'EXT\_RBGBAS REVIEW', both categorized as 'SPFExternalTrans...'. Both rows show 'RESERVED' in the Issue State and Status columns, and 'UPDATE' in the Owning Group column. A red arrow points to the second row.

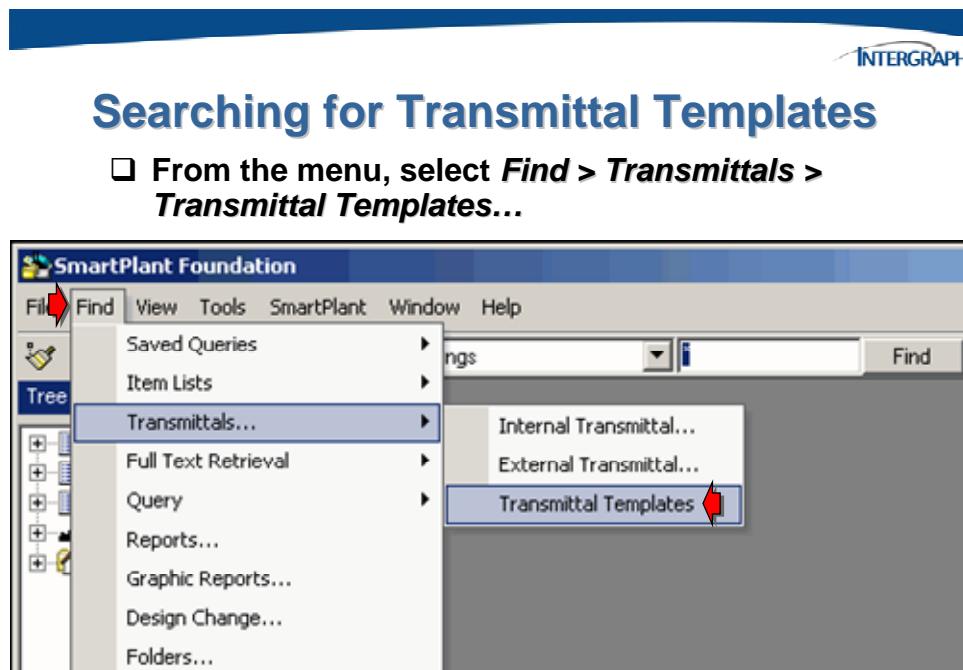
Name	Type	Issue State	Status	Owning Group
EXT_RBGBAS DISTREV	SPFExternalTrans...	RESERVED	RESERVED - (WF-S)	UPDATE
EXT_RBGBAS REVIEW	SPFExternalTrans...	RESERVED	RESERVED - (WF-S)	UPDATE

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---

Remember that a transmittal objects can be saved and then used as a template to create new future transmittals. Each template could contain a different set of recipients, document categories, contracts, etc.

In the following example, the ability to search for transmittal templates is demonstrated.



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When you save a transmittal as a template, the transmittal workflow is terminated, and the transmittal issue state changes to TEMPLATE.



## Searching for Transmittal Templates

- ❑ Enter the search criteria to locate any existing Transmittal Templates.



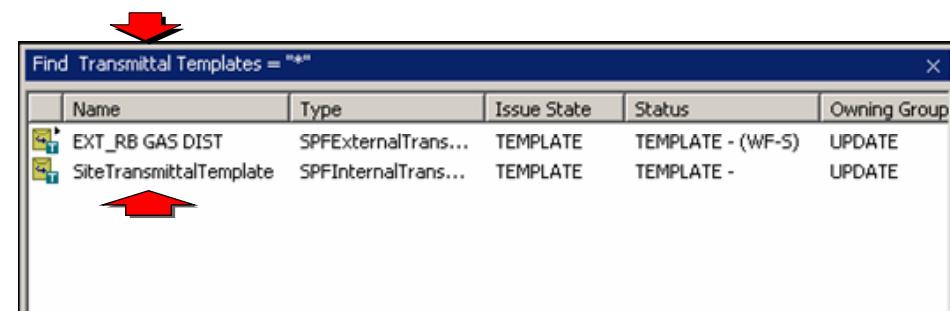
All section information, relationships to documents, and workflow setup are frozen.

---



## Searching for Transmittal Templates

The objects returned by the search are displayed in a *Find* results window.



## 8.2 Processing a Transmittal

Remember that a transmittal workflow contains a mixture of automated processing and manual intervention steps. In this section, the different operations will be explained as a transmittal moves through the defined workflow steps from the preparation to the completion of the transmittal. In chapter 7, the workflow participants were discussed. These are the users who are responsible for the different processing steps in the workflow.

---



### Transmittal Processing

#### Transmittal preparation and approval

- Transmittals are created, documents attached, and the distribution finalized.**

#### Transmittal issue and reporting

- Transmittal structures frozen. Report generation and document distribution.**

#### Transmittal response management

- Comment tracking and progress reporting.**



## Transmittal Processing

**Transmittal completion (closed)**

**No further changes permitted.**

**Note:** If a transmittal is issued in error, it can be cancelled. When this happens, the transmittal is reissued with an issue state of CANCELLED.

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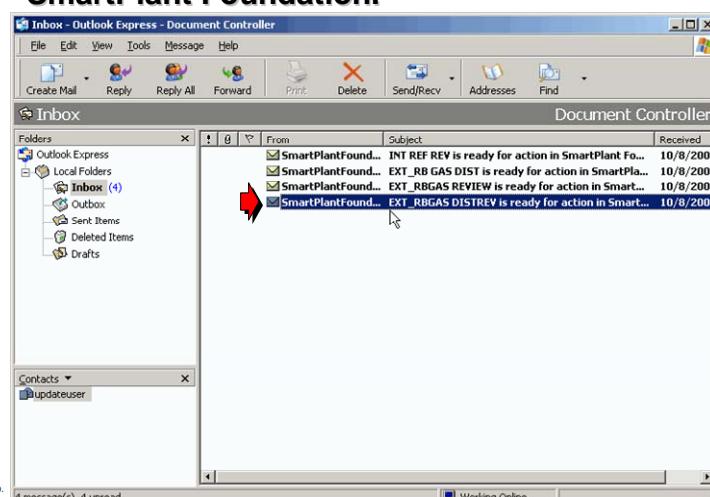
For this discussion, an external transmittal will be used. An external transmittal is used to distribute a package of documentation from an internal organization within a company to an outside company or supplier.

By having the transmittal automatically submitted to a workflow, email notifications are generated and sent to the workflow participants, as their participation is required.

The user will need to open their email client. As part of the transmittal creation process, a workflow is populated by default as one of the transmittal fields. This causes the transmittal object to be automatically submitted upon creation.

From the desktop or the **All Programs** menu, start the email client. The mail client window will open and any messages sent by SmartPlant Foundation will be displayed.

As part of the notification process, the user that creates the transmittal is also the workflow submitter.



**Transmittal Email Notification**

Double-click to view the mail message sent by SmartPlant Foundation.

Inbox - Outlook Express - Document Controller

File Edit View Tools Message Help

Create Mail Reply Reply All Forward Print Delete Send/Recv Addresses Find

Inbox Document Controller

Folders

- Outlook Express
- Local Folders
- Inbox (4)
- Outbox
- Sent Items
- Deleted Items
- Drafts

From Subject Received

- SmartPlantFound... INT REF REV is ready for action in SmartPlant Fo... 10/8/2006
- SmartPlantFound... EXT\_RB GAS DIST is ready for action in SmartPla... 10/8/2006
- SmartPlantFound... EXT\_RBGAS REVIEW is ready for action in Smart... 10/8/2006
- SmartPlantFound... EXT\_RBGAS DISTREV is ready for action in Smart... 10/8/2006

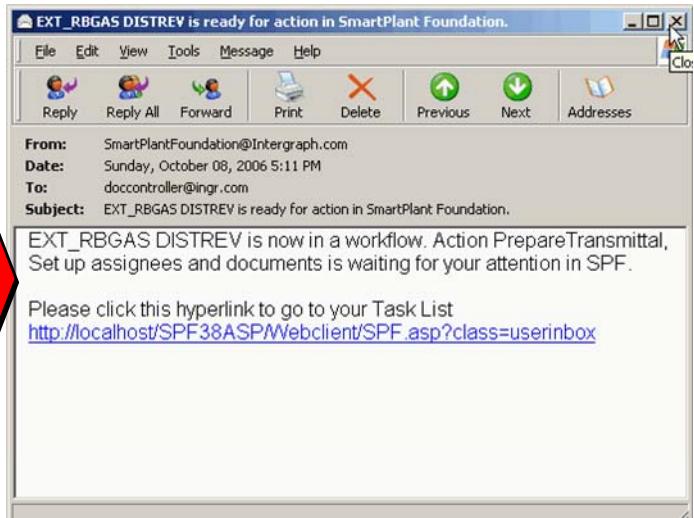
Contacts

updateuser

4 message(s), 4 unread Working Online

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The submitter will receive a copy of the email that is sent to the first participant in the workflow, the user responsible for preparing the transmittal.



**Transmittal Email Notification**

**The required action is detailed in the mail message.**

EXT\_RBGAS DISTREV is ready for action in SmartPlant Foundation.

File Edit View Tools Message Help

Reply Reply All Forward Print Delete Previous Next Addresses

From: SmartPlantFoundation@Intergraph.com  
Date: Sunday, October 08, 2006 5:11 PM  
To: doccontroller@ingr.com  
Subject: EXT\_RBGAS DISTREV is ready for action in SmartPlant Foundation.

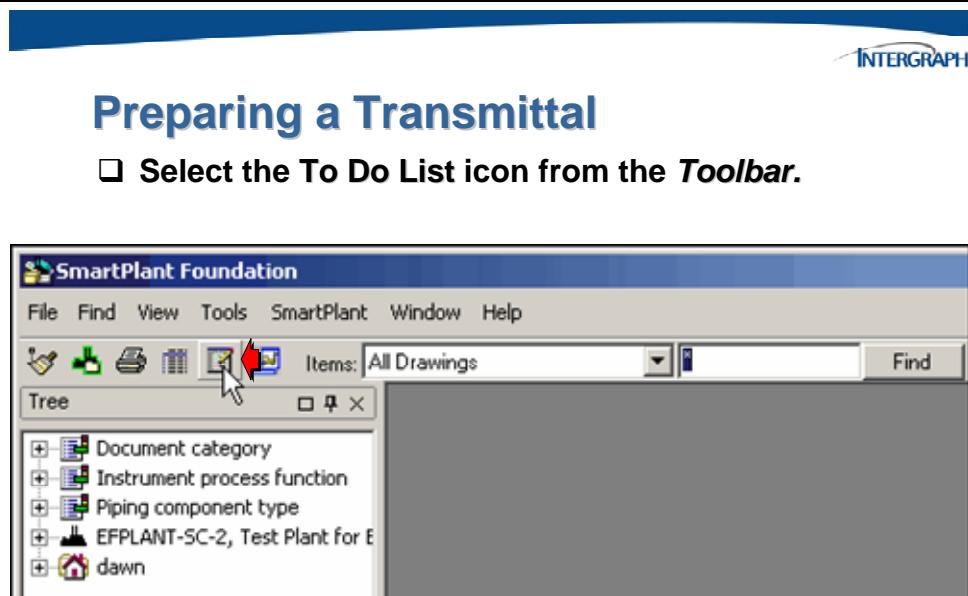
EXT\_RBGAS DISTREV is now in a workflow. Action PrepareTransmittal, Set up assignees and documents is waiting for your attention in SPF.

Please click this hyperlink to go to your Task List  
<http://localhost/SPF38ASP/Webclient/SPF.asp?class=userinbox>

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### 8.2.1 Preparing a Transmittal

After the transmittal has been created, the designated recipient receives email notification of the *Prepare Transmittal* step in the Transmittal Workflow. This step directs the user to attach documents and assign recipients to the transmittal. First, the user assigned to this task must be logged on. Once the user is logged on, open the *To Do List* to access the workflow step and the transmittal.



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The *To Do List* window will be opened.

In order to prepare a transmittal, it will be necessary to drag and drop the documents that will be attached onto the transmittal.

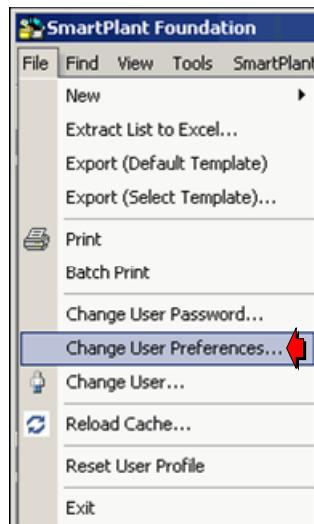
Configuring the client to allow multiple floating windows will make this task easier. This is done by changing the user preferences for the current logged in user.



## Preparing a Transmittal

- Choose **File > Change User Preferences...** from the menu.

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The *Change User Preferences* dialog will display.

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## Preparing a Transmittal

- Select the **Multiple floating windows, dockable** radio button and click OK.

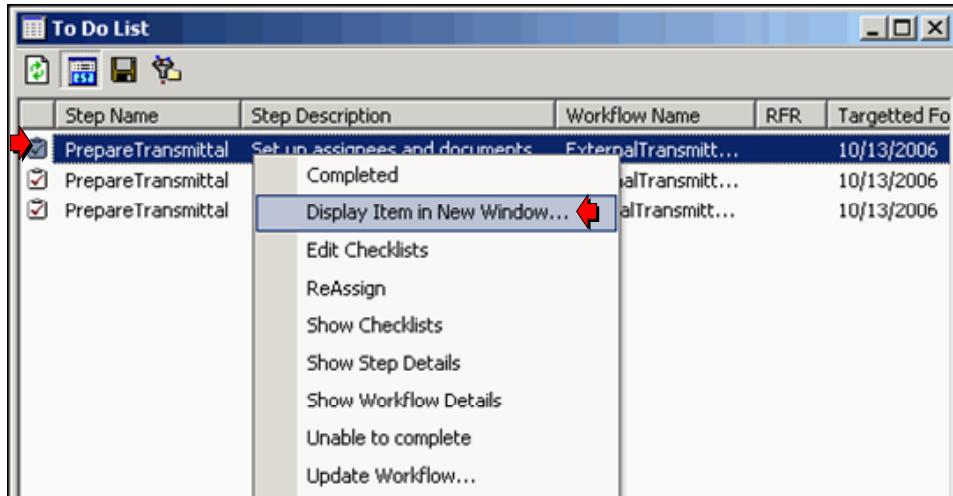


Next, display the transmittal that is associated with this step in the workflow.



## Preparing a Transmittal

- Right click on the workflow step and select **Display Item in New Window** to see the External Transmittal.

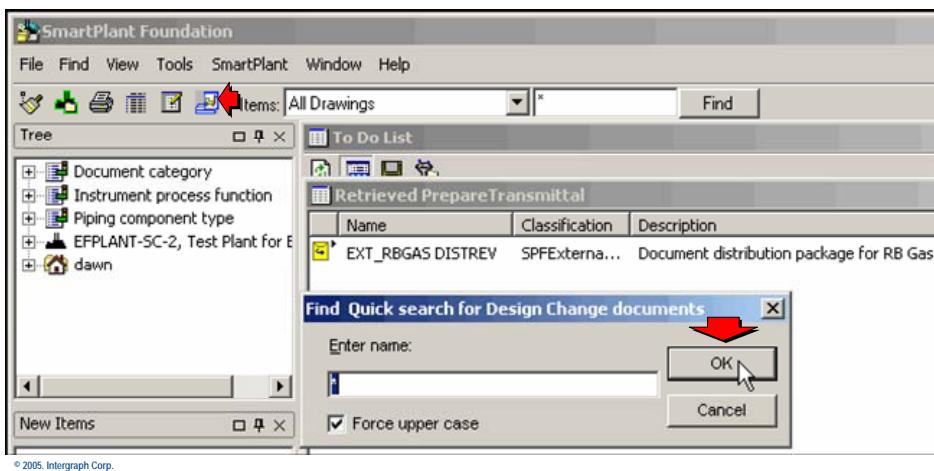


The *Prepare Transmittal* step is where the appropriate documents are associated to the transmittal.

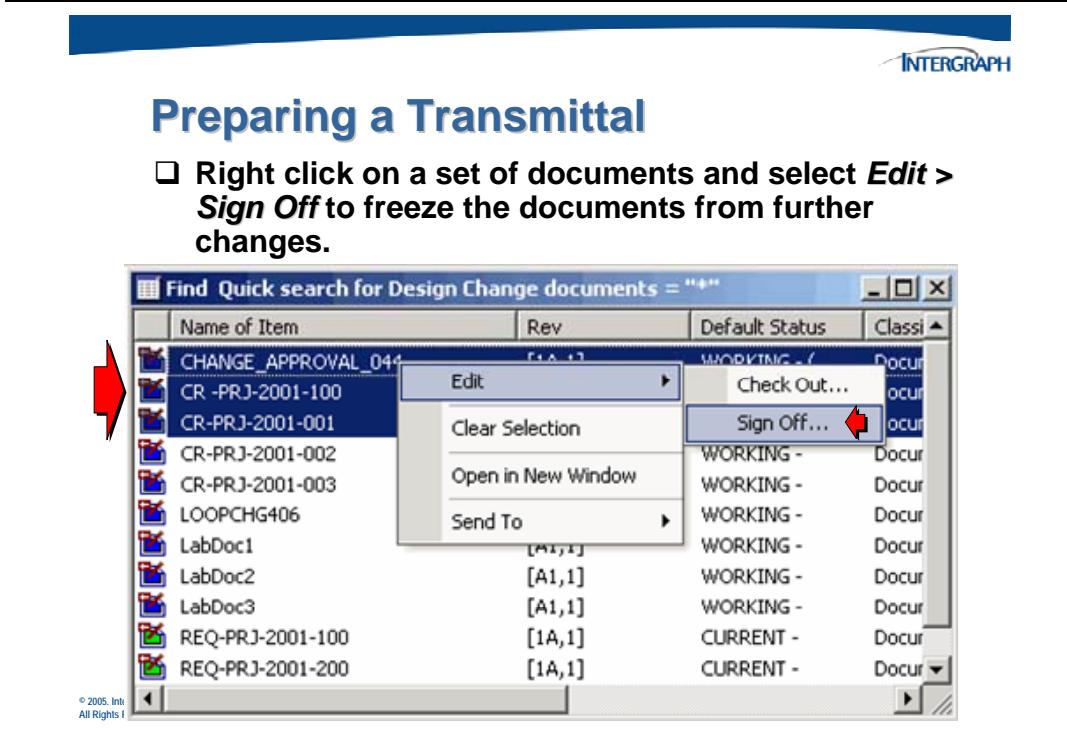


## Preparing a Transmittal

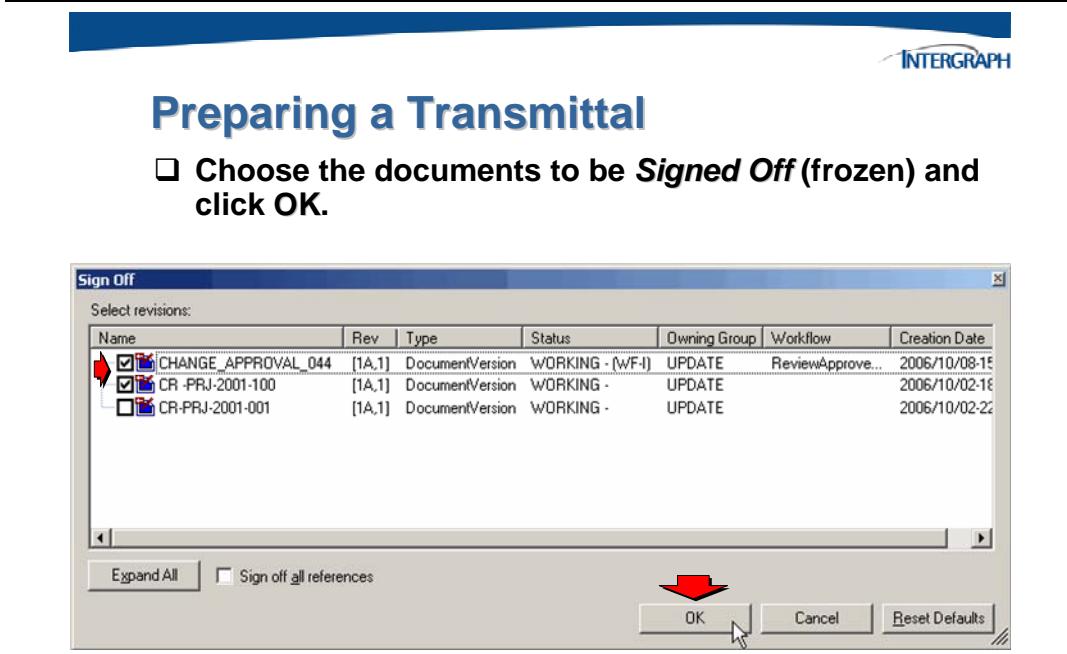
- Use a Find tool and perform a search to find the documents to be attached to the transmittal.



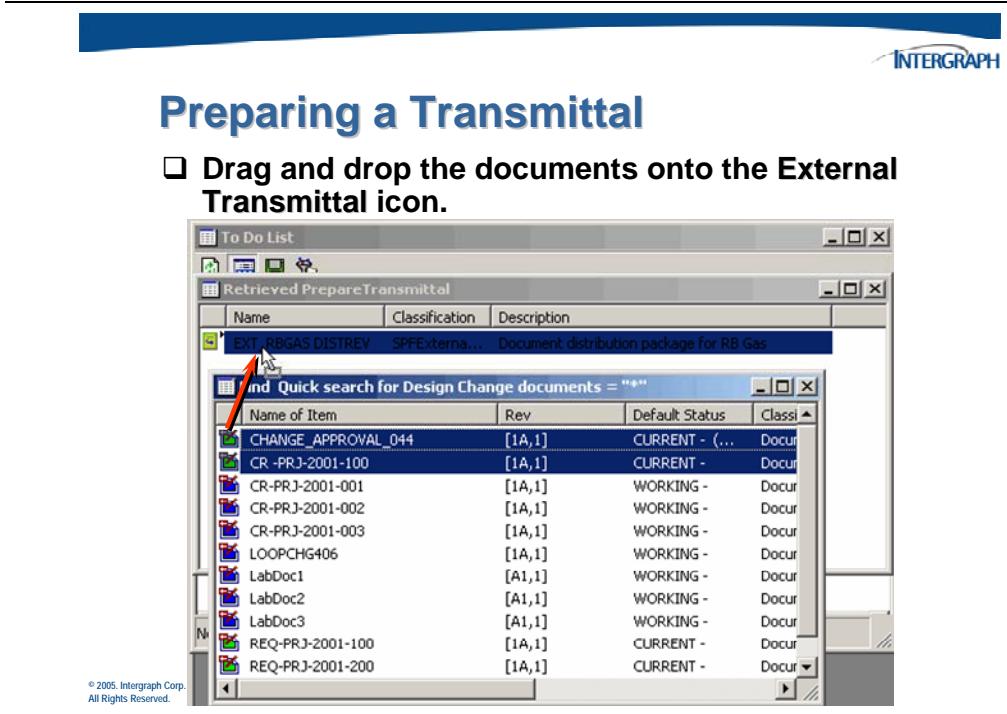
Documents that will be attached to a transmittal must first be frozen and made current. That is, no changes will be allowed.



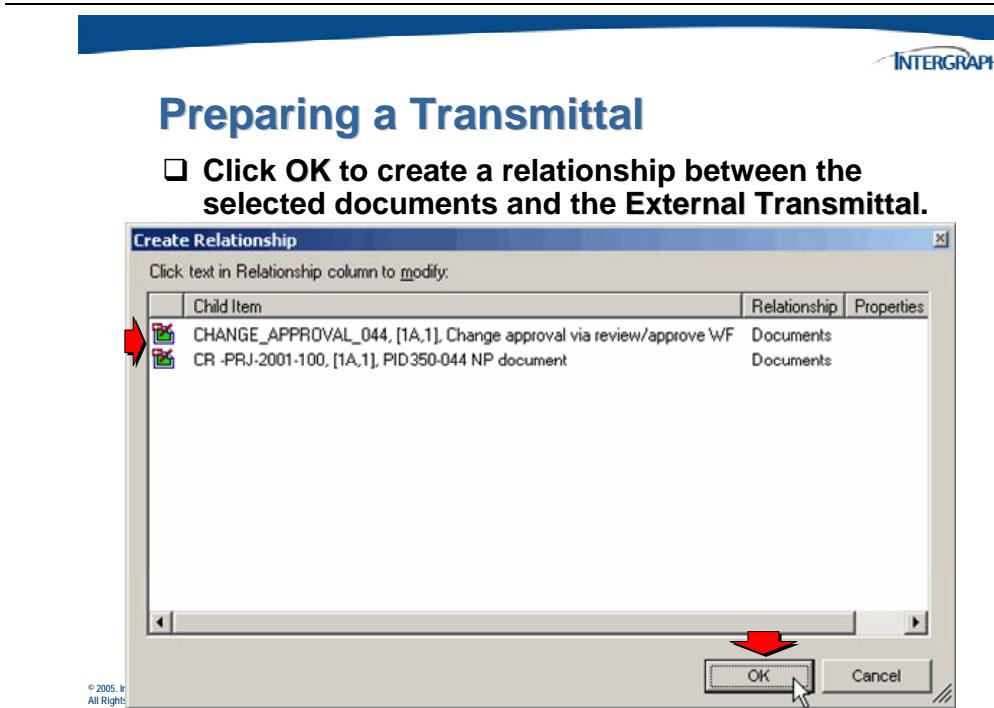
The *Sign Off* dialog will display to allow the completion of the sign off operation.



Attach the documents to be reviewed to this **external transmittal**. Select the documents to be attached using the control key and holding the left mouse button down.



After the documents have been dragged and dropped onto the transmittal, a *Create Relationship* form displays, allowing the relationship to be changed if needed. Click **OK** when you are finished.



You are finished with the *Find results* window so it can be closed.

**Prepared a Transmittal**

Select the X to Close the *Find results* dialog.

Name of Item	Rev	Default Status	Classif
CHANGE_APPROVAL_044	[1A,1]	CURRENT - (...)	Docur
CR-PRJ-2001-100	[1A,1]	CURRENT -	Docur
CR-PRJ-2001-001	[1A,1]	WORKING -	Docur
CR-PRJ-2001-002	[1A,1]	WORKING -	Docur
CR-PRJ-2001-003	[1A,1]	WORKING -	Docur
LOOPCHG406	[1A,1]	WORKING -	Docur
LabDoc1	[A1,1]	WORKING -	Docur
LabDoc2	[A1,1]	WORKING -	Docur
LabDoc3	[A1,1]	WORKING -	Docur
REQ-PRJ-2001-100	[1A,1]	CURRENT -	Docur
REQ-PRJ-2001-200	[1A,1]	CURRENT -	Docur

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Verify that the documents are attached to the transmittal.

**Prepared a Transmittal**

Right click on the External Transmittal and select **Edit > Expand Structure** to verify the transmittal structure.

Name	Classification	Description
EXT_RGBAS DISTREV	SPFExternal...	Document distribution package for RB Gas

Change Owning Group  
Copy...  
Delete  
Details  
Edit Relationships...  
Edit  
Cancel Transmittal...  
Generate PDF Copies  
History  
Subscription  
Terminate  
Update  
Workflow  
Expand Structure  
Maintain Recipients...  
Run Report  
Save as Template  
Set Controlling Recipient...  
Set Planned Date...

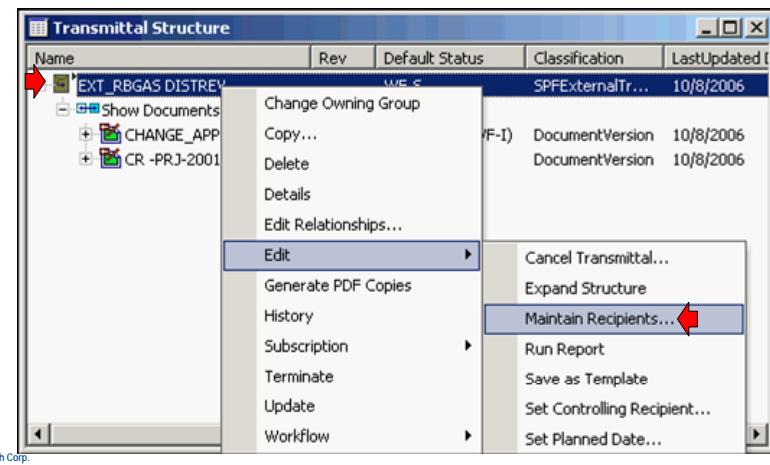
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The **Maintain Recipients** form is accessed from the transmittal's right mouse button menu or from the right mouse menu of the *Prepare Transmittal* step in the **To Do List**. This would need to be done if the transmittal was created **without** the check box labeled *Populate automatically from matrix*.

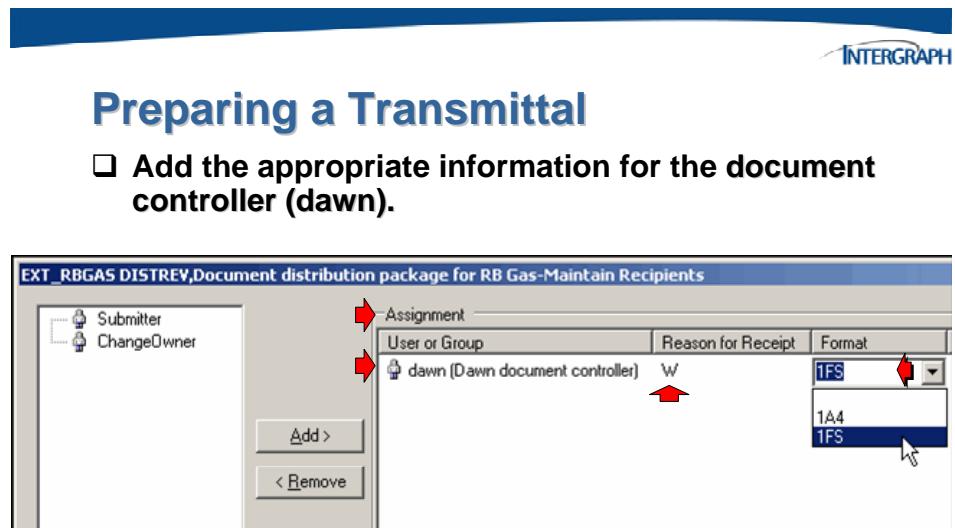


## Preparing a Transmittal

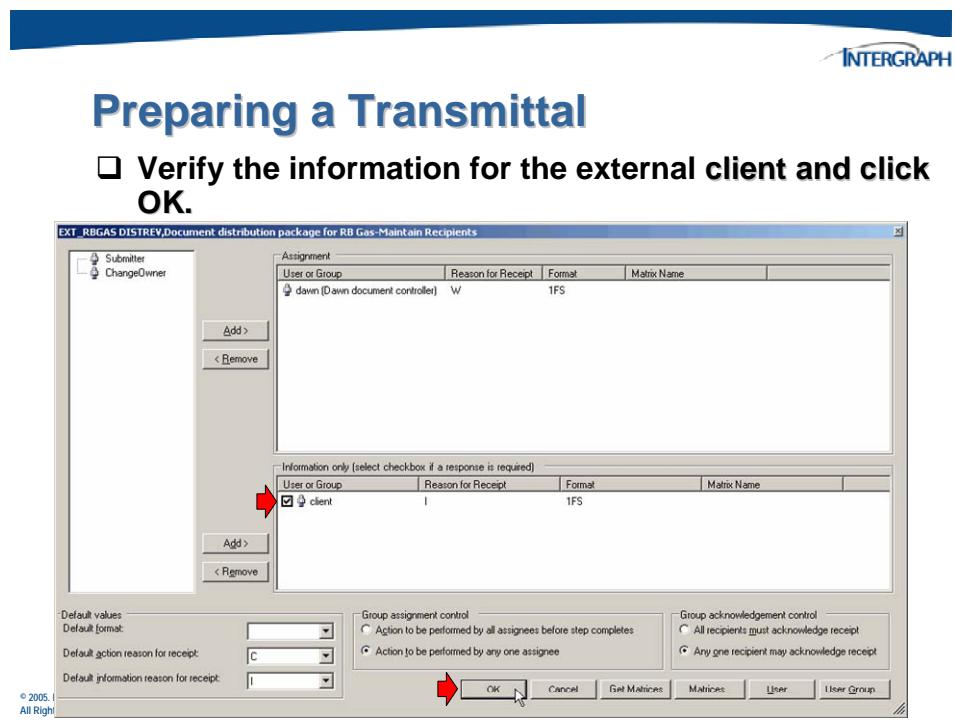
- Right click on the External Transmittal and select **Edit > Maintain Recipients...** to verify the recipient list.



The *Maintain Recipients* dialog displays.



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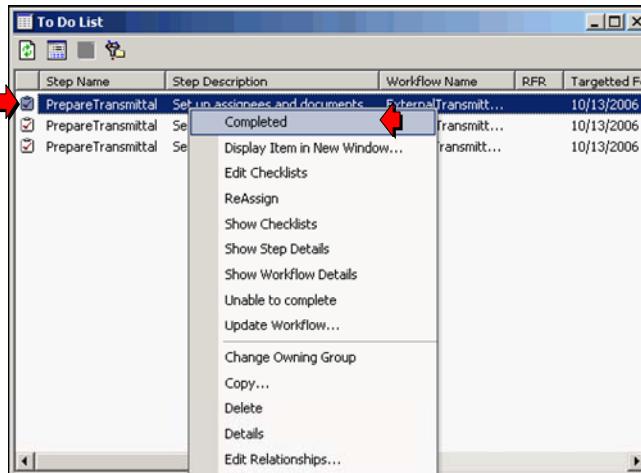


Once the recipients have been verified, *dawn* can **Complete** this step.



## Preparing a Transmittal

- Right click on the workflow step and select **Completed** to finish the prepare step and move the transmittal on in the workflow.



The *SignOffStep Task* form will display.



## Preparing a Transmittal

- Enter some comments to indicate what has transpired in this workflow step and click OK.

SignOffStep Task

Step description:  
Set up assignees and documents

Comments:

Documents have been attached and recipients/distribution set. Transmittal package has been prepared.

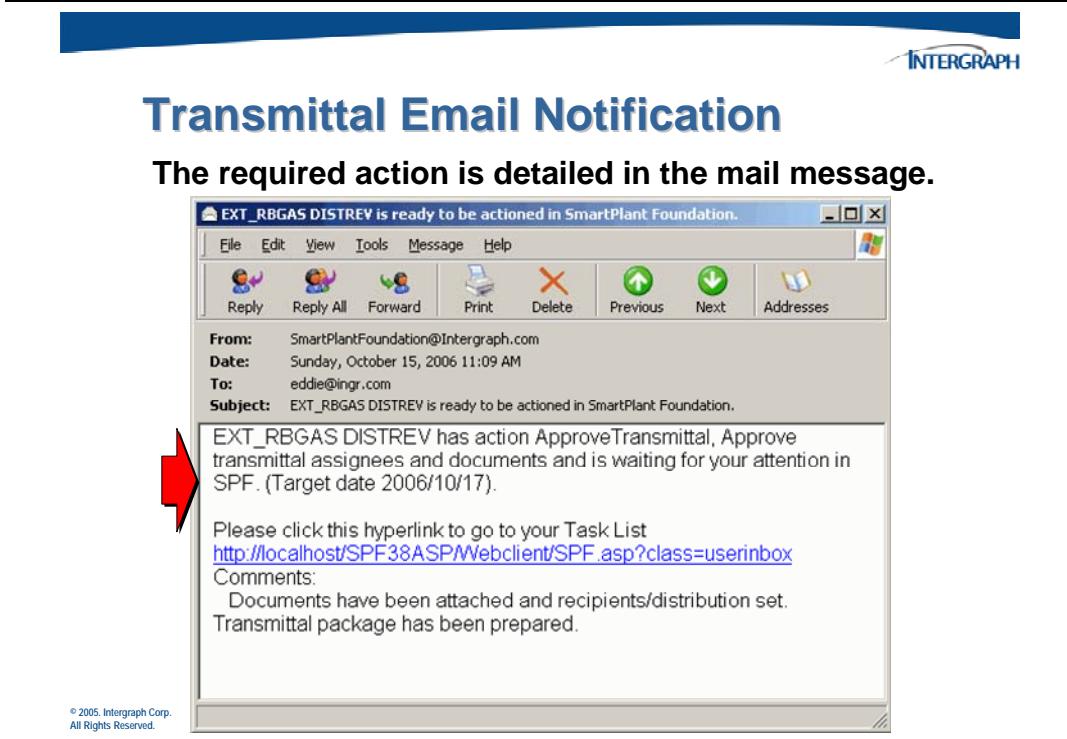


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The **To Do List** will now be empty as the transmittal is moved on in the workflow.

## 8.2.2 Approve Transmittal

The next user in this workflow scenario is *eddie* who will receive an email notification. Restore the email client and switch the user identity to *eddie*. The selected message will be opened and displayed.



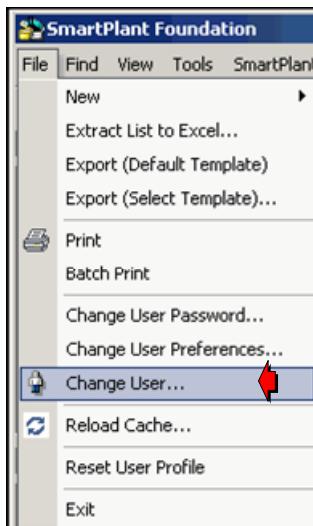
The *Approve Transmittal* step is where the recipients and documents associated with the transmittal are verified and approved. Alex was the user that created the external transmittal but now **eddie** has the action to approve the tasks of the document controller.

First, log in to SPF as user *eddie*.

## Approving a Transmittal

- Choose **File > Change User...** from the menu.

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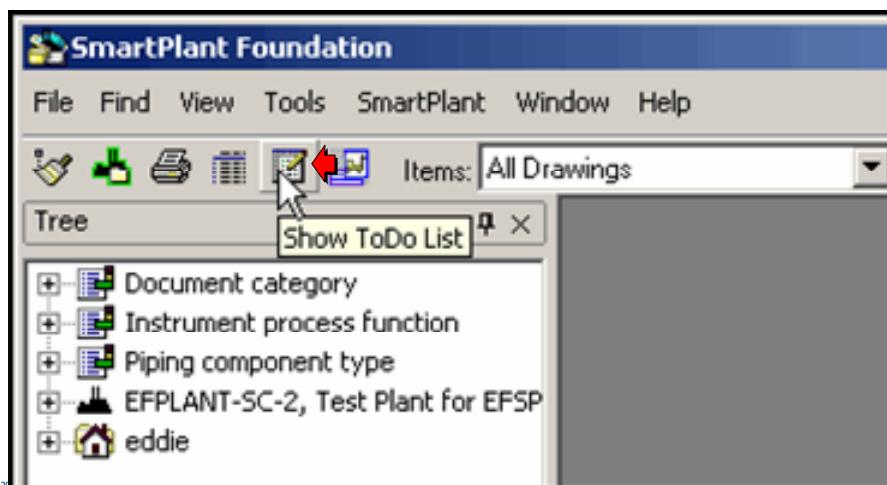


Once *eddie* is logged on, open the *To Do List* to access the workflow step and the transmittal.

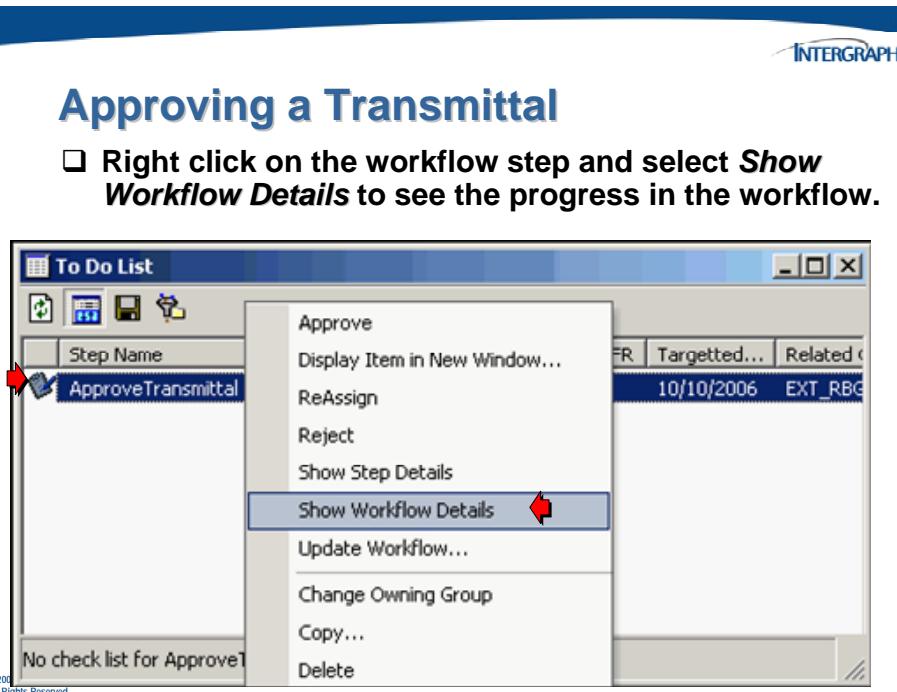
## Approving a Transmittal

- Select the **To Do List icon** from the **Toolbar**.

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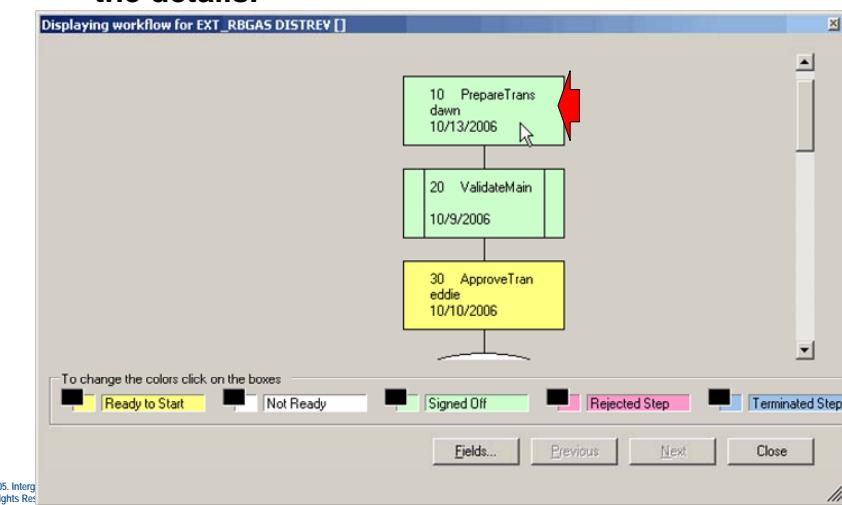
The next step to appear in the To Do List is the *Approve Transmittal* step.



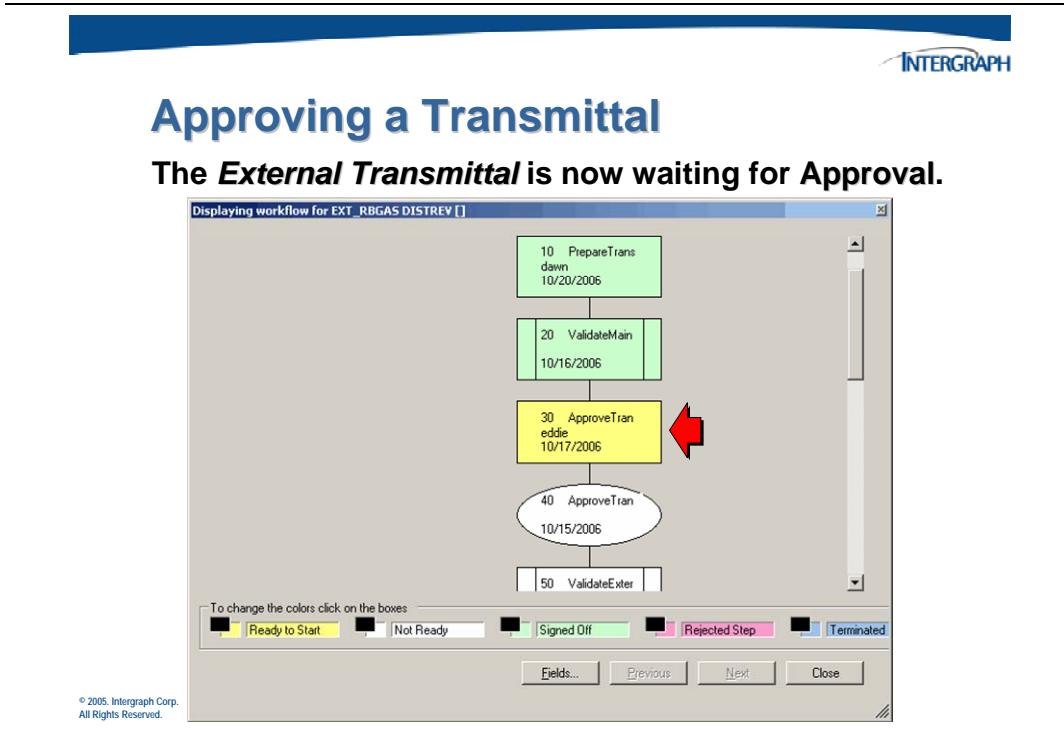
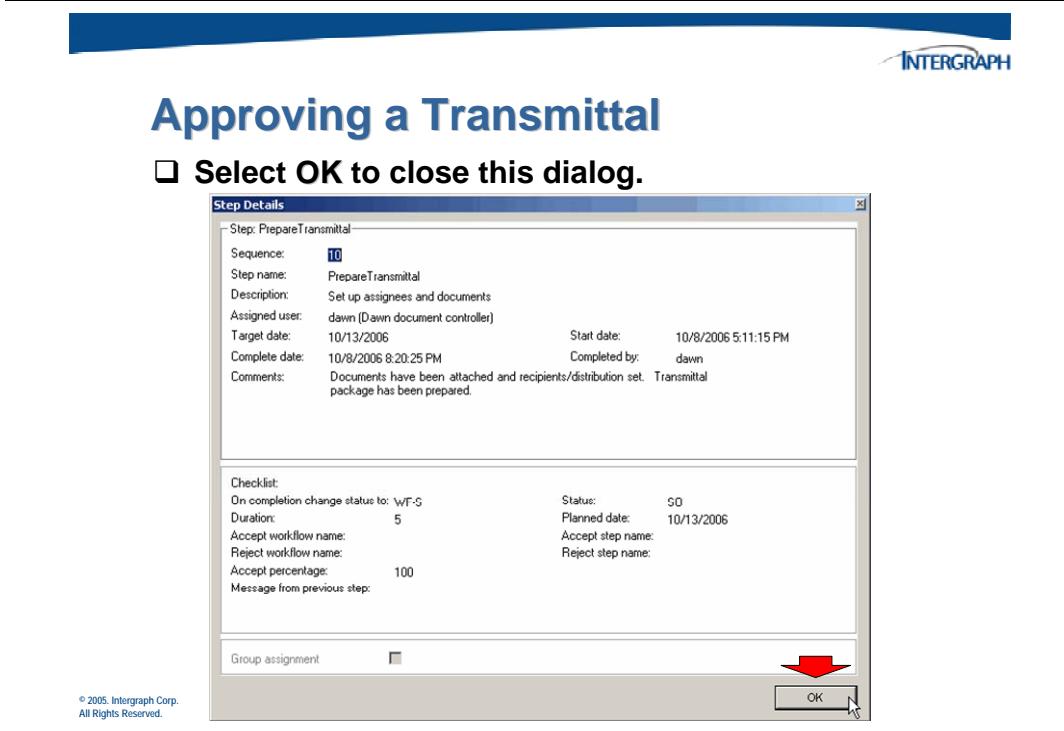
This will allow *eddie* to verify the workflow steps that have been successfully completed as well as see what steps are still to be performed. It will also show a user which step the transmittal is currently in within the workflow.

## Approving a Transmittal

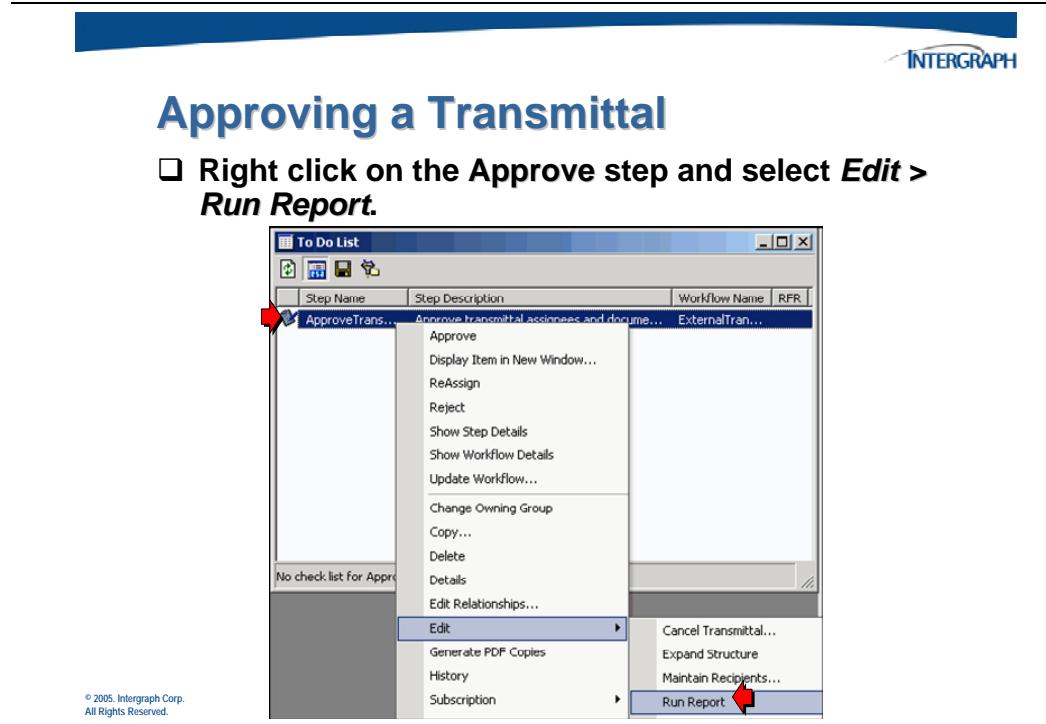
- ❑ Double-click on the *PrepareTransmittal* step to view the details.



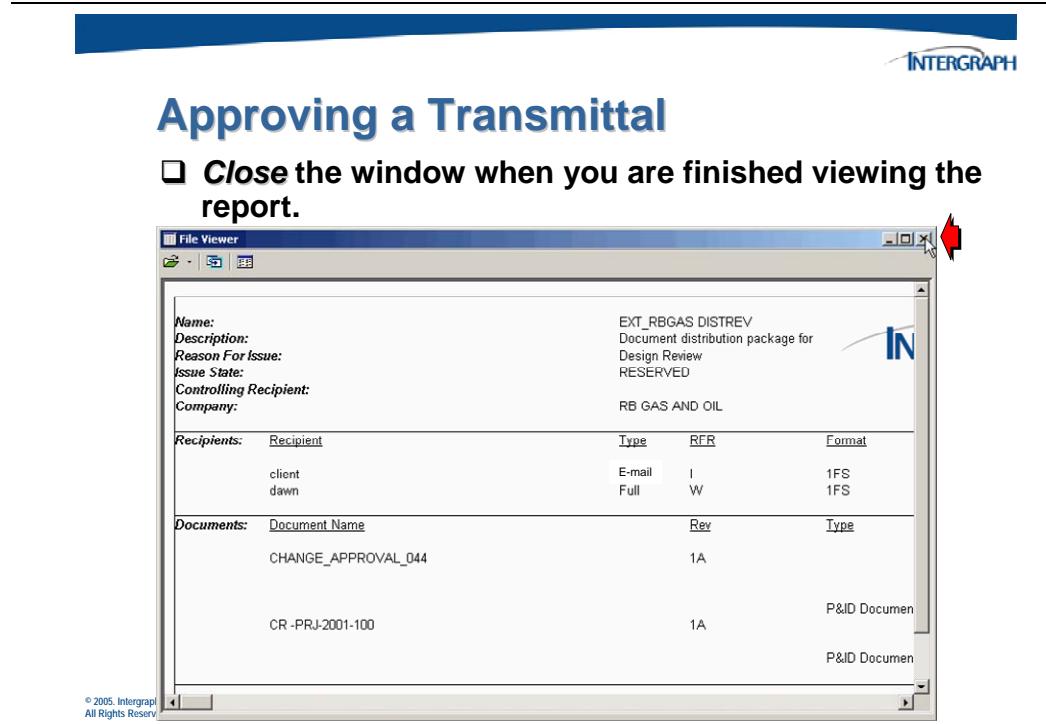
A Step Details dialog window displays.



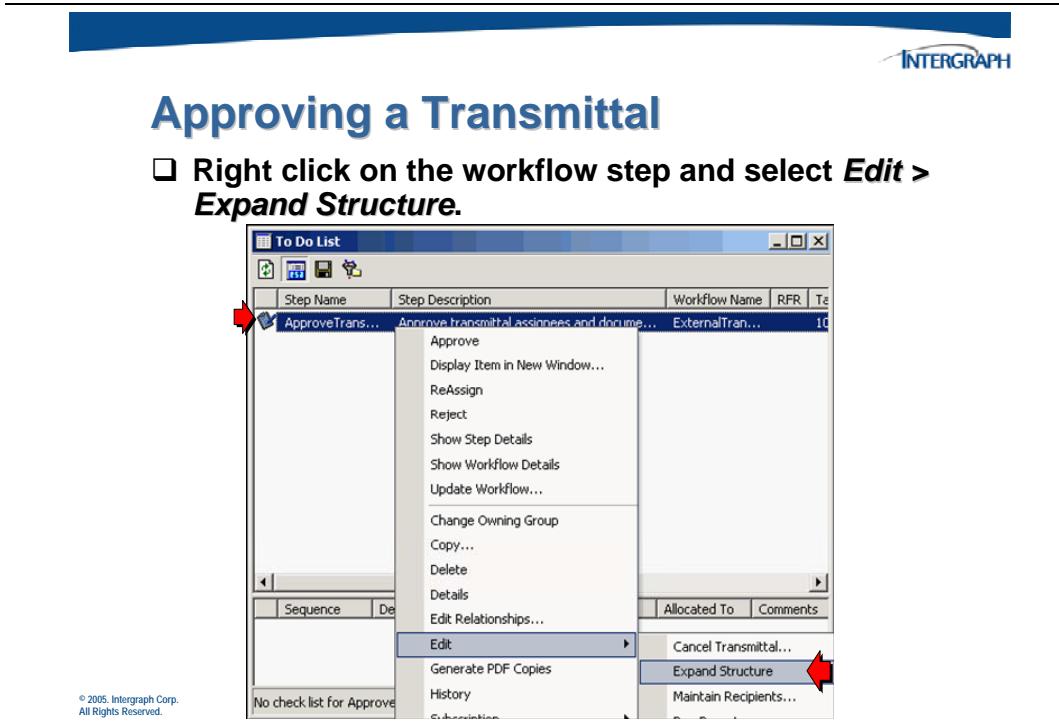
Generate a transmittal summary report to display the transmittal information associated with this step in the workflow.



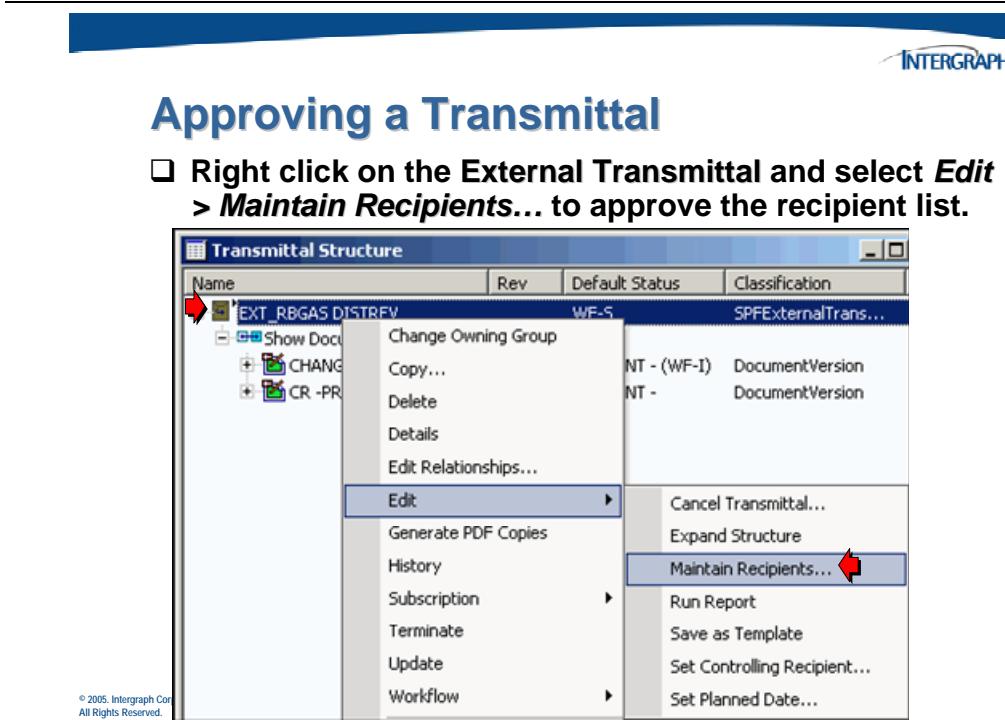
Note the *Issue State*, the type of user for the *client* and the *Reason For Receipt* listed on this report.



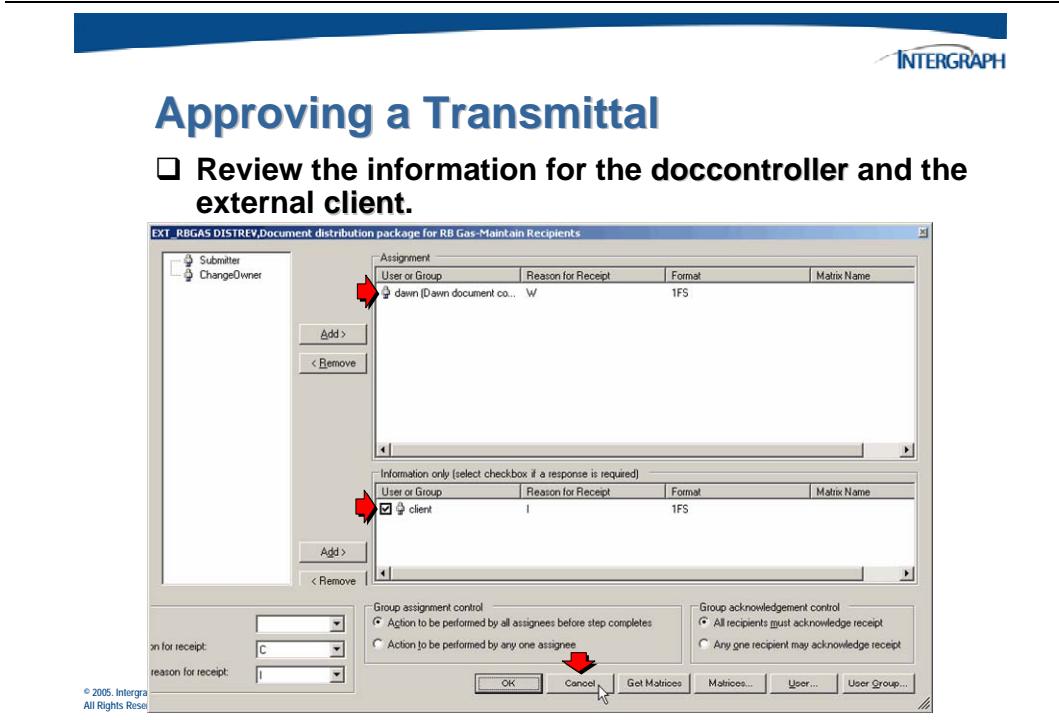
Verify that the correct documents were attached to the transmittal.



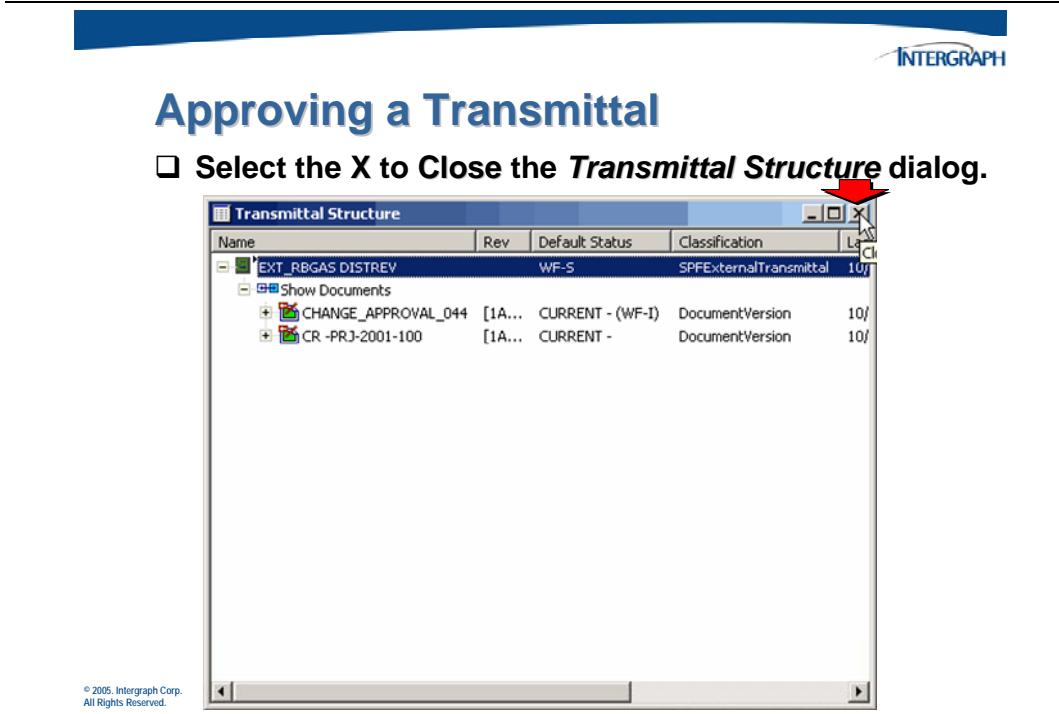
The *Transmittal Structure* window will display in order to view the attached documents. Use the **Maintain Recipients** form to verify that the correct recipients are assigned to this transmittal.



The *Maintain Recipients* dialog displays.

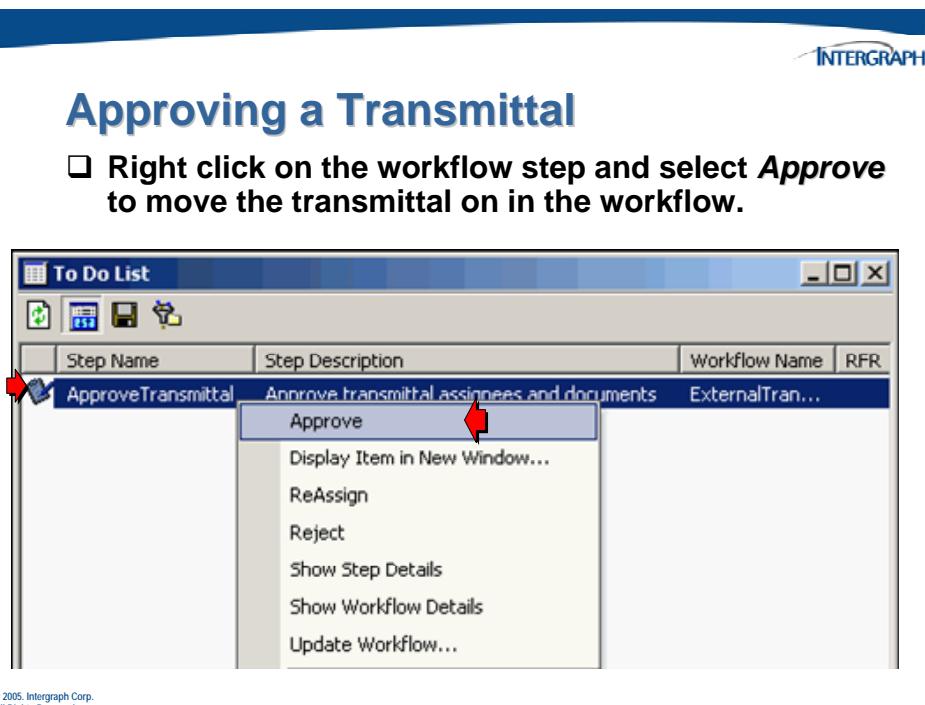


If everything is correct, click **Cancel** on the *Maintain Recipients* form.



Eddie is now ready to **Approve** the transmittal is this workflow step.

---



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---

The *SignOffStep Task* form will display.

---

## Approving a Transmittal

- Enter some comments to indicate what has transpired in this workflow step and click OK.

The screenshot shows a dialog box titled "SignOffStep Task". It contains a "Step description:" label followed by the text "Approve transmittal assignees and documents". Below that is a "Comments:" label with a text input field containing the text "Transmittal package checked and approved." At the bottom of the dialog are two buttons: "OK" and "Cancel". A red arrow points to the "OK" button. The "OK" button is highlighted with a red border. The "Cancel" button is also visible. The entire dialog box is enclosed in a light gray border.

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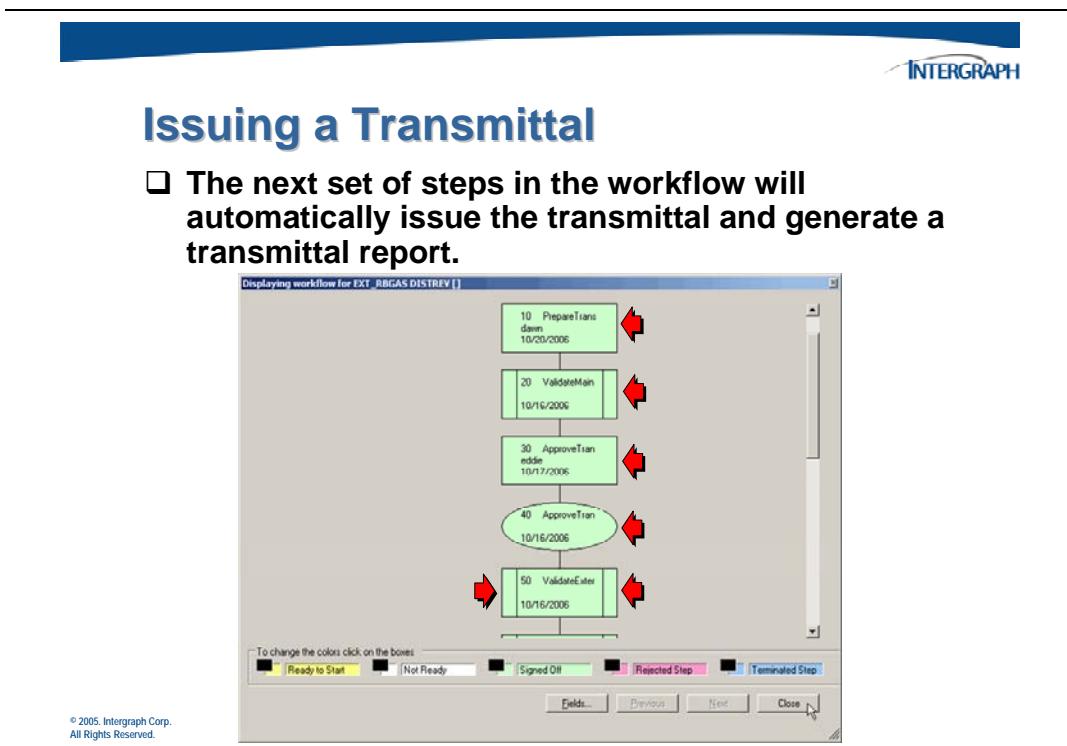
---

### 8.2.3 Issuing a Transmittal and Recipient Response

The next user in this workflow scenario is the *Document Controller (dawn)*. When the transmittal has been approved, it progresses through the transmittal workflow until it reaches the workflow step, which updates it from RESERVED to ISSUED.

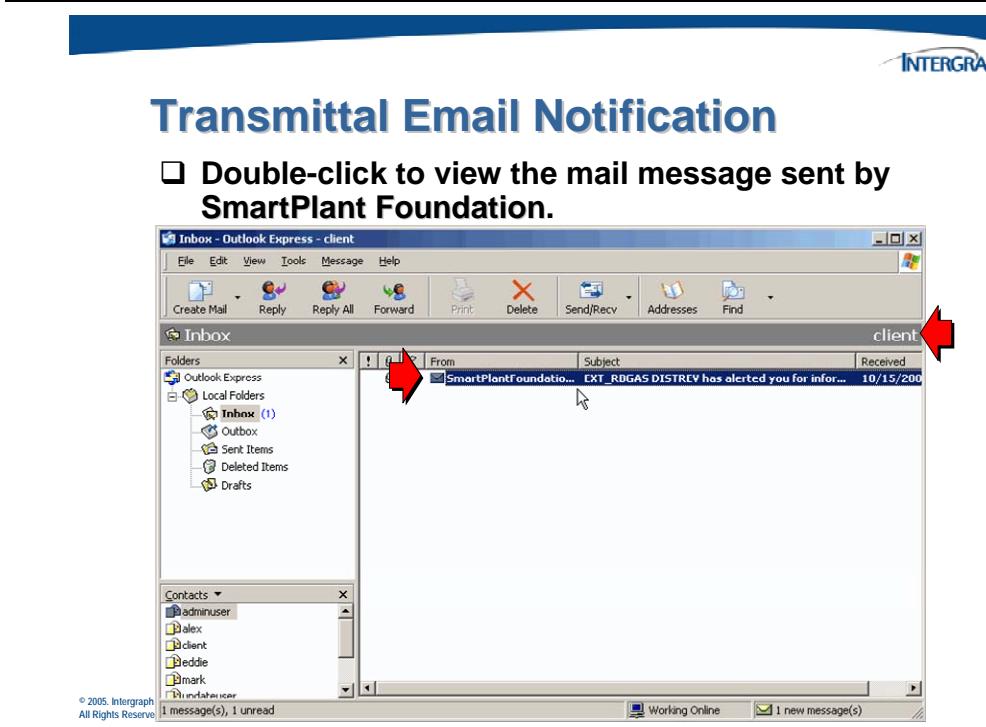
Another automatic process, which takes place, is the generation of a *Transmittal Report*.

It is at this stage that recipients would receive notification of the transmittal through email or their **To Do List** in SPF meaning an email message is sent to the appropriate users, including the client.

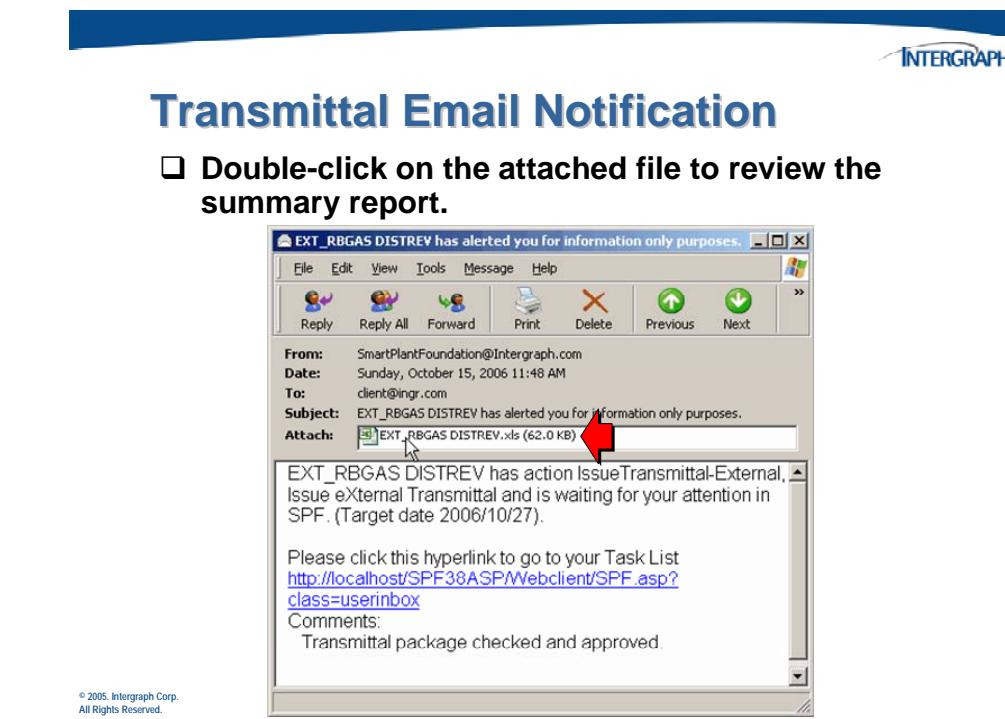


The client is not a full SPF user but can receive email messages. This user can review the document package and respond via email back to the document controller, who can then perform the transmittal response by adding any comments and feedback from the client.

Restore the email client and switch the user identity to *client*. The mail client window will change to client and any messages sent by SmartPlant Foundation will be displayed.

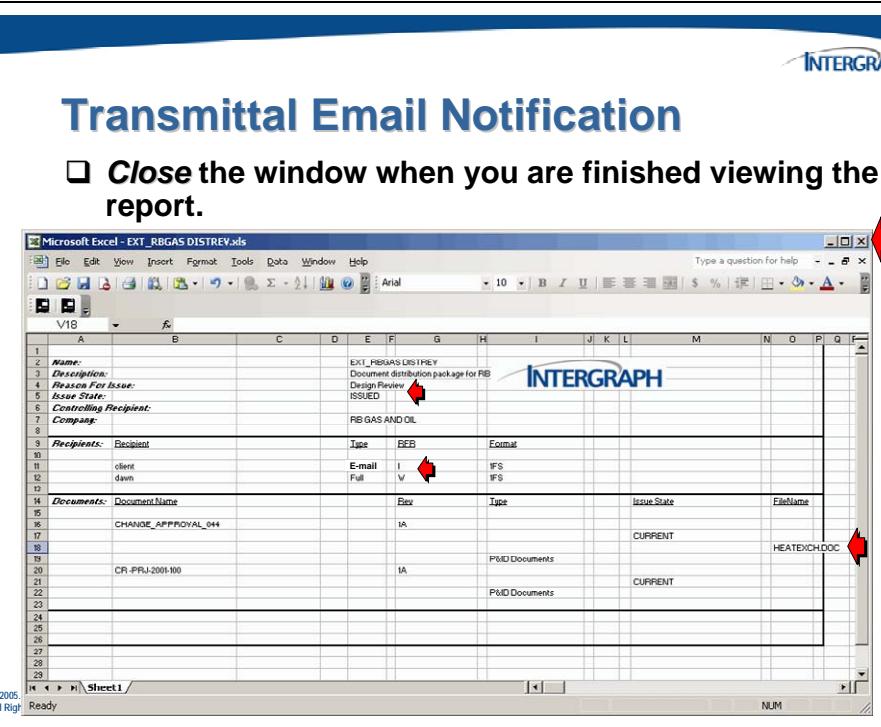


The selected message will be opened and displayed.



The attached transmittal summary report will be displayed.

---



The screenshot shows a Microsoft Excel spreadsheet titled "Microsoft Excel - EXT\_RB GAS DISTREV.xls". The title bar includes the file name, menu options (File, Edit, View, Insert, Format, Tools, Data, Window, Help), and a search bar. The main content is a table titled "Transmittal Email Notification" with the following data:

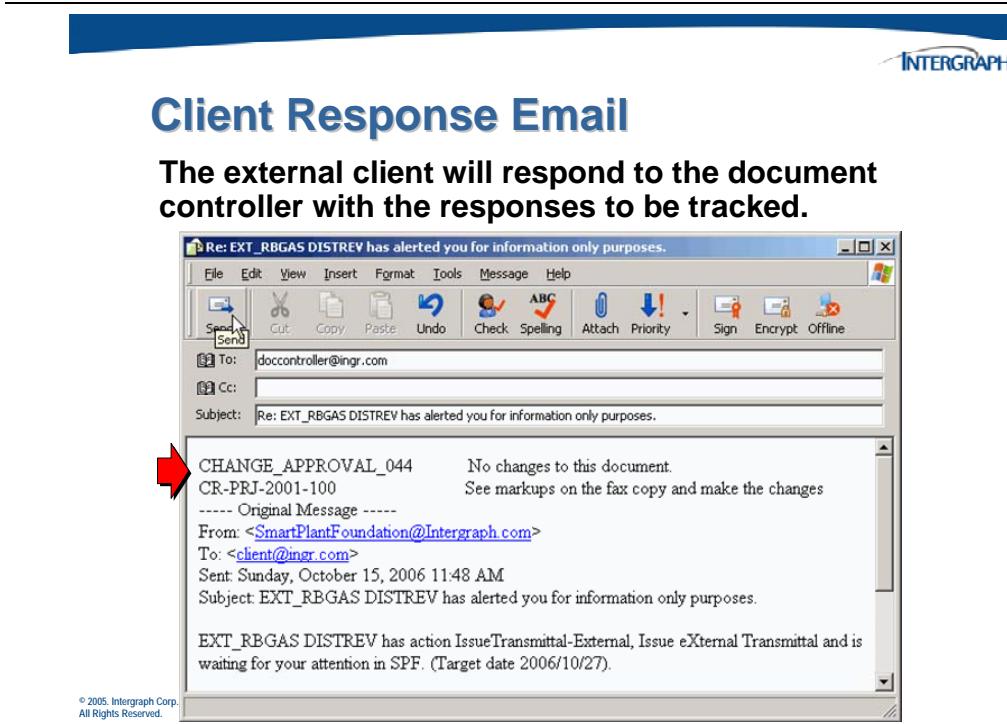
Field	Value
Name:	EXT_RB GAS DISTREV
Description:	Document distribution package for RB
Reason For Issue:	Design Review
Issue State:	ISSUED
Controlling Recipient:	RB GAS AND OIL
Company:	RB GAS AND OIL
Recipients:	Recipient Type: REB client E-mail: I dawn E-mail: V
Documents:	Document Name: CR-PRJ-2001-100 Type: IA Status: CURRENT File Name: HEATEXCHDOC

Red arrows highlight specific cells: one arrow points to the "Issue State" cell containing "ISSUED"; another arrow points to the "E-mail" cell for the recipient "dawn"; and a third arrow points to the "File Name" cell for the document "CR-PRJ-2001-100".

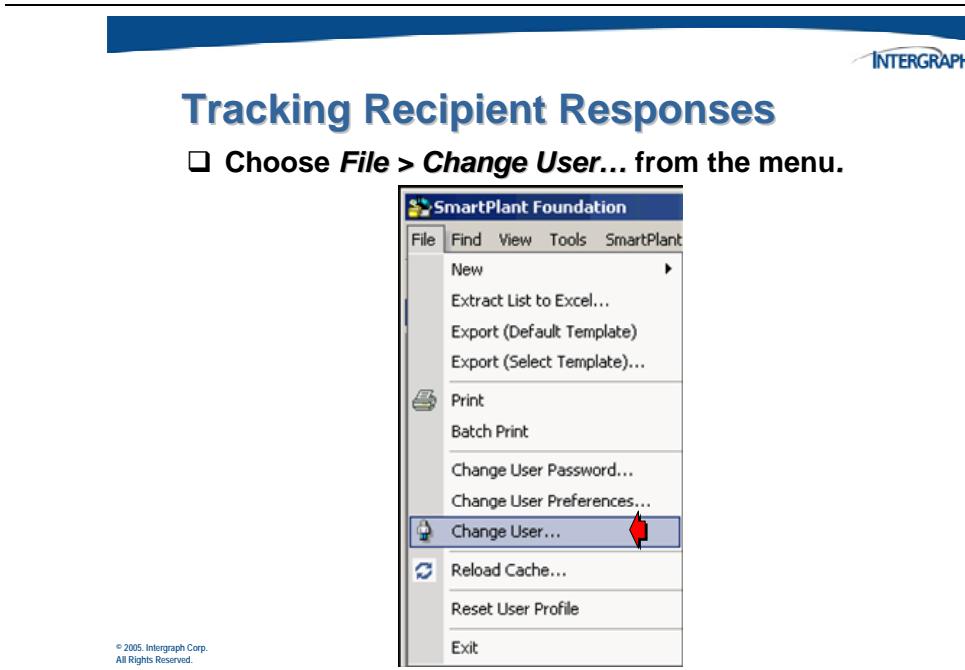
---

**Dawn** is a full SPF user who can record any feedback from the client. To see the client responses back to the document controller, you would switch the user identity to *doccontroller*.

The mail client window will change to doccontroller and any messages sent by the client will be displayed. The *IssueTransmittal-External* step is where the recipients' responses are recorded for tracking purposes.



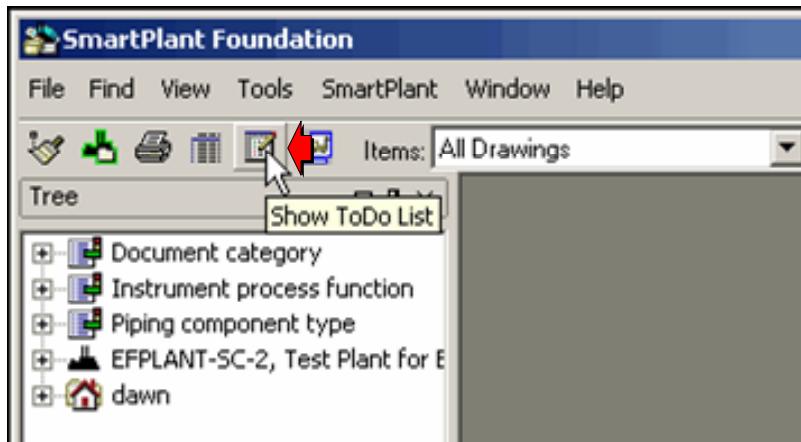
**Dawn** is the user that is responsible for monitoring her email and updating the recipient responses with comments from the email users (client).



After the **dawn** is logged on, open the *To Do List* to access the workflow. The next step to appear in the To Do List is the *IssueTransmittal-External* step.

## Tracking Recipient Responses

- Select the **To Do List icon** from the **Toolbar**.

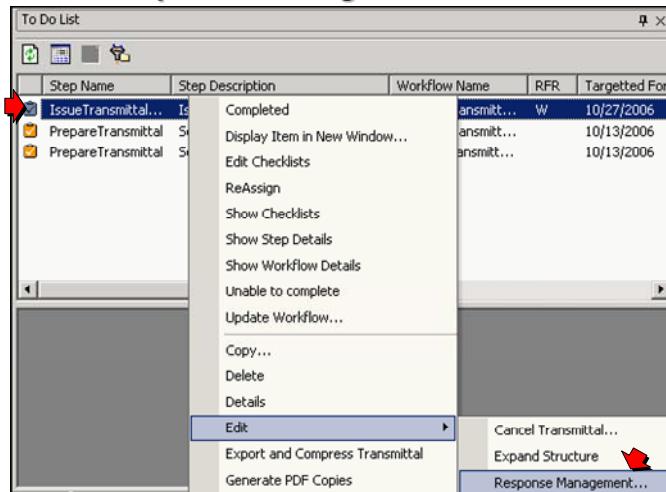


As recipients provide comments back to the document controller, the comments are tracked through the Response Management

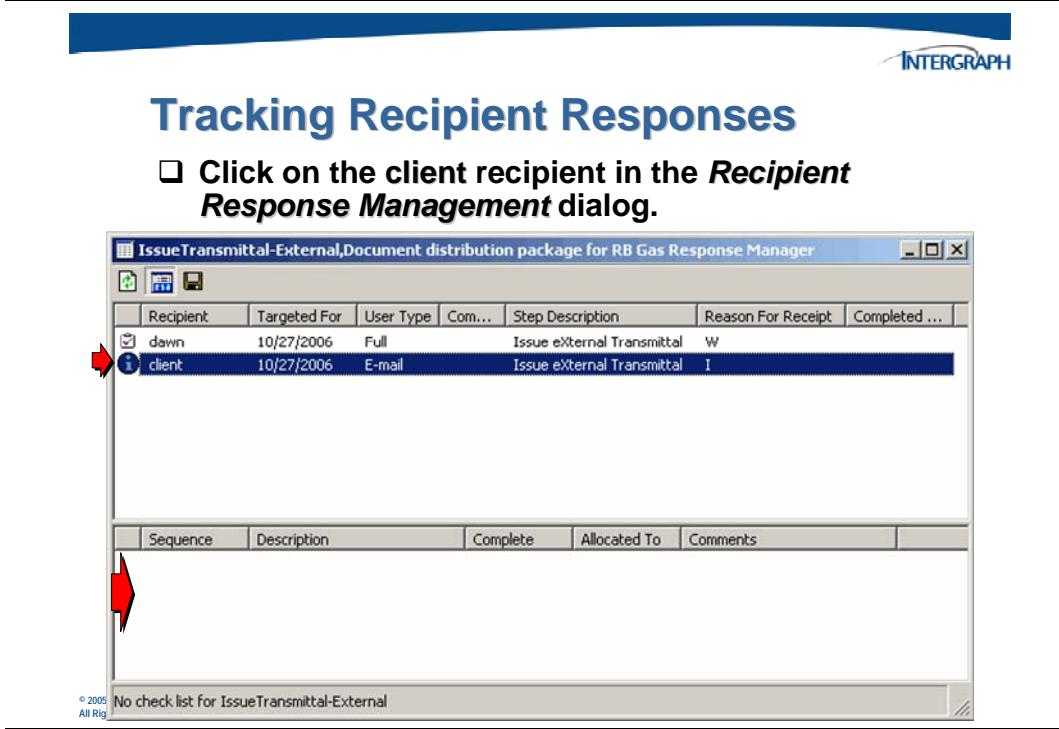
## Tracking Recipient Responses

- Right click on the **IssueTransmittal** step and select **Edit > Response Management...**

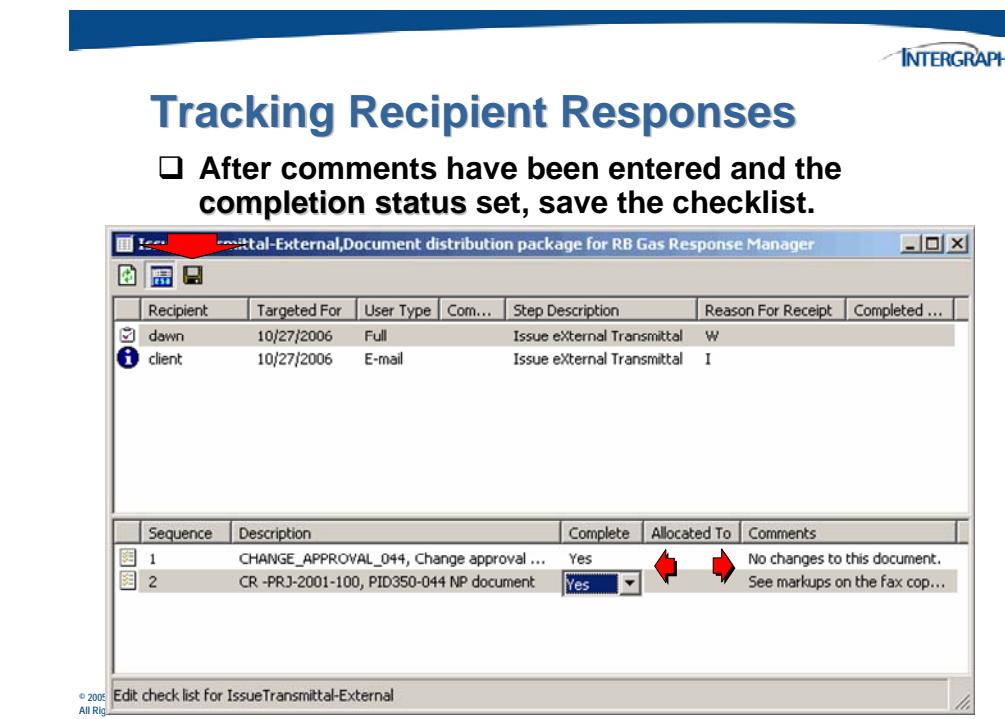
checklist.



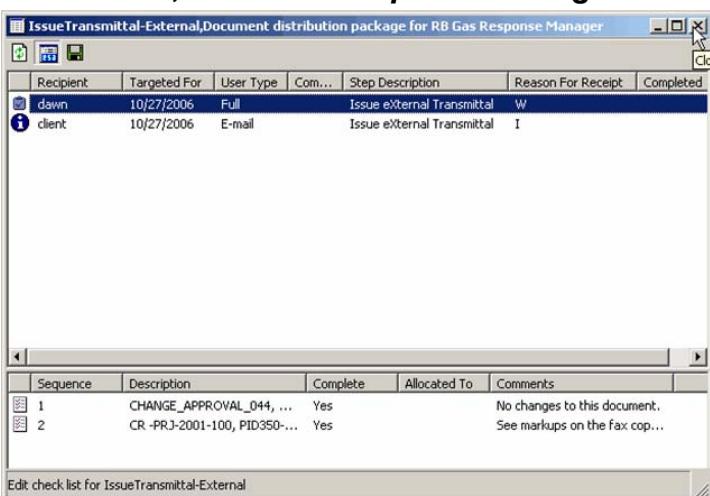
The *Response Manager* window will display.



Since the client is an *E-mail* only user (I), the ability to enter comments for this user is not permitted. Click on **dawn** to enter the client responses.

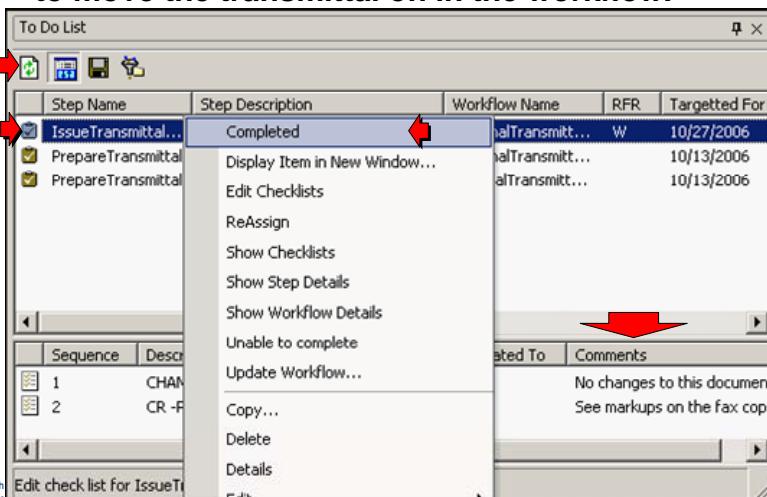


Click on the appropriate fields in the **Comments** column and also in the **Complete** column to finish the *Response Management* checklist.



The screenshot shows the 'IssueTransmittal-External' window with two tabs: 'Recipient' and 'Checklist'. The 'Recipient' tab lists two entries: 'dawn' (Targeted For: 10/27/2006, User Type: Full, Step Description: Issue eXternal Transmittal, Reason For Receipt: W) and 'client' (Targeted For: 10/27/2006, User Type: E-mail, Step Description: Issue eXternal Transmittal, Reason For Receipt: I). The 'Checklist' tab displays a table with columns: Sequence, Description, Complete, Allocated To, and Comments. Two items are listed: Item 1 (Description: CHANGE\_APPROVAL\_044, ... Complete: Yes, Comments: No changes to this document.) and Item 2 (Description: CR -PRJ-2001-100, PID350-... Complete: Yes, Comments: See markups on the fax cop...). A red arrow points to the close button in the top right corner of the window.

Click the **Refresh** button to see the *Response Management* comments displayed in the checklist.



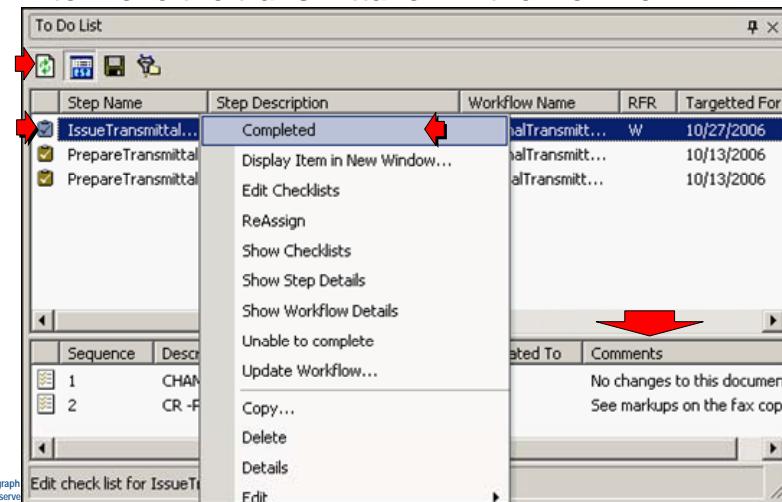
The screenshot shows the 'To Do List' window with a toolbar at the top. A red arrow points to the first icon in the toolbar. The main area contains a table with columns: Step Name, Step Description, Workflow Name, RFR, and Targetted For. One row is selected, showing 'IssueTransmittal...' with 'Completed' in the Step Description column. A red arrow points to the 'Completed' cell. A context menu is open over this row, with a red arrow pointing to the 'Completed' item. The menu options include: Display Item in New Window..., Edit Checklists, ReAssign, Show Checklists, Show Step Details, Show Workflow Details, Unable to complete, Update Workflow..., Copy..., Delete, Details, and Edit. The 'Comments' section at the bottom of the window shows 'No changes to this document' and 'See markups on the fax cop...'. A red arrow points to the bottom right corner of the window.

Once the responses have been recorded, *dawn* can **Complete** this step.



## Tracking Recipient Responses

- ☐ Right click on the workflow step and select **Completed** to move the transmittal on in the workflow.

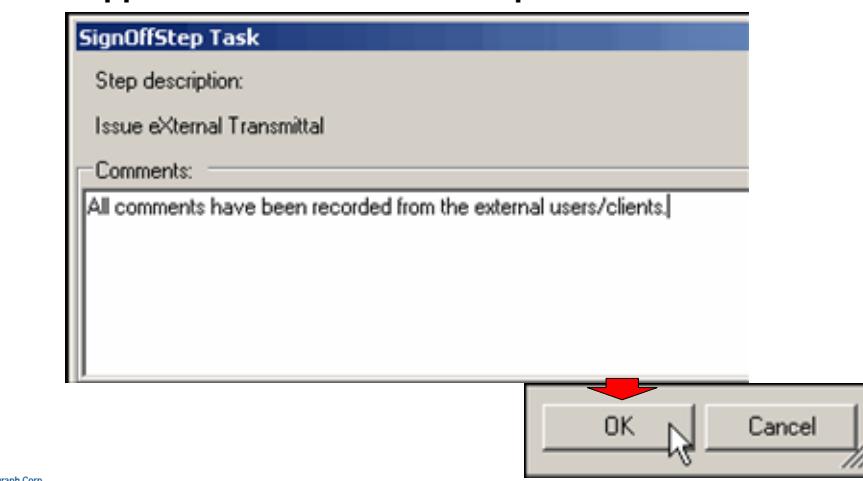


The *SignOffStep Task* form will display.



## Tracking Recipient Responses

- ☐ Enter some comments to indicate what has happened in this workflow step and click **OK**.



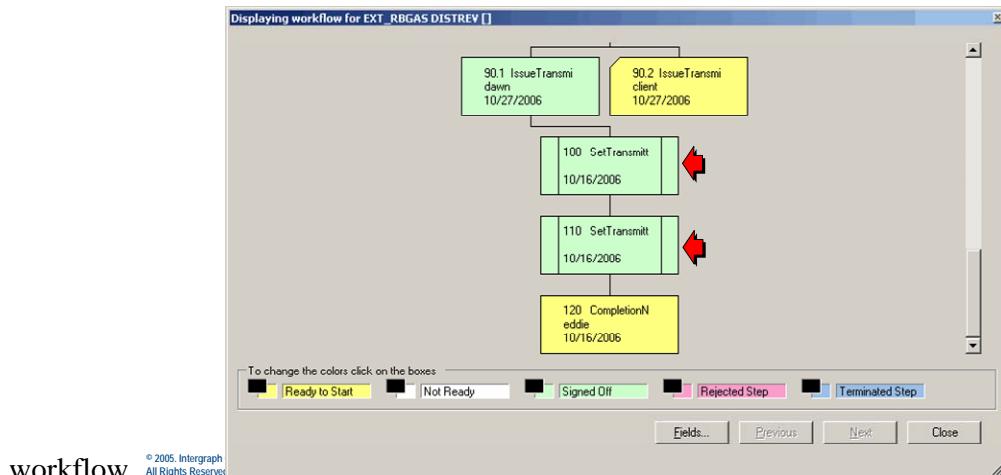
## 8.3 Completing a Transmittal

When work or comments have been completed for the **Issued** transmittal, it progresses to the final phase of the workflow where the transmittal is **Completed**. This is an automatic process performed by the ExternalTransmittal



### Completing a Transmittal

The final steps in the workflow will automatically complete the transmittal once all the responses have been recorded



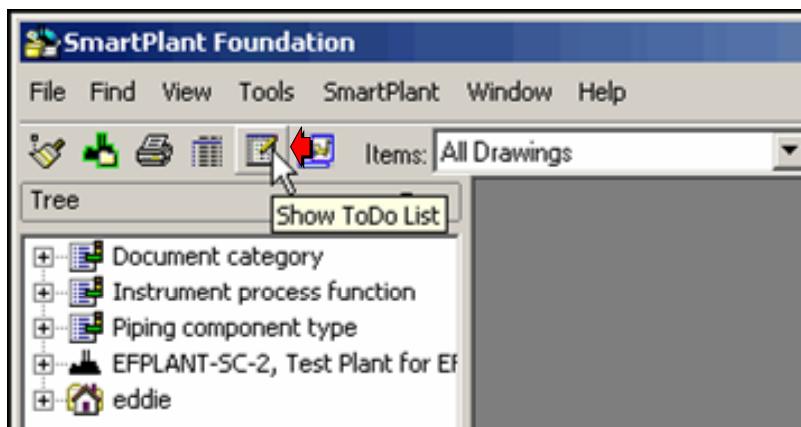
workflow.

The final user in this workflow scenario is *eddie*. The *CompletionNotice* step is where recipients are notified that the transmittal has been completed.

Once eddie is logged on, open the *To Do List* to access the workflow step and the transmittal.

## Transmittal Completion

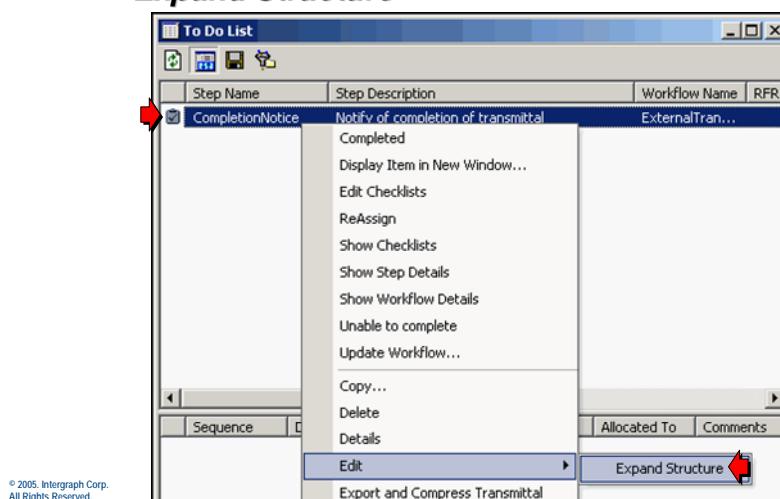
- Select the *To Do List* icon from the *Toolbar*.



The next step to appear in the *To Do List* is the *CompletionNotice* step. Display the transmittal that is associated with this step in the workflow.

## Transmittal Completion

- Right click on the workflow step and select *Edit > Expand Structure*.

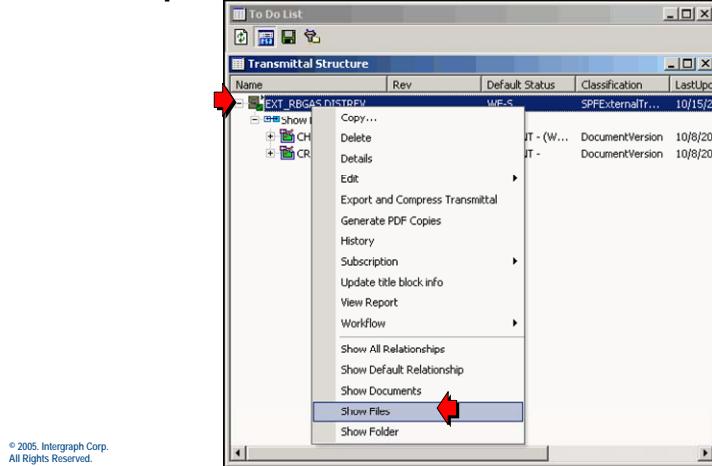


A transmittal report is generated at the time when the transmittal moves to the ISSUED state. It is stored in a subdirectory of the Vault.



## Transmittal Completion

- Right click on the external transmittal and select **Show All Files** to display the related transmittal report.

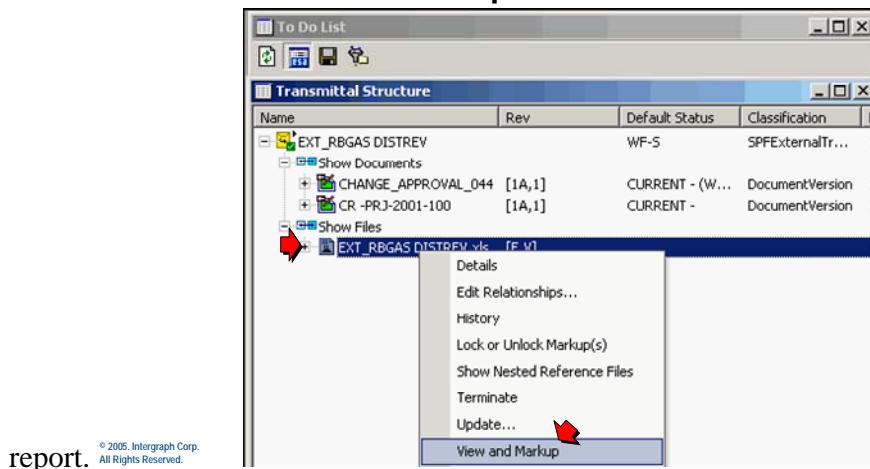


For External transmittals, the subdirectory is called **SPFExternalTransmittal**. You can use the SPF file viewing software to review the transmittal



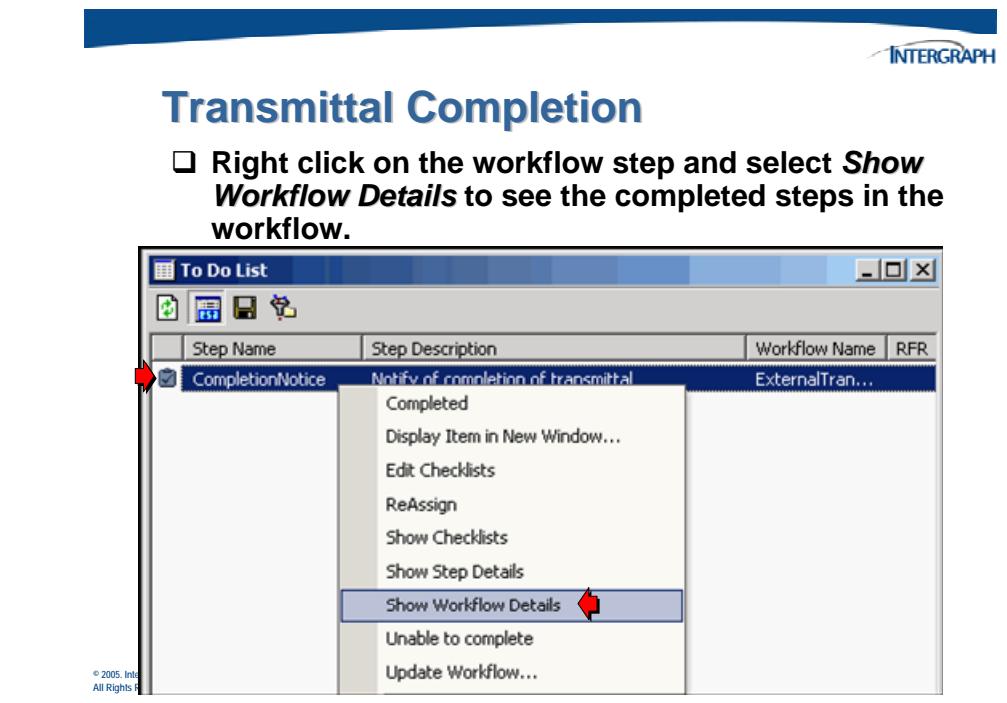
## Transmittal Completion

- Right click on the **Transmittal Report** file and select **View and Markup...** to view the report using SmartPlant Markup.

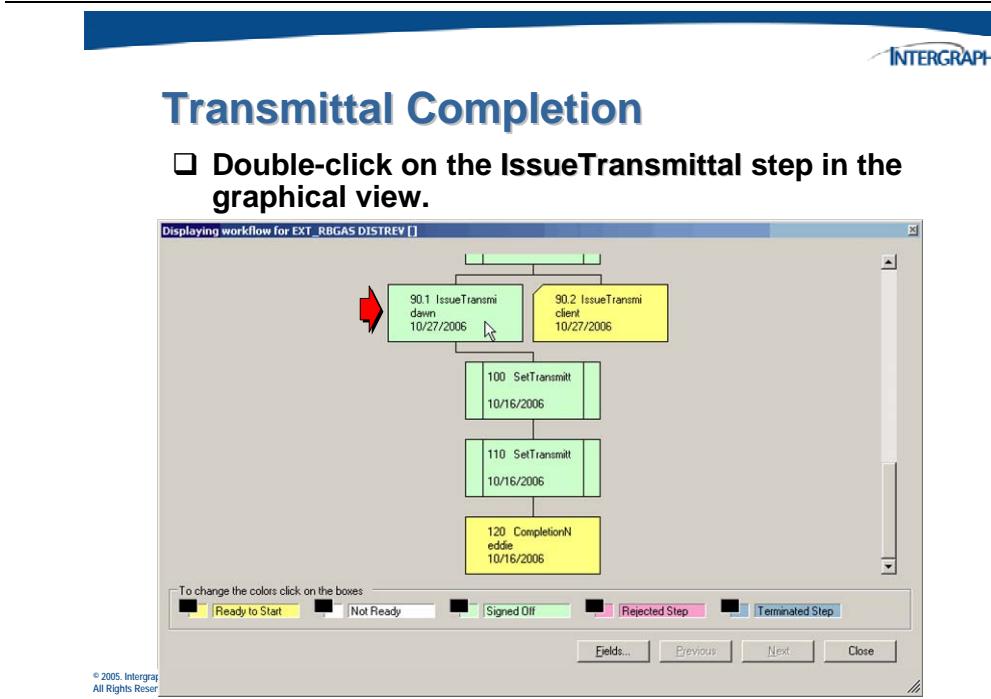


SmartPlant Markup will be automatically launched by SPF and will display the report file in a window. Close the file viewer once you have completed reviewing the report.

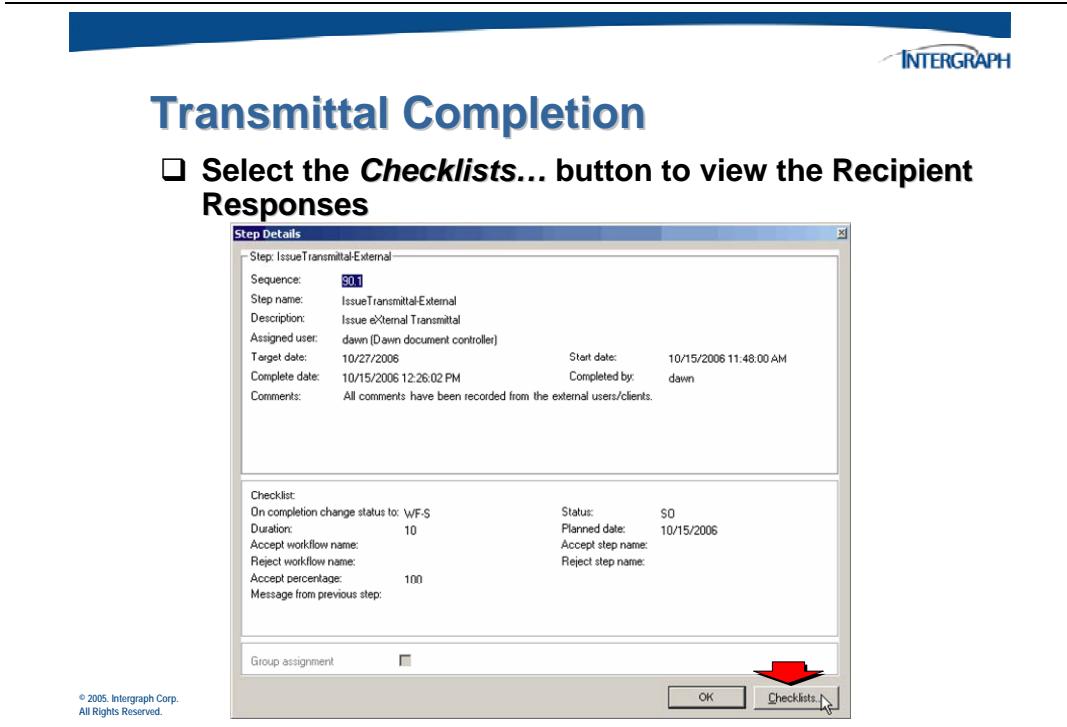
You can use the workflow graphical dialog to see the progress of the transmittal.



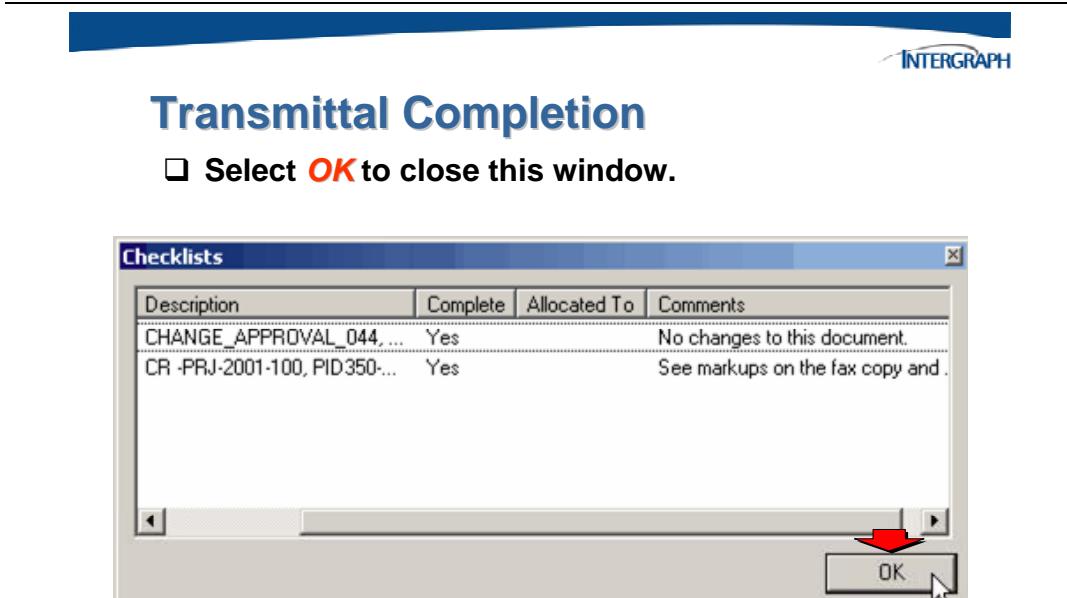
This will allow *eddie* to verify the workflow steps that have been successfully completed as well as see what steps are left to be performed.



The *Step Details* window will display. This window will show the comments that were entered for this step as well as allow you to see the results of the checklist.



Use the scroll bar to view the *Recipient Response* checklist.

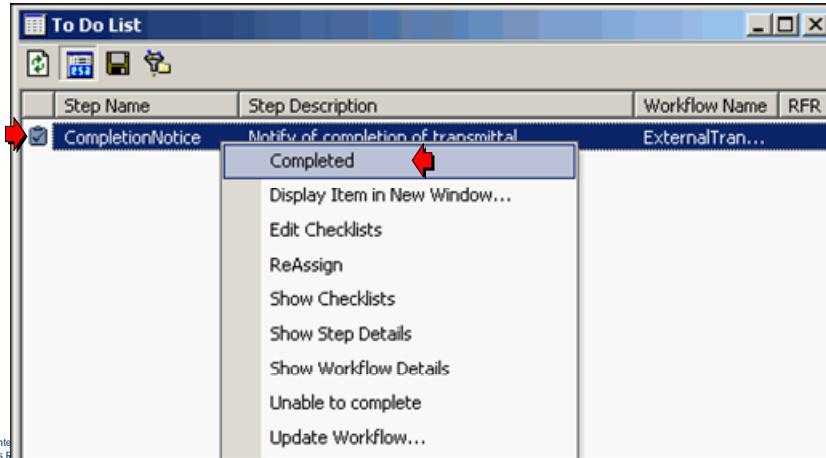


After the workflow details window is closed, *eddie* can **Complete** the workflow.

---

## Transmittal Completion

- Right click on the workflow step and select **Completed** to complete the transmittal in the workflow.



The *SignOffStep Task* form will display.

---

## Transmittal Completion

- Enter comments to indicate that the transmittal package is complete and click **OK**.

The screenshot shows a dialog box titled "SignOffStep Task". It contains a "Step description:" label followed by "Notify of completion of transmittal". Below that is a "Comments:" label with a text input field containing the text "RB Gas and Oil distribution package is complete.". At the bottom of the dialog are two buttons: "OK" and "Cancel". A red arrow points to the "OK" button. The footer of the dialog includes the copyright notice "© 2005, Intergraph Corp. All Rights Reserved."

The external transmittal has now been completed.

The screenshot shows a software window titled "Transmittal Completion". Below the title, a message reads: "The workflow step is removed from the users To Do List." The main area is a "To Do List" window with a blue header bar. The header contains icons for New, Open, Save, and Close, followed by the title "To Do List". The window has three tabs at the top: "Step Name", "Step Description", and "Workflow Name / RFR". The main body of the window is empty, with a large red arrow pointing upwards towards the header. At the bottom, there is a toolbar with buttons for Sequence, Description, Complete, Allocated To, and Comments. A status bar at the very bottom displays the copyright information: "© 2005, Intergraph Corp. All Rights Reserved."

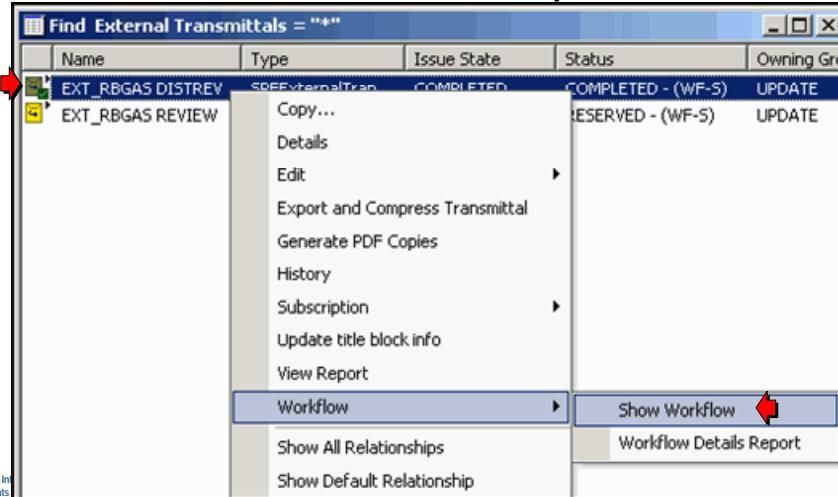
One last thing that the user might do is verify the steps that were performed during the workflow.

The screenshot shows the "SmartPlant Foundation" application window. The menu bar includes File, Find, View, Tools, SmartPlant, Window, and Help. The toolbar below the menu bar includes icons for New, Open, Save, Print, and Find, with the "Find" icon highlighted by a red arrow. The search bar contains the text "Items: External Transmittals". To the right of the search bar is a "Find" button with a magnifying glass icon, also highlighted by a red arrow. On the left side of the window is a "Tree" view pane showing a hierarchical list of categories: Document category, Instrument process function, Piping component type, EFPLANT-SC-2, Test Plant for Ef, and eddie. The main workspace is currently empty. A status bar at the bottom displays the copyright information: "© 2005, Intergraph Corp. All Rights Reserved."



## Transmittal Workflow Details

- Right click on the transmittal and select Workflow > Show Workflow to see the completed workflow.

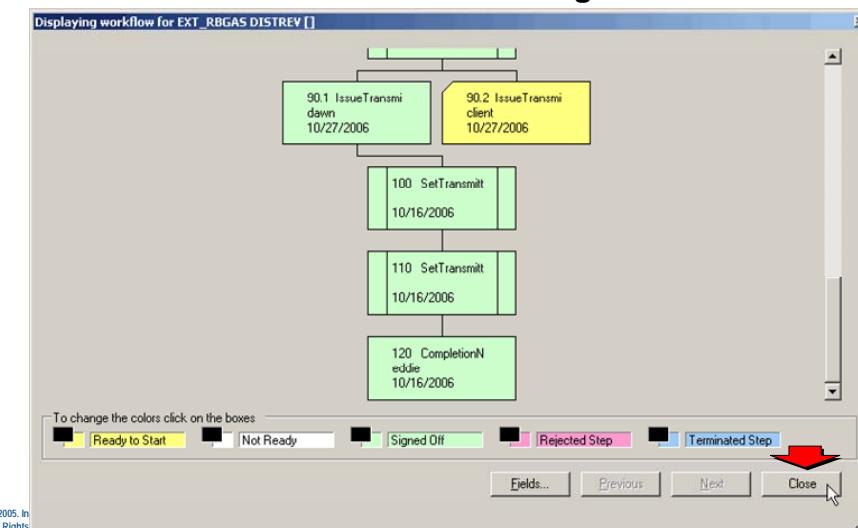


This will allow eddie to verify all workflow steps have been successfully completed.



## Transmittal Workflow Details

- Select Close to close this dialog.



A *Workflow Details Report* can be generated to display a history of the workflow processing.

**Transmittal Workflow Details**

☐ Right click on the transmittal and select **Workflow > Workflow Details Report** to view a workflow report.

This report will display details about the finished workflow such as the *Name*, *Workflow Status* (at completion), *Step Names*, and *Assignees*.

**Transmittal Workflow Details**

☐ Use the scroll bars to view all of the details report.

Sequence Number	Name	Description	Status	Duration	Comments
10	PrepareTransmittal	Set up assignees and documents	SO	5	Documents have been att...
20	ValidateMainIntlRecipient	Validate the main transmittal recipient	SO	1	Auto Process Sign Off
30	ApproveTransmittal	Approve transmittal assignees and documents	SO	2	Transmittal package check
40	ApproveTransmittalVote	Vote on approval of transmittal assignees and documents	SO	1	Auto Process Sign Off
50	ValidateExternalTransmittalDocs	Validate external transmittal documents	SO	1	Auto Process Sign Off
60	SetTransmittalStateToISSUED	Set transmittal state to ISSUED	SO	1	Auto Process Sign Off
70	SetTransmittalIssuedDate	Set transmittal issued date	SO	1	Auto Process Sign Off
80	RunAndAttachExternalIntlReport	Run and attach external transmittal report	SO	1	Auto Process Sign Off
- 90.1	IssueTransmittal-External	Issue external Transmittal	SO	10	All comments have been re...
<b>Check List</b>					
90.2	IssueTransmittal-External	Issue external Transmittal	RS	10	
100	SetTransmittalStateToCOMPLETED	Set transmittal state to COMPLETED	SO	1	Auto Process Sign Off
110	SetTransmittalCompletedDate	Set transmittal completed date	SO	1	Auto Process Sign Off
120	CompletionNotice	Notify of completion of transmittal	SO	1	RB Gas and Oil distribution

## 8.4 Exporting a Transmittal Structure

For the recipients of transmittals are outside of the SPF world, Transmittal Export provides a way to distribute the files attached to the transmittal.

These files have to be copied on to the file system as a structure so they can be put on a CD or DVD for distribution.

This functionality could be implemented in a generic way such that any object could be exported to hard disk for different purposes like Archiving of vaults.



### Transmittal Export

**Transmittal Export provides a way to distribute the files attached to the transmittal.**

**These files have to be copied on to the file system as a structure so they can be put on a CD or DVD for distribution.**

**The major functionality includes:**

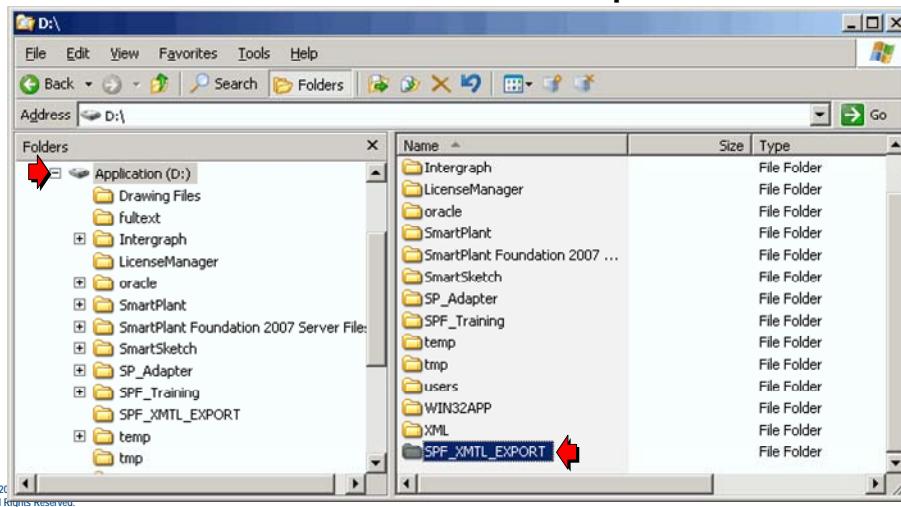
- Copy out all related files**
- Organize files in directory structure**
- Copy to user specified location**
- Create a Transmittal Report/Index**

Before using the Export Transmittal command, a target location must be created.



## Transmittal Export

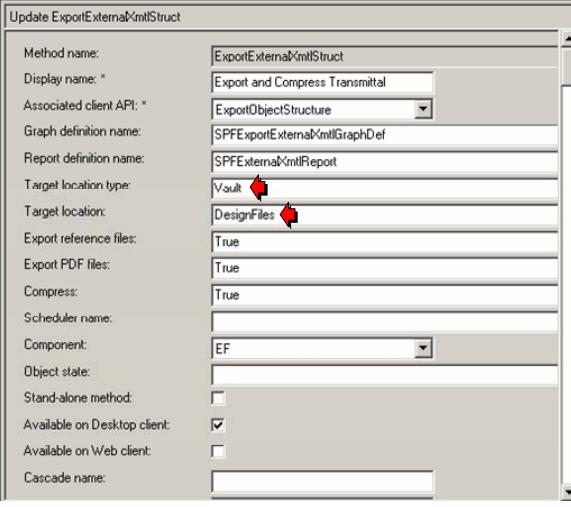
- Create a new folder that will contain the location for the transmittal structure to be exported.



In SPF, after the transmittal has been issued, a pop up menu command can be executed on the transmittal do the following:

- Expand the objects from transmittal using the *GraphDef* specified in the step or method, which results the objects being put in an xml file.
- For each file node, if *export reffiles* is true, get all the nested reference files for the file and append these to xml under appropriate nodes.
- Run the *ReportDef* to create the report in and copy into target location under main transmittal directory. This report will have links to file with relative paths in it main directory as the root directory.

Perform a search to locate the existing method to export a transmittal. In this example, the method name is **ExportExternalXmtlStruct**.



The default location for the export is **Vault** and the vault name.

**Transmittal Export**

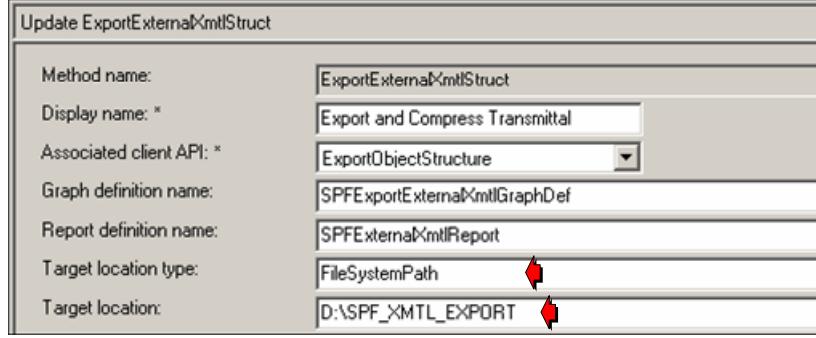
The default location for the export is **Vault** and the vault name.

Update ExportExternalXmtlStruct

Method name:	ExportExternalXmtlStruct
Display name:	Export and Compress Transmittal
Associated client API:	ExportObjectStructure
Graph definition name:	SPFExportExternalXmtlGraphDef
Report definition name:	SPFExternalXmtlReport
Target location type:	Vault
Target location:	DesignFiles
Export reference files:	True
Export PDF files:	True
Compress:	True
Scheduler name:	
Component:	EF
Object state:	
Stand-alone method:	<input type="checkbox"/>
Available on Desktop client:	<input checked="" type="checkbox"/>
Available on Web client:	<input type="checkbox"/>
Cascade name:	

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This is in order to change the location and type for the export. These changes will set the location type for the export to a file system and the actual folder path.



□ Update the **Target location type** and the **Target location** fields and click OK.

**Transmittal Export**

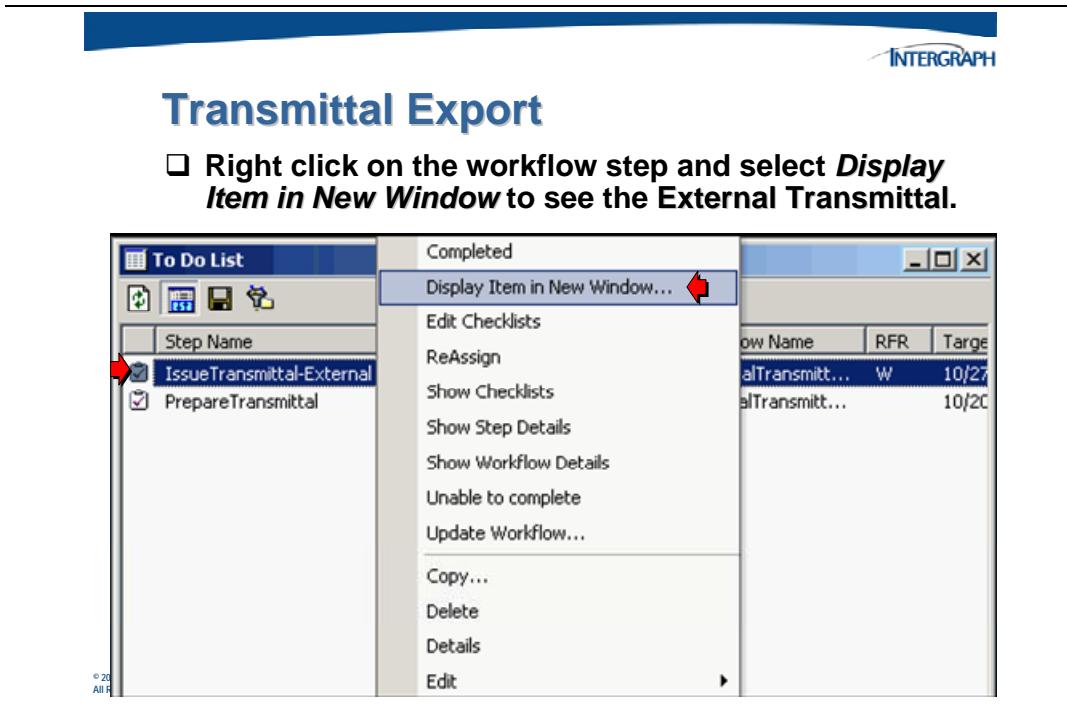
□ Update the **Target location type** and the **Target location** fields and click OK.

Update ExportExternalXmtlStruct

Method name:	ExportExternalXmtlStruct
Display name:	Export and Compress Transmittal
Associated client API:	ExportObjectStructure
Graph definition name:	SPFExportExternalXmtlGraphDef
Report definition name:	SPFExternalXmtlReport
Target location type:	FileSystemPath
Target location:	D:\SPF_XMTL_EXPORT

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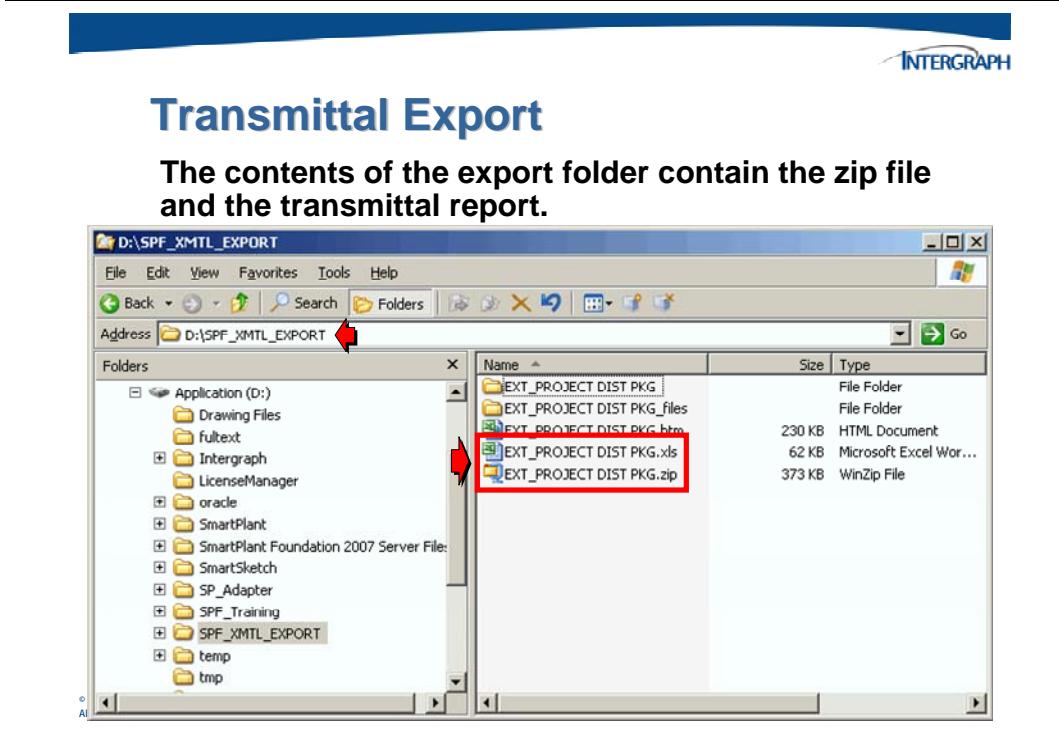
The Export would most likely be executed by the document controller once the transmittal has been issued. The document controller would open a **To Do List** and select the **IssueTransmittal** step.



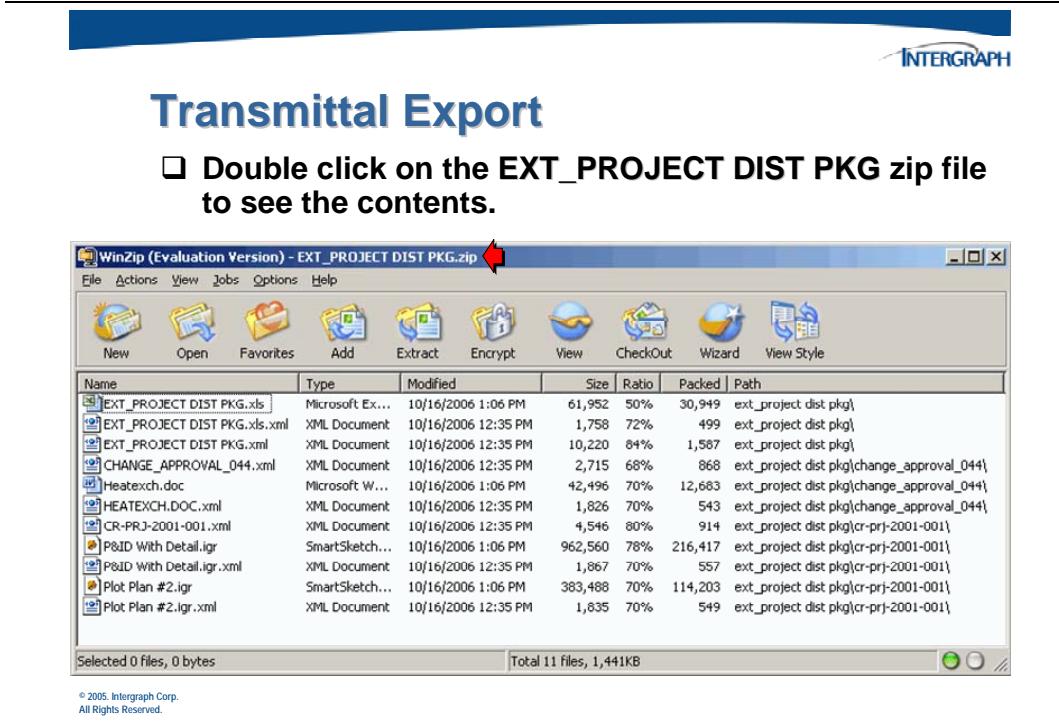
A Retrieved *IssueTransmittal-External* results window will display showing the transmittal associated with the workflow step.



Use windows explorer to verify the results of the export operation.



You can open the zip file that was produced by the export command and examine the files that will be made available to the external recipients (**clients**).



The client can use the included html file to see the transmittal structure and view the attached file(s).

**Transmittal Export**

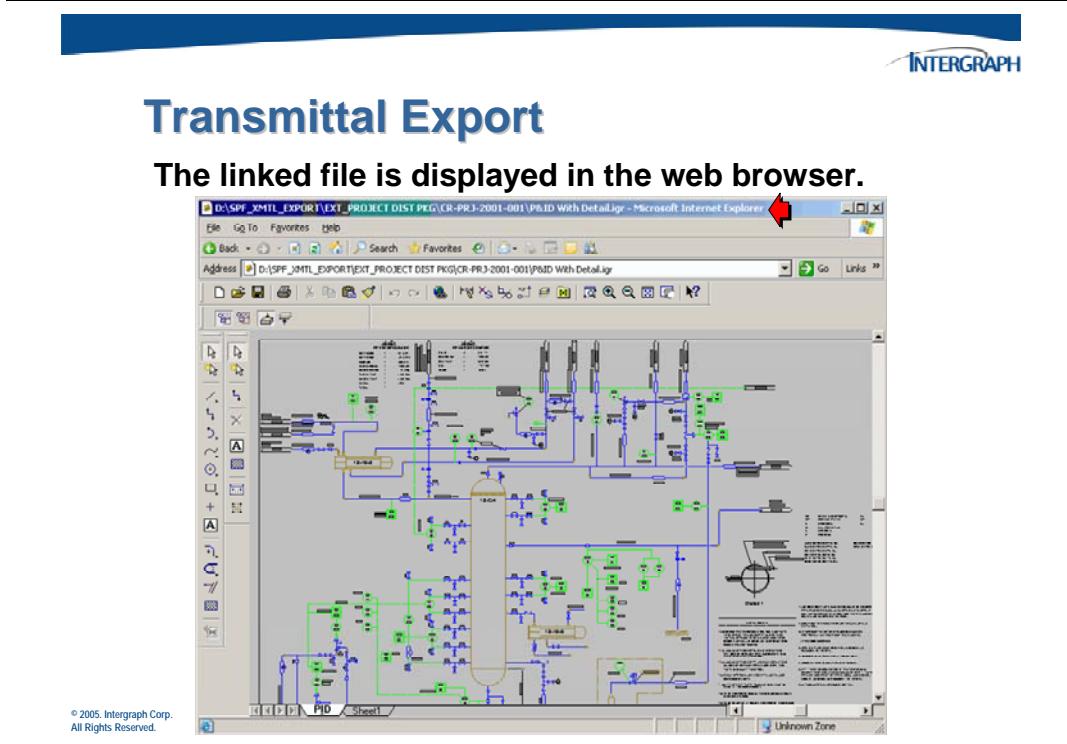
- ❑ Double click on the .htm file to see the transmittal report.

Files attached to transmittal documents will be displayed as a hyperlink in the report.

**Transmittal Export**

- ❑ Click on one of the included file hyperlinks to display a file included in the Transmittal Export.

The client will have the capability to review the files that are in the transmittal distribution package.



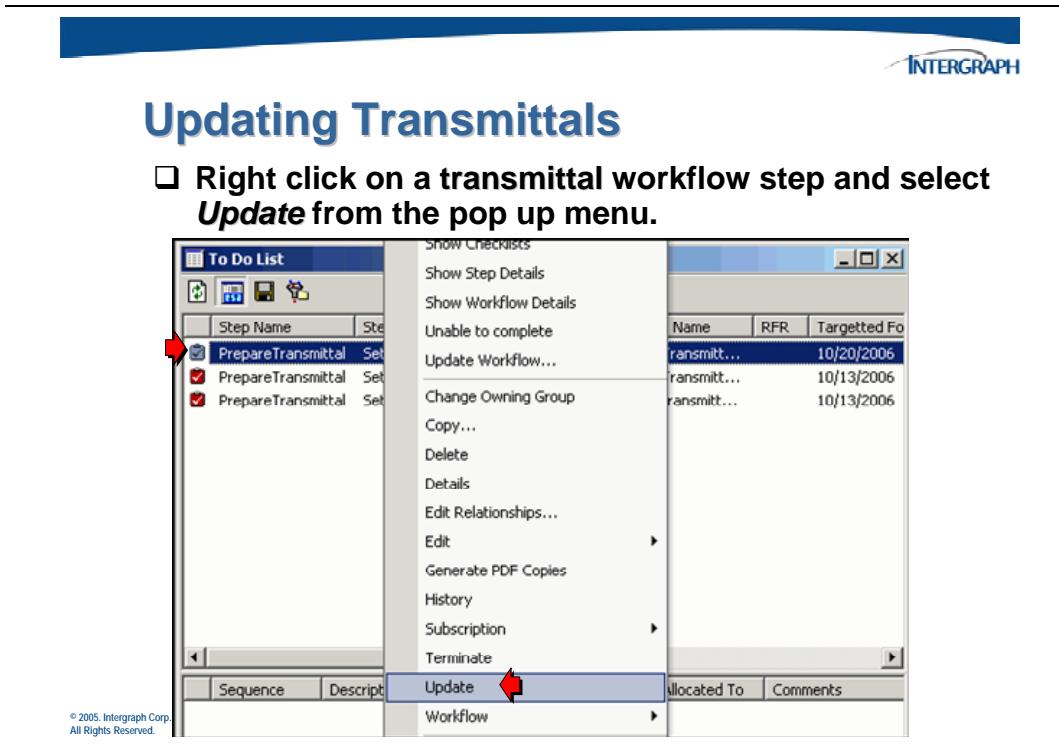
## 8.5 Transmittal Manipulations

This part of the chapter will deal with updating a transmittal as well as, canceling, and terminating transmittal objects.

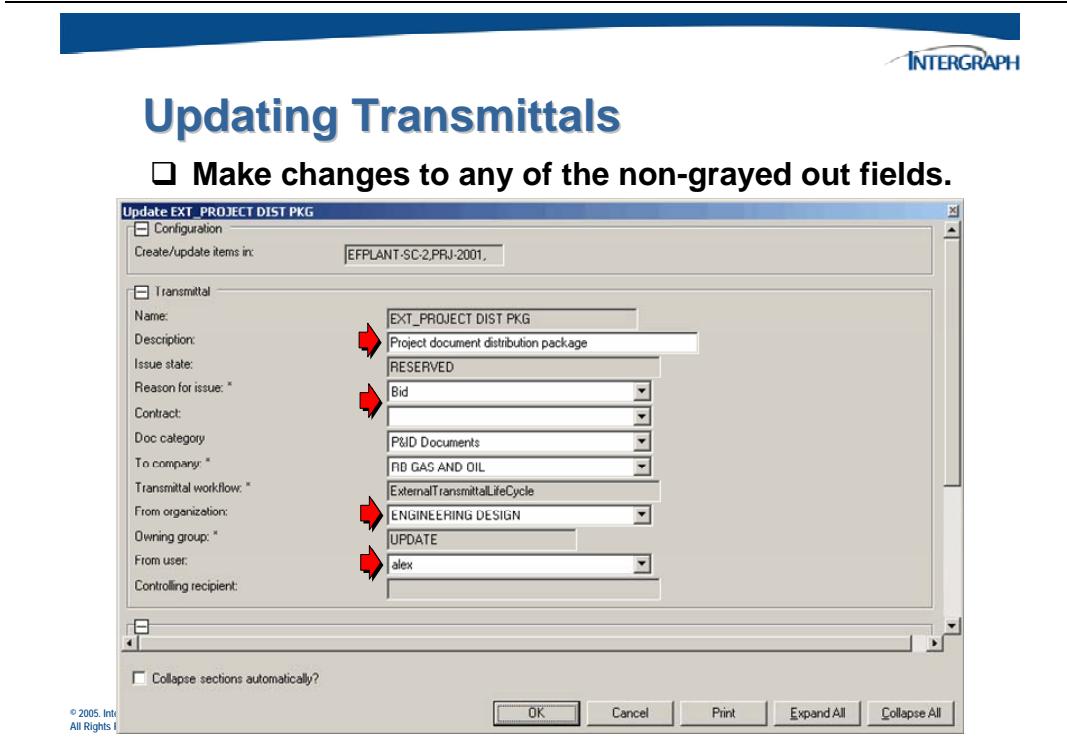
### 8.5.1 Updating Transmittals

It is possible to update a transmittal as long as the status (Revision Status) is set to working. The update is limited to specific properties and uses the standard Update command from the Object menu.

To perform an update, highlight a transmittal from a *Find results* window.



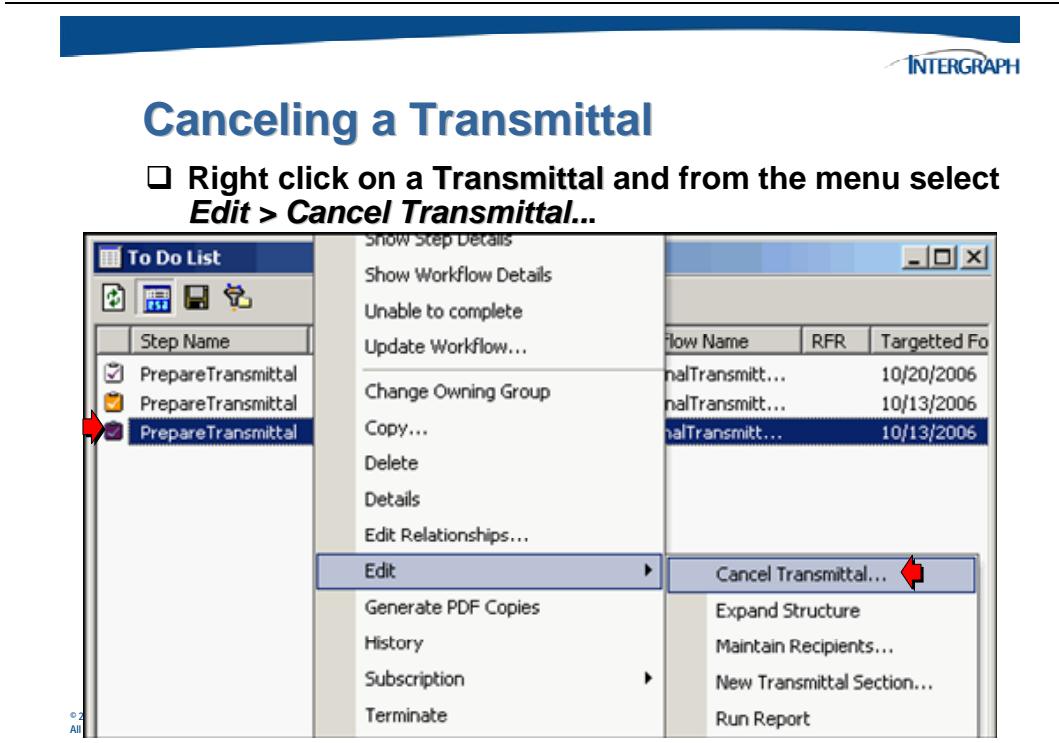
The *Update* transmittal dialog will display.



## 8.5.2 Canceling a Transmittal

A transmittal may be cancelled if needed. If the transmittal has already been issued when it is cancelled, it is reissued with an issue state of CANCELLED to all recipients. The Cancel changes the status of the transmittal and attached sections to CANCELLED. The cancelled transmittal icon has an X attached to it.

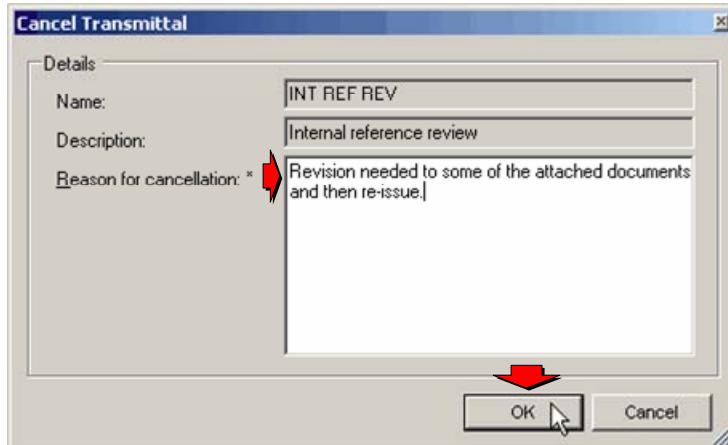
Search to locate and highlight the transmittal to be cancelled.



The Cancel Transmittal command will present a confirmation dialog with a *Reason for cancellation* free-form key-in field. This will provide better record keeping and allow you to prevent the cancellation of a transmittal by mistake.

## Cancelling a Transmittal

- Enter the *Reason for cancellation* and click OK.



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## Cancelling a Transmittal

The icon changes to show an X indicating that the Transmittal has been canceled.

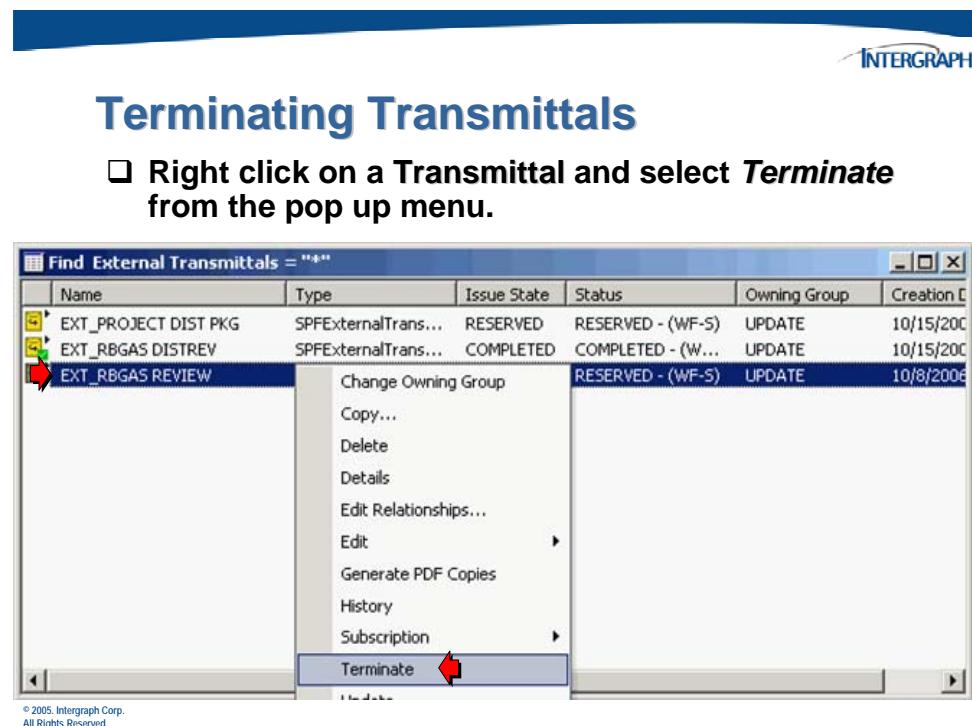
Find Internal Transmittals = ***						
	Name	Type	Issue State	Status	Owning Group	Create
	INT REF REV	SPFInternalTrans...	CANCELLED	CANCELLED - (WF-I)	UPDATE	10/8/

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### 8.5.3 Terminating Transmittals

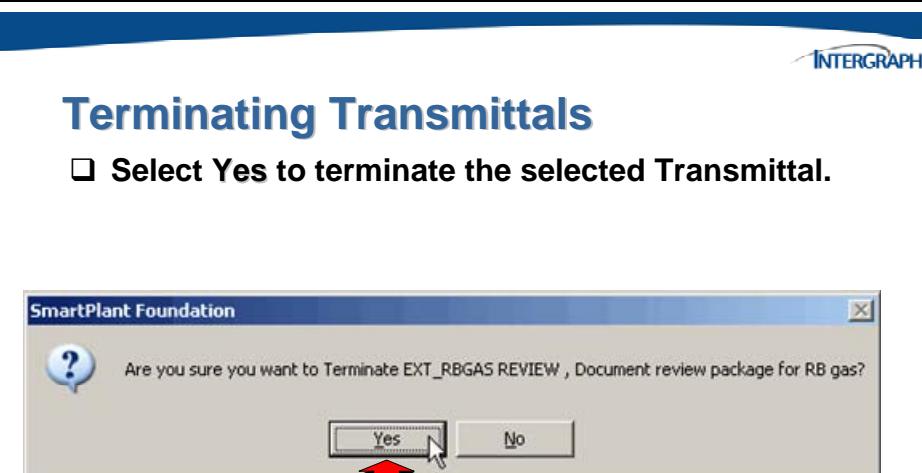
The Terminate Transmittal command allows a document controller to delete a transmittal.

Perform a search to locate the transmittal to be terminated. When the *Find results* window displays, highlight the transmittal that will be deleted.



Terminating a transmittal keeps the transmittal's history in the database.

A dialog will display where you will be prompted to continue with the transmittal termination.



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## Terminating Transmittals

The terminated transmittal will be removed from the results window.

Name	Type	Issue State	Status	Owning Group	Creation Date
EXT_PROJECT DIST PKG	SPFExternalTrans...	RESERVED	RESERVED - (WF-S)	UPDATE	10/15/200
EXT_RB GAS DISTREV	SPFExternalTrans...	COMPLETED	COMPLETED - (W...	UPDATE	10/15/200

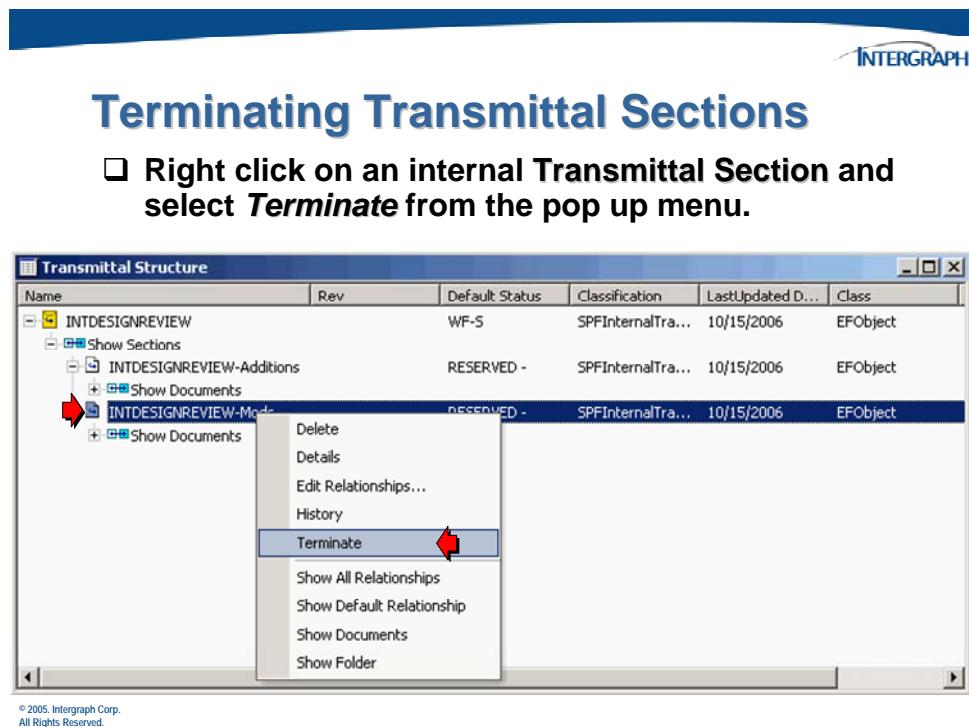
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## 8.5.4 Terminating Transmittal Sections

A *Transmittal Section* can be terminated as well as an internal transmittal.

Perform a search to locate the transmittal Section to be terminated. When the *Find results* window displays, highlight the transmittal Section that will be deleted.



Terminating a transmittal section keeps the section's history in the database.



## Terminating Transmittal Sections

- Select Yes to terminate the selected internal Transmittal Section.



## 8.6 Activity – Using and Managing Transmittals

In this activity you will process an External Transmittal that was created in chapter 7.

**If you are not currently logged into your machine:**

1. Log on to your operating system (if not already logged in):  
*spfuser* with no password
2. Double-click on the Outlook Express icon on the desktop to open the email. Use the **File > Switch Identity...** command to change to mail user *doccontroller*.
3. Start the *Desktop Client interface* by selecting **Start > All Programs > Intergraph SmartPlant Foundation > SmartPlant Foundation Desktop Client**.
4. When the *Login* dialog window appears, use the *User name* **deb** with no password and click on **OK**.
5. Perform a search to find Internal Transmittal objects.
6. Perform a search to find External Transmittal objects.
7. View the email message sent to user **deb** (*doccontroller*), which is the transmittal/workflow preparation user.
8. As user *deb*, change the windows settings to **Multiple floating window, dockable** and disable the **Create all new windows as tabs** toggle using the **File > Change User Preferences...** command.
9. Open the **To Do List** in the SPF Desktop Client window, locate the PrepareTransmittal step submitted in the workflow in the chapter 7 hands on for the external transmittal. Show the transmittal associated with this step in a separate window.

10. Perform a search to find **Design Change Note** objects in order to be able to attach them to a transmittal. At least one of these document objects should also have a file attached.
  
11. Select 2 or more documents from the Find results window and freeze them to make them CURRENT. Which command performs this operation?\_\_\_\_\_
  
12. Choose and highlight the CURRENT documents and drag and drop them onto the External transmittal to attach them to the transmittal.
  
13. Verify that the documents have been attached to the transmittal. What command would you use to do this?\_\_\_\_\_
  
14. Use the **Edit > Maintain Recipients** to view the transmittal recipients and make sure that the doccontroller user has a *Reason for Receipt* and a *Format* set. If not, set these values.
  
15. After documents have been attached and the recipients checked and changed, as user deb, **Complete** the *Prepare* transmittal step. In the SignOffStep Task dialog, enter the following comment:  
 *Documents have been attached and recipients/distribution set. Transmittal package has been prepared.*
  
16. Use the **File > Change User...** command from the Desktop Client to change to user *eddie*. Also, from Outlook Express, use the **File > Switch Identity...** command to change to mail user *Eddie Edit*.
  
17. View the email message sent to user *eddie*, which is the transmittal approver.
  
18. Open the **To Do List** and select the **Show Workflow Details** (right click) command to view the progress of the transmittal. Double-click on the *Approve* step and view the details of the step.
  
19. From the To Do List, run a transmittal summary report. From the displayed report, what is the *Issue State* of this transmittal?\_\_\_\_\_

20. Verify that the documents have been attached to the transmittal. What command would you use to do this?\_\_\_\_\_
21. Use the **Edit > Maintain Recipients** to view the transmittal recipients and make sure that the doccontroller user has a *Reason for Receipt* and a *Format* set.
22. Once the documents and the recipients have been verified, as user eddie, **Approve** the *Approve* transmittal step. In the SignOffStep Task dialog, enter the following comment:
  - Transmittal package checked and approved.*
23. Next, view the email message sent to the *client*, which is the external user that will provide feedback. Open the attached report file and view it. What is the Issue State for the transmittal?\_\_\_\_\_
24. Use the **File > Change User...** command from the Desktop Client to change to user doccontroller, **deb**.
25. Open the **To Do List** and display the Response Management dialog. For the user doccontroller, enter the following comments:
  - Document 1 Complete – Yes Comments – No changes to this document.**
  - Document 2 Complete – Yes Comments – See markups on the fax copy.**
26. Save the comments that have recorded by the *Document Controller*. Refresh the **To Do List** to verify that the *Recipient Responses* have been saved. Where will they display?\_\_\_\_\_
27. Once the *Recipient Responses* have been entered, **Complete** the *Issue* transmittal step. In the SignOffStep Task dialog, enter the following comment:
  - All comments have been recorded from the external users/clients.*
28. Use the **File > Change User...** command from the Desktop Client to change to user **eddie**.

29. Open the **To Do List** and expand the transmittal structure to see the transmittal and the attached documents.
30. Use the **Show Files** pop up menu command to see the summary report that was generated when the transmittal was issued.
31. Select the **View and Markup** command to display the summary report. Which component does SPF use to accomplish this? \_\_\_\_\_
32. Choose the **Show Workflow** command to view the progress of the transmittal. Double-click on the *Issue* step (for deb) and view the details of the step. Also review the checklist associated with this step. What kind of information is displayed here? \_\_\_\_\_
33. **Complete** the *CompletionNotice* transmittal step. In the SignOffStep Task dialog, enter the following comment:  
 *RB Gas and Oil distribution package is complete.*
34. Select a find command to locate all of the **External** transmittals. Use the **Workflow > Show Workflow** command to see the results of the COMPLETED transmittal.
35. Generate a **Workflow Details Report**. Use the scroll bars to view the information in the report.
36. When you are finished with this activity, you may take a short break until the other students are ready to continue with the next chapter.

# 9

CHAPTER

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## Adhoc and Line List Reports



## 9. Adhoc Reporting

Adhoc reports provide a fast way to view objects and related object information. The format, or layout, of a report is fully customizable. You can save the layout definitions to create custom reports that you can reuse.

In order to provide Adhoc reporting for SPF it will be necessary to make use of the ViewDef /GraphDef concepts within SPF.



### Adhoc and Line List Reporting

**In this chapter the steps necessary to create an Adhoc Report and a Line List (Adhoc) report will be covered.**

**These steps include:**

- Outline the objects (Interface Defs) and properties which will comprise the report**
- Report content are derived from Graph Defs and View Defs**
- Properties of InterfaceDefs are configured as the columns of the report.**
- Adhoc reports have different options and filtering**
- Report destinations include Desktop Client browser Window (default), Excel, Word, HTML**

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Before creating a report first outline the data you wish to display and how it will be presented on the report.

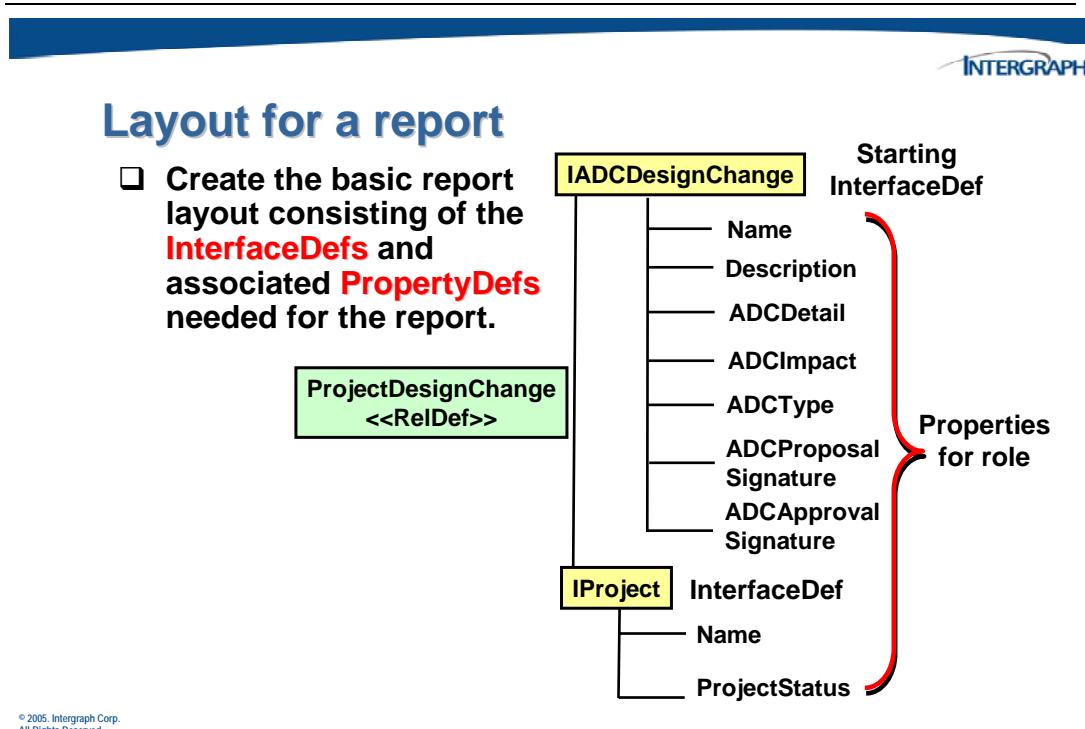
Example:

DocRevision – Document Revision object

Files – Files related to the Revision Document

Folder – Folder the Document Revision is located.

Below is an example using the custom class ADCDesignChange and it's related objects.

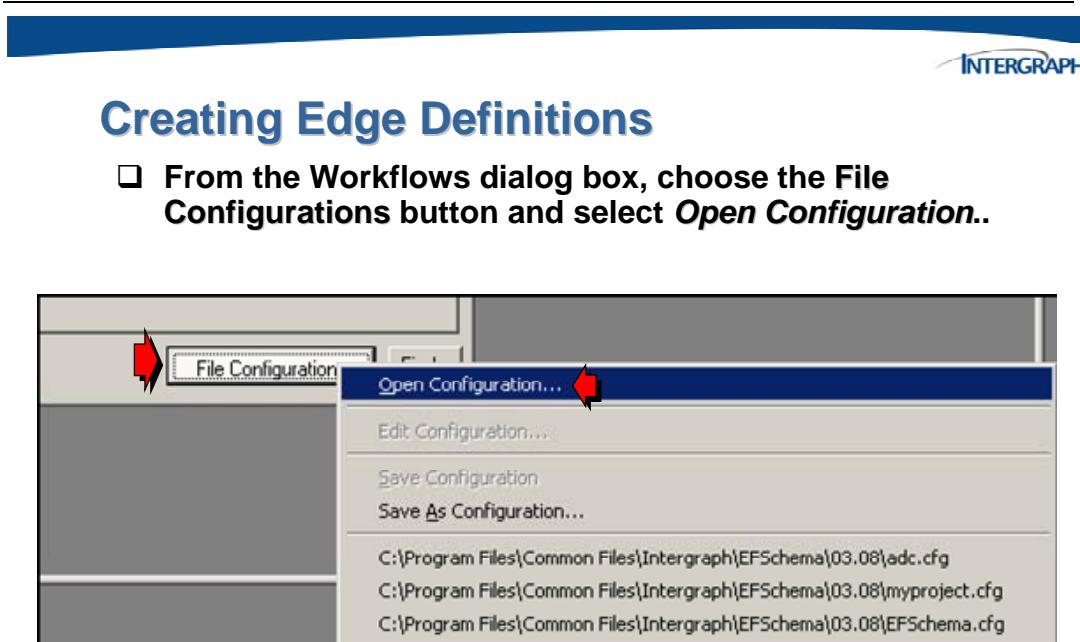


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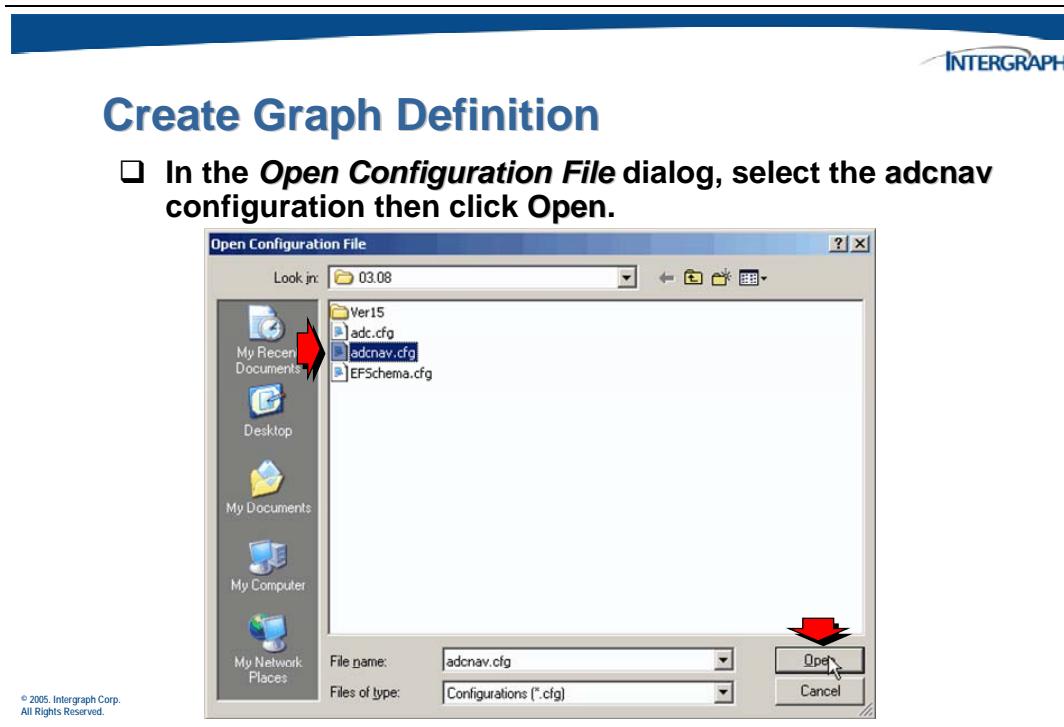
After understanding the layout, start the report by creating the report's Graph Definition.

## 9.1 Creating a Report Graph Definition

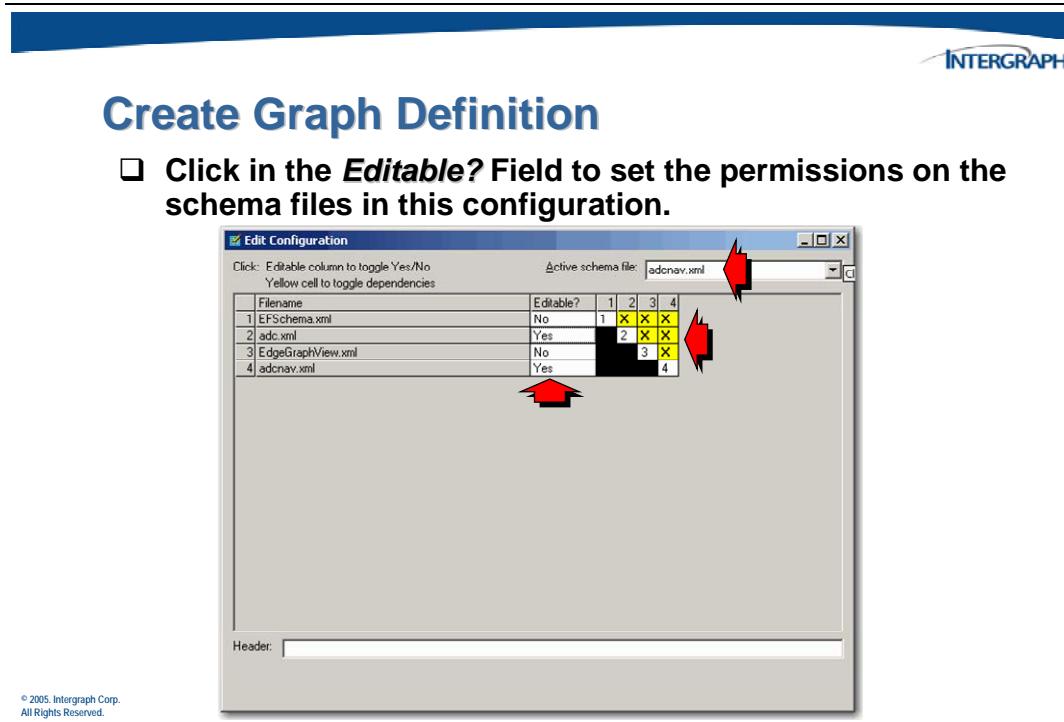
The contents of an Adhoc report are controlled by defining a Graph Def containing all of the properties that will be used in the report. The Graph Def is defined by an administrator and not the end user who will be generating the report. To define the necessary Graph Def, open the *SmartPlant Schema Editor* utility.



The *Open Configuration File* dialog will display.



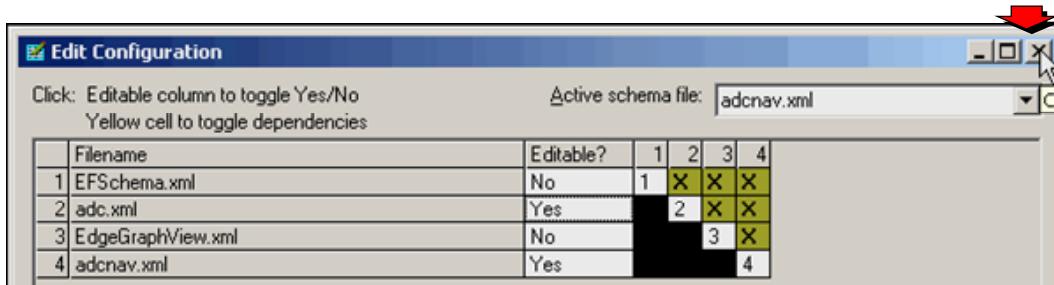
Edit the configuration and make sure the dependencies (an X in the yellow boxes) are correct.





## Creating Edge Definitions

- Click the X to close the *Edit Configuration* dialog.



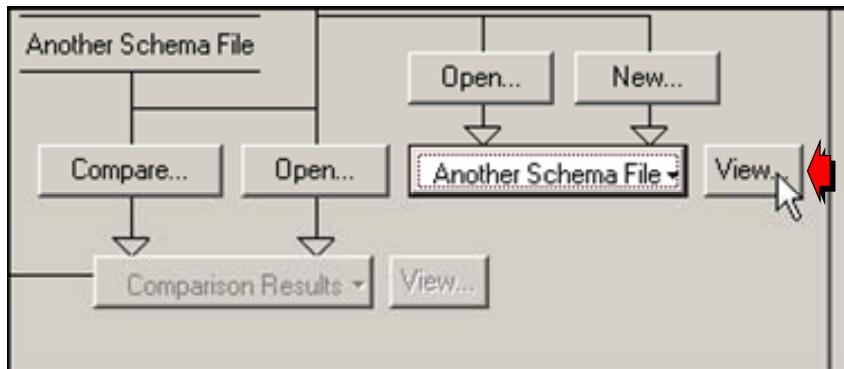
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Since other xml files have been added to the configuration, it can be saved as the same configuration file or as a different configuration.



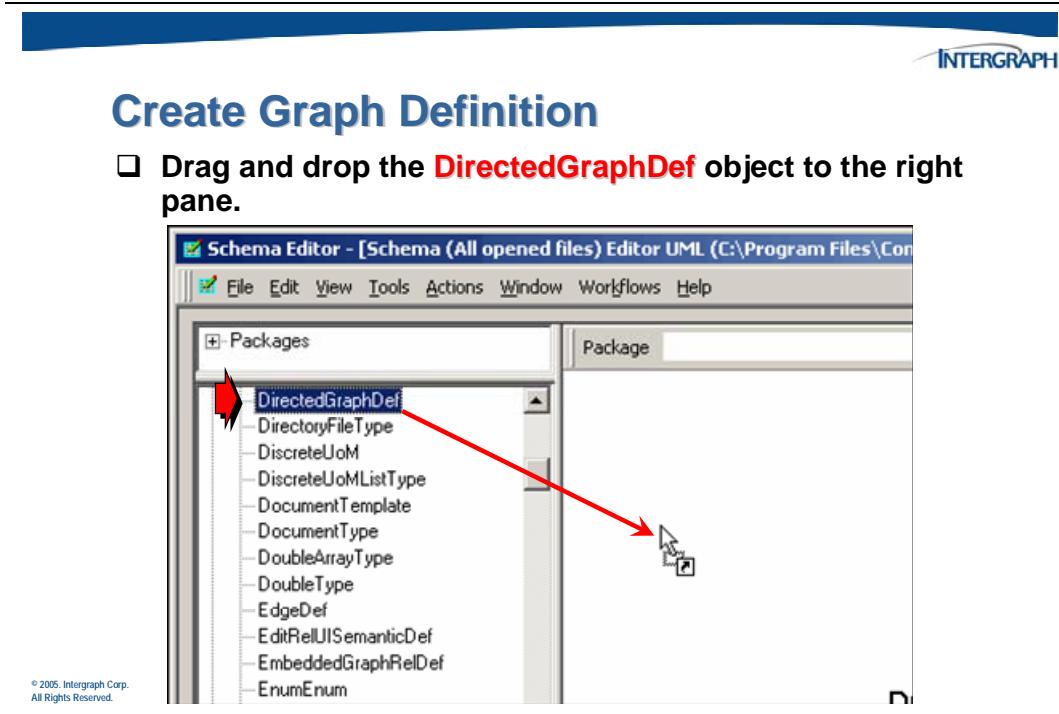
## Create Graph Definition

- In the *Workflows* dialog box, click the **View** button to view/edit the navigation schema file (adcnav.xml).

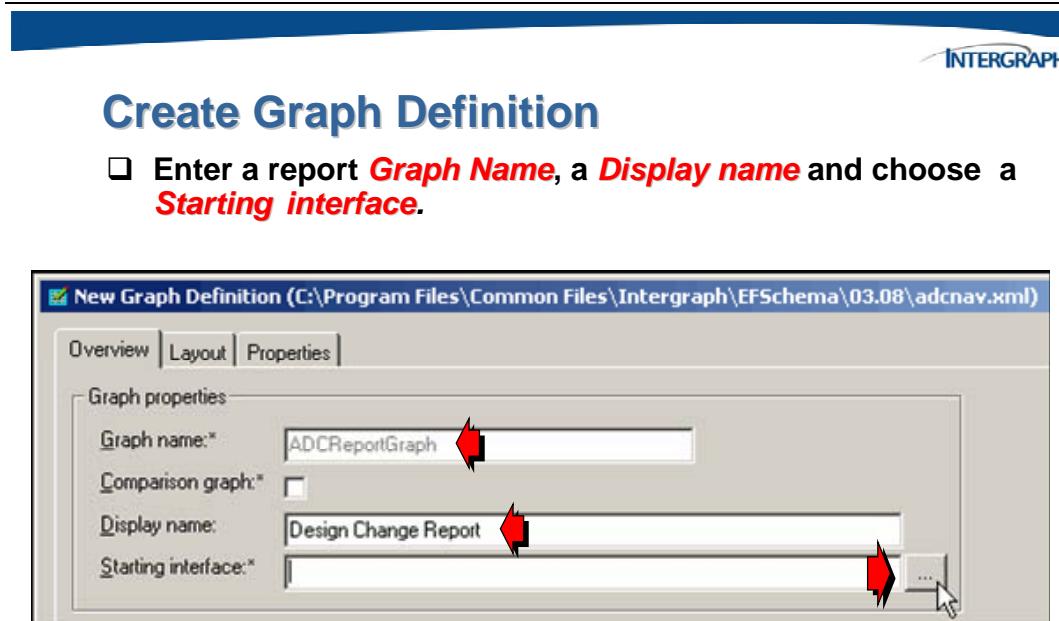


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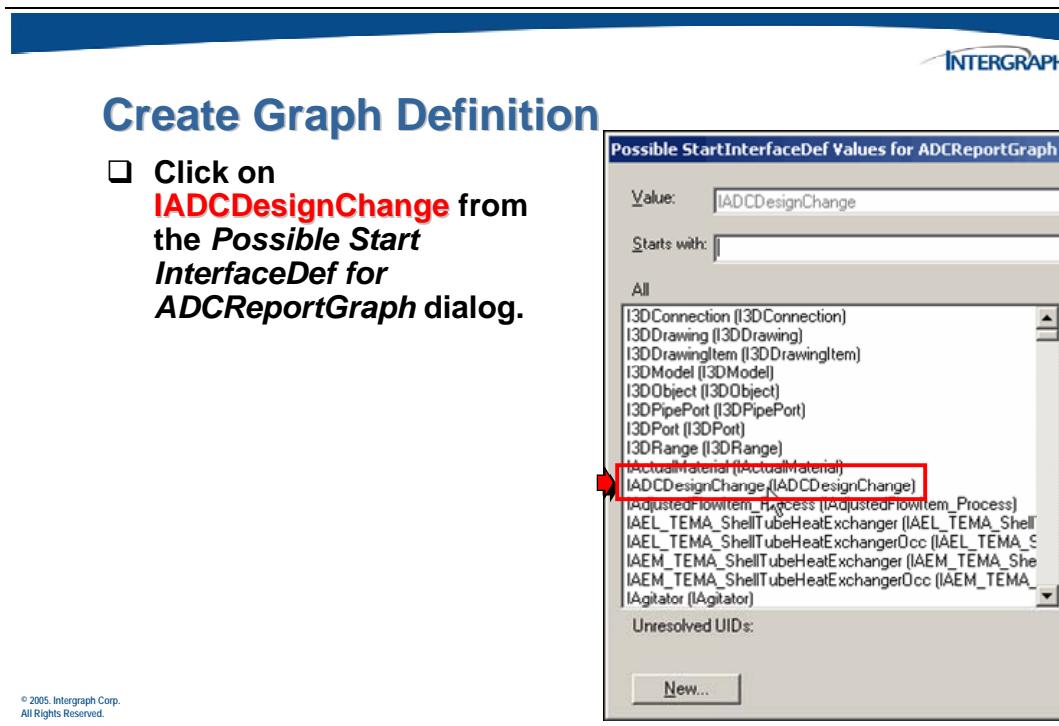
This will allow you to view *EFSchema.xml*, *adc.xml*, *EdgeGraphView.xml* and edit *adcnavigation.xml*. Now you are ready to use the Schema Editor to create the Graph Def.



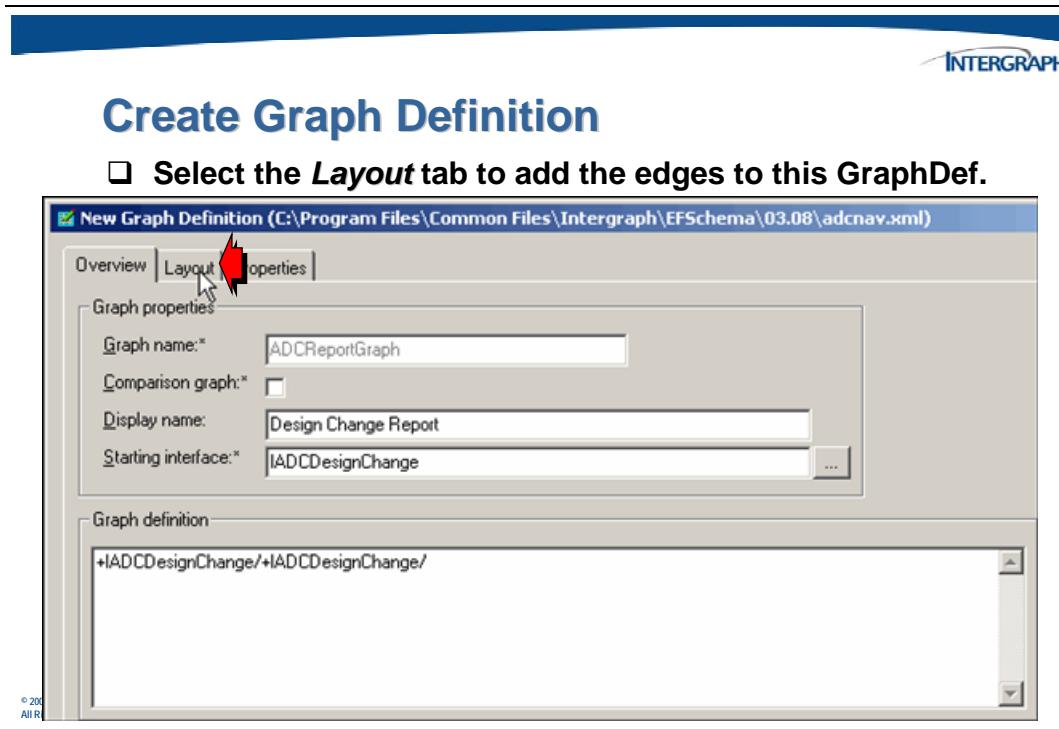
After selecting the Interface object then enable the definitions you wish to display within the report. The following will display the *ADC Design Change* and its properties. Also include the name of the Graph Def, use **ADCReportGraph**.



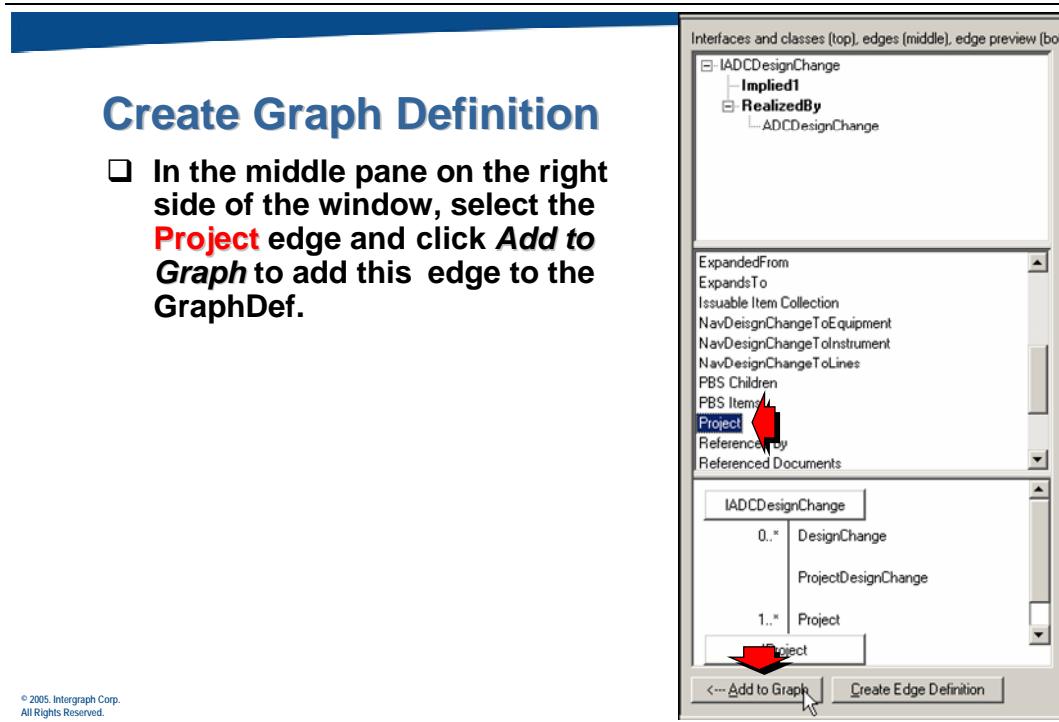
The *Possible StartInterfaceDef Values* dialog will display.



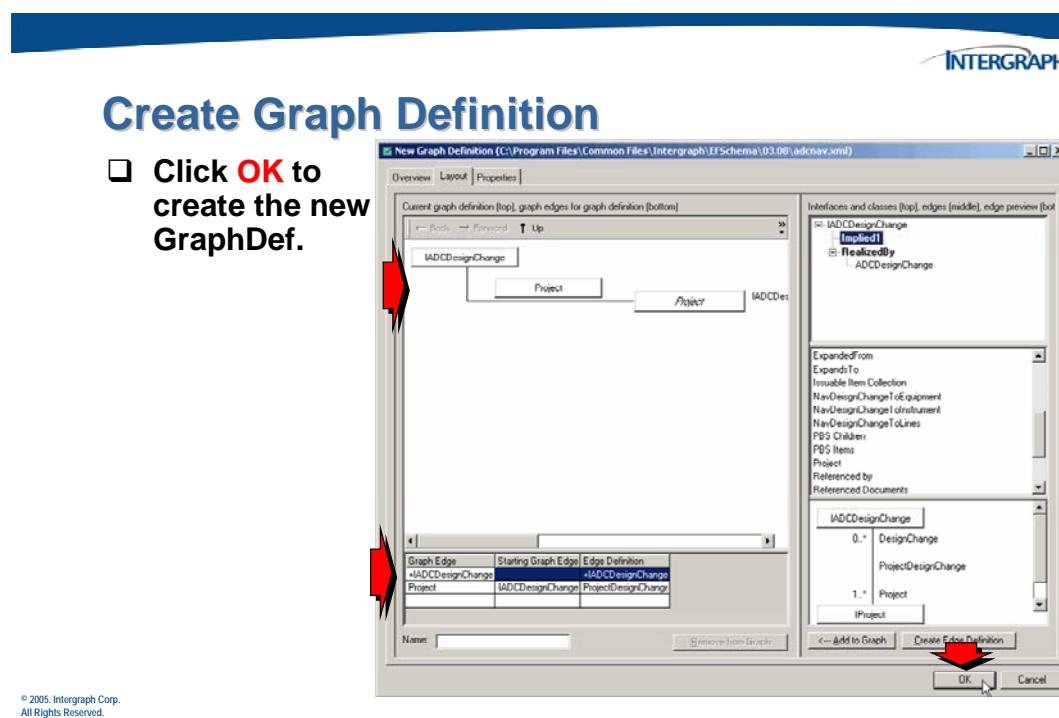
Once the *Starting interface* has been set, add the related interfaces to this Graph Def structure.

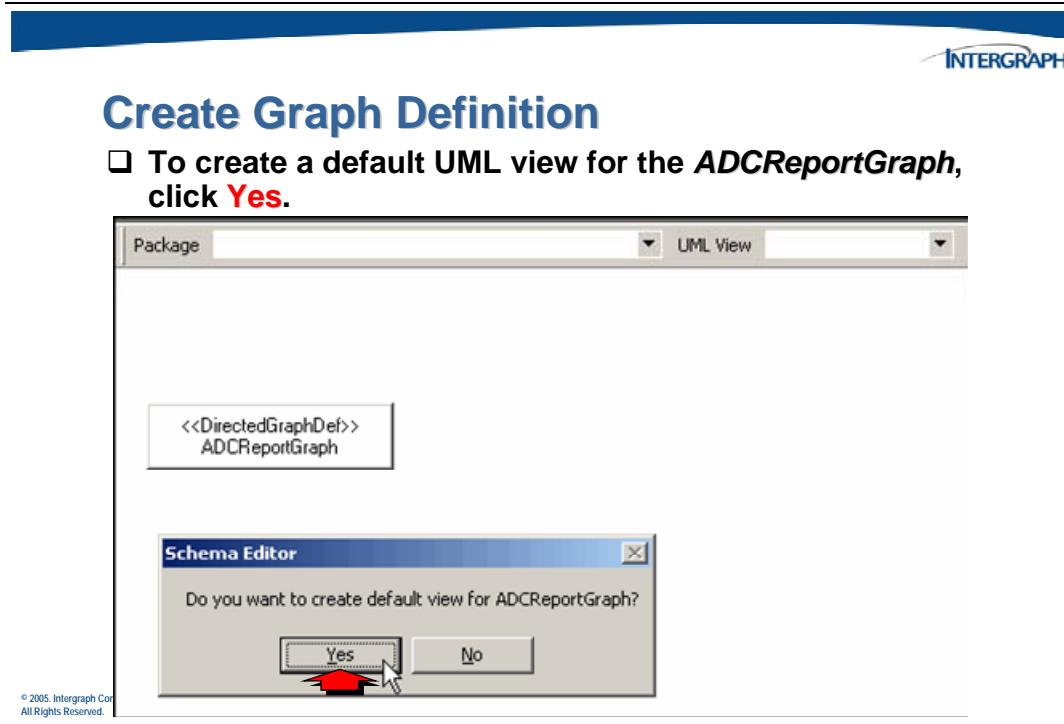


Select the **IADCDesignChange** starting interface and expand the tree to view the related interfaces in the middle pane.



The Graph Def structure is displayed in the left panes of the dialog.

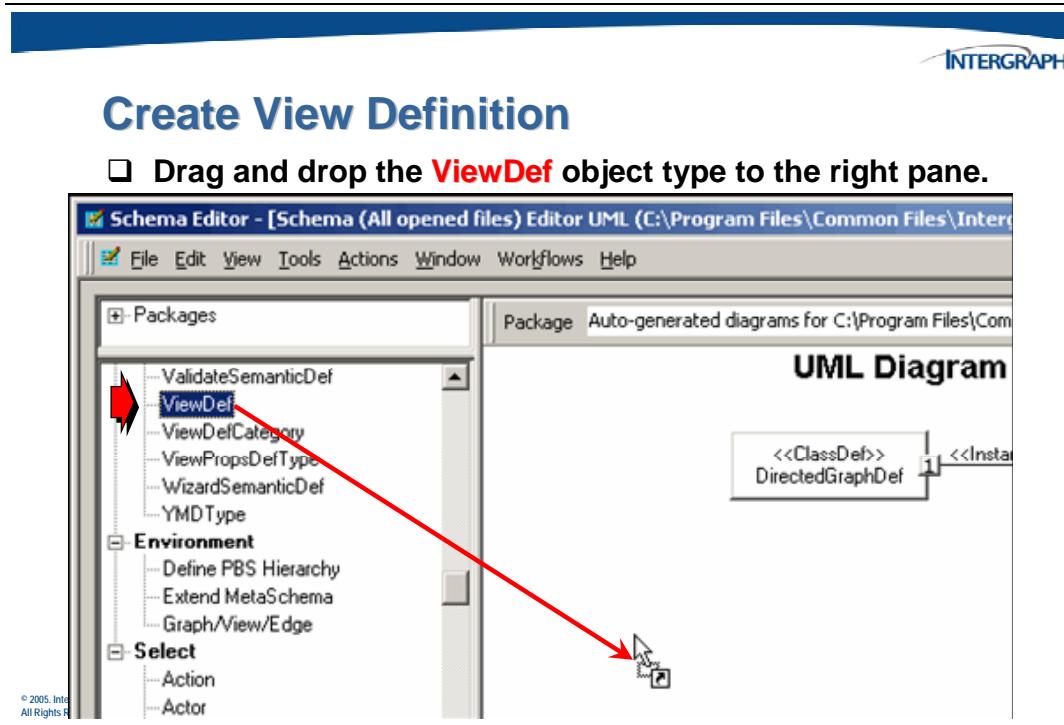




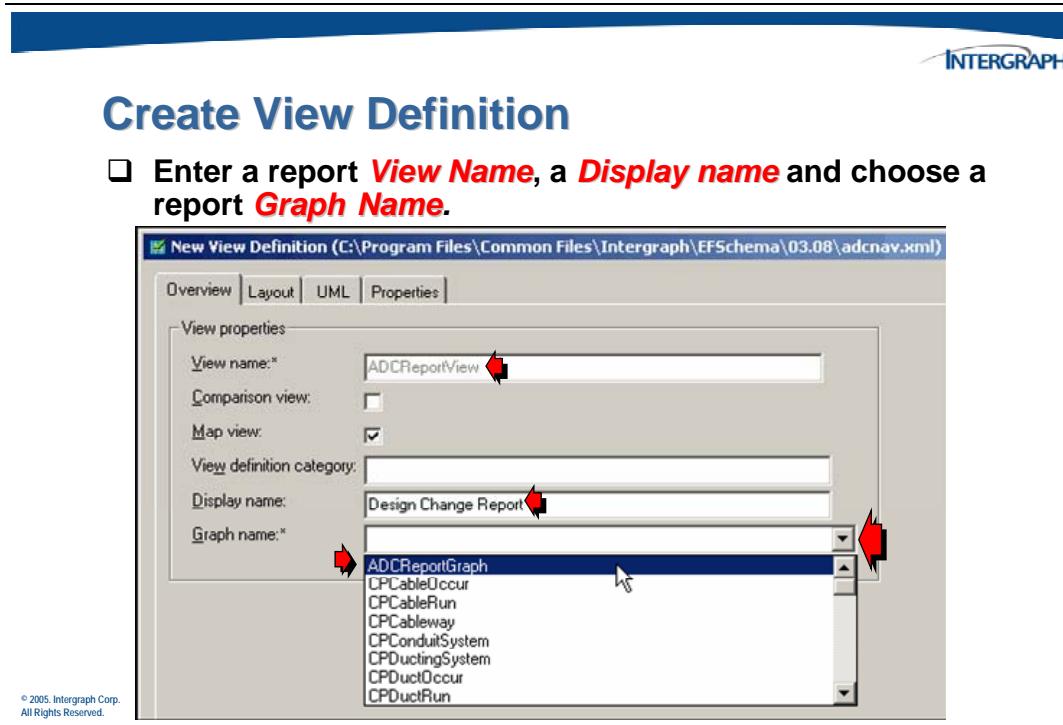
Once the report *Graph Def* exists, the report *View Def* can be created.

## 9.2 Creating a Report View Definition

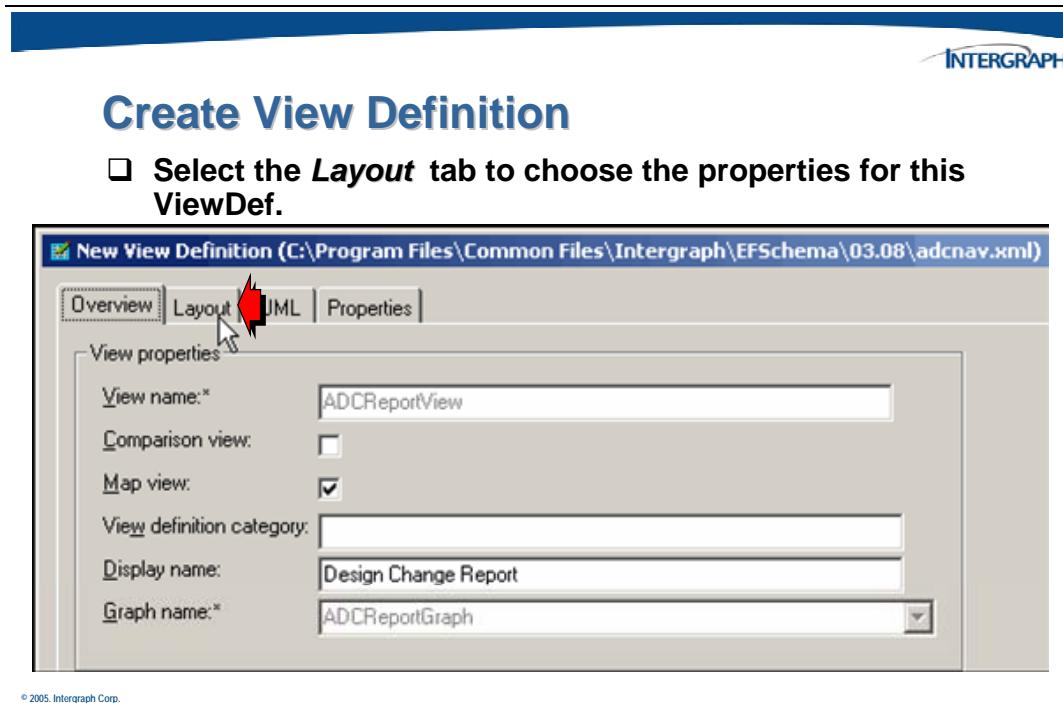
A view definition is based on a directed graph definition and, therefore, like the directed graph definition, has a relationship to its starting interface definition. In actuality, this interface definition is always the same interface definition as that for its directed graph definition. The View Definition will select the Properties from the Graph Def that will be displayed within the report.



The *New View Definition* dialog will display



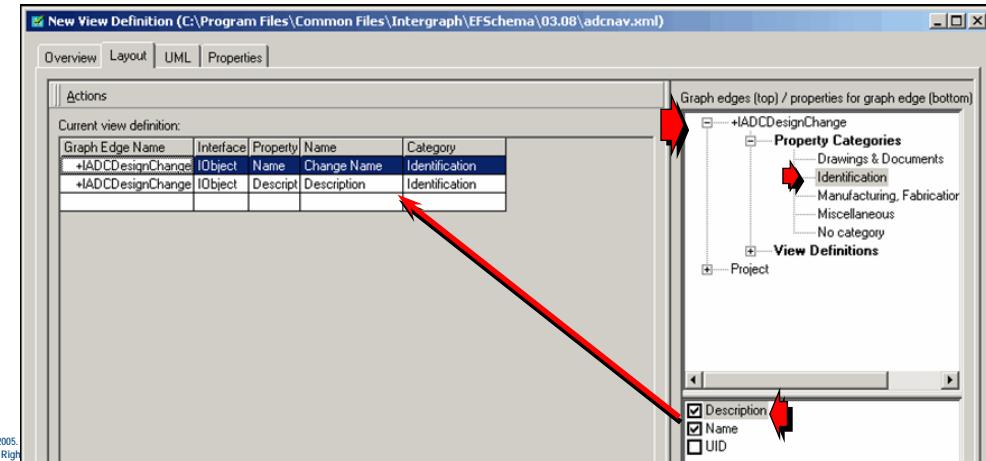
Select the Graph Def to work with, in this example it is **ADCReportGraph**.





## Create View Definition

- Click to expand **IADCDesignChange** in the **Graph edges** field and the **Identification Property Category** then select the properties to be included in the view.

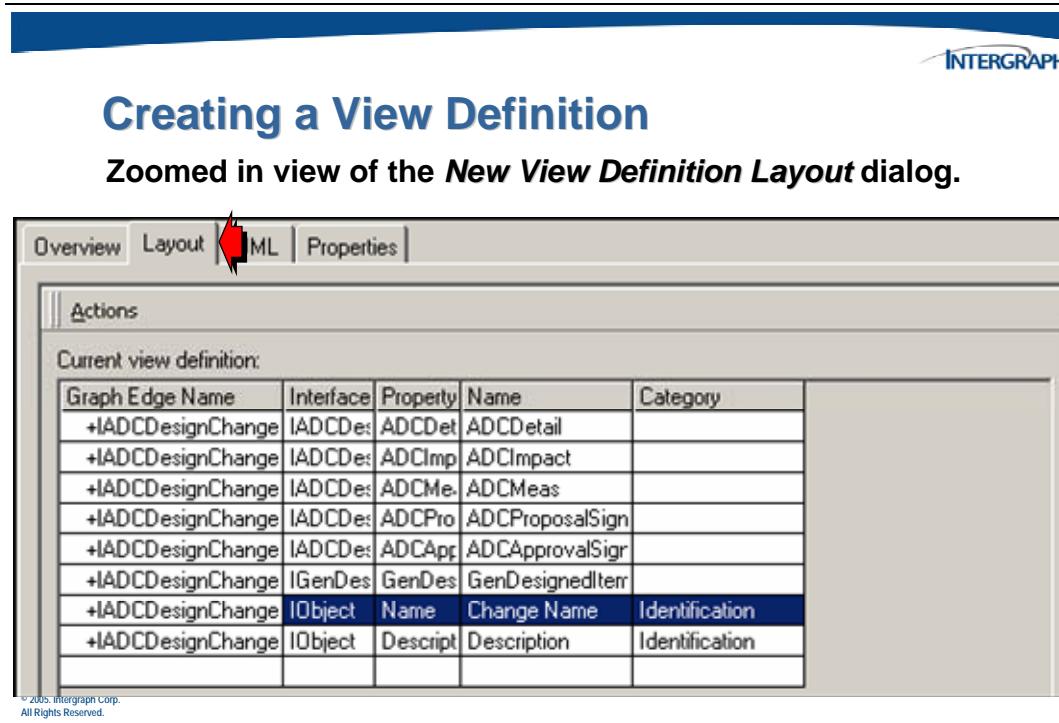


The word *Name* will display in this window by default. Edit the name in this field to make the property unique, for example use **Change Name**.

## Create View Definition

- Click the **IADCDesignChange No category Property Category** and select the additional properties to be included.

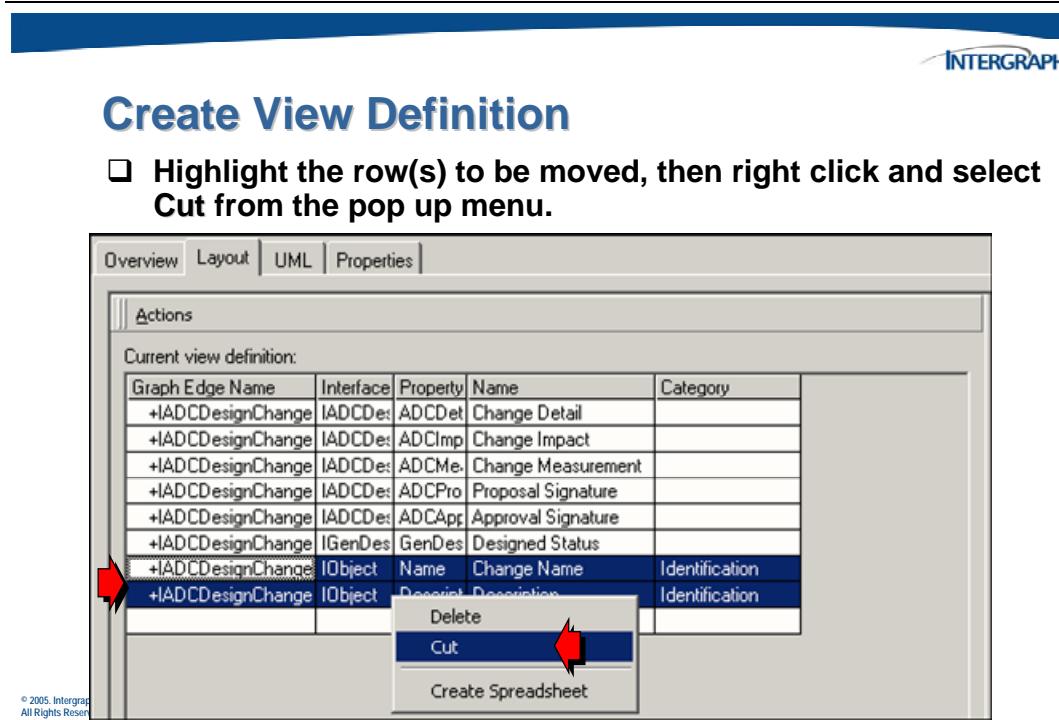
Add the remaining fields so the list looks like the following:



The screenshot shows the 'New View Definition Layout' dialog box. At the top, there are tabs: Overview, Layout, UML (which is highlighted with a red arrow), and Properties. Below the tabs is a section titled 'Actions' with a sub-section 'Current view definition'. A table lists eight rows of data, each with columns: Graph Edge Name, Interface, Property, Name, and Category. The last row, which contains the text '+IADCDesignChange IObject Name Change Name Identification', is highlighted with a blue selection bar. At the bottom left of the dialog, a small copyright notice reads: '© 2005, Intergraph Corp. All Rights Reserved.'

Graph Edge Name	Interface	Property	Name	Category
+IADCDesignChange	IADCDes	ADCDes	ADCDetail	
+IADCDesignChange	IADCDes	ADCImp	ADCImpact	
+IADCDesignChange	IADCDes	ADCMe	ADCMeas	
+IADCDesignChange	IADCDes	ADCPro	ADCPProposalSign	
+IADCDesignChange	IADCDes	ADCApp	ADCAccrualSign	
+IADCDesignChange	IGenDes	GenDes	GenDesignedItem	
+IADCDesignChange	IObject	Name	Change Name	Identification
+IADCDesignChange	IObject	Descript	Description	Identification

The order of the properties in the ViewDef can be changed by cutting and inserting rows in the *Current view definition* field.



The screenshot shows the 'Create View Definition' dialog box. At the top, there are tabs: Overview, Layout, UML (highlighted with a red arrow), and Properties. Below the tabs is a section titled 'Actions' with a sub-section 'Current view definition'. A table lists eight rows of data, similar to the one above. The last two rows are highlighted with a blue selection bar. A context menu is open over the second-to-last row ('+IADCDesignChange IObject Name Change Name Identification'). The menu items visible are 'Delete' (disabled) and 'Cut' (highlighted with a blue selection bar). At the bottom right of the dialog, a button labeled 'Create Spreadsheet' is visible. A red arrow points from the text 'Highlight the row(s) to be moved, then right click and select Cut from the pop up menu.' to the 'Cut' option in the menu.

Graph Edge Name	Interface	Property	Name	Category
+IADCDesignChange	IADCDes	ADCDes	Change Detail	
+IADCDesignChange	IADCDes	ADCImp	Change Impact	
+IADCDesignChange	IADCDes	ADCMe	Change Measurement	
+IADCDesignChange	IADCDes	ADCPro	Proposal Signature	
+IADCDesignChange	IADCDes	ADCApp	Approval Signature	
+IADCDesignChange	IGenDes	GenDes	Designed Status	
+IADCDesignChange	IObject	Name	Change Name	Identification
+IADCDesignChange	IObject	Descript	Description	Identification



## Create View Definition

- Highlight the row where the new rows are to be inserted above, then right click and select Paste Insert from the pop up menu.**

Screenshot of the 'Create View Definition' interface showing a context menu over a table. A red arrow points to the 'Paste Insert' option in the menu, which is highlighted.

Graph Edge Name	Interface	Property	Name	Category
+IADCDesignC	Delete		Detail	
+IADCDesignC	Cut		Impact	
+IADCDesignC	Paste Insert		Measurement	
+IADCDesignC	Create Spreadsheet		Signature	
+IADCDesignC	Locate Property in Tree		Signature	
			Status	

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Add the remaining properties needed for the report View Def from the selected Graph Def.



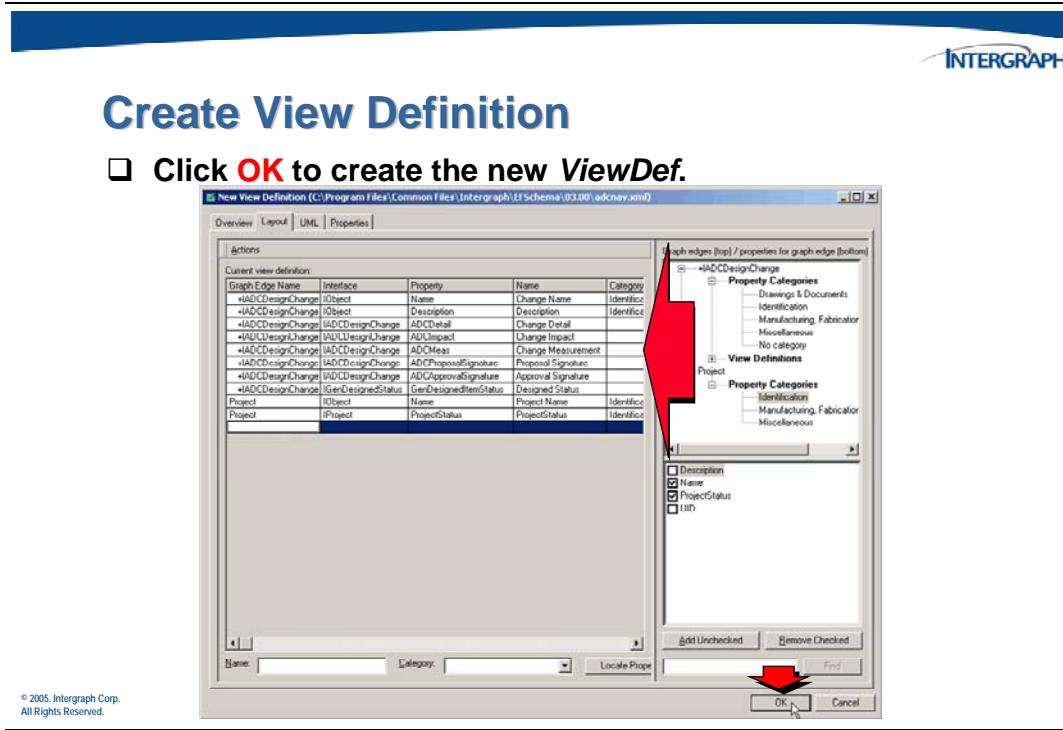
## Creating a View Definition

### Results of moving and pasting inserted rows

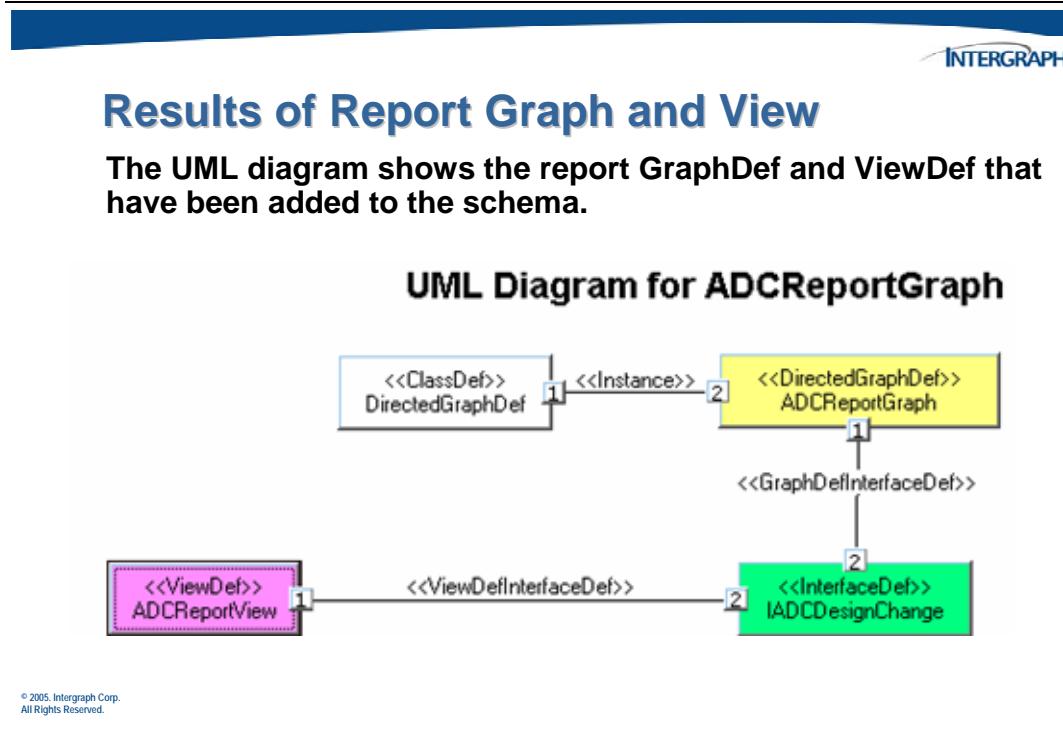
Screenshot of the 'Creating a View Definition' interface showing the results of moving and pasting inserted rows. A red arrow points to a newly inserted row at the bottom of the table.

Graph Edge Name	Interface	Property	Name	Category
+IADCDesignChange	IObject	Name	Change Name	Identification
+IADCDesignChange	IObject	Description	Description	Identification
+IADCDesignChange	IADCDesignChange	ADCDetail	Change Detail	
+IADCDesignChange	IADCDesignChange	ADCImpact	Change Impact	
+IADCDesignChange	IADCDesignChange	ADCMeas	Change Measurement	
+IADCDesignChange	IADCDesignChange	ADCProposalSignature	Proposal Signature	
+IADCDesignChange	IADCDesignChange	ADCAccrualSignature	Approval Signature	
+IADCDesignChange	IGenDesignedStatus	GenDesignedItemStatus	Designed Status	
Project	IObject	Name	Project Name	Identification
Project	IPProject	ProjectStatus	ProjectStatus	Identification

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The Graph Def and View Def needed for the Design Change report are now ready to be loaded into the SPF Admin database.



## 9.3 Custom Line List Adhoc Report Contents

Line Lists can easily be created within the Adhoc configuration scheme. In the following section a possible custom configuration for a Line List report will be shown.



### Line List Adhoc Reports

**An understanding of the Schema configuration is needed to configure the correct Line List report structure.**

- Line Lists can easily be created within the Adhoc configuration scheme.**
- Use the Schema Editor and Adhoc rules to configure a Line List report.**



## Line List Adhoc Reports

- The first step is to create a Graph Definition using the Line information properties from the schema model.
- In this section, the example of the IPipeline interface and several relationships from this interface to collect the required properties will be used.
- In the Graph Def, start with the IPipeLine interface def.
- Relationships used are **FacilityPoints**, **PBSParent** and, **PipingConnections**
- Once these object are configured, save the Graph Def by clicking **OK**.

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The following example shows using the Schema Editor to view possible properties to be included in the Line List report.



## Line List Adhoc Reports

Use the Schema Editor and a Tree/Table view to determine what properties will be used in a custom Line List report.

Class	Interface	Property	Type
PIDPipeline	IObject	UID	string128
		Name	string
		Description	string
		ConstructionStatus	ConstructionStati
		ConstructionStatus2	ConstructStati2
		HeightRelativeToGrade	LengthUoM
	IPBSItem		
	IPlannedFacility		
	IPBSItemCollection		
	IPipeline		
	IPipingConnectorComposition		
	IFluidSystem	FluidSystem	FluidSystems
		FluidCode	FluidCodes
	IHoldItem	Hold_Name	string
		Hold_Number	
		Hold_Status	(E9CD785B-084B-42C0-9EA:
		Hold_Remarks	
		Hold_CreatedBy	
		Hold_CreatedDate	YMD
		Hold_ClosedBy	
		Hold_ClosedDate	YMD
	INoteCollection		
	IExpandableThing	ExpansionCount	int



## Line List Adhoc Reports

Zoomed in view of the Tree/Table view

Class	Interface	Property	Type
<b>PIDPipeline</b>	<b>IObject</b>	UID	string128
		Name	
		Description	string
	<b>IPBSItem</b>	ConstructionStatus	ConstructionStati
		ConstructionStatus2	ConstructStati2
		HeightRelativeToGrade	LengthUoM
	<b>IPlannedFacility</b>		
	<b>IPBSItemCollection</b>		
	<b>IPipeline</b>		
	<b>IPipingConnectorComposition</b>		
<b>IFluidSystem</b>	FluidSystem	<b>FluidSystems</b>	
	FluidCode	FluidCodes	
	<b>IHoldItem</b>	Hold_Name	string
		Hold_Number	
		HoldStatus	(E9CD785B-084B-42C0-9EA:
		HoldRemarks	string
		Hold_CreatedBy	
		Hold_CreatedDate	YMD
		Hold_ClosedBy	string
		Hold_ClosedDate	YMD
	<b>INoteCollection</b>		
	<b>IExpandableThing</b>	ExpansionCount	int

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## Line List Adhoc Reports

Tree/Table view (con't):

Class	Interface	Property
<b>PIDPipingConnector</b>	<b>INormalDgnPoint</b>	NormDesignTempMin NormDesignTempMax NormDesignPressMin NormDesignPressMax DesignCriteriaFluidState DesignCriteriaMassFlowRate DesignCriteriaMetalTemperature DesignCriteriaPower DesignCriteriaPressure DesignCriteriaShortTermDuration DesignCriteriaShortTermPressure DesignCriteriaShortTermTemperature DesignCriteriaSpecificGravityMassBasis DesignCriteriaSpeed DesignCriteriaSteamOutPressure DesignCriteriaSteamOutRequirement DesignCriteriaSteamOutTemperature DesignCriteriaTemperature DesignCriteriaVacuumPressure DesignCriteriaVacuumTemperature DesignCriteriaVapourPressure DesignCriteriaVentingTemperature DesignCriteriaViscosity
	<b>IAltDgnPoint</b>	AltDesignTempMin AltDesignTempMax AltDesignPressMin AltDesignPressMax DesignCriteriaPressure2 DesignCriteriaTemperature2 TestingResponsibility

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## Line List Adhoc Reports

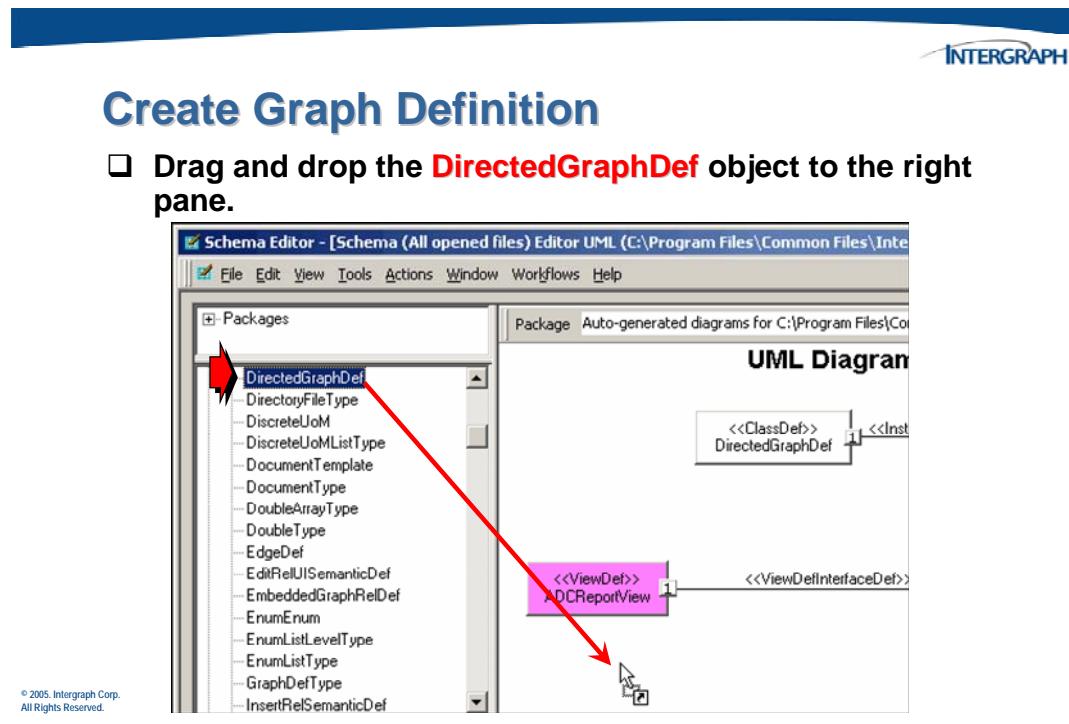
Tree/Table view (con't):

Class	Interface	Property
PIDPipingConnector	IPressureRatedObject	PressureRating2
		PressureRating

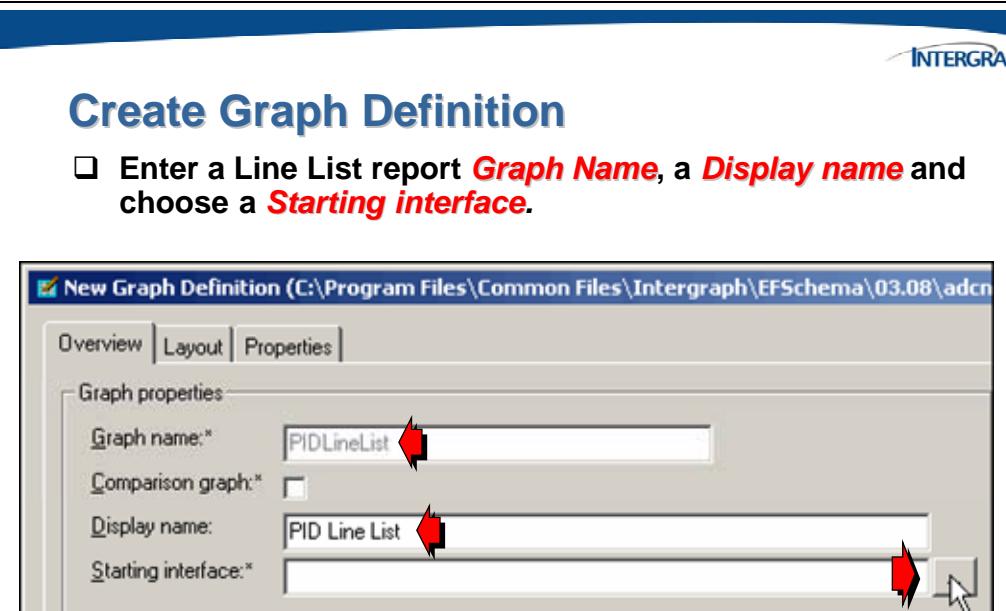
Class	Interface	Property
PIDPipingConnector	INamedPipingConnector	PipingConnectorPrefix
		PipingConnectorSeqNo
		PipingConnectorSuff

### 9.3.1 Creating a Graph Definition for the Line List Report

Create a Graph Definition using the Line information properties from the schema model you are using. In this example we will use the *IPipeline* interface to collect the necessary property data.



Select the *IPipeline* interface def and relationships to the properties required for the report.

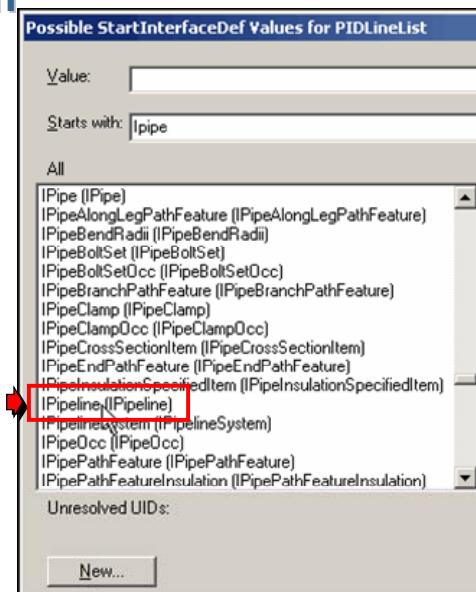


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The *Possible StartInterfaceDef Values* dialog will display.

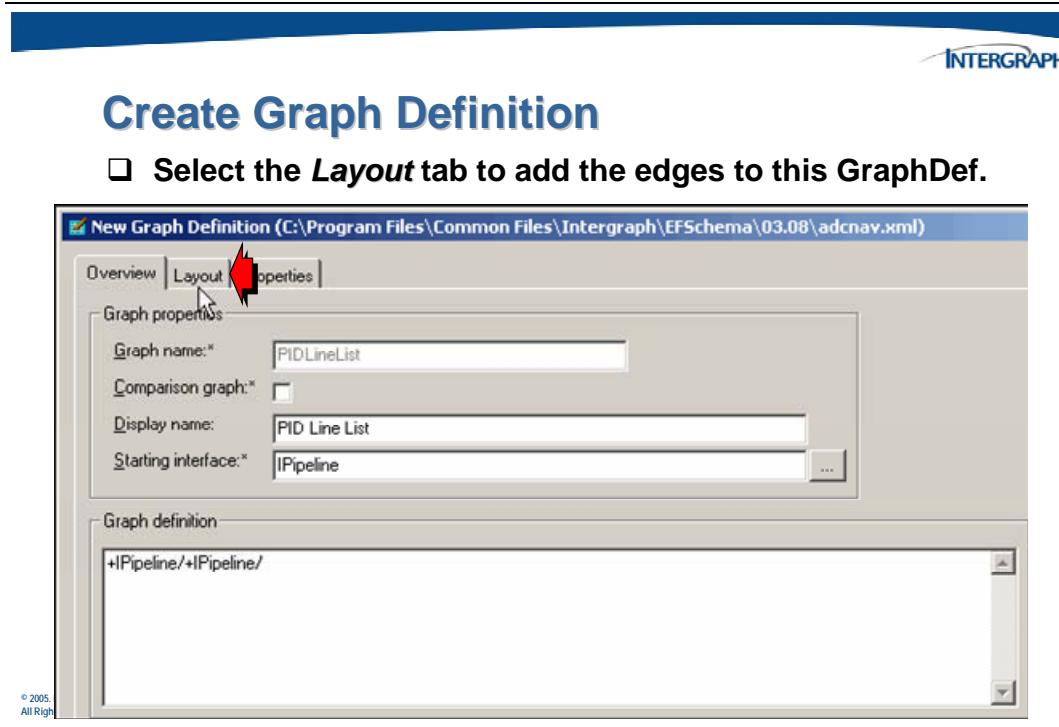
## Create Graph Definition

- ❑ Click on *IPipeline* from the *Possible Start InterfaceDef for PIDLineList* dialog.

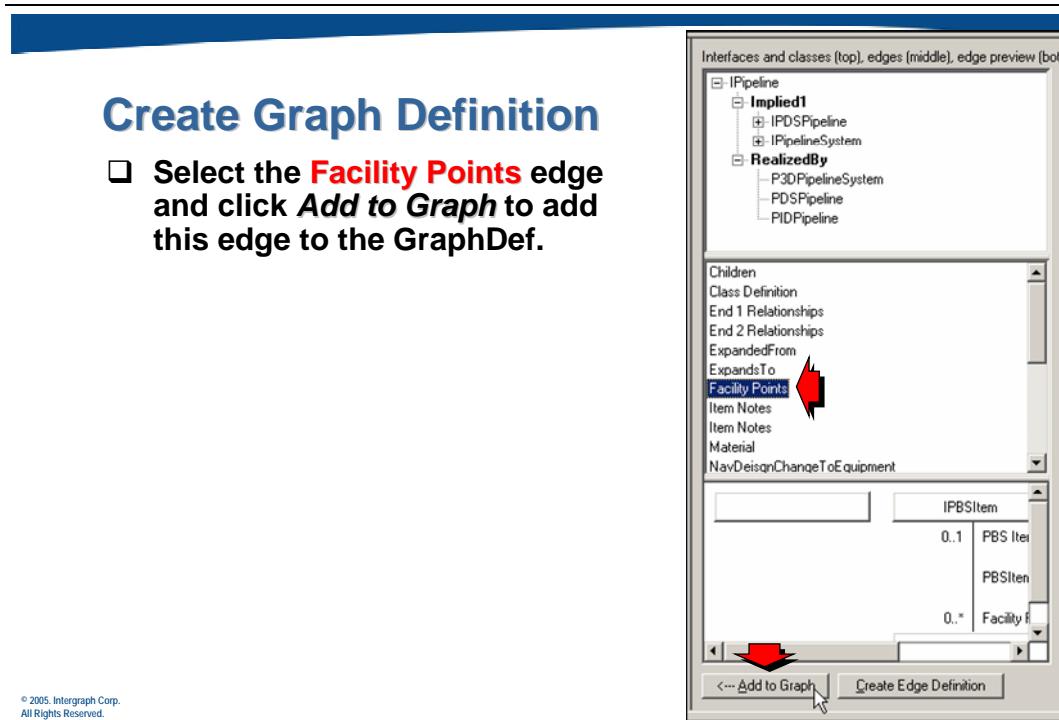


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Once the *Starting interface* has been set, add the related interfaces to this Graph Def structure.

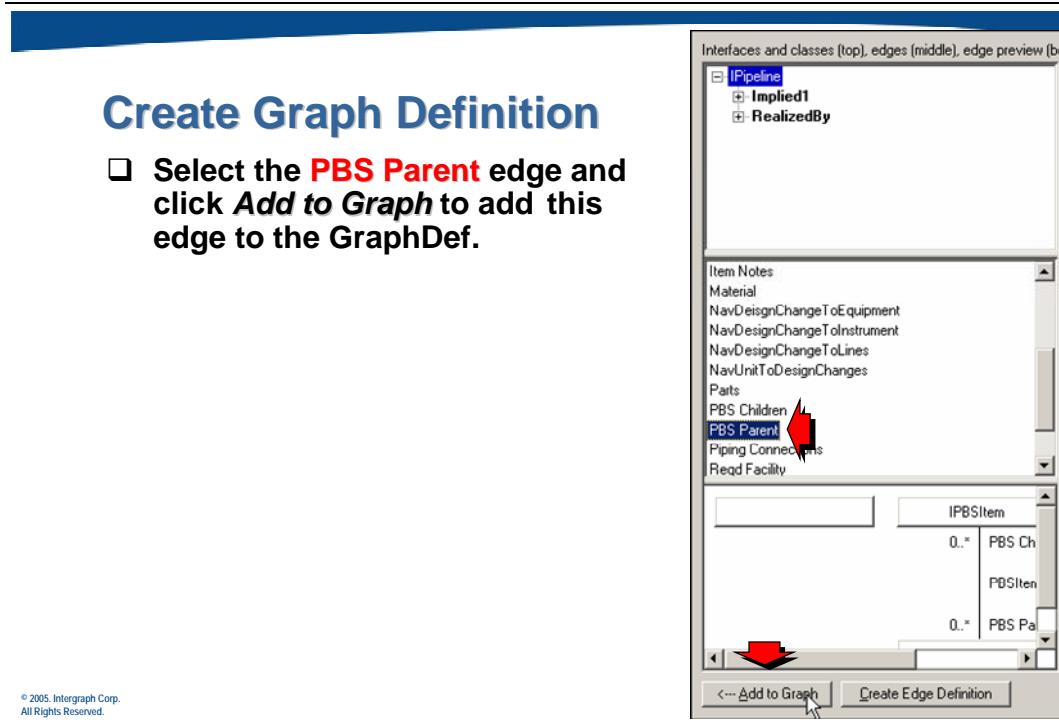


Select the **IPipeline** starting interface and expand the tree to view the related interfaces in the middle pane.



## Create Graph Definition

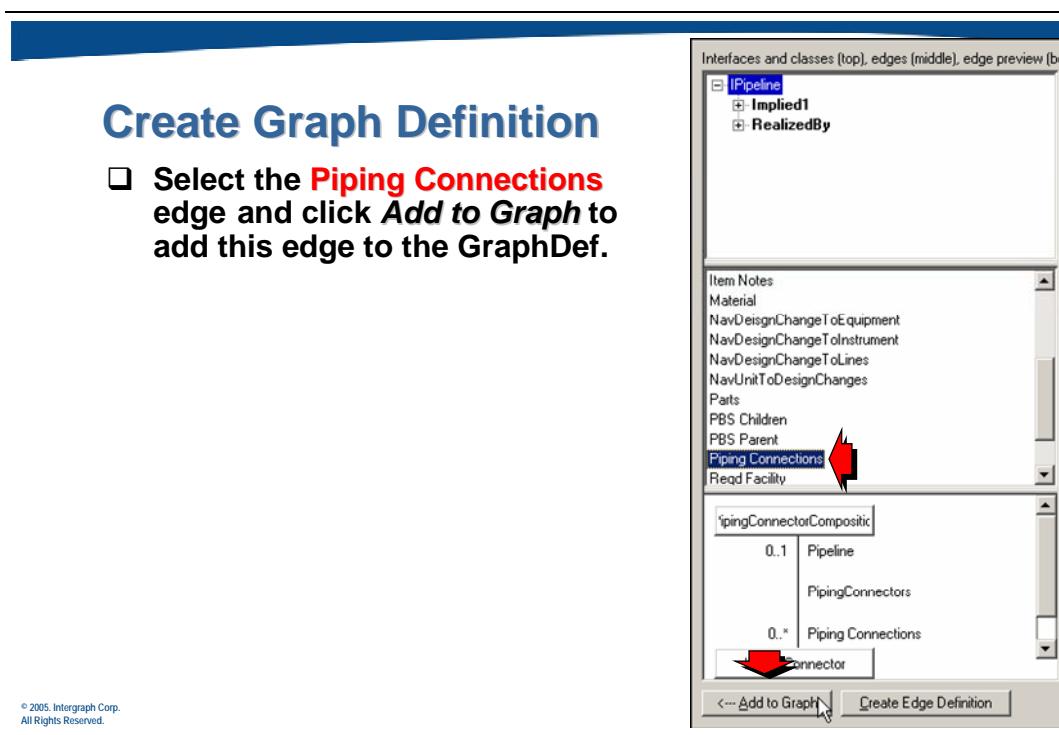
- Select the **PBS Parent** edge and click **Add to Graph** to add this edge to the GraphDef.



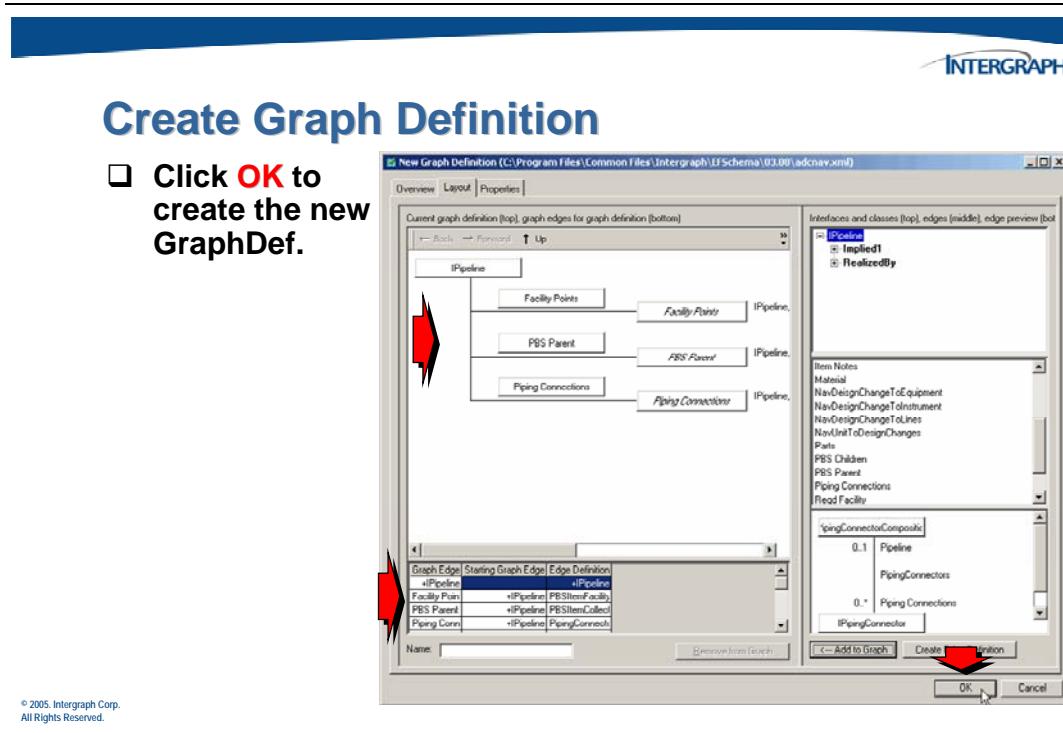
Continue to add the needed edges (interfaces).

## Create Graph Definition

- Select the **Piping Connections** edge and click **Add to Graph** to add this edge to the GraphDef.



The Graph Def structure is displayed in the left panes of the dialog.



## 9.3.2 Creating a View Definition for the Line List Report

The View Definition will select the Properties from the Graph Def that will be displayed in the Line List Adhoc report.



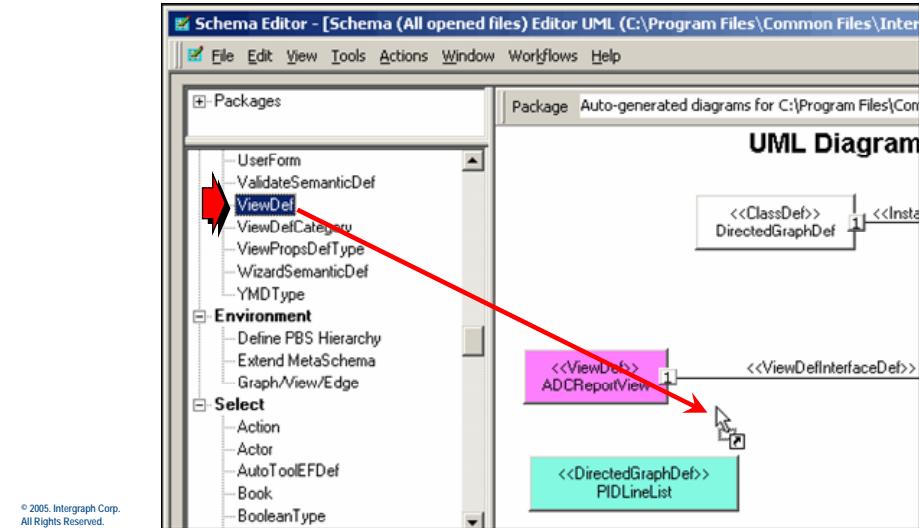
### Creating a View Def for the Report

- Within the View Definition select the properties required for the report.
- Start by naming the *ViewDef* and selecting the *GraphDef* just created (**PIDLLineList**).
- Selecting a property you can rename the property to better reflect the purpose of the property.
- In the following example we renamed the property '**Name**' for IPipeLine to '**PID PipeLine Name**'.
- When complete click **OK** to save this View Def.
- Once created and loaded, you must drag and drop a User Group on the new View Def to grant access to the configuration when running a report.



## Create View Definition

- Drag and drop the **ViewDef** object type to the right pane.



The *New View Definition* dialog will display



## Create View Definition

- Enter a Line List report **View Name**, a **Display name** and choose a report **Graph Name**.

The screenshot shows the 'New View Definition (C:\Program Files\Common Files\Intergraph\EFSchema\03.08\adcn...' dialog. The 'Layout' tab is selected, indicated by a red arrow. The 'View properties' section contains the following fields:
 

- View name:** PIDLineListView (highlighted with a red arrow)
- Comparison view:**
- Map view:**
- View definition category:** (empty field)
- Display name:** PID Line List (highlighted with a red arrow)
- Graph name:** PIDLineList (highlighted with a red arrow)

Select the Layout tab to choose the properties for this ViewDef.

## Create View Definition

Click to expand IPipeline in the Graph edges field and the Identification Property Category then select the properties to be included in the view.

Graph edges (top) / properties for graph edge (bottom)

- IPipeline
  - Property Categories
    - Identification
    - Miscellaneous
    - State & Status
    - Testing
  - Implying Interfaces
    - + Facility Points
    - + PBS Parent
    - + Piping Connections

<input type="checkbox"/> ConstructionStatus
<input type="checkbox"/> ConstructionStatus2
<input checked="" type="checkbox"/> Description
<input type="checkbox"/> HeightRelativeToGrade
<input checked="" type="checkbox"/> Name
<input type="checkbox"/> UID

Add Unchecked   Remove Checked   Find

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Continue to choose the properties to be included in this Line List report.

## Create View Definition

Click the IPipeline Miscellaneous Property Category and select the additional properties to be included.

Graph edges (top) / properties for graph edge (bottom)

- IPipeline
  - Property Categories
    - Identification
    - Miscellaneous
    - State & Status
    - Testing
  - Implying Interfaces
    - + Facility Points
    - + PBS Parent
    - + Piping Connections

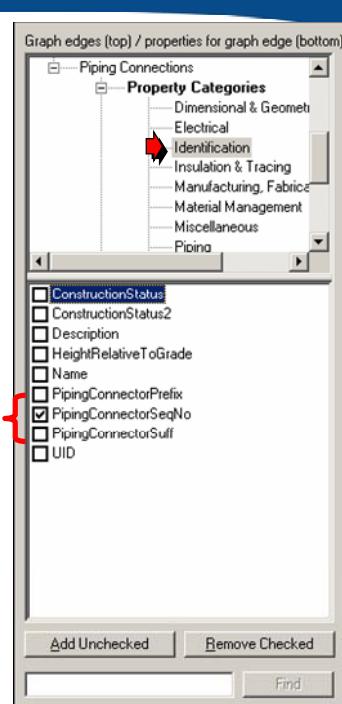
<input type="checkbox"/> Design_SteamOutPressure
<input type="checkbox"/> Design_SteamOutRequired
<input type="checkbox"/> Design_SteamOutTemperature
<input type="checkbox"/> Design_Temperature
<input type="checkbox"/> Design_Temperature2
<input type="checkbox"/> Design_VacuumPressure
<input type="checkbox"/> Design_VacuumTemperature
<input type="checkbox"/> Design_VaporPressure
<input type="checkbox"/> Design_VentingTemperature
<input type="checkbox"/> Design_Viscosity
<input type="checkbox"/> DesignApprovalRequired
<input type="checkbox"/> DesignResponsibility
<input type="checkbox"/> ElectricalEquipmentDesignType
<input type="checkbox"/> ExpansionCount
<input checked="" type="checkbox"/> FluidCode
<input checked="" type="checkbox"/> FluidSystem

Add Unchecked   Remove Checked   Find

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## Create View Definition

- Click the Piping Connections **Identification Property Category** and select the additional properties to be included.

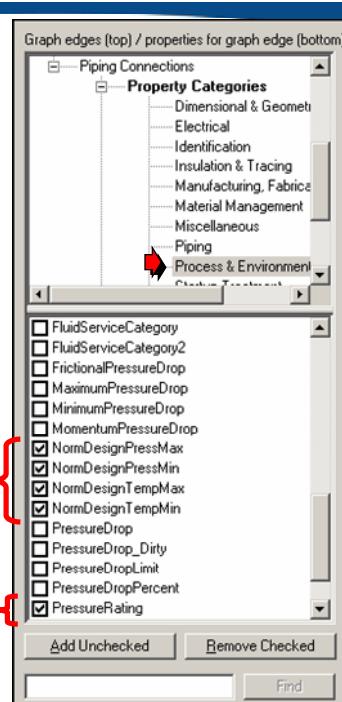


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All Rights Reserved.

Continue to choose the properties to be included in this Line List report.

## Create View Definition

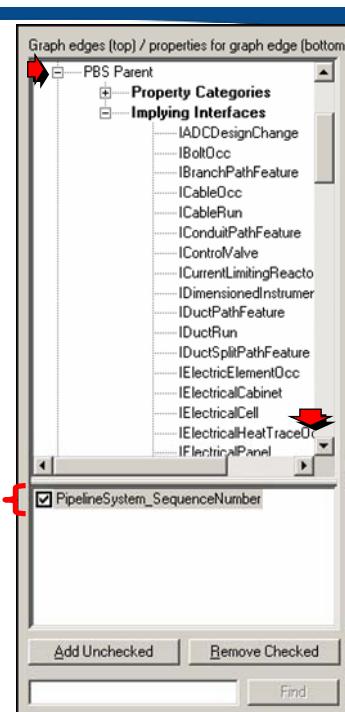
- Click the Piping Connections **Process & Environment Property Category** and select the additional properties to be included.



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## Create View Definition

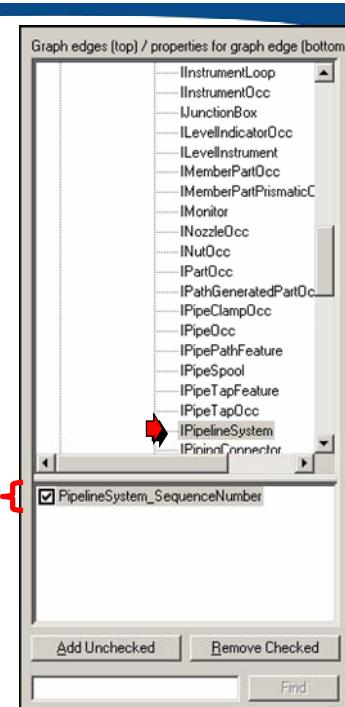
- ❑ Expand **PBS Parent** and click the **Implying Interfaces** to see the list. Use the scroll bar to scroll down and see the desired information needed for the line list report.



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## Create View Definition

- ❑ Click the **IPipelineSystem Interface** and select the available property, **PipelineSystem\_SequenceNumber**.



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Add the remaining fields so the list looks like the following:

The screenshot shows a software interface titled "Creating a View Definition". Below the title, it says "Zoomed in view of the New View Definition Layout dialog." A table titled "Current view definition:" is displayed, listing various properties and their names. The table has four columns: "Graph Edge Name", "Interface", "Property", and "Name". The "Name" column contains renamed properties such as "PID PipeLine Name" and "Fluid System". The "Actions" tab is selected at the top left.

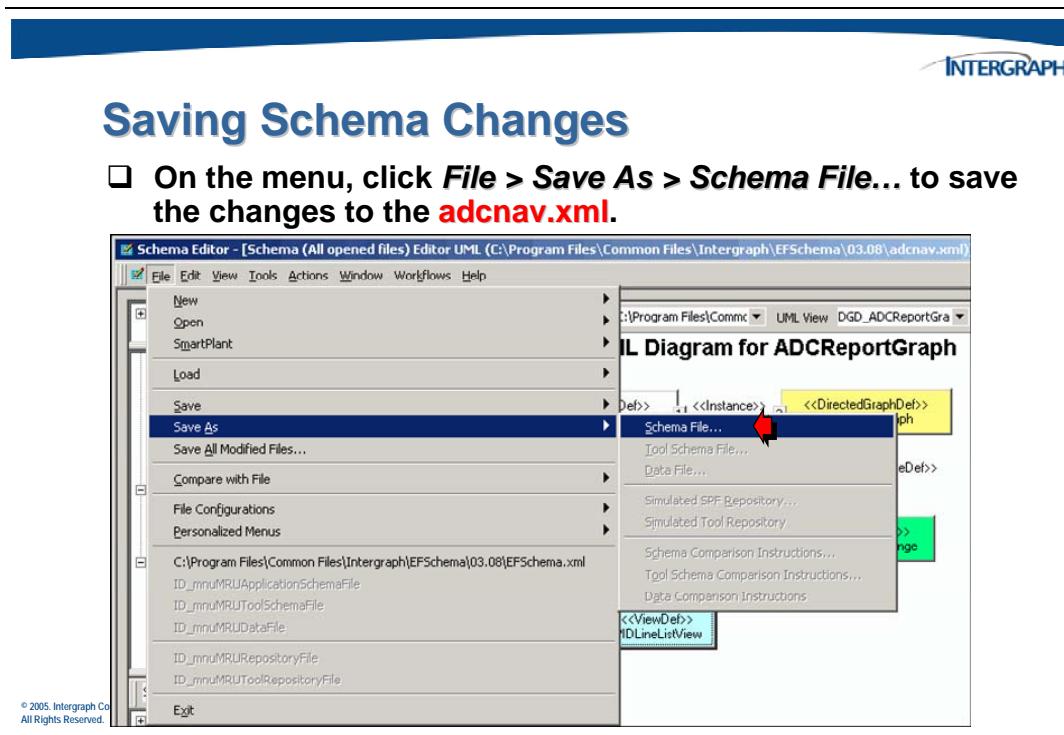
Graph Edge Name	Interface	Property	Name
+IPipeline	IObject	Name	PID PipeLine Name
+IPipeline	IObject	Description	Description
+IPipeline	IFluidSystem	FluidCode	Fluid Code
+IPipeline	IFluidSystem	FluidSystem	Fluid System
Piping Connections	INormalDgnPoint	NormDesignPressMax	Maximum Normal Design Pressure
Piping Connections	INormalDgnPoint	NormDesignPressMin	Minimum Normal Design Pressure
Piping Connections	INormalDgnPoint	NormDesignTempMax	Max Norm Design Temp
Piping Connections	INormalDgnPoint	NormDesignTempMin	Min Norm Design Temp
Piping Connections	IPressureRatedObject	PressureRating	Pressure Rating
PBS Parent	IPipelineSystem	PipelineSystem_Sequence	Pipeline Sequence Number
Piping Connections	INamedPipingConnector	PipingConnectorSeqNo	Piping Connector Seq No

You can rename a property to better reflect the purpose of that property. In this example we renamed the property '**Name**' for *IPipeLine* to '**PID PipeLine Name**'.

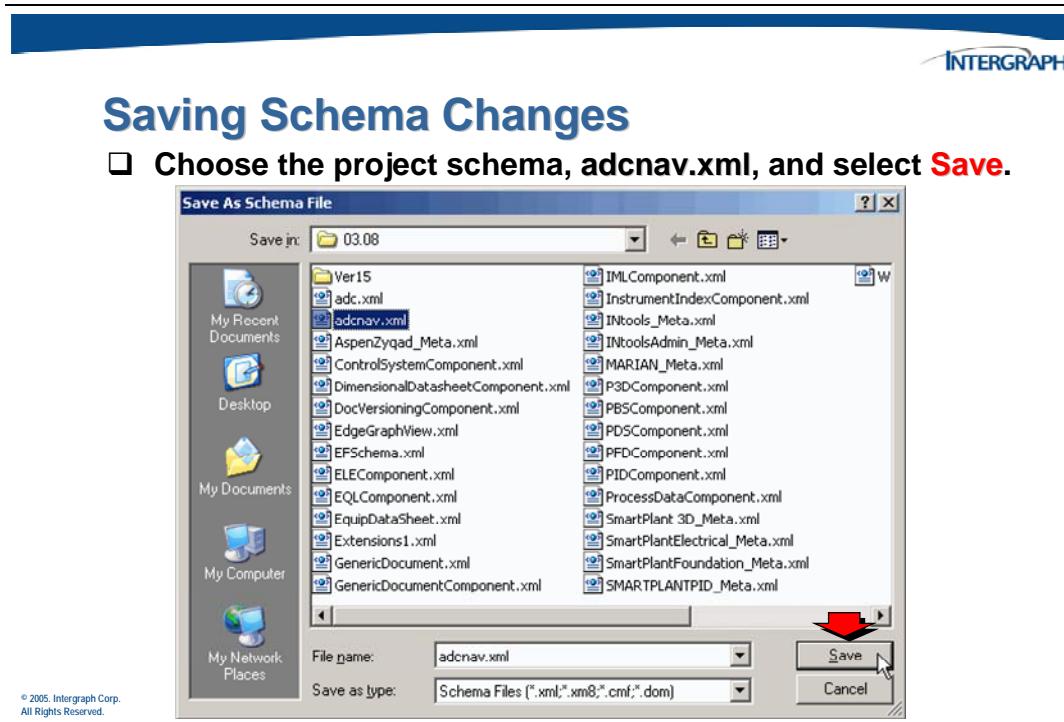
The screenshot shows a software interface titled "Create View Definition". Below the title, there is a red box with the instruction "□ Click OK to create the new ViewDef.". The "Layout" tab is selected. On the left, a table titled "Current view definition:" lists properties and their names. On the right, a sidebar titled "Graph edges (top) / properties for graph edge (bottom)" shows a tree view of objects. A red arrow points from the "Properties" table to the sidebar. Another red arrow points to the "OK" button at the bottom right of the dialog.

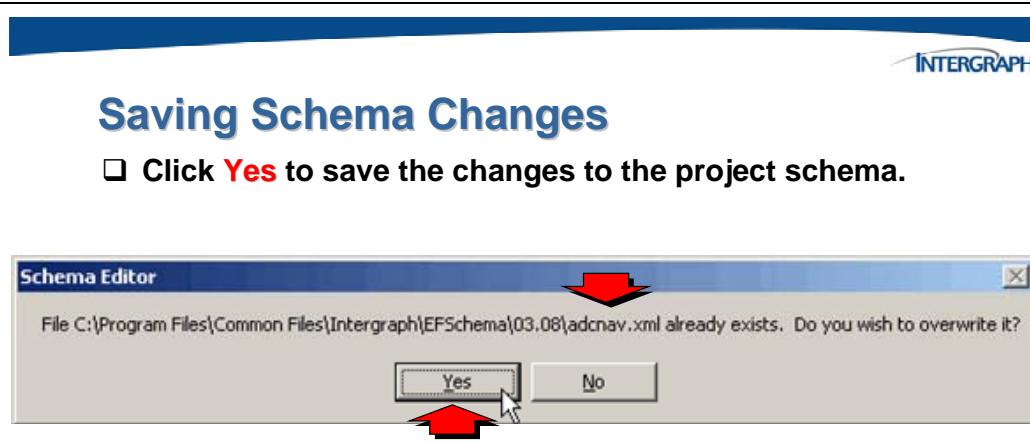
Graph Edge Name	Interface	Property	Name
+IPipeline	IObject	Name	PID PipeLine Name
+IPipeline	IObject	Description	Description
+IPipeline	IFluidSystem	FluidCode	Fluid Code
+IPipeline	IFluidSystem	FluidSystem	Fluid System
Piping Connections	INormalDgnPoint	NormDesignPressMax	Maximum Normal Design Pressure
Piping Connections	INormalDgnPoint	NormDesignPressMin	Minimum Normal Design Pressure
Piping Connections	INormalDgnPoint	NormDesignTempMax	Max Norm Design Temp
Piping Connections	INormalDgnPoint	NormDesignTempMin	Min Norm Design Temp
Piping Connections	IPressureRatedObject	PressureRating	Pressure Rating
PBS Parent	IPipelineSystem	PipelineSystem_Sequence	Pipeline Sequence Number
Piping Connections	INamedPipingConnector	PipingConnectorSeqNo	Piping Connector Seq No

When complete click **OK** to save this *View Def* and save all the schema additions.



Save the changes to the same xml file that contains all other custom graphs and views.





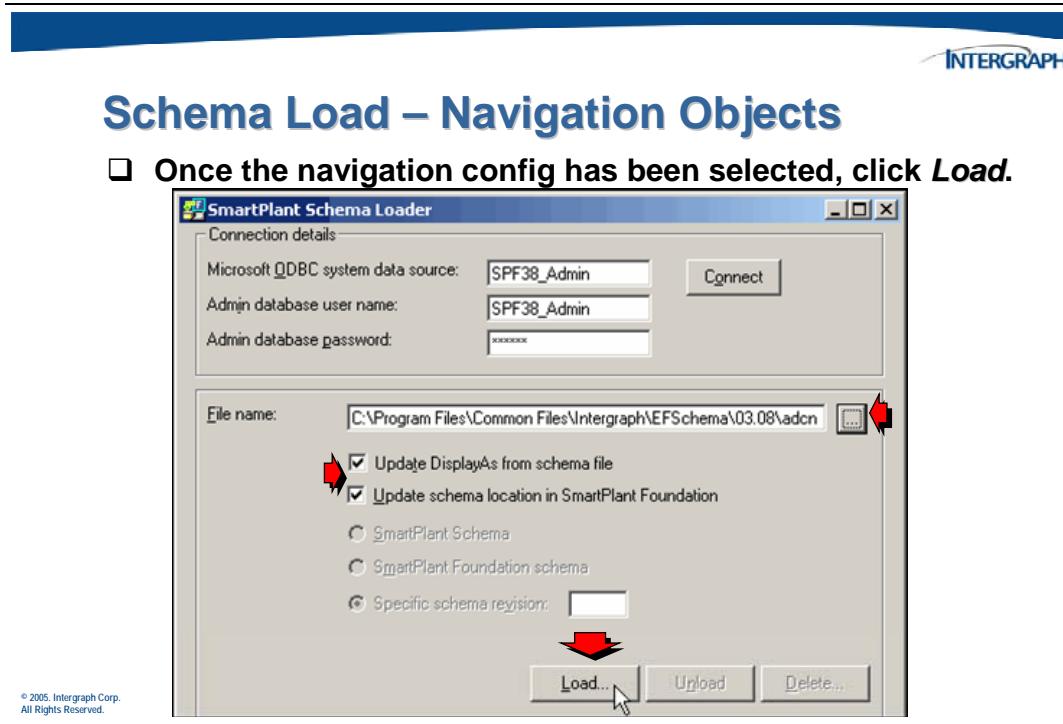
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---

The Graph Def and View Def needed for the Line List report are now ready to be loaded into the SPF Admin database.

## 9.4 Loading Report Navigation Objects

To launch the SmartPlant Schema Loader you can double-click **SmartPlantSchemaLoader.exe**. The default installation location for the SmartPlant schema files is *C:\Program Files\Common Files\Intergraph\EFSchema\03.08*.



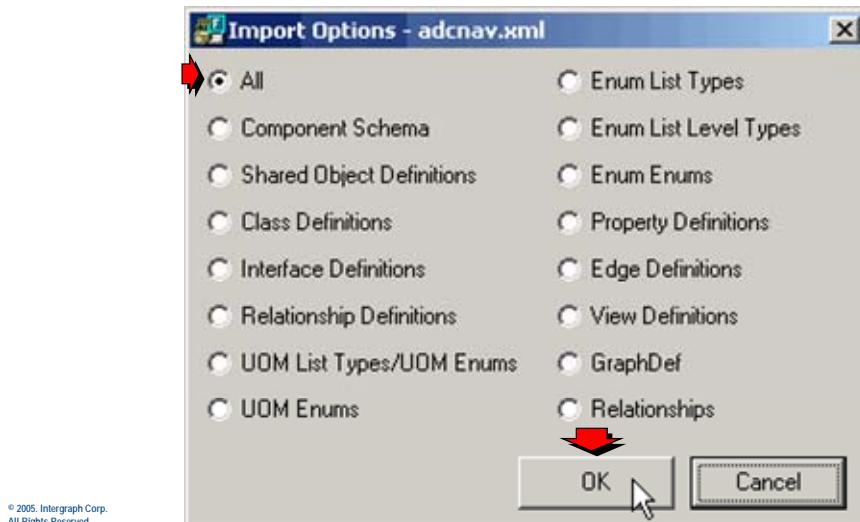
The file name to choose is **adcnnav.cfg**.

In the **Import Options** dialog box, select the type of data that you want to load from the schema into the system administration database.



## Schema Load – Navigation Objects

- Click **OK** to load the schema.

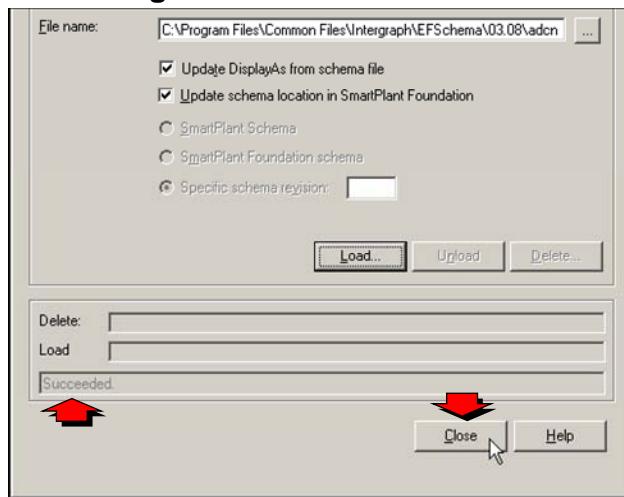


The load software will load the report graphs and views into the SPF Admin database.



## Schema Load – Navigation Objects

- Click the **Close** button once the changed schema has finished loading.



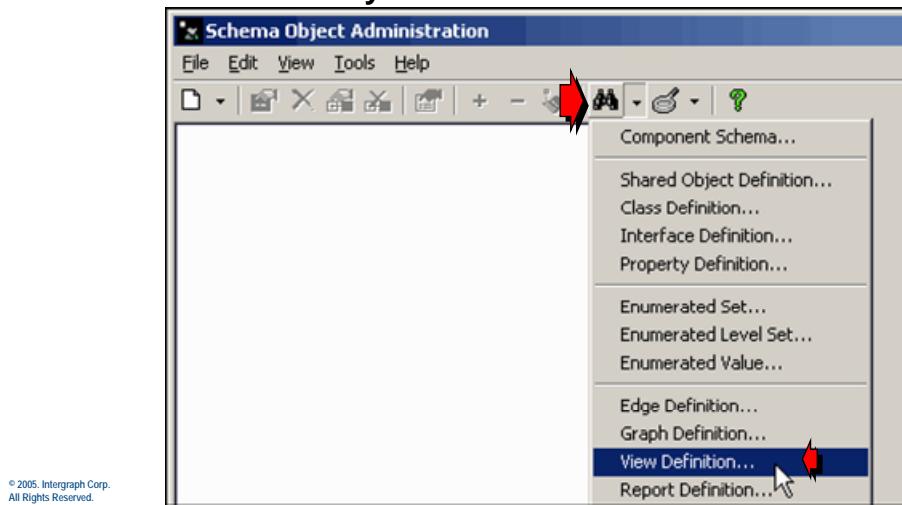
## 9.5 Adding View Definition Security

Once loaded into SPF, you must drag and drop a *User Group* on to each new *View Def* to grant access to the configuration when running a report. Start by performing a find command to verify and view the loaded report views.

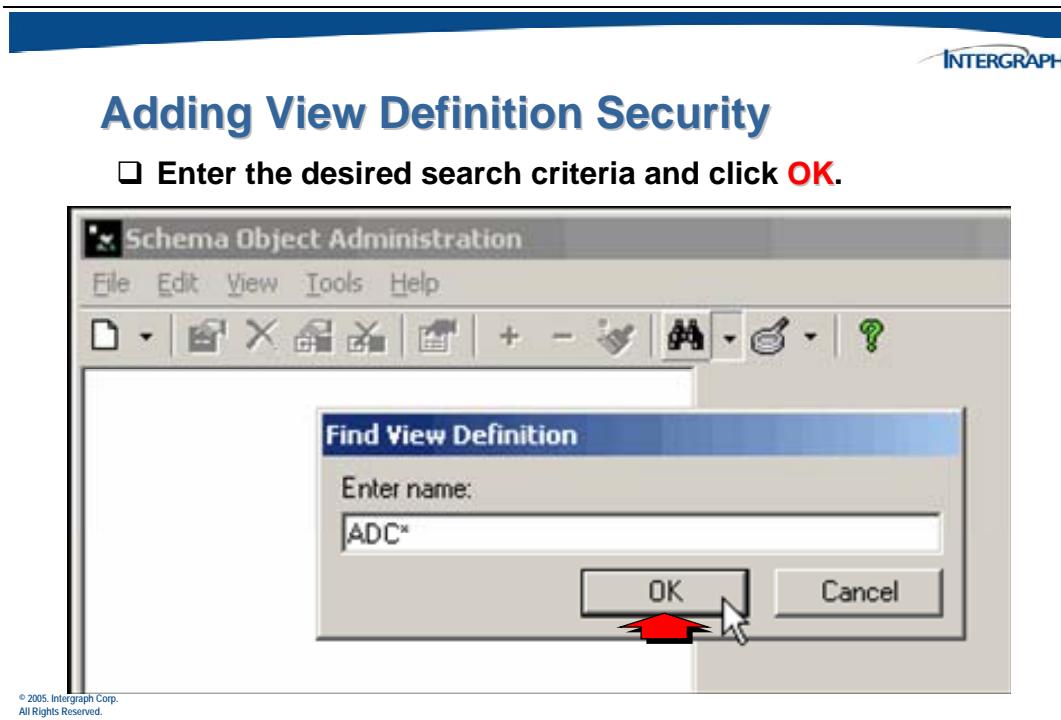


### Adding View Definition Security

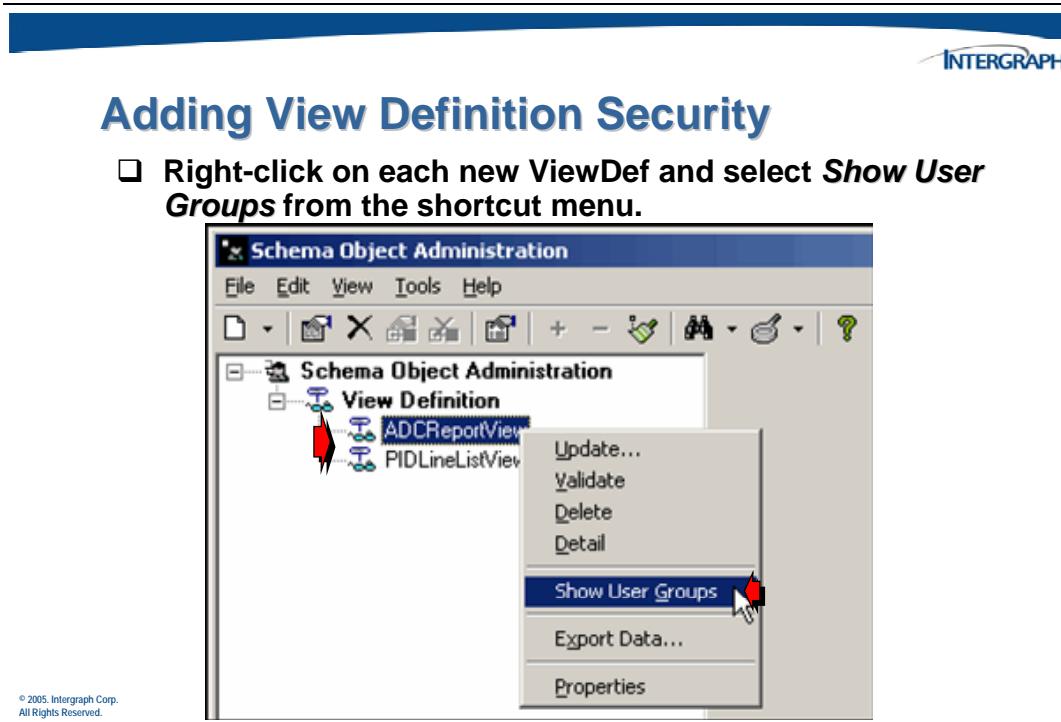
- Use the *Find Tool* to locate the view definitions that have been loaded by the SmartPlant Schema loader.



Execute a find to locate and display both the **ADCReportView** and the **PIDLLineListView**.



The *View Def's* will display in the tree view under **View Definition**. Expand the tree to show the **User Groups** relationship.

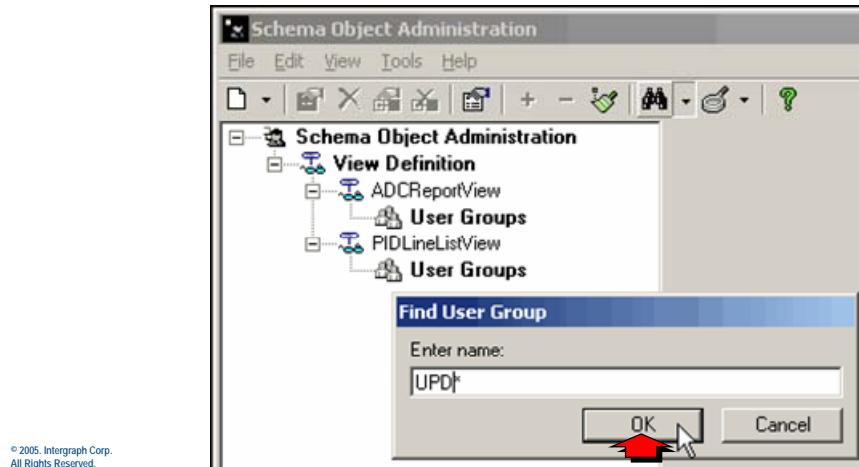


Add a **UserGroup** to the *View Def* to grant access to this definition. To add *View Definition* security, perform a search to find the appropriate user group.



## Adding View Definition Security

- ❑ Click **Tools > Find > User Group** and enter the search criteria for the desired group in the *Find User Group* dialog.

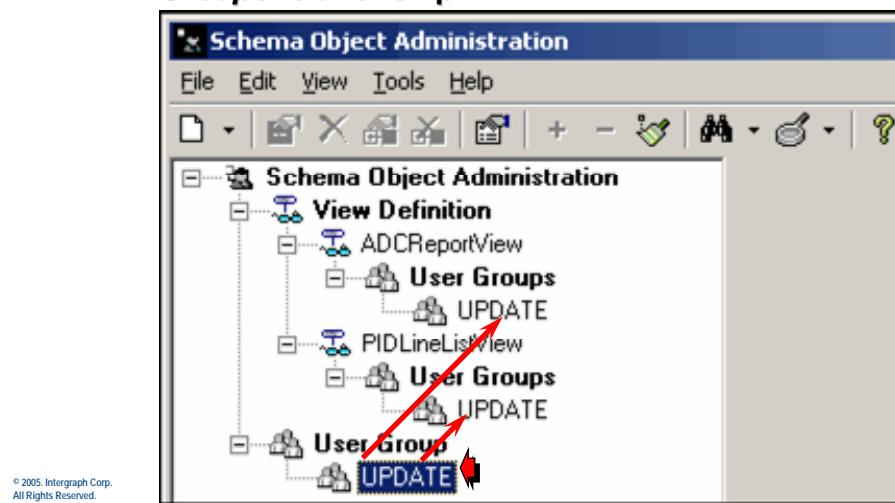


Finish adding the security by creating a new **User Groups** relationship.

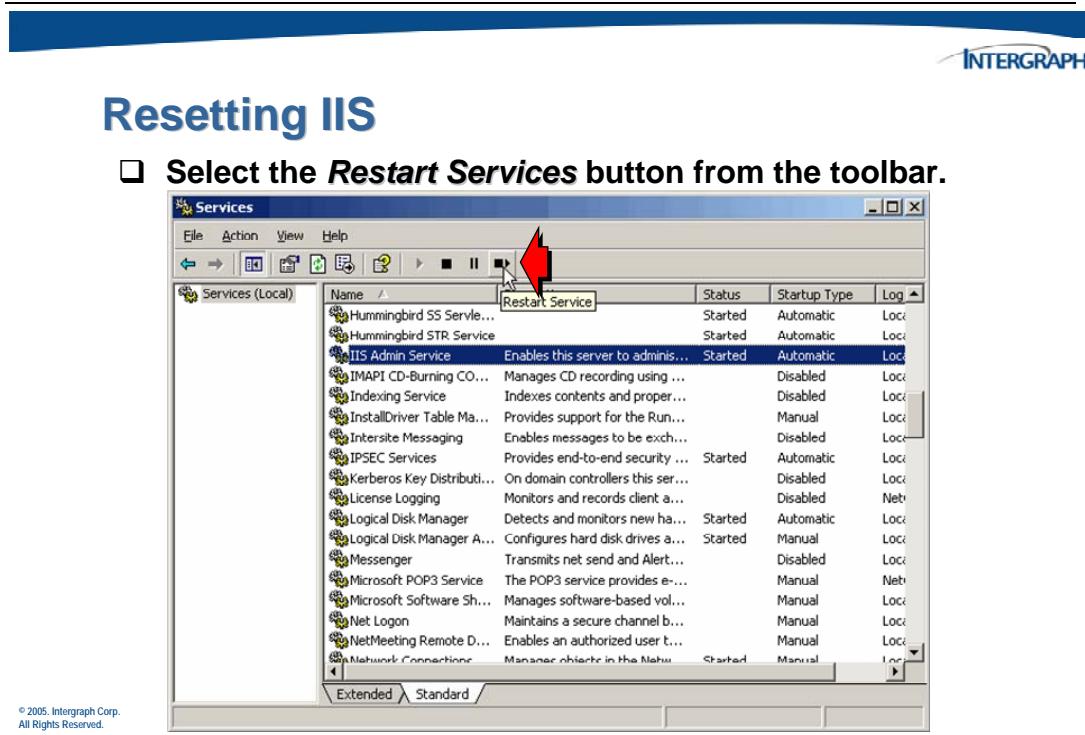


## Adding View Definition Security

- ❑ Drag and drop a User Group onto the ViewDef *User Groups* relationship.



Reset IIS so that the changes are now available in the client.



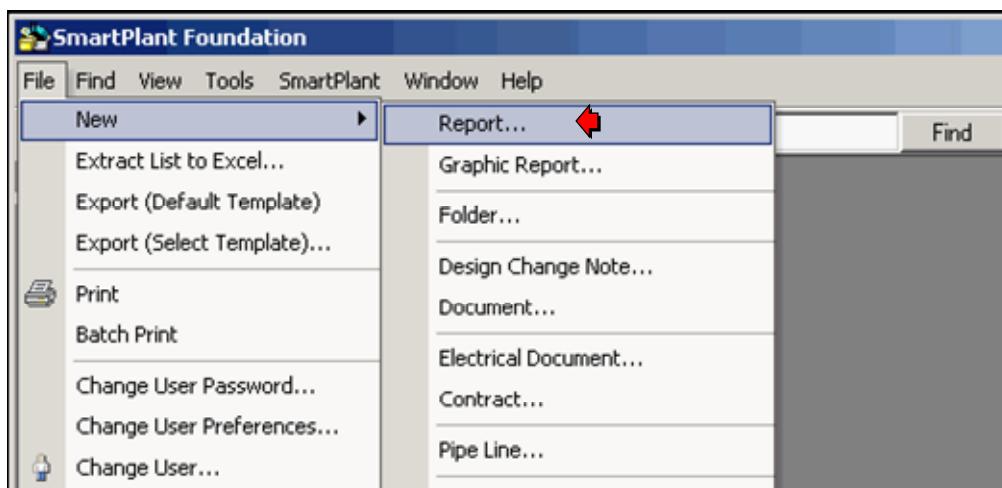
## 9.6 Generating a Report

Once the administrator has set up the necessary Graph Def's and View Def's, the user can login to the Desktop client to generate a report. The available properties to be reported on can't be changed, but the user can choose a subset of the properties from the View Definition to be included in each iteration of a report generated.

The procedures to generate an adhoc report was covered in detail in the *SPE/SPF Introduction and Administration I* training course. The following examples are used to test the custom graphs and views and can be used as a good review for adhoc report generation.

### Generating a Report

- Select **File > New > Report** from the Desktop Client menu.

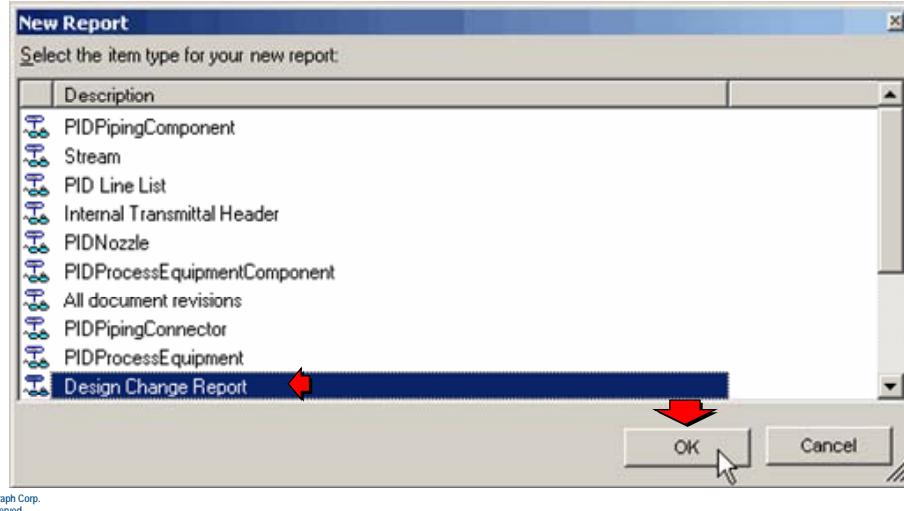


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The *New Report* dialog will display and list the available View Definitions.

## Generating a Report

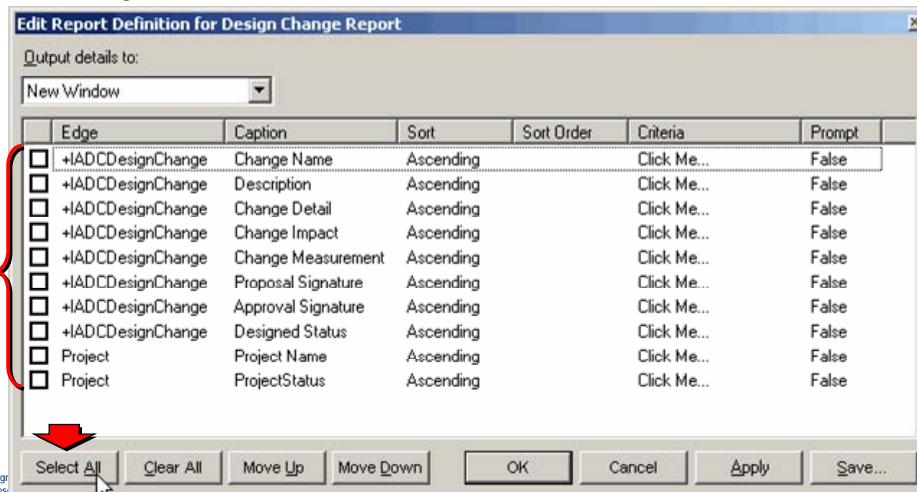
- Select the View Def to be used to create the new report.



Select the **Design Change Report** view and click **OK**. The *Edit Report Definition* dialog will display next.

## Generating a Report

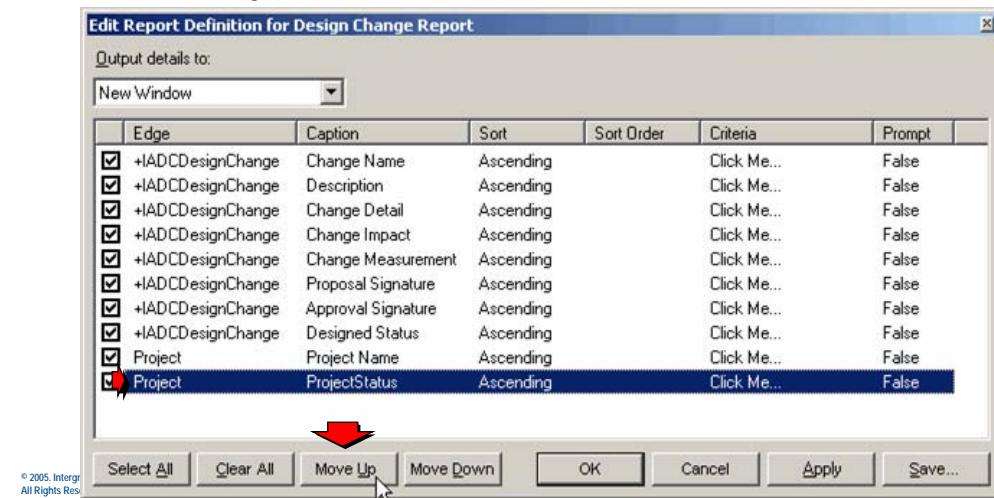
- Enable the properties toggle boxes for inclusion on the report or click the **Select All** button.





## Generating a Report

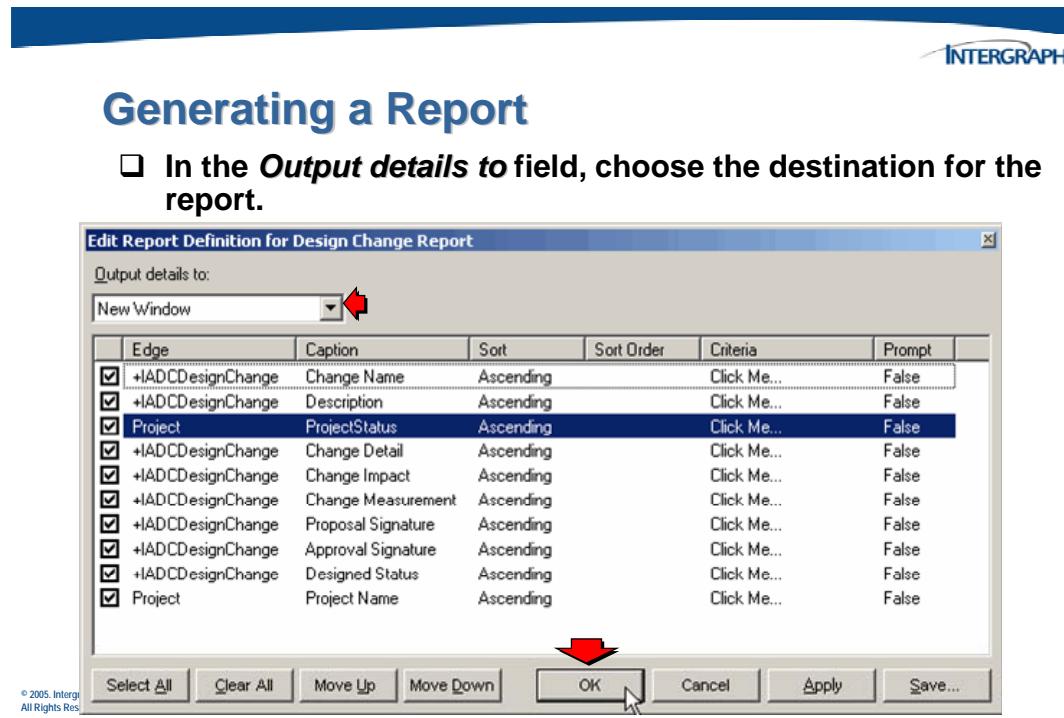
- Highlight an edge and use the Move Up button to change the report column order.**



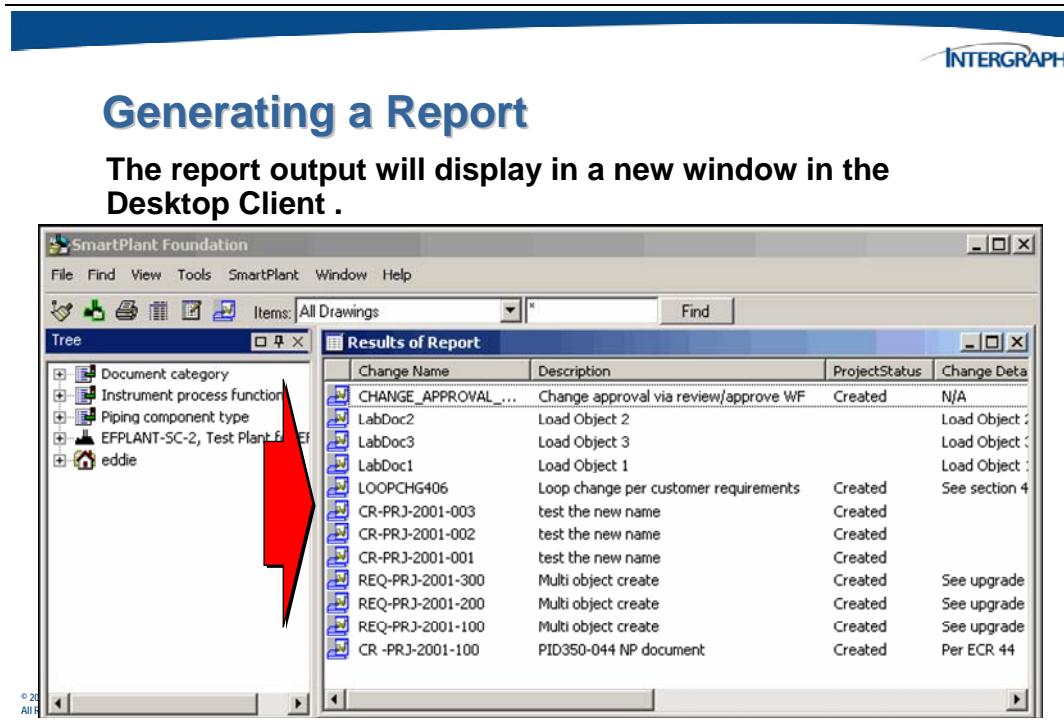
Select the properties you wish to see on the report from this View Definition. The following action buttons are available on the *Edit Report* dialog.

- Select All** – selects ALL definitions
- Clear All** – clears ALL selected definitions
- Move Up** – moves the highlighted selection up the list which will change how the selection will be displayed on the output.
- Move Down** – works the same as **Move Up** with repositioning the selection.
- OK** – runs the report and closes the dialog.
- Cancel** – cancels the report
- Apply** – runs the report and does not close the dialog
- Save** – saves the report so it can be recalled.

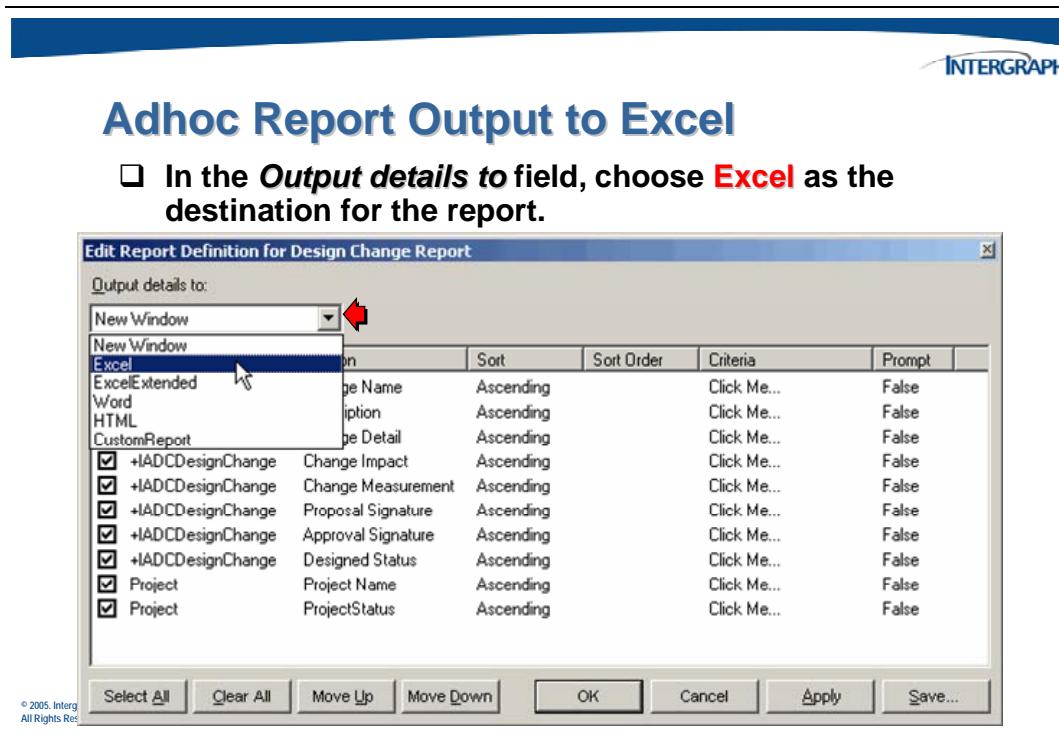
The *Output details to:* list selects the type of report output to be created.



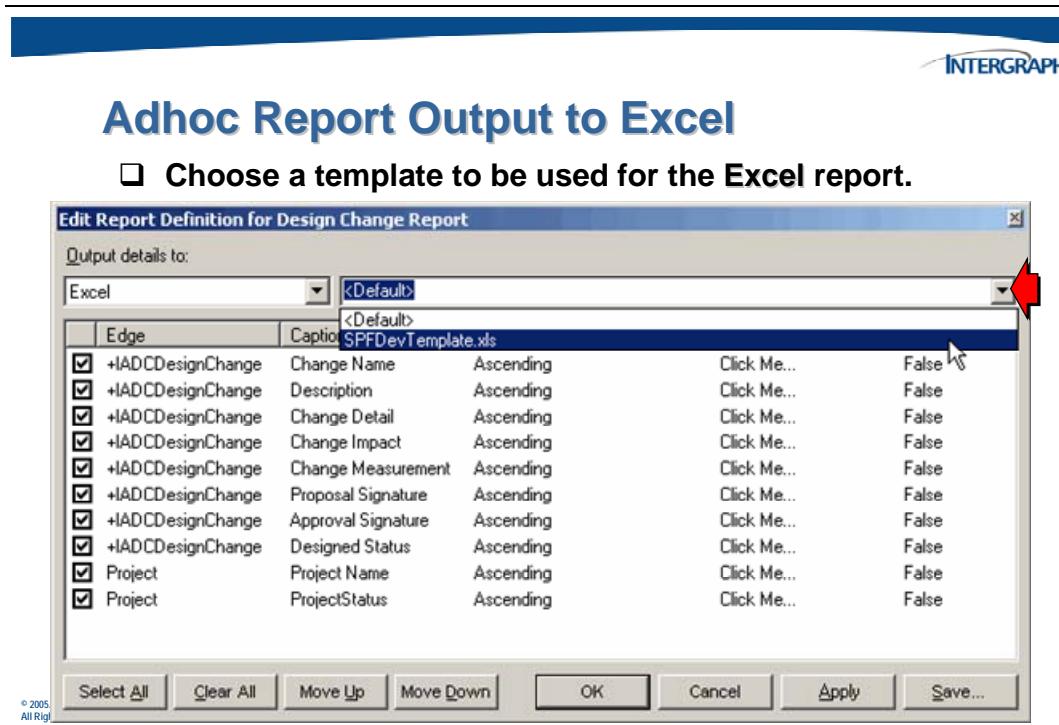
This will generate a report and based on the destination selected, display it in a new window.



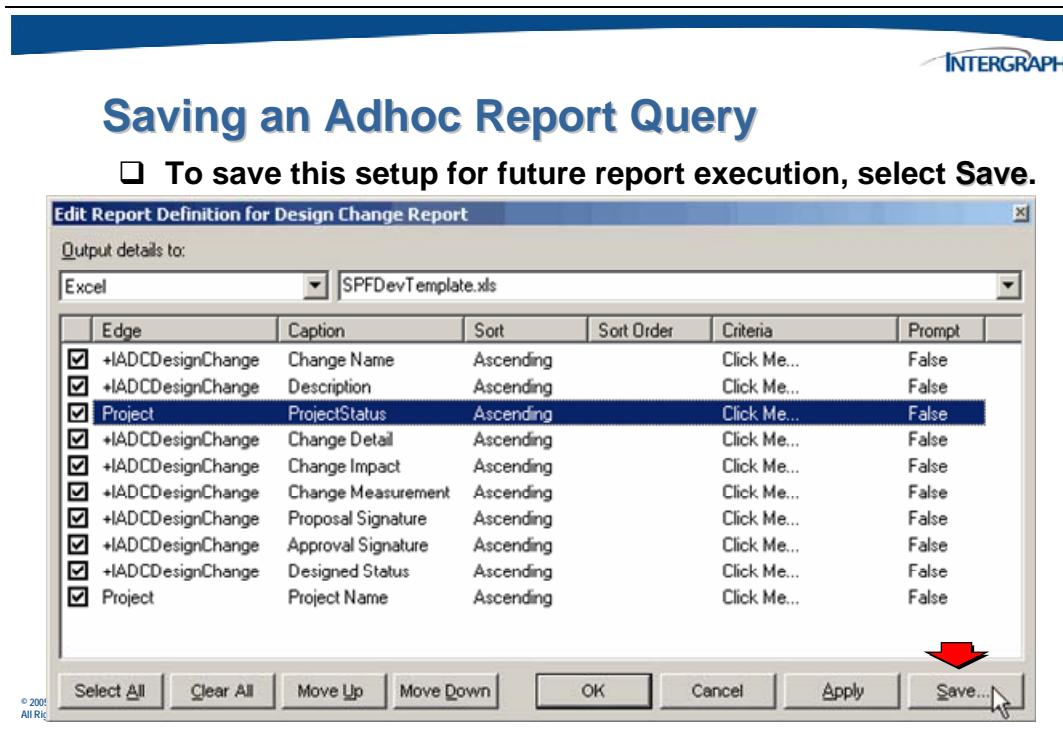
The **Excel** option allows you to select an Excel Template to use for the report.



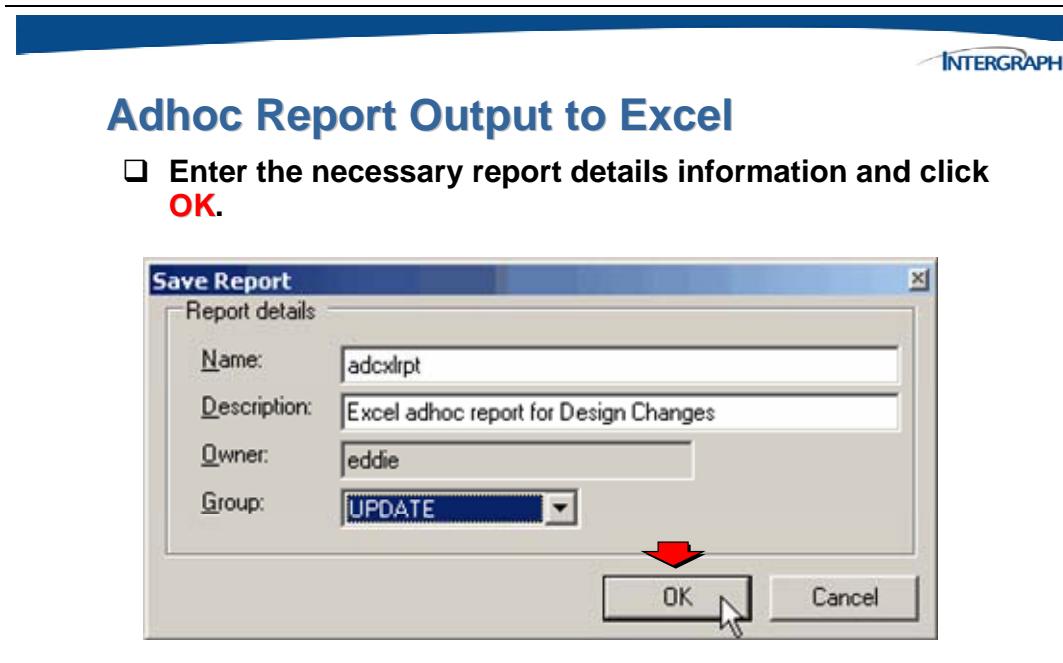
The <Default> setting will not work, you **must** select a template.



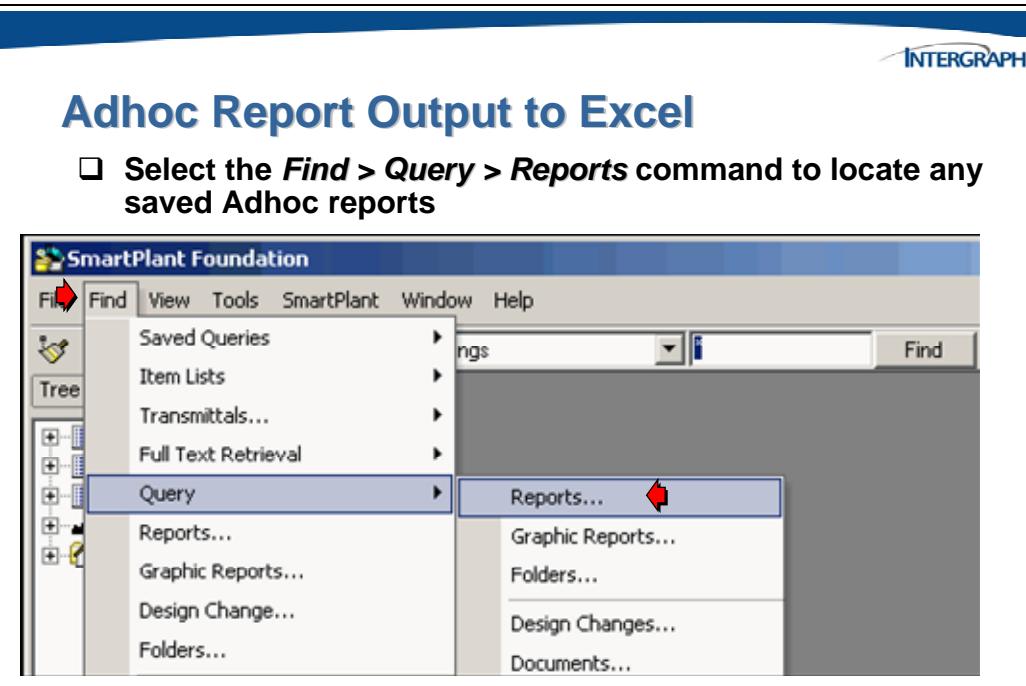
The report set up can be saved as an adhoc query object for future use.



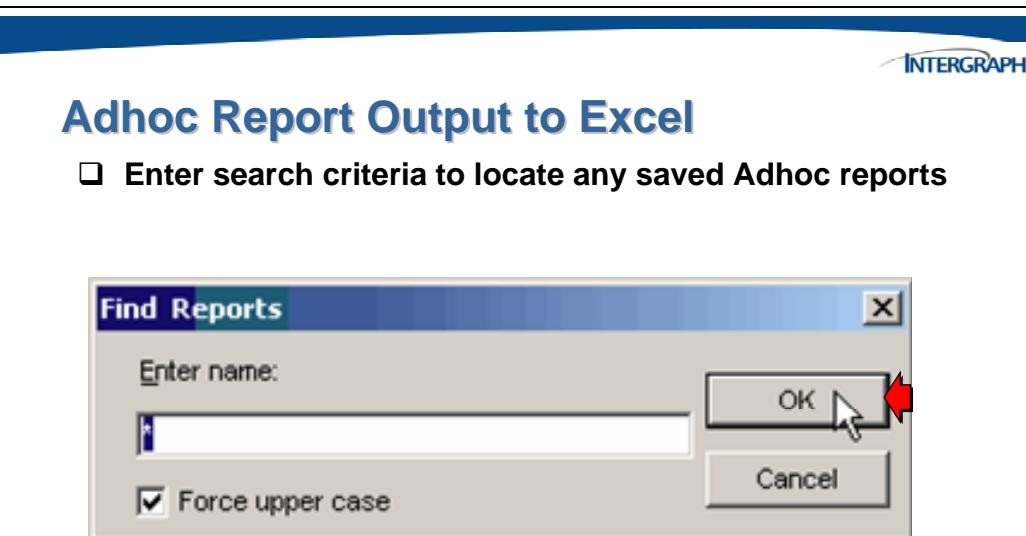
A *Save Report* dialog window will be displayed.



Locate the saved report query or perform a search to find it using the **Find** command.



The *Find Reports* dialog will be displayed.



Any saved reports will be displayed in a list view “results” window.

**Adhoc Report Output to Excel**

□ Right-click on adcxl rpt in the browser results window and choose *Run Report* from the menu

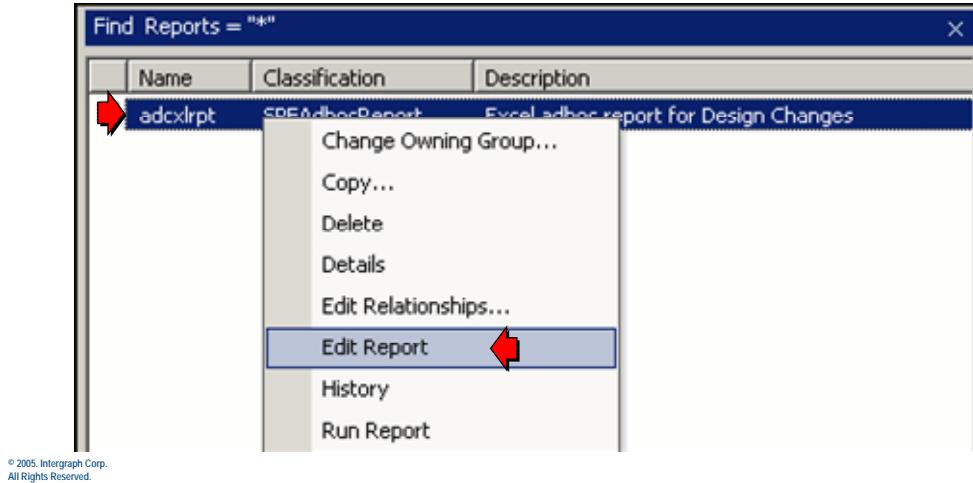
The Excel output will look like this:

Microsoft Excel - SPFDevTemplate.xls						
A	B	C	D	E	F	G
1 Change Name	Description	ProjectStatus	Change Detail	Change Impact	Change Measurement	Propos
2 CHANGE_APPROVAL	Change approval via revie	Created	N/A	TDB		R. Carp
3 LabDoc2	Load Object 2		Load Object 2 details te	TBD	3 m^3/s	Crego
4 LabDoc3	Load Object 3		Load Object 3 details te	TBD	3 m^3/s	Bussey
5 LabDoc1	Load Object 1		Load Object 1 details te	TBD	3 m^3/s	Carpent
6 LOOPCHG406	Loop change per custom	Created	See section 406 of chang	None		Bussey
7 CR-PRJ-2001-003	test the new name	Created				
8 CR-PRJ-2001-002	test the new name	Created				
9 CR-PRJ-2001-001	test the new name	Created				
10 REQ-PRJ-2001-300	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego
11 REQ-PRJ-2001-200	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego
12 REQ-PRJ-2001-100	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego
13 CR -PRJ-2001-100	PID350-044 NP documen	Created	Per ECR 44	TBD	3 m^3/s	B. Bus
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

As a reminder from the SPF Admin I class, saved report content and style can be modified using the edit command.

## Modifying an Adhoc Report

- Right-click on **adcxl rpt** in the browser results window and select **Edit Report** from the menu



Examples of different kinds of report output are shown on the following pages.

The following is an example of a Word output.

A screenshot of Microsoft Word displaying an Adhoc report results table. The window title is "http://pimdemo1/SPF38ASP/Reports/AdHocReportResults.asp?format=Word&mode=A&sid=PCDW000000000000 - Microsoft Internet Explorer". The address bar shows the same URL. The menu bar includes File, Edit, View, Insert, Format, Tools, Table, Go To, Favorites, and Help. The toolbar includes Back, Forward, Home, Search, Favorites, and various document manipulation icons. The status bar at the bottom right says "Unknown Zone". The table has 11 columns: Change Name, Description, ProjectStatus, Change Detail, Change Impact, Change Measurement, Proposal Signature, Approval Signature, Designed Status, and Project Name. The data rows include:

Change Name	Description	ProjectStatus	Change Detail	Change Impact	Change Measurement	Proposal Signature	Approval Signature	Designed Status	Project Name
CHANGE_APPROVAL_044	Change approval via review/approve WF	Created	N/A	TDB		R. Carpenter	M. Harbin	CR	PRJ-2001
LabDoc2	Load Object 2		Load Object 2 details text	TBD	3 m^3/s	Crego	Lowdermilk	REQ	
LabDoc3	Load Object 3		Load Object 3 details text	TBD	3 m^3/s	Bussey	Burgess	IP	
LabDoc1	Load Object 1		Load Object 1 details text	TBD	3 m^3/s	Carpenter	Harbin	CR	
LOOPCHG406	Loop change per customer requirements	Created	See section 406 of change spec	None		Bussey	Burgess	REQ	PRJ-2001
CR-PRJ-2001-003	test the new name	Created						CR	PRJ-2001
CR-PRJ-2001-002	test the new name	Created						CR	PRJ-2001
CR-PRJ-2001-001	test the new name	Created						CR	PRJ-2001
REQ-PRJ-2001-300	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
REQ-PRJ-2001-200	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
REQ-PRJ-2001-100	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
CR-PRJ-2001-100	PID350-044 NP document	Created	Per ECR 44	TBD	3 m^3/s	B. Bussey	R. Burgess	CR	PRJ-2001

### HTML – Creates a web based report

**Report Details - Microsoft Internet Explorer**

Address: http://pimdemo1/SPF38ASP/Reports/AdHocReportResults.asp?format=HTML&mode=A&sid=PCDW00000000000000000000477&se=

Change Name	Description	Project Status	Change Detail	Change Impact	Change Measurement	Proposal Signature	Approval Signature	Designed Status	Project Name
CHANGE_APPROVAL_044	Change approval via review/approve WF	Created	N/A	TDB		R. Carpenter	M. Harbin	CR	PRJ-2001
LabDoc2	Load Object 2		Load Object 2 details text	TBD	3 m^3/s	Crego	Lowdermilk	REQ	
LabDoc3	Load Object 3		Load Object 3 details text	TBD	3 m^3/s	Bussey	Burgess	IP	
LabDoc1	Load Object 1		Load Object 1 details text	TBD	3 m^3/s	Carpenter	Harbin	CR	
LOOPCHG406	Loop change per customer requirements	Created	See section 406 of change spec	None		Bussey	Burgess	REQ	PRJ-2001
CR-PRJ-2001-003	test the new name	Created						CR	PRJ-2001
CR-PRJ-2001-002	test the new name	Created						CR	PRJ-2001
CR-PRJ-2001-001	test the new name	Created						CR	PRJ-2001
REQ-PRJ-2001-300	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
REQ-PRJ-2001-200	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
REQ-PRJ-2001-100	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
CR-PRJ-2001-100	PID350-044 NP document	Created	Per ECR 44	TBD	3 m^3/s	B. Bussey	R. Burgess	CR	PRJ-2001

## 9.6.1 Additional Adhoc Report Options

Users running adhoc reports can change any of the column captions, data sorting, as well as supply search criteria on a subset of data to be included in the report. The other options you have with the report dialog are:

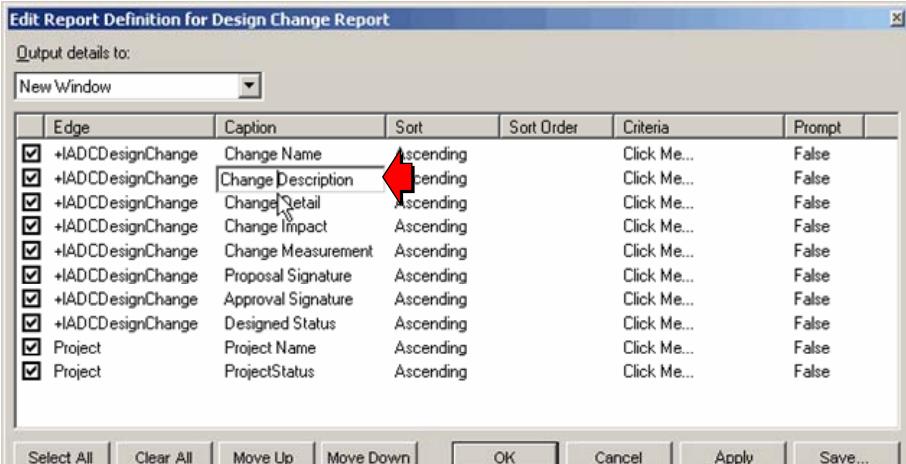


### Adhoc Report Options

Filter options on the Edit Report dialog are **Caption**, **Sort**, **Sort Order** and **Criteria**

- Caption** – change the Caption of the column from the displayed as field
- Sort** – sort a column **Ascending** or **Descending**
- Sort Order** - select the order to sort the columns
- Criteria** – logical filters can be used on the data to filter output ( **Like \* or Equals 04** )

Default column headings can be changed to suit the preference of different users running the report.



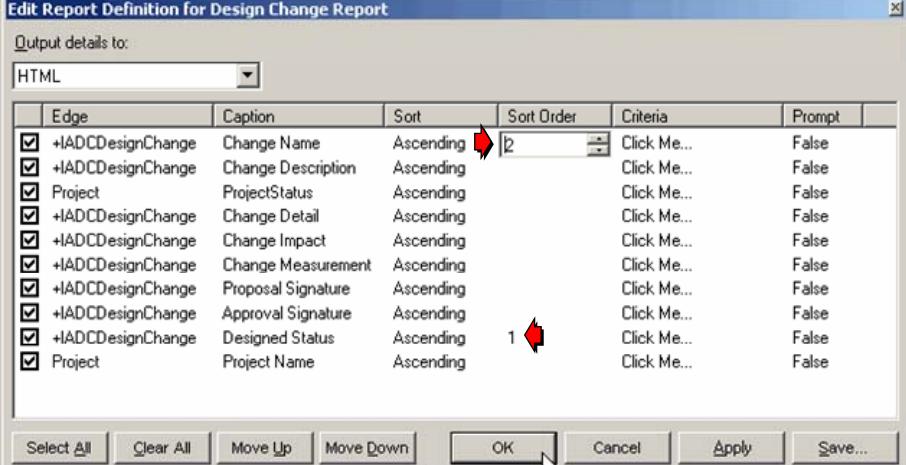
**Output details to:**  
New Window

Edge	Caption	Sort	Sort Order	Criteria	Prompt
+IADCDesignChange	Change Name	Ascending		Click Me...	False
+IADCDesignChange	Change Description	Ascending		Click Me...	False
+IADCDesignChange	Change Detail	Ascending		Click Me...	False
+IADCDesignChange	Change Impact	Ascending		Click Me...	False
+IADCDesignChange	Change Measurement	Ascending		Click Me...	False
+IADCDesignChange	Proposal Signature	Ascending		Click Me...	False
+IADCDesignChange	Approval Signature	Ascending		Click Me...	False
+IADCDesignChange	Designed Status	Ascending		Click Me...	False
Project	Project Name	Ascending		Click Me...	False
Project	ProjectStatus	Ascending		Click Me...	False

Select All | Clear All | Move Up | Move Down | OK | Cancel | Apply | Save...

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The sort order for report data can also be changed from the default “name” field.



**Output details to:**  
HTML

Edge	Caption	Sort	Sort Order	Criteria	Prompt
+IADCDesignChange	Change Name	Ascending	1	Click Me...	False
+IADCDesignChange	Change Description	Ascending	2	Click Me...	False
Project	ProjectStatus	Ascending		Click Me...	False
+IADCDesignChange	Change Detail	Ascending		Click Me...	False
+IADCDesignChange	Change Impact	Ascending		Click Me...	False
+IADCDesignChange	Change Measurement	Ascending		Click Me...	False
+IADCDesignChange	Proposal Signature	Ascending		Click Me...	False
+IADCDesignChange	Approval Signature	Ascending		Click Me...	False
+IADCDesignChange	Designed Status	Ascending		Click Me...	False
Project	Project Name	Ascending		Click Me...	False

Select All | Clear All | Move Up | Move Down | OK | Cancel | Apply | Save...

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Below is an example of a report with the changed caption and sort order.

**Report Details - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Address http://pimdemo1/SPF38ASP/Reports/AdHocReportResults.asp?format=HTML&mode=A&sid=PCDW00000000000000000004778sess Go Links >

Change Name	Change Description	Project Status	Change Detail	Change Impact	Change Measurement	Proposal Signature	Approval Signature	Designed Status	Project Name
CHANGE_APPROVAL_044	Change approval via review/approve WF	Created	N/A	TDB		R. Carpenter	M. Harbin	CR	PRJ-2001
CR-PRJ-2001-100	PID350-044 NP document	Created	Per ECR 44	TBD	3 m^3/s	B. Bussey	R. Burgess	CR	PRJ-2001
CR-PRJ-2001-001	test the new name	Created						CR	PRJ-2001
CR-PRJ-2001-002	test the new name	Created						CR	PRJ-2001
CR-PRJ-2001-003	test the new name	Created						CR	PRJ-2001
LabDoc1	Load Object 1		Load Object 1 details text	TBD	3 m^3/s	Carpenter	Harbin	CR	
LabDoc3	Load Object 3		Load Object 3 details text	TBD	3 m^3/s	Bussey	Burgess	IP	
LabDoc2	Load Object 2		Load Object 2 details text	TBD	3 m^3/s	Crego	Lowdermilk	REQ	
LOOPCHG406	Loop change per customer requirements	Created	See section 406 of change spec	None		Bussey	Burgess	REQ	PRJ-2001
REQ-PRJ-2001-100	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
REQ-PRJ-2001-200	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
REQ-PRJ-2001-300	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001

Done Trusted sites

Each field in the view will allow for the definition of search criteria for the report.

**Edit Report Definition for Design Change Report**

Output details to:

HTML

Edge	Caption	Sort	Sort Order	Criteria	Prompt
+IADCDesignChange	Change Name	Ascending		Click Me...	False
+IADCDesignChange	Change Description	Ascending		Click Me...	False
<b>Project</b>	ProjectStatus	Ascending		Click Me...	False
+IADCDesignChange	Change Detail	Ascending		Click Me...	False
+IADCDesignChange	Change Impact	Ascending		Click Me...	False
+IADCDesignChange	Change Measurement	Ascending		Click Me...	False
+IADCDesignChange	Proposal Signature	Ascending		Click Me...	False
+IADCDesignChange	Approval Signature	Ascending		Click Me...	False
+IADCDesignChange	Designed Status	Ascending		Click Me...	False
Project	Project Name	Ascending		Click Me...	False

Select All | Clear All | Move Up | Move Down | OK | Cancel | Apply | Save...

The following criteria will apply to the **Designed Status** property from the *View Def*.

**Criteria Definition**

Clear criteria for this property  
 Define criteria for this property

Currently defined criteria for Designed Status

Operator: is equal to Value: IP

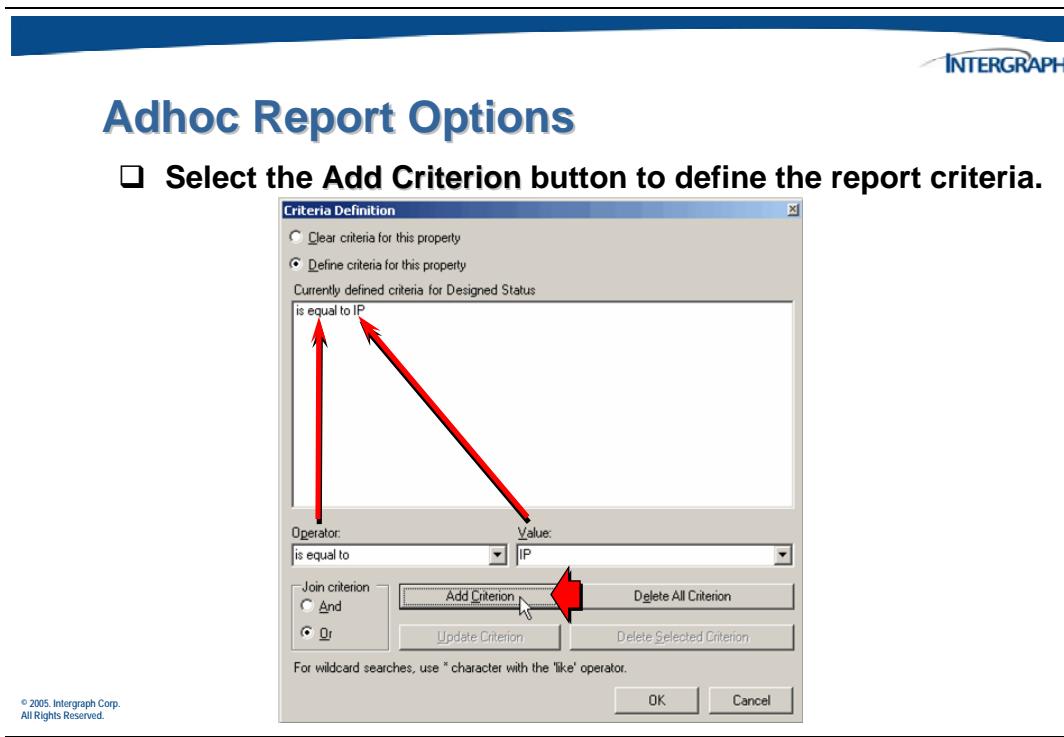
Join criterion: And | Or Add Criterion | Update Criterion

For wildcard searches, use \* character with the 'like' operator.

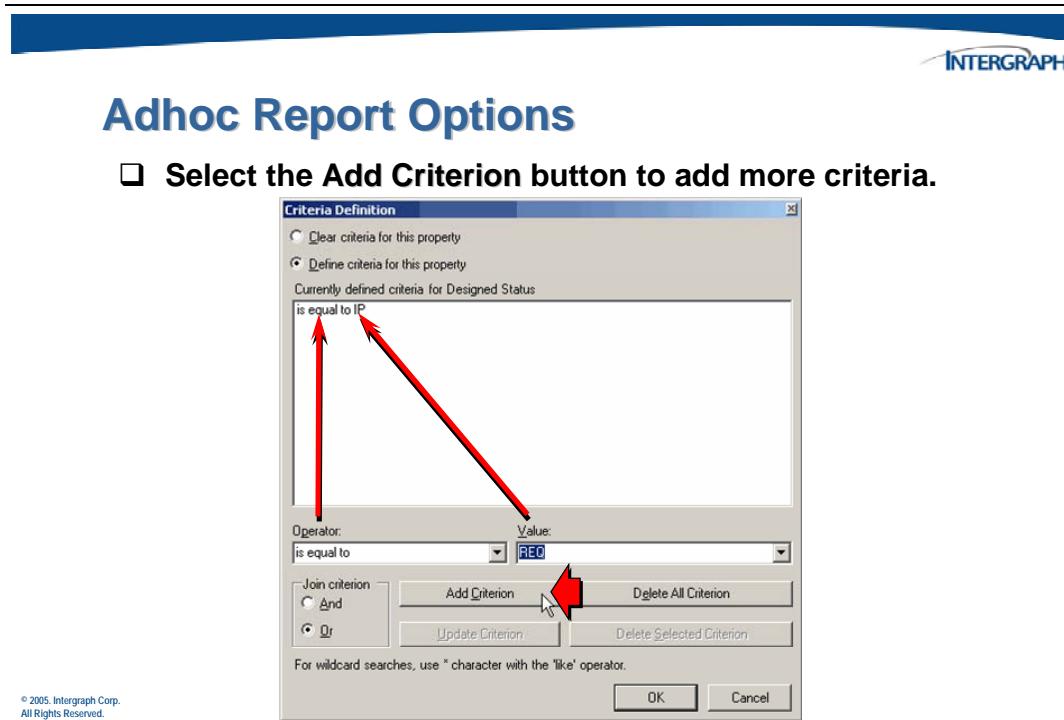
OK | Cancel

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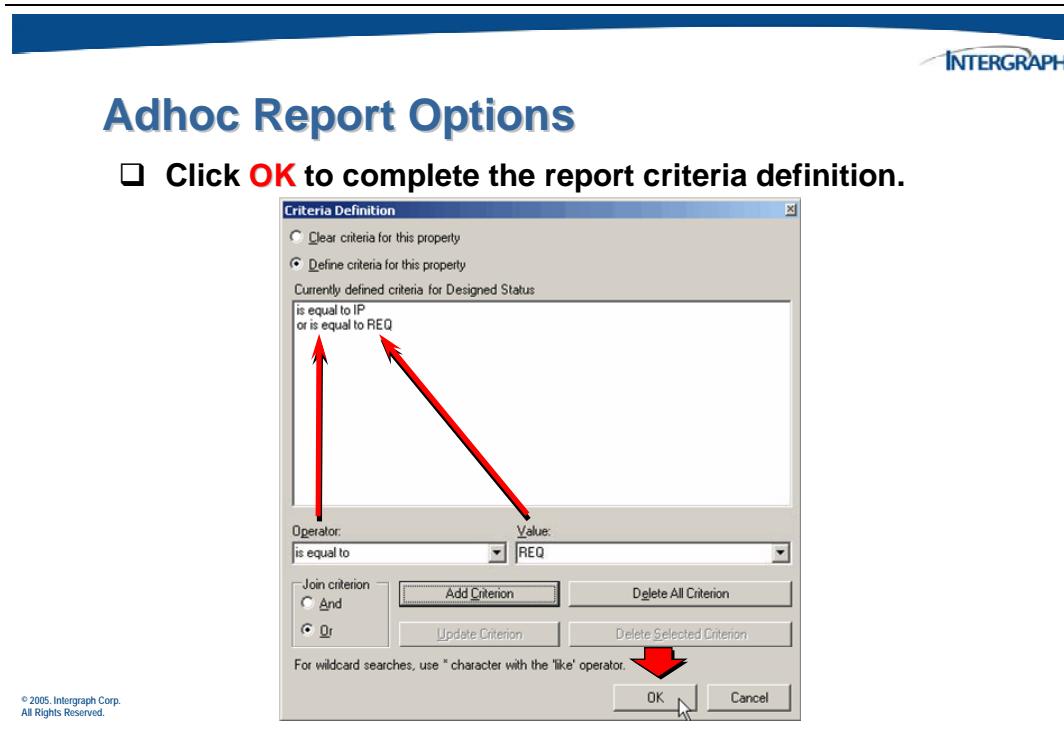
Once the criteria has been specified, add it to the *Currently defined criteria* field.



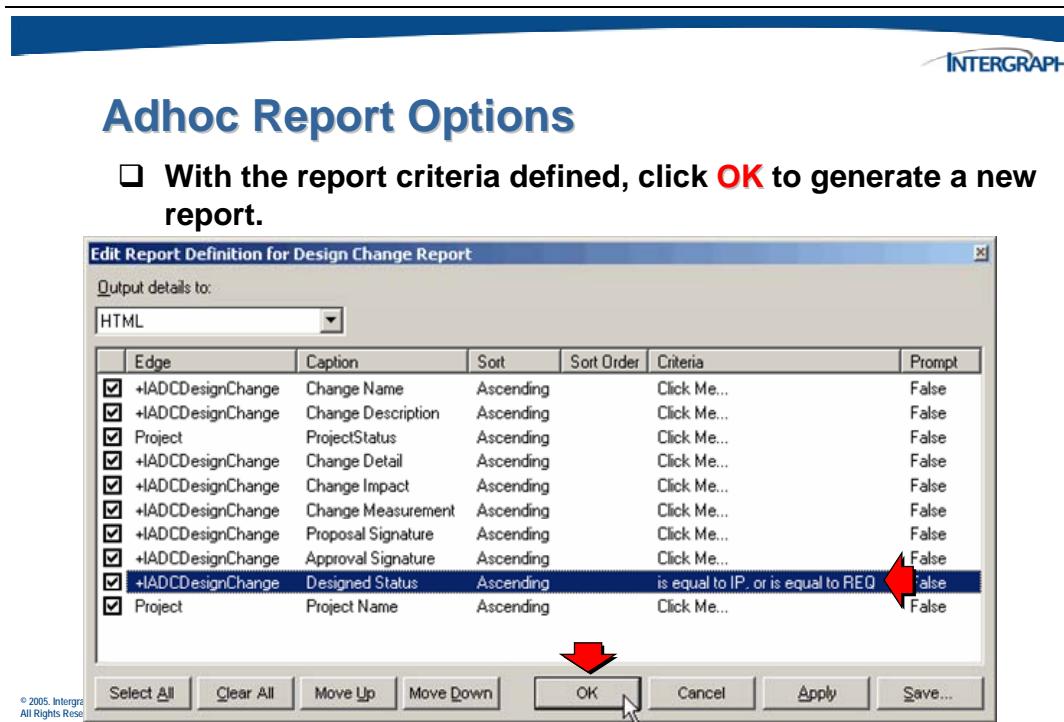
Compound criteria can be specified for any of the view def properties.



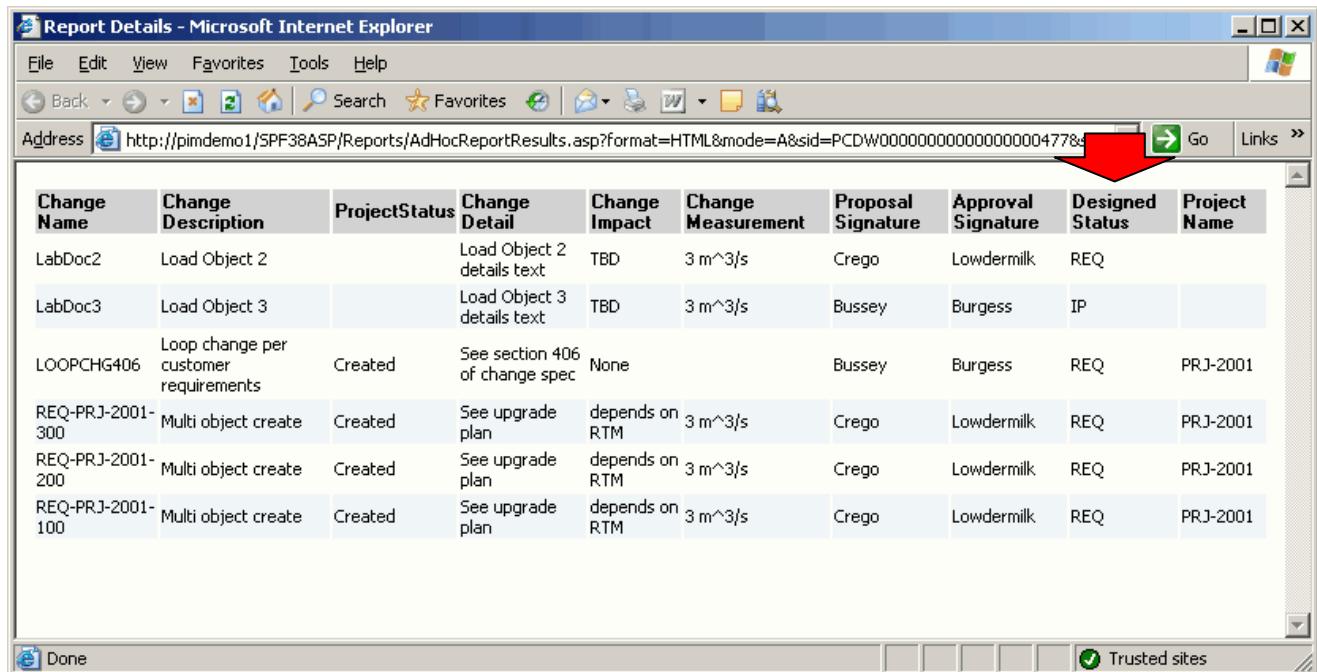
Now that all of the criteria has been defined, close the *Criteria Definition* dialog and run the report.



This criteria will return all *Design Change* objects that have a status of **IP** (InProgress) or **REQ** (Required). Note the **Criteria** field in the *Edit Report* dialog.



The report example here reflects the applied search criteria.

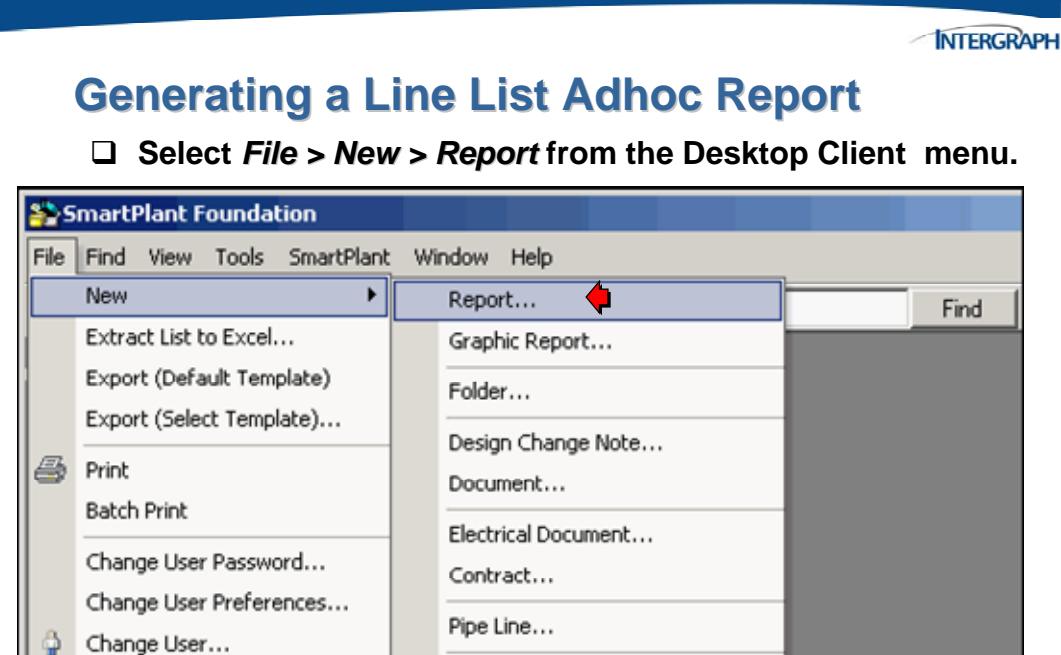


A screenshot of a Microsoft Internet Explorer window titled "Report Details - Microsoft Internet Explorer". The address bar shows the URL: "http://pimdemo1/SPF38ASP/Reports/AdHocReportResults.aspx?format=HTML&mode=A&sid=PCDW0000000000000000000047785". A red arrow points to the "Go" button next to the address bar. Below the address bar is a toolbar with standard browser icons. The main content area displays a table with 10 columns: Change Name, Change Description, ProjectStatus, Change Detail, Change Impact, Change Measurement, Proposal Signature, Approval Signature, Designed Status, and Project Name. There are six rows of data in the table. The last row contains hyperlinks.

Change Name	Change Description	ProjectStatus	Change Detail	Change Impact	Change Measurement	Proposal Signature	Approval Signature	Designed Status	Project Name
LabDoc2	Load Object 2		Load Object 2 details text	TBD	3 m^3/s	Crego	Lowdermilk	REQ	
LabDoc3	Load Object 3		Load Object 3 details text	TBD	3 m^3/s	Bussey	Burgess	IP	
LOOPCHG406	Loop change per customer requirements	Created	See section 406 of change spec	None		Bussey	Burgess	REQ	PRJ-2001
REQ-PRJ-2001-300	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
REQ-PRJ-2001-200	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001
REQ-PRJ-2001-100	Multi object create	Created	See upgrade plan	depends on RTM	3 m^3/s	Crego	Lowdermilk	REQ	PRJ-2001

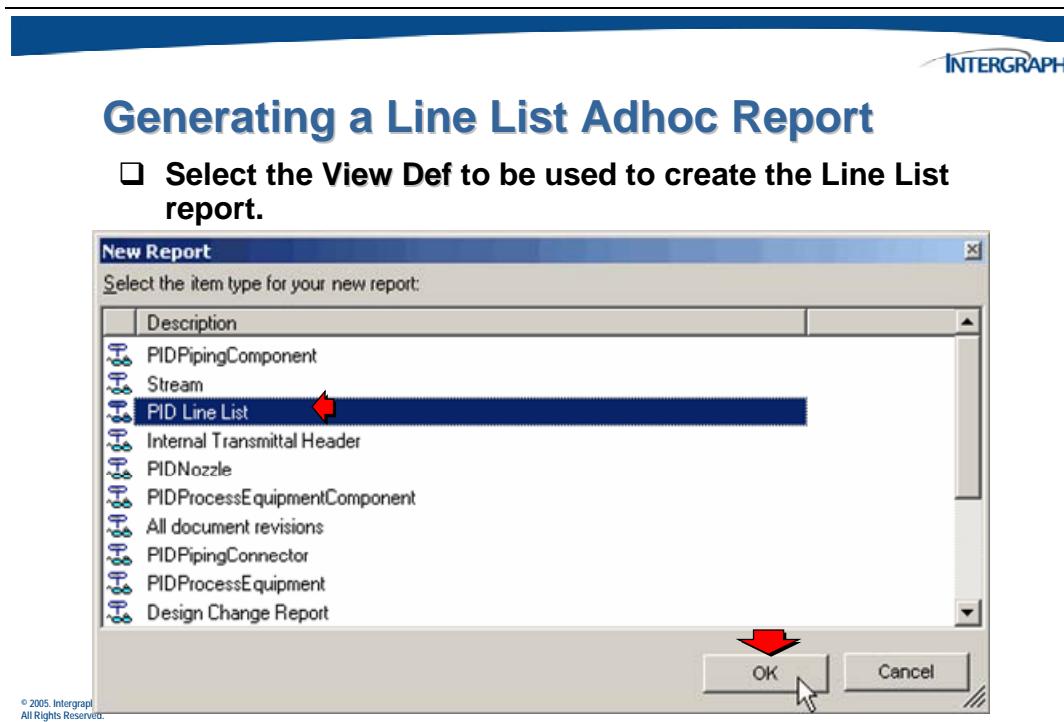
## 9.7 Generating a Line List Adhoc Report

With a Graph Def and View Def defined, use the SPF Desktop Client to generate the report.

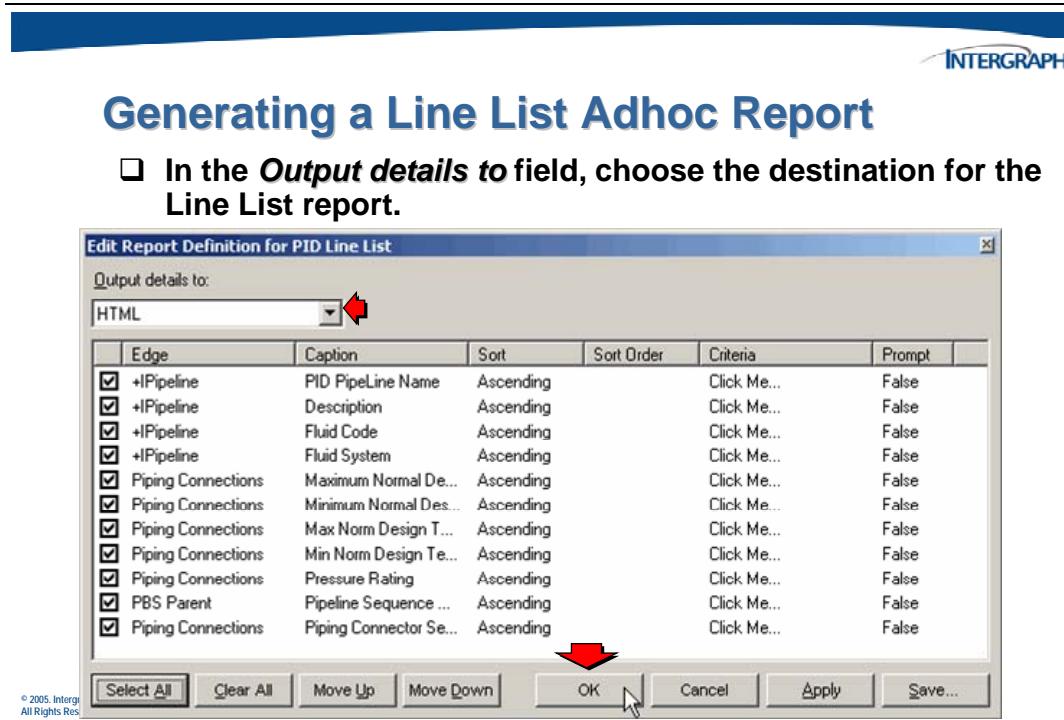


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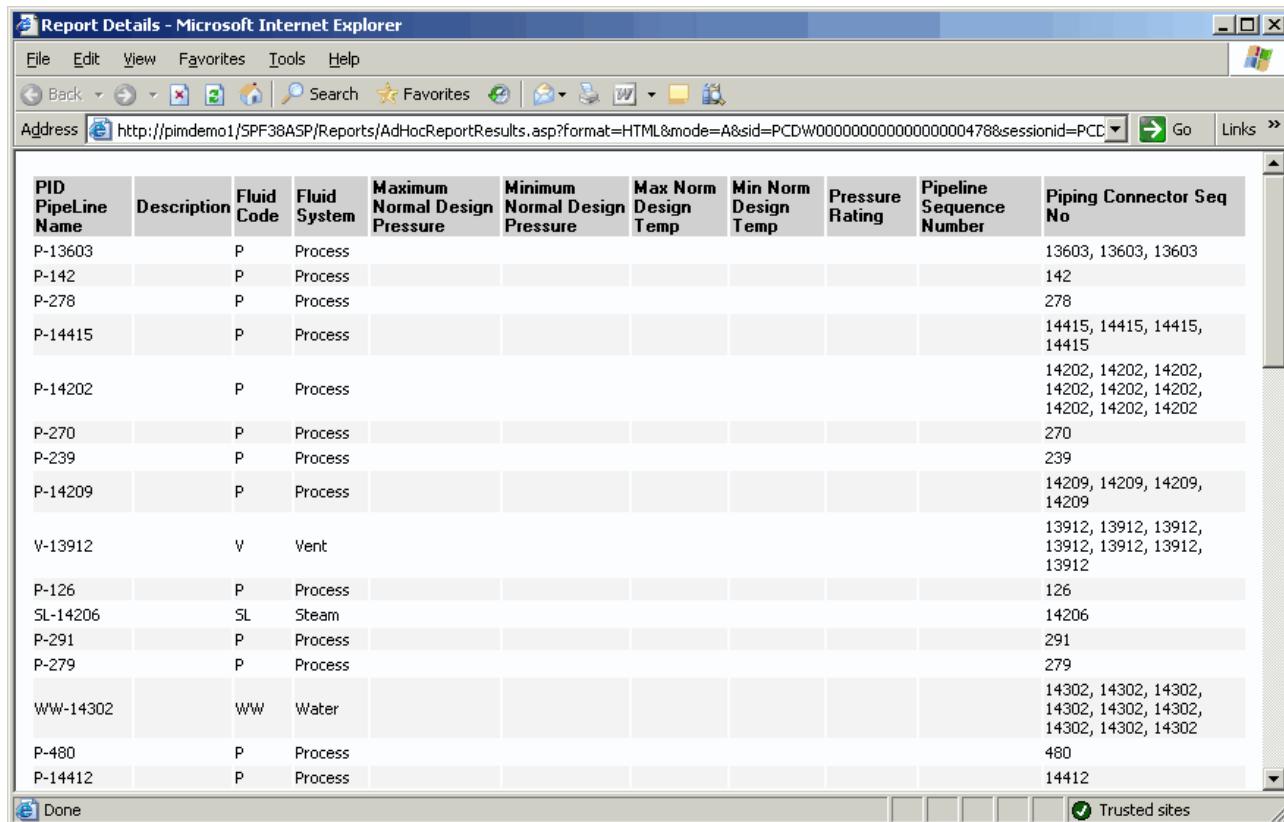
The *New Report* dialog will be displayed.



Choose the desired report options and then click **OK** to generate the Line List report.



The following is an example of how the **custom** report will look out of the box output to HTML. If you need different output formats custom programming (macro, asp,...) will be required for the output format.



The screenshot shows a Microsoft Internet Explorer window with the title bar 'Report Details - Microsoft Internet Explorer'. The address bar contains the URL 'http://pimdemo1/SPF38ASP/Reports/AdHocReportResults.asp?format=HTML&mode=A&sid=PCDW000000000000000000478&sessionid=PCD'. The main content area displays a table with the following data:

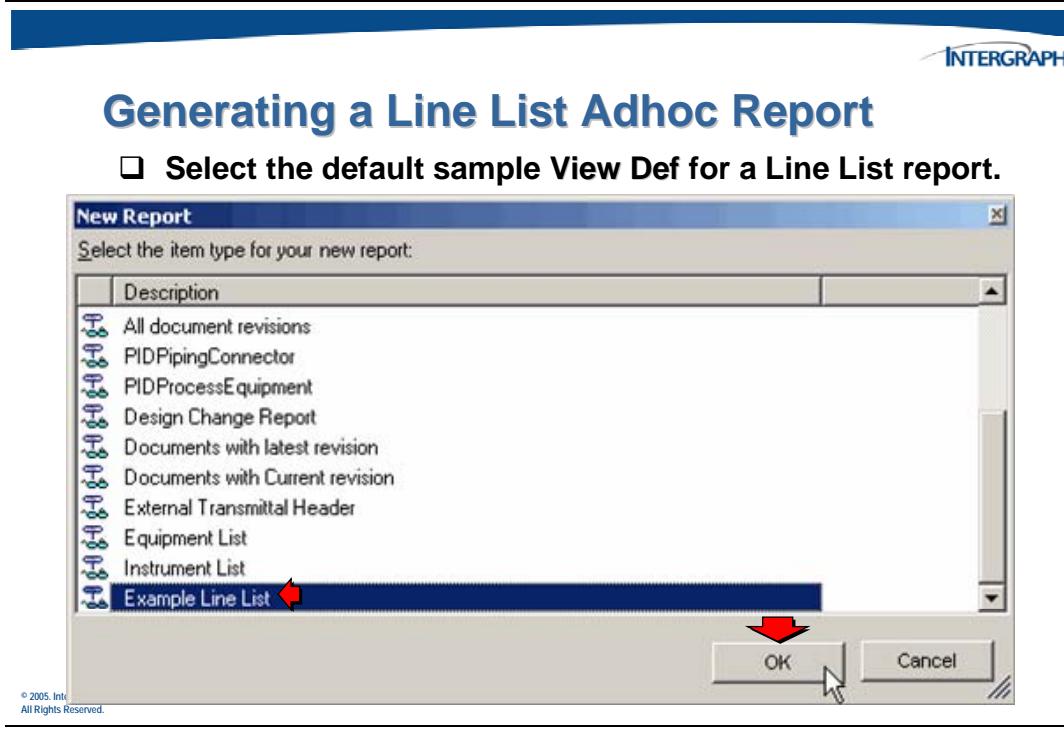
PID Pipeline Name	Description	Fluid Code	Fluid System	Maximum Normal Design Pressure	Minimum Normal Design Pressure	Max Norm Design Temp	Min Norm Design Temp	Pressure Rating	Pipeline Sequence Number	Piping Connector Seq No
P-13603		P	Process							13603, 13603, 13603
P-142		P	Process							142
P-278		P	Process							278
P-14415		P	Process							14415, 14415, 14415, 14415
P-14202		P	Process							14202, 14202, 14202, 14202, 14202, 14202, 14202
P-270		P	Process							270
P-239		P	Process							239
P-14209		P	Process							14209, 14209, 14209, 14209
V-13912		V	Vent							13912, 13912, 13912, 13912, 13912, 13912
P-126		P	Process							126
SL-14206		SL	Steam							14206
P-291		P	Process							291
P-279		P	Process							279
WW-14302		WW	Water							14302, 14302, 14302, 14302, 14302, 14302, 14302
P-480		P	Process							480
P-14412		P	Process							14412

---

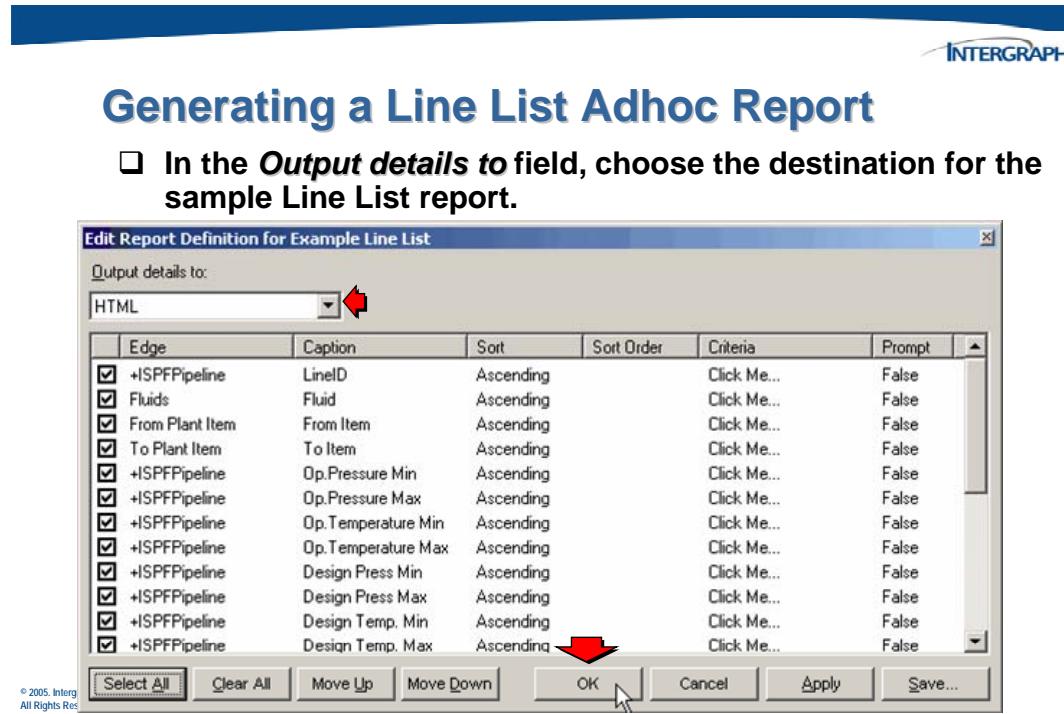
**Note:** This report is based on any existing data that is currently in the SPF data database.

---

There is a sample Line List report (view def) delivered out of the box with SPF. Below is an example of using that view def to run a Line List report.



Configure any options needed for this example report.



Below is an example output from the default sample Line List report.

The screenshot shows a Microsoft Internet Explorer window titled "Report Details - Microsoft Internet Explorer". The address bar contains the URL: "http://pimdemo1/SPF38ASP/Reports/AdHocReportResults.asp?format=HTML&mode=A&sid=PCDW00000000000000000478&sessionid=PCC". The main content area displays a table header for a line list report, but the table body is empty. The columns are labeled as follows:

LineID	Fluid	From Item	To Item	Op. Pressure Min	Op. Pressure Max	Op. Temperature Min	Op. Temperature Max	Design Press Min	Design Press Max	Design Temp. Min	Design Temp. Max	Phase	Multi Sizes	Test Pressure	Test Medium	Ins Thic
--------	-------	-----------	---------	------------------	------------------	---------------------	---------------------	------------------	------------------	------------------	------------------	-------	-------------	---------------	-------------	----------

The status bar at the bottom of the browser window shows "Done" and "Trusted sites".

---

**Note:** The absence of any data in this report is due to the available content of the sample data in the out of the box SPF data database.

---



## 9.8 Activity – Creating and Running Adhoc Reports

The objective of this activity is to create report definitions and then to be able to create and run a report.

**If you are not currently logged into your machine:**

1. Log on to your operating system:

*spfuser* with no password

2. Use the SmartPlant Schema Editor to define a *Graph Def* and *View Def* to generate a report for the ADCDesignChange object. Open the schema using the **adcnnav.cfg** configuration.
3. Configure *Graph Def* and *View Def* to generate a custom Line List report.
4. Load the *Graph* and *View Def's* into SPF using the **adcnnav.cfg** configuration.
5. Verify the success of the load and set access security on the new *View Def's*.
6. Run different reports in the Desktop Client to verify report operation.

**OPTIONAL:**

7. Locate the delivered PipeRunMap view and perform the necessary steps to run an Adhoc report.

When you finish this activity, you may take a short break until everyone has finished.



# 10

CHAPTER

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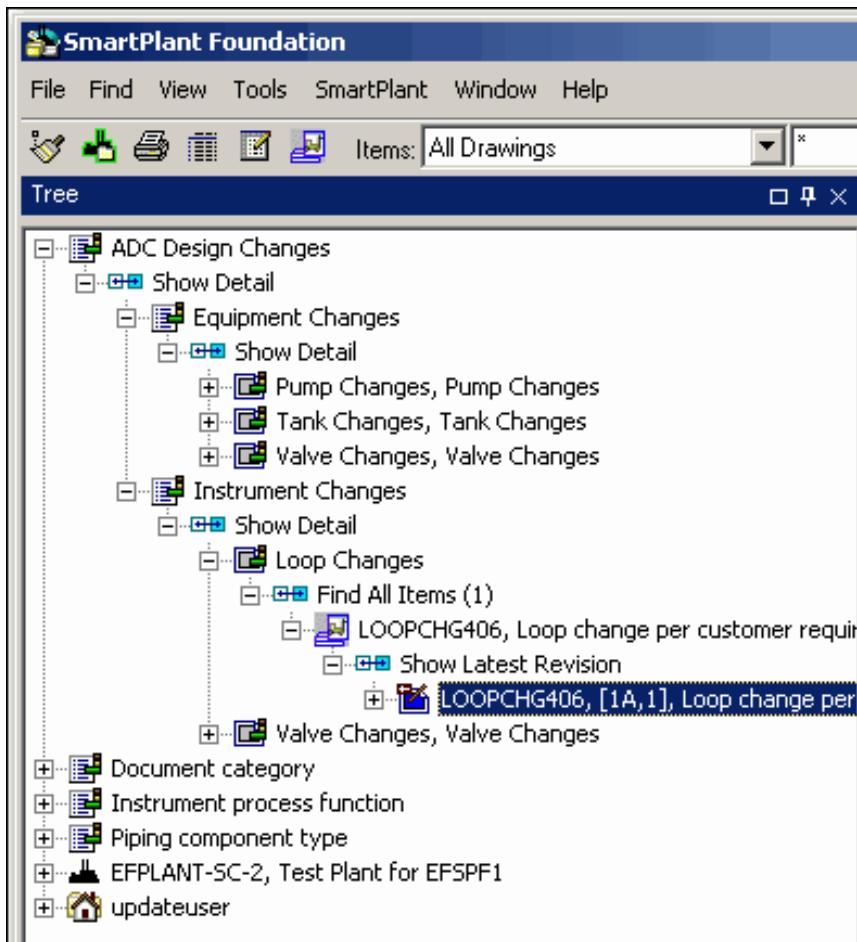
## Creating Custom Enum Trees and Plant Hierarchies



## 10. Creating Custom Enum Trees and Plant Hierarchies

By default, the Desktop Client will display the *Document category* enumerated list in the Tree View. This means that any document objects created will be associated to this enum tree structure if you drill down (expand) the Document category tree.

In this chapter, you will see how to add the ability to drill down in the Document category tree and see any related objects. You will also see how to configure a custom enumerated list tree which uses an enumerated list hierarchy.



The default plant breakdown hierarchy is **Plant, Area** and **Unit**. However different projects may require a different hierarchy. The second half of this chapter will demonstrate the process used to configure a custom plant hierarchy.

## 10.1 Creating a Custom Enum List Tree Structure

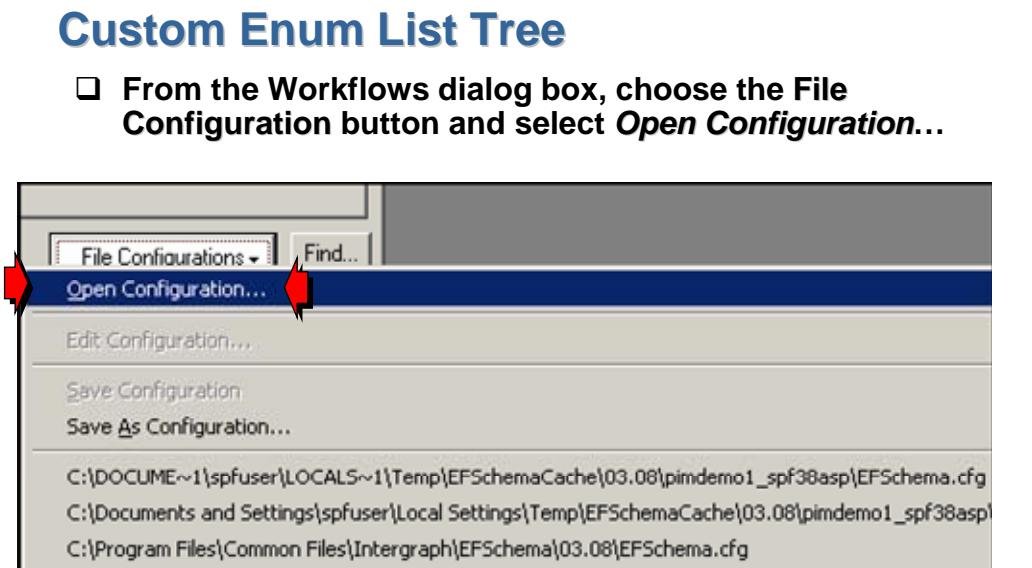
To create a new *Tree Drilldown Structure* it will be necessary to edit the schema model using the **SmartPlant Schema Editor**. (Details on using the SmartPlant Schema Editor are covered in the SmartPlant Modeling and Mapping training class.)

When extending the delivered schema structure, it is recommended that any site specific extensions be made in a “*Project*” schema.

This is done to make it easier to carry site specific extensions forward when you upgrade your SmartPlant Enterprise system. In future releases just change the configuration of the project schema file with your custom model extensions to use the new version of the EFSchema.xml file.

## 10.1.1 Modeling the Custom Enum List Tree

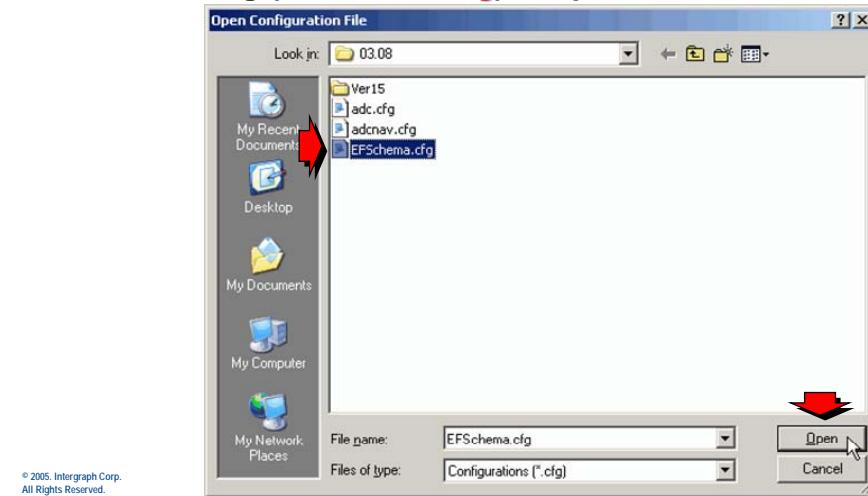
Begin by setting up a configuration in the Schema Editor to create extensions to the delivered model. Startup the Schema Editor and load the EFSchema configuration (*EFSchema.cfg*) from the **C:\Program Files\Common Files\Intergraph\EFSchema\03.08** folder.





## Custom Enum List Tree

- In the list of available schema files, click the schema file config (**EFSchema.cfg**) to open with the Schema Editor.

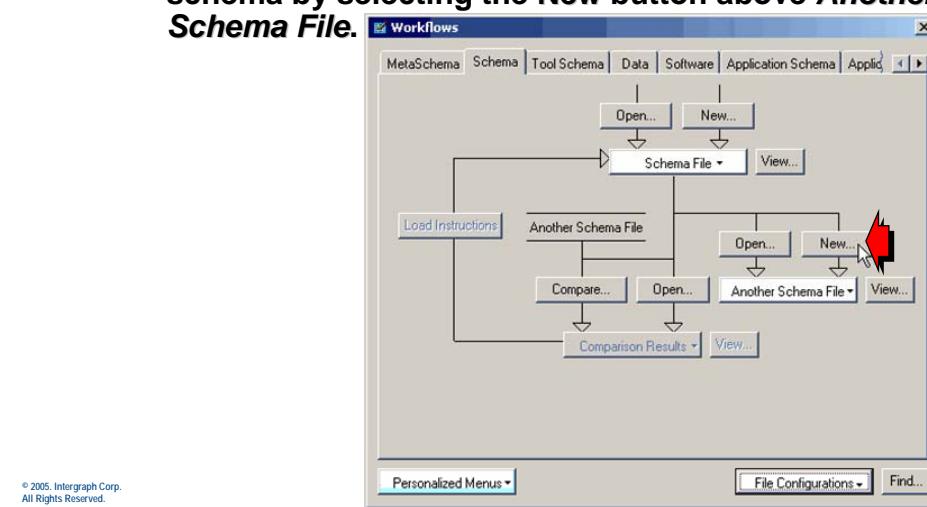


To create a new project schema and to insure the EFSchema file is secure during editing, perform the following steps. Create the project schema using the *Another Schema File New* button.



## Custom Enum List Tree

- From the Workflows dialog box, create a new project schema by selecting the New button above **Another Schema File**.

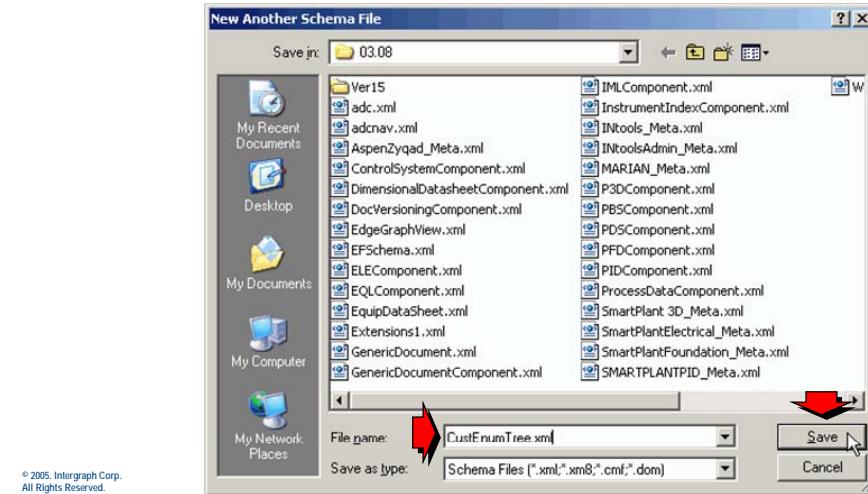


Enter a name for the new project schema file, such as **CustEnumTree.xml**.



## Custom Enum List Tree

- In the **New Another Schema File** dialog, enter the name for the project schema file and select Save.

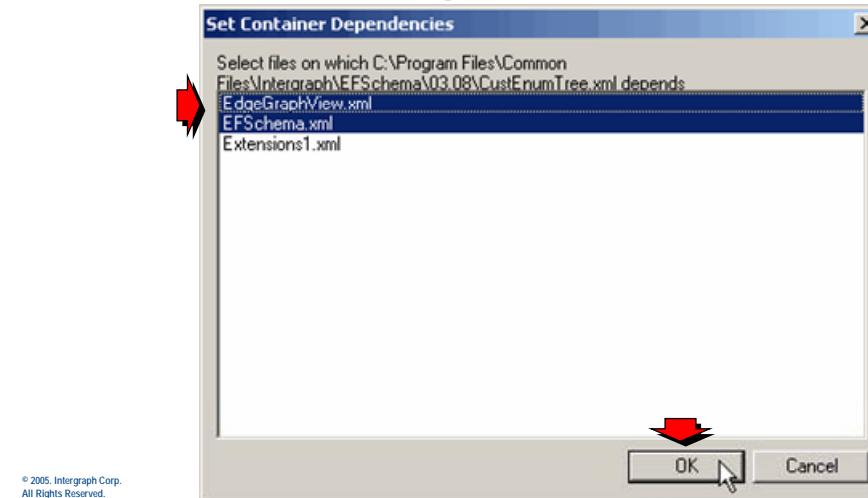


This will display a *Set Container Dependencies* dialog with the **EFSchema.xml** file listed. Select the *master* schema file and the **CustEnumTree.xml** will be dependent on the EFSchema.xml file.

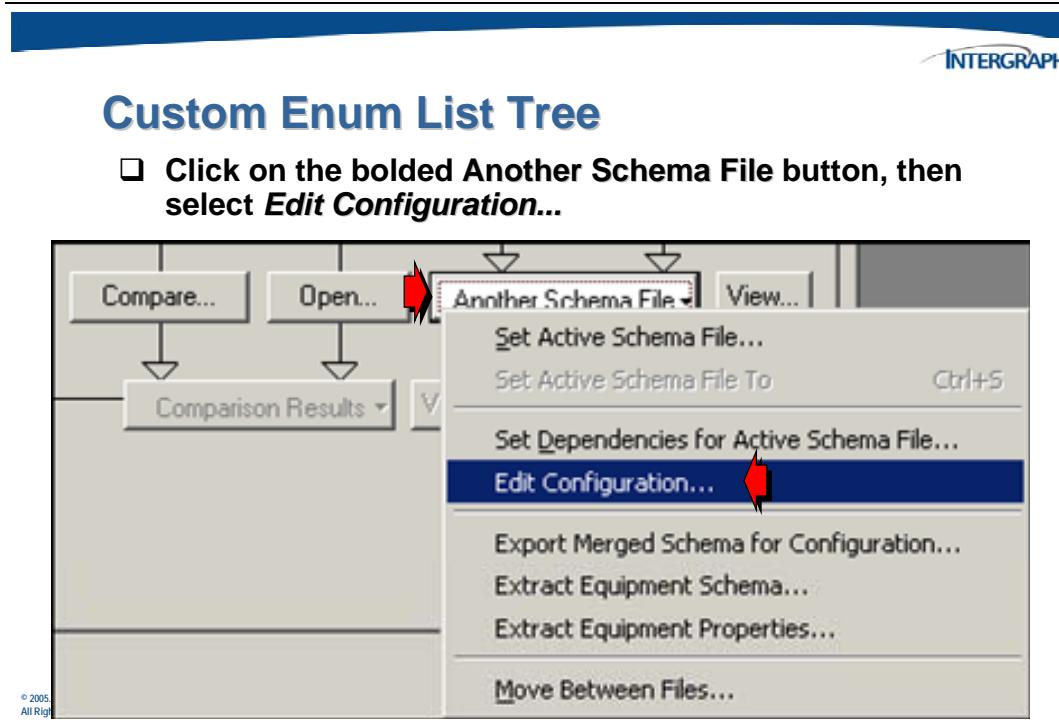


## Custom Enum List Tree

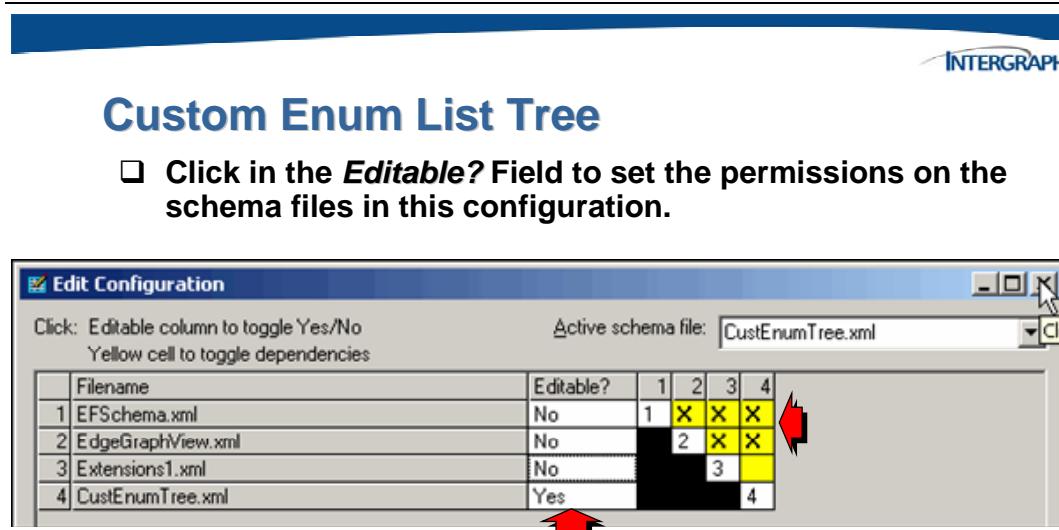
- Choose the dependent schema files for your project schema and click OK.



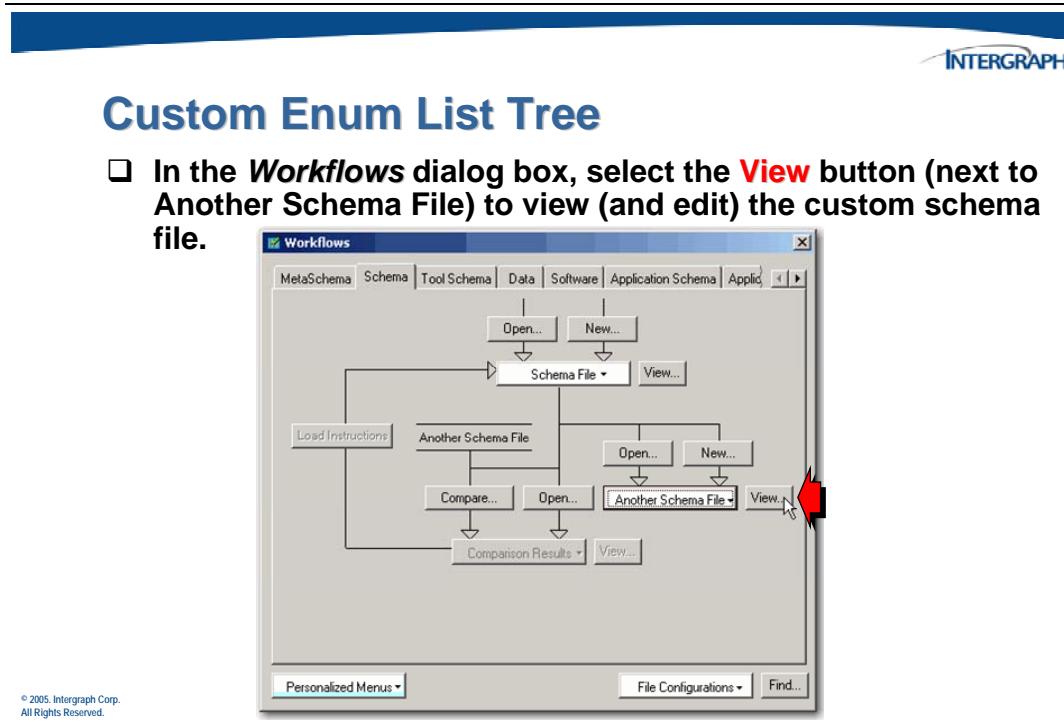
Next, select the *Another Schema File* button again and select the ***Edit Configuration*** option.



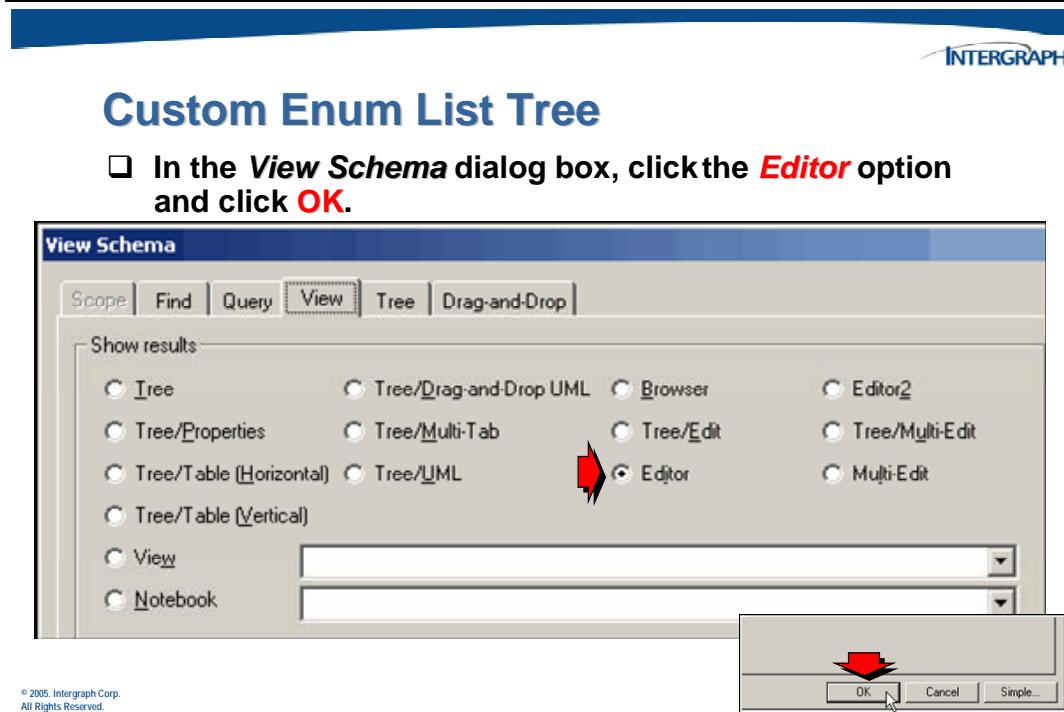
With this dialog you need to make sure the *EFSchema.xml* file **read only** and the *CustEnumTree.xml* **read/write**.



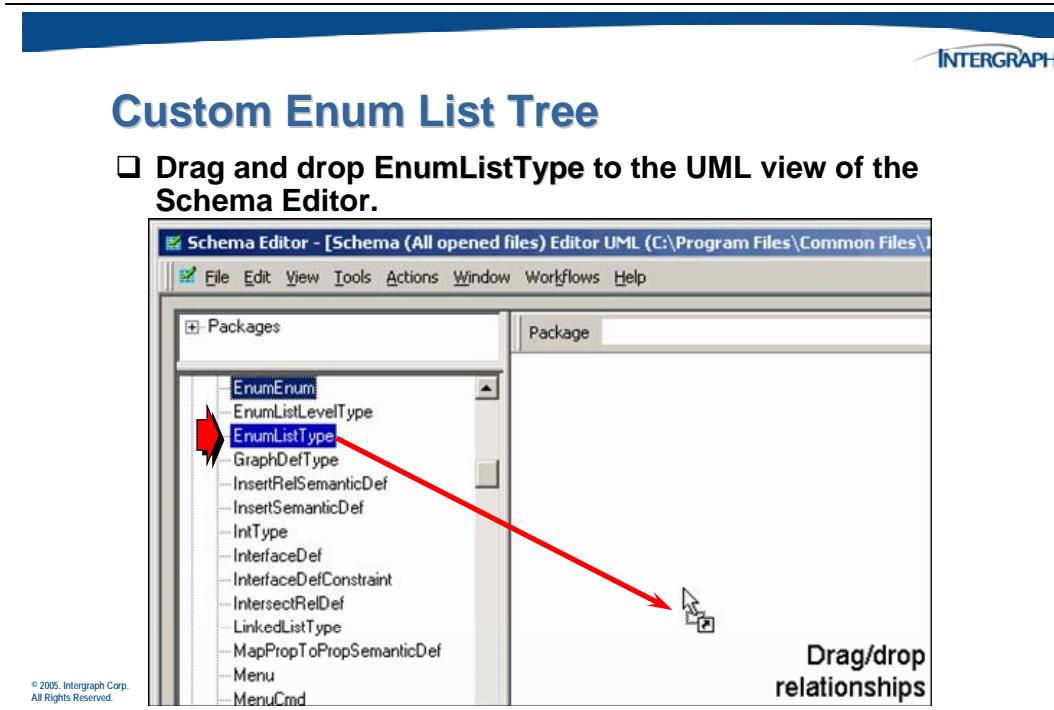
The custom enumerated list tree is now ready to be modeled. The **CustEnumTree.xml** will be the primary edit file and all changes will be made in this file.



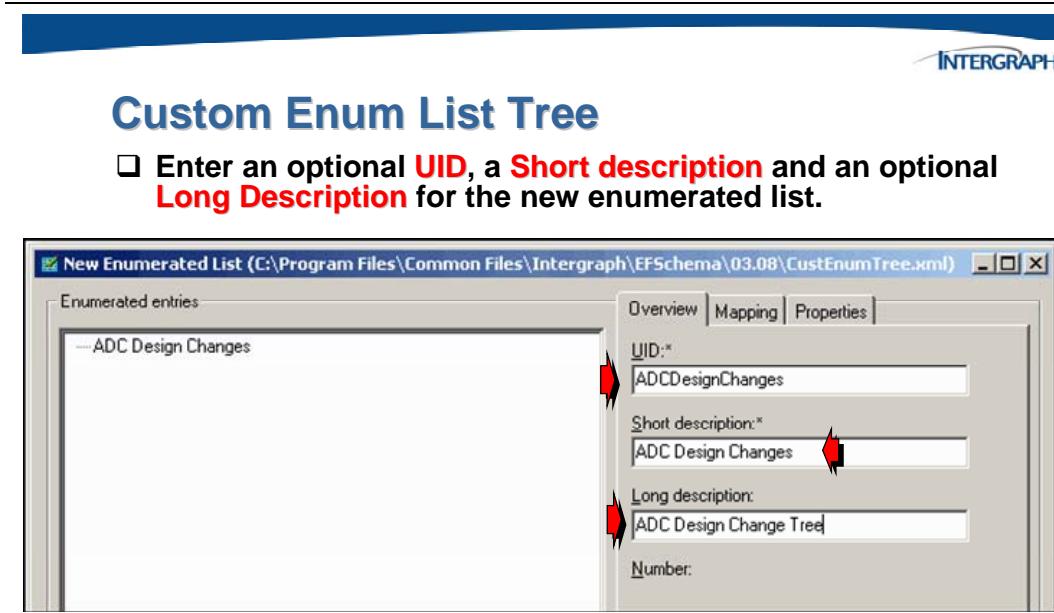
Click the **View** tab in the *View Schema* dialog box and enable the Editor option.



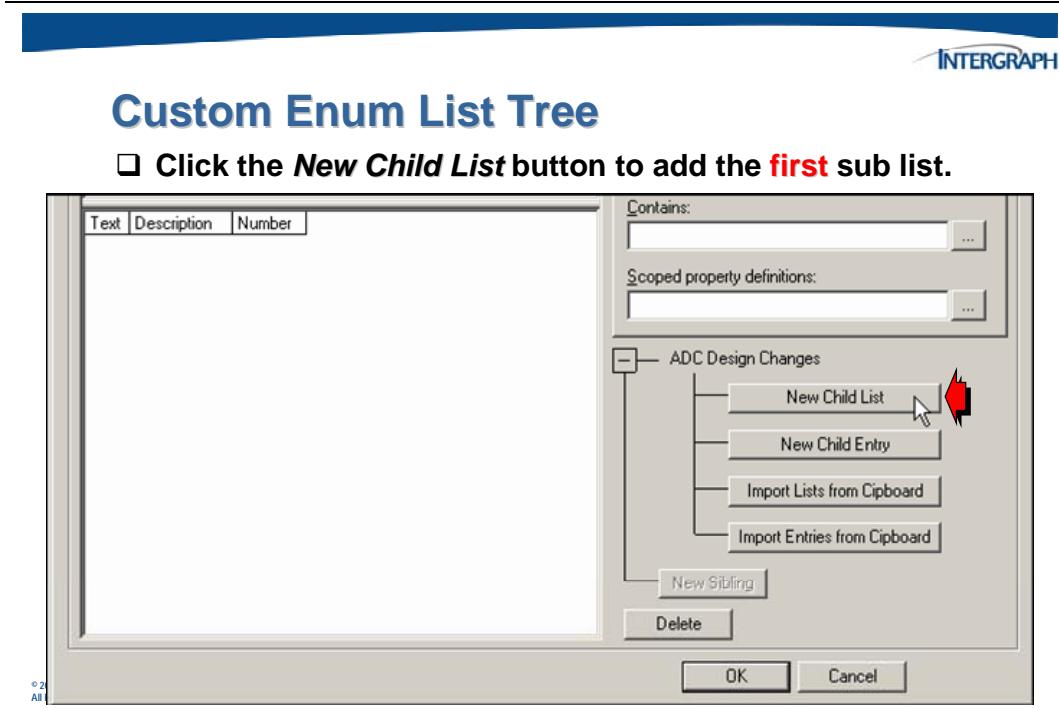
Once in the Schema Editor use the **Editor** view to create the new enumerated list which will be the custom enum tree.



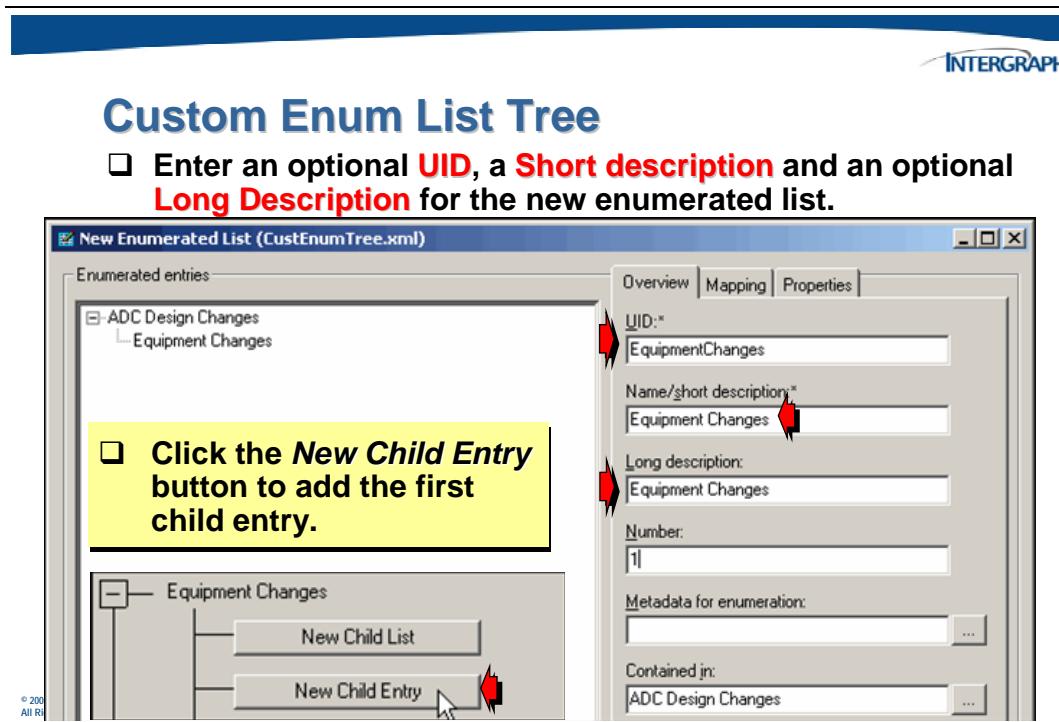
In the *UID* and *Short description* enter the name you wish to call the main category. In this example we will use **ADC Design Changes**. Continue by entering a *Long description*.



Now, create the first child sub list that will appear underneath *ADC Design Changes*.

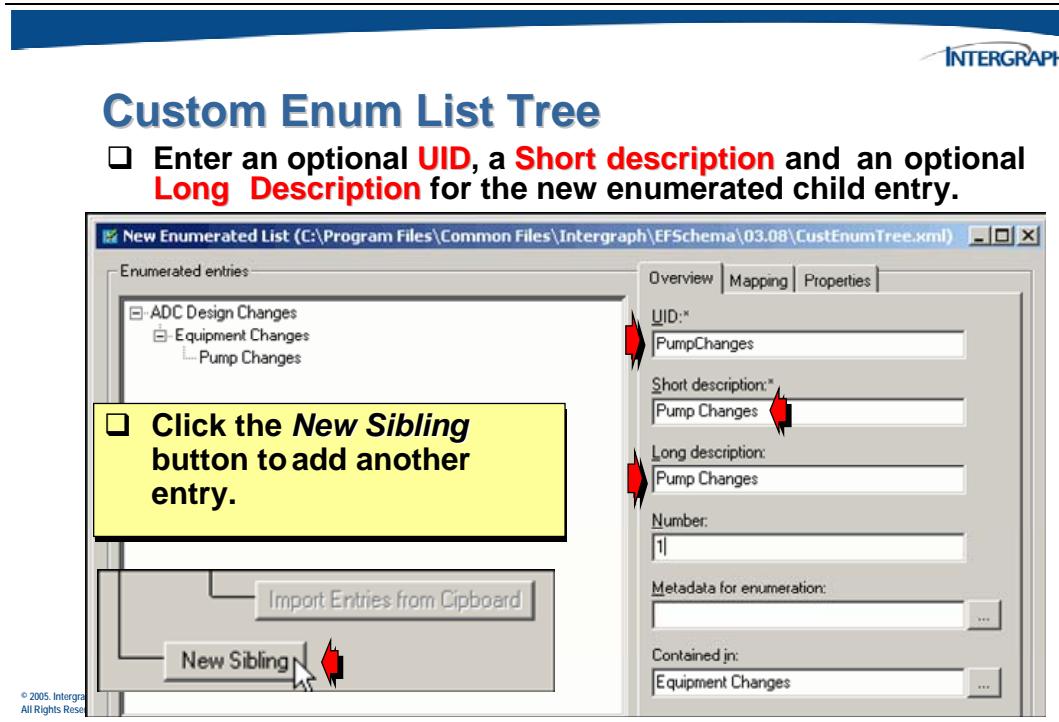


Enter the information for the first child sub list.

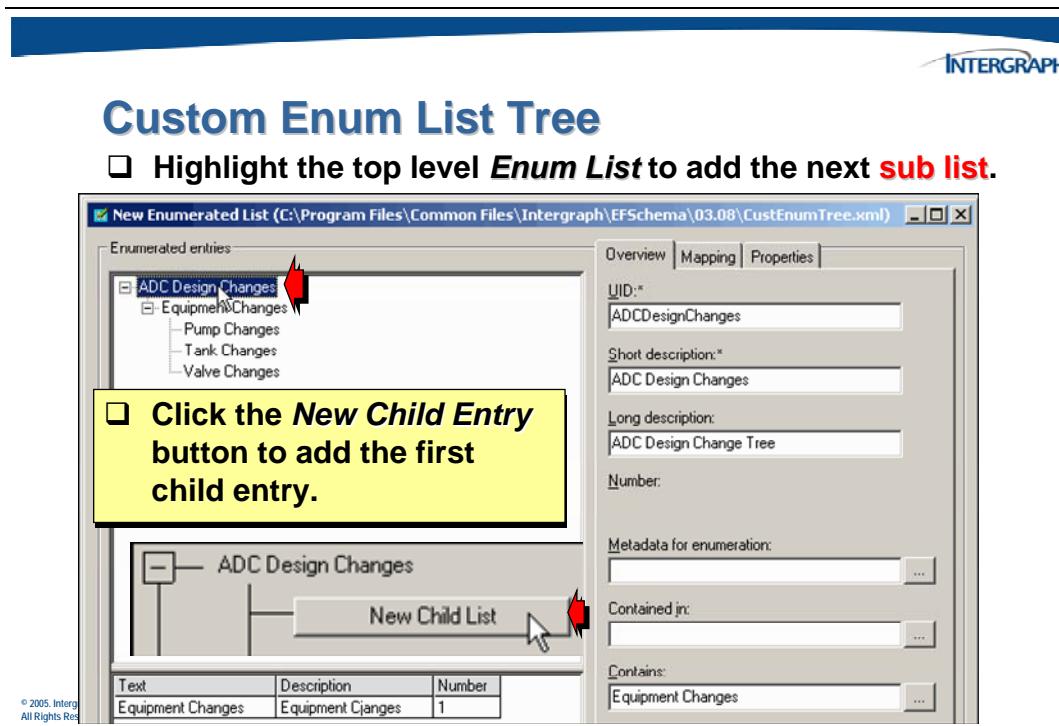


Continue to create your *EnumListType* with the entries you wish to use in your new drilldown. In this example, we have entered *ADC Design Changes* (*EnumListType*) for

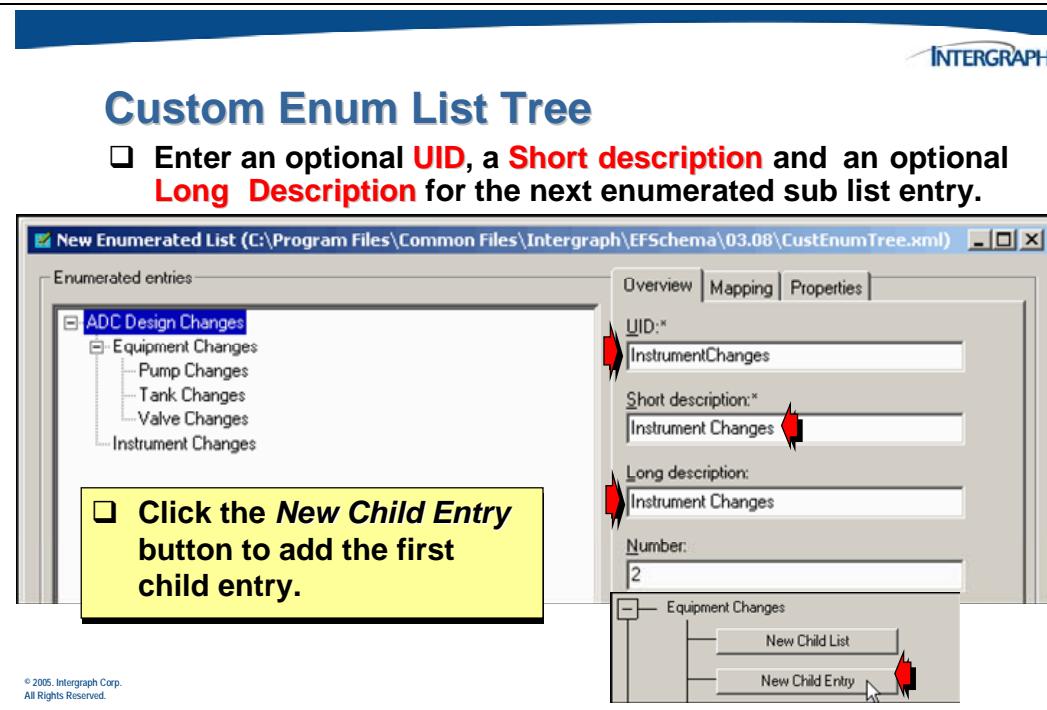
the main, with **Equipment Changes** (child list) and then we will create the entries beneath Equipment Changes.



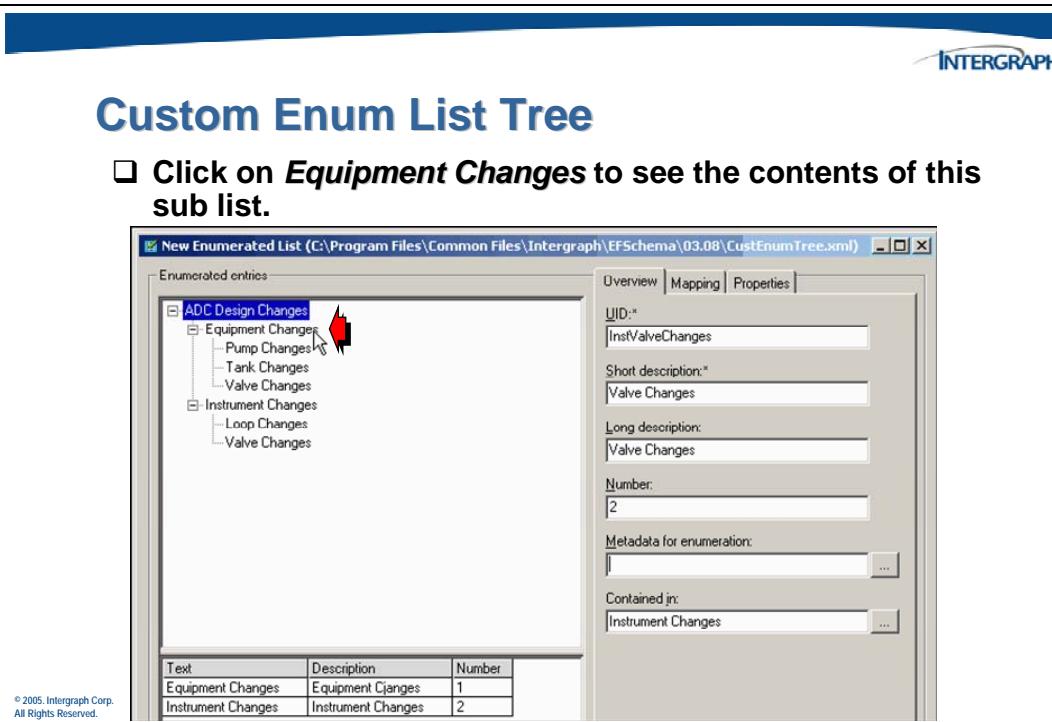
Once the Equipment Changes entries (*Pump Changes*, *Tank Changes* and *Valve Changes*) have been entered, create the next child list, **Instrument Changes**.



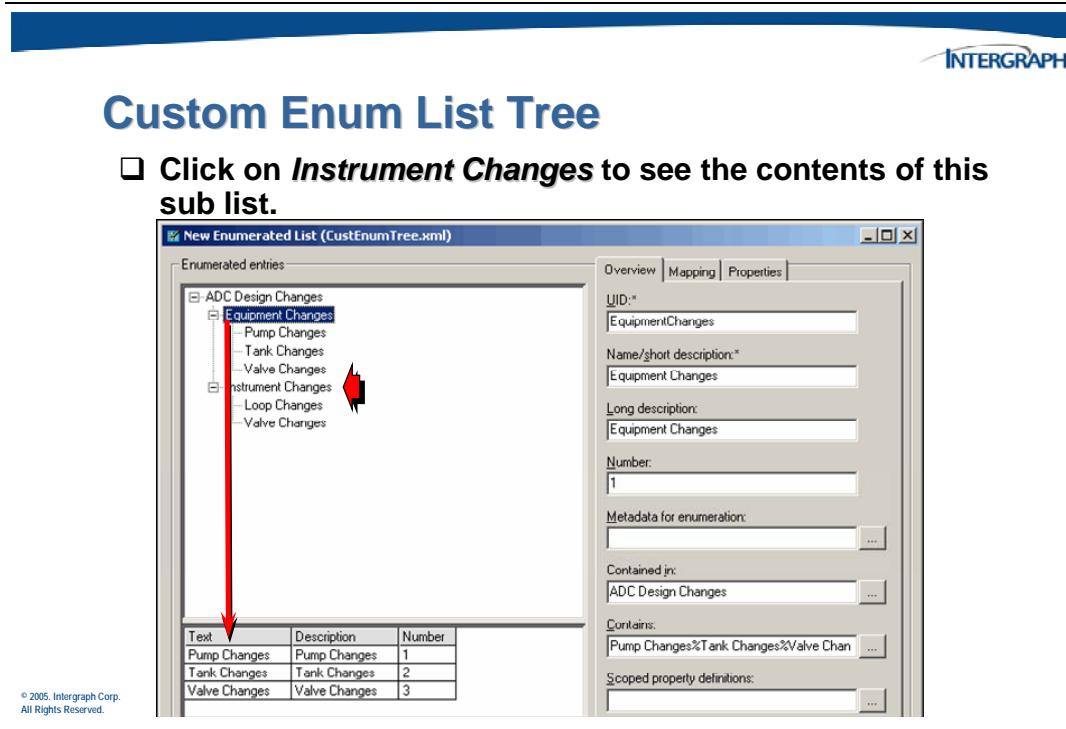
Highlight the **ADC Design Changes** entry to create the next new child entry for the main list.



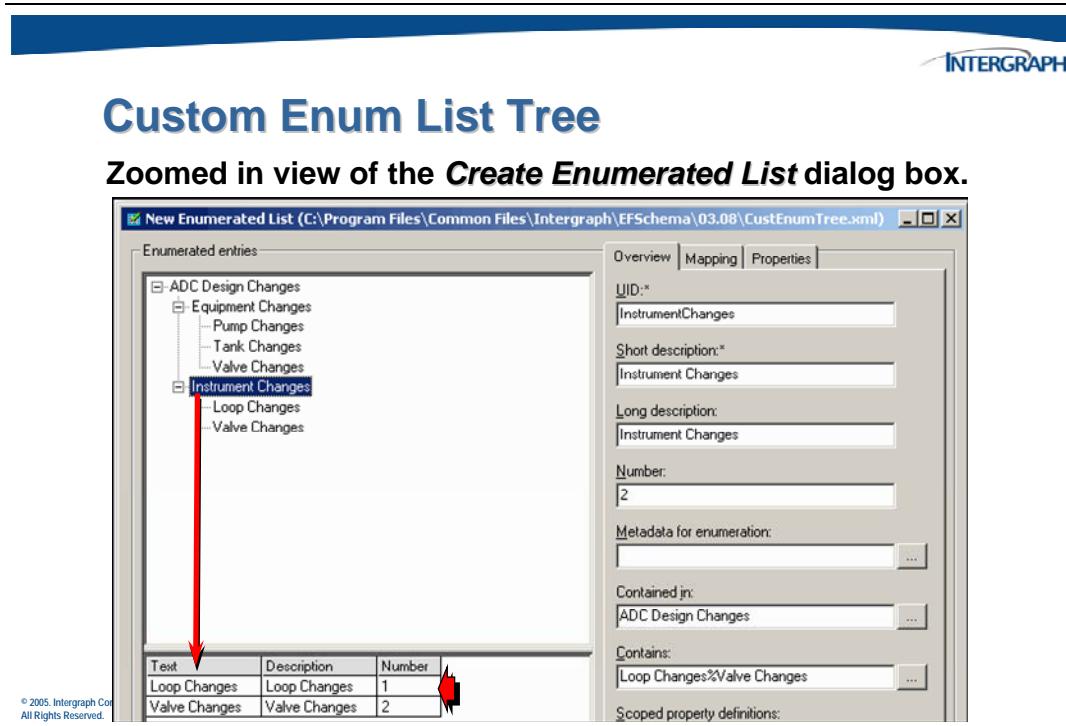
The child list name, **Instrument Changes**, is followed with the child entries *Loop Changes* and *Valve Changes*.



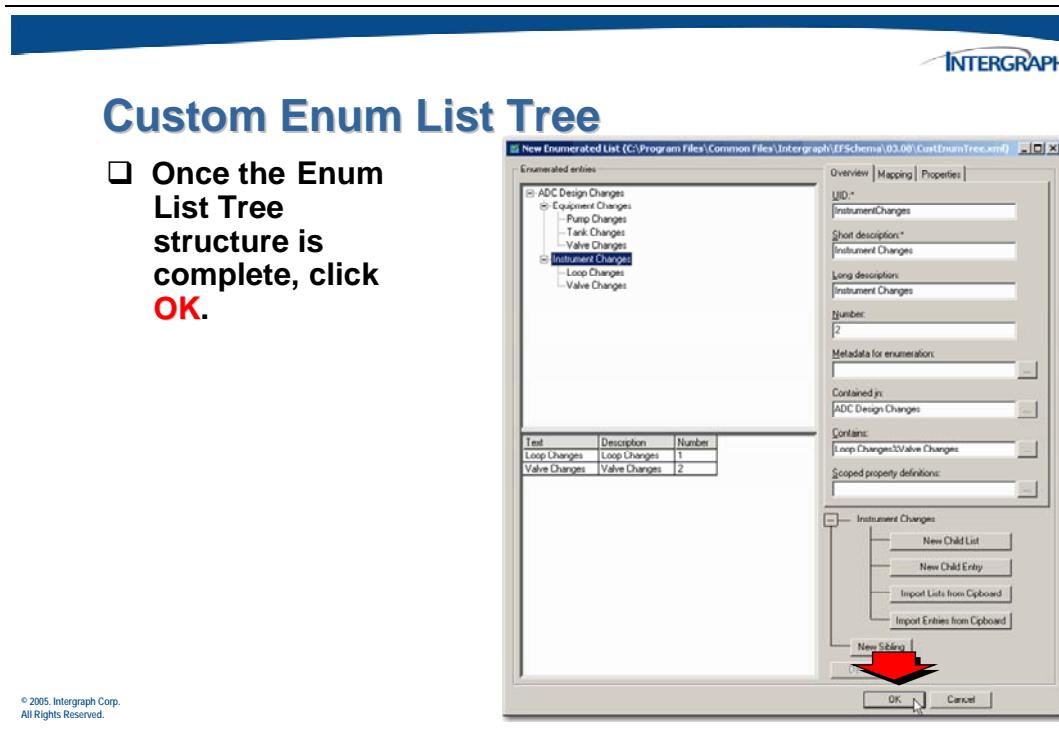
The child entries in the *Equipment Changes* sub list are displayed in the bottom portion of the dialog.



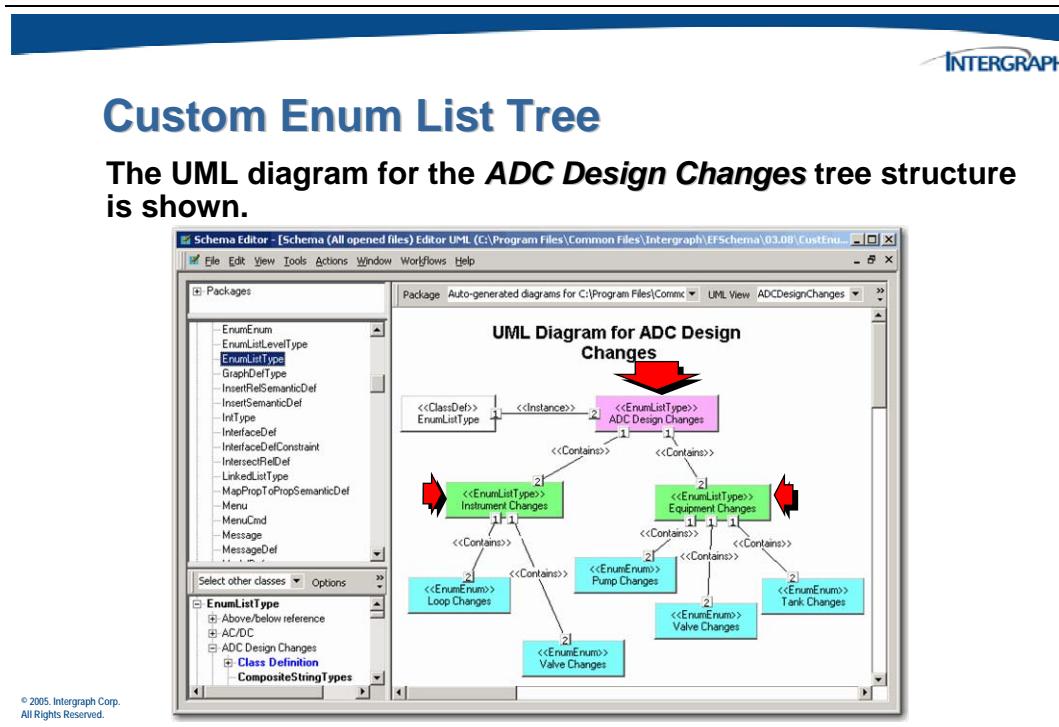
The child entries in the *Instrument Changes* sub list are displayed in the bottom portion of the dialog.



Once these entries are completed, click **OK** to save the new EnumListType.

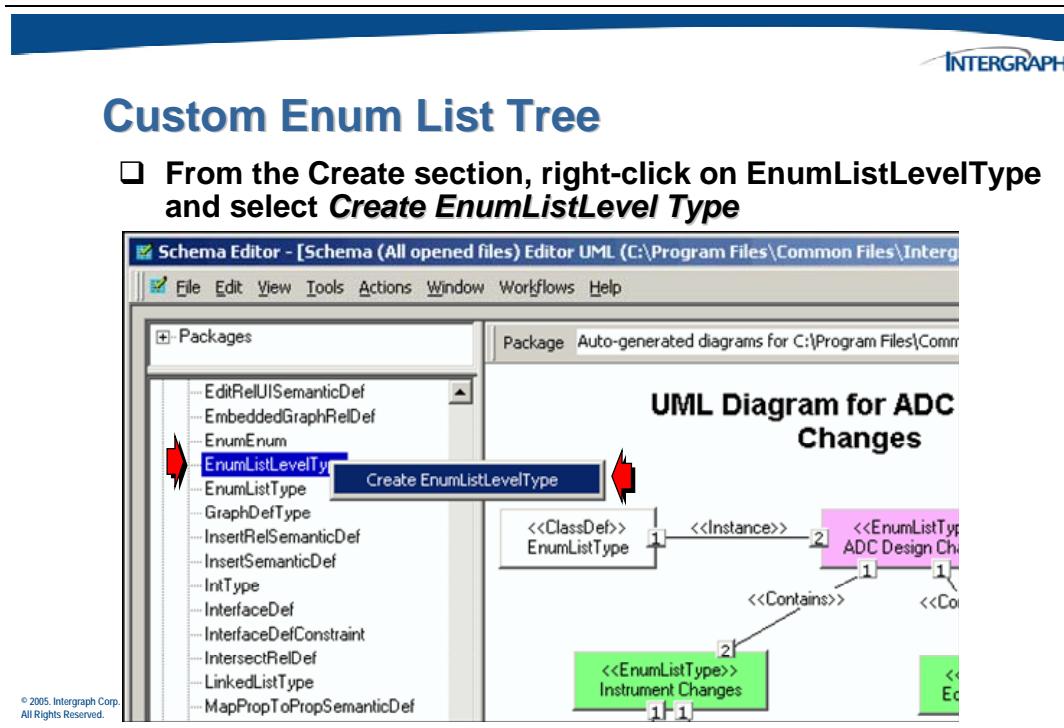


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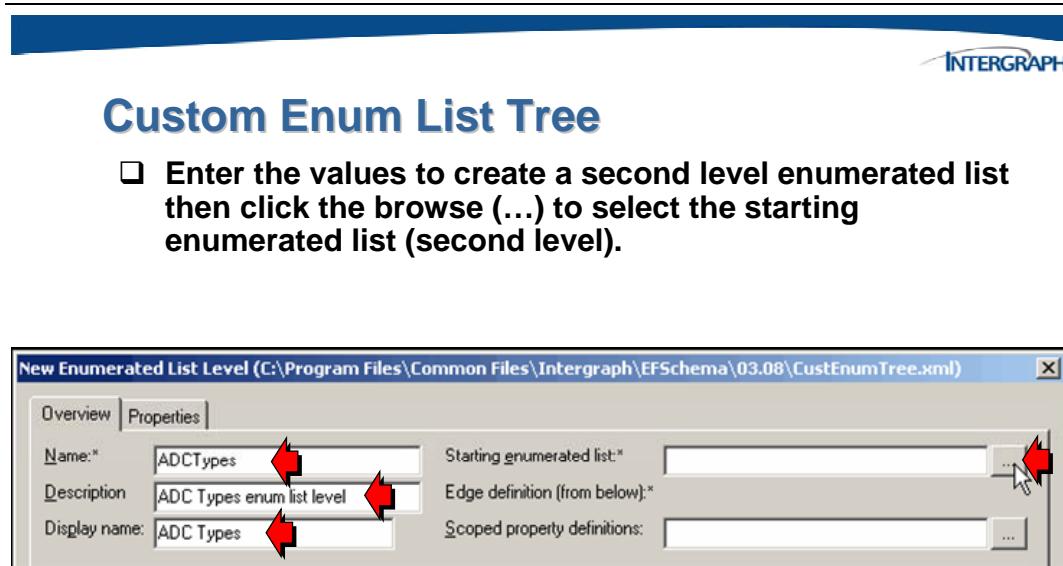


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Now, create a new *Enumerated List Level Type* in order for the tree drill down to function properly. Use the existing **DocTypes** enumerated list level type as an example for creating a new list level type. The DocTypes list level type means that the scoped by property gets its values **not** from the **top level** enum list, but from one of the sub lists.

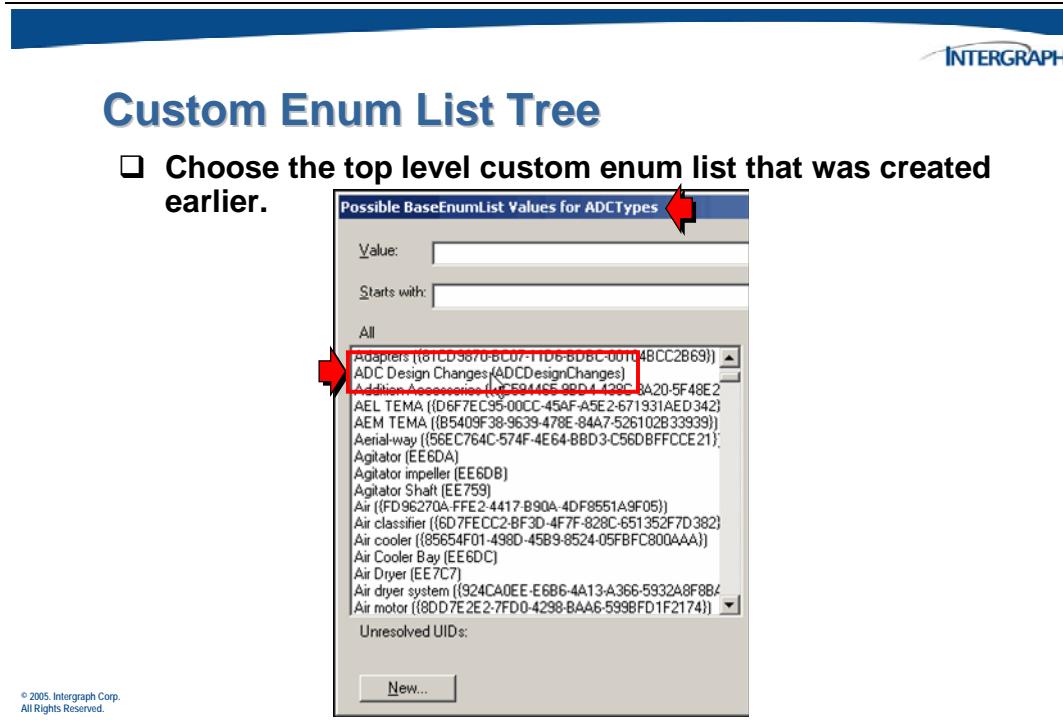


The *New Enumerated List Level* dialog will display.



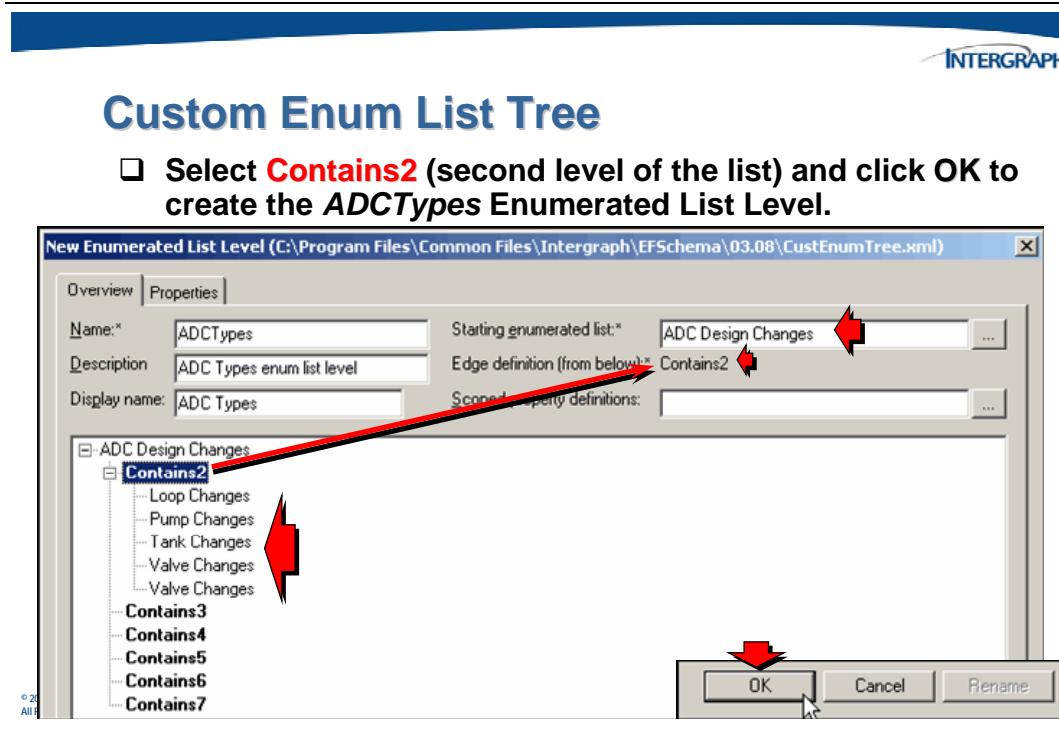
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The *Possible BaseEnumList Values* dialog will display.



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This will make sure that this enumerated level set references the proper base (top level) enumerated list.

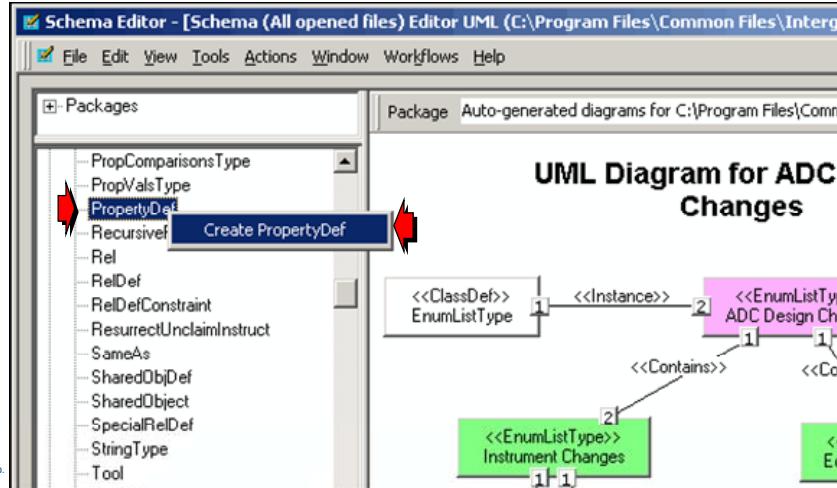


Note the **Contains2** values will display the entries for *Equipment Changes* and *Instrument Changes* defined earlier.

Create two new properties to emulate the existing *DocCategory* and *DocType* properties that are already exposed by *IDocument*.

## Custom Enum List Tree

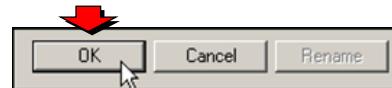
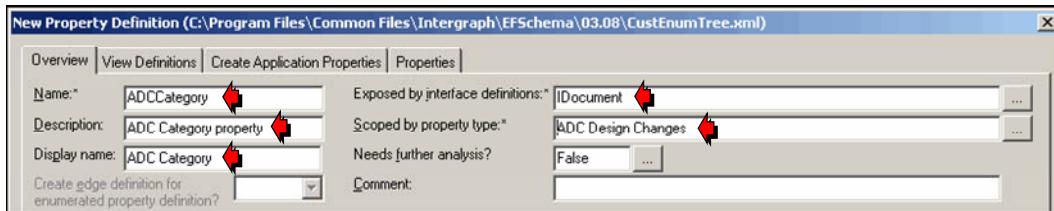
- From the Create section, right-click on **PropertyDef** and select *Create PropertyDef*



The *New Property Definition* dialog will be displayed.

## Custom Enum List Tree

- Enter the first new property characteristics and click **OK**.

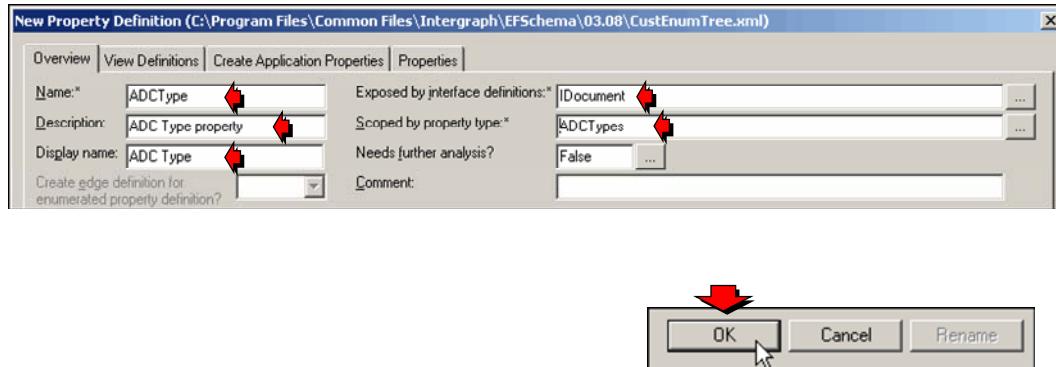


The *ADCCategory* PropertyDef is associated with the enum list **ADC Design Changes**.



## Custom Enum List Tree

- Repeat and enter the next new property characteristics and click **OK**.



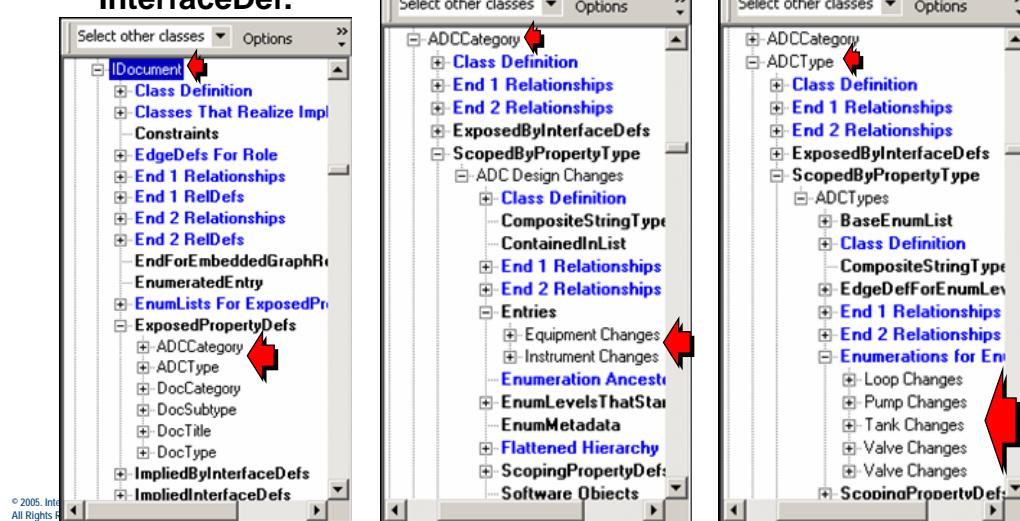
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The *ADCType* PropertyDef is scoped by an **EnumListLevelType**, ADCTypes.

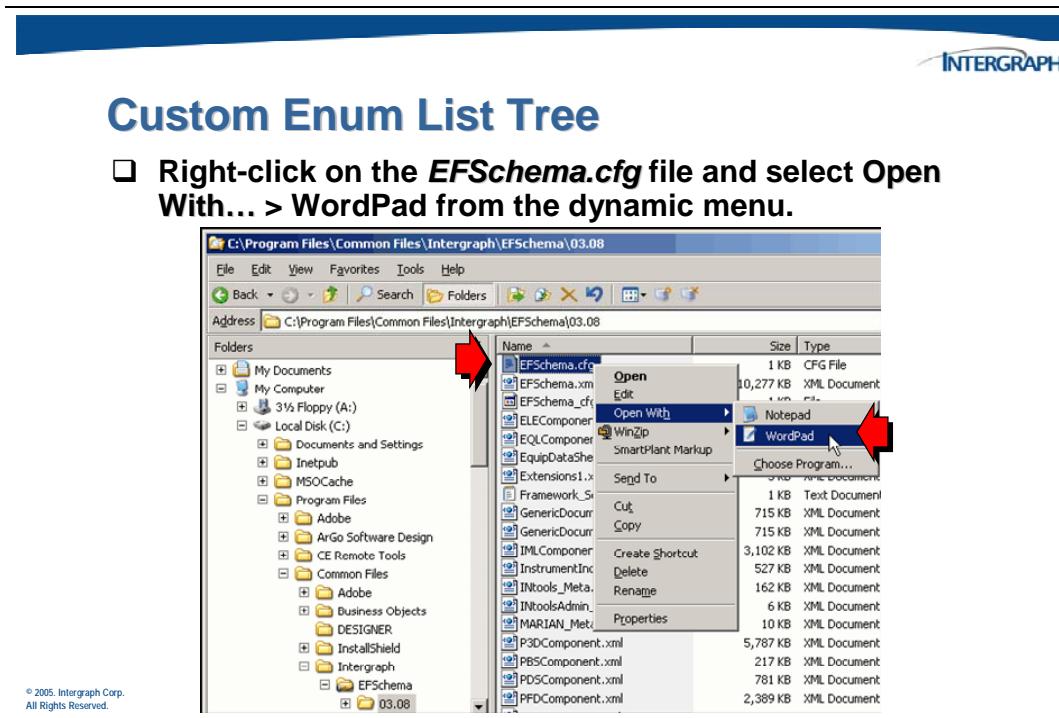


## Custom Enum List Tree

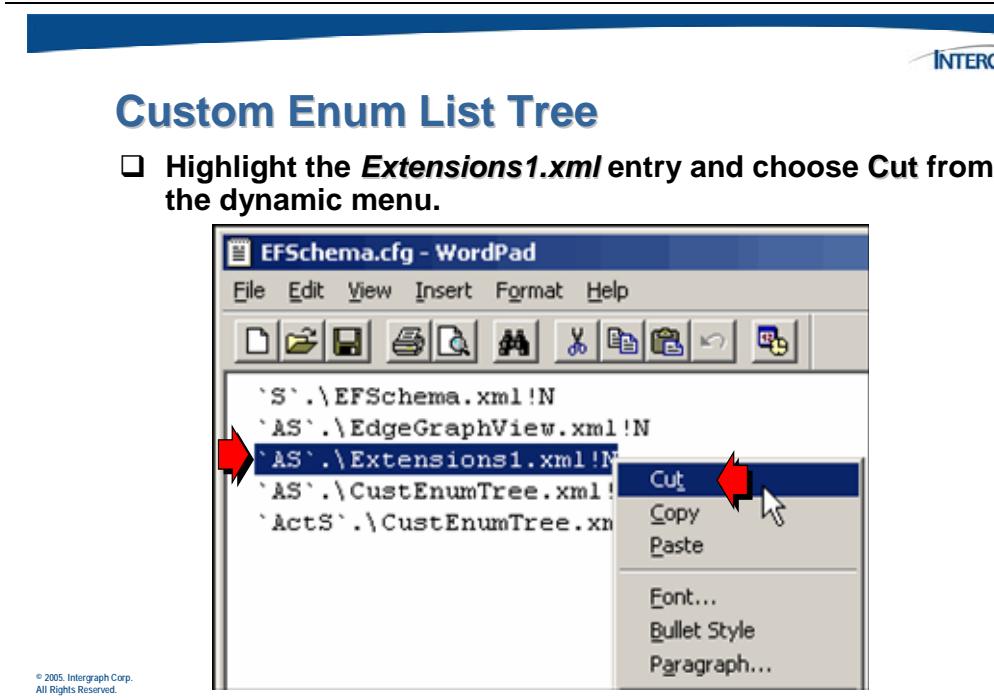
The new properties have now been added to the **I/Document InterfaceDef**.



Next, save the schema file to save the new enum list tree structure just created. Since the provided extension file, *Extensions1.xml*, was not used, it can be removed from the config file.



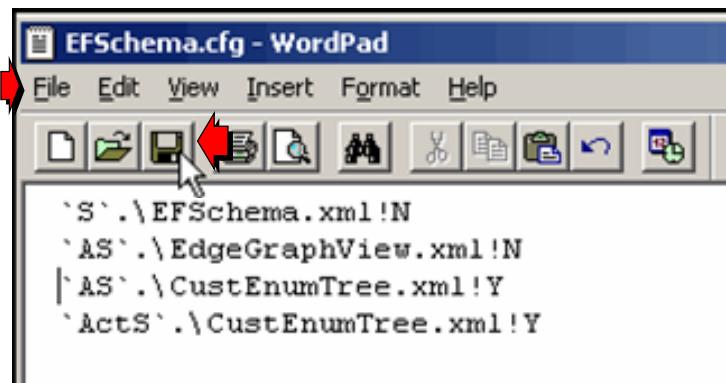
Remove the reference to **Extensions1.xml** from the config file since it will not be used.



After the modification has been made, exit from WordPad and save the changes.

## Custom Enum List Tree

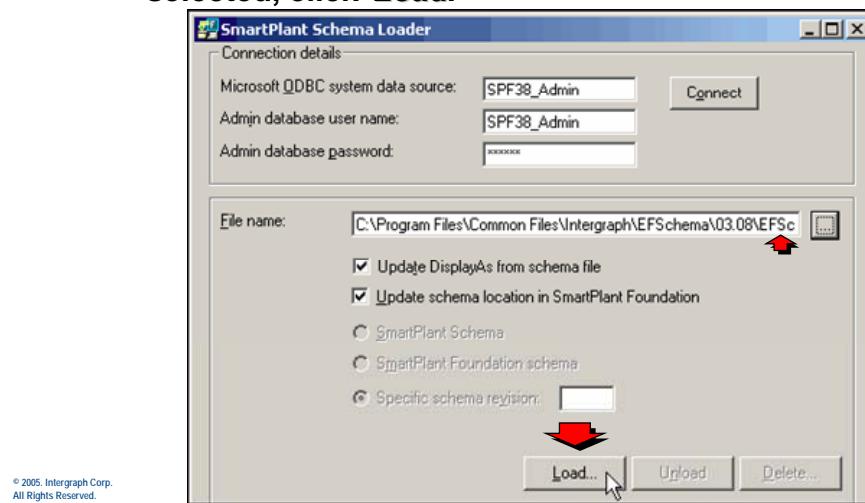
- Save the configuration changes and then Exit WordPad.



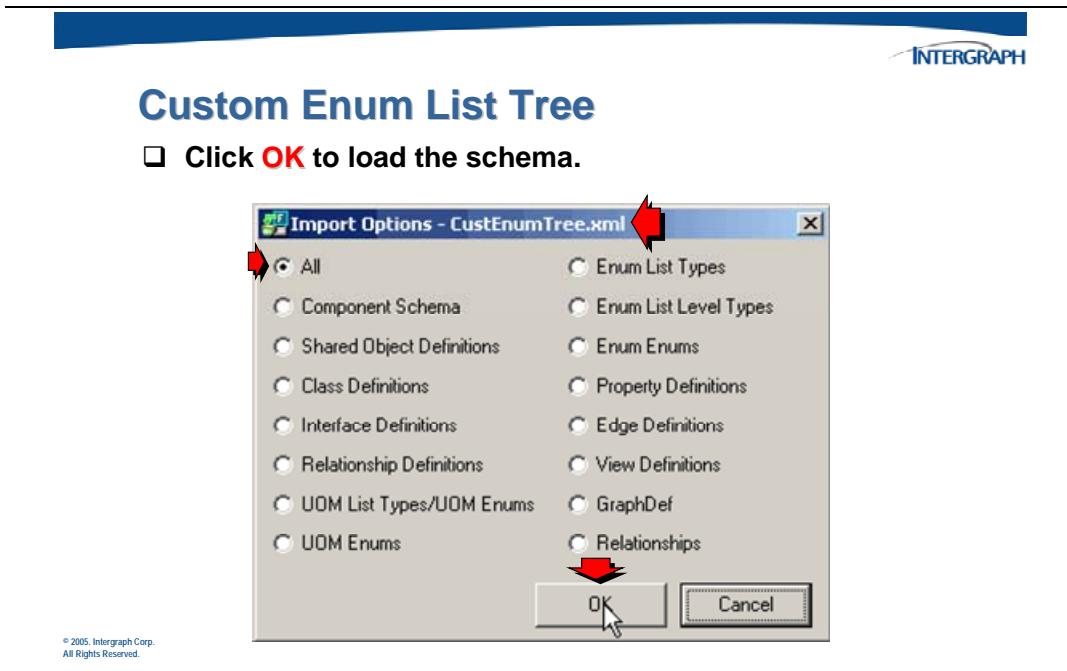
Use the *SmartPlantSchemaLoader.exe* to load the changes into the SPF admin database.

## Custom Enum List Tree

- Once the modified schema file configuration has been selected, click **Load**.



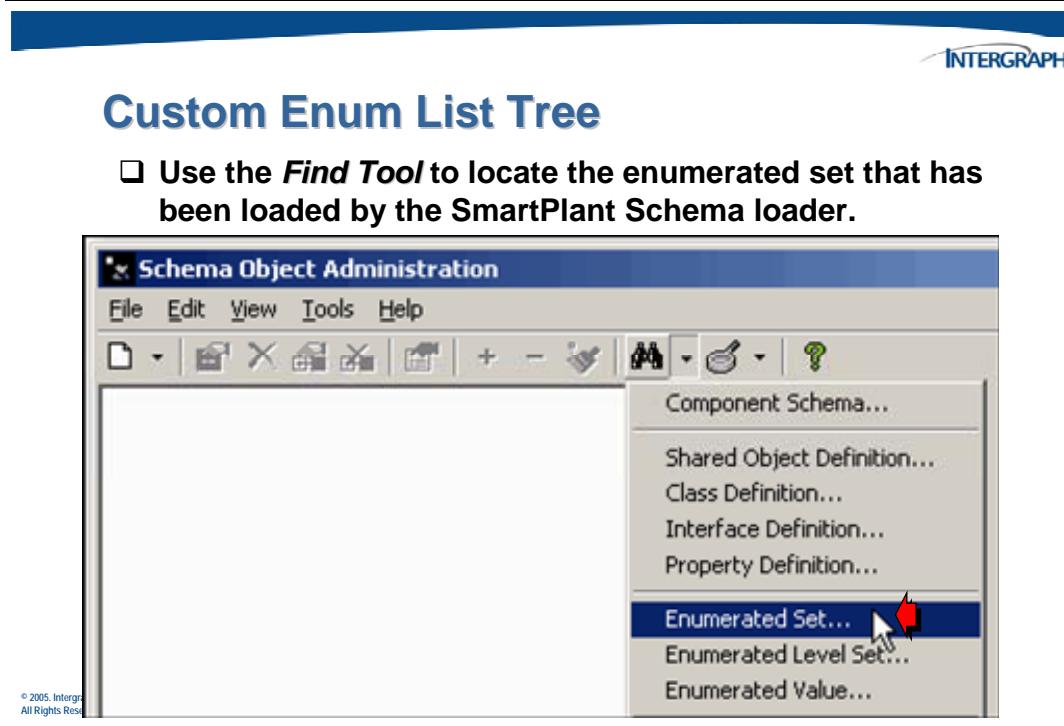
Select the load options for the *project* schema.



This completes using the Schema Editor and the Schema Loader.

## 10.1.2 Configuring the **EnumListType** Tree Structure in SPF

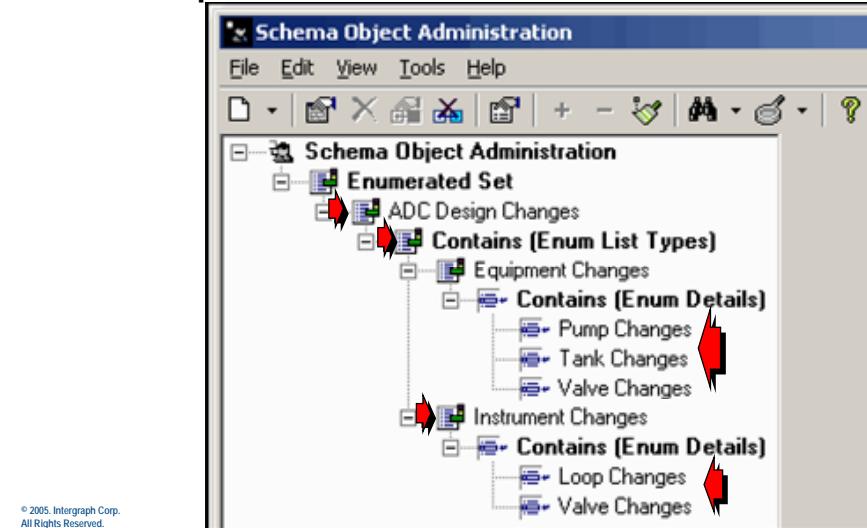
Login to the Schema Object Admin to verify the data just loaded.





## Custom Enum List Tree

- Expand the tree to see all of the list and sub list entries.

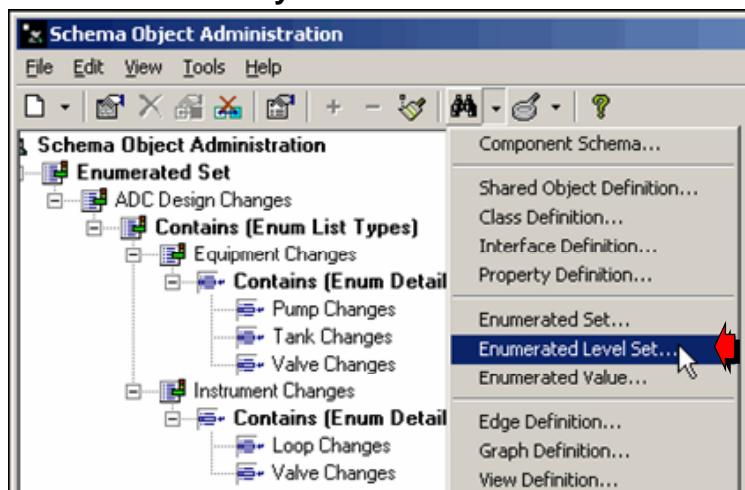


Next verify the Enumerated List Level Type (Enumerated Level Set) that was loaded from the schema file.

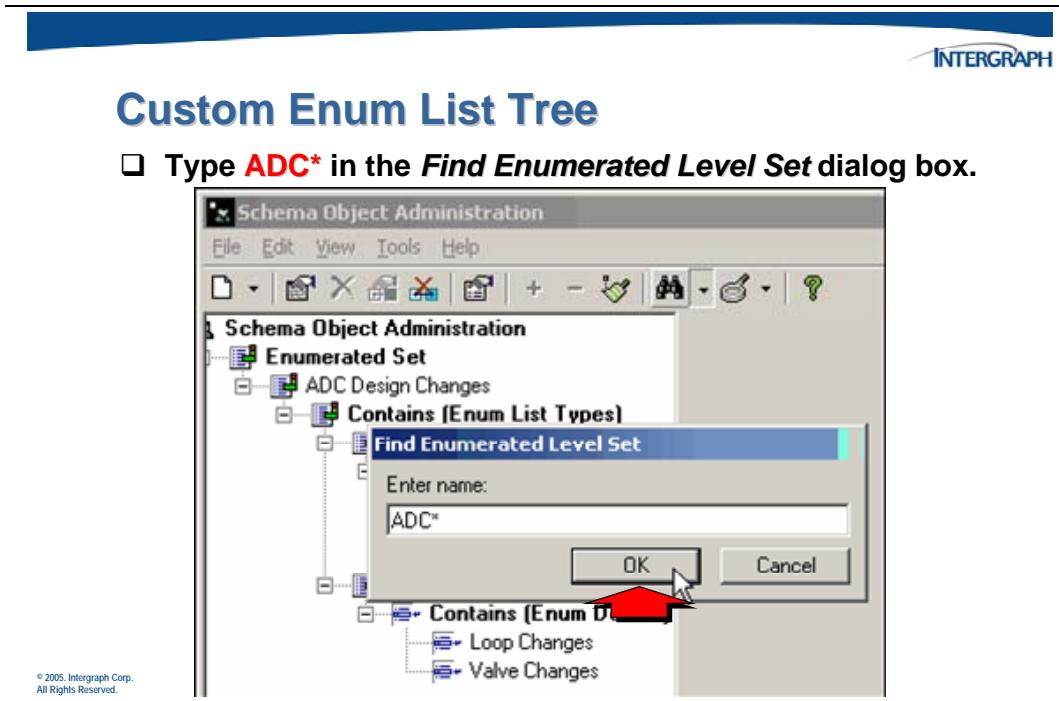


## Custom Enum List Tree

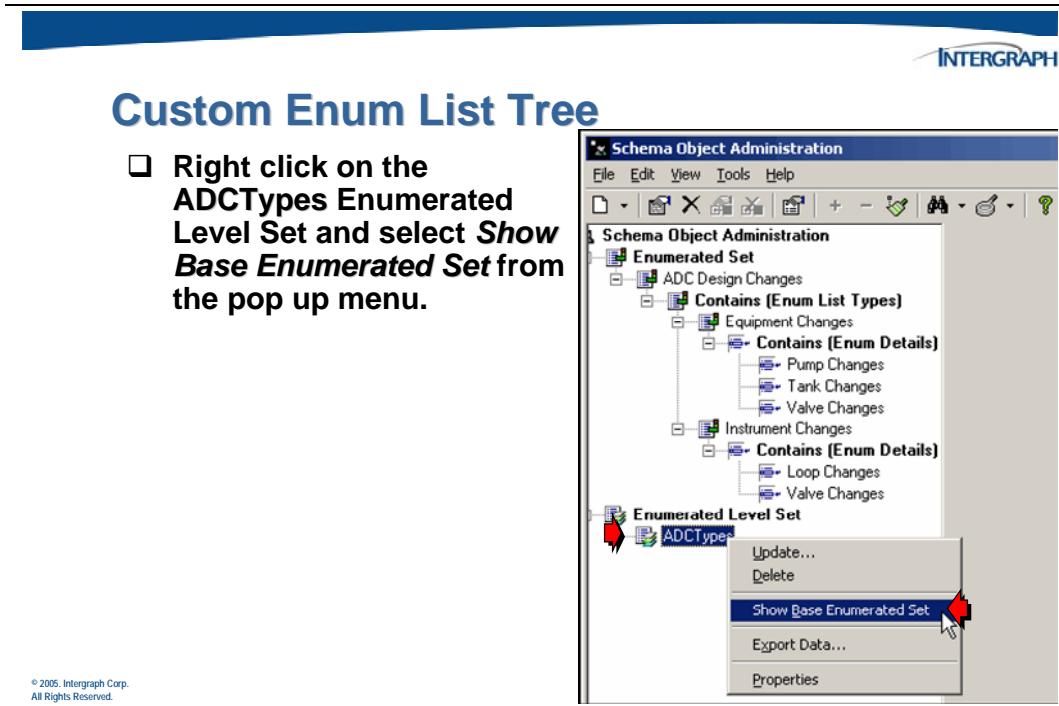
- Use the *Find Tool* to locate the enumerated level set that has been loaded by the Schema loader.



Enter search criteria to locate the previously created *Enumerated List Level Type ADCTypes*.



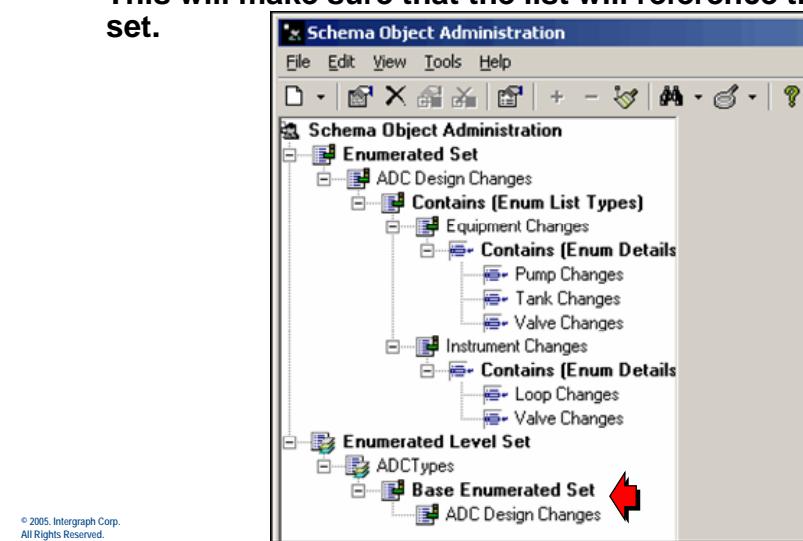
This will allow you to verify that the enumerated level set is configured correctly. This is important in order to be able to create a new *ADC Design Change* document with the correct tree hierarchy.





## Custom Enum List Tree

This will make sure that the list will reference the correct base set.

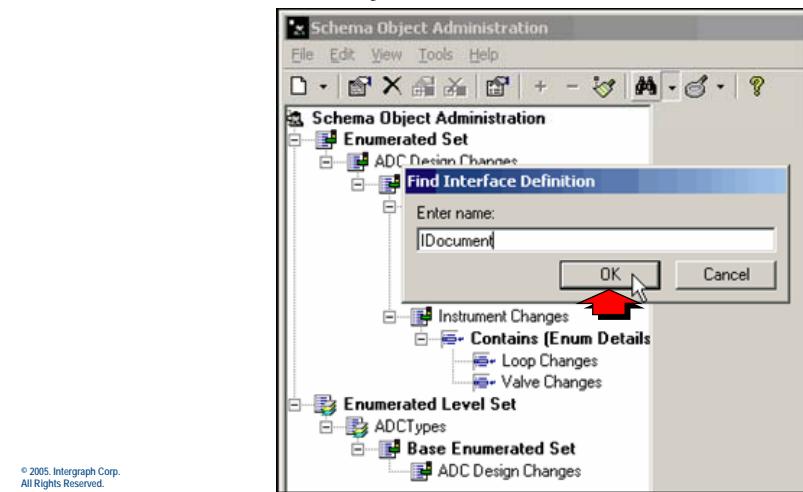


Finally search and display the new properties created earlier and loaded for the *IDocument* interface.



## Custom Enum List Tree

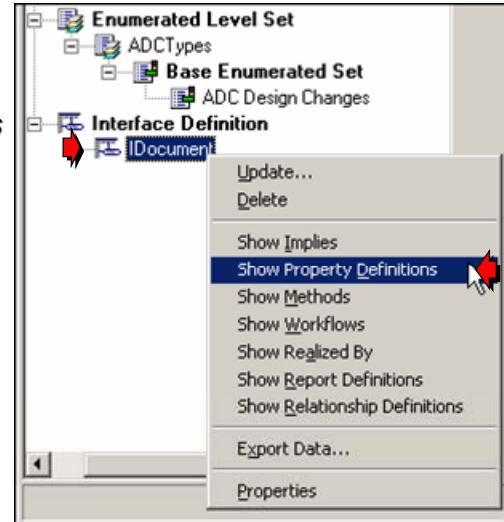
- Use the *Find Tool* to locate the new properties that have been loaded by the Schema loader.





## Custom Enum List Tree

- Right click on the **IDocument Interface Definition** and select **Show Property Definitions** from the pop up menu.

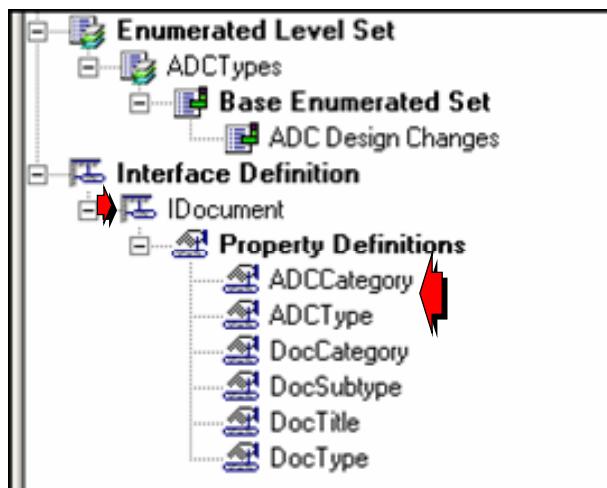


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## Custom Enum List Tree

In the expanded tree you can see all of the property definitions for this interface.



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After verifying the **EnumListType** in Schema Object Admin, perform a search for the existing **DocCategoryDrilldown** method.

The screenshot shows the 'DocCategoryDrilldown properties' dialog box. It contains the following information:

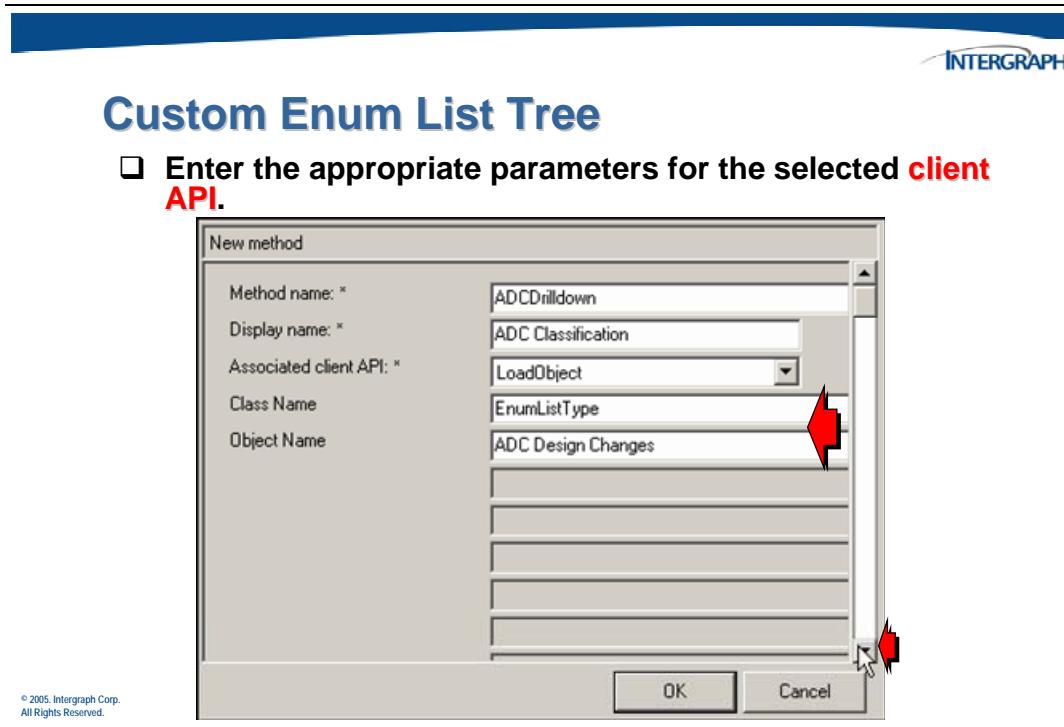
Method name:	DocCategoryDrilldown
Display name:	Document Classification
Associated client API:	LoadObject
Class Name	EnumListType
Object Name	Document category
Component:	
Object state:	
Stand-alone method:	<input checked="" type="checkbox"/>
Available on Desktop client:	<input checked="" type="checkbox"/>
Available on Web client:	<input checked="" type="checkbox"/>
Cascade name:	
Condition name:	

Red arrows point to the title bar 'DocCategoryDrilldown properties' and the 'Object Name' field 'Document category'.

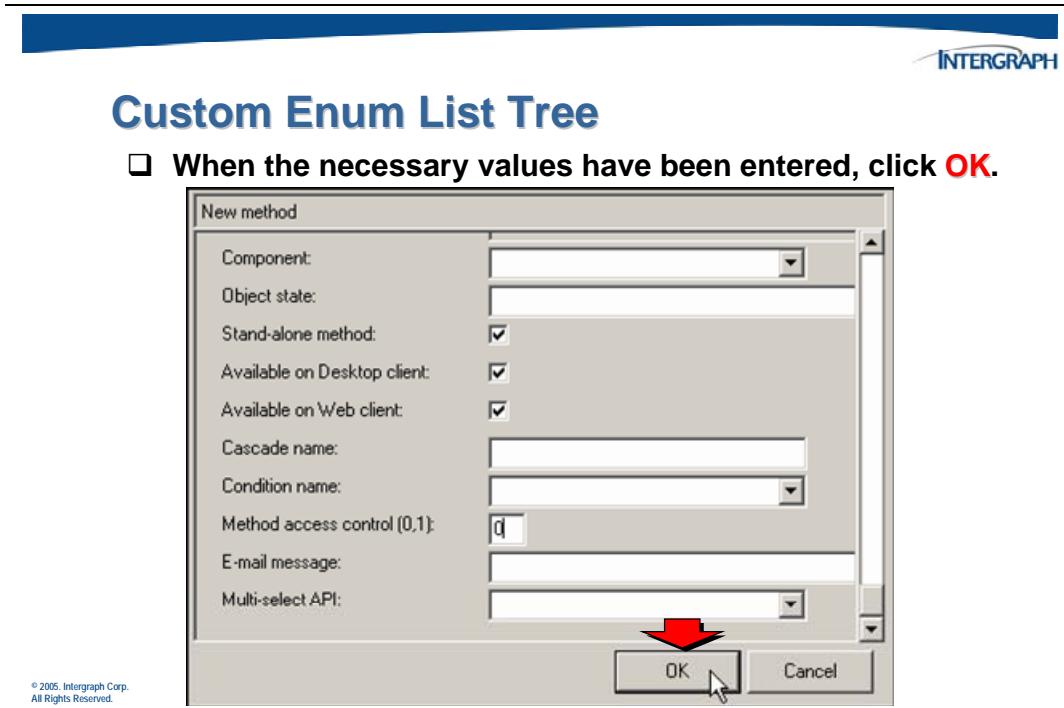
Now create a new drilldown method to load the custom **EnumListType** into the SPF Desktop Client *Tree View*.

The screenshot shows the 'System Administration' menu. A red arrow points to the 'File' menu item. The 'New' submenu is open, showing various options. A red arrow points to the 'Method...' option in the submenu, which is highlighted with a blue selection bar.

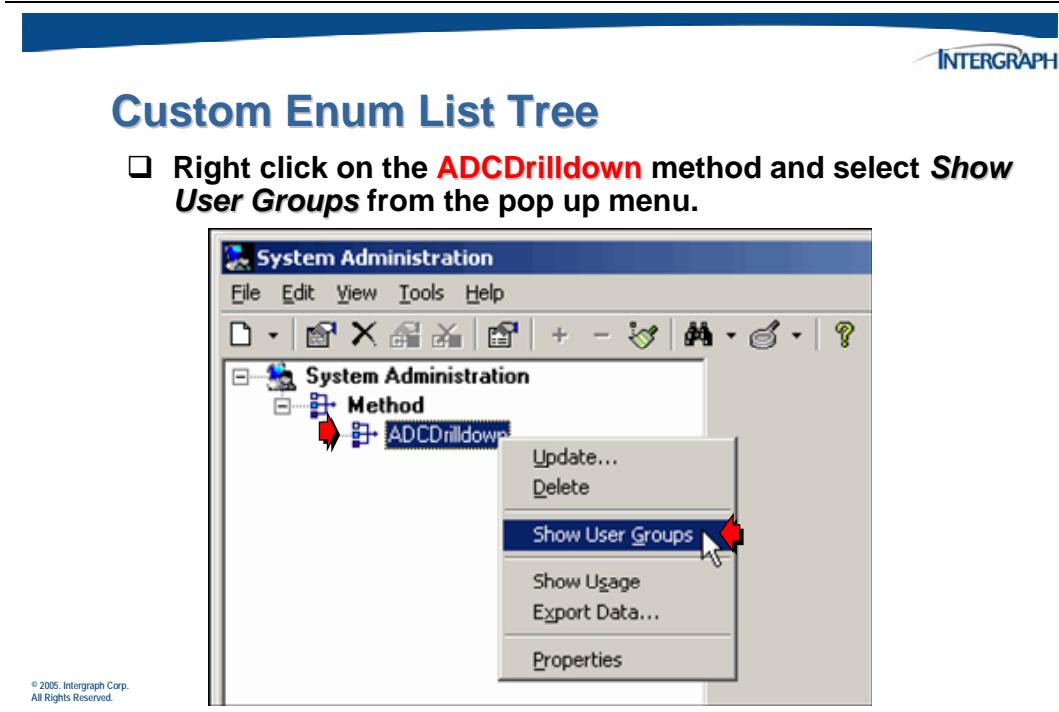
In this example we will create the **ADCDrilldown** method. The API to be used is **LoadObject**.



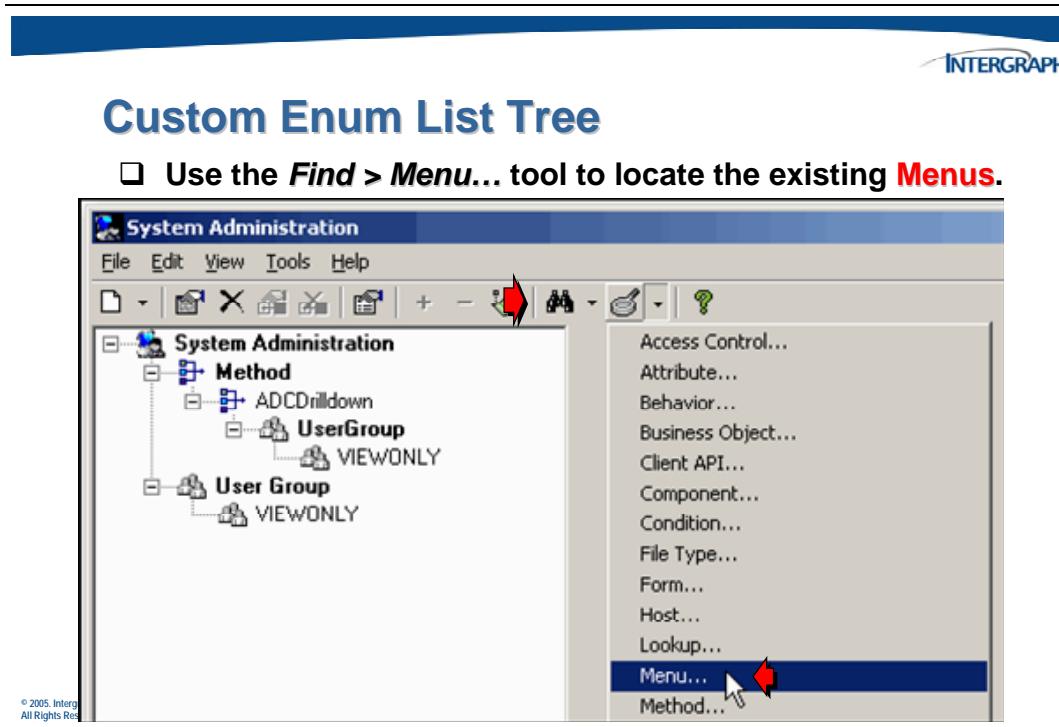
This API has two entries, the first is the object to load which is an **EnumListType** in this case. The second is the list name that will be loaded, **ADC Design Changes**.



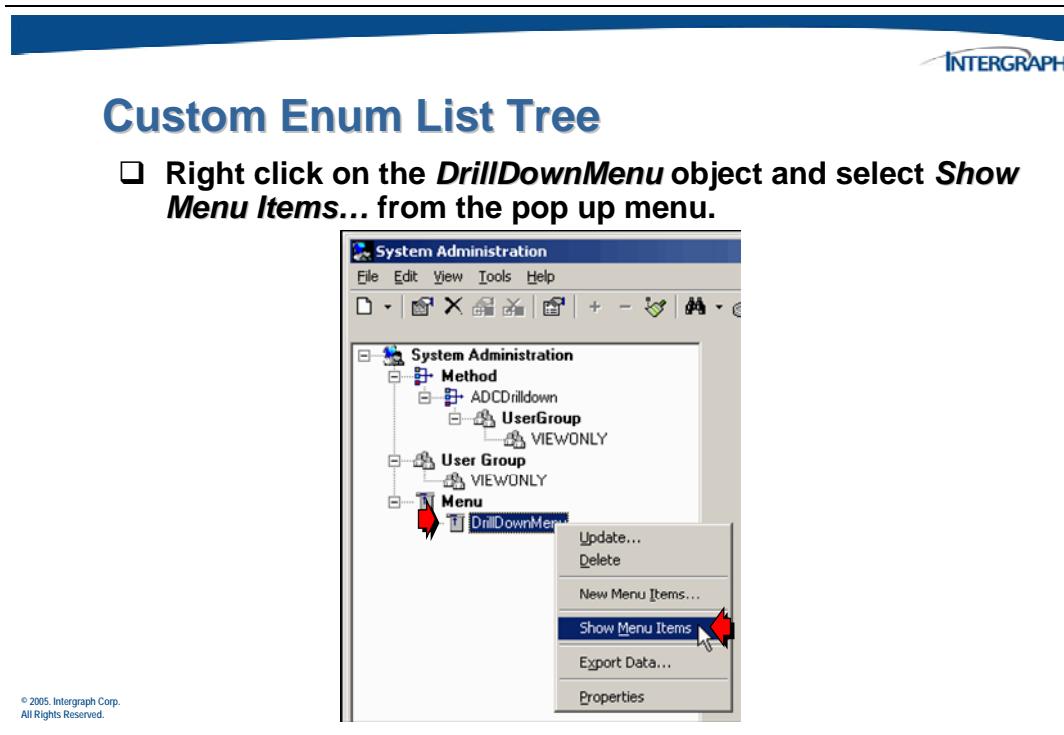
This method will be used in a menu item so it will need to be standalone method. Because it is a menu, select the **Stand-alone method** toggle box so it can be used in the menu creation. Set up the method access security for this new method.



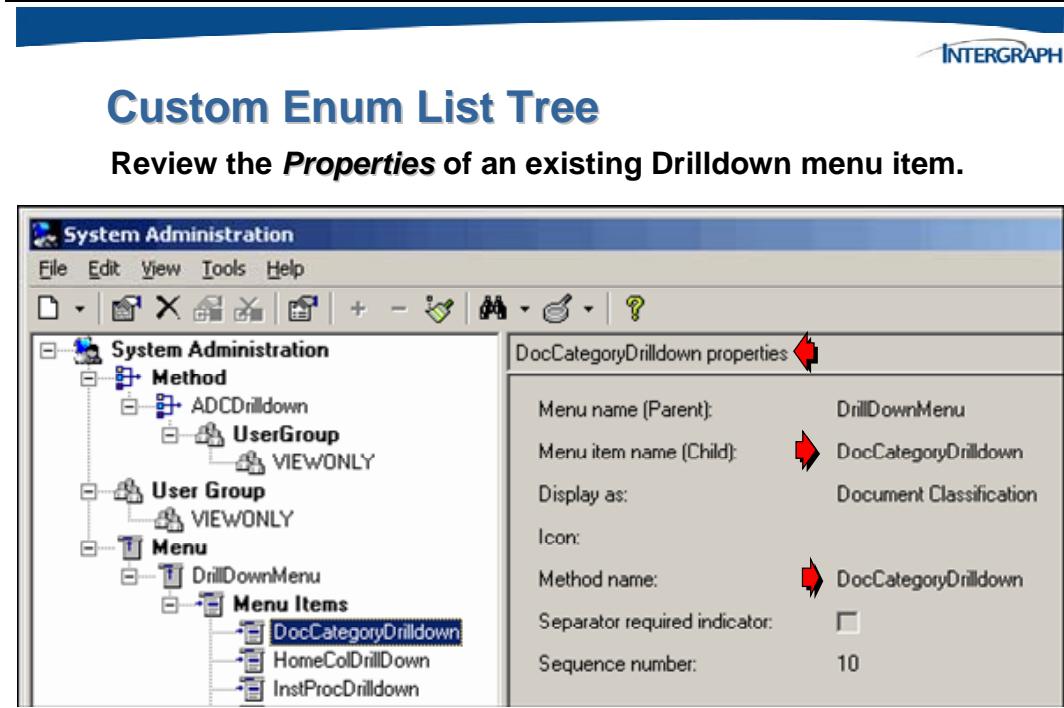
Once the method is configured, find the existing menu objects and insert the new ADCDrilldown object into it.



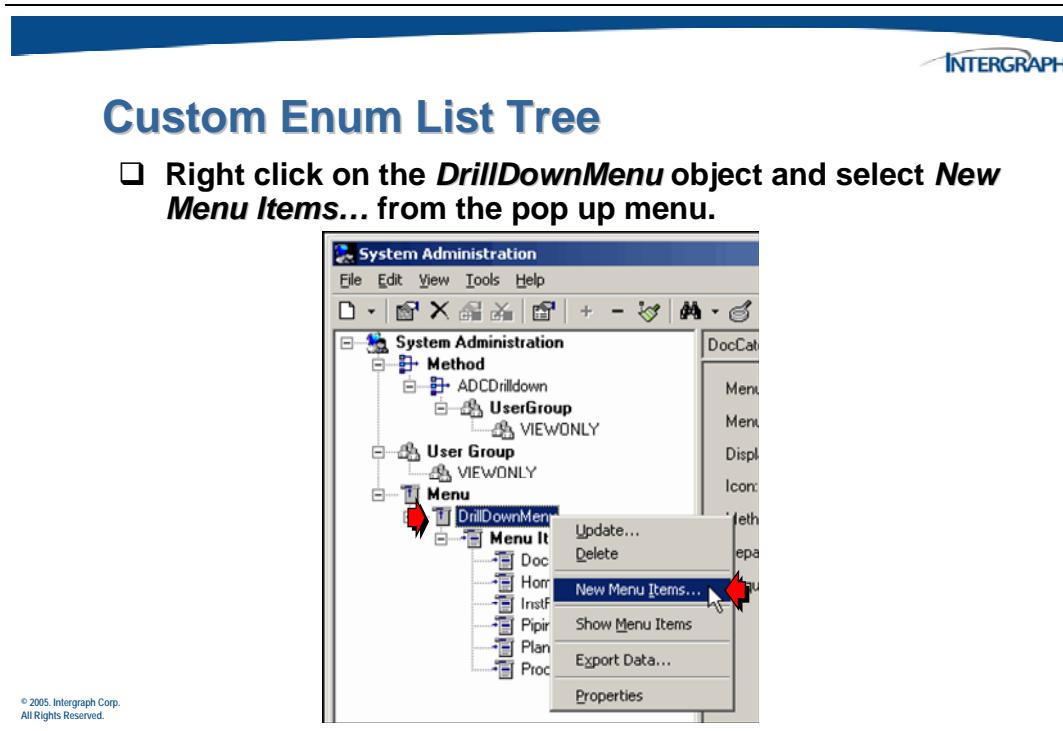
One of the Menu nodes is **DrillDownMenu** which has *Menu Items* listed under it.



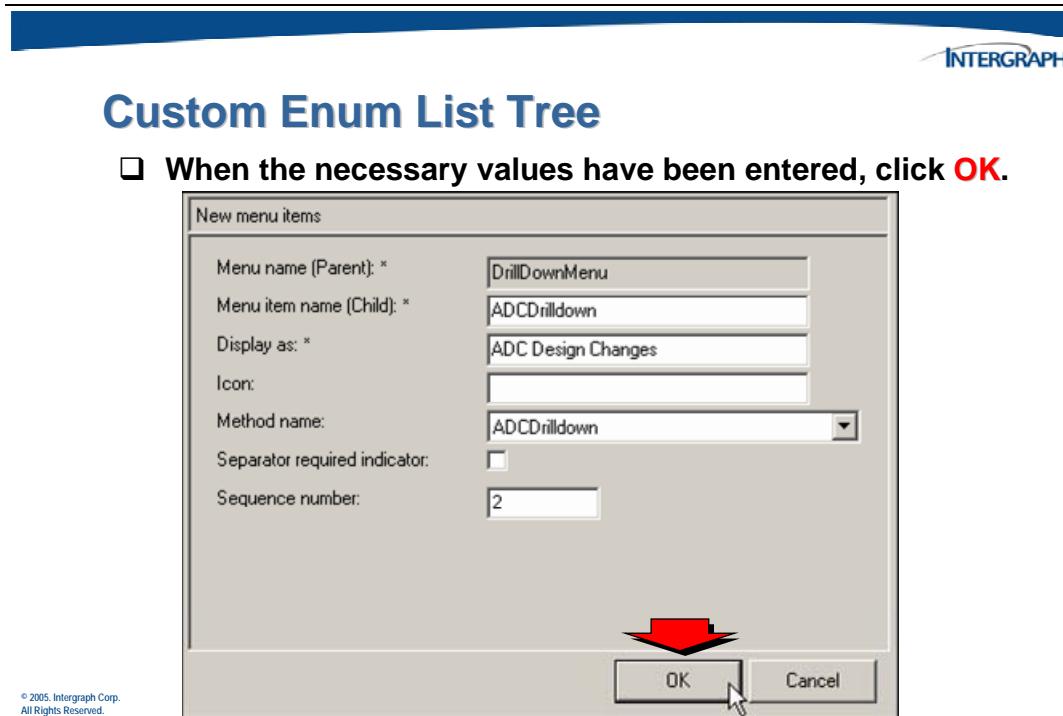
Review the entries so you know how they are organized and you know where you can place the new Menu Item.



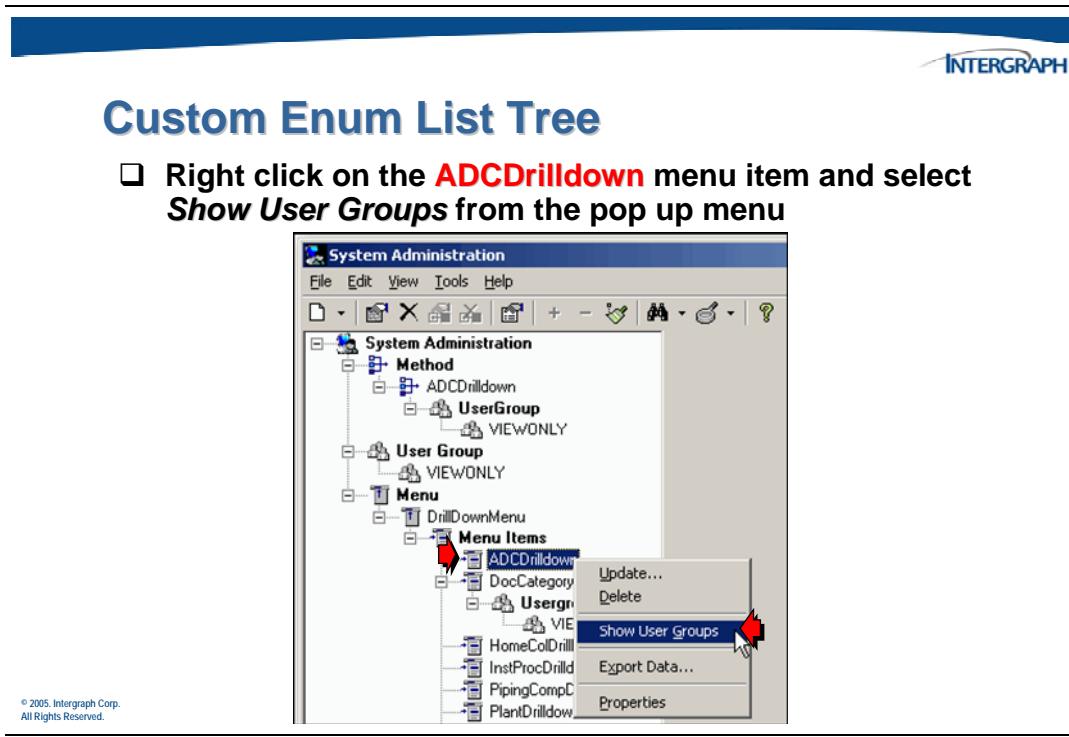
Create a new menu item for this node that will be used for the custom **ADC Design Change** tree.



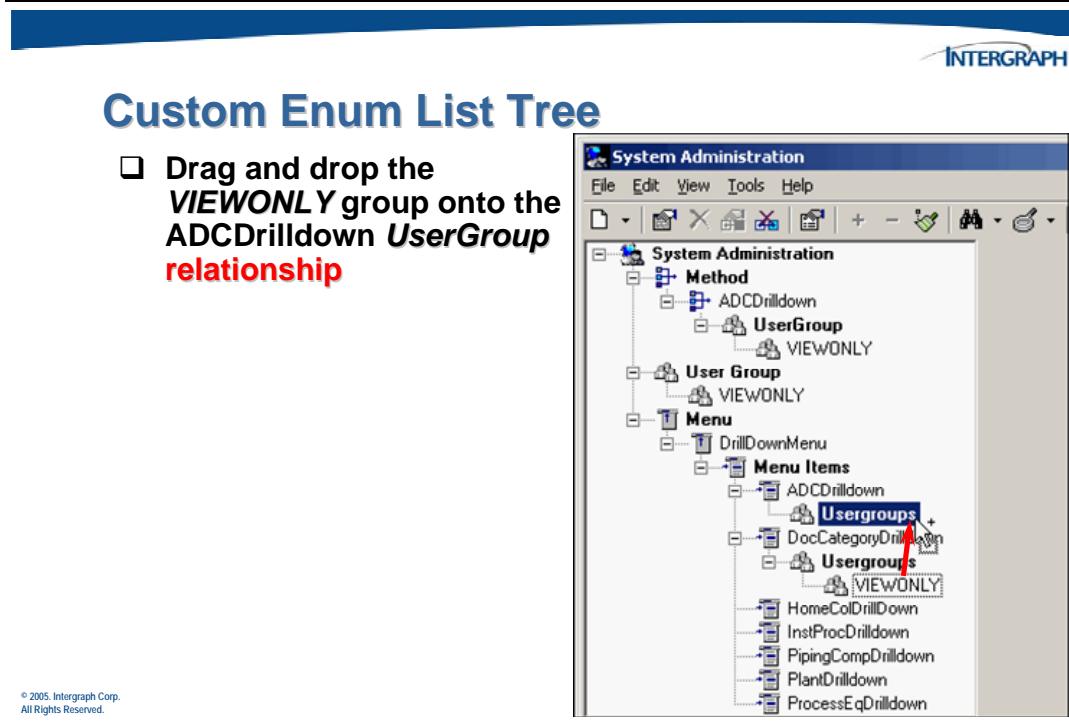
In this example use **ADCDropdown** for the *Menu item name* and use the **ADCDropdown** *Method name* configured earlier. Enter **2** for the *Sequence number*.



Next, add *User Group* security access to the menu item just created.



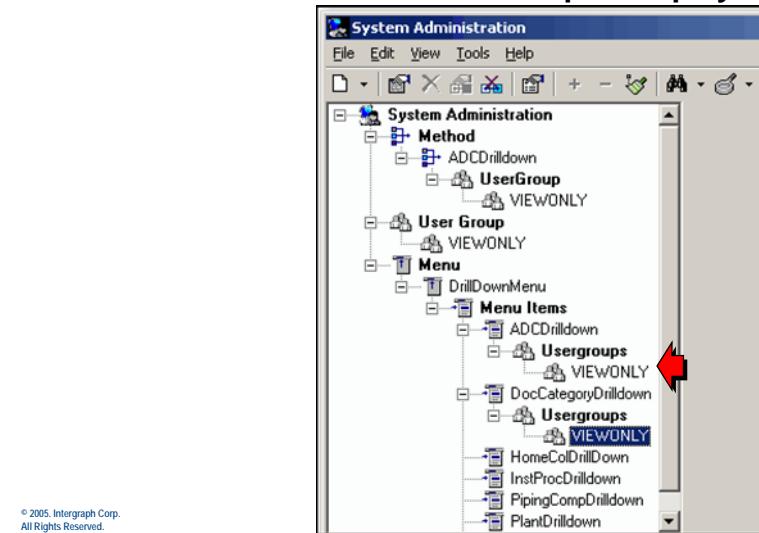
Because this is a drilldown function, use the **VIEWONLY** user group because there are no editing functions which will be performed on these objects.





## Custom Enum List Tree

The new menu item relationship is displayed in the **Tree View**

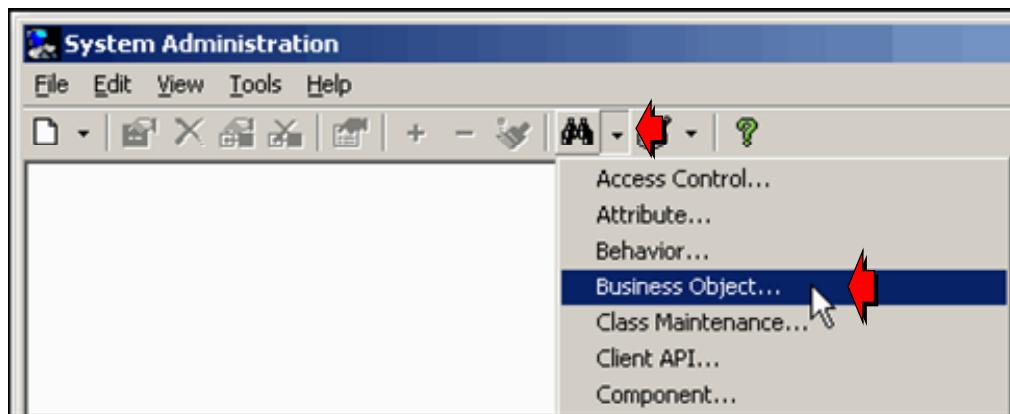


In order to use the custom enumerated list tree, configure the appropriate methods to be used with the tree.



## Custom Enum List Tree

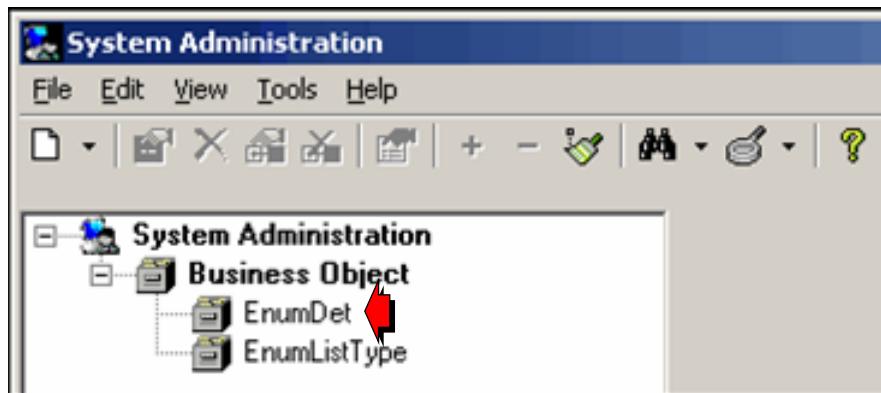
- Perform a **Find** to locate the enumerated list objects in the system



Tree view behavior is associated with the EnumDet (Enumerated Details) business object.

## Custom Enum List Tree

The Business Object that is used in the tree hierarchy is  
EnumDet.



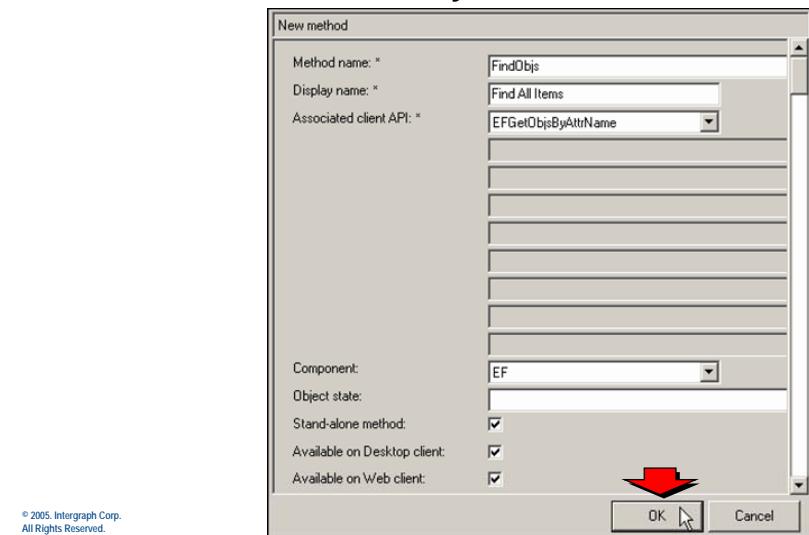
In the following example, a new method will be configured to perform a search for all objects associated with the selected tree.

This method will allow you to search/find those objects that were created using the selected enumerated list hierarchy **P&ID Documents > P&ID > Utility P&ID** by right-clicking on Utility P&ID in the default tree to perform the Find.



## Custom Enum List Tree

- When the necessary values have been entered, click **OK**.

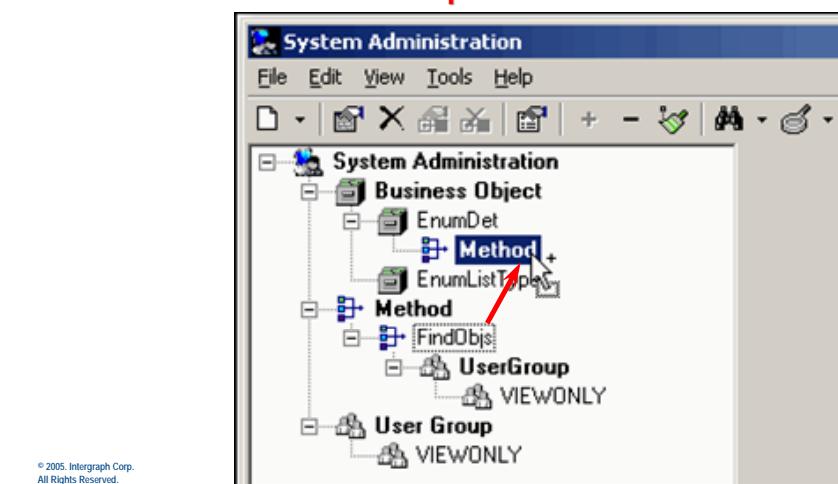


This method will be attached to the SPF business object **EnumDet**. This corresponds to the lowest level entries in an enum list tree.

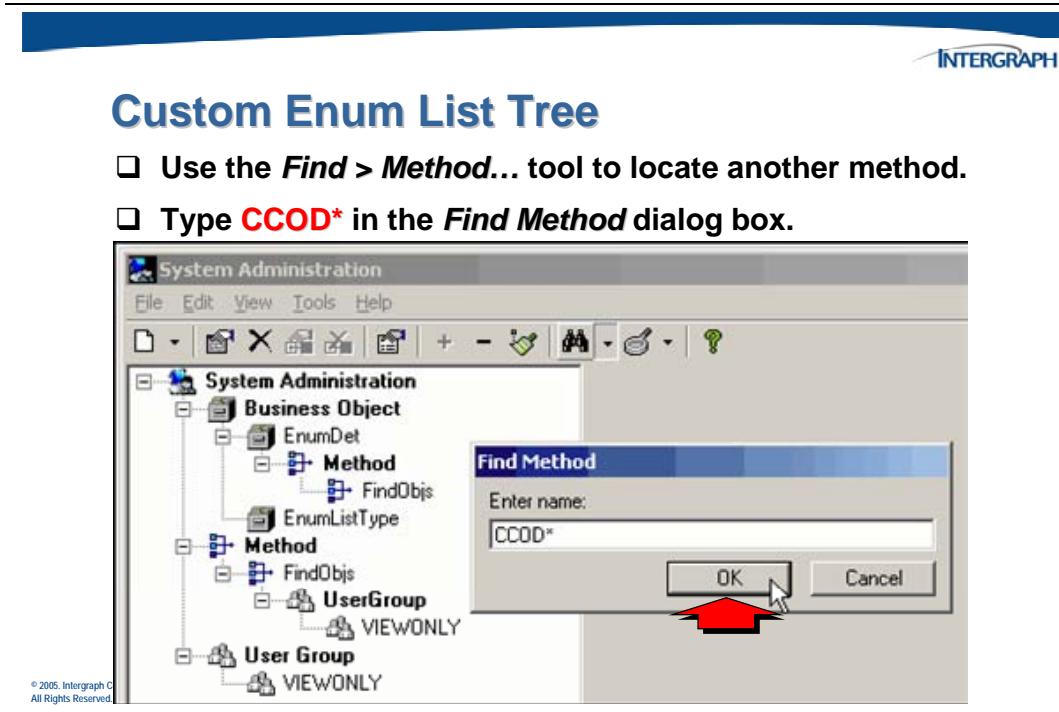


## Custom Enum List Tree

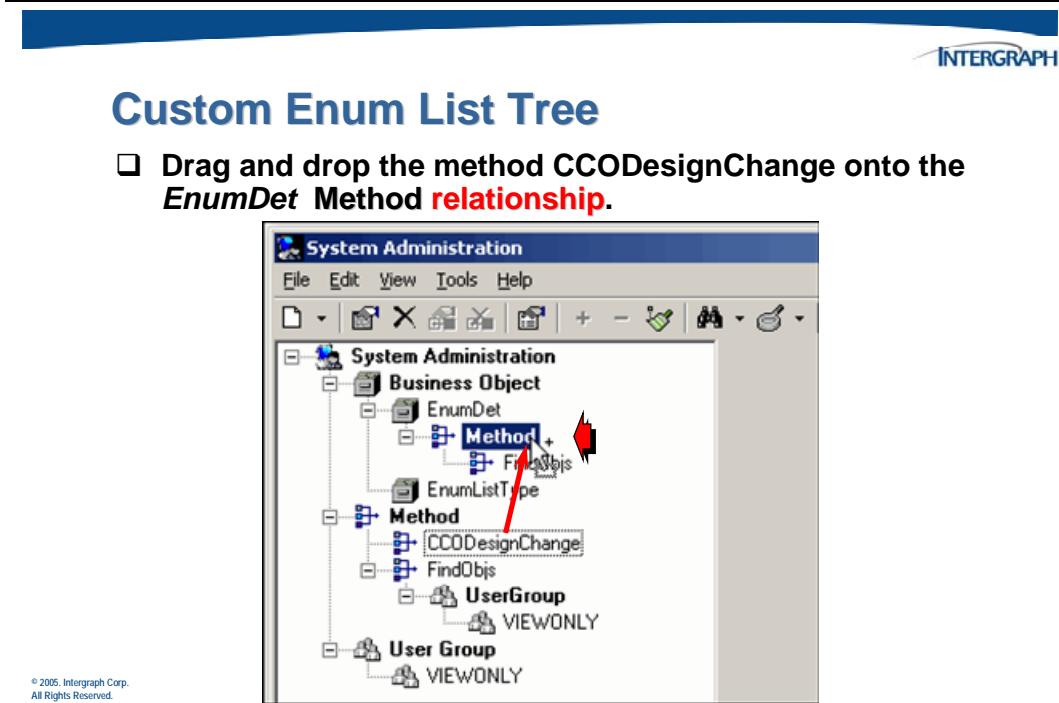
- Drag and drop the *FindObjs* method onto the **EnumDet Method relationship**.



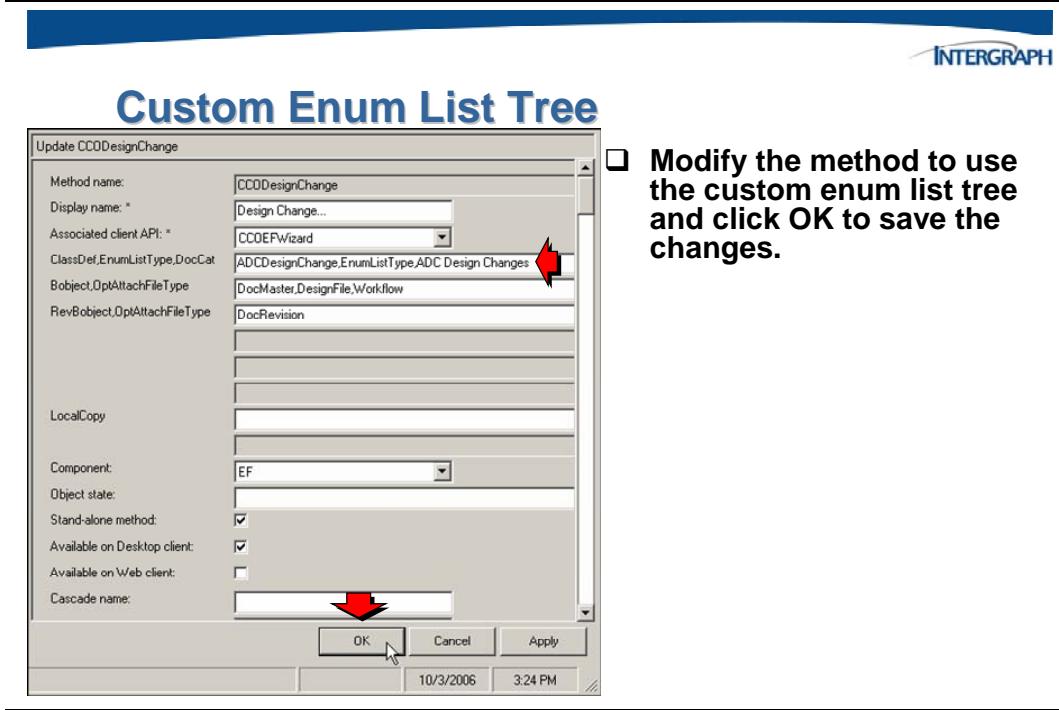
If you want to be able to create new *ADC Design Change* document instances from the custom enum tree, the **CCODesignChange** method can also be associated to the *EnumDet* object.



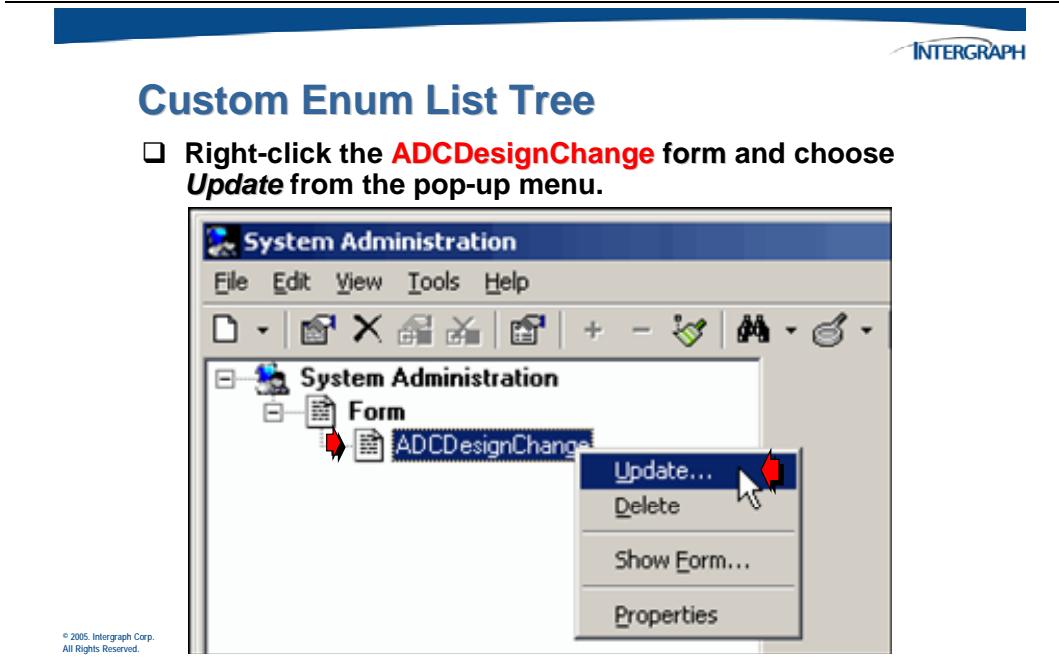
This allows you to create a new Design Change object related to the custom enum list tree **ADC Design Changes**.



In order to use the `CCODesignChange` method with the custom enum tree, the method must be changed in order to reference the new custom enumerated list type.



Once the new properties have been added to the admin database, the `ADCDesignChange` form will need to be modified.



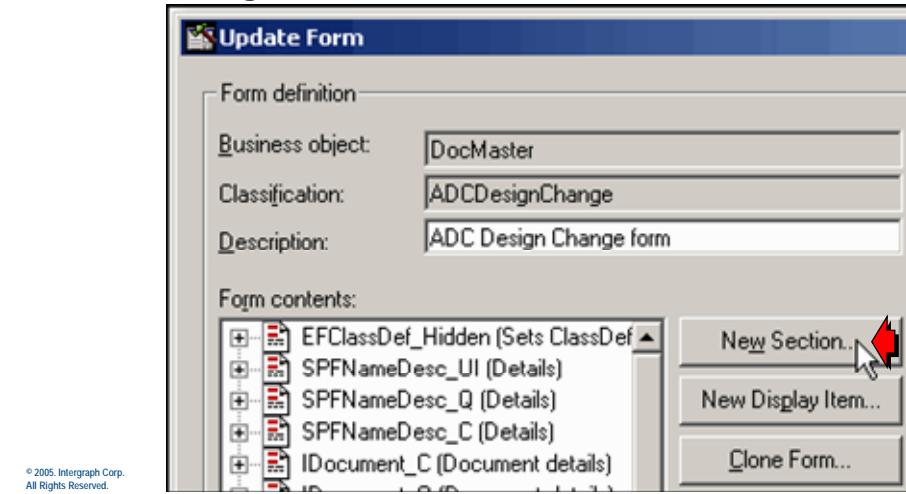
Add two new *Display Items* for the two new *PropertyDefs*. The new properties will replace the original *DocCategory* and *DocType* properties.

To display the new properties, a new form **section** will be created.



## Custom Enum List Tree

- Select the **New Section...** button from the *Update Form* dialog.

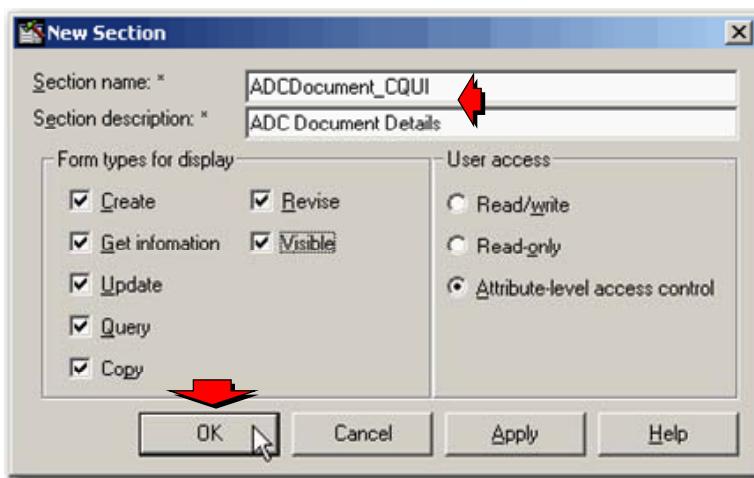


The new form section will be used for **all** functions (*Create, Copy, Query, Update* and *Information*) rather than the default converted multiple sections for each interface. The name can be entered to reflect this, **ADCDocument\_CQUI**.

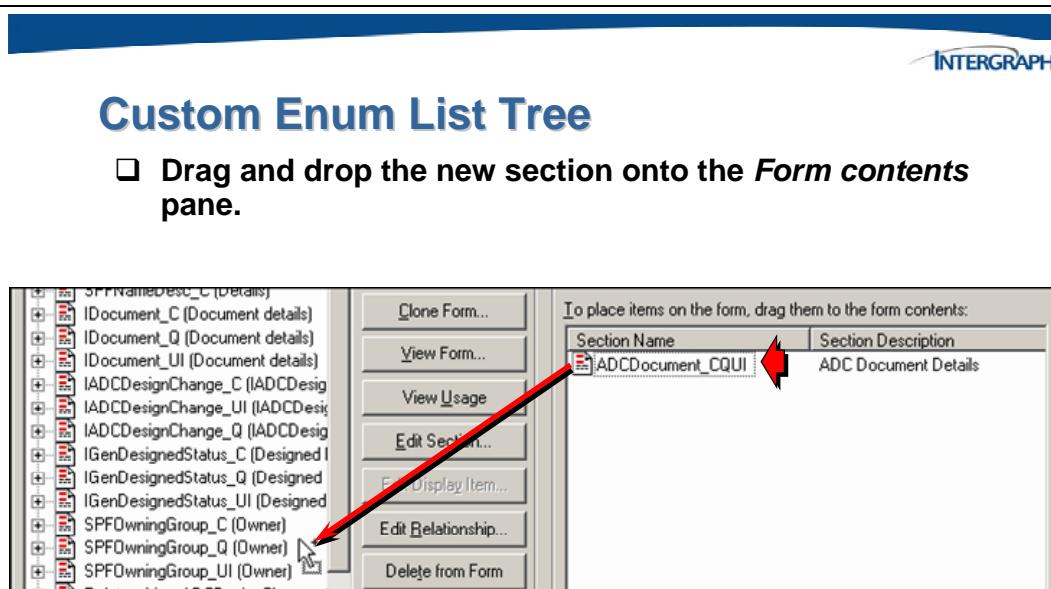


## Custom Enum List Tree

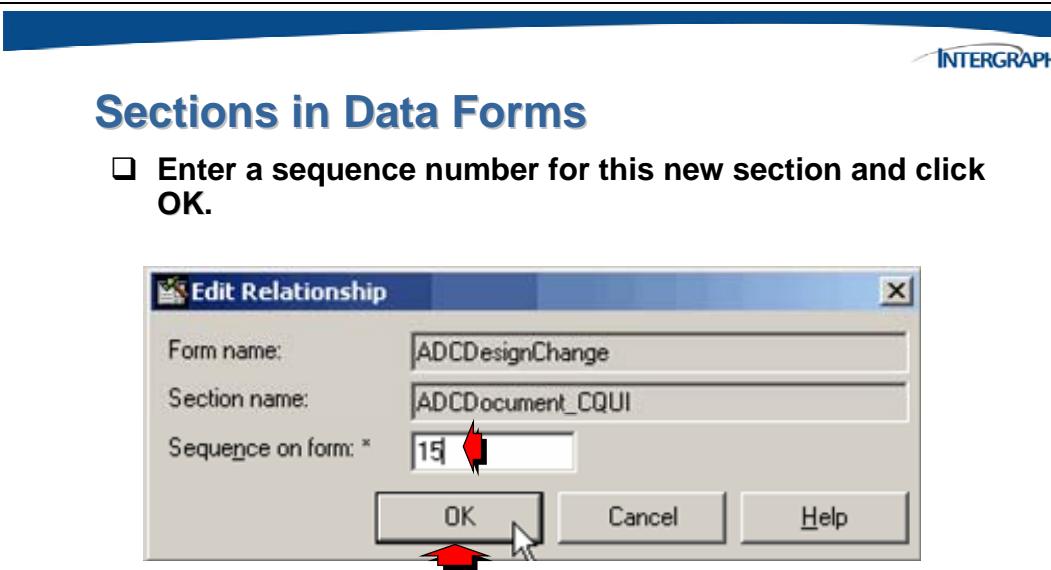
- Enter the values needed to create a new form section and click **OK**.



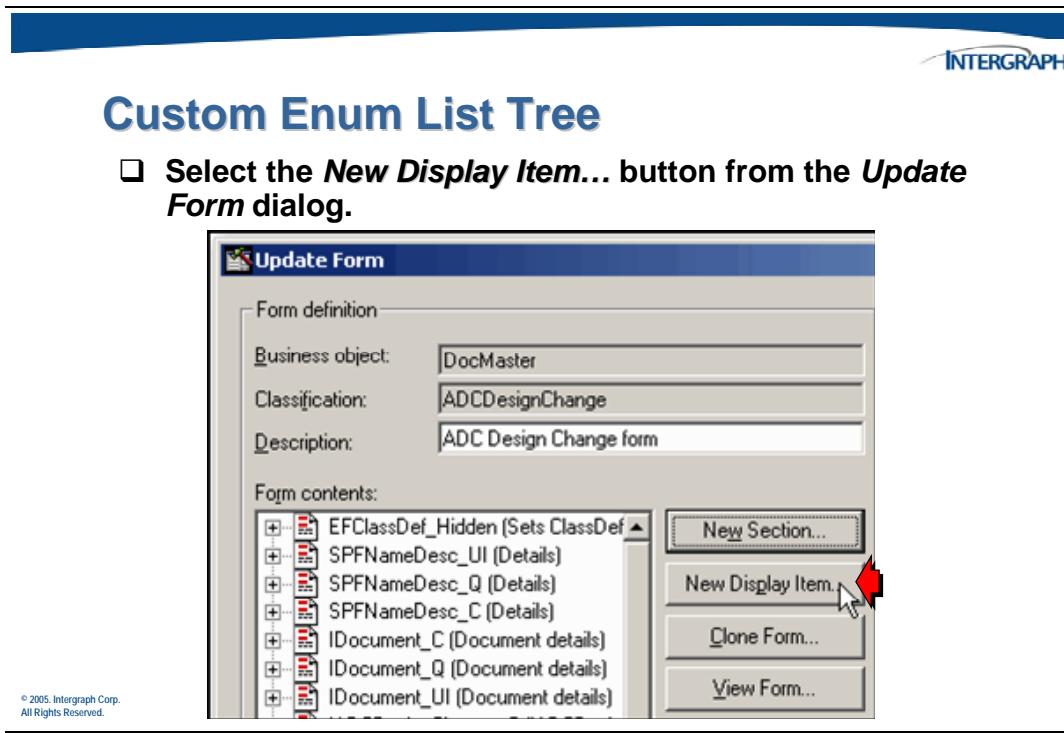
The new section will be related to the existing *ADCDesignChange* form.



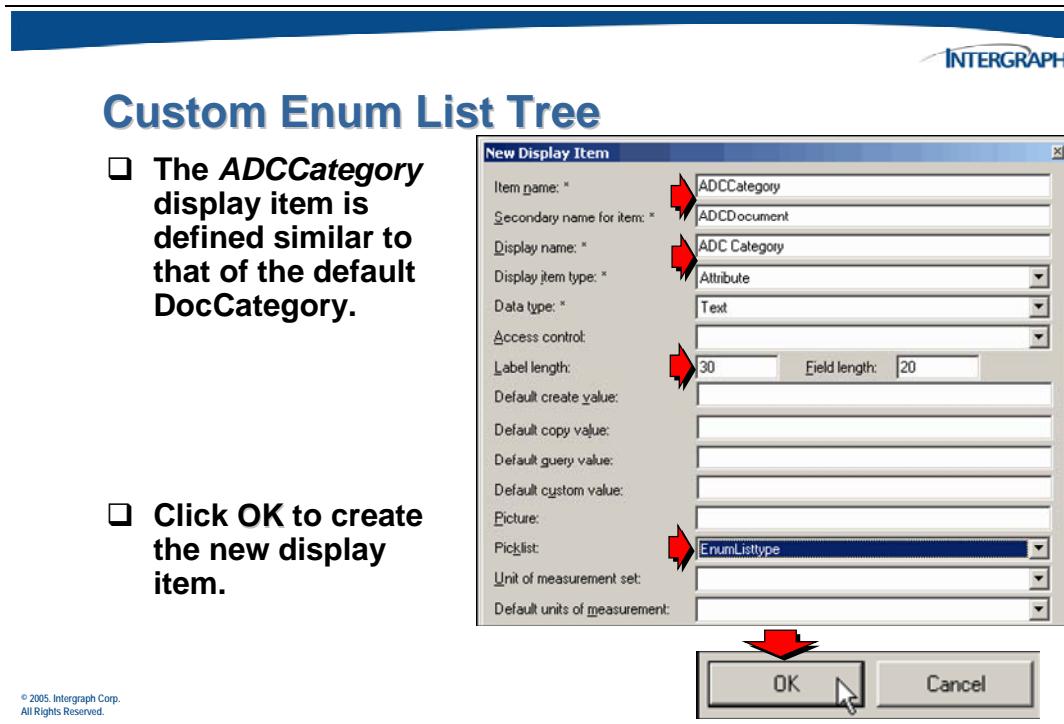
The *Edit Relationship* dialog will be displayed.



Once the new section has been added to the form, new display items that will correspond to the two new property definitions must be created.



It might be a good idea to review the properties of the *DocCategory* display item to use as a sample for creating the **ADCCategory** display item.



Again, review the properties of the *DocType* display item to use as a sample for creating the **ADCType** display item.

The **ADCType** display item is defined similar to that of the default **DocType**.

Click OK to create the new display item.

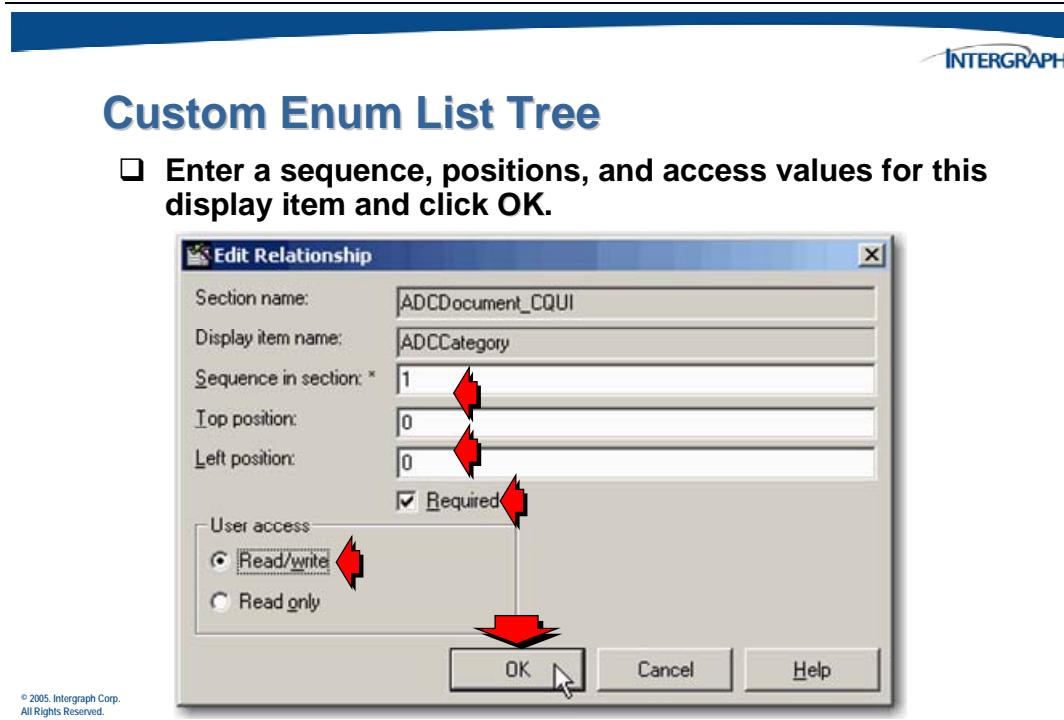
Add the **ADCCategory** and **ADCType** display items to the **ADCDocument\_CQUI** form section as shown below.

Drag and drop one of the new display items onto the new **ADCDocument** section.

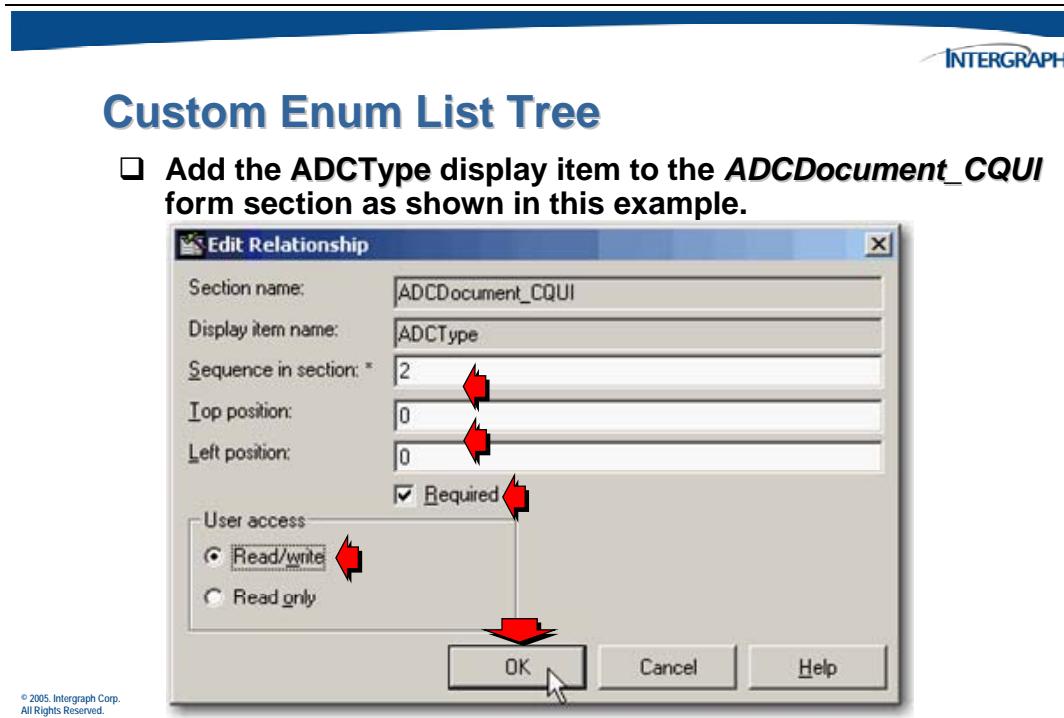
The screenshot shows the 'Custom Enum List Tree' dialog box with the 'ADCType' display item created. To the left is a tree view of form sections, and to the right is a list of items to place on the form. A red arrow points from the 'OK' button in the dialog to the 'ADCType' entry in the list.

Display Item Name	Display Item Name 2	Display As
ADCCategory	ADCDocument	ADC Category
ADCType	ADCDocument	ADC Type

Since a display item/section relationship is being created, the *Edit Relationship* dialog will display.



Drag and drop the new *ADCType* display item onto the new *ADCDocument* section.



Finish the new section by finding and relating the *DocTitle* display item/property.

Find sections and display items

Type the information that you want to search for, using % as a wildcard, select the search type, and then click Find Now.

Find what:

Display all items on the selected form  
 Search for display items by display name  
 Search for display items by item name  
 Search for sections

To place items on the form, drag them to the form contents:

Display Item Name	Display Item Name 2	Display As
ADCCategory	ADCDocument	ADC Category
ADCType	ADCDocument	ADC Type

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Relate the existing *DocTitle* display item to the new section.

Custom Enum List Tree

Clone Form...  
View Form...  
View Usage  
Edit Section...  
Edit Display Item...  
Edit Relationship...  
Delete from Form  
Export to Loader...

Display Item Name      Display Item Name 2      Display As

Display Item Name	Display Item Name 2	Display As
DocTitle	IDocument	Document

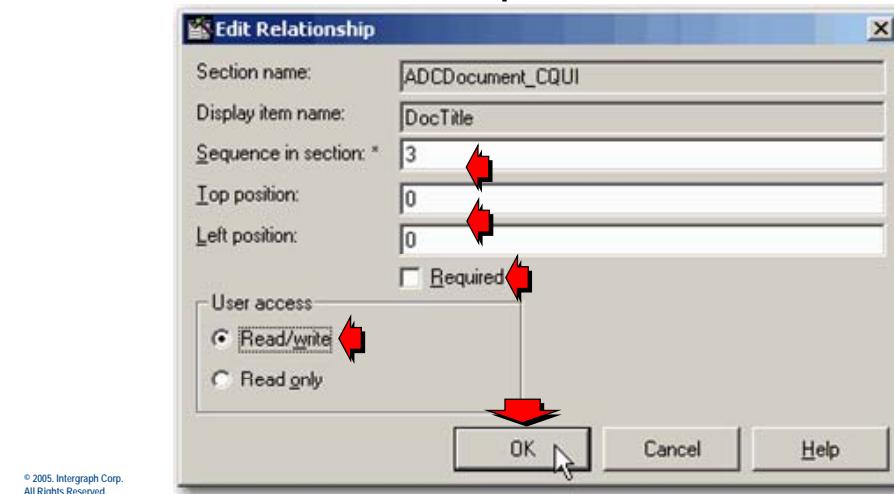
IGenDesignedStatus\_Q (Designed)  
IGenDesignedStatus\_UI (Designed)  
SPFOwningGroup\_C (Owner)  
SPFOwningGroup\_Q (Owner)  
SPFOwningGroup\_UI (Owner)  
Relationships\_ADCDesignChange\_Q  
IDef\_ADCDesignChange\_Q (IDef)  
SPFGeneralDates\_Q (History)  
SPFGeneralDates\_UI (History)  
WorkflowStatus\_Q (Workflow)  
WorkflowStatus\_UI (Workflow)  
Optional\_ADCDesignChange\_Q (Optional)  
ADCDocument\_CQUI (ADCDocument)  
ADCCategory (ADC Category)  
ADCType (ADC Type)

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## Custom Enum List Tree

- Add the existing DocTitle display item to the form section as shown in this example.

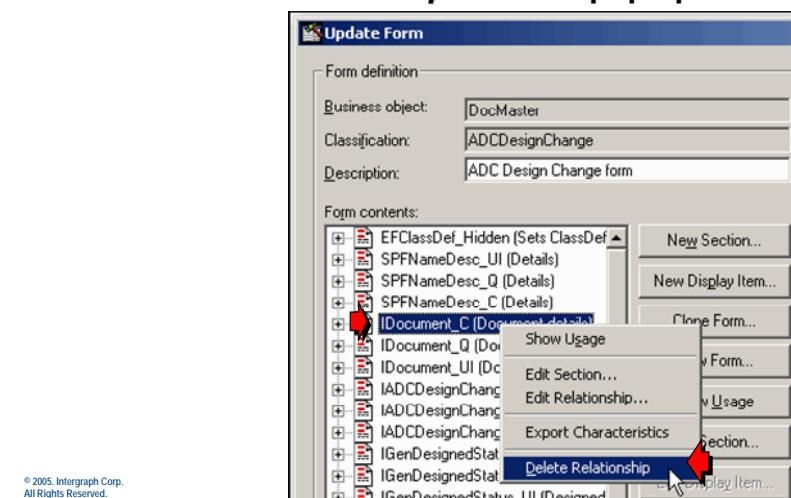


Since a new ADCDocument section has been added to the form to support the new *ADC Design Change* enum tree, the default IDocument sections will need to be removed.



## Custom Enum List Tree

- Right click on the *IDocument\_C* form section and select **Delete Relationship** from the pop up menu.

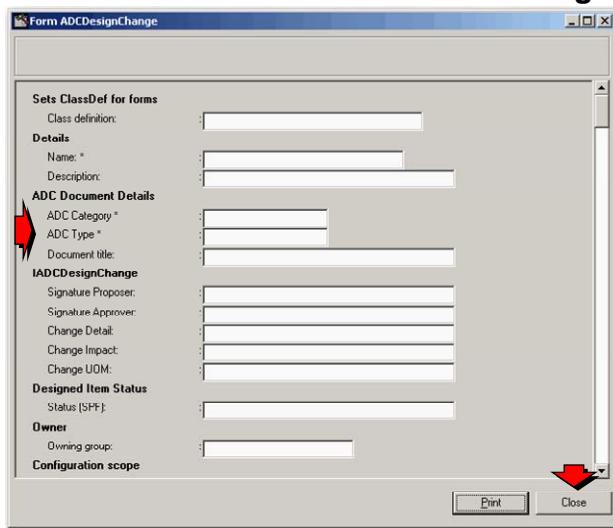


This is how the form will look once the modifications have been made.



## Custom Enum List Tree

- Select the **View Form** button to see the changed create form.

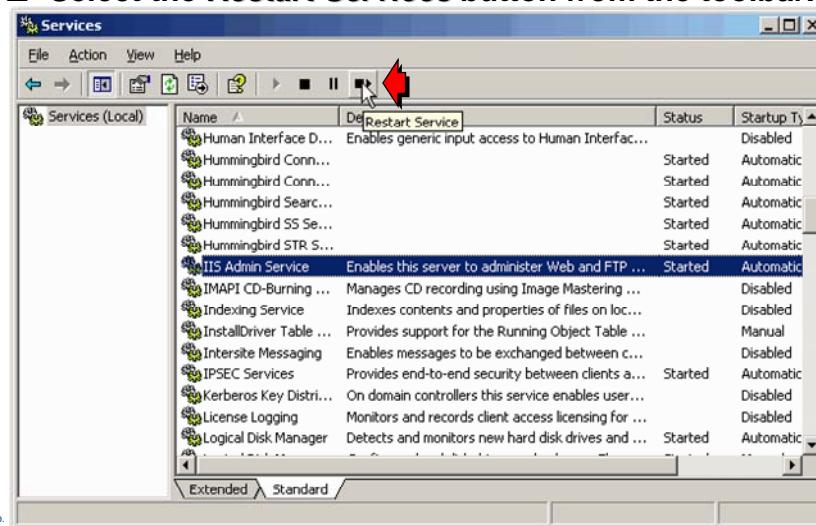


Because the SPF database model information has been changed, reset IIS.



## Resetting IIS

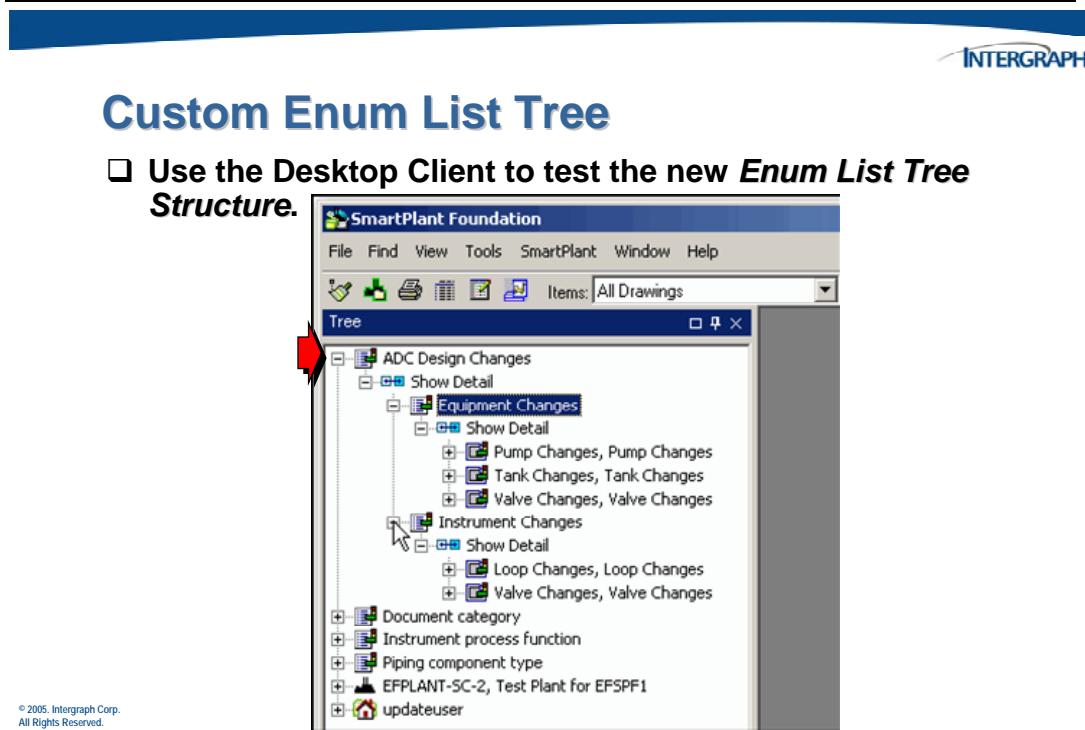
- Select the **Restart Services** button from the toolbar.



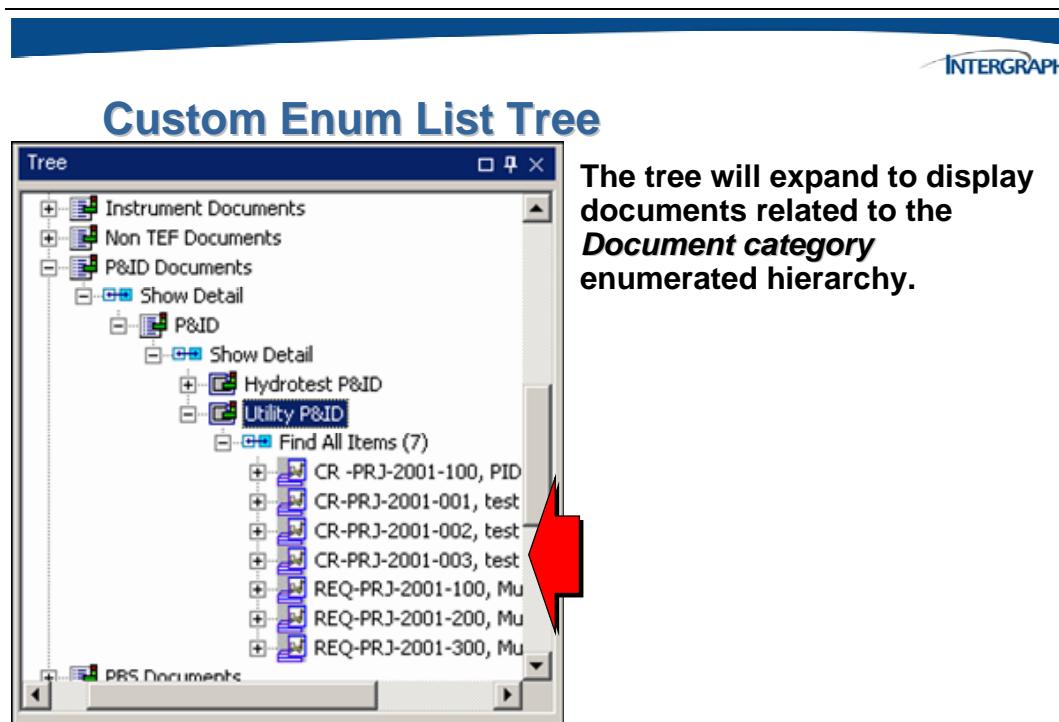
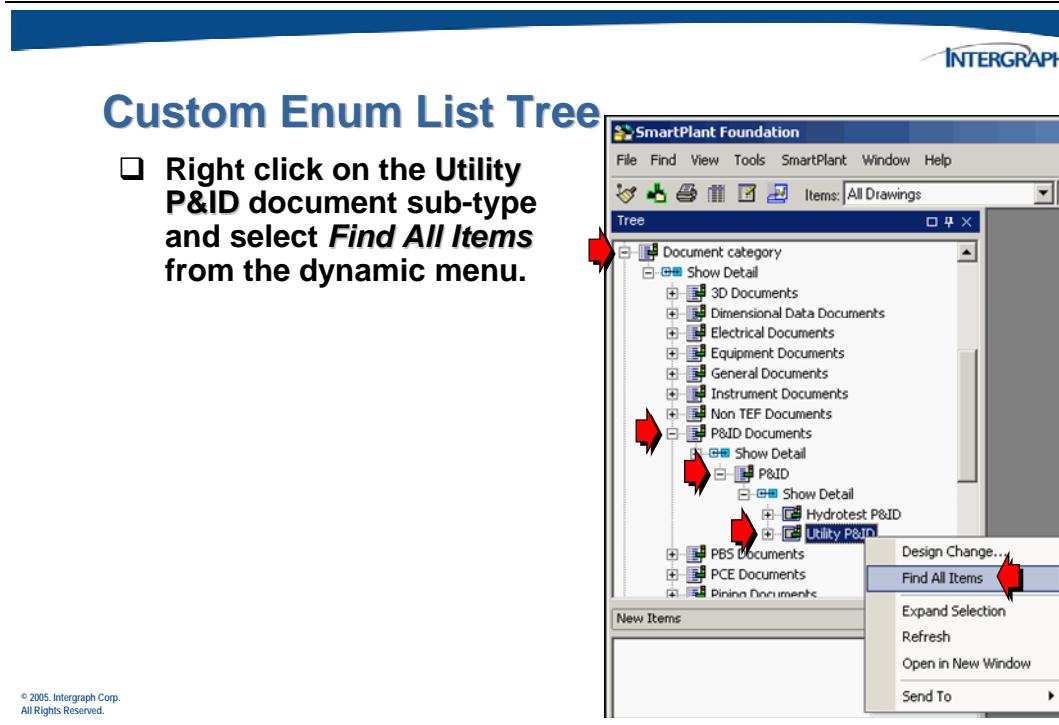
### 10.1.3 Testing the Custom Enum Tree

Use the SPF Desktop Client to test the new custom enum tree now that the modeling has been completed and loaded. New properties have been created, new methods configured and new menu items added. Finally, the form has been changed to use the new properties.

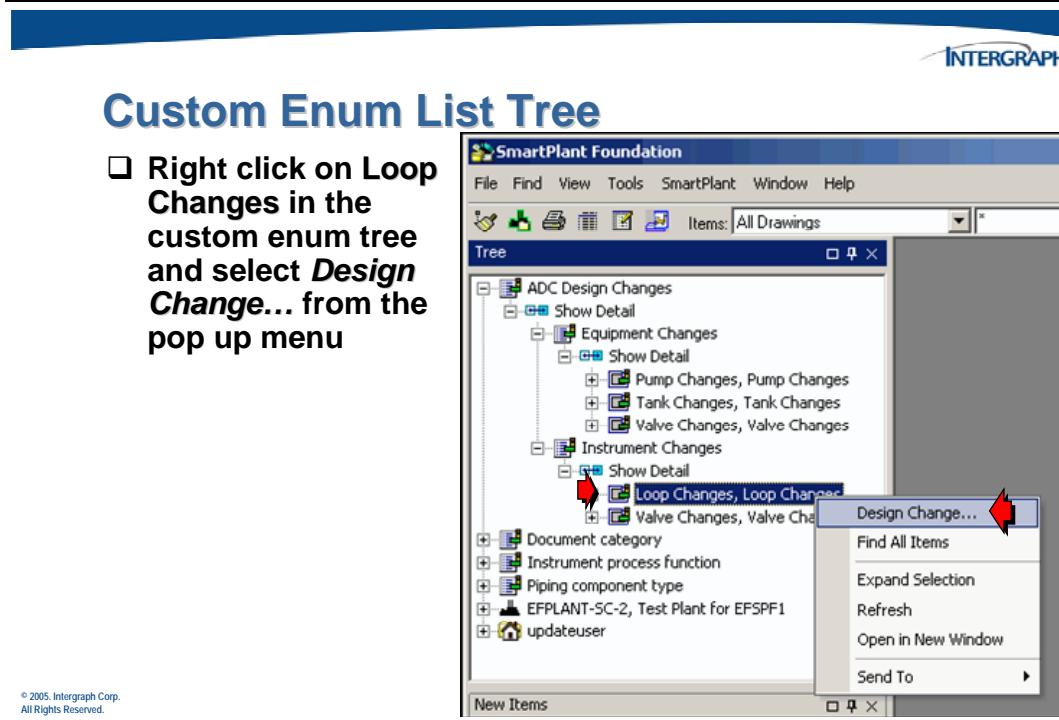
Login to the Desktop Client to see the new tree that has been added to the *Tree View*.



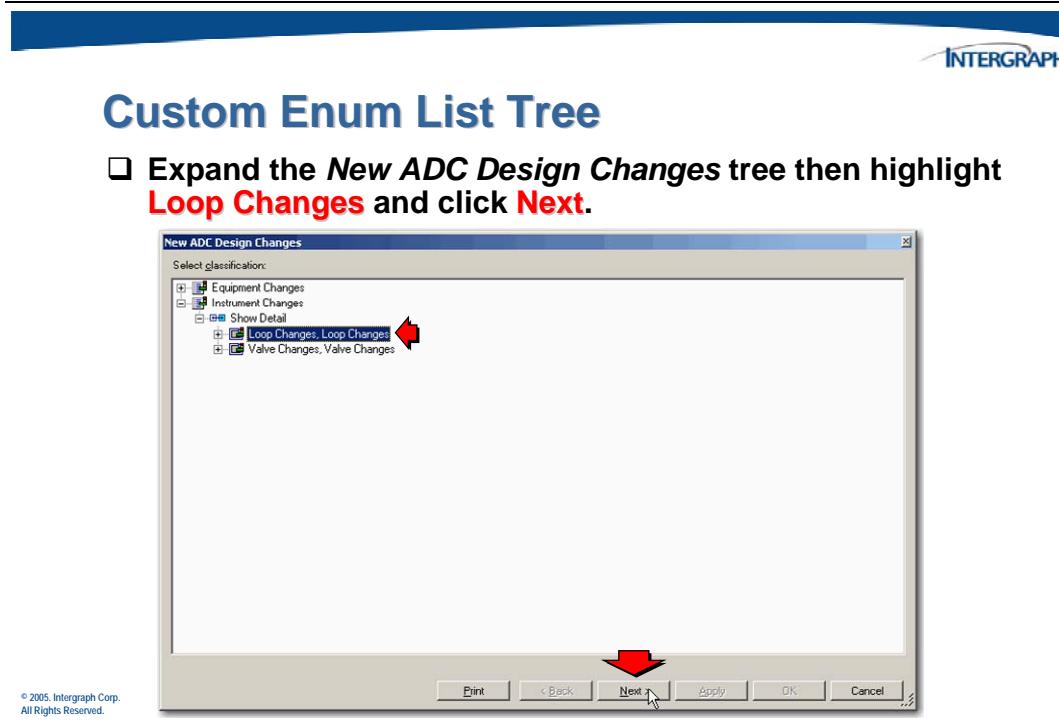
First, drill down in the default tree and use the new **FindObjs** method to view the documents that have been created using the default IDocument properties.



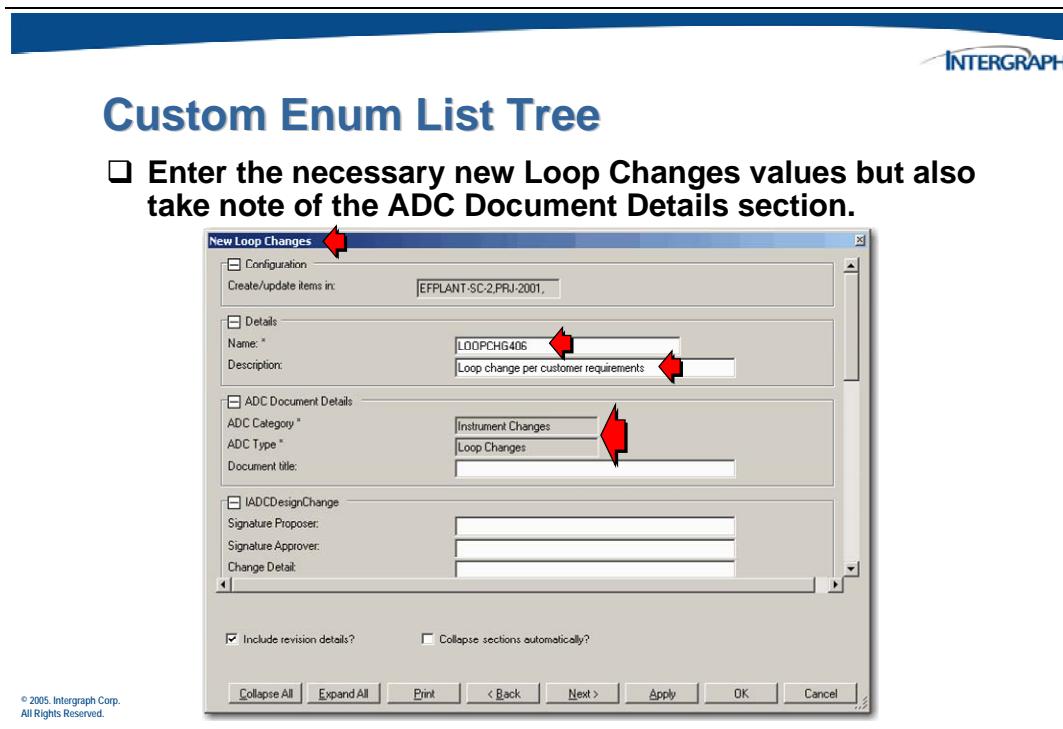
To test the new enum list tree, drill down in the tree hierarchy and create a new *Design Change* document.



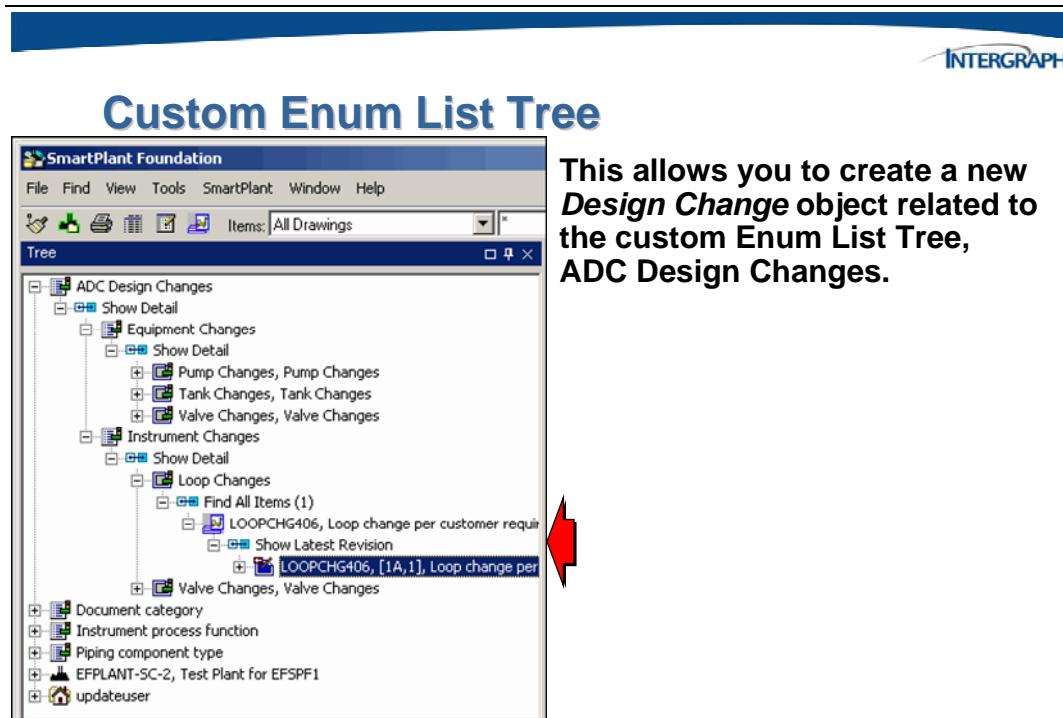
The *New ADC Design Changes* enumerated list hierarchy will be displayed.



The *ADCDesignChange* form is displayed.



Once the new **LOOPCHG406** document has been created, drill down in the custom tree to see the relationship to the new tree and the new document.



## 10.2 Creating a Custom Plant Hierarchy

In SmartPlant Foundation and the authoring tools that are integrated with it, engineering data is organized using a plant breakdown structure (PBS). A plant breakdown structure is a classified hierarchy with superiors, or roots, and subordinates, or dependents. For example, a PBS for organizing plant data might be plant/area/system/subsystem or plant/area/unit.

The PBS hierarchy defined in the SmartPlant schema is used to create the PBS hierarchy in SmartPlant Foundation. This hierarchy is communicated to integrated authoring tools when SmartPlant Foundation publishes the plant breakdown structure and the tools retrieve it.

In previous releases, the plant breakdown structure for integrated authoring tools was restricted to plant/area/unit. By default, the PBS for SmartPlant is still plant/area/unit in the schema. However, a customized hierarchy can be created in the schema to meet project requirements.

---

**Note:** In this release of SmartPlant Enterprise, all projects must use the same PBS hierarchy. Once a new hierarchy is created for a plant in SmartPlant Foundation and published, all tools must use that same hierarchy.

---

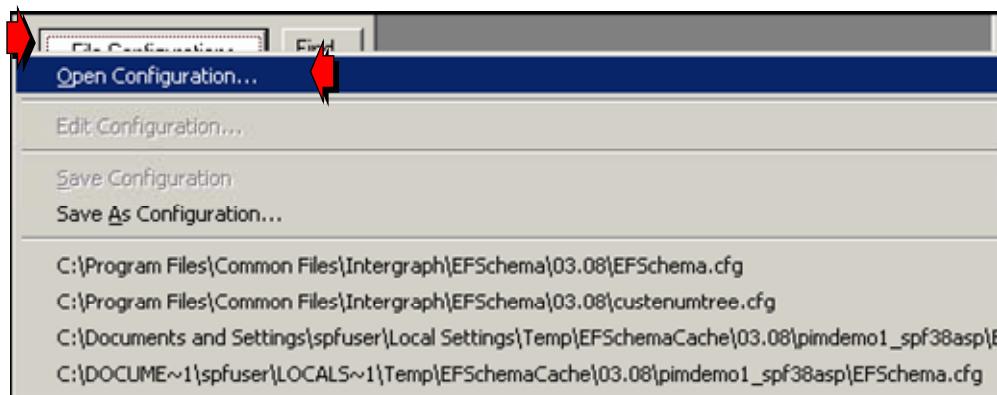
## 10.2.1 Creating the Custom Hierarchy in the Schema Editor

The process for defining a custom PBS hierarchy for SmartPlant begins in the schema using the Schema Editor.



### Custom Plant Hierarchy

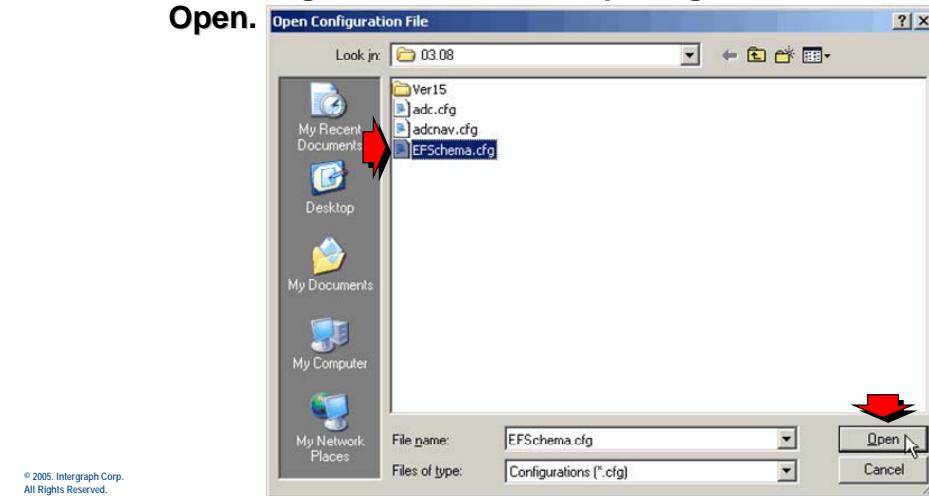
- From the Workflows dialog box, choose the File Configuration button and select ***Open Configuration...***





## Custom Plant Hierarchy

- ❑ In the **Open Configuration File** dialog, select the name of the configuration to use for opening the schemas and click **Open**.

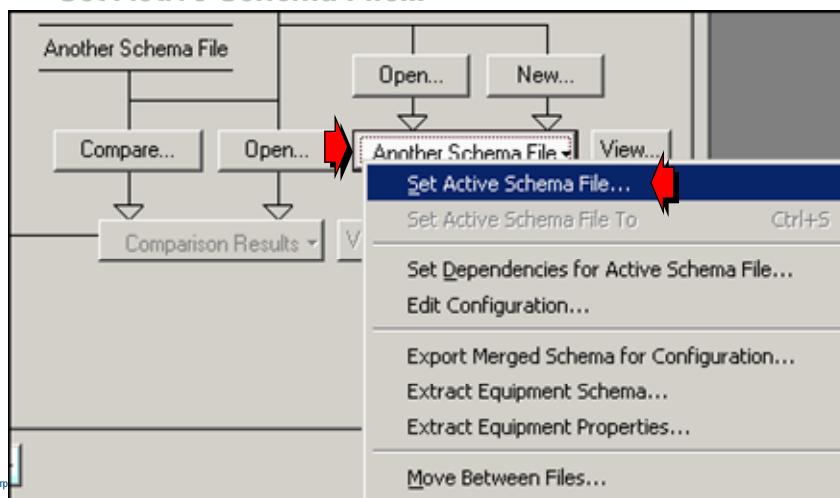


The configuration file **EFSchema.cfg** will open the master schema and all of the extension schemas necessary to model the custom hierarchy.



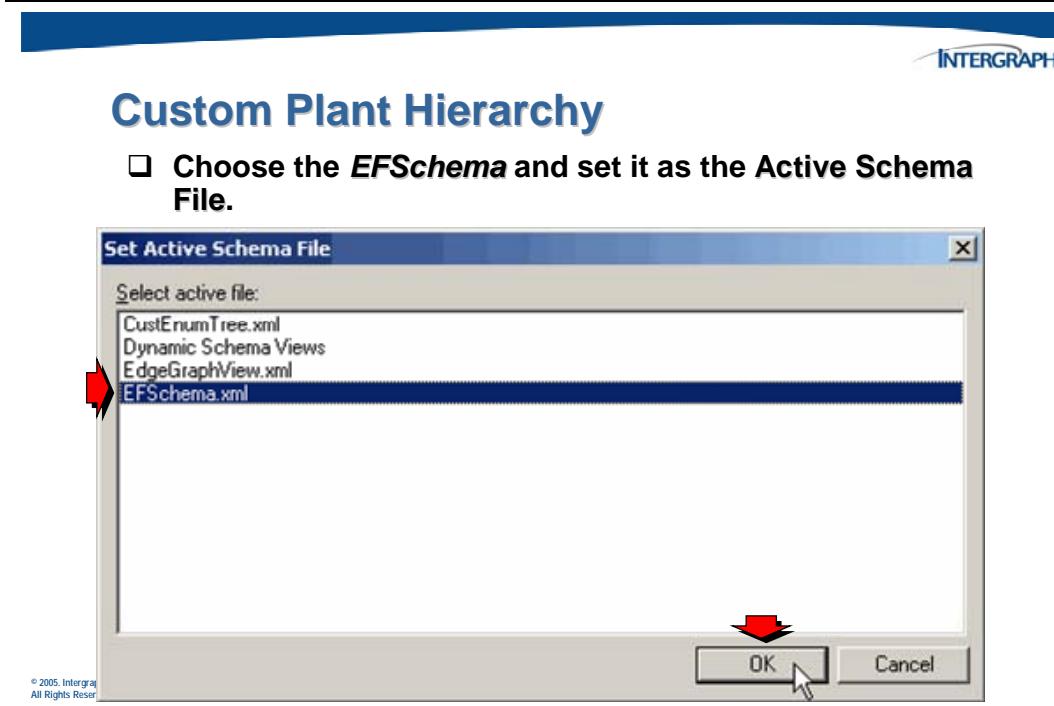
## Custom Plant Hierarchy

- ❑ Click on the bolded **Another Schema File** and then select **Set Active Schema File...**

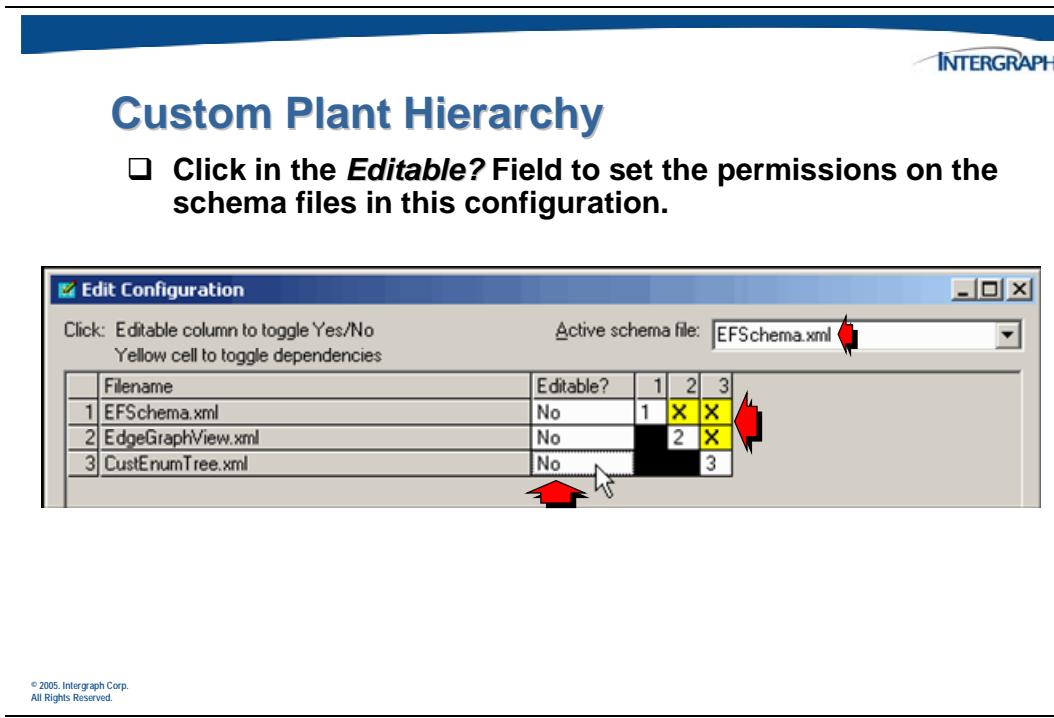


The PBS hierarchy is contained in the master schema file, **EFSchema.xml**.

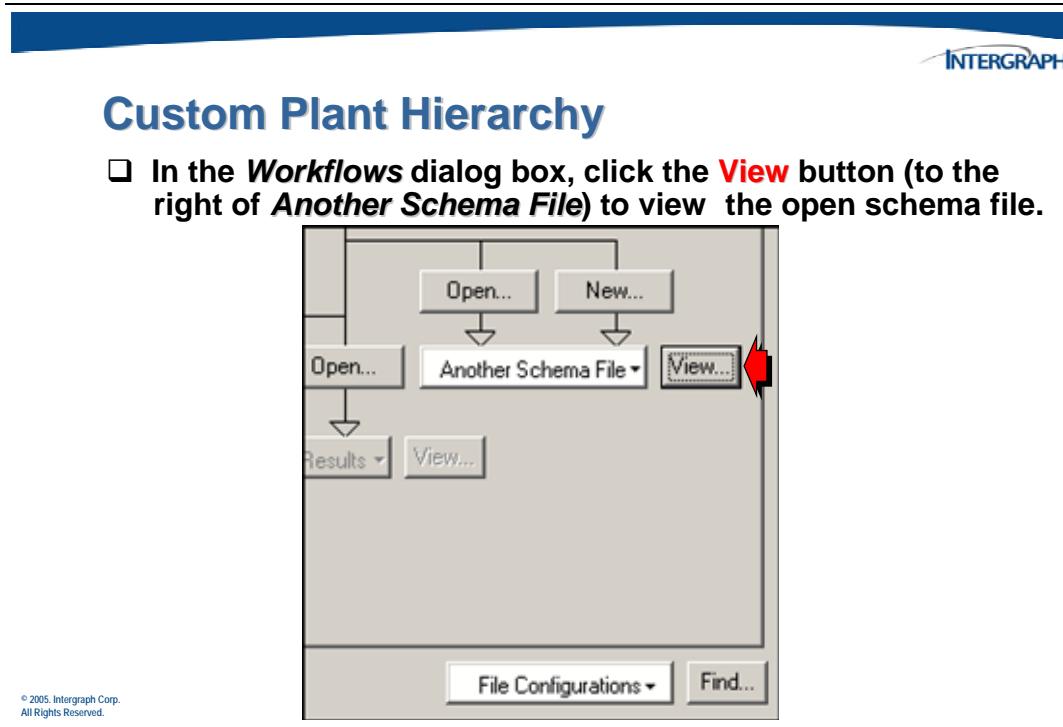
This file must be the active file and set to Read/Write in order to make the necessary changes.



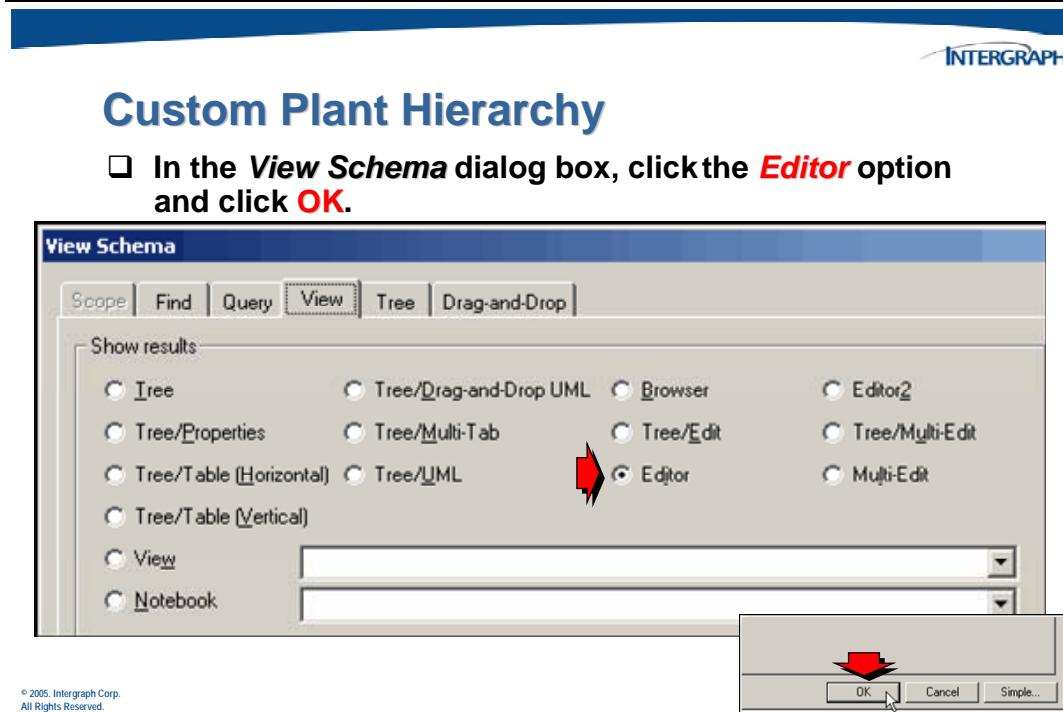
Next, select the *Another Schema File* button again and select the **Edit Configuration** option. With this dialog you need to make the *CustEnumTree.xml* file **read only**.



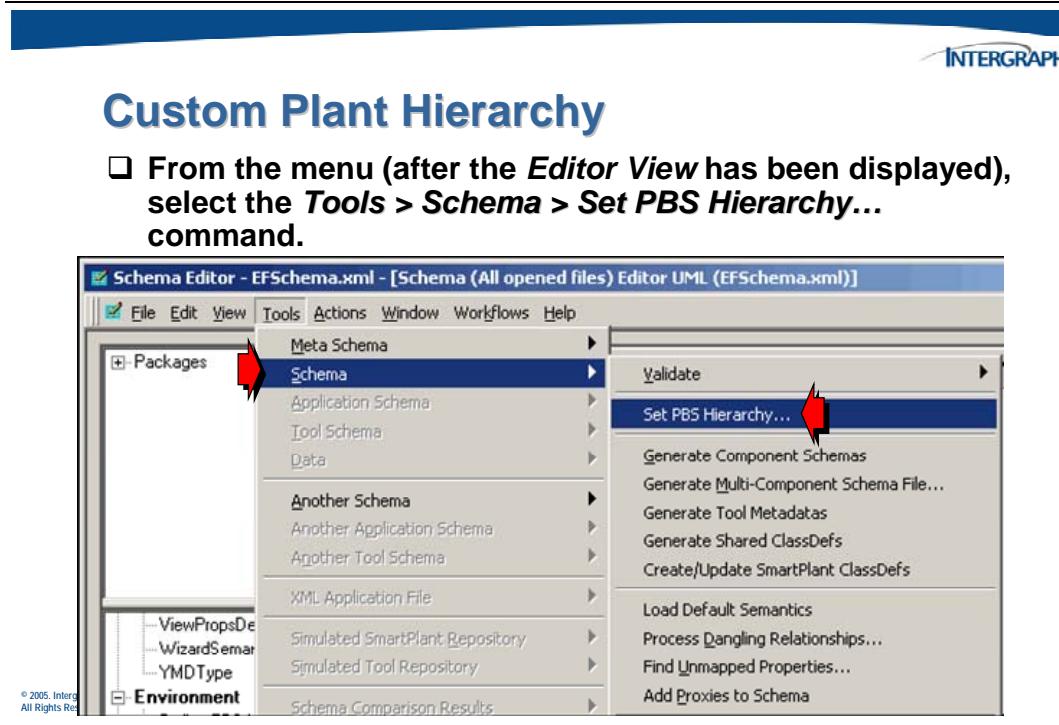
The custom PBS is now ready to be modeled. The **EFSchema.xml** will be the primary edit file and all changes will be made in this file.



Click the **View** tab in the *View Schema* dialog box and enable the **Editor** option.



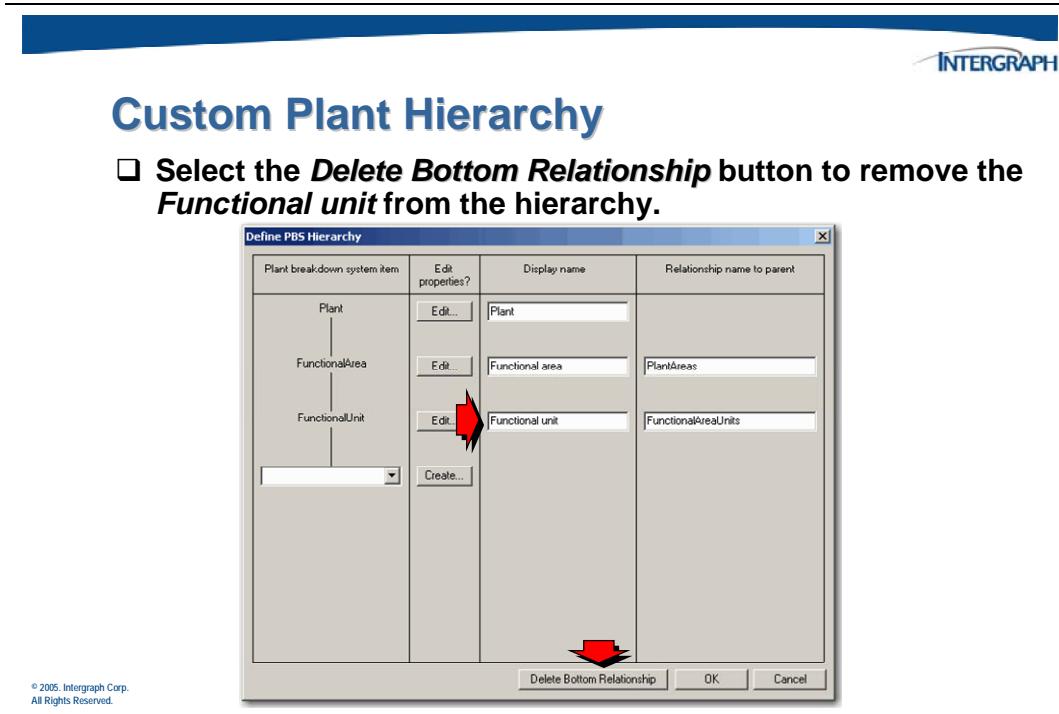
Once in the **Editor** view use the Tools command to begin defining the new desired PBS hierarchy.



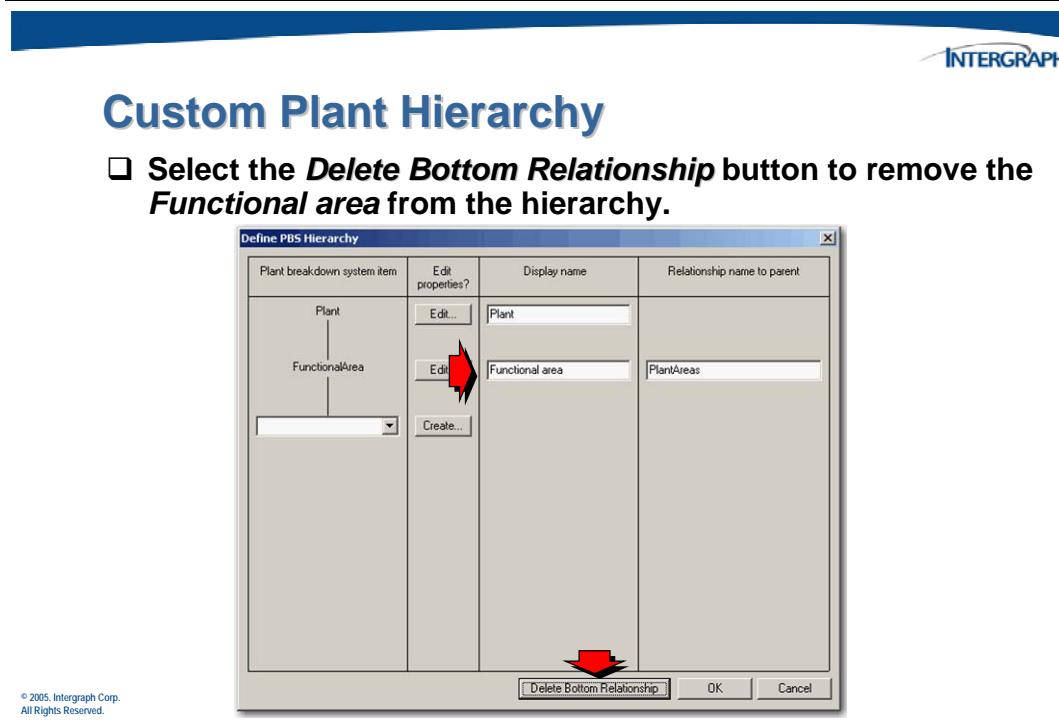
By default the *EFSchema.xml* is read only and will not allow changes.



The first step is to remove the current default **plant/area/unit** hierarchy from the bottom up.



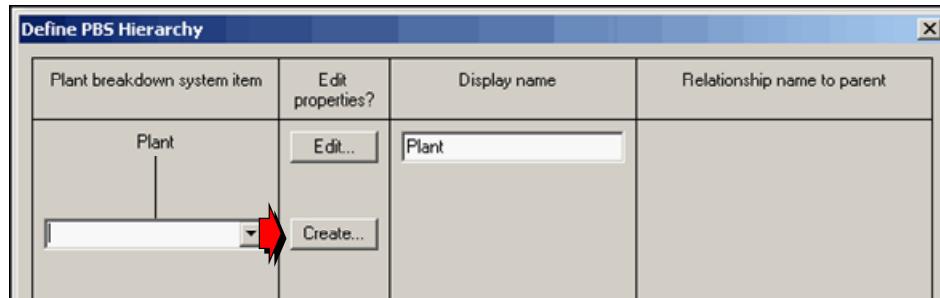
Once the *Functional unit* has been deleted from this hierarchy, remove the **Functional area**.



The Plant must be at the top of every hierarchy in SmartPlant and **can not** be deleted. Begin the creation of the new desired PBS hierarchy. To change the display name for the **plant**, type a new name in the text box in the *Display name* column.

## Custom Plant Hierarchy

- Choose the **Create** button to define the next level of the new PBS hierarchy.

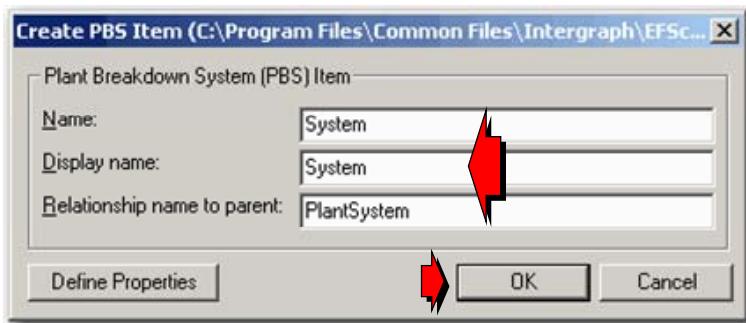


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The *Create PBS Item* dialog will display.

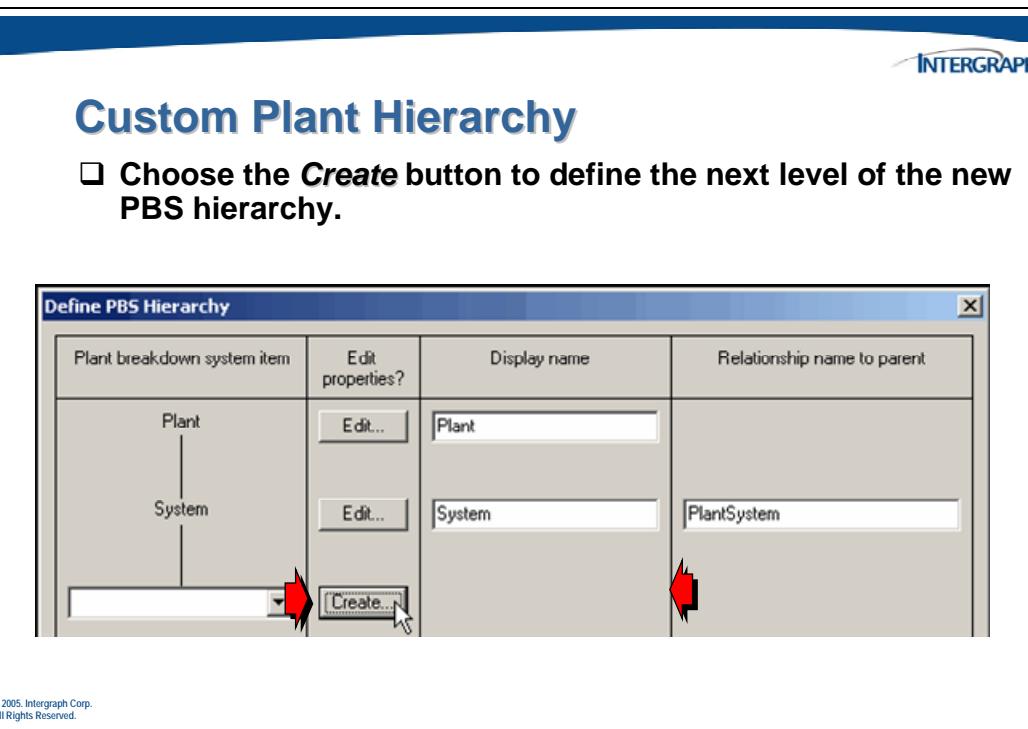
## Custom Plant Hierarchy

- Enter the necessary information to define the **second level** of the new PBS hierarchy and click **OK**.

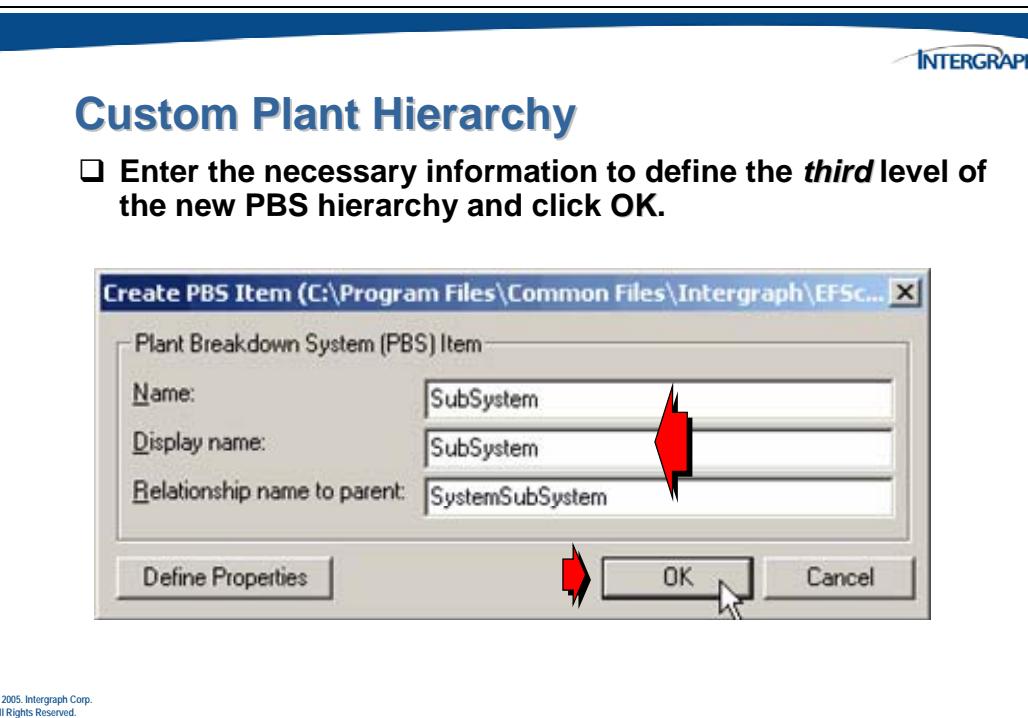


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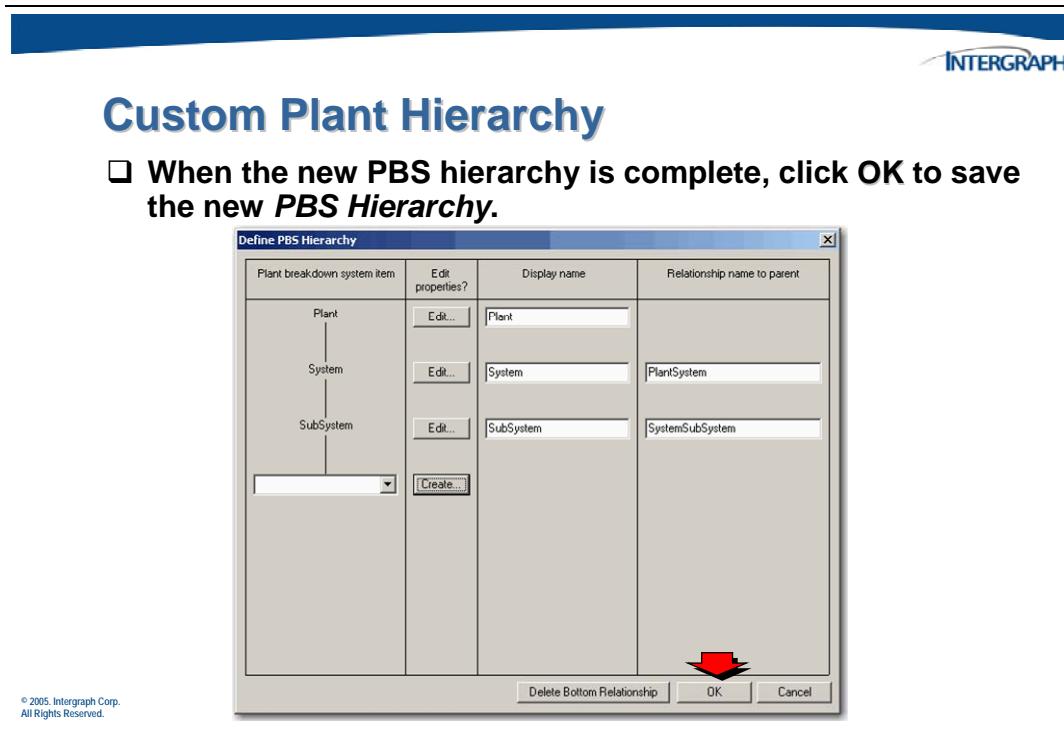
This is the hierarchy level that will be right below plant.



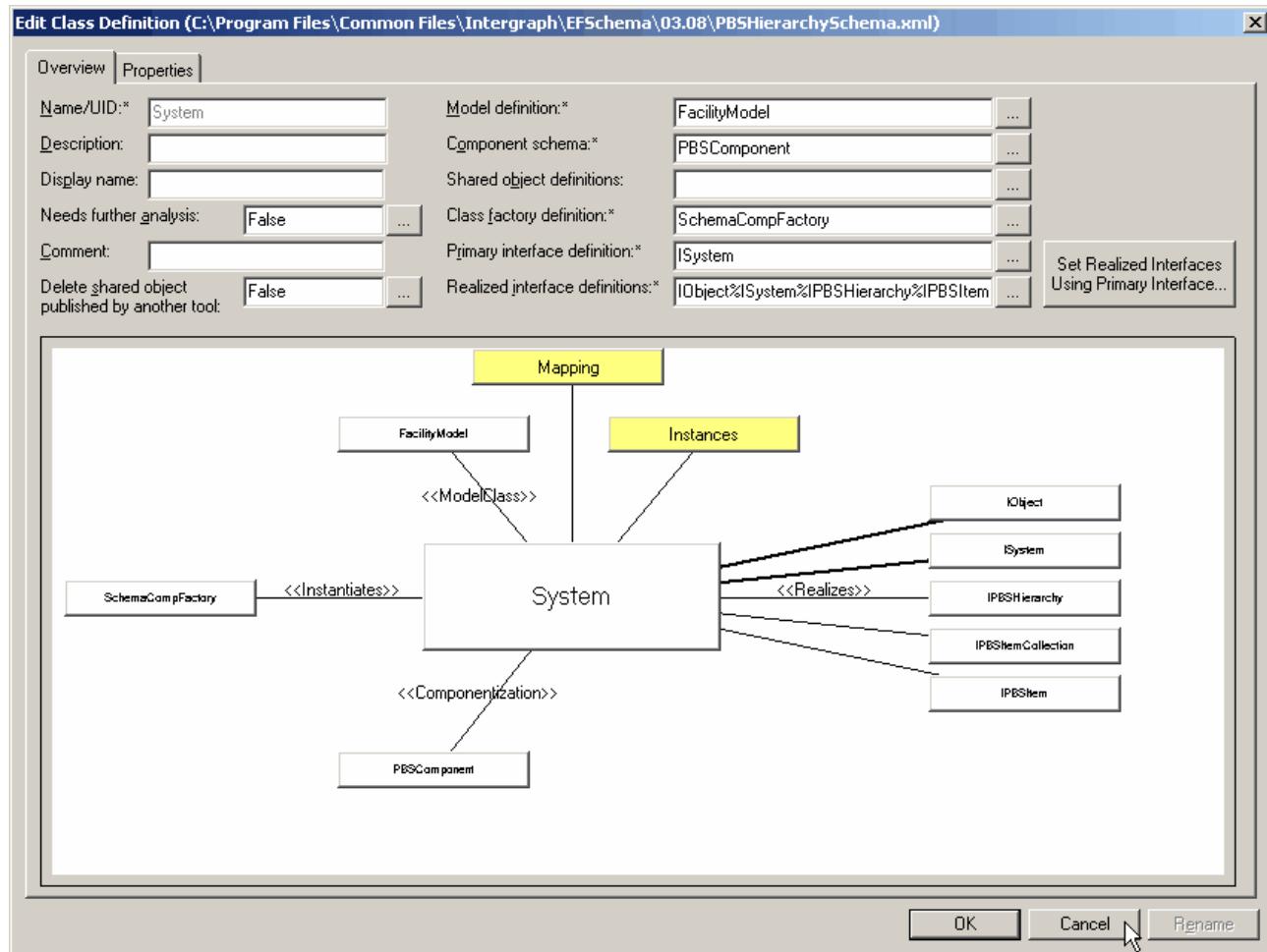
The PBS hierarchy must include at least **3 levels**.



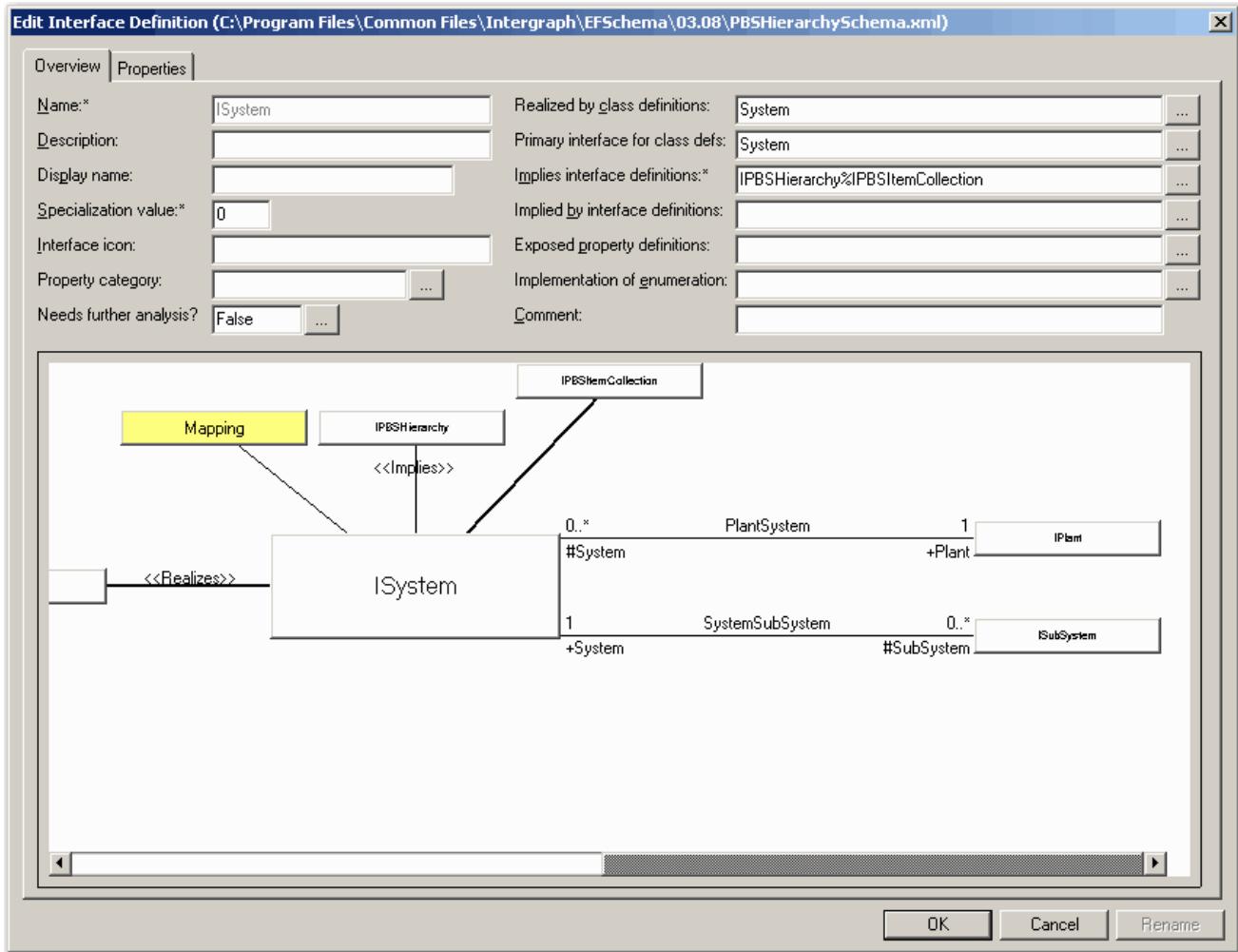
The recommended naming convention for the relationship between an item and its parent is <Parent><Item>s, for example, **SystemSubSystem**. However, you can name this relationship any name that you want.



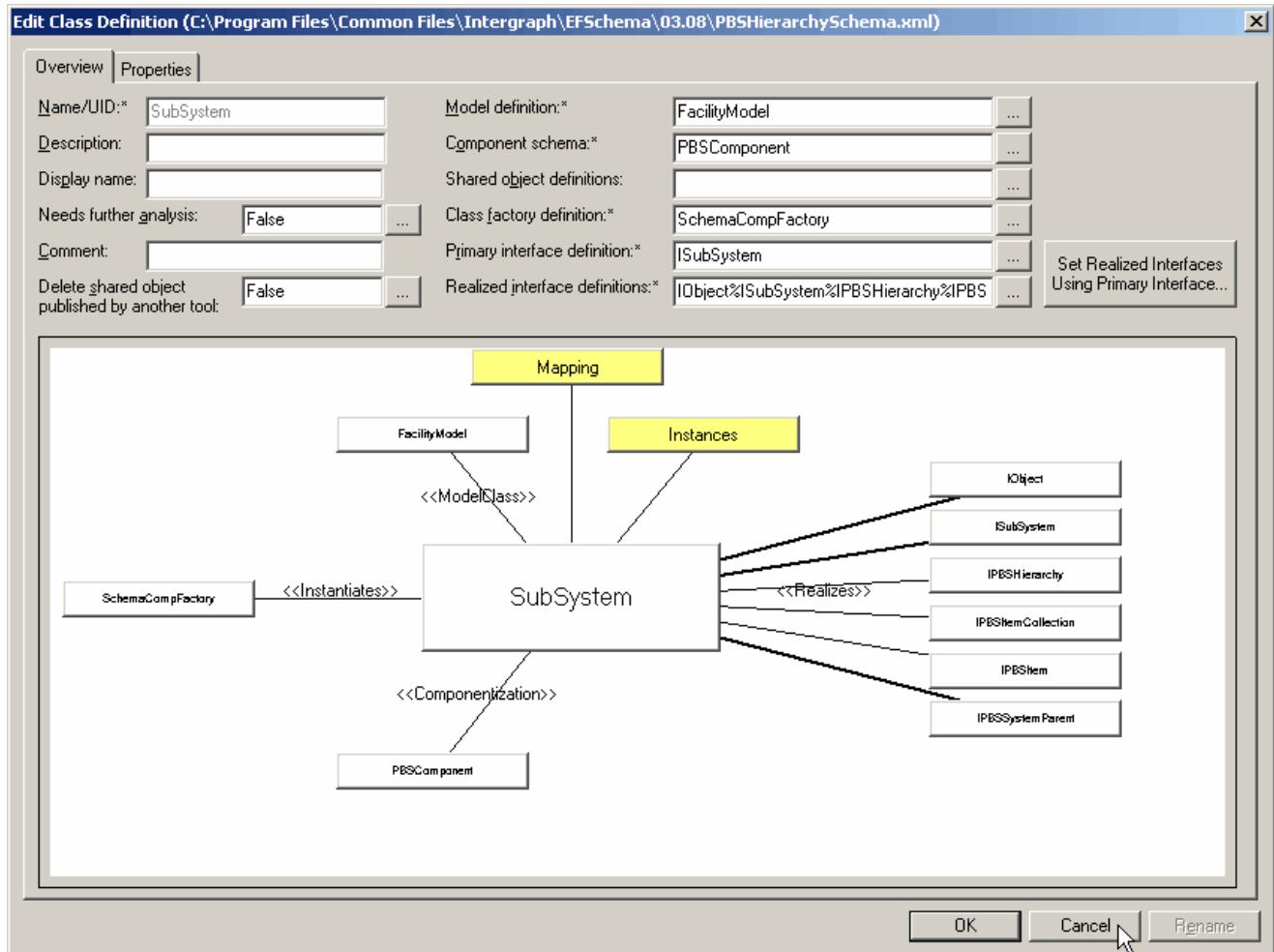
For each PBS item you created, the software will create a class definition with the same name. Below is the **System** class def.



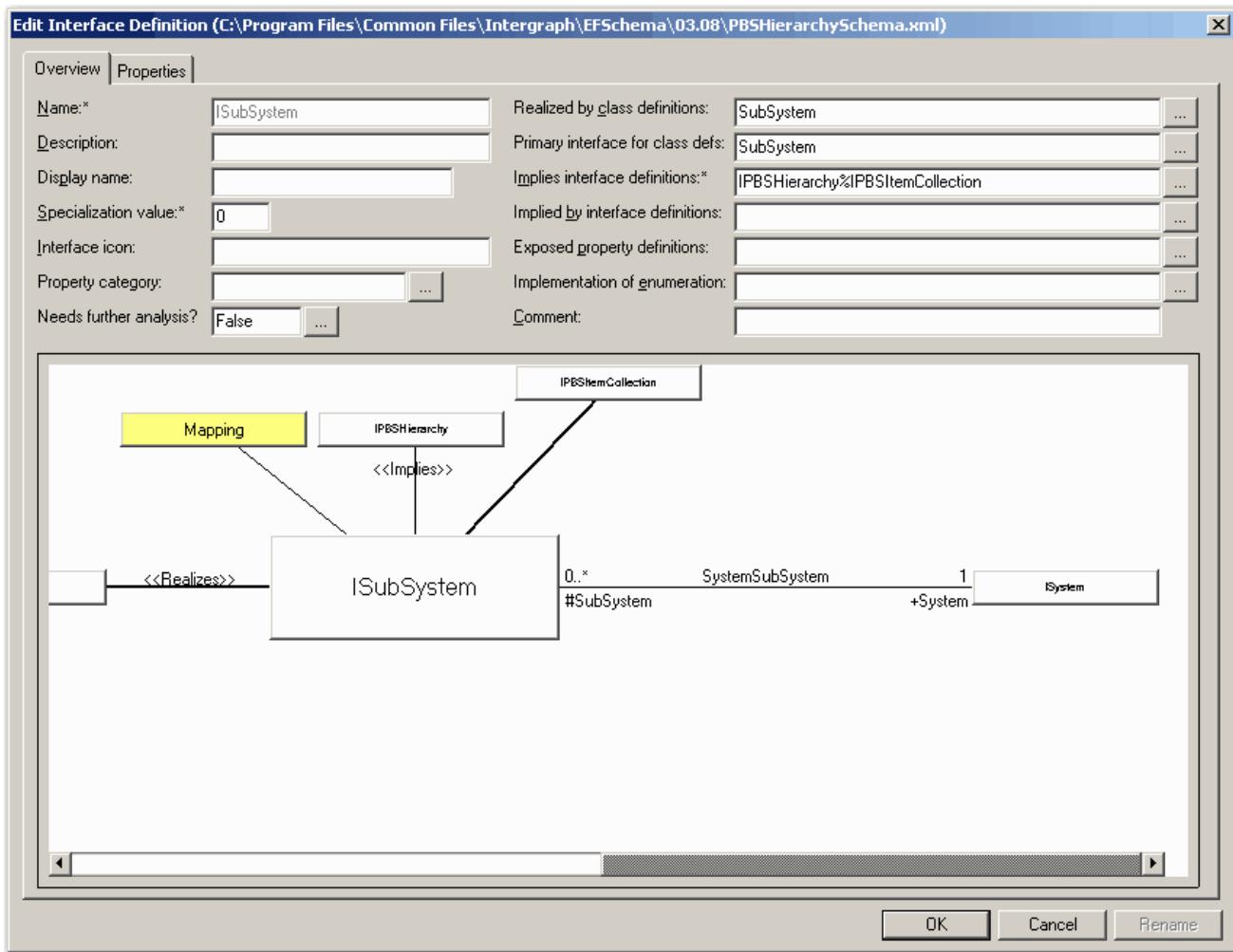
In addition to the class definition, a primary interface for the class will be created using the class name as part of the interface name. Below is the **ISystem** interface def.



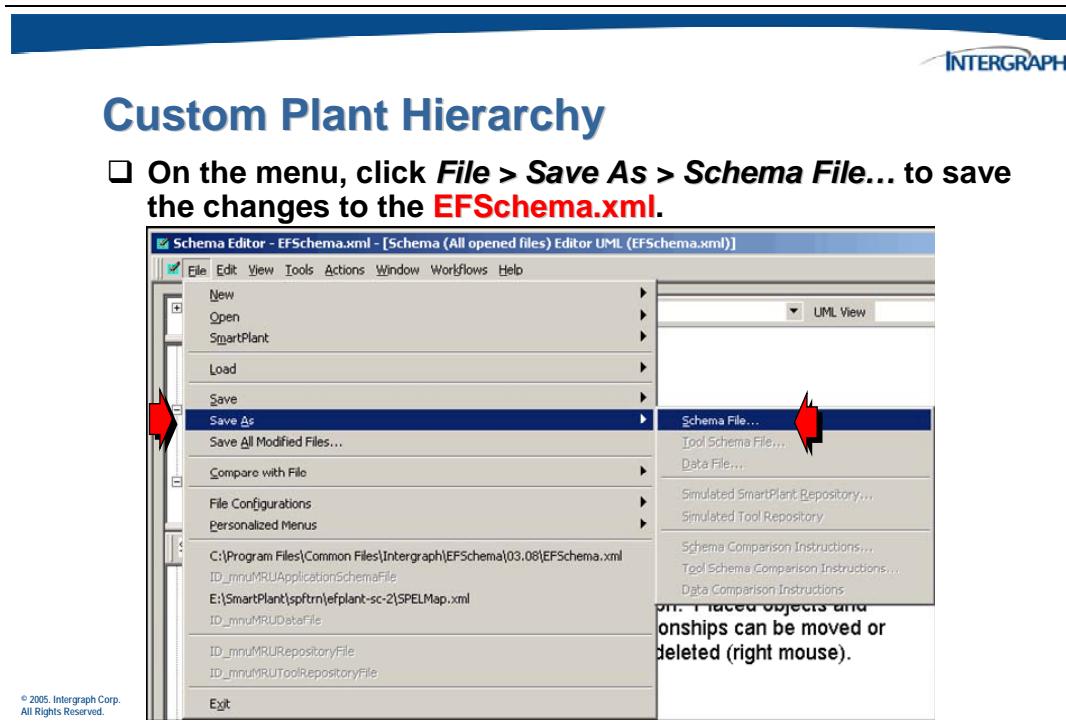
Below is the **SubSystem** class def.



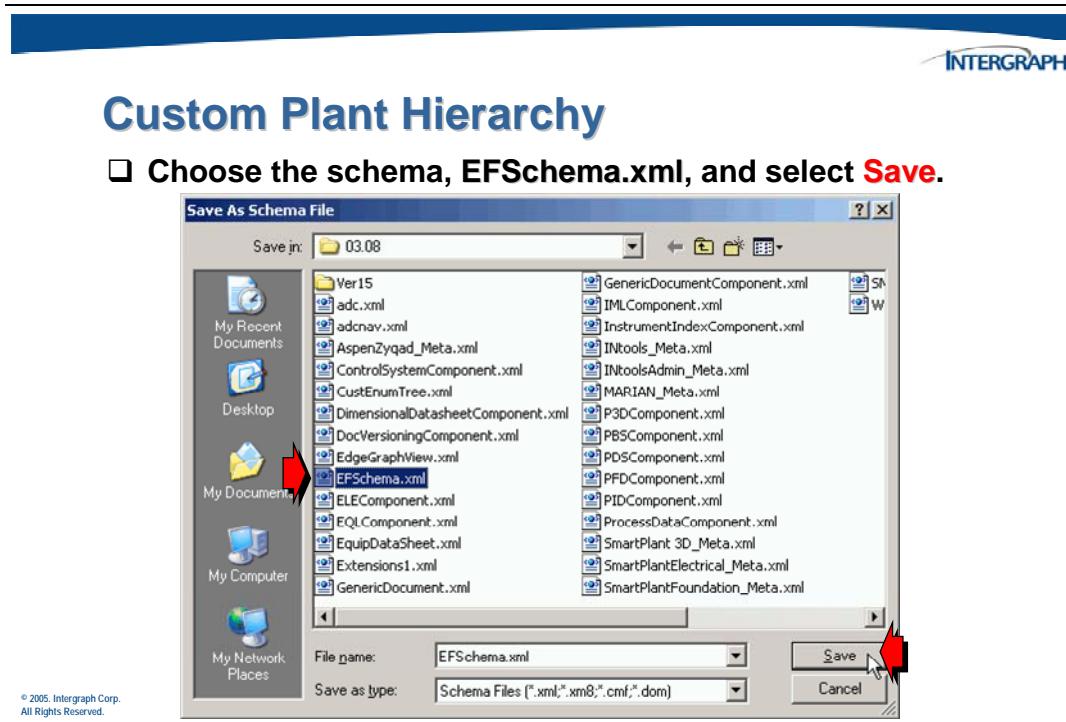
And finally, the **ISubSystem** interface def.



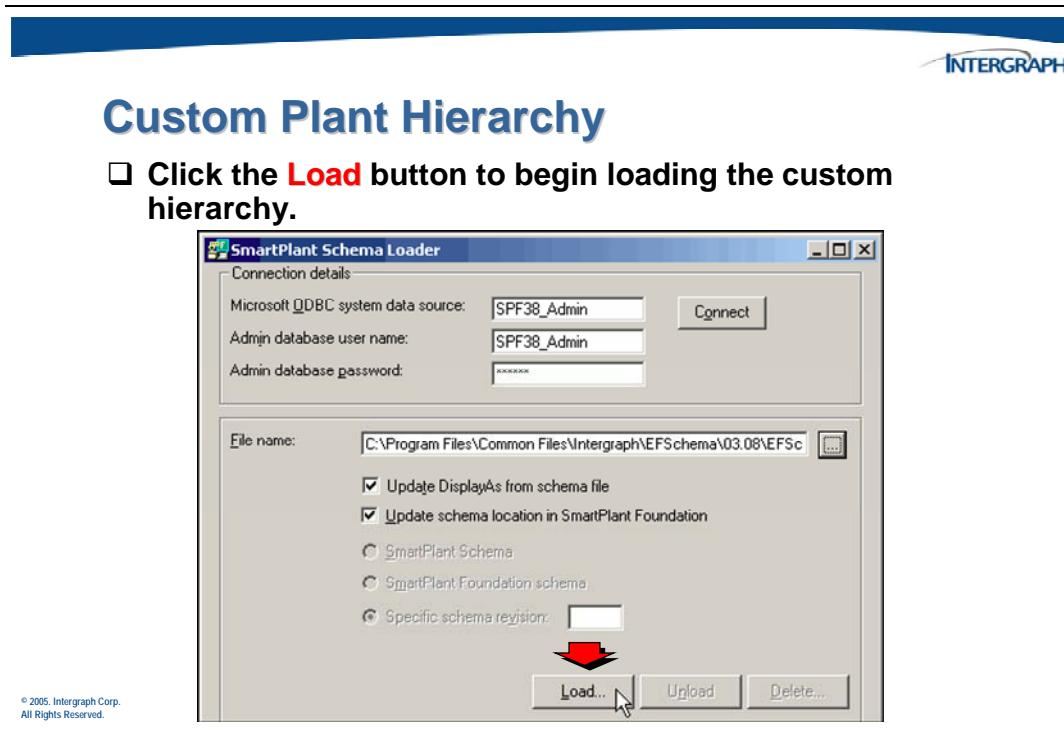
Now, save the schema file to save the new custom PBS hierarchy just created.



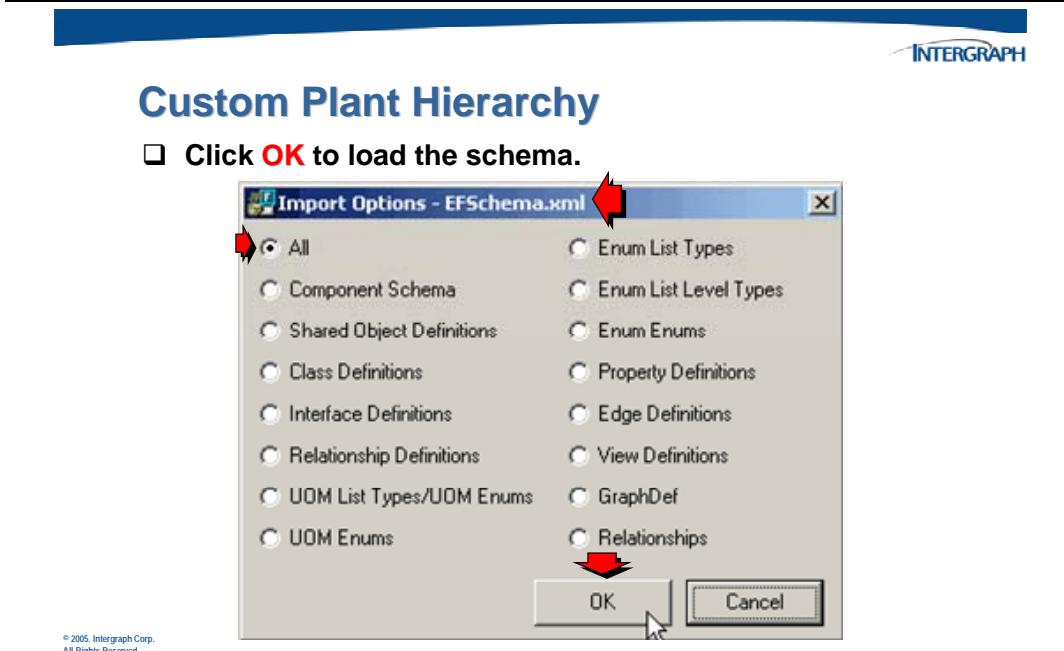
Remember to use the provided schema that contains the default PBS hierarchy. The save will **overwrite** this xml file.



Use the *SmartPlantSchemaLoader.exe* to load the changes into the SPF admin database.



Select the load options for the *master* schema.



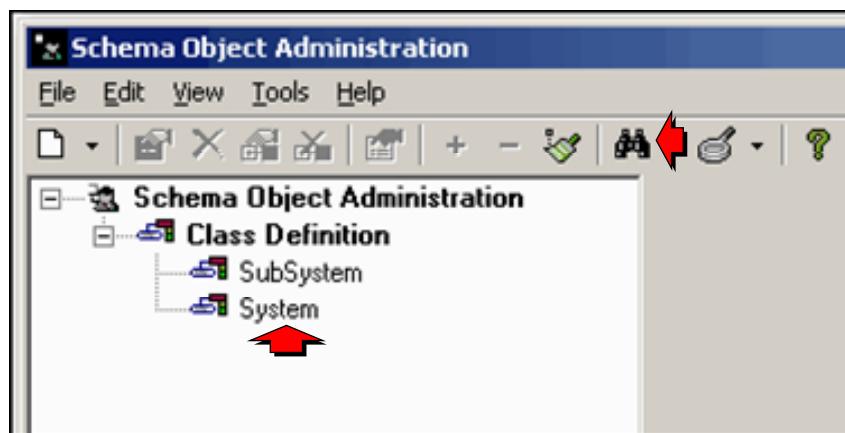
This completes using the Schema Editor and the Schema Loader.

## 10.2.2 Configuring the PBS Hierarchy in SPF

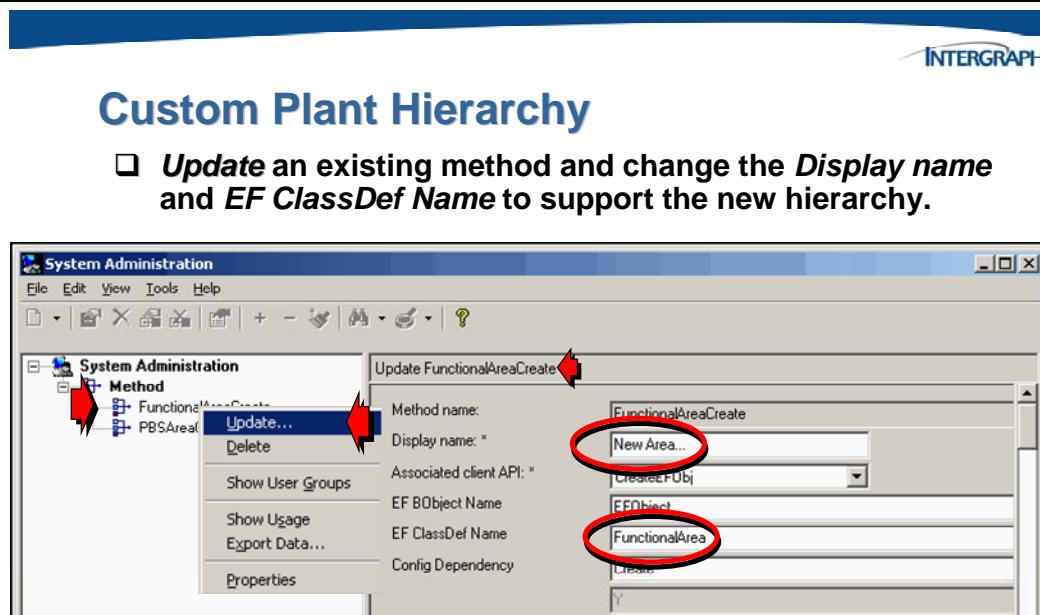
Login to the Schema Object Admin to locate the data just loaded. Perform a search to locate the new **System** and **SubSystem** class definitions.

### Custom Plant Hierarchy

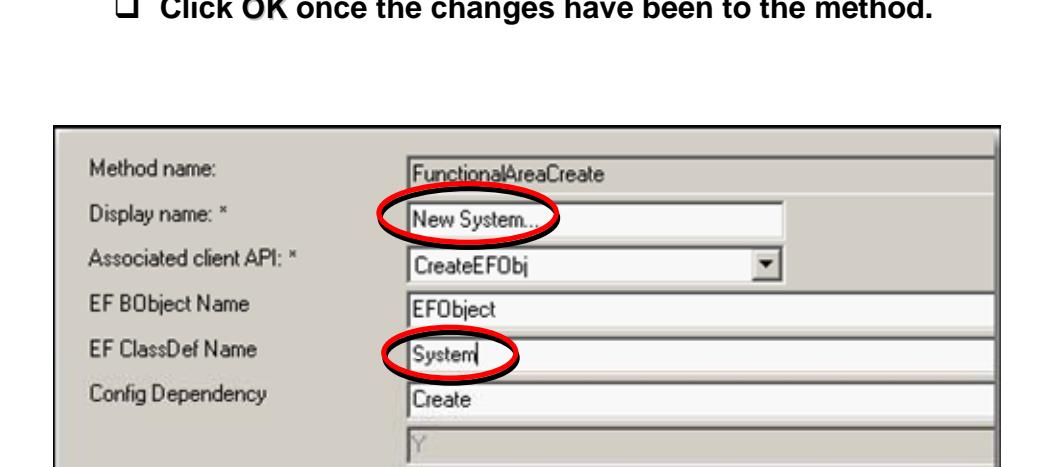
- Perform a *Find* to locate and view the newly loaded class definitions.



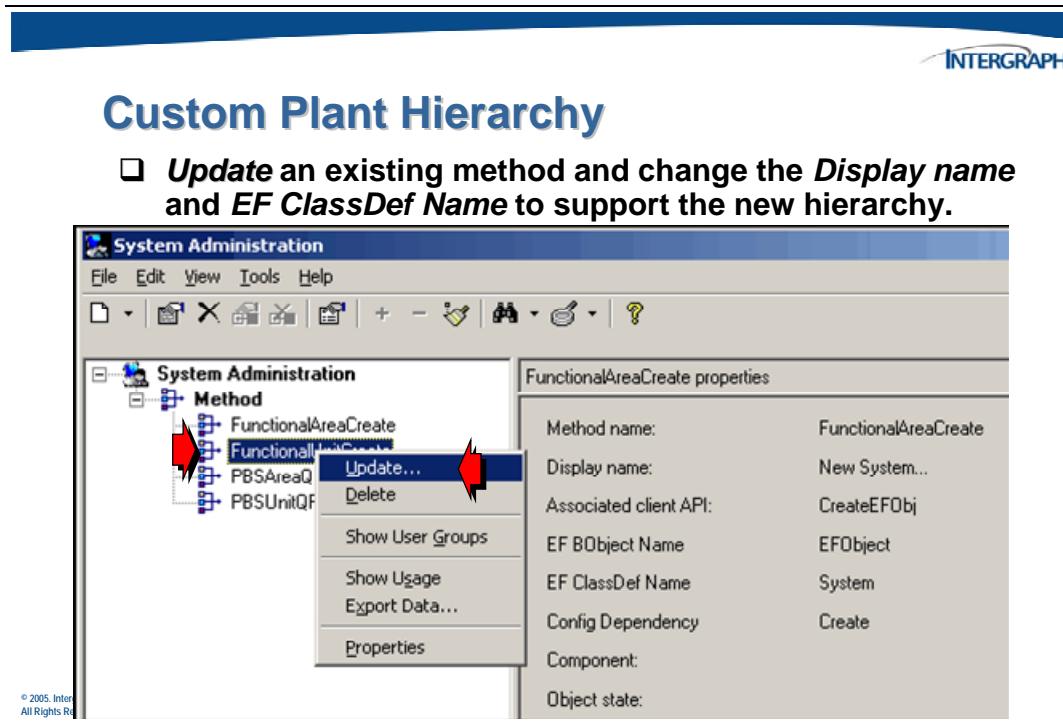
The **FunctionalAreaCreate** method already exists and can be modified for use with the System level of the hierarchy. This eliminates having to set access security since it already exists for this method. Right-click on **FunctionalAreaCreate** and select **Update** from the pop up menu.



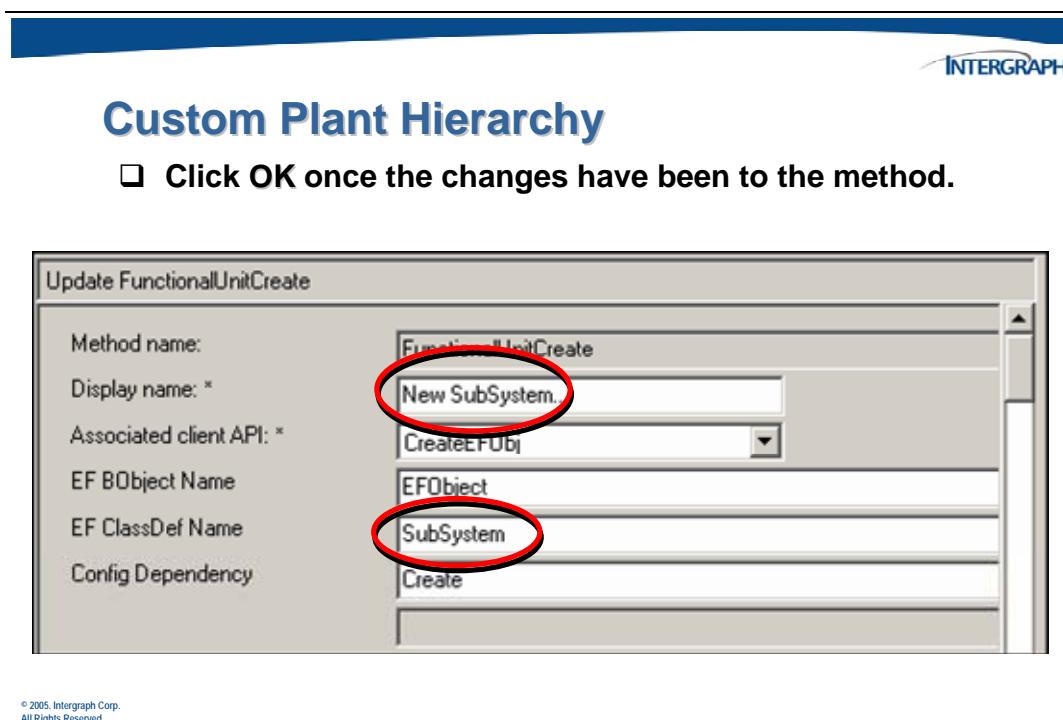
The fields circled above are the ones that will need to be changed.



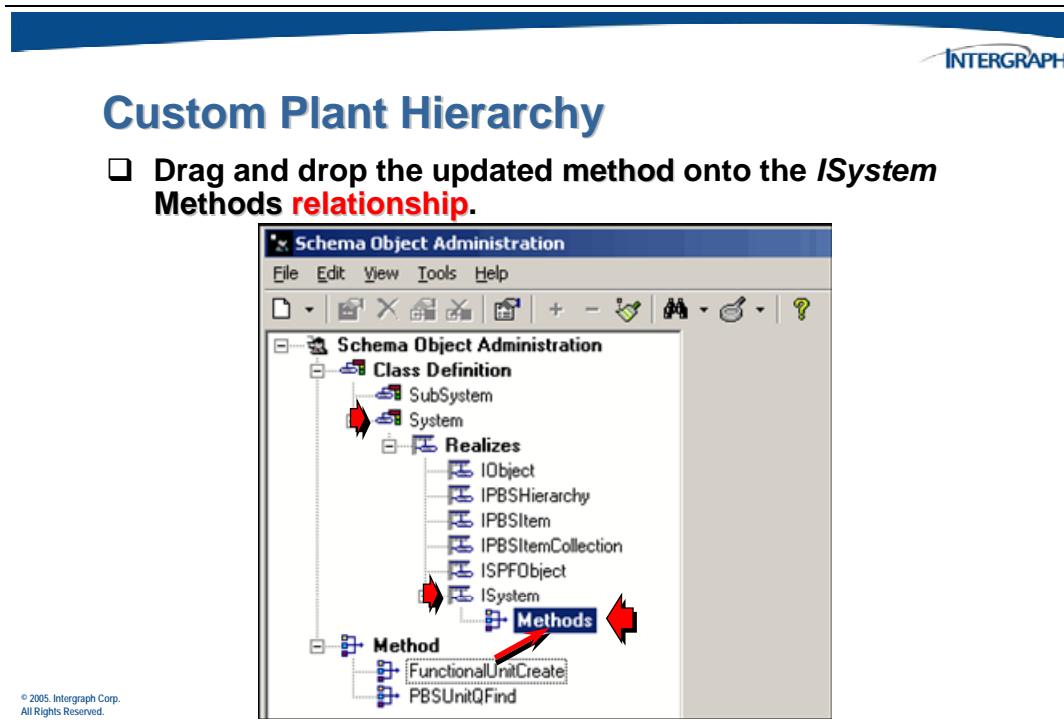
Do the same thing with **FunctionalUnitCreate**. Again, right-click on **FunctionalUnitCreate** and select **Update** from the pop up menu.



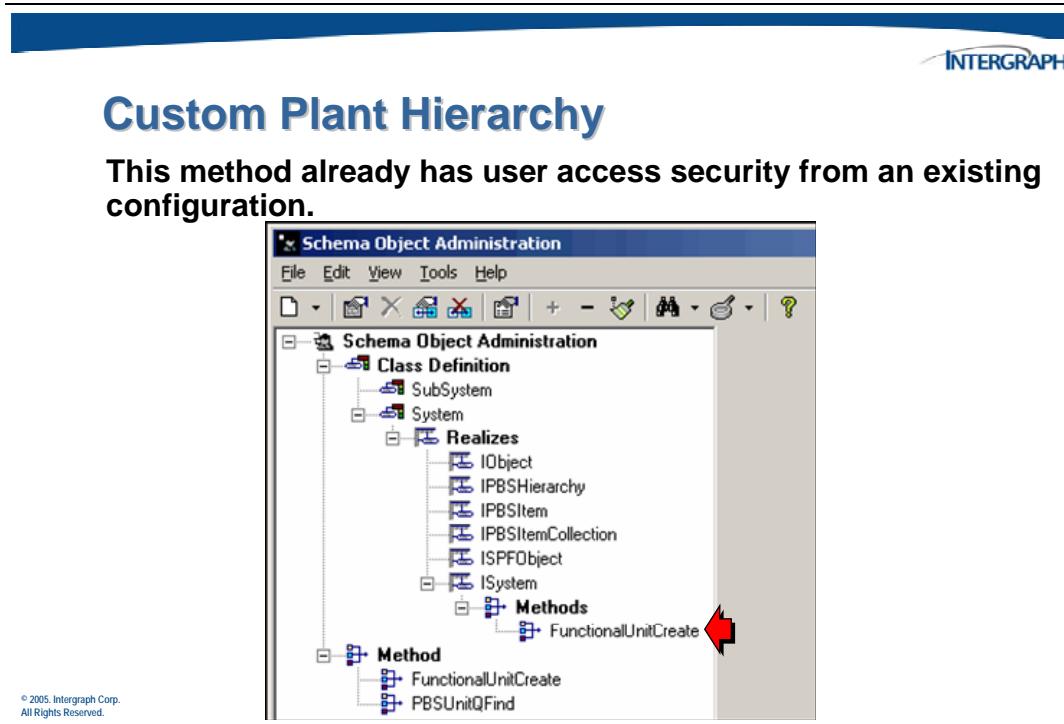
The fields circled below are the ones that will need to be changed.



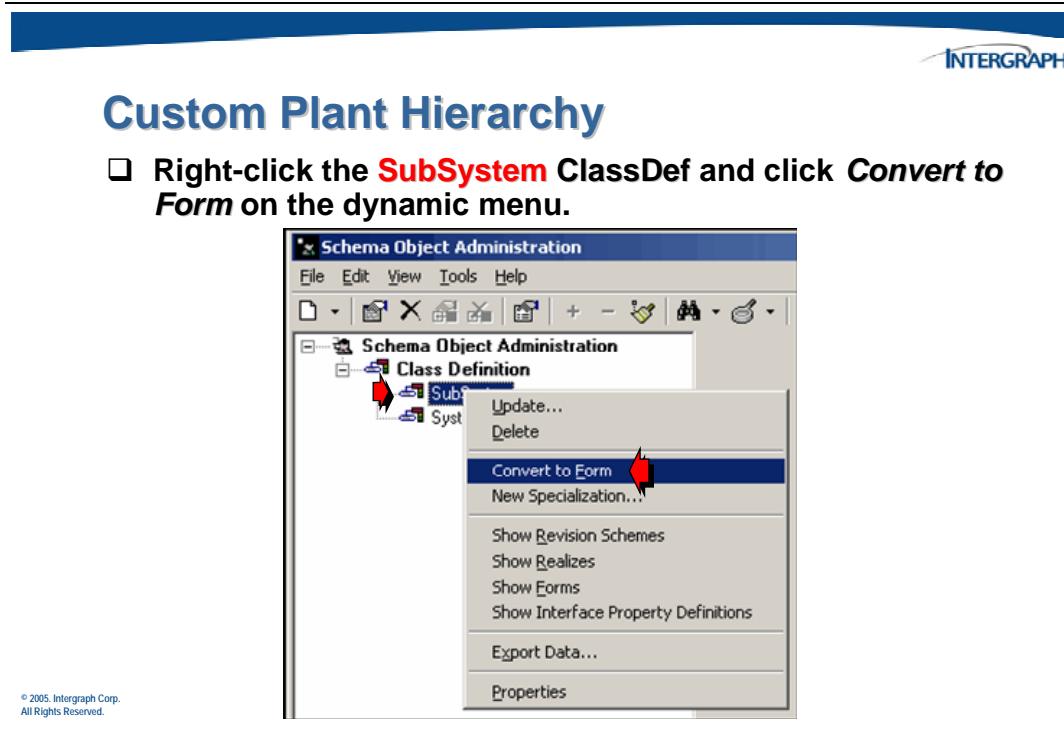
Right-click the *ISystem* InterfaceDef and click **Show Methods** on the shortcut menu.



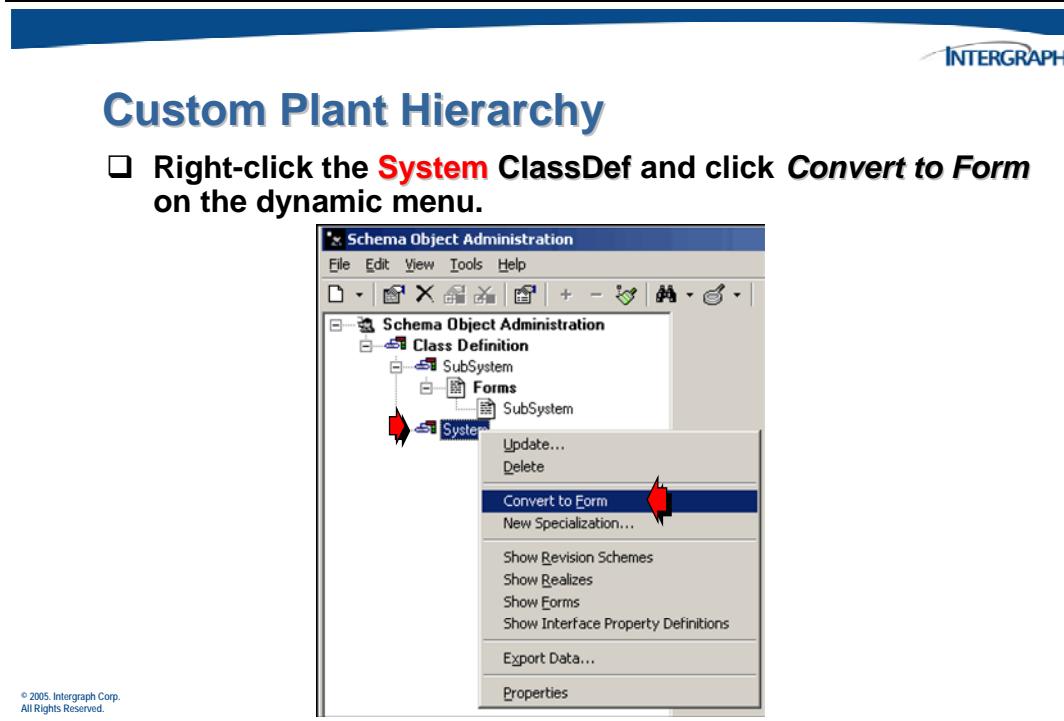
Because an existing method was updated, the group access security already exists.



Generate forms for the new class definitions in *Schema Object Administration*. Forms are required so that users can create an instance of the PBS in the Desktop Client interface.



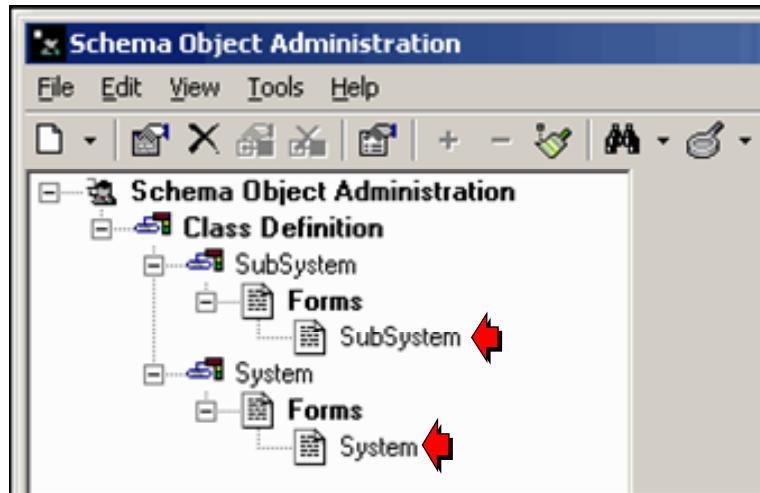
This will need to be repeated for each new level in the PBS hierarchy.





## Custom Plant Hierarchy

These are the forms that will be used when a new PBS hierarchy is created in the Desktop Client.

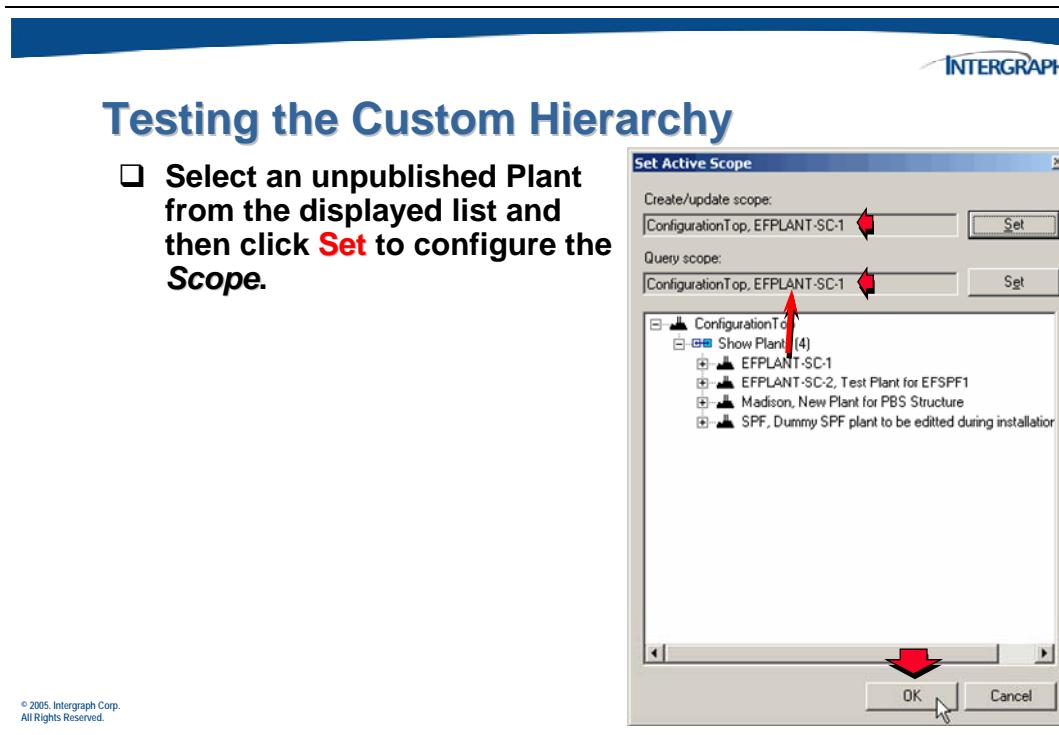


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### 10.2.3 Testing the Custom PBS Hierarchy

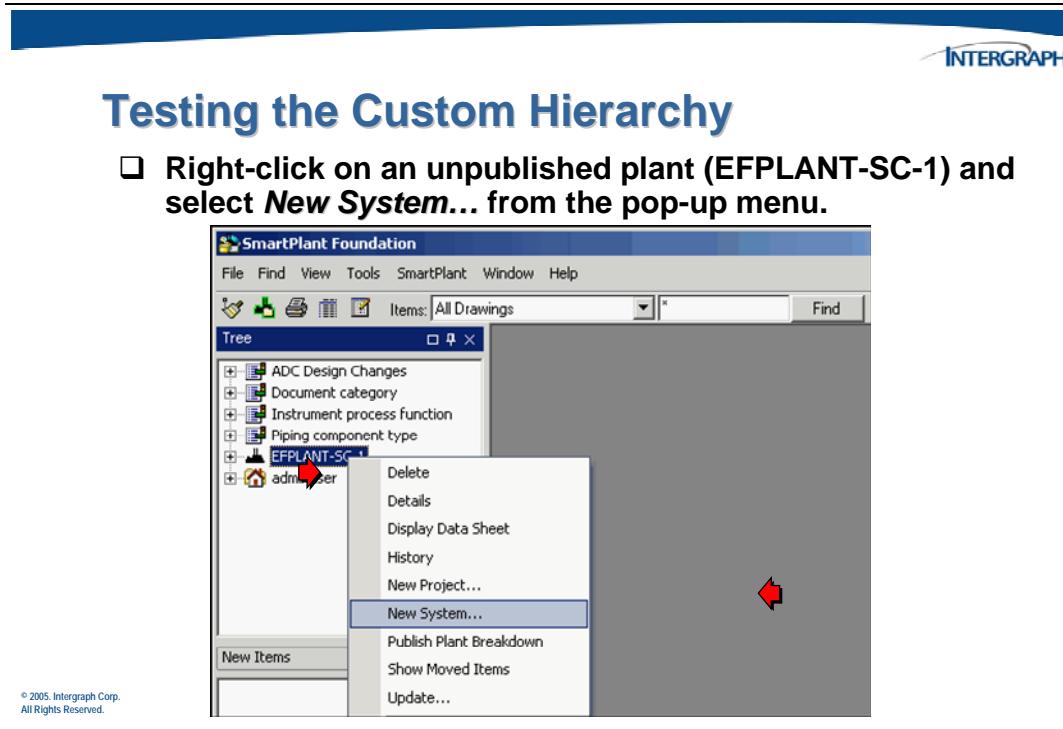
Use the SPF Desktop Client to test the new PBS hierarchy now that the modeling has been completed and loaded. To create the PBS, right-click the top-level item that you defined in your load file, for example, plant. On the shortcut menu, click the method you defined to create child item in the PBS, such as Create System. Repeat this process until you create your entire PBS hierarchy.

First, set the *Active Scope* to a plant object that has never been published in a PBS.

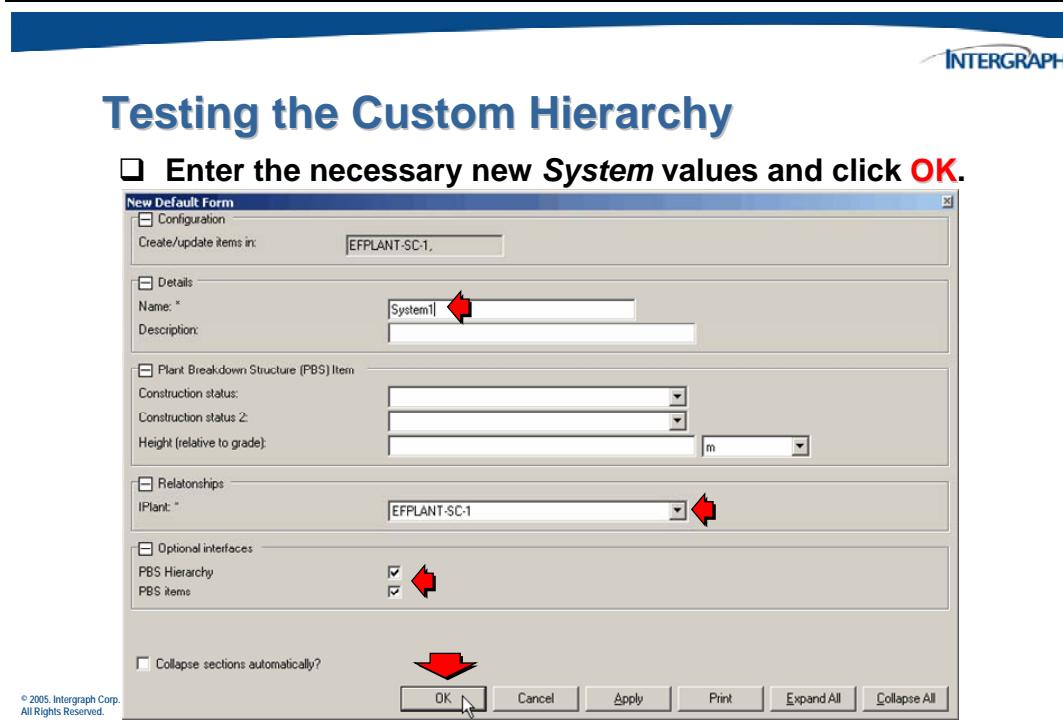


The plant you select will appear beside **Query Scope** and **Create/Update Scope** in the status bar.

The first step once the scope has been set is to create a new **System**. In the Desktop Client, right-click the plant for which you want to create a system in the tree view.



Define properties for the new area, and then click **OK** to create it.

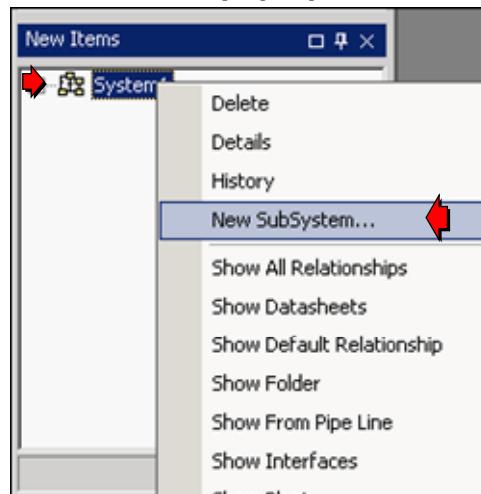


The new system will appear in the **New Items** window. In the **New Items** window select the system you created previously.



## Testing the Custom Hierarchy

- Right-click on the new System and select **New SubSystem...** from the pop-up menu.



Define the properties for the new **SubSystem**.



## Testing the Custom Hierarchy

- Enter the necessary new **SubSystem** values and click **OK**.

**New Default Form**

Create/update items in: EFPLANT-SC-1

Name: \* SubSystem1

System: \* System1

PBS Hierarchy

PBS Items

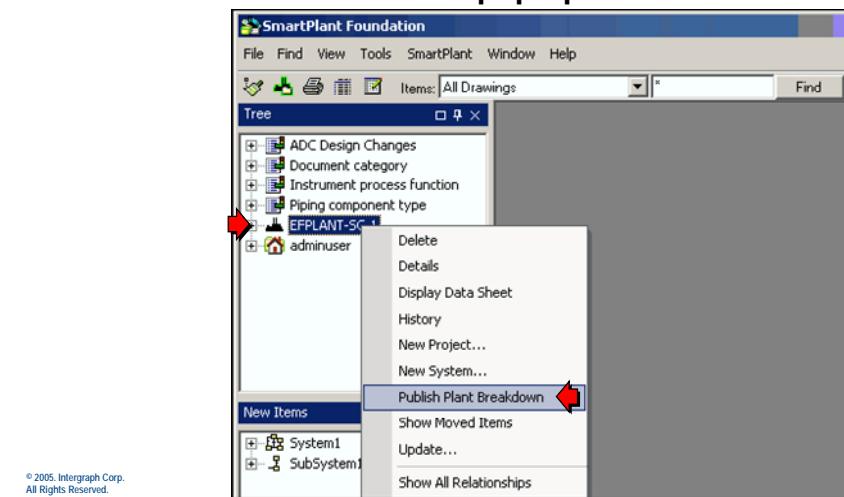
OK Cancel Apply Print Expand All Collapse All

Once a new **System** and **SubSystem** have been created for the plant, you will need to publish the new PBS. This will make the structure available to be retrieved by the engineering tools. In the SmartPlant Foundation Desktop Client, right-click on a plant in the tree view.



## Testing the Custom Hierarchy

- ❑ Right-click on the plant and select **Publish Plant Breakdown** from the pop-up menu.

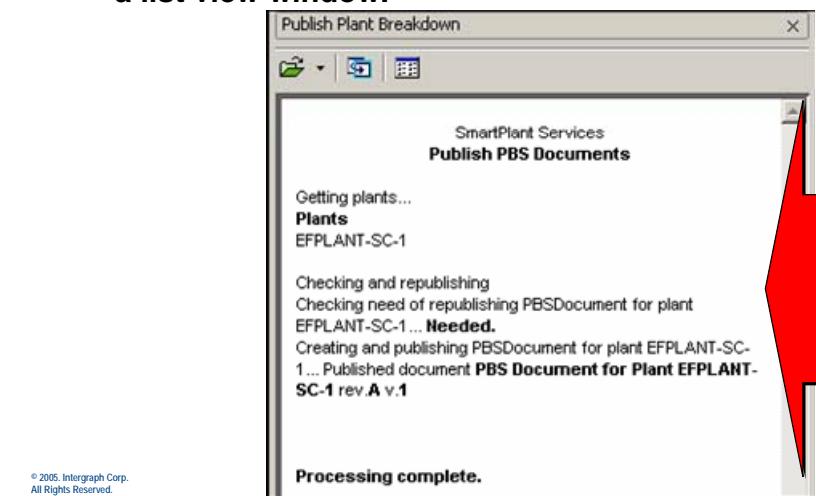


The status of the publish appears in the **Publish Plant Breakdown** window.



## Testing the Custom Hierarchy

- The results of the Plant Breakdown publish will be displayed in a list view window.

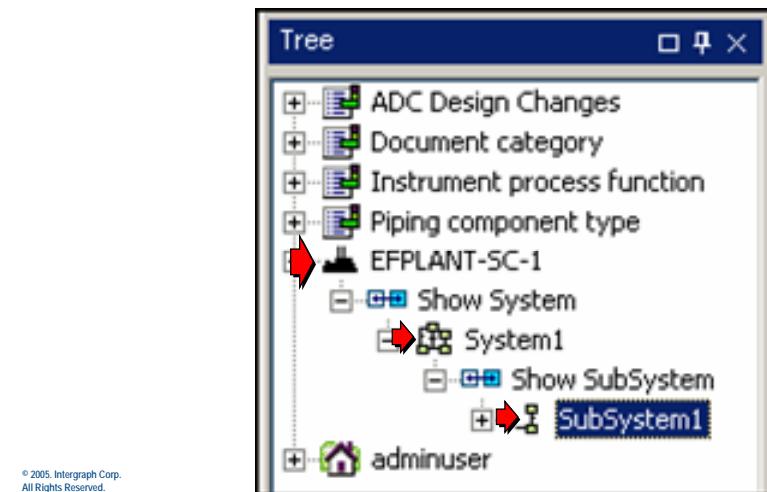


If the plant breakdown structure publishes successfully, SmartPlant Foundation is set up correctly.



## Testing the Custom Hierarchy

- Expand the new plant relationships to verify the new **System** and **SubSystem** for this plant.



## 10.3 Activity – Creating a Custom Enum Tree

The objective of this activity is to create custom enumerated tree hierarchy that can be used in the Desktop Client Tree View to create new objects and drill down to find existing objects that were created in that tree.

### If you are not currently logged into your machine:

1. Log on to your operating system (if not already logged in):  
*spfuser* with no password
2. Click **Start > All Programs > Intergraph SmartPlant Foundation > SmartPlant Schema Component > SmartPlant Schema Editor** to start the *Schema Editor*.
3. Open the master schema xml file.
  - Click **File Configurations > Open Configuration...** on the *Schema Editor* menu
  - Browse to **C:\Program Files\Common\Intergraph\EFSchema\03.08** in the *Open Schema File* dialog box.
  - Select **EFSchema.cfg** file and click **Open**

## Creating a Project Schema

4. Create a new project schema template file that will contain the custom enumerated list hierarchy statements.
  - In the *Workflows* dialog box, click the **New** button above the **Another Schema File** button.
  - When the *New Another Schema File* dialog box appears, enter the name **CustEnumTree.xml** and click **OK**.
  - When the *Set Container Dependencies* dialog box displays, select the master **EFSchema.xml** file and **EdgeGraphView.xml**, then click **OK**.
5. Set the active schema file to be modified during the modeling edit sessions.
  - Click the **Another Schema File** button in the *Workflows* dialog box.
  - Select the **Set Active Schema File...** command.

- When the *Set Active File* dialog box displays, select the **CustEnumTree.xml** file
6. Edit the configuration to be used for both the master schema and the project schema during the modeling edit sessions.
- Click the **Another Schema File** button in the *Workflows* dialog box.
    - Select the **Edit Configuration...** command.
    - When the *Edit Configuration* dialog box displays, make the **EFSchema.xml** file not editable by clicking in the **Editable?** column and toggling the setting to **No**.
    - When the *Edit Configuration* dialog box displays, make the **EdgeGraphView.xml** file not editable by clicking in the **Editable?** column and toggling the setting to **No**.
    - Make the **CustEnumTree.xml** file editable by clicking in the **Editable?** column and toggling the setting to **Yes**.
    - Verify that the *Active schema file* is **CustEnumTree.xml**
    - Close the *Edit Configuration* window (click **X**).
7. Save the configuration so that it can be used in future editing sessions.
- In the *Workflows* dialog box, click the **File Configurations** button in the lower right corner of the application window.
    - When the *Save As Configuration File* dialog box displays, enter the name **EFSchema.cfg** and click **Save**.
8. Use the editor view to create a new **EnumListType** (hierarchy). The new custom enum list tree will have the following characteristics:
- Top level list name – **ADC Design Changes**
    - Sub list 1 – **Equipment Changes**
    - Entries for sub list 1:
      - Pump Changes**
      - Tank Changes**
      - Valve Changes**
    - Sub list 2 – **Instrument Changes**
    - Entries for sub list 2:
      - Loop Changes**

- **Valve Changes**

9. Create an **EnumListLevelType** to be used with a new property that you will create in a later step. Use the following information in creating the **EnumListLevelType**:
  - Name – **ADCTypes**
  - Description – ADC Types enum list level
  - Display name – ADC Types
  - Starting enumerated list – ADC Design Change
  - Edge definition – Contains2

10. Create two new *Property Definitions* to be used with the new custom enum tree. Use the following information in creating the property defs.

First Property:

- Name – **ADCCategory**
- Description – **ADC Category property**
- Display name – **ADC Category**
- Exposed by interface definition – **IDocument**
- Scoped by property type – **ADC Design Changes**

Second Property:

- Name – **ADCType**
- Description – **ADC Type property**
- Display name – **ADC Type**
- Exposed by interface definition – **IDocument**
- Scoped by property type – **ADCTypes**

11. Use the **SmartPlantSchemaLoader** to load the new **CustEnumTree.xml** into the SPF Admin database. Edit the **EFSchema.cfg** file using WordPad and remove **Extensions1.xml** before starting the load process.
12. Start the *Schema Object Administration* utility and verify that all of the new objects defined with the Schema Editor were loaded successfully.

13. Using the *System Administration* utility, create a new drilldown method to be used with the **ADC Design Changes** custom enum tree. Use the *DocCategoryDrilldown* method as an example.
14. Add user access security to the method created in the above step (VIEWONLY).
15. Create a new drilldown menu item to be used with the new drilldown method created above. Use the *DocCategoryDrilldown* menu item as an example.
16. Add user access security to the menu item created in the above step (VIEWONLY).
17. Perform a search to locate and display the enumerated details business object.
18. Create a new find object method to be used with either the existing *Document category* tree or the new **ADC Design Changes** tree. Use the following information in creating the new method:
  - Method name – **FindObjs**
  - Display name – **Find All Items**
  - Associated client API – **EFGetObjsByAttrName**
  - Component – **EF**
  - Stand-alone method – <enabled>
  - Available on Desktop client – <enabled>
  - Available on Web client – <enabled>
19. Add user access security to the method created in the above step (VIEWONLY).
20. Find and attach the **CCODesignChange** method to the *EnumDet* business object.
21. Update the *CCODesignChange* method and change the **Document category** entry to use the new **ADC Design Changes** *EnumListType*.
22. Find and update the *ADCDesignChange* form. Make the following changes/additions:

- Add a new section called ADCDocument\_CQUI that will use all for types for display.
  - Add this new section to the form (drag and drop) and make it sequence number 15.
  - Add two new display items for the two new properties that were created with the schema editor:
    - Item name – **ADCCCategory**
    - Secondary name for item – **ADCDocument**
    - Display name – **ADC Category**
    - Display item type – **Attribute**
    - Data type – **Text**
    - Label length/field length – **30 / 20**
    - Picklist – **EnumListType**
  - Item name – **ADCType**
  - Secondary name for item – **ADCDocument**
  - Display name – **ADC Type**
  - Display item type – **Attribute**
  - Data type – **Text**
  - Label length/field length – **30 / 20**
  - Picklist – **EnumListLevelType**
  - Add these two new display items to the ADCDocument section (drag and drop) and make them sequence numbers 1 and 2.
  - Perform a search to locate the existing display item DocTitle.
  - Add this display item to the ADCDocument section (drag and drop) and make it sequence number 3.
  - Delete the relationship between the form and the **three IDocument** sections.
23. Re-cache the model information and use the **Desktop Client** to test your *Tree View*.
- Drill down in the default Document category tree and show the document objects created earlier in the **P&ID Documents > P&ID > Utility P&ID** by right-clicking on Utility P&ID in the default tree to perform the Find.

- Drill down in the new custom tree and use the ***Design Change*** command to create a new *ADC Design Change* document associated with the new **ADC Design Changes** tree.
- Drill down in the new *ADC Design Changes* tree and show the document object just created by right-clicking on a detail entry in the custom tree to perform the Find. Also display the revision object.

**OPTIONAL:**

24. Use the schema editor to create a new custom Plant Breakdown hierarchy. Load the new hierarchy into SPF and configure the system to use the new PBS. Finally publish the new PBS hierarchy.

When you finish this activity, you may take a short break until everyone has finished.

# 11

CHAPTER

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## Using the SPF Upgrade Wizard



## 11. Introduction to the SPF Upgrade Wizard

The wizard for SmartPlant Foundation (SPF) upgrades will process the SPF database as well as the SPF vault from earlier versions to version 3.8 of the SmartPlant Schema. This chapter covers the details of the wizard.

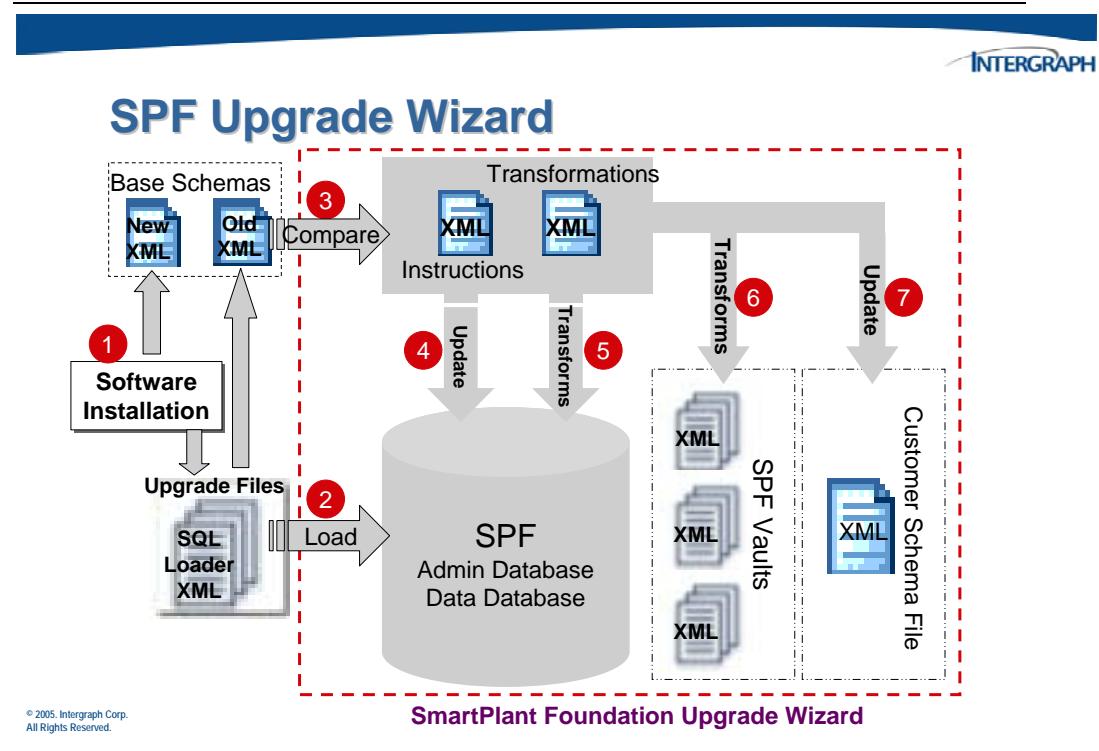


### SPF Upgrade Wizard

**The *SPF Upgrade Wizard* is an automated utility to upgrade the SPF Database, Vault and Schema files**

**It contains a control file that defines the available upgrades**

**The control file is delivered in the Upgrade Wizard directory**



## 11.1 Upgrade wizard control file

Once the upgrade wizard is started, it will look into a control file that defines the available upgrades. The control file is delivered to a sub directory “**UpgradeWizard**” under the product folder. The following is a sample control file that defines several upgrades.

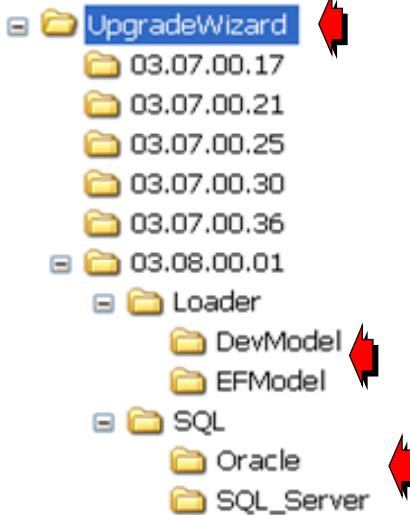
```
<?xml version="1.0" encoding="utf-8" ?>
- <UpgradeWizard TargetVersion="03.08.00.01">
  - <Upgrade To="03.07.00.17" From="03.07.00.14">
    <Action Type="SQL" FilePath="03.07.00.17/SQL/#DatabaseType#/01.sql" DB="Data" />
    <Action Type="SQL" FilePath="03.07.00.17/SQL/#DatabaseType#/02.sql" DB="Data" />
    <Action Type="Loader" FilePath="03.07.00.17/Loader/#ModelType#/01-Upgrade.dwh" />
    <Action Type="Loader" FilePath="03.07.00.17/Loader/#ModelType#/02-Upgrade.dwh" />
  </Upgrade>
  - <Upgrade To="03.07.00.21" From="03.07.00.17">
    <Action Type="SQL" FilePath="03.07.00.21/SQL/#DatabaseType#/01.sql" DB="Data" />
    <Action Type="SQL" FilePath="03.07.00.21/SQL/#DatabaseType#/02.sql" DB="Admin" />
    <Action Type="Loader" FilePath="03.07.00.21/Loader/#ModelType#/01-Upgrade.dwh" />
    <Action Type="Loader" FilePath="03.07.00.21/Loader/#ModelType#/02-Upgrade.dwh" />
  </Upgrade>
  - <Upgrade To="03.07.00.25" From="03.07.00.21">
    <Action Type="SQL" FilePath="03.07.00.25/SQL/#DatabaseType#/01.sql" DB="Data" />
    <Action Type="SQL" FilePath="03.07.00.25/SQL/#DatabaseType#/02.sql" DB="Admin" />
    <Action Type="Loader" FilePath="03.07.00.25/Loader/#ModelType#/01-Upgrade.dwh" />
    <Action Type="Loader" FilePath="03.07.00.25/Loader/#ModelType#/02-Upgrade.dwh" />
  </Upgrade>
  - <Upgrade To="03.07.00.30" From="03.07.00.25">
    <Action Type="SQL" FilePath="03.07.00.30/SQL/#DatabaseType#/01.sql" DB="Data" />
    <Action Type="SQL" FilePath="03.07.00.30/SQL/#DatabaseType#/02.sql" DB="Admin" />
    <Action Type="Loader" FilePath="03.07.00.30/Loader/#ModelType#/01-Upgrade.dwh" />
    <Action Type="Loader" FilePath="03.07.00.30/Loader/#ModelType#/02-Upgrade.dwh" />
  </Upgrade>
  - <Upgrade To="03.07.00.36" From="03.07.00.30">
    <Action Type="SQL" FilePath="03.07.00.36/SQL/#DatabaseType#/01.sql" DB="Data" />
    <Action Type="SQL" FilePath="03.07.00.36/SQL/#DatabaseType#/02.sql" DB="Admin" />
    <Action Type="Loader" FilePath="03.07.00.36/Loader/#ModelType#/01-Upgrade.dwh" />
    <Action Type="Loader" FilePath="03.07.00.36/Loader/#ModelType#/02-Upgrade.dwh" />
  </Upgrade>
  - <Upgrade To="03.08.00.01" From="03.07.00.36">
    <Action Type="SQL" FilePath="03.08.00.01/SQL/#DatabaseType#/01.sql" DB="Admin" />
    <Action Type="SQL" FilePath="03.08.00.01/SQL/#DatabaseType#/02.sql" DB="Admin" />
    <Action Type="Loader" FilePath="03.08.00.01/Loader/#ModelType#/01-Upgrade.dwh" />
    <Action Type="Loader" FilePath="03.08.00.01/Loader/#ModelType#/02-Upgrade.dwh" />
  </Upgrade>
</UpgradeWizard>
```

Under folder **UpgradeWizard**, resides subfolders for each defined upgrade. The following is a sample of the directory structure.



## SPF Upgrade Wizard

In the Upgrade Wizard folder you'll find the following structure:



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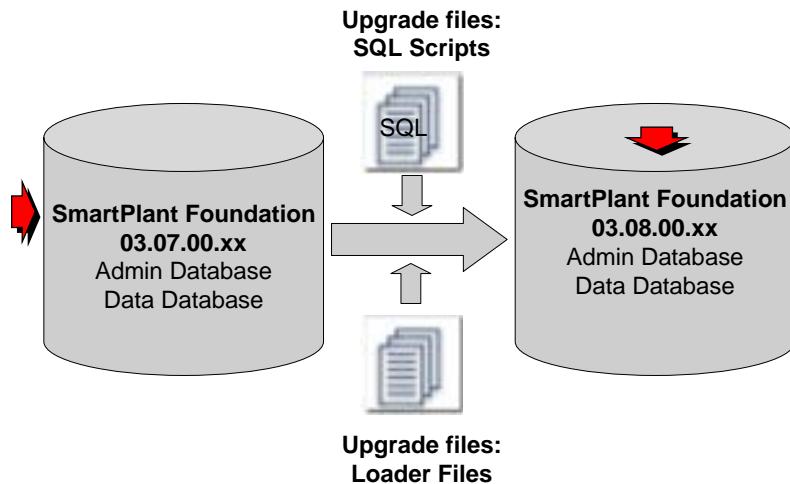
### Notes:

- The control file contains **#DatabaseType#** and **#ModelType#**. During run time **#DatabaseType#** will be replaced with **ORACLE** or **SQL\_SERVER** according to the registry key **HKEY\_LOCAL\_MACHINE\SOFTWARE\Intergraph\SmartPlant Foundation\3.8\Server\ DatabaseType**, and **#ModelType#** will be replaced with **EFModel** or **DEVMODEl** according to the values of two registries settings:
  - **HKEY\_LOCAL\_MACHINE\SOFTWARE\Intergraph\SmartPlant Foundation\3.7\Server\EFEnabled** and
  - **HKEY\_LOCAL\_MACHINE\SOFTWARE\Intergraph\SmartPlant Foundation\3.7\Server\ EFCompatibility**

## 11.2 Upgrade Wizard

This section describes the steps that the wizard will use.

### SPF Upgrade Wizard



## 11.2.1 Welcome screen

The Welcome screen displays all the available upgrades for user to select. The upgrades are defined by the control file (**UpgradeControls.xml**)

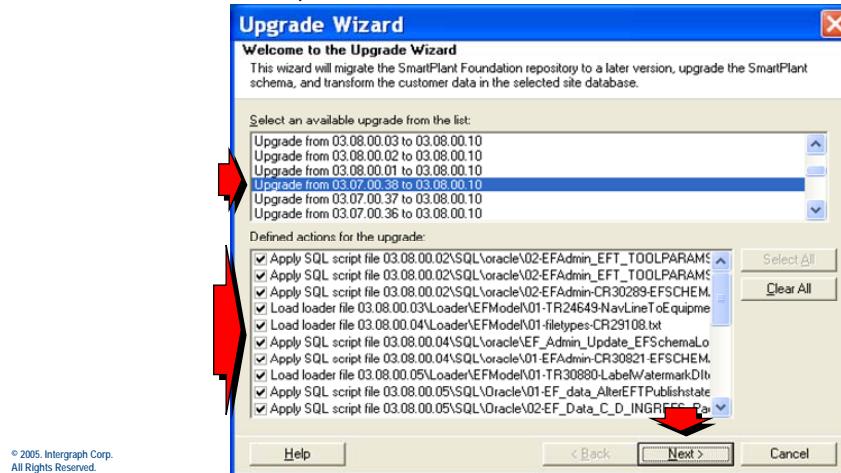
### Notes:

When upgrading from 3.7 to 3.8 *DO NOT* remove the 3.7 software before running the upgrade. Load the 3.8 software into a different directory so both versions are available to the Upgrade utility. The Upgrade utility will read the 3.7 configuration and reference it during the upgrade.

Also save all 3.7 schema files into a backup directory loading of the 3.8 will overwrite the 3.7 schema files on the c:\program files\commonfiles\...\... directory.

## SPF Upgrade Wizard

- In the *Welcome* screen, define the upgrade to be performed and the commands within the upgrade selection, click **NEXT** to continue





## SPF Upgrade Wizard

- The Transformation Options dialog presents the options for upgrading the schema components
- You can select one or more options
- You can return to run other options later
- Not selecting any option the upgrade will only run the Database SQL and SPF load files. No schema update will be performed

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**Transformation Options** - This allows user to select one or more options for the wizard to perform. Users can always select one option and come back to select another option to perform. After selections click **Next** to continue.



## SPF Upgrade Wizard

- Select one or more options or return to run other options later

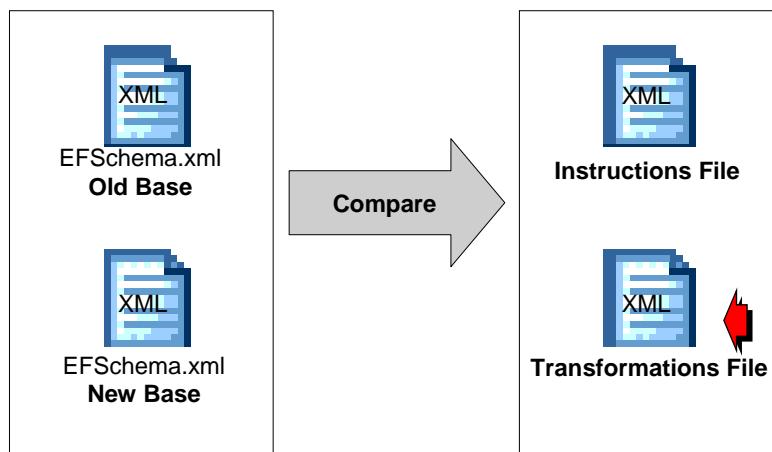


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## SPF Upgrade Wizard

The instructions file and the transformations file are the prerequisite of this wizard

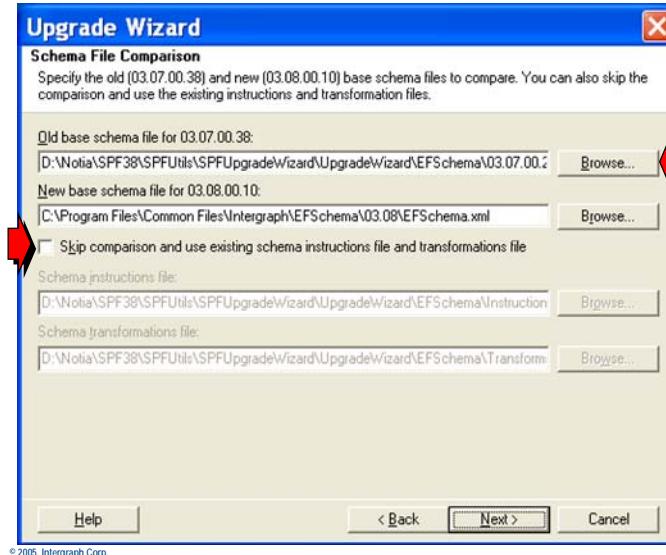


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The instructions file and the transformations file are the prerequisite of this wizard.



## SPF Upgrade Wizard



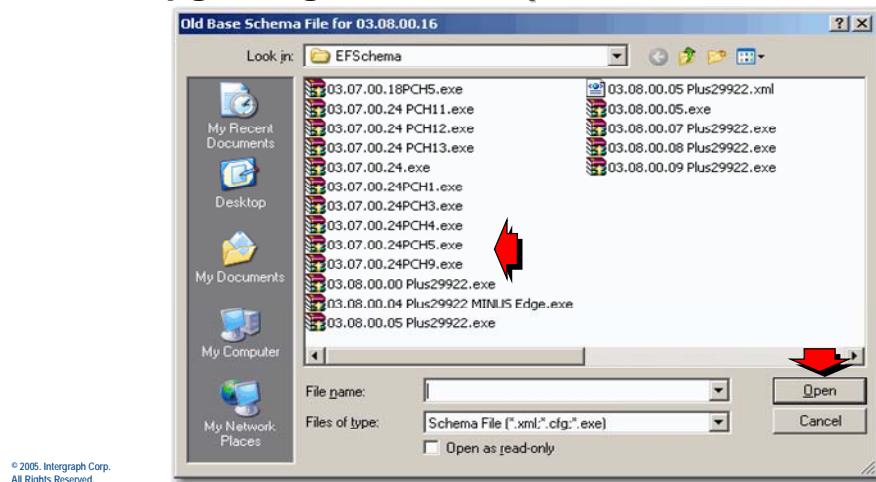
**Enable the “*Skip comparison and use existing schema instructions file and transformations file*” check box if comparison is required**

Or let the wizard generate the files automatically by browsing the old base schema file and the new base schema file. Click **Next >** to continue to the next step.



## SPF Upgrade Wizard

- Select the <schema>.exe from which you are upgrading and click Open.

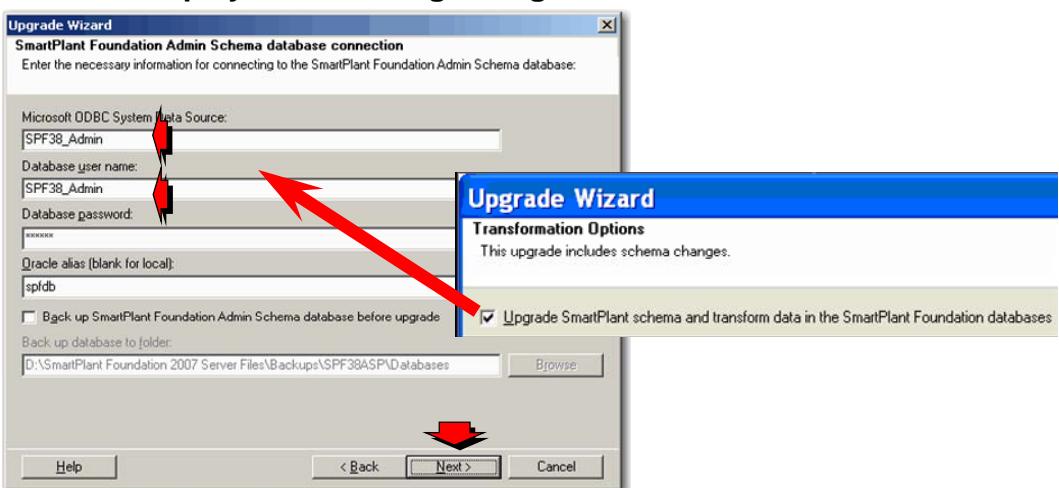


If the upgrade option **Upgrade Schema and data in the SmartPlant Foundation Databases** in step 2 is selected, this dialog will display. Enter the **DSN**, **User ID** and **Password** for connecting to the **Admin** database. Make sure the DSN is created first using the **ODBC Data Source Administrator**.



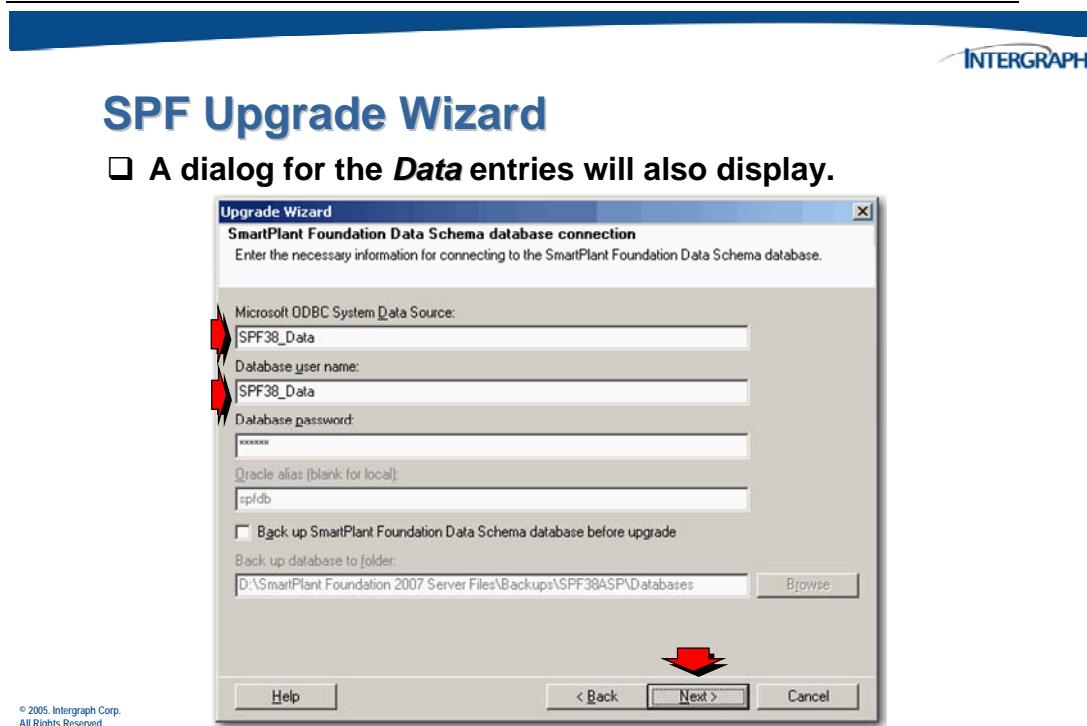
## SPF Upgrade Wizard

- Selecting the **Upgrade SmartPlant schema** toggle will display the following dialog.



Optionally, user can select to Export the ‘Admin’ database before the upgrade. If this option is selected, user will be asked to select a directory for the database dump file.

If the upgrade option ***Upgrade Schema and data in the SmartPlant Foundation Databases*** in step 2 is selected, this dialog will display. Enter the **DSN**, **User ID** and **Password** for connecting to the **Data** database. Make sure the DSN is created first using the **ODBC Data Source Administrator**.



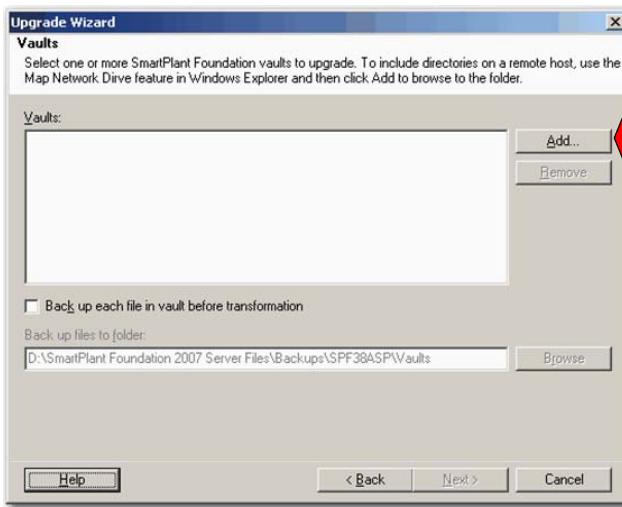
Optionally, user can select to Export the **Data** database before the upgrade. If this option is selected, user will be asked to select a directory for the database dump file.

If the ***Export SmartPlant Foundation data database before upgrade*** is selected, more options will become visible. Enter the directory for the database dump file and the connection string to the database if the database is not local.

If the upgrade option “**Transform XML data in the SmartPlant Foundation Vault**” in step 2 is selected, this dialog will display.

## SPF Upgrade Wizard

- Next choose the vaults to be upgraded by selecting the Add... button.



Click **Add** to add one or more vault directories to process. If a vault directory is on a remote host, use the **Map Network Drive** feature in **Windows Explorer** to map the directory. Click **Remove** to remove any un-wanted directories.

## SPF Upgrade Wizard

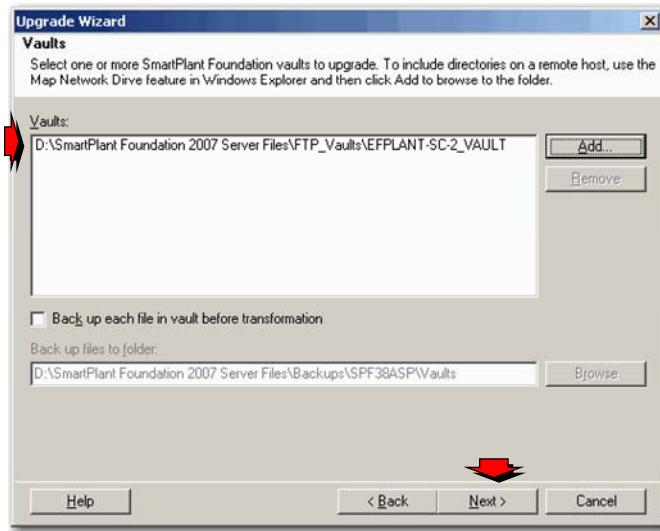
- Select a vault folder and click OK.





## SPF Upgrade Wizard

- ❑ Verify the selected vault and click Next to continue.



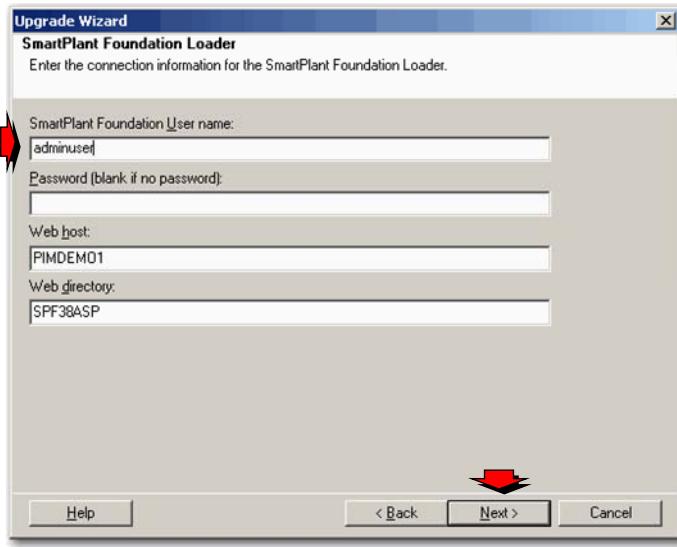
If the ***Backup each file in the vault before transformation*** option is selected, then user will be asked to select an empty folder for the backup.

## 11.2.2 Information for SPF Loader

The next step in the wizard is to supply the connection information for the SmartPlant Foundation Loader.

### SPF Upgrade Wizard

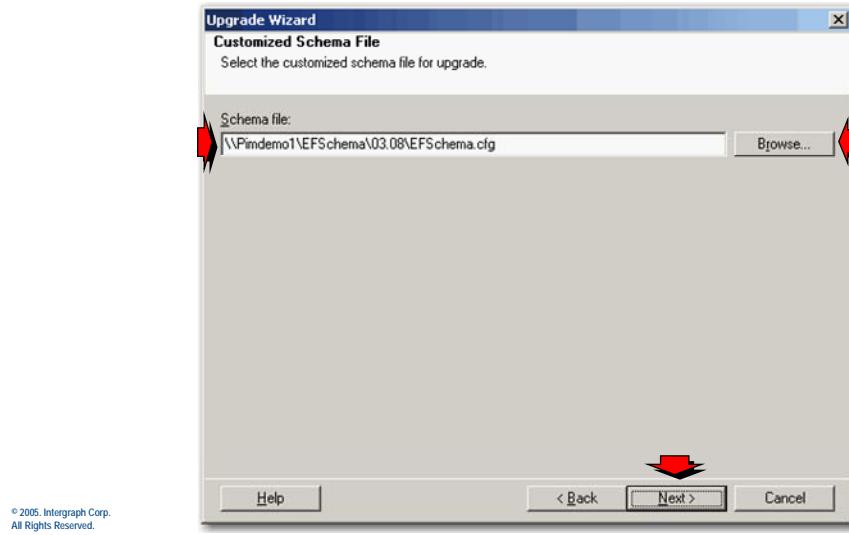
#### Enter the SPF user name for the loader



Next, select the *Customer Schema* file to upgrade.

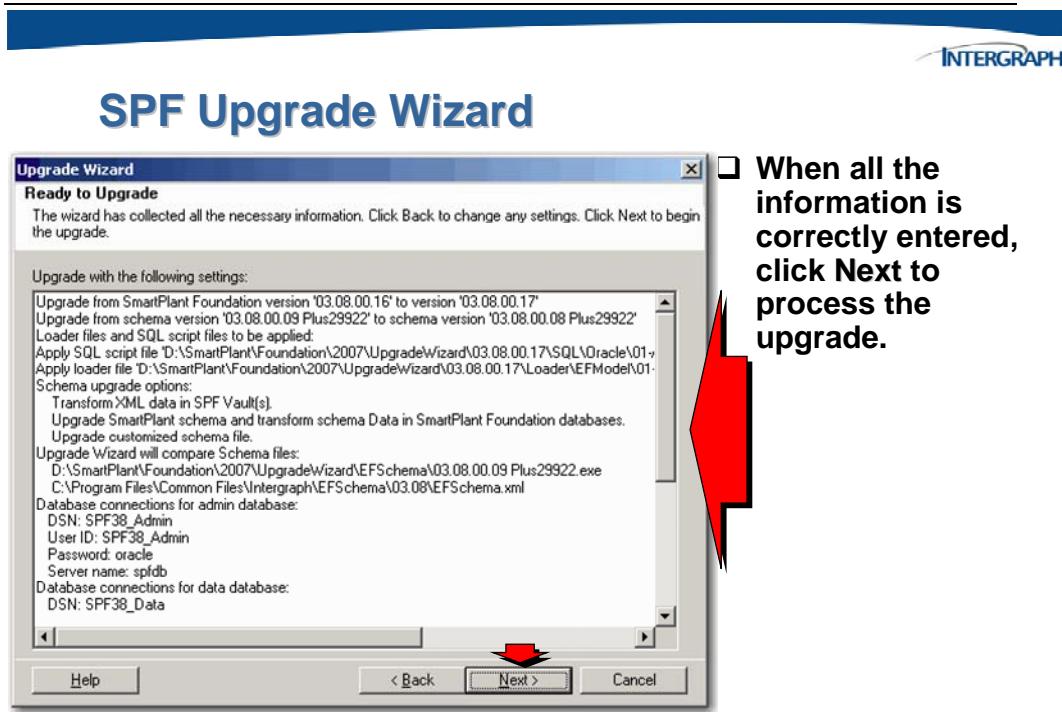
## SPF Upgrade Wizard

- Select the custom configuration schema and click Next.



## 11.2.3 Final Review

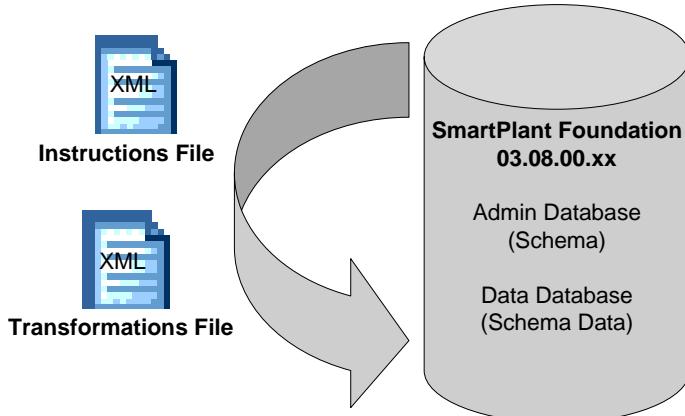
This is the final review for all the upgrade options that user entered. Users are allowed to click the **Back** button to go back to previous steps to make changes.



In the “*In Progress*“ step, the wizard will load the instruction file and transformations file, connecting to the database depending on the user’s options and perform the necessary processes to upgrade the database and/or vault data.

## SPF Upgrade Wizard

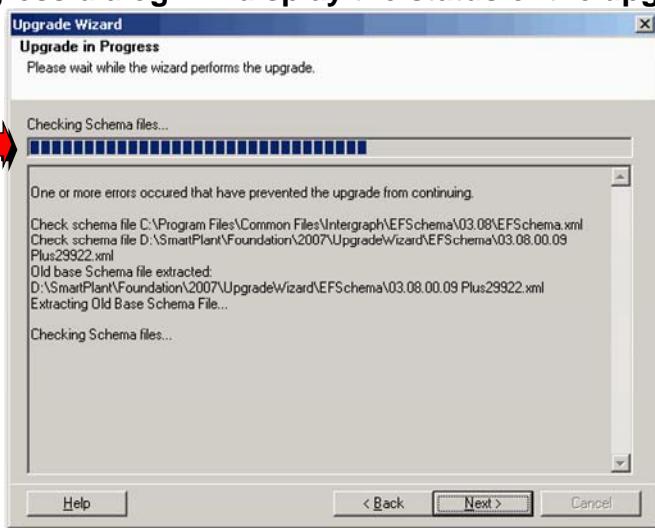
The wizard will load the instruction file and transformations file.



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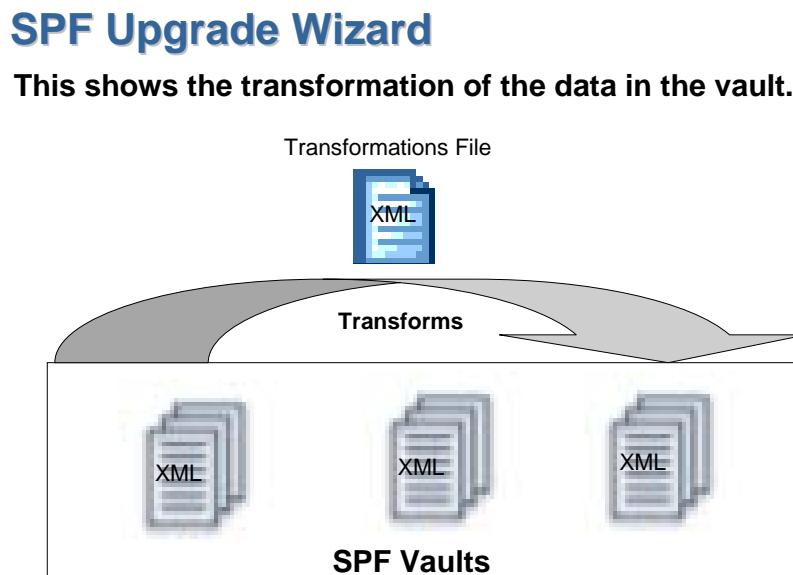
## SPF Upgrade Wizard

A progress dialog will display the status of the upgrade.



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The “*Transforms XML file in Vault*“ step actually transforms the data in the vault. The vault number and the file number are displayed.



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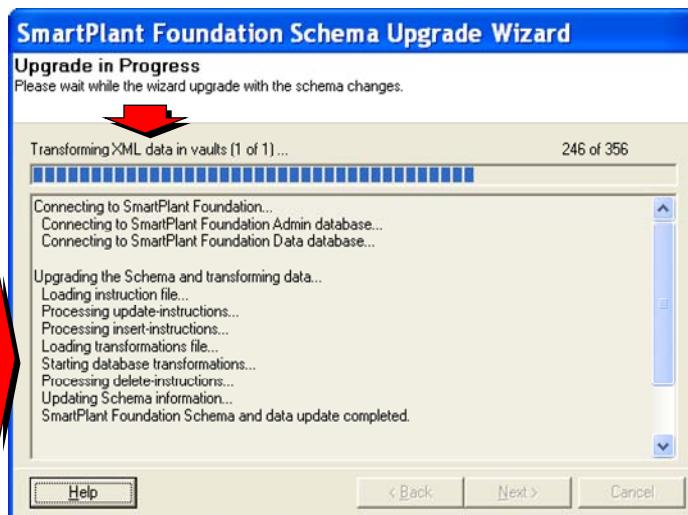
INTERGRAPH

## SPF Upgrade Wizard

### The Upgrade progress dialog (con't)

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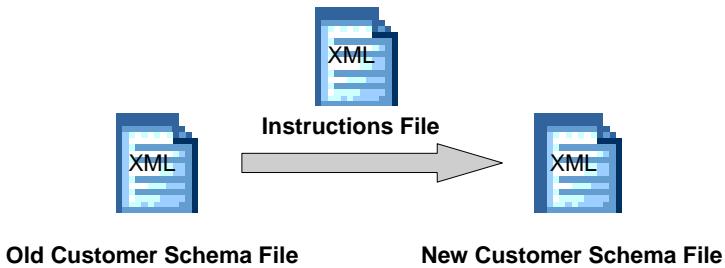
INTERGRAPH





## SPF Upgrade Wizard

The old schema file is filtered through the instructions file.

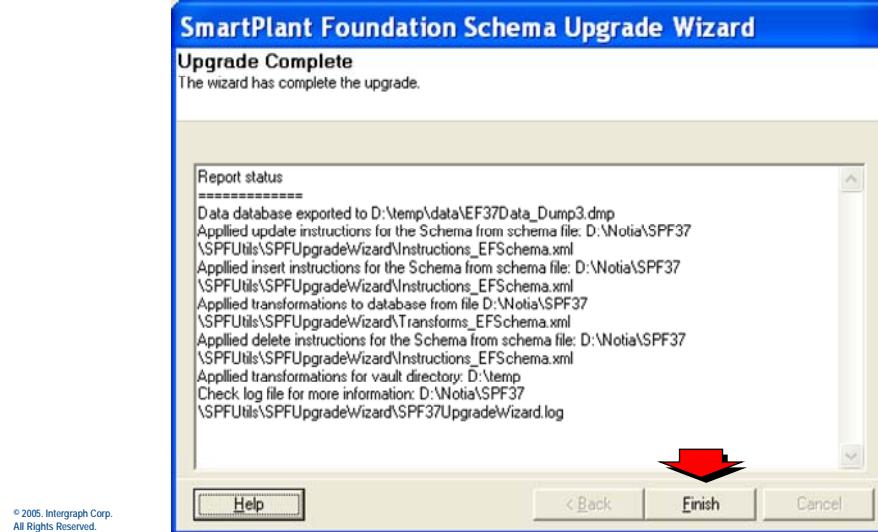


## 11.2.4 Completed and Upgrade Status

This displays the status of the upgrade and the log file.

### SPF Upgrade Wizard

- When the wizard is complete, click Finish.



## 11.3 Appendix Log File

The following section explains the upgrade wizard logging that takes place during the upgrade process.



### SPF Upgrade Wizard Logging

- The software logs every action that it performs**
- The software will be halted when it encounters any critical error**
- Non-critical errors will be logged but the upgrade will continue**
- Tracing the SQL statements can be set in the registry -  
*HKEY\_LOCAL\_MACHINE\SOFTWARE\Intergraph\SmartPlant Foundation\3.8\Server***



## SPF Upgrade Wizard Logging

- Errors in the log file begins with “\*\*\*”
- Located in the registry in the following section:  
**HKEY\_LOCAL\_MACHINE\SOFTWARE\Intergraph\SmartPlant Foundation\3.8\Server**
- Create the string **SQLTraceForUpgradeWizard**
- With the Values
  - 0 – no trace
  - 1 – traces all update and delete statements for the data transformations
  - 2 – trace update, delete and insert
  - 3 – trace all SQL statements: *log file will get bigger*

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To trace the SQL statements that the software runs for the data transformations, create a string value **SQLTraceForUpgradeWizard** under HKEY\_LOCAL\_MACHINE\SOFTWARE\Intergraph\SmartPlant Foundation\3.8\Server in the registry.



C H A P T E R

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# 12

## Creating and Using Datasheets



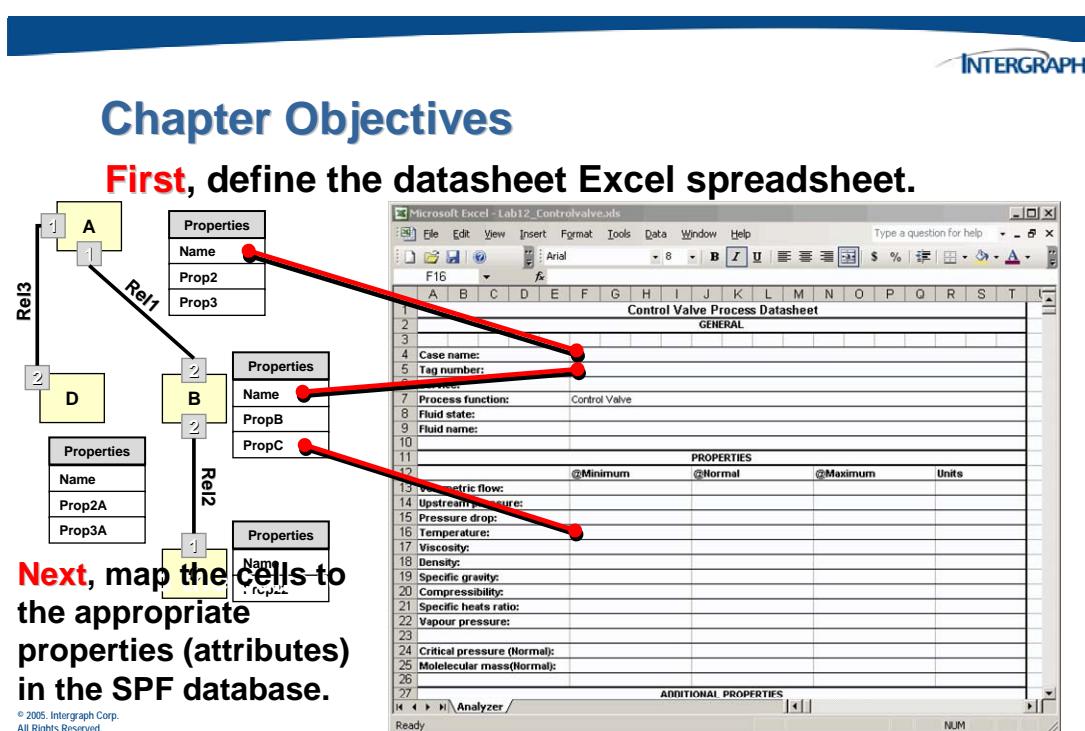
## 12. Introduction

The goal of this chapter is to provide details of the expanded SmartPlant Foundation datasheet capabilities. Users now have more flexibility in defining datasheets through the use of radio buttons, pick lists, and units of measure (UOMs) to achieve the desired format. In addition, the publishing capabilities allow edits to be performed offline and then published into SmartPlant Foundation.

## 12.1 Objectives

The objective of this chapter is to demonstrate how to do the following:

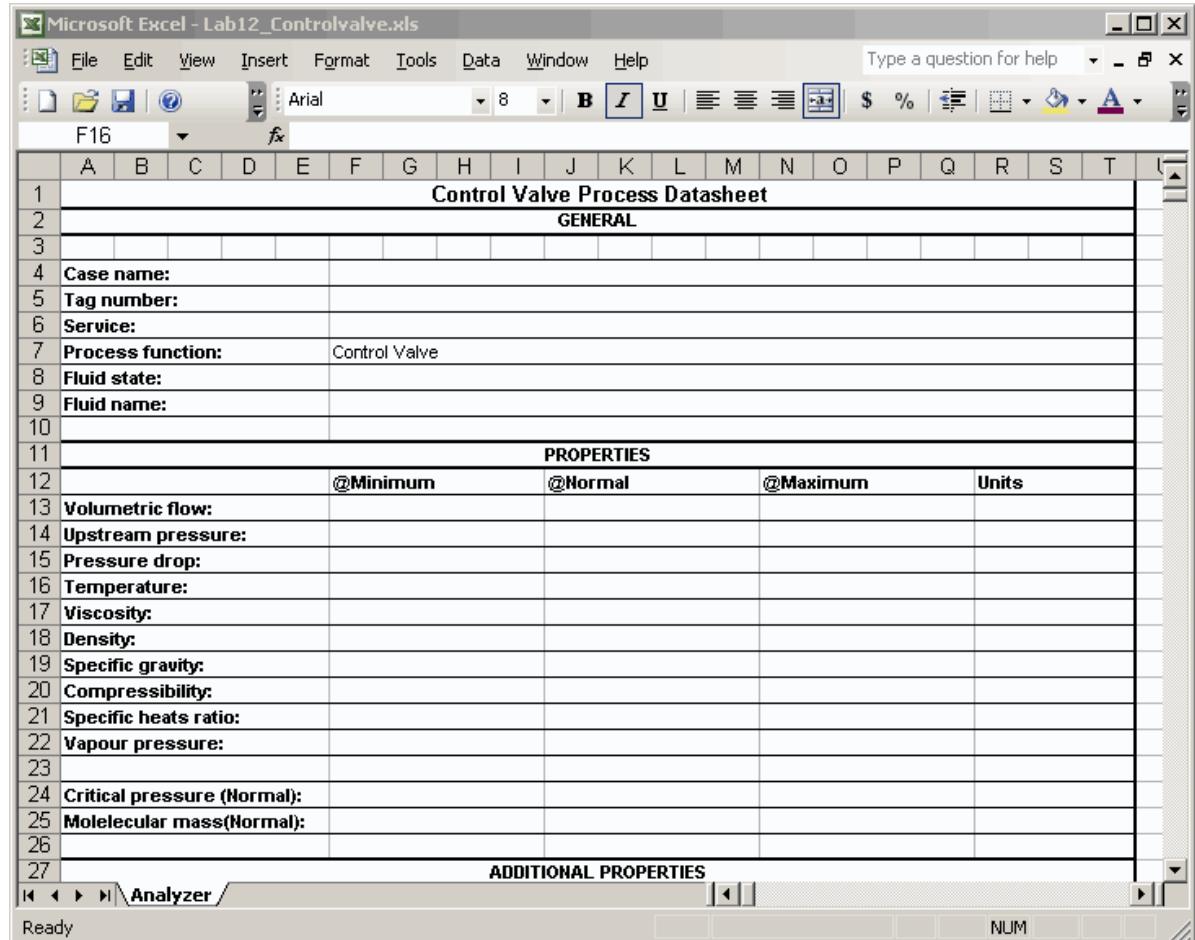
- setup property fields
- definition of a datasheet
- offline manipulation
- datasheet publishing



## 12.2 Working with Datasheets in the Schema Object Model

In SmartPlant Foundation, datasheets allow you to view, edit, and print data for an object in an easy-to-use, customizable format. You can also package datasheets for editing by users who do not have access to SmartPlant Foundation.

In the Schema Object model, datasheets are edited using the **Generate Datasheet** (API) command. This command populates the data into an Excel datasheet and then displays the datasheet on the client computer.



The *Schema Object Model* has datasheets that are edited directly in Microsoft Excel. Changes are then published using SmartPlant.



## Working with Datasheets

- You can also package datasheets for editing by users who do not have access to SmartPlant Foundation.
- Datasheets that are edited directly in Microsoft Excel.
- Datasheets are edited using the Generate Datasheet (API) command. This command populates the data into an Excel datasheet and then displays the datasheet on the client computer.
- Excel macros control the edit session so you must select the Enable Macro button when the datasheet appears.
- Datasheets use View Definitions to map Excel cells to the corresponding SmartPlant Foundation properties.
- The Datasheet to Excel mapping can be performed in the Schema Editor.

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**Note:** Excel macros control the edit session so you must select the *Enable Macro* button when the datasheet appears. If you choose not to enable the macros, no changes you make to the spreadsheet can be saved.

---

## 12.2.1 The SmartPlant Schema

The SmartPlant schema describes the structure of data passed through SmartPlant along with its rules. The SmartPlant schema can be hard to understand; to make it easier to interpret, the **Schema Component** exists. The Schema Component is a set of .DLLs that assists the tools with the generation and subsequent parsing of the XML data. The tool adapter interfaces with the Schema Component (the main interface point) to read the SmartPlant schema.



### SmartPlant Schema

**Because SmartPlant is intended to facilitate heterogeneous data exchange, the following rules apply:**

- All schema data is defined as part of the SmartPlant schema**
- The SmartPlant schema describes everything that goes on in SmartPlant**
- To make site specific configuration more portable, *Project* or extension schemas are created to contain custom definitions**

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The SmartPlant schema is an XML file that describes the structure of the XML files generated by the authoring tools in much the same way as a data dictionary describes the structure of a database. As tools publish documents in XML format, those documents must adhere to the format defined by the schema to ensure that the XML data can be loaded into SmartPlant Foundation and retrieved into the other authoring tools.

The building blocks of the schema are classes, interfaces, and relationships. Classes are typically real world objects like instruments, tanks (vessels) or pipe runs.

## 12.2.2 Starting the Schema Editor

The *Schema Editor* is installed as part of the Schema Component installation. There are a variety of ways to do operations using the Schema Editor.

### Starting the SmartPlant Schema Editor

- To open the Schema Editor, click **Start > All Programs > Intergraph SmartPlant Foundation > SmartPlant Schema Component > SmartPlant Schema Editor.**



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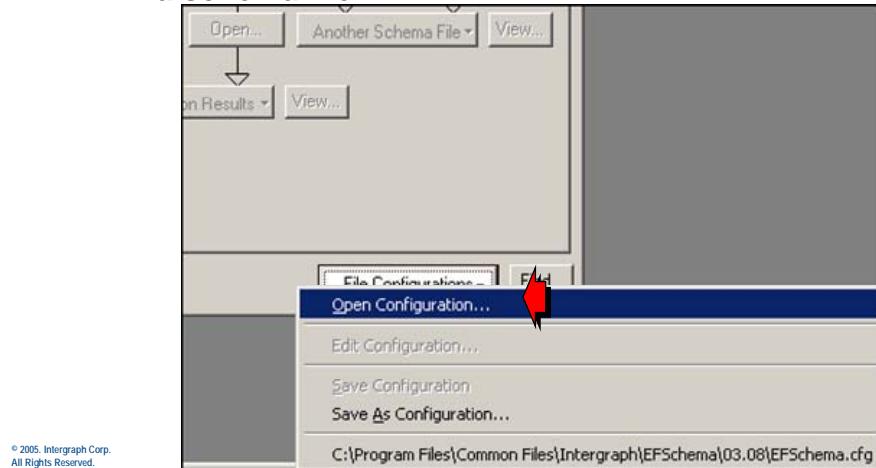
The first view that displays is the **Workflow** view. The **Workflow** view presents the Schema Editor functionality in a sequence that you must follow when performing operations using the Schema Editor.

To create your Schema file and to insure the EFSchema file is secure during editing, perform the following steps.



## Creating a Project Schema

- From the bottom of the Workflows dialog box, click the **File Configurations > Open Configuration...** button to open a schema file.

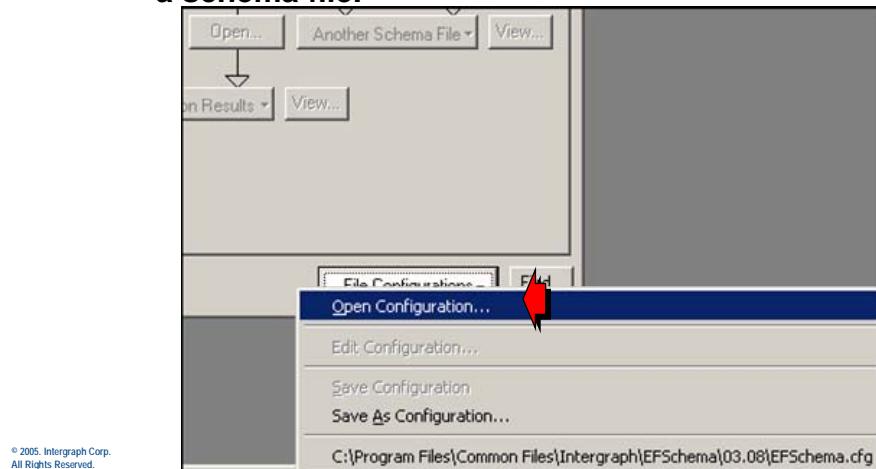


Load the EFSchema.cfg file from the **C:\Program Files\Common\Intergraph\EFSchema\03.08** folder.



## Creating a Project Schema

- From the bottom of the Workflows dialog box, click the **File Configurations > Open Configuration...** button to open a schema file.





## Creating a Project Schema

- In the list of available configuration files, click the configuration (**EFSchema.cfg**) to use to open with the Schema Editor.

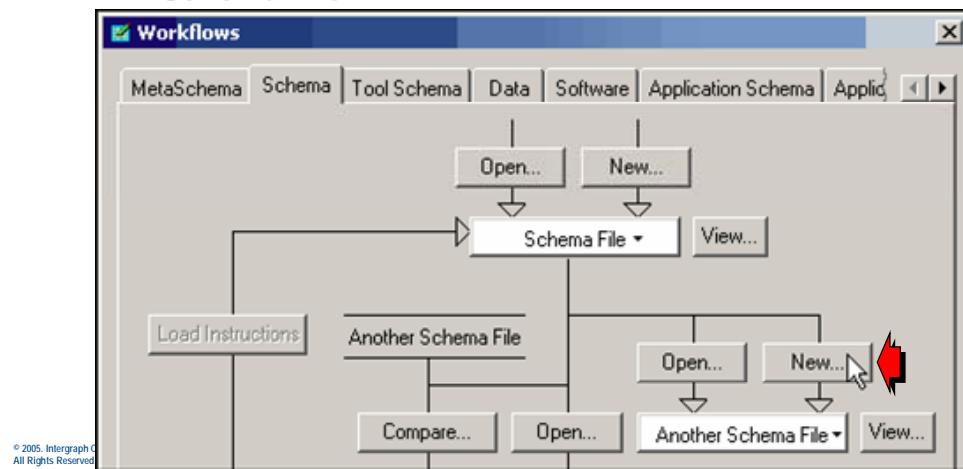


Next, create an empty schema extension file (also called a “Project Schema”).



## Creating a Project Schema

- From the Workflows dialog box, create a new project schema by selecting the New button above **Another Schema File**.

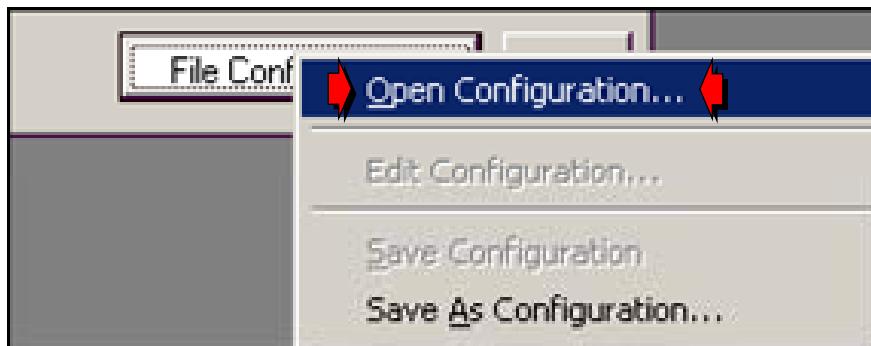


Once the empty project schema has been created, setup a configuration in Schema Editor to control your modifications to the EF Schema definitions.



## Opening the Schema

- From the Workflows dialog box, choose the File Configuration button and select **Open Configuration...**



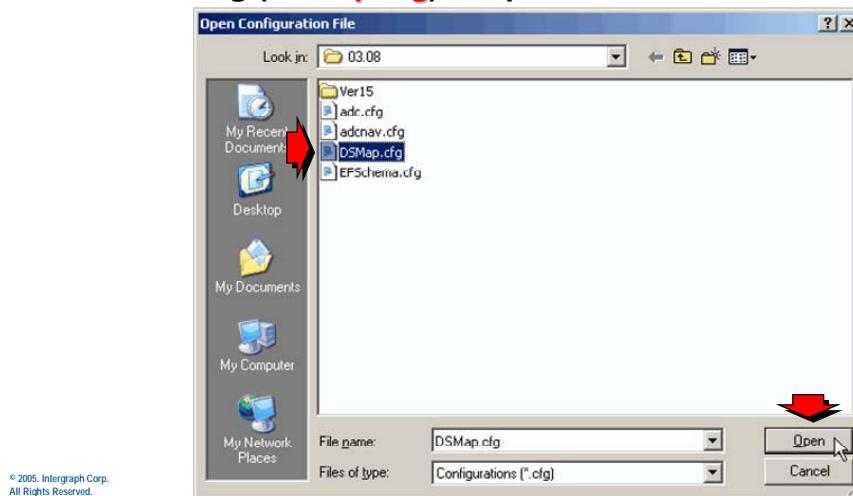
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The *Open Configuration File* dialog will display.



## Opening the Schema

- In the list of available schema files, click the schema file config (**DMap.cfg**) to open with the Schema Editor.

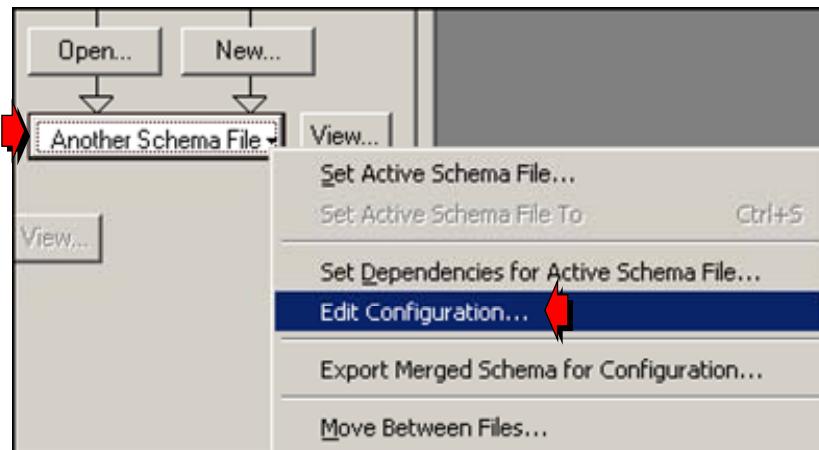


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Finally select the *Another Schema File* button and select the ***Edit Configuration*** option.

## Opening the Schema

- Click on the bolded **Another Schema File** button, then select ***Edit Configuration...***

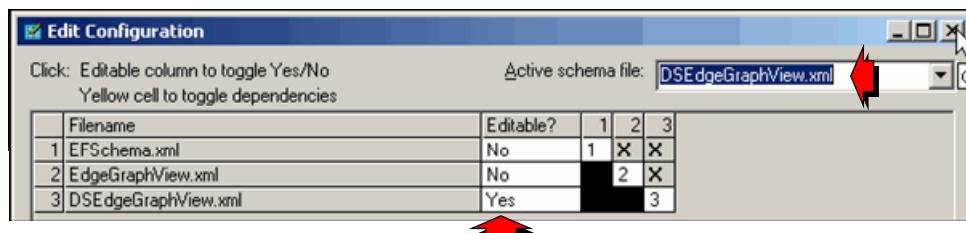


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With this dialog you need to make the EFSchema.xml and EdgeGraphView.xml files **Read Only** and the DSEdgeGraphView.xml **Read/Write**.

## Opening the Schema

- Click in the ***Editable?*** Field to set the permissions on the schema files in this configuration.



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Now save the configuration by clicking the File Configuration button in the lower right hand corner of the Editor Window.

Whenever you wish to edit your schema configuration you will use the File Configuration button to open the cfg file you create not the schema file itself.

When opened with the configuration file, the DSEdgeGraphView.xml will be the primary edit file. All changes will be made in this file. The EFSchema.xml file will be opened under the Another Schema File section.

Now if you select the View button next to the Schema File button you will just see the DSEdgeGraphView.xml file information. So to see both DSEdgeGraphView and EFSchema data you need to use the View button next to the Another Schema File button. But understand edits will be written to the DSEdgeGraphView.xml not the EFSchema.xml file because of the configuration we just setup.

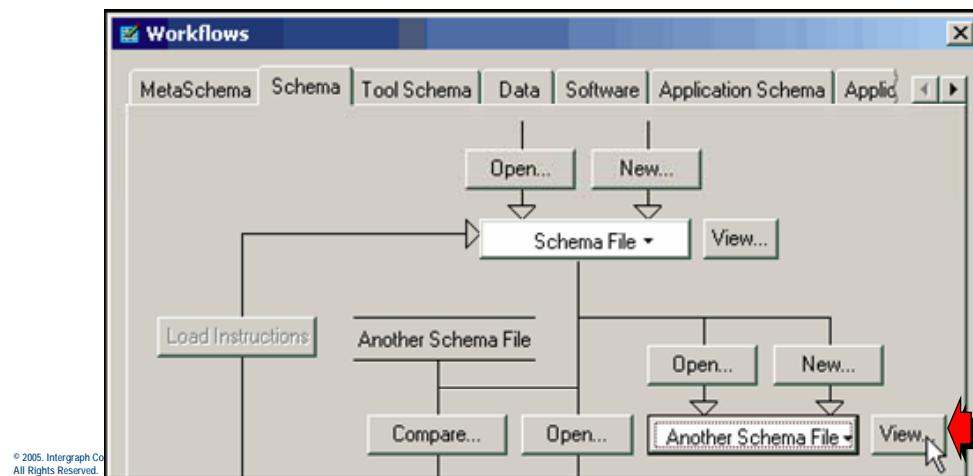
This is done so when you upgrade your SPF system you just change the DSEdgeGraphView.xml file with all your custom configuration edits to the new EFSchema.xml file delivered with the new version by setting up the configuration on the new SPF install or upgrade like you just did (except don't use a blank schema file use the one with all your edits in it).

## 12.2.3 Editing an Open Schema File

Use the Schema Editor to create the necessary template to use for associating a View Definition to a datasheet. Before you can begin viewing the schema or data files, you must first open the schema in the Schema Editor.

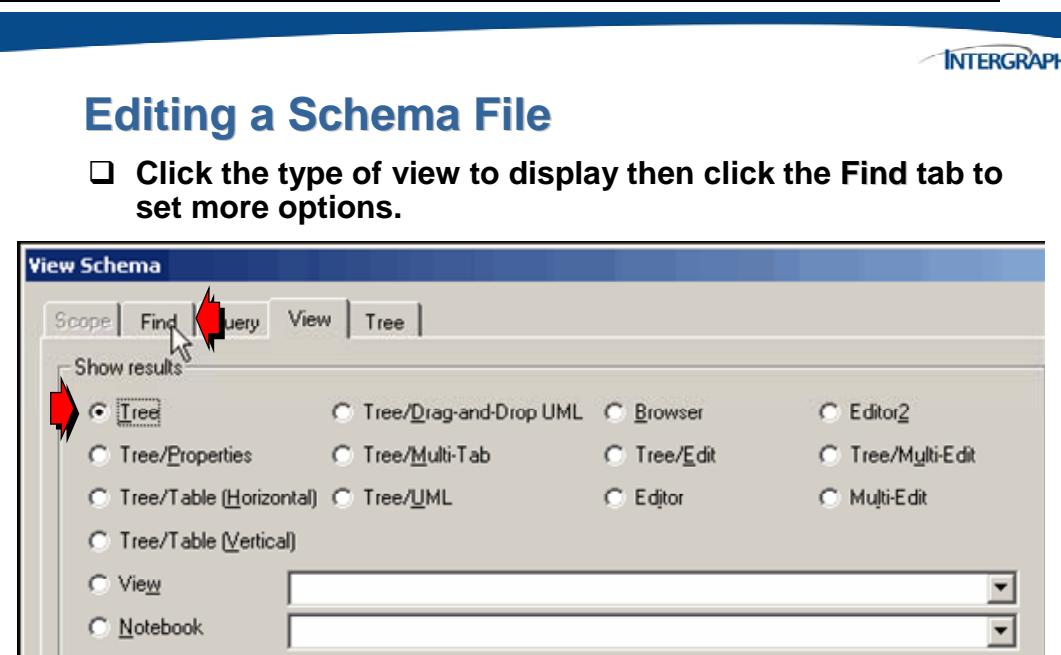
### Editing a Schema File

- In the **Workflows** dialog box, select the **View** button (next to Another Schema File) to view (and edit) the project schema file.



## 12.2.4 Schema File Tree View

The simplest way to view the schema in the Schema Editor is the Schema **Tree** view. The tree view displays the classes in the schema in the top-level nodes. When you expand a class, you can see the relationships defined for the class.



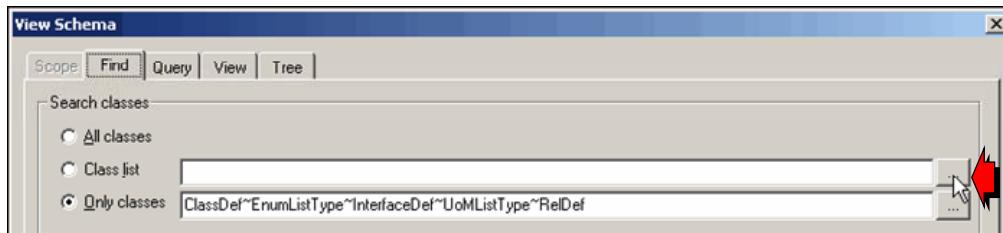
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Use the options under the **Find** tab to display the classes used for defining document templates.



## Editing a Schema File

- Use the **Class list browse (...)** button to choose the class for this search.



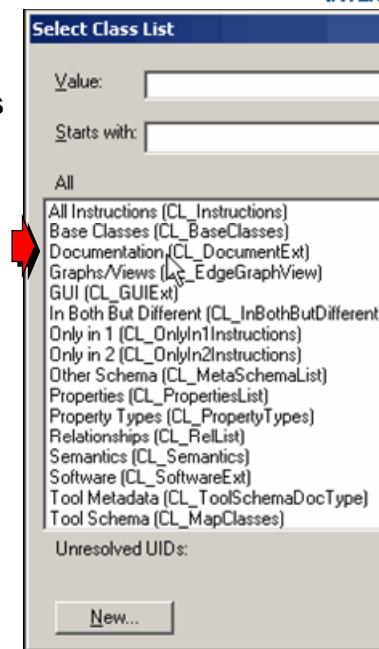
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From the *Class list* field, choose the documentation class to show the document template class.



## Editing a Schema File

- Select the **Documentation** class from the displayed list.

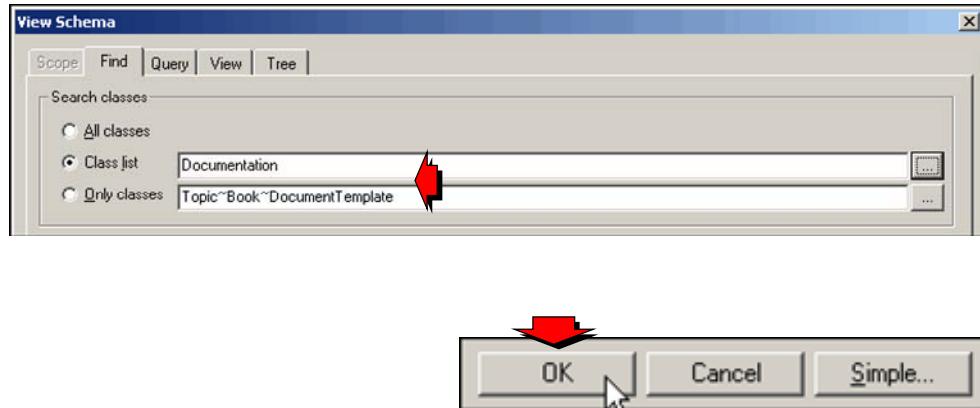


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## Editing a Schema File

- Once the necessary search criteria has been entered, click **OK** to perform the search.



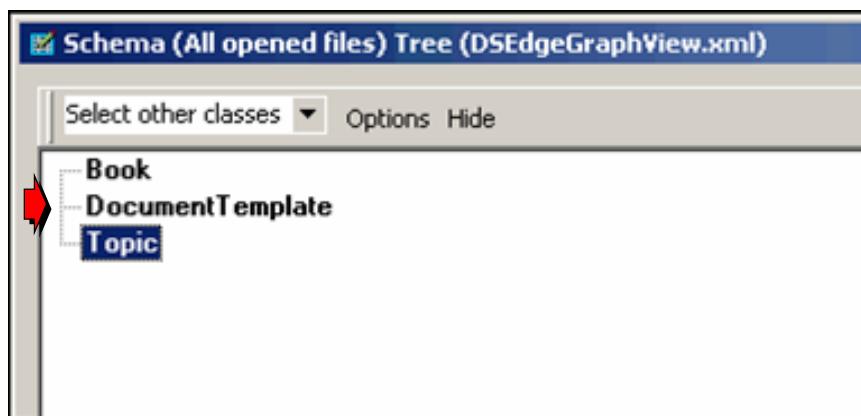
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The tree view is useful for general navigation through relationships, but not for looking at property values. You can navigate all the relationships defined in the schema using the Schema Tree view.



## Editing a Schema File – Tree View

A tree view will display showing the selected object types.



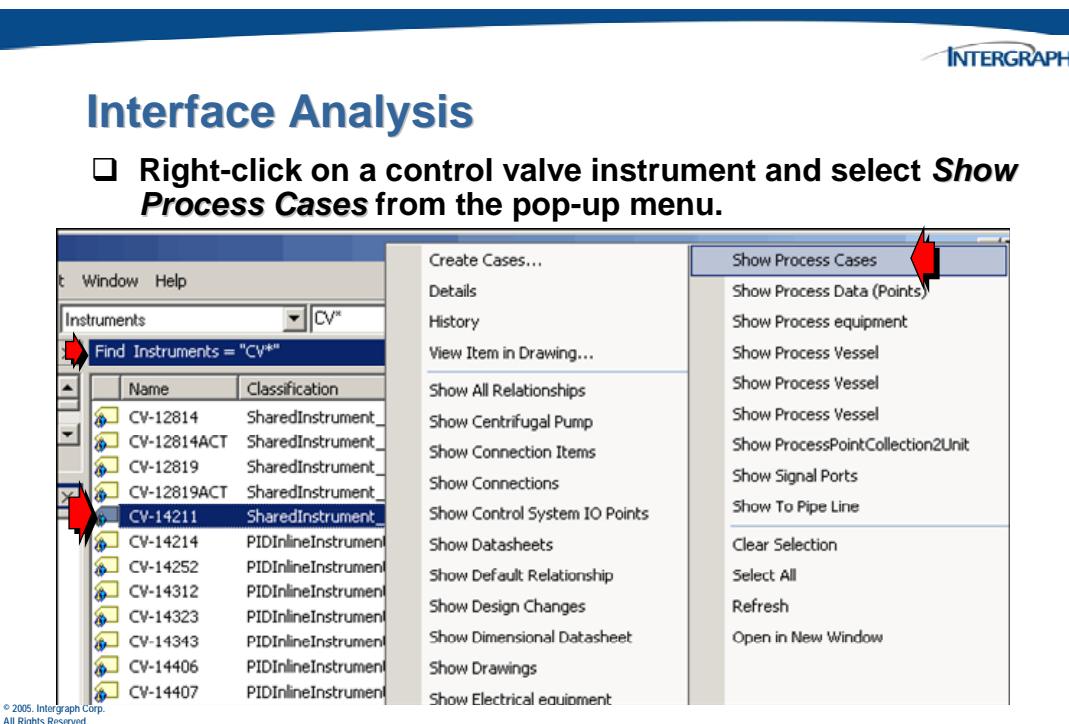
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The *Schema Tree* window will be displayed with the *Documentation* classes shown. Notice that there are no instances of these classes that exist.

## 12.3 Creating Document Templates

For each Datasheet Template, a document template object must be defined. Before creating the document template, perform some analysis to determine which interface will be used in creating the document template object.

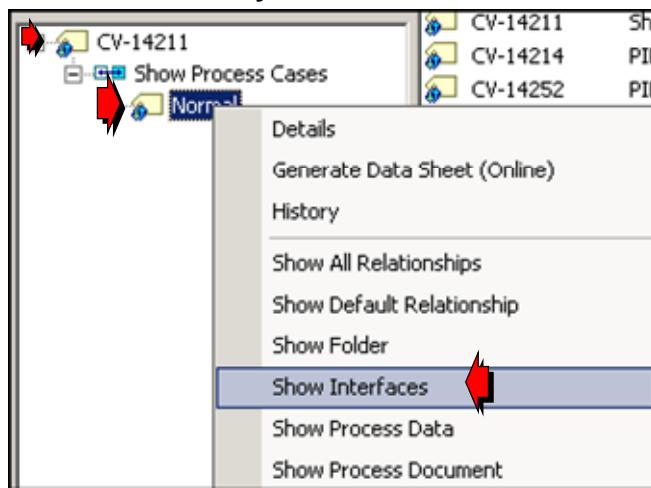
This can be done by using the Desktop Client but by logging in as **adminuser**.





## Interface Analysis

- Right-click on the Normal process case and select Show Interfaces from the dynamic menu.

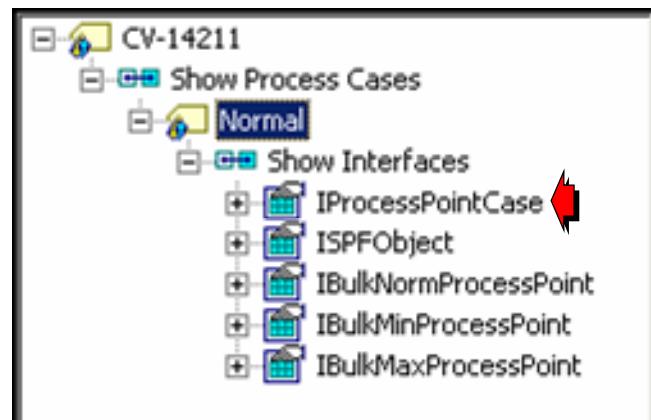


This will display the interfaces associated with the process cases and allow you to determine which interface to use for the new document template.



## Interface Analysis

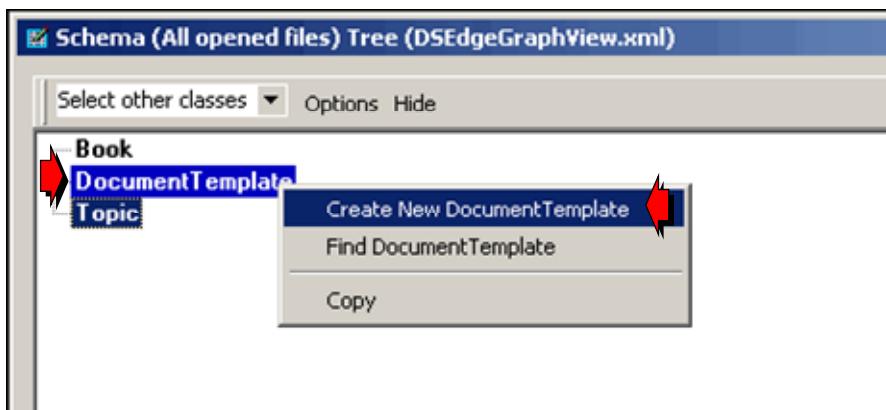
The Interface to use for the DocumentTemplate object will be IProcessPointCase.



The document template object bundles a template file (IPD\_controlvalve.xls), the starting *InterfaceDef*, and a collection of *ViewDefs* that will be used during the operation of the datasheet. It is from this object that you will edit the datasheet templates.

## Creating a Document Template

- Right-click on the DocumentTemplate class and select *Create New Document Template* from the pop-up menu.

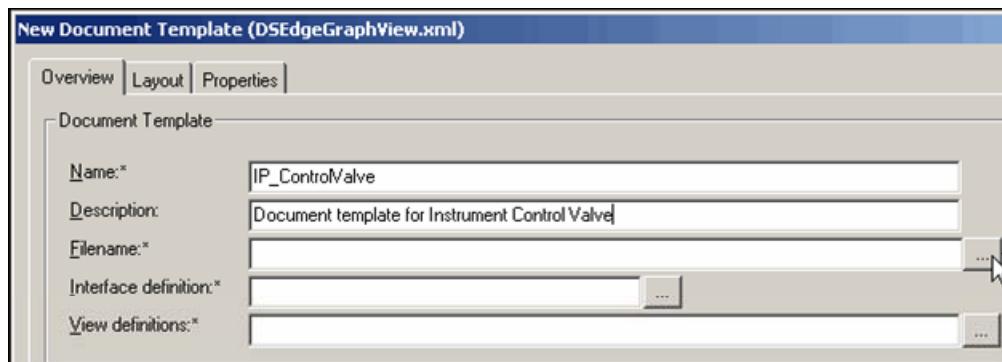


The *New Document Template* dialog will be displayed.



## Creating a Document Template

- Select the *Filename* browse (...) button to choose the Excel file to associate with this new document template.



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Enter a name for the new document template. Click the ellipses (...) next to the *Filename* textbox and select the correct Excel template.

Use Microsoft Excel to create a template prior to creating this new document template.

## Creating a Document Template

- From the **\SmartPlant\Foundation\2007\SPFAsp\SPFDatasheet\Templates** folder select the **.xls** file to use.

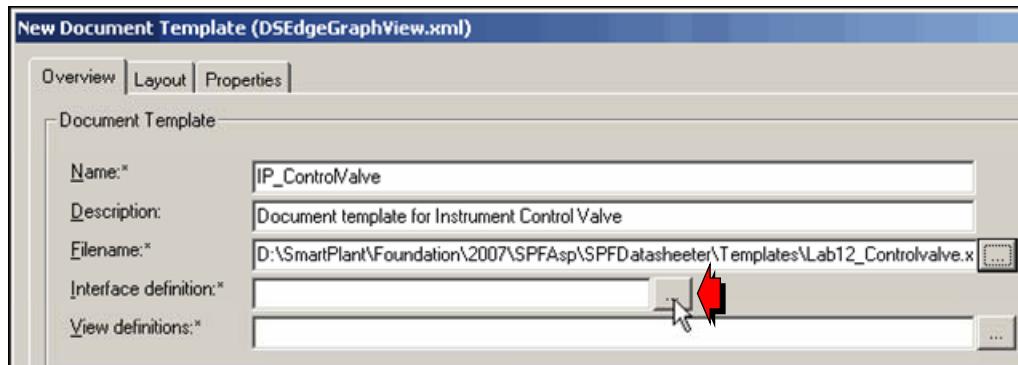


**Note:** In this section, we will be selecting the **Lab12\_Controlvalve.xls** file. This is an Excel worksheet that has **no mapping defined**.

Click the ellipses (...) button next to *Interface definition* to choose the starting Interface definition. The Interface Def to be used should match the starting interface referenced by the View Defs that will be used for the datasheet.

## Creating a Document Template

- Select the *Interface definition* browse (...) button to choose the starting interface to use for the datasheet properties.



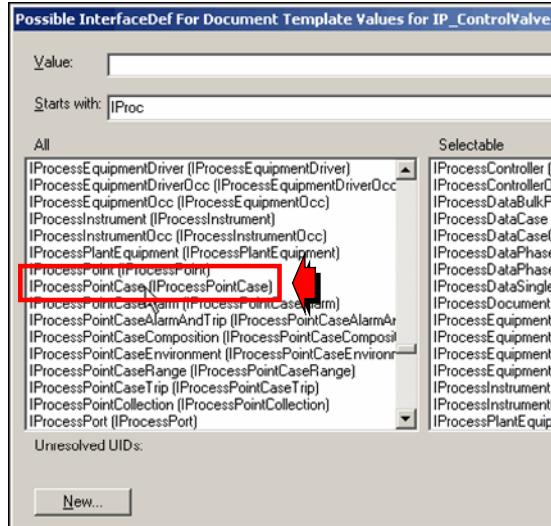
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All Rights Reserved.

The *Possible InterfaceDef* dialog will display with a long list of possible InterfaceDefs for this document template.



## Creating a Document Template

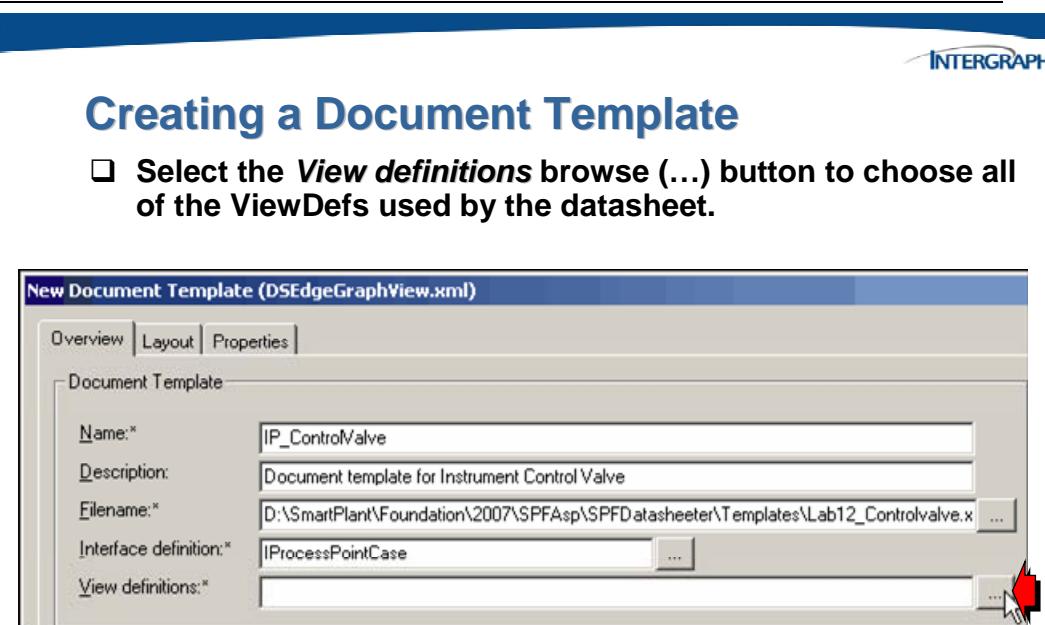
- Select the appropriate *Interface* from the displayed list.



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To help you locate the correct InterfaceDef, you can enter the first few characters into the *Search* box and the list will be scrolled to the first match. For example, since we are working on the **IP\_ControlValve** datasheet, we can type '**IProc**' into the *Search* box and *IPProcessPointCase* is scrolled into view. As soon as you click on an InterfaceDef, the dialog will close and the selected InterfaceDef will be listed in the *InterfaceDef* box on the previous dialog.

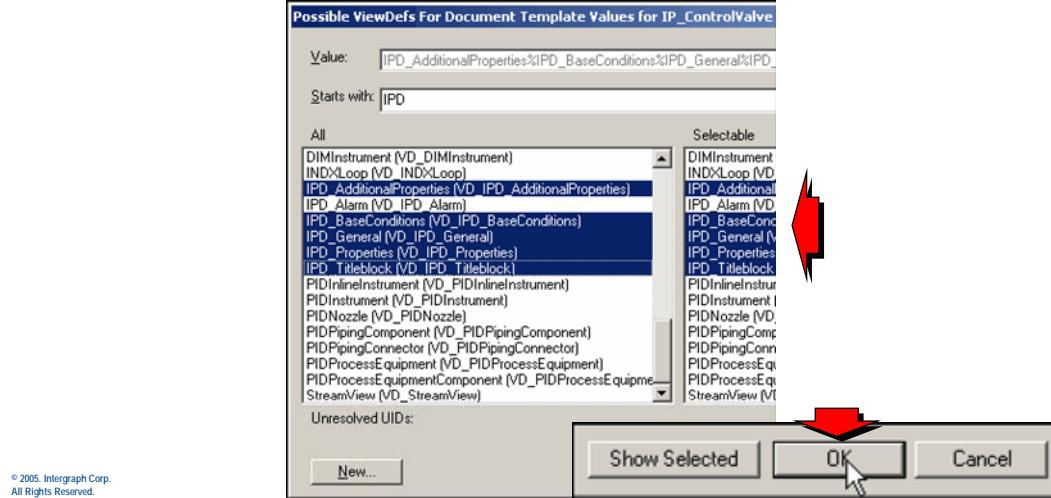
Now, select **all** of the ViewDefs that will be used in this datasheet. Click the ellipses (...) button next to the *View Definitions* box.



The *Possible ViewDefs for Templates Values for...* dialog will be displayed.

## Creating a Document Template

- Select ALL of the appropriate *ViewDefs* from the displayed list and click **OK**.



The ViewDefs can be named to correspond to the datasheet templates we're defining so it will be simple to find them. Type the first few characters into the *Search* box and the list will be scrolled to display the first match.

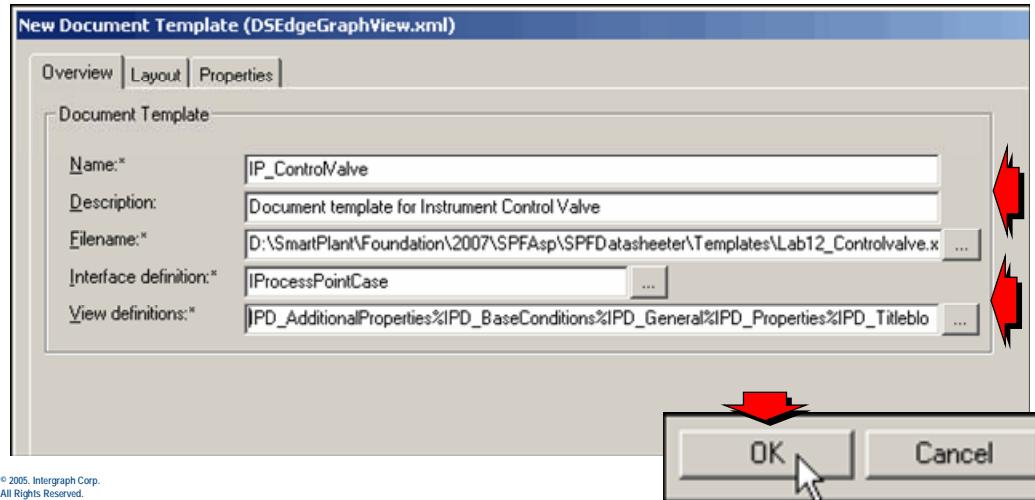
Now, click on each ViewDef that you want in this document template one at a time and click the **OK** button when complete.

Your document template should now be complete.



## Creating a Document Template

- After all of the necessary information has been entered, click **OK**.

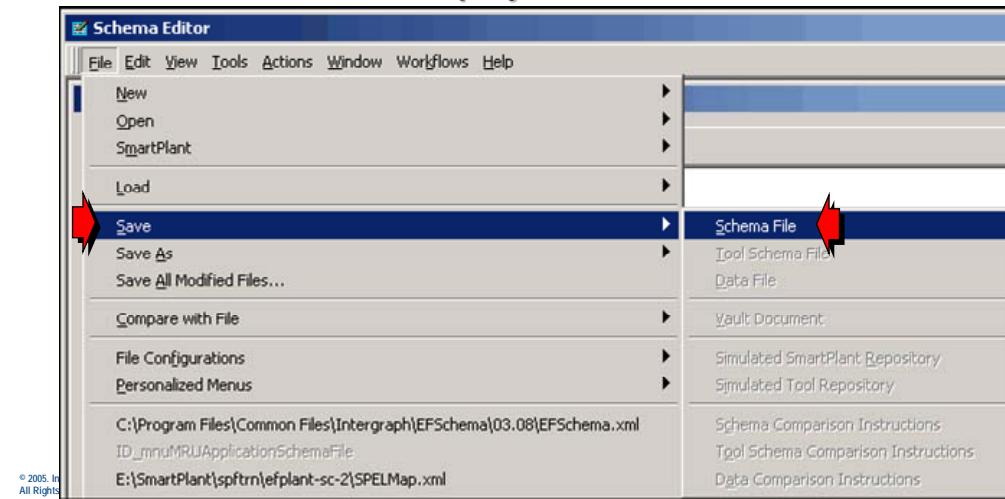


Click the **OK** button the *New Document Template* form to save the document template. This would be a good time to save the schema file using *File > Save As > Schema File*.



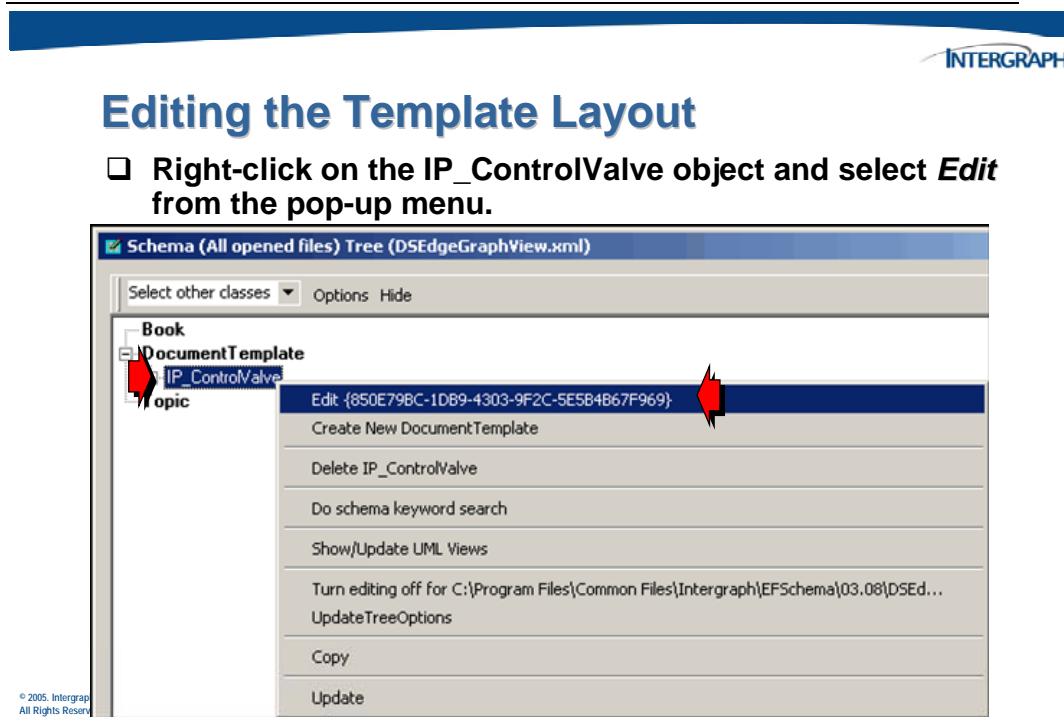
## Creating a Document Template

- On the menu, click *File > Save > Schema File...* to save the modifications to the project schema.



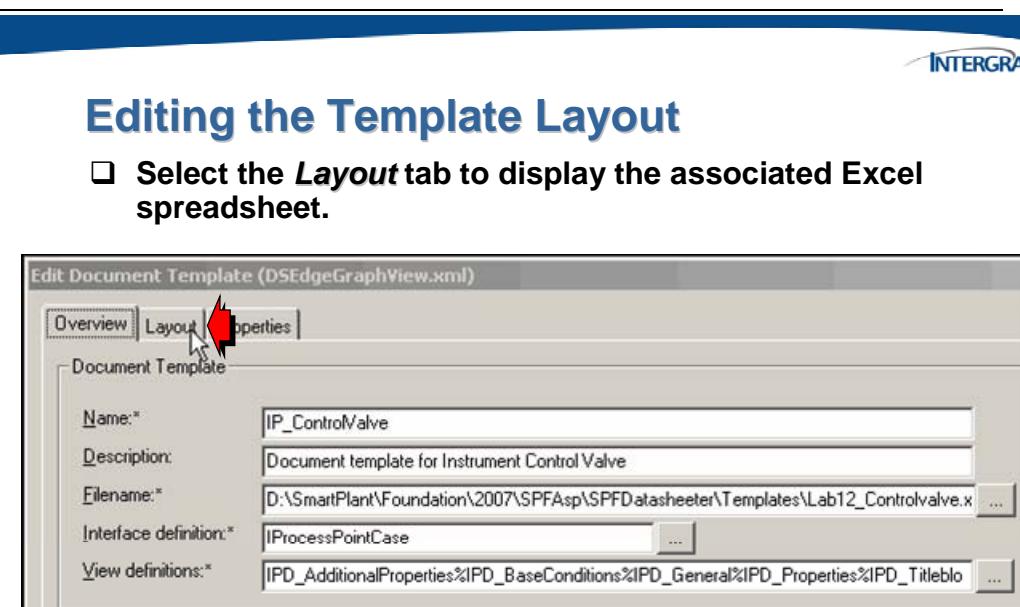
## 12.4 Editing a Document Template

Once again, there are many ways to invoke the edit command in the schema editor, but since you are working in the Tree view, just right-click on your DocumentTemplate (IP\_ControlValve) and choose Edit.



## 12.4.1 The Editor Window

The *Edit Document Template* form is identical to the *New Document Template* form except for the title. To actually map the ViewDef properties onto the Excel template, use the **Layout** tab.



The screenshot shows the 'Edit Document Template' dialog box for 'DSEdgeGraphView.xml'. The window title is 'Edit Document Template (DSEdgeGraphView.xml)'. At the top, there are three tabs: 'Overview' (selected), 'Layout' (highlighted with a red arrow), and 'Properties'. Below the tabs, there's a section titled 'Document Template' with the following fields:

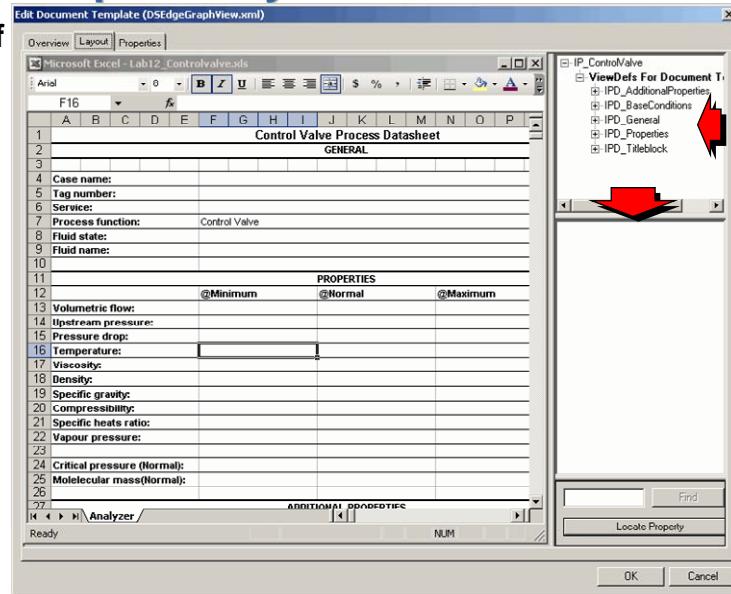
Name:*	IP_ControlValve
Description:	Document template for Instrument Control Valve
Filename:*	D:\SmartPlant\Foundation\2007\SPFAsp\SPFDatasheet\Templates\Lab12_Controlvalve.x... [...]
Interface definition:*	IProcessPointCase [...]
View definitions:*	IPD_AdditionalProperties%IPD_BaseConditions%IPD_General%IPD_Properties%IPD_Titleblo... [...]

Notice that the *Layout* form is divided into three major panes. The left ¾ of the form is devoted to the **Excel template**. The top-right pane is the list of **ViewDefs** related to this document template. The bottom-right pane will show all the **properties** of the ViewDef selected in the top-right pane.

## Editing the Template Layout

- Select one of the ViewDef names to display the list of properties.

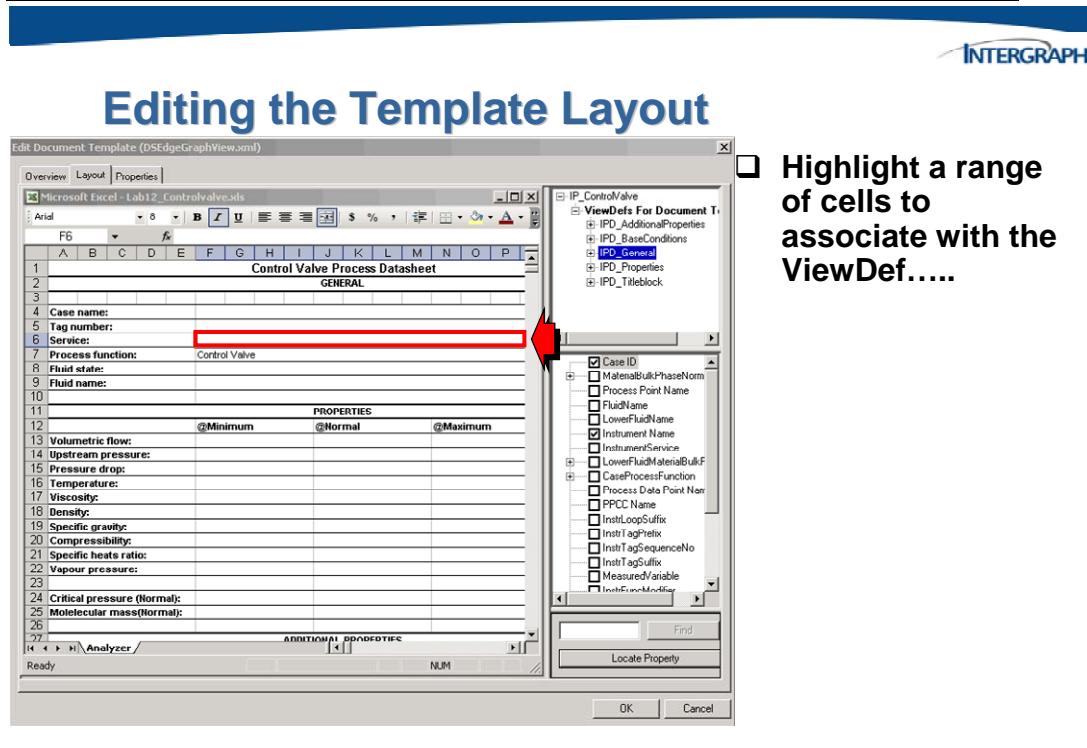
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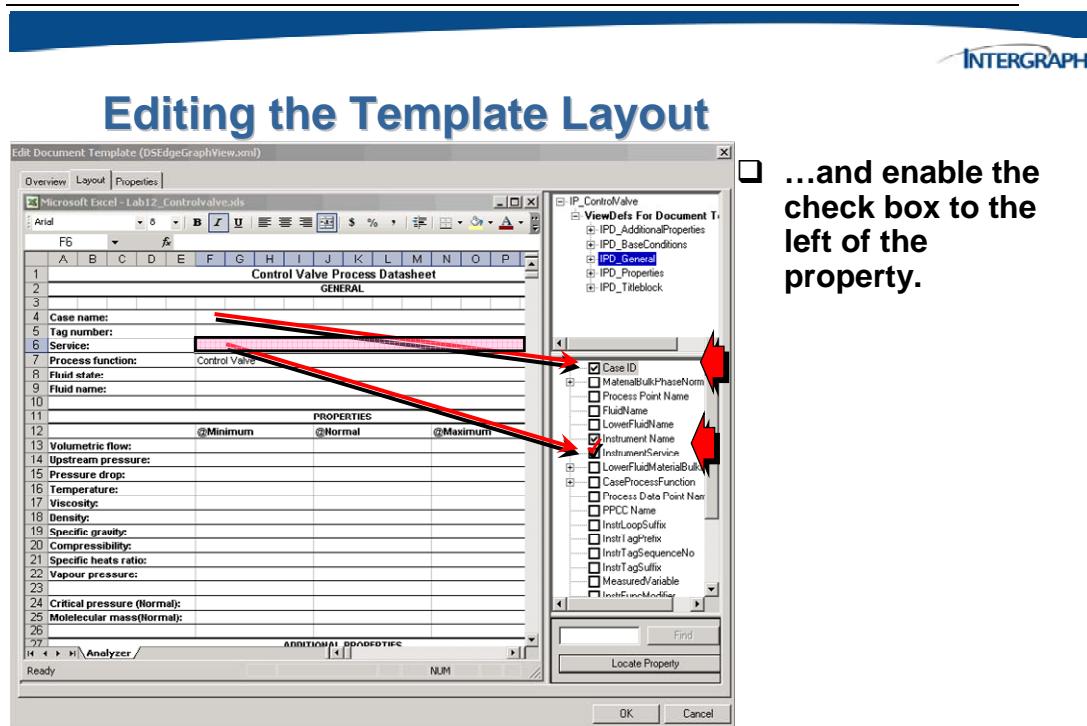
There may be two aspects to mapping string properties to the template: mapping the value and actually placing the *Display As* text on the template. If you are starting from a pre-defined template, you will use the **Place Text** option infrequently.

## 12.4.2 Mapping the String Property Value

To map a string property to a cell on the template, first select the range of cells in the template to be mapped. As an example, in the top section of the template, select the cells to the right of the text *Service*.



To map the value to the selected cells, merely check the box to the left of the property.



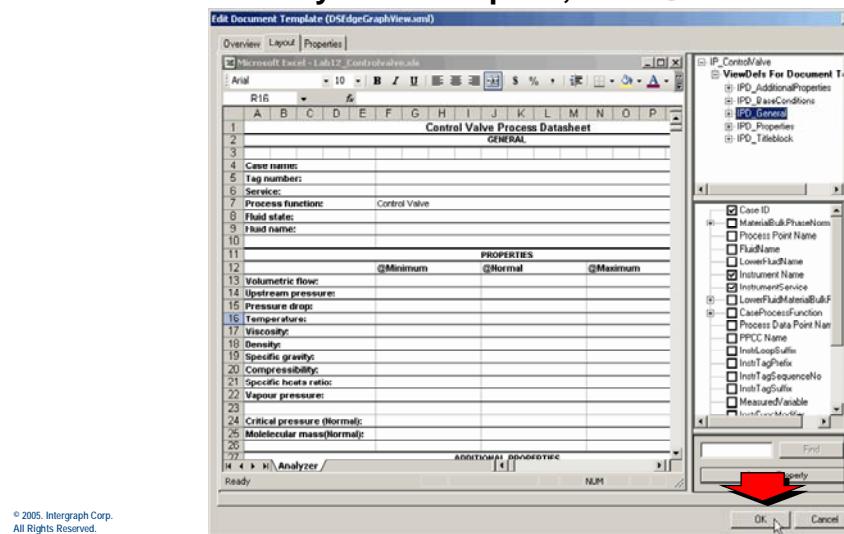
- ...and enable the check box to the left of the property.

At this time, you can use the Excel formatting toolbar to set fonts, justification, colors, or show borders.

After all of the properties have been mapped, exit from the edit template form.

## Editing the Template Layout

- Once the layout is complete, click OK to exit the template.

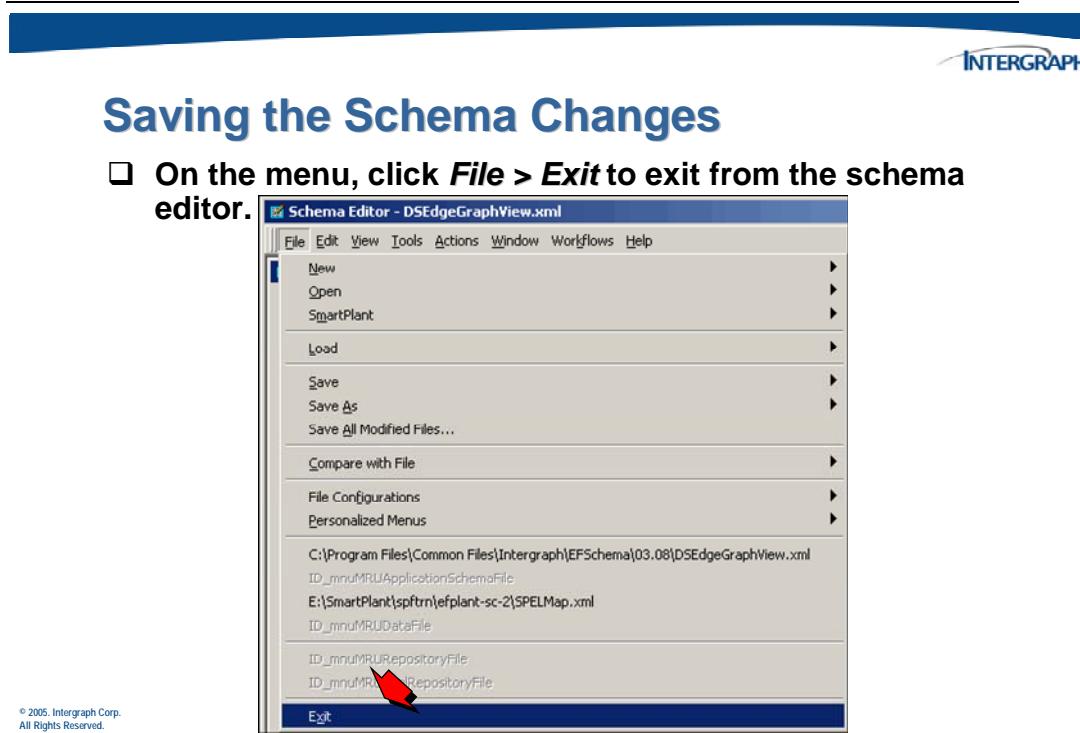


## Editing the Template Layout

- Close the Tree view by clicking on the X on the right side of the title bar.



Once the template has been mapped, exit from the schema editor.



## 12.5 Create a Report Definition

To use datasheets in SPF, you must first define a report definition for the datasheet. Datasheets use report templates the same way that ad-hoc reports do.



### Create a Report Definition

- You can use report definitions to define datasheets in SmartPlant Foundation.
- The templates must exist in the appropriate directory and the report definition must identify which report definition to use for the datasheet.
- Associate the report definition with the interface for which you want to use the datasheet.
- Ad-hoc reporting functionality in SmartPlant Foundation uses View Definitions to identify what objects, relationships, and properties are to be included in the report
- A report definition links one or more view definitions and a template definition for the report.

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The interface identifies the behavior associated with the datasheet. For example, for instrument process datasheets, the *IPD\_ControlValve* report definition is associated with the **IProcessPointCase** interface. Currently, all the instrument process datasheet report definitions are associated with the **IProcessPointCase** interface definition.

The view definitions determine which properties out of the possible properties that a graph definition exposes that are displayed in the datasheet.

To create a file-based report, a **report definition** must be created in SmartPlant Administration that links one or more view definitions and a template definition for the report.



## Starting Schema Object Administration

- To start the Schema Object Administration utility, locate the icon from the desktop and double-click on it.



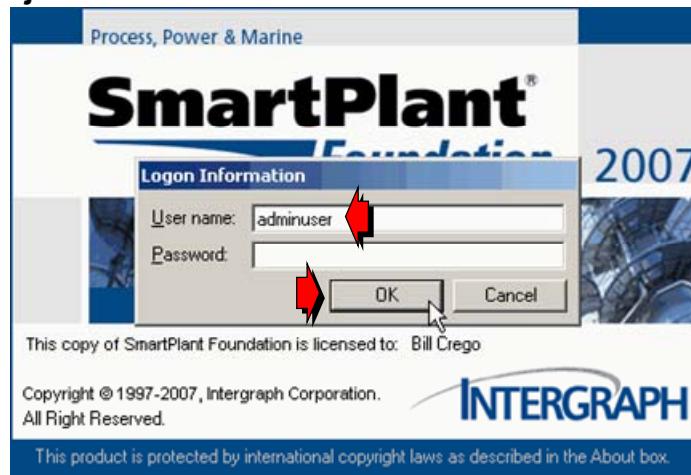
Schema Object  
Administration

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All Rights Reserved.



## Starting Schema Object Administration

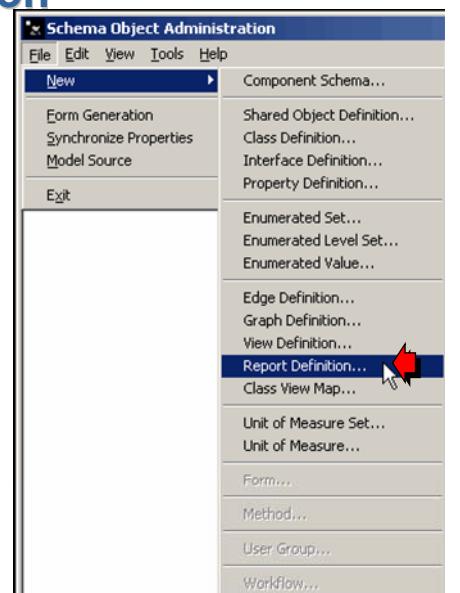
- Enter an administrative user name to login to Schema Object Administration.



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## Create a Report Definition

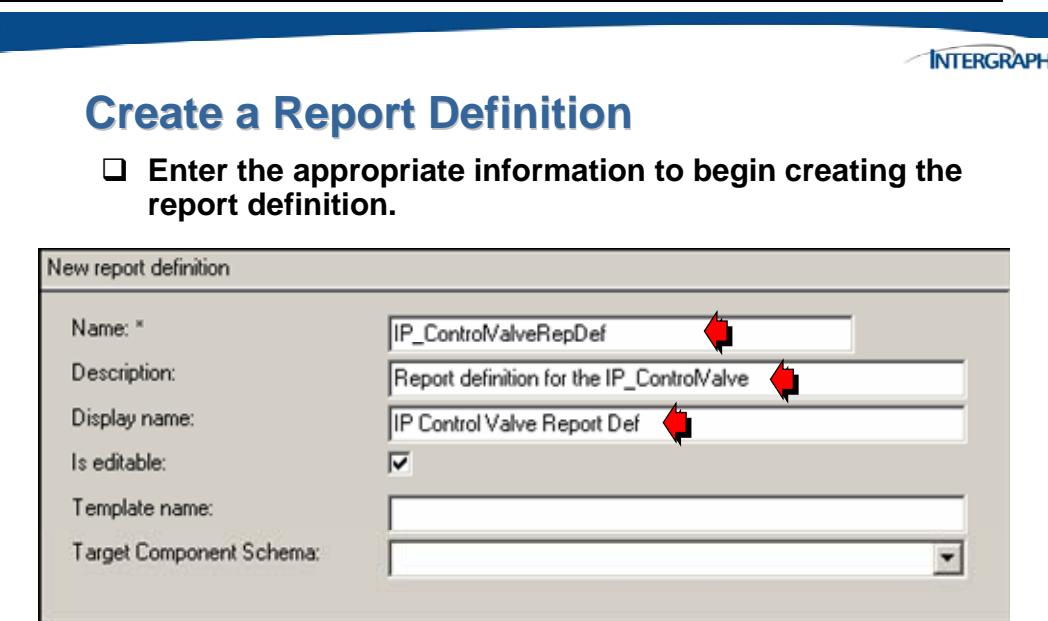
- From the menu, select **File > New > Report Definition...**



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The template definition is an **Excel** spreadsheet that specifies how results of each of the view definitions reports are to be displayed, including formatting of structured repeating rows.

In the *New report definition* dialog, type the name of the report definition in the *Name* box.



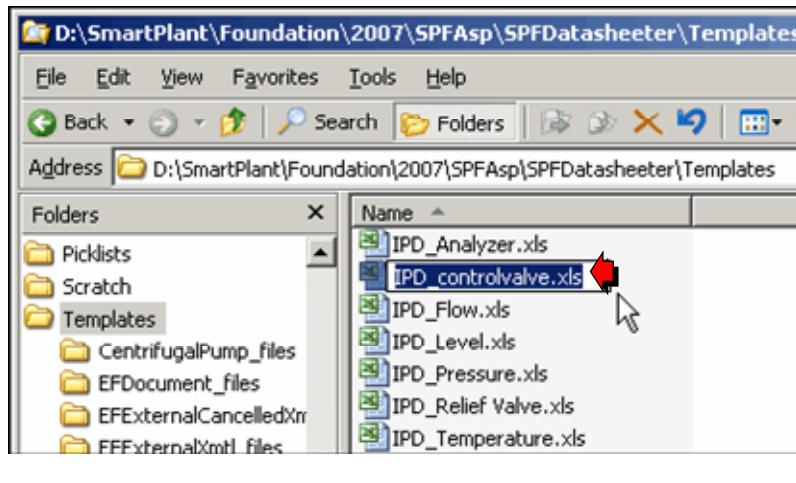
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- 
- ❑ Type a brief description for the report definition in the *Description* box.
  - ❑ Specify the way the report definition name appears in the *Display name* box.
  - ❑ Specify a template for the report in the *Template Name* box. For example, if you wanted to use the Excel template *ControlValve*, type *ControlValve.xls* in the *Template name* box.



## Create a Report Definition

- Copy the name of the Excel spreadsheet to be associated with the report definition to the clipboard.

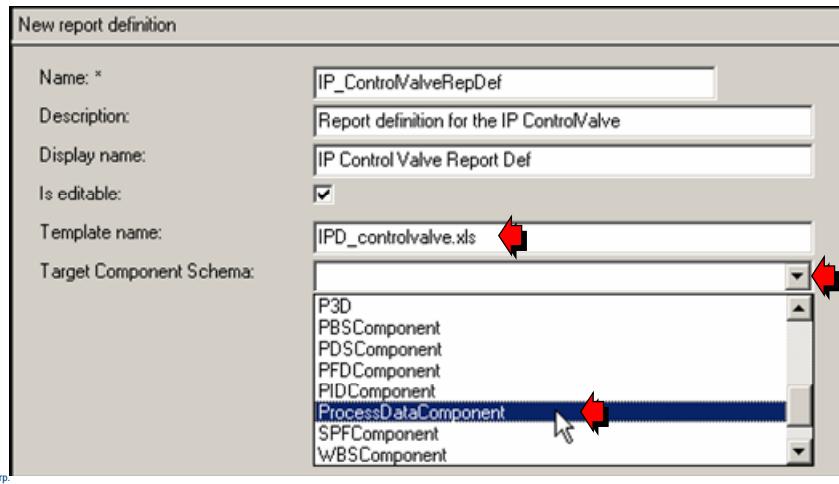


A short cut would be to copy and paste the name of the Excel template to use.



## Create a Report Definition

- Paste the name of the copied Excel spreadsheet select the appropriate component schema.

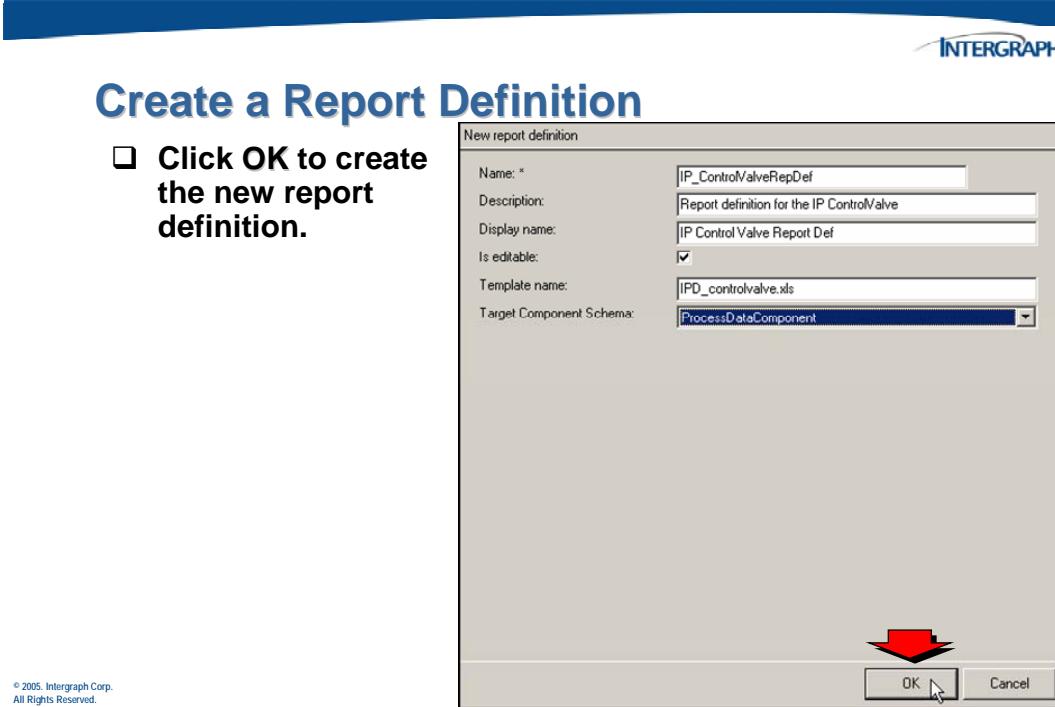


- In the *Target Component Schema* pane, select the component schema which defines the data within the report.

- ❑ Click OK.

## Create a Report Definition

- ❑ Click OK to create  
the new report  
definition.

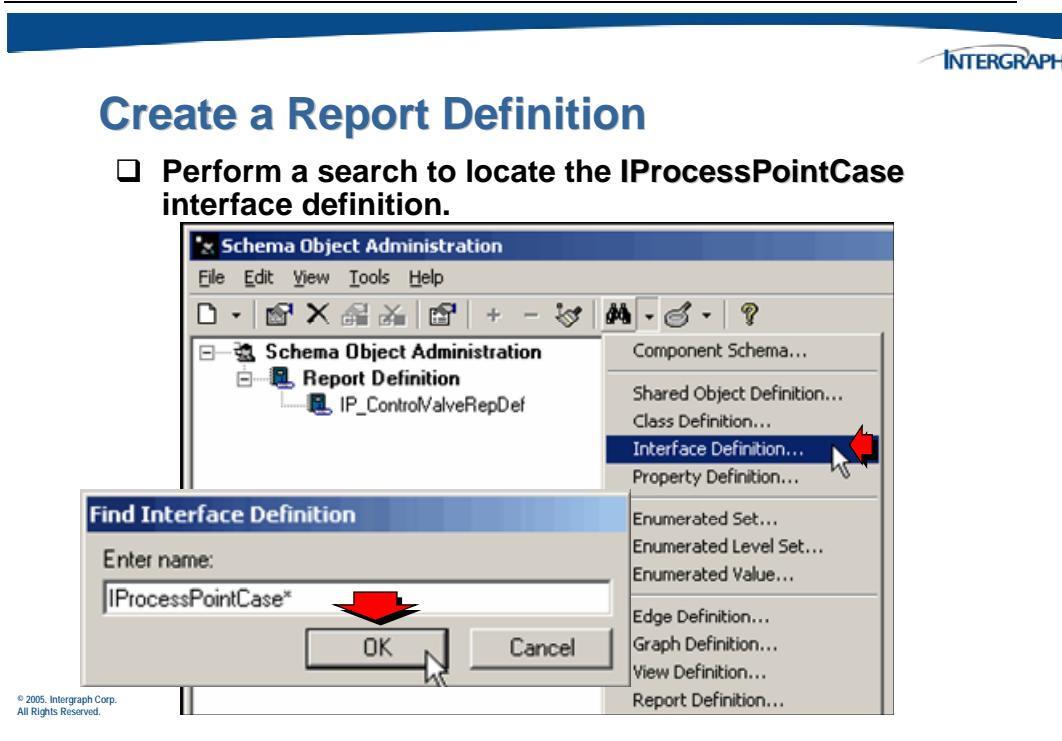


**Note:** Options followed by an asterisk (\*) are required to create the object.

## 12.5.1 Adding a Report Definition to the Interface Definition

After the **Report Definition** has been created, drag and drop the report onto the **Interface Definition** that is the target of the report. For example, drop *IP\_ControlValveRepDef* onto the *IProcessPointCase* InterfaceDef.

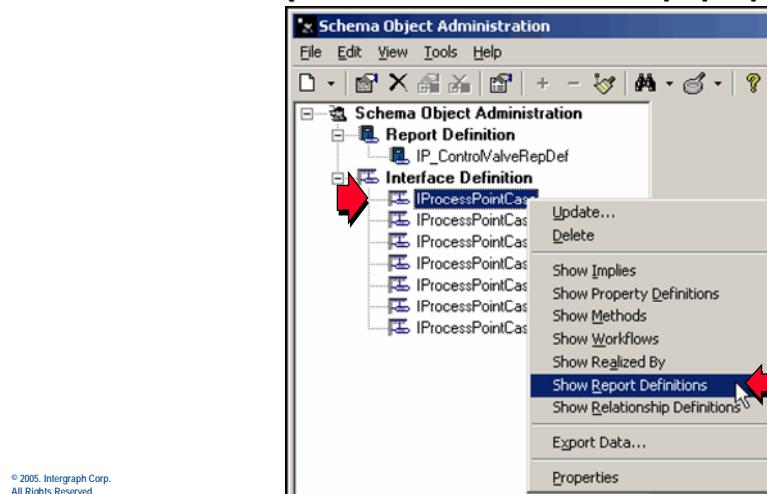
First find the InterfaceDefs by selecting *Find Interface Definition* tool.



Next, display the ***Report Definitions*** relationship for the Interface Def.

## Create a Report Definition

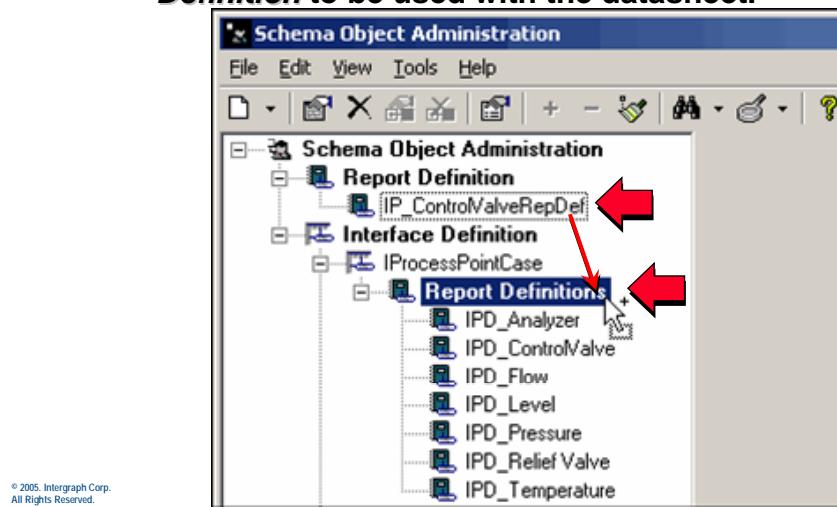
- Right-click on the interface definition object and select **Show Report Definitions** from the pop-up menu.



Drag a report definition onto the Report Definitions node under the appropriate interface definition to create the relationship.

## Create a Report Definition

- Drag and drop the ***Report Definition*** onto the ***Interface Definition*** to be used with the datasheet.

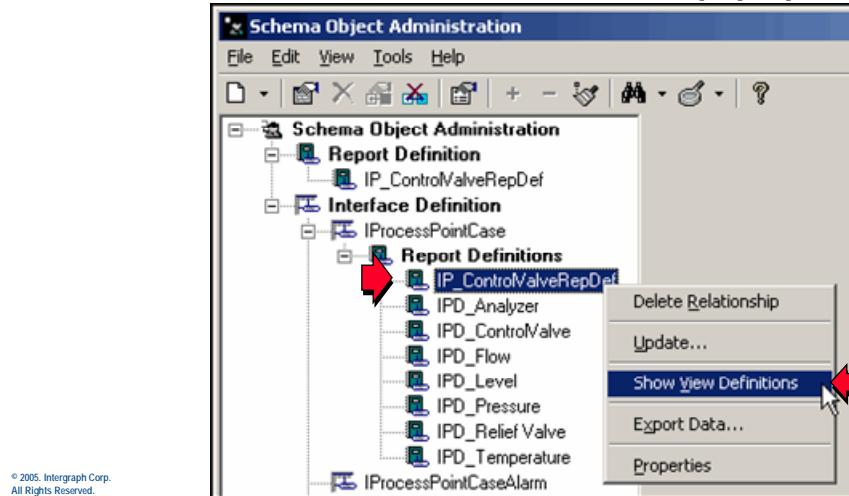


Associate the appropriate ViewDefs to the Report Definition.



## Create a Report Definition

- Right-click on the Report Definition and select the **Show View Definitions** command from the pop-up menu.

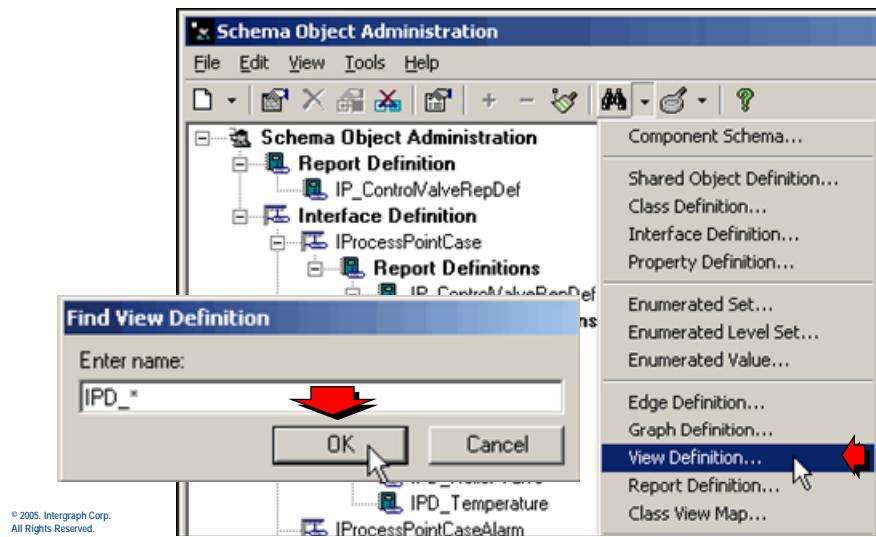


This will display the ***View Definitions*** relationship.

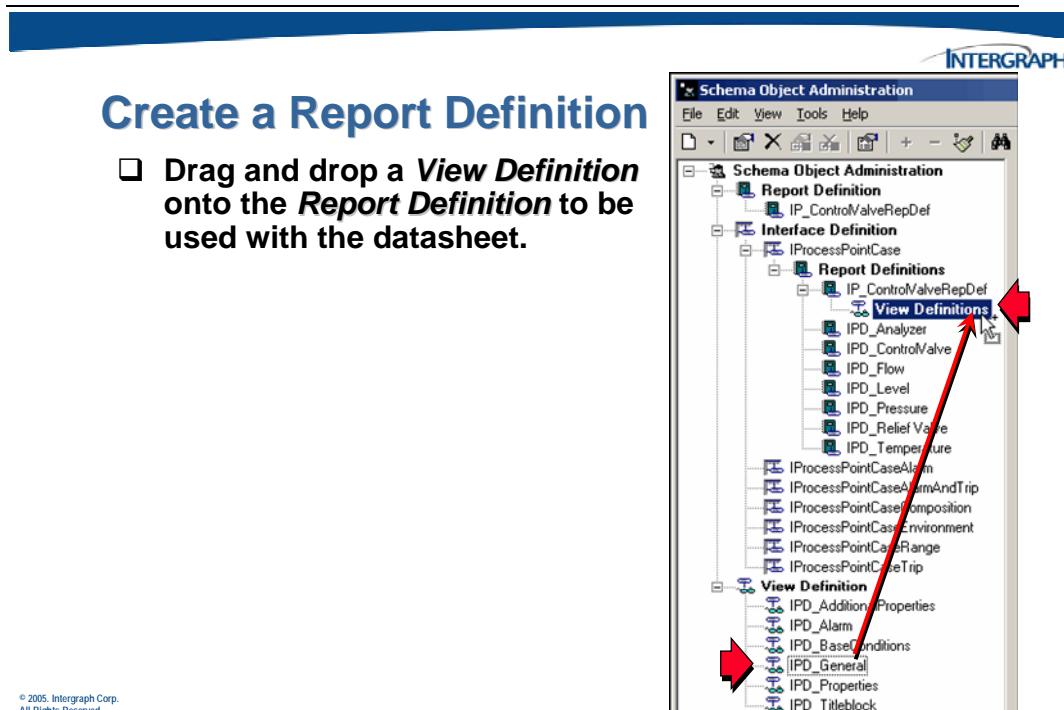


## Create a Report Definition

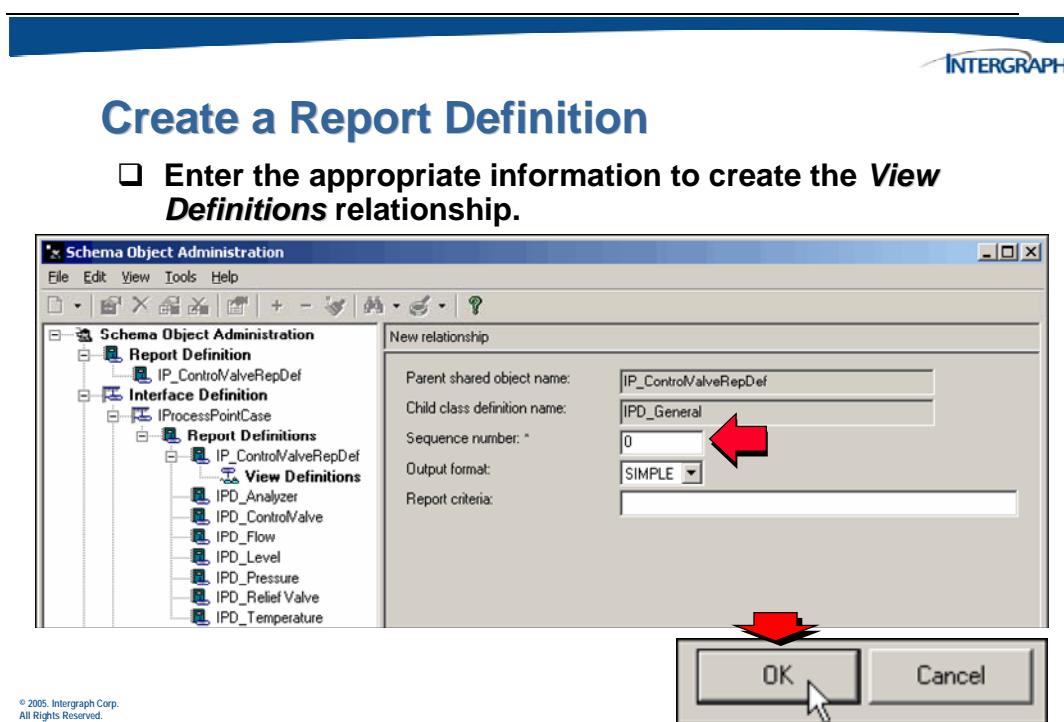
- Perform a search to locate the IPD\* view definitions.



This will display the view definitions in the tree. Create a relationship between the report definition and all of the view definitions that are referenced in the datasheet Excel template.



A New relationship form will display in the right pane of the application window.

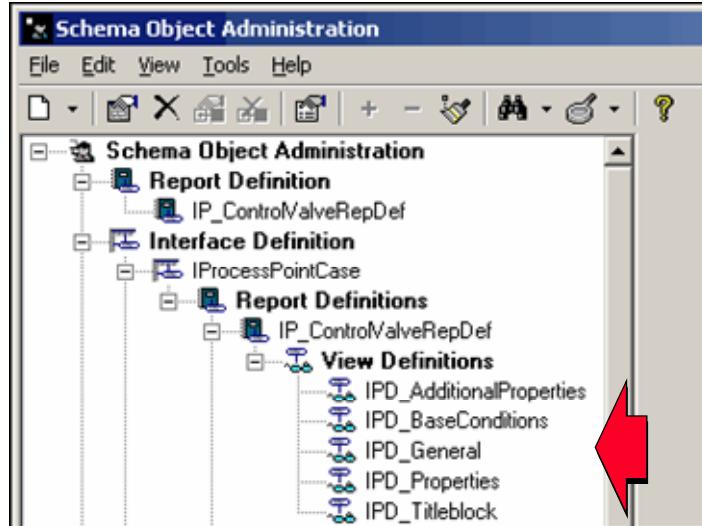


Take all of the default values for the relationship properties and also enter a *Sequence number*, which is a required value.



## Create a Report Definition

Repeat this for the other ViewDefs.

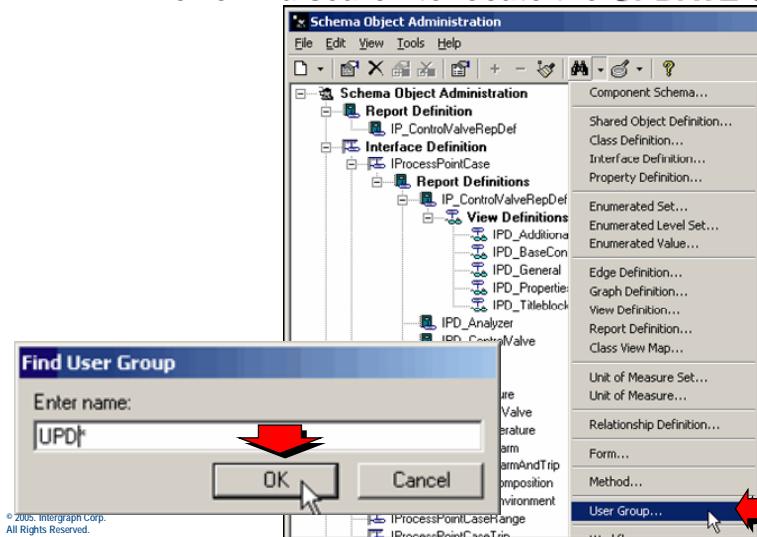


Now add access security to the *View Definitions* associated with the *Report Definition*.



## Create a Report Definition

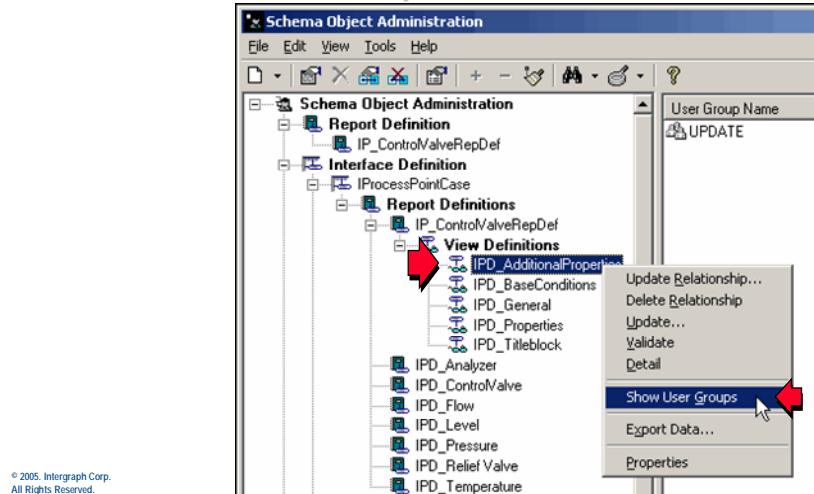
Perform a search to locate the UPDATE User Group.



This will display the User Group in the tree. Next, display the **User Groups** relationship for the View Defs.

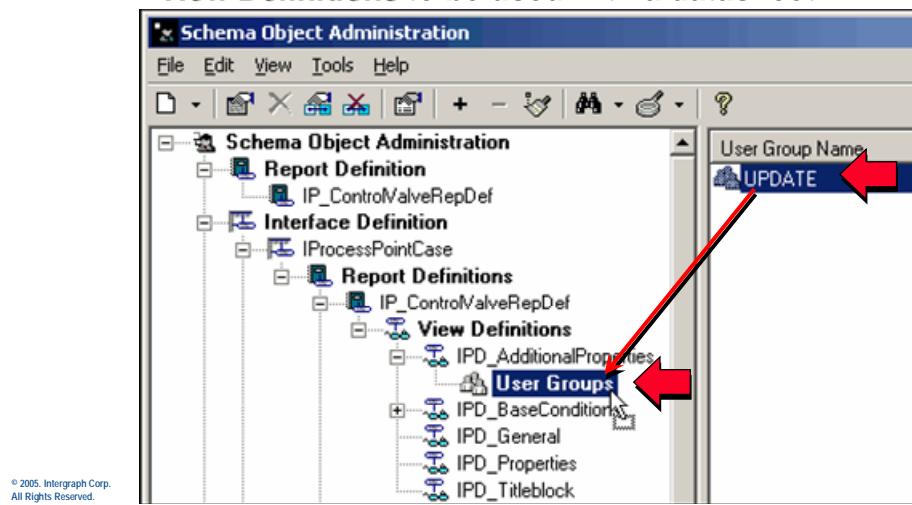
## Create a Report Definition

- Right-click on a view definition object and select the **Show User Groups** command from the pop-up menu.



## Create a Report Definition

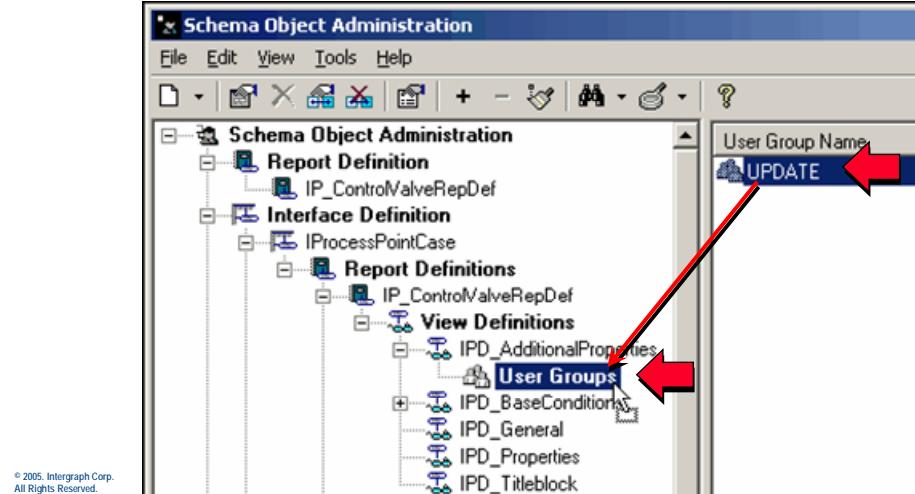
- Drag and drop the UPDATE User Group onto one of the View Definitions to be used with a datasheet.



Drag a user group onto the *User Groups* relationship node under the appropriate view definition to create the relationship.

## Create a Report Definition

- Drag and drop the UPDATE User Group onto one of the View Definitions to be used with a datasheet.

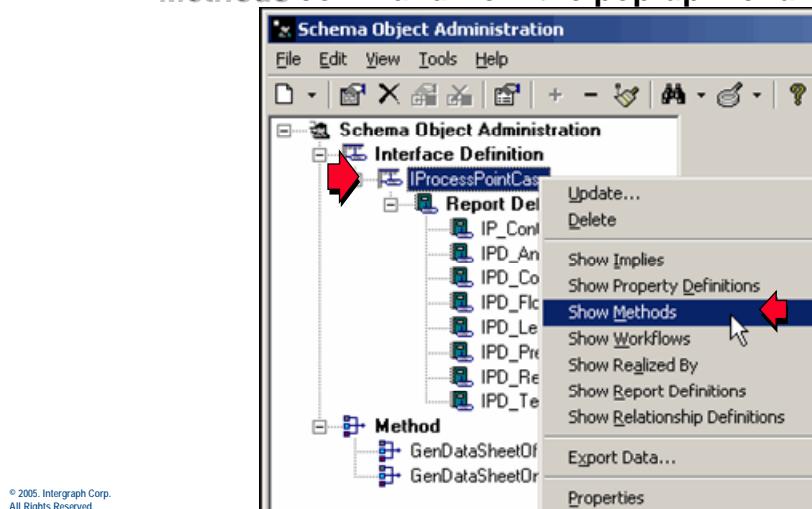


## 12.5.2 Adding a Method to the Interface Definition

Attaching a method to an interface definition means that the method is available for all objects associated with the interface definition. For example, if you attach a method to the *IObject* interface definition, right-clicking all class definitions that realize the IObject interface in the SmartPlant Foundation client displays the selected method on the shortcut menu.

### Adding a Method to the Interface Def

- Right-click on an Interface object and select the **Show Methods** command from the pop-up menu.



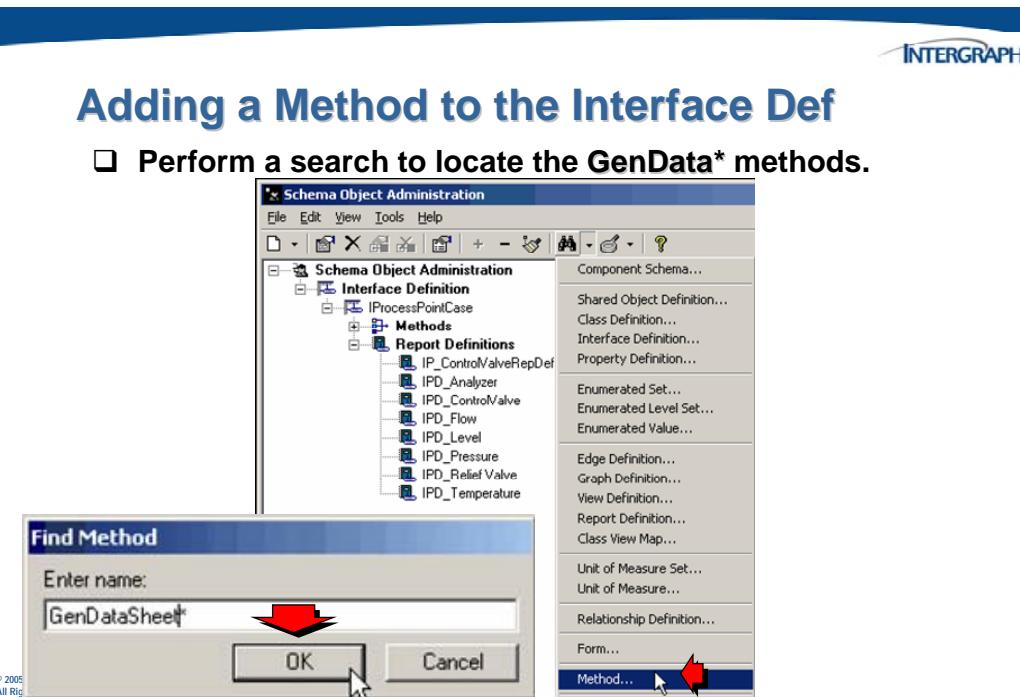
This will display the **Methods** relationship.

---

Note: Methods are created in *System Administration*.

---

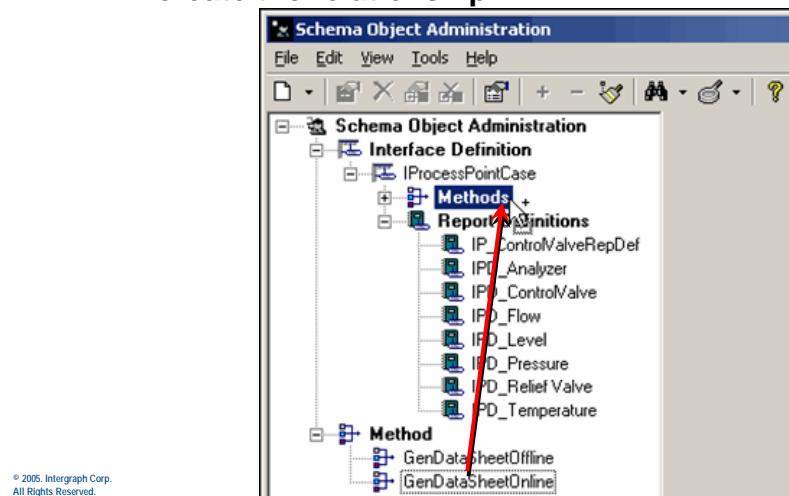
Again, find the existing methods by choosing the **Find Method...** tool.



In the *Find Method* dialog, enter your search criteria, and then click **OK**.

## Adding a Method to the Interface Def

- Drag and drop the method onto an interface definition to create the relationship.



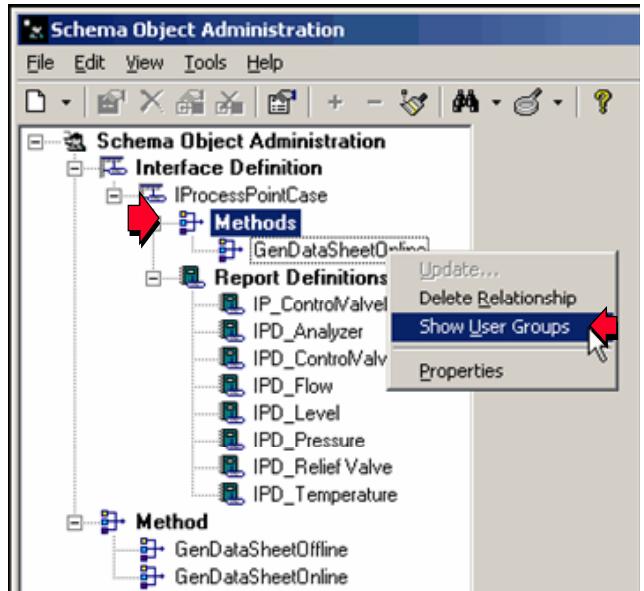
There are two delivered methods to use with datasheets, **GenDatasheetOffline** and **GenDatasheetOnline**.

*GenDatasheetOnline* is the method used to launch the datasheet via an Excel file so that it can be manipulated interactively. This method can also be used to create offline datasheets.

In order for the user to access these methods, group access must exist. Expand the tree to verify the method access security.

## Adding a Method to the Interface Def

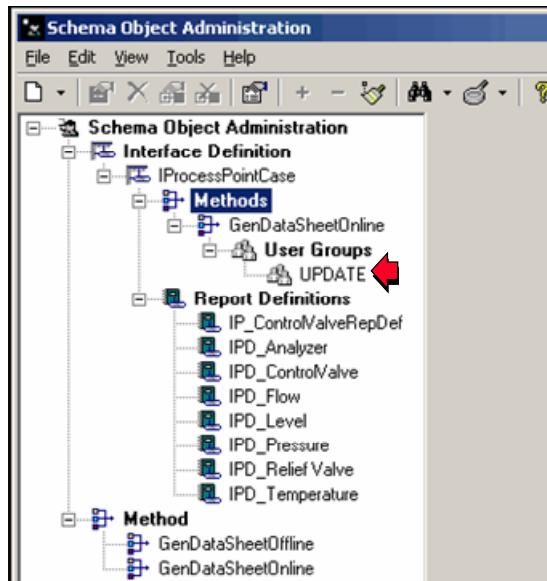
- Right-click on a method and select the **Show User Groups** command to verify user access to the method.





## Adding a Method to the Interface Def

**Users belonging to the UPDATE group can access this command from the menu.**



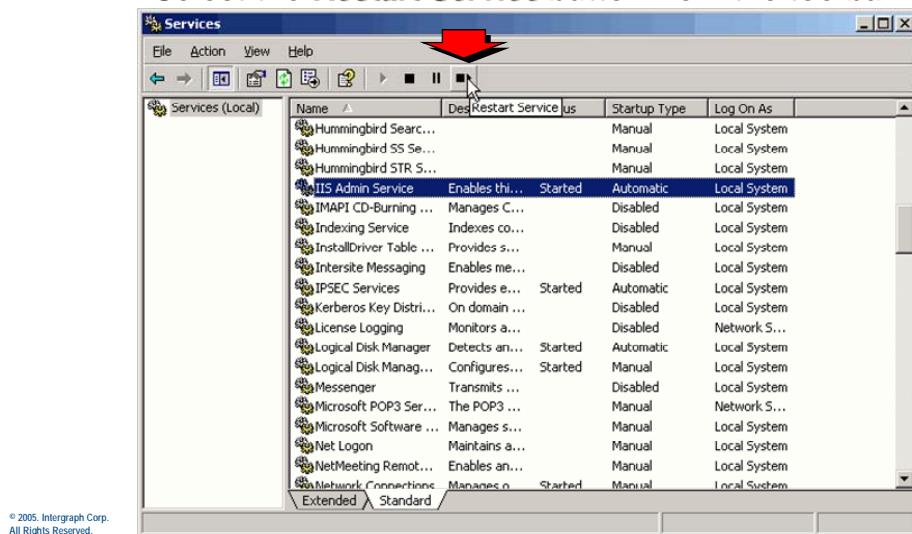
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Since changes have been made to the model, restart IIS to refresh the cache.



## Reset IIS

- Select the **Restart Service** button from the toolbar.



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## 12.6 Testing Datasheet Functionality

To test the datasheet functionality, use the Desktop Client to search for an existing instance of an Instrument.



### Starting the Desktop Client

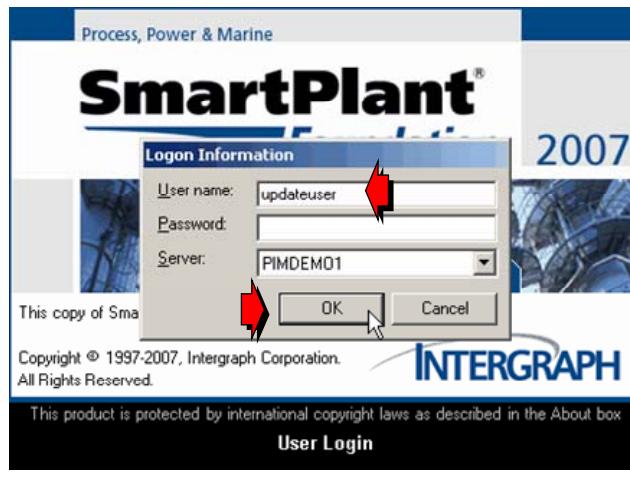
- To start the Desktop Client interface, locate the icon from the desktop and double-click on it.





## Starting the Desktop Client

- Enter an UPDATE group user name to login to SmartPlant Foundation.

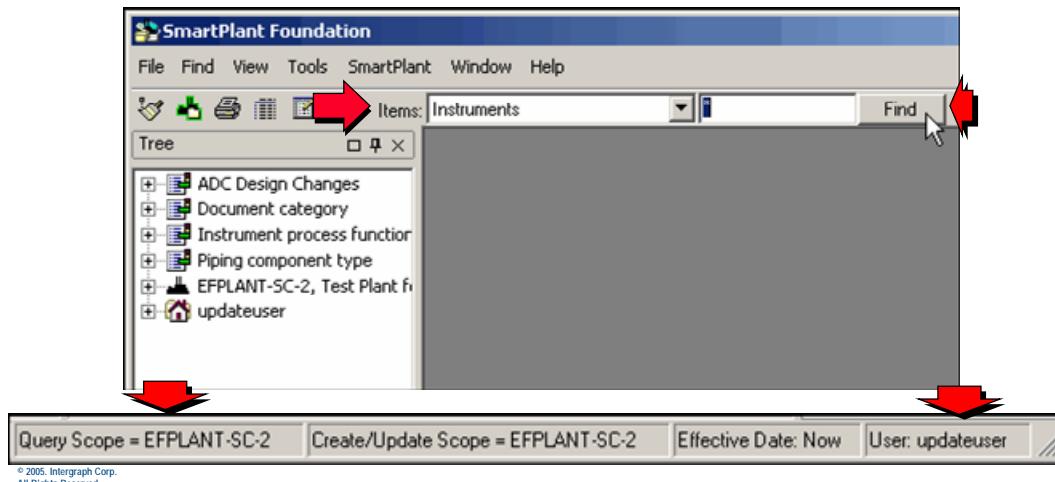


Now, search for an existing instance of a piece of mechanical equipment.



## Testing the Datasheet Functionality

- Use the quick find in the Desktop Client, to locate an instance of an existing instrument.

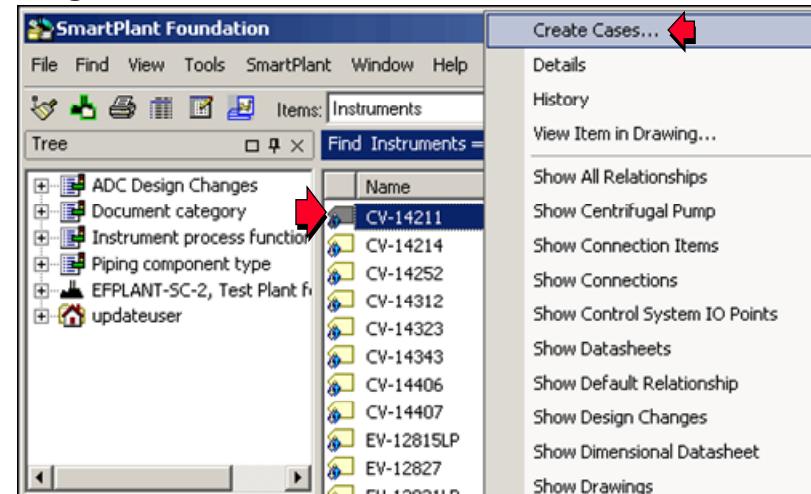


The search is necessary in order to have access to the datasheet methods that have been attached to the appropriate interface definitions.



## Generate Datasheet Online

- Choose an instance of a control valve instrument, use the right mouse button and select **Create Cases...**

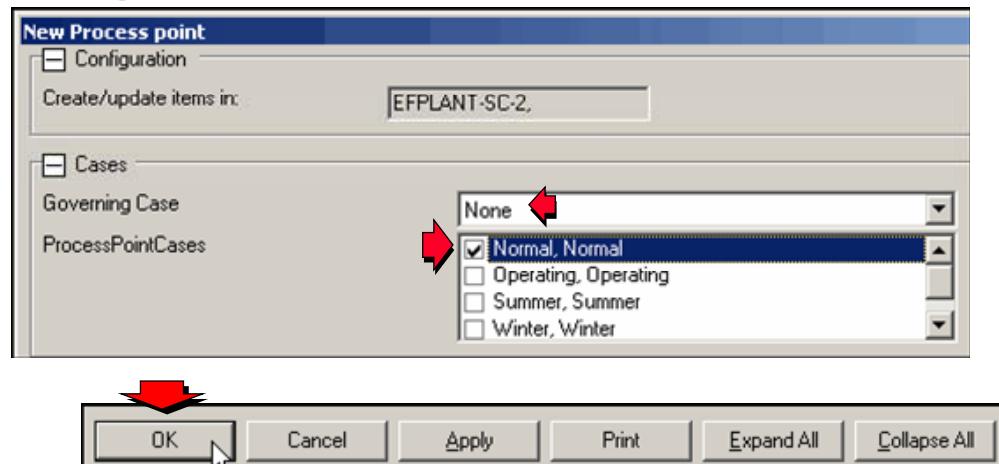


For Instrument objects, generate the governing case/process point case.

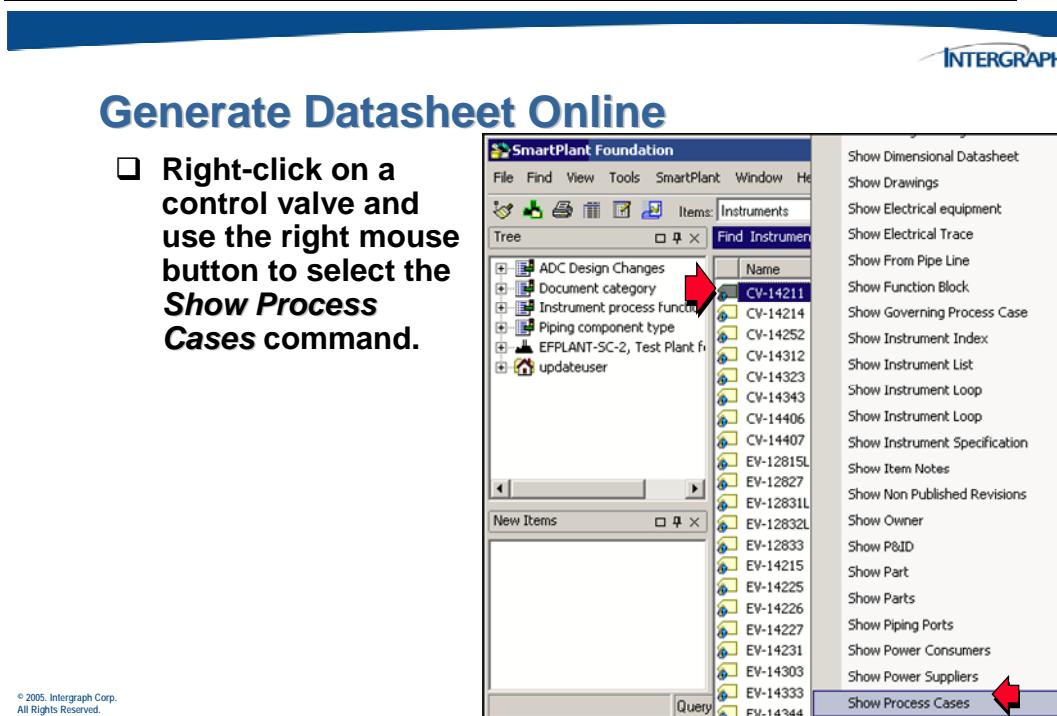


## Generate Datasheet Online

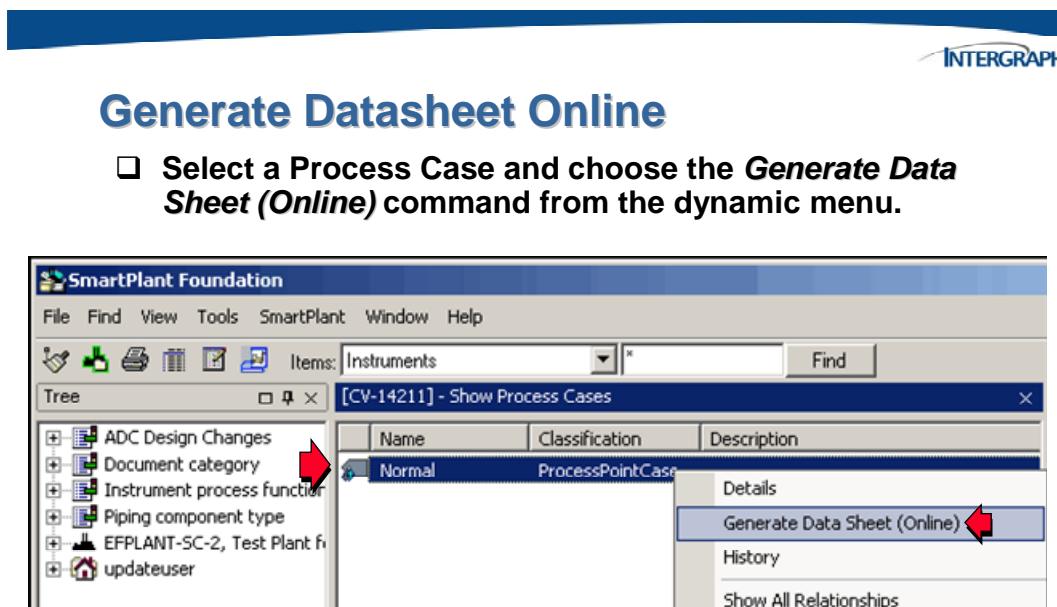
- Select the type of **ProcessPointCases** to create and click **OK**.



Once the case has been created, display the cases.



Select a case object in order to launch the *GenDataSheetOnline* method.

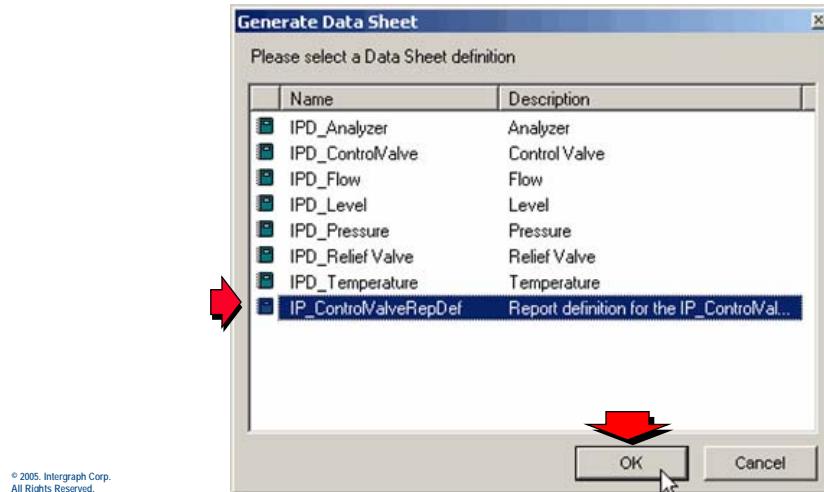


This will launch the datasheet within Microsoft Excel. If there is more than one report definition object associated with the object class via different interfaces, you will be prompted to select the desired Data Sheet (report definition).

---

## Generate Datasheet Online

- Select the Report Definition in order to display the correct datasheet template (xls file).



---

**Note:** Excel macros control the edit session so you must select the *Enable Macro* button when the datasheet appears. If you choose not to enable the macros, no changes you make to the spreadsheet can be saved.

---



## Generate Datasheet Online

- Enter the appropriate property values in the fields of the datasheet.

Microsoft Excel - CV-14211 - Normal.xls

GENERAL											
4	Case name:	Normal									
5	Tag number:	CV-14211									
6	Service:										
7	Process function:	Control Valve									
8	Fluid state:										
9	Fluid name:										
10											
11											
12		@Minimum	@Normal	@Maximum	Units						
13	Volumetric flow:										
14	Upstream pressure:										
15	Pressure drop:										
16	Temperature:	120		125	130 F						
17	Viscosity:	22		25	27 cP						
18	Density:				lb/(ft-h)						
19	Specific gravity:				lb/(ft-s)						
20	Compressibility:				lb-f-in^2						
21	Specific heats ratio:				lb-f-s/ft^2						
22	Vapour pressure:				P						
23					Pa-s						
24	Critical pressure (Normal):				poundal-s/ft^2						

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Use the datasheet to enter the necessary properties to update the instance of an Instrument tag.



## Generate Datasheet Online

Zoomed in view of a section of the datasheet.

Microsoft Excel - CV-14211 - Normal.xls

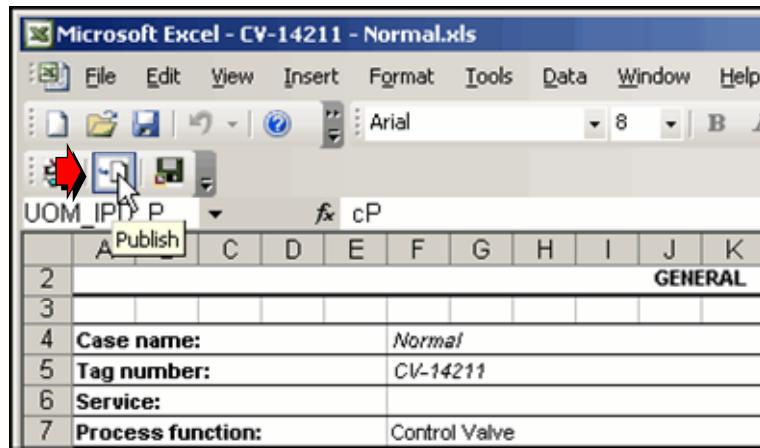
GENERAL											
4	Case name:	Normal									
5	Tag number:	CV-14211									
6	Service:										
7	Process function:	Control Valve									
8	Fluid state:										
9	Fluid name:										
10											
11											
12		@Minimum	@Normal	@Maximum	Units						
13	Volumetric flow:										
14	Upstream pressure:										
15	Pressure drop:										
16	Temperature:	120		125	130 F						
17	Viscosity:	22		25	27 cP						
18	Density:				lb/(ft-h)						
19	Specific gravity:				lb/(ft-s)						
20	Compressibility:				lb-f-in^2						
21	Specific heats ratio:				lb-f-s/ft^2						

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## Generate Datasheet Online

- To publish these values back to SmartPlant Foundation, select the *Publish* command from the menu bar.



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This will update an instance of an *Control Valve Instrument* object in the SmartPlant Foundation database.



## Generate Datasheet Online

A dialog will display indicating the status of the publish operation.

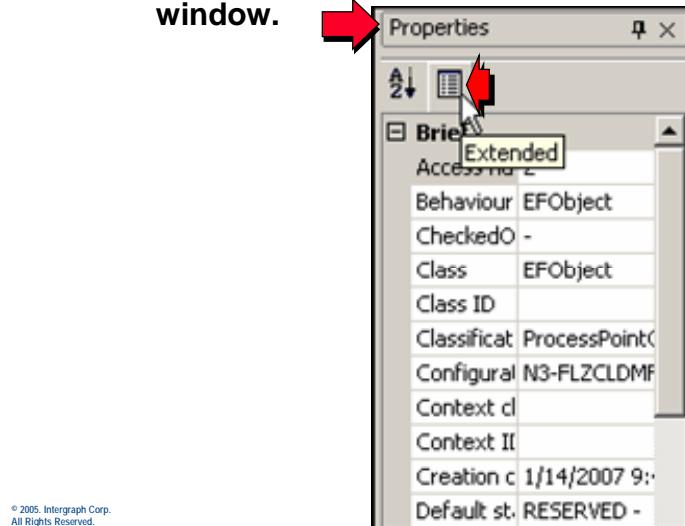


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Review the values that have been published using the properties window in the client.

## Generate Datasheet Online

- Click on the extended list button on the properties window.

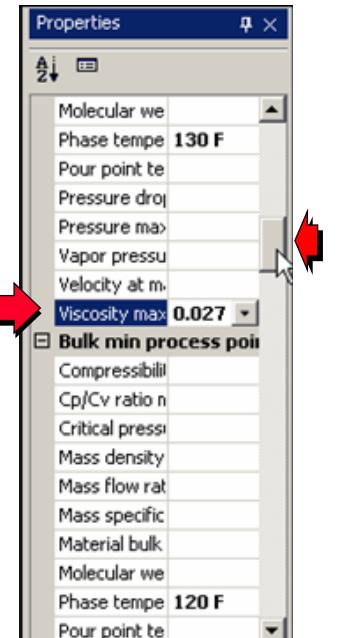


Unit of Measurement values are displayed in their default formats.

## Generate Datasheet Online

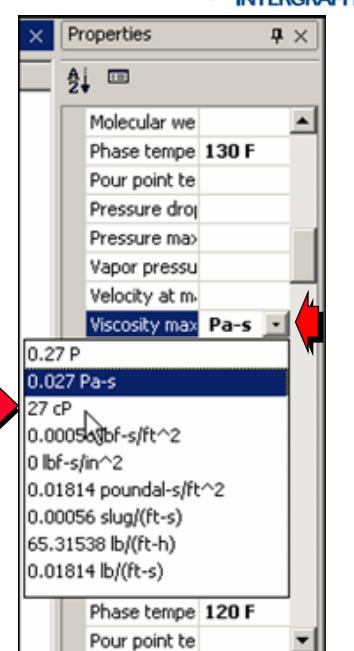
- Select one of the new UOM values to change the UOM display.

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## Generate Datasheet Online

- Select the UOM format that you wish to see displayed in this field.

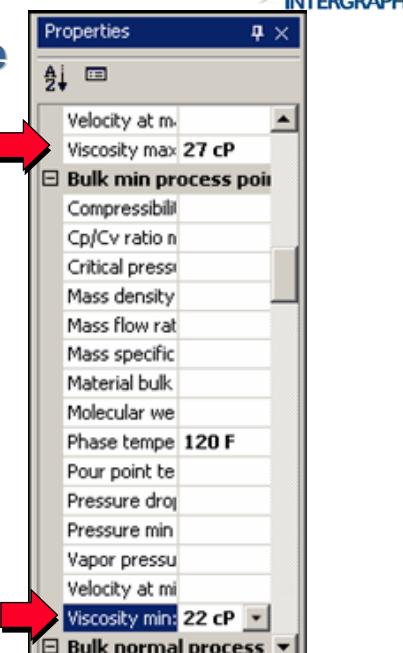


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The displayed values now match those that were entered into the datasheet during the update operation.

## Generate Datasheet Online

- Repeat this for any of the other UOM values in the properties window.



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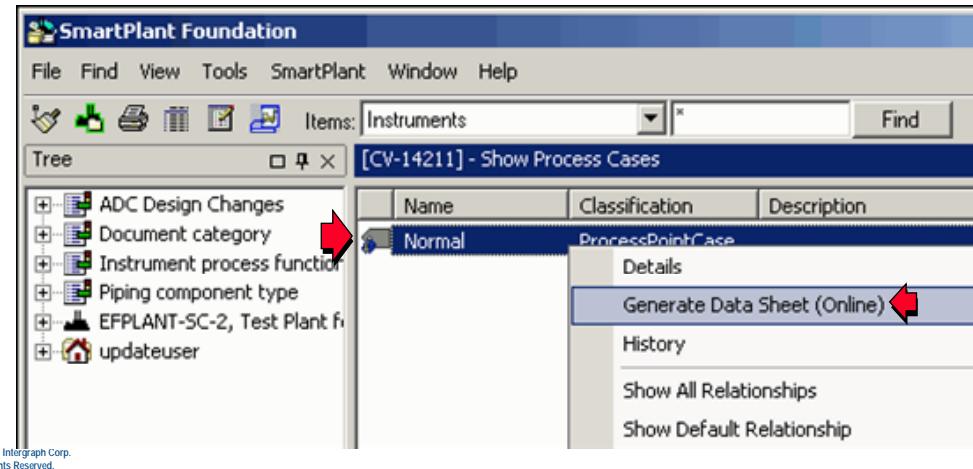
## 12.6.1 Using Datasheets Offline

The Generate Datasheet (Online) command can also be used to do offline datasheet functionality. This allows you to generate the necessary datasheet files into a folder, send it to an offline user and then when the datasheet is sent back, the information can be published into SPF.



### Generating an Offline Datasheet

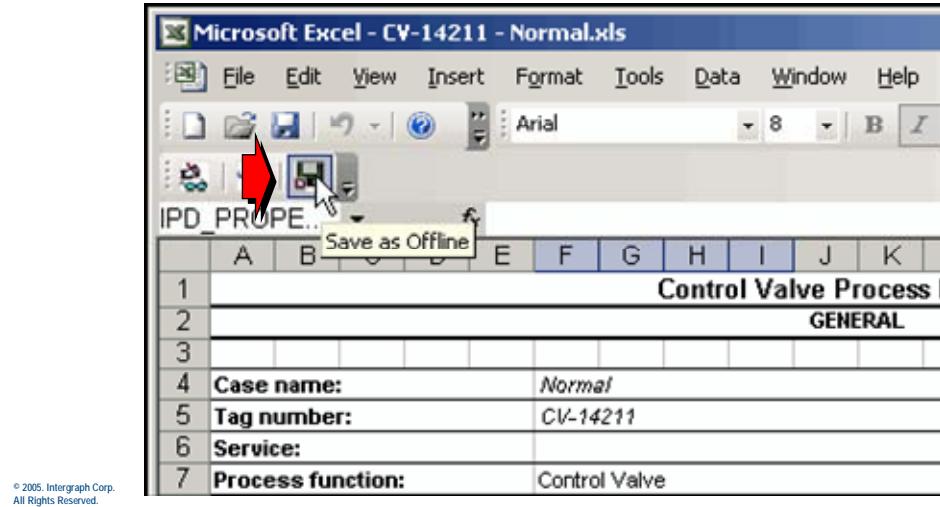
- Launch the datasheet again by using the right mouse button and selected the **Generate DataSheet (Online)** command.



Again, if there is more than one report definition object associated with the object class via different interfaces, you will be prompted to select the desired report definition.

## Generating an Offline Datasheet

- From the menu bar, select the **Save as Offline** command to save this datasheet to a folder.

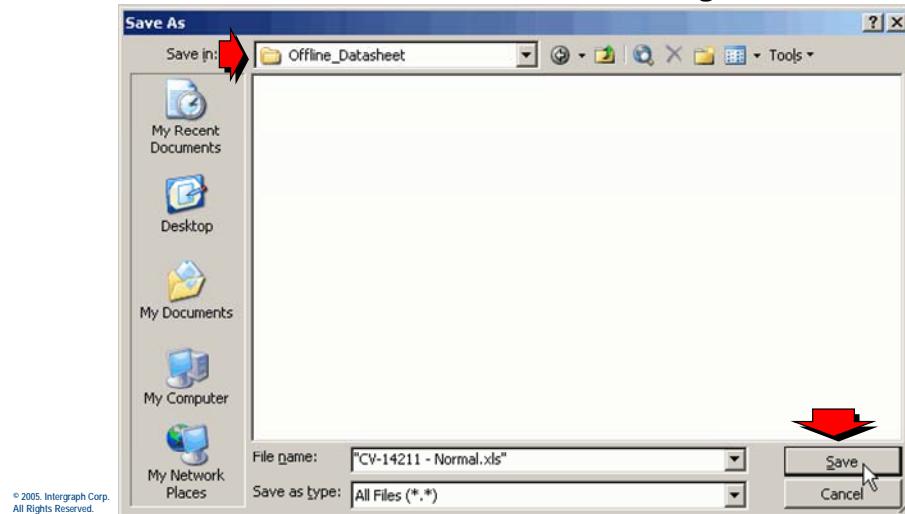


You can use the **Save as Offline** button to save the contents of the datasheet as an offline XLS file that can be used later.



## Generating an Offline Datasheet

- Select a folder from the **Save As** dialog and click **Save**.



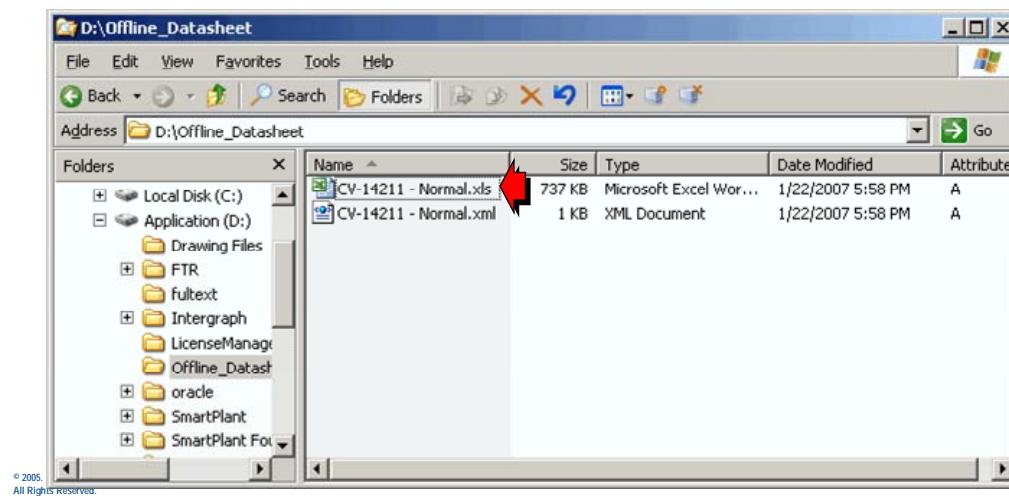
The necessary offline files will be generated and placed in the selected folder. The files that should be in the “offline” folder is an xml file and the Excel worksheet.

The excel file can then be sent to an “offline” user who can launch excel and make edits to the data.



## Generating an Offline Datasheet

- Double-click on the XLS file to launch the datasheet offline.



An offline user can use the datasheet to update object values that can be published into SPF at a later time.

**Control Valve Process Datasheet**

		Control Valve Process Datasheet			
		GENERAL			
4	Case name:	Normal			
5	Tag number:	CV-14211			
6	Service:				
7	Process function:	Control Valve			
8	Fluid state:				
9	Fluid name:				
10					
11	PROPERTIES				
12		@Minimum	@Normal	@Maximum	Units
13	Volumetric flow:				
14	Upstream pressure:				
15	Pressure drop:				
16	Temperature:	35	40	45	C
17	Viscosity:	22	25	27	cP
18	Density:				
19	Specific gravity:				
20	Compressibility:				
21	Specific heats ratio:				
22	Vapour pressure:				
23					

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After the changes have been made, save the contents of the excel file (datasheet).

**Microsoft Excel - CV-14211 - Normal.xls**

- File Edit View Insert Format Tools Data Window
- New... Ctrl+N
- Open... Ctrl+O
- Close
- Save Ctrl+S**
- Save As...
- Permission
- Page Setup...
- Print Area Ctrl+P
- Print...
- Send To
- 1 E:\temp\CV-14211 - Normal.xls
- 2 C:\Documents and Settings...\CV-14211 - Normal.xls
- 3 \SmartPlant\Foundation\2...Lab12\_Controlvalve.xls
- 4 C:\temp\Datasheets\Lab12\_Controlvalve.xls
- Exit

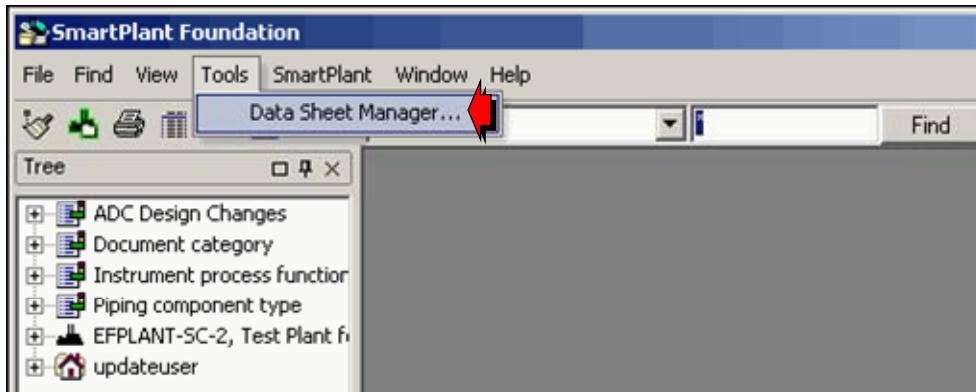
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Once the offline user sends the datasheet files back, the Desktop Client can be used to publish the datasheet information.



## Generating an Offline Datasheet

- In the Desktop Client, choose the **Tools > Data Sheet Manager...** menu command.



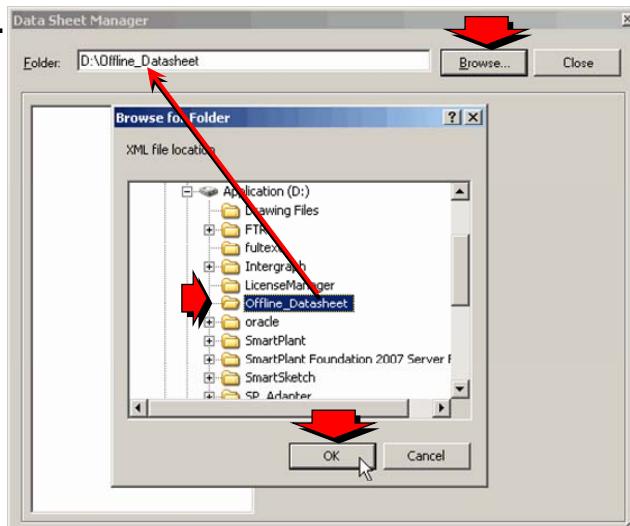
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The *Datasheet Manager* form will be displayed. Use the **Browse** button to choose the location where the offline files are located.



## Generating an Offline Datasheet

- Select a folder where the offline files are located and click **OK**.

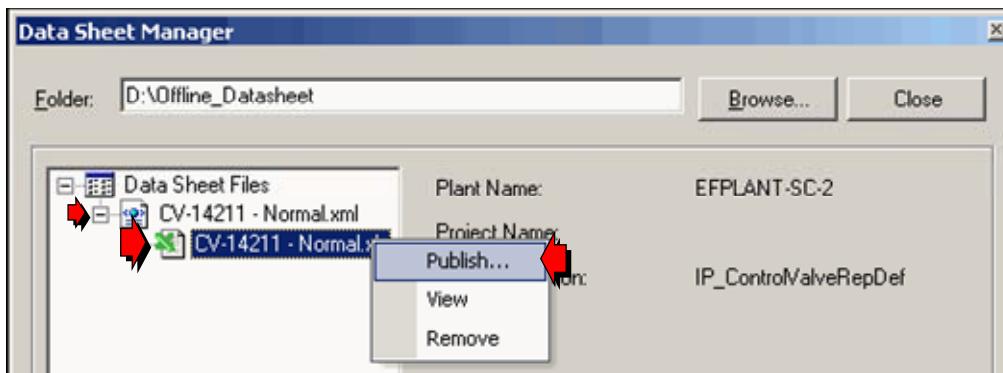


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Expand the contents of the displayed XML file from the offline folder. Then, right-click on the xls file and choose the **Publish...** command to publish the offline datasheet information.

## Generating an Offline Datasheet

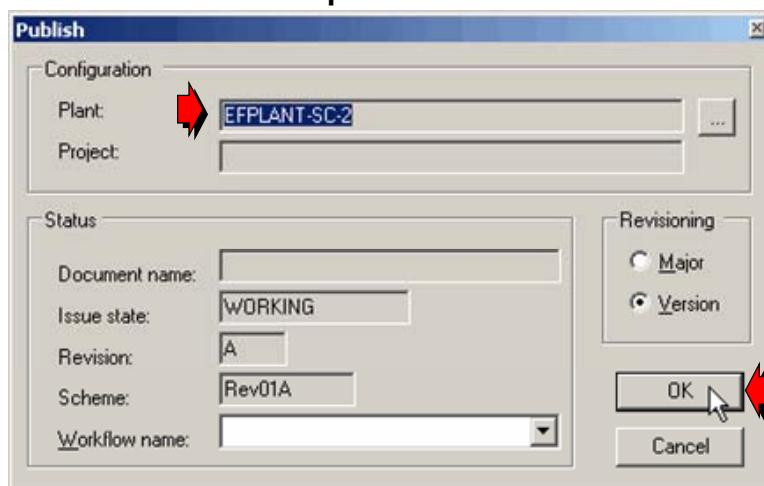
- To publish these values into SmartPlant Foundation, select the **Publish** command from the pop-up menu.



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## Generating an Offline Datasheet

- When the **Publish** dialog displays, check the information and then click **OK** to publish.



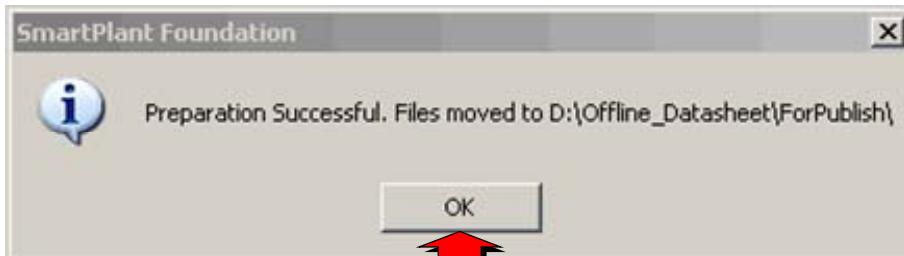
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This will update an instance of an *Agitator* object in the SmartPlant Foundation database.



## Generating an Offline Datasheet

A dialog will display indicating the status of the publish operation.

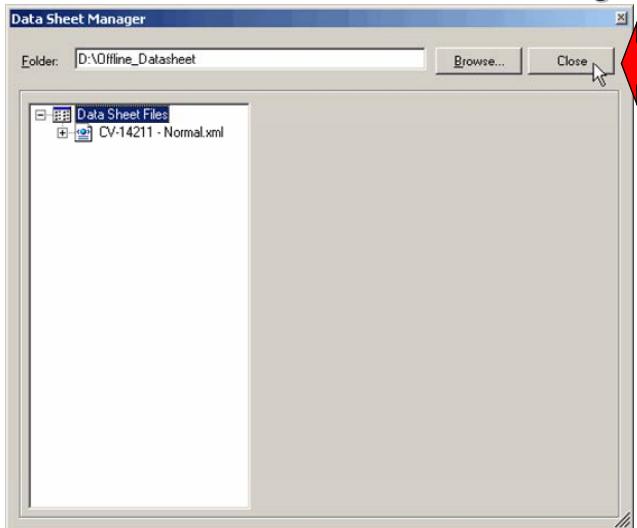


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## Generating an Offline Datasheet

Click Close to dismiss the *Data Sheet Manager* dialog.



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Review the values that have been published using the properties window in the client.

## Generate Datasheet Offline

- Launch the datasheet again from the Desktop Client to see the results of the offline publish.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
11																						
12																						
13																						
14																						
15																						
16																						
17																						
18																						

PROPERTIES

	@Minimum	@Normal	@Maximum	Units
13 Volumetric flow:				
14 Upstream pressure:				
15 Pressure drop:				
16 Temperature:	35	40	45	C
17 Viscosity:	22	25	27	cP
18 Density:				

## 12.7 Activity – Creating and Using Datasheets

The objective of this activity is to give you some experience creating, mapping and using Data Sheets. You will be using an unmapped Excel spreadsheet in order to perform the mapping part of this exercise. Once you log in to Schema Object Administration, you will use an Excel spreadsheet that has all the mapping completed (in the interest of time). You will then use the mapped Excel Data Sheet to update an instrument and also perform some offline updates.

**If you are not currently logged into your machine:**

1. Log on to your operating system (if not already logged in):  
*spfuser* with no password
  
2. Click *Start > All Programs > Intergraph SmartPlant Foundation > SmartPlant Schema Component > SmartPlant Schema Editor* to start the *Schema Editor*.
  
3. Open the provided Data Sheet xml file.
  - Click *File Configurations > Open Configuration...* on the *Schema Editor* menu
  - Browse to **C:\Program Files\Common\Intergraph\EFSchema\03.08** in the *Open Schema File* dialog box.
  - Select **DSMap.cfg** file and click *Open*
  
4. Verify the configuration to be used for both the master schema and the project schema during the modeling edit sessions.
  - Click the *Another Schema File* button in the *Workflows* dialog box.
  - Select the *Edit Configuration...* command.
  - When the *Edit Configuration* dialog box displays, make sure that the **EFSchema.xml** file not editable by clicking in the **Editable?** column and toggling the setting to **No** if needed.
  - When the *Edit Configuration* dialog box displays, make sure that the **EdgeGraphView.xml** file not editable by clicking in the **Editable?** column and toggling the setting to **No** if needed.
  - Make sure that the **DSEdgeGraphView.xml** file editable by clicking in the **Editable?** column and toggling the setting to **Yes** if needed.
  - Verify that the *Active schema file* is **DSEdgeGraphView.xml**

- Close the *Edit Configuration* window (click **X**).
5. Use the editor **Tree** view to create a new *Document Template* object.
- Set the *Class list* to **Documentation**
  - Create a new *Document Template*
  - Entries for the new *Document Template* object
    - Name: **IP\_ControlValve**
    - Description: **Document template for Instrument Control Valve**
    - Filename: **Lab12\_ControlValve.xls \***
    - Interface definition: **IProcessPointCase**
    - View definitions: **IPD\_AdditionalProperties, IPD\_BaseConditions, IPD\_General, IPD\_Properties, IPD\_Titleblock**
- \* Use the ellipses to browse to D:\SmartPlant\Foundation\2007\SPFAsp\SPFDatasheet\Templates.
- Save the additions to the Schema file (DSEdgeGraphView.xml)
6. Edit the new **IP\_ControlValve** document template and add the View Definition mapping to the Excel spread sheet. In the interest of time, don't map all fields, but only map a few in order to understand the concept.
- Choose the *Layout* tab
  - Select the *IPD\_General* view definition
  - Map the following fields:
    - Case name – **Case ID**
    - Tag number – **Instrument Name**
    - Service – **InstrumentService**
    - Fluid name – **FluidName**
  - Click **OK** to exit the template layout.
  - Exit** from the *Schema Editor*.
7. Use the Schema Object Administration utility to create a new Report Definition and relate it to the necessary ViewDefs.

- Log in to Schema Object Administration as *adminuser*.
- Create a new *Report Definition*
- Entries for the new *Report Definition* object
  - Name: **IP\_ControlValveRepDef**
  - Description: **Report definition for the IPControlValve**
  - Display name: **IP Control Valve Report Def**
  - Is editable: <enabled>
  - Template name: **IPD\_controlvalve.xls \***
  - Target Component Schema: **ProcessDataComponent**

\* Use Windows Explorer to copy and paste the template name from  
D:\SmartPlant\Foundation\2007\SPFAsp\SPFDatasheet\Templates.

8. Find and display the Interface Definition **IProcessPointCase**.
9. Relate the **IP\_ControlValveRepDef** Report Definition to the **IProcessPointCase** Interface Definition.
10. Relate the following View Definitions to the **IP\_ControlValveRepDef** Report Definition:
  - IPD\_AdditionalProperties**
  - IPD\_BaseConditions**
  - IPD\_General**
  - IPD\_Properties**
  - IPD\_Titleblock**Use 0 for the sequence number.
11. Add user access security to the View Definitions related to the Report Definition in the above step (UPDATE).
12. Perform a search to locate an existing (delivered) method to generate a datasheet, GenDataSheetOnline.

13. Relate the **GenDataSheetOnline** method to the **IProcessPointCase** Interface Definition (if needed).
14. Re-cache the model information and use the **Desktop Client** to test your *Data Sheet*.
15. Login as *updateuser* then perform a Quick Find to locate Instruments in the SPF database.
16. Create a Process Point Case of *None/Normal*.
17. Use the right mouse button to show the new Process Point Case.
18. Generate an Online Data Sheet and use the new **IP\_ControlValveRepDef** to display the Excel Data Sheet.
19. Add some new *Temperature* and *Viscosity* data and **Publish** the changes.
20. Display the changes in the *Properties* window and verify that the changes were published successfully.

**OPTIONAL:**

Try to perform an offline change and publish of Instrument data using the same data sheet. Review the results once the offline data has been published into SPF.

C H A P T E R

# 13

---

## SmartPlant Adapter for Microsoft Excel



## 13. Introduction

The SmartPlant Adapter for Microsoft Excel is a set of configurable software components and documentation provided with the SmartPlant Foundation Desktop Client allowing users to publish an Excel file and its contained data into SmartPlant Foundation. Once published, the Excel file and its data are available for viewing and navigation within SmartPlant Foundation and retrieval into any SmartPlant enabled tool, provided that tool has been configured to retrieve the Excel file and data.

---



### Excel Adapter

- The SmartPlant Excel Adapter is a set of configurable software components which allows users to publish an Excel file and its contained data into SmartPlant Foundation**
- Once published, the Excel file and its data are available for viewing and navigation within SmartPlant Foundation and retrieval into any SmartPlant enabled tool, provided that tool has been configured to retrieve the Excel file and data**

## 13.1 Install and Configure Prerequisites

The following components in SmartPlant Foundation 3.8 need to be installed for the SmartPlant Adapter for Microsoft Excel to work. We will use SmartPlant P&ID 2007 for the verifying application in this chapter.

Verify the following tools are installed for SPF and configured per the Integration Setup Guide. They will be used in this chapter:

- SmartPlant Client
- SmartPlant Loader
- SmartPlant Schema Editor
- Change Management Administration
- Schema Object Administration
- SmartPlant Foundation Desktop Client
- System Administration

Verify a Plant Breakdown Structure has been created and published.

---



### Excel Adapter

- Verify the following tools are installed for SPF and configured per the Integration Setup Guide**
  - SmartPlant Client
  - SmartPlant Loader
  - SmartPlant Schema Editor
  - Change Management Administration
  - Schema Object Administration
  - SmartPlant Foundation Desktop Client
  - System Administration
- Verify a Plant Breakdown Structure has been created and published**

---

**Note** - The examples will use the delivered EFPLANT-SC-2 plant with the delivered Plant-Area-Unit plant breakdown structure.

Configure SmartPlant P&ID per the Integration Setup Guide.

Verify SmartPlant P&ID is registered to the SmartPlant Foundation EFPLANT-SC-2 plant. And the Plant Breakdown Structure document has been retrieved and the correlated.

**Note** - The tutorial was designed to work with Plant Hierarchy 7.

## 13.2 SmartPlant Adapter for Microsoft Excel Delivered Components

The components of the SmartPlant SmartPlant Adapter for Microsoft Excel can be grouped into three categories: **User Interface Components**, **SmartPlant Schema**, and **SmartPlant Foundation configuration**.

The **user interface components** are delivered with the SmartPlant Foundation Desktop Client. The SmartPlant Schema Component and SmartPlant Client are required to be installed on the same machine.

**Note** - Since one of the user interface components is required to be registered on the local machine, the SmartPlant Adapter for Microsoft Excel will not work if run from a UNC path.

The **SmartPlant Schema** includes the minimum configuration for the SmartPlant Adapter for Microsoft Excel to function in the integrated environment. The SmartPlant Schema is delivered with the SmartPlant Client and SmartPlant Server.

The **SmartPlant Foundation configuration** includes a couple of menus and methods and a pre-defined workflow. The SmartPlant Foundation configuration is delivered with the SmartPlant Foundation server.

---



### Excel Adapter

- The SmartPlant Excel Adapter can be grouped into three categories**
  - User Interface Components
  - SmartPlant Schema
  - SmartPlant Foundation configuration
- The user interface components are delivered with the SmartPlant Foundation Desktop Client**
- The SmartPlant Schema is delivered with the SmartPlant Client and SmartPlant Server**
- The SmartPlant Foundation configuration is delivered with the SmartPlant Foundation server**

### 13.3 Review the delivered SmartPlant Adapter for Microsoft Excel Tool Metadata

The delivered location for SmartPlant Schema file is C:\Program Files\Common Files Intergraph\EFSchema\03.08. Tool metadata allows tools to externalize configuration information like which document types they publish and retrieve in the SmartPlant Schema instead of hard coding into the tool adapter. To view and edit this data open the SmartPlanr Schema Editor.

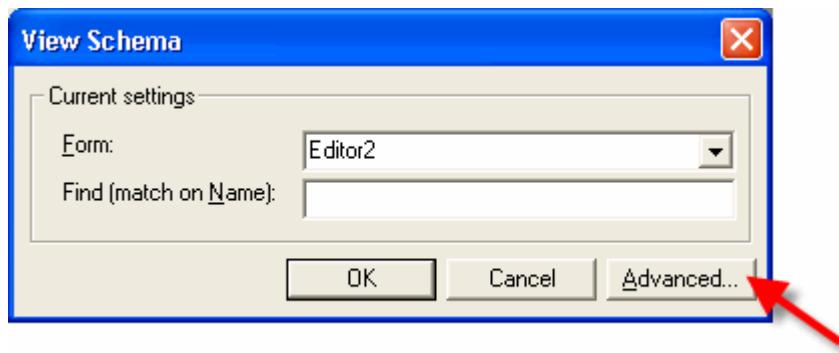
Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Schema Component | SmartPlant Schema Editor.

Select File | File Configurations | Open Configuration

In the Open Configuration File dialog, browse to C:\Program Files\Common Files\Intergraph\EFSchema\03.08, click EFSchema.cfg and click **Open**.

Select View | Schema (All)

If the View Schema dialog is in simple mode, then click **Advanced**



To limit your view to only the Tool Metadata classes, click **Class list** and click **...**.

The Select Class List dialog is shown.

In the All list, click **Tool Metadata**.

The View Schema dialog should look like this:



## Excel Adapter

- Tool metadata allows tools to externalize configuration information like which document types they publish and retrieve**
- To view and edit this data open the SmartPlant Schema Editor**
- The Select Class List should have Tool Metadata under the View Tab in the View Schema dialog**

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## Excel Adapter

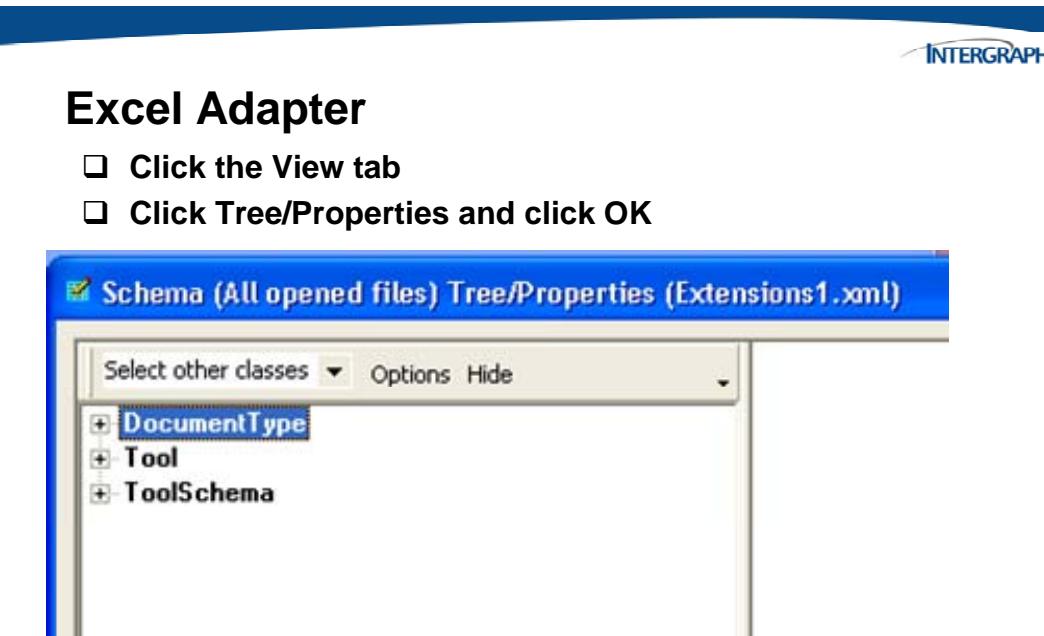


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Click the **View** tab.

Click **Tree/Properties** and click **OK**.

The Schema (All opened files) Tree/Properties (Extensions1.xml) dialog is shown.



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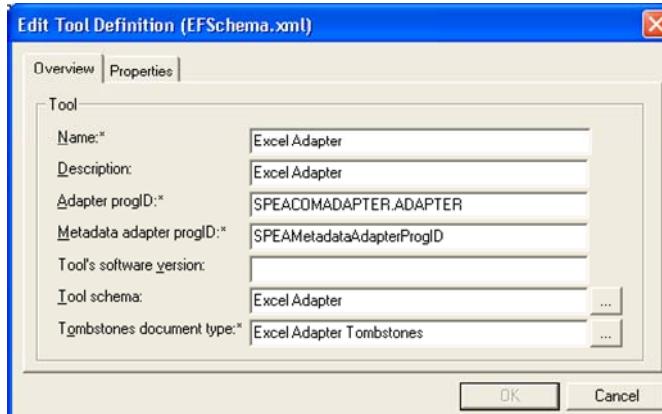
Expand **Tool** by clicking the (+).

In the Tool list right-click on **Excel Adapter** and select **View ExcelAdapter**.

The Edit Tool Definition (EFSchema.xml) dialog is shown.

## Excel Adapter

- Expand Tool by clicking the (+)**
- In the Tool list right-click on Excel Adapter and select View ExcelAdapter**



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The Tool object represents the application or the tool integrating with SmartPlant Foundation. The Tool object should not be changed. The Adapter progID and Metadata adapter progID values are not used in this release. A Tool schema and Tombstones document type is already defined for the SmartPlant Adapter for Microsoft Excel. The Tool schema specifies document types published and retrieved by the SmartPlant Adapter for Microsoft Excel.



## Excel Adapter

- The Tool object represents the application or the tool integrating with SPF**
- The Tool object should not be changed**
- The Adapter progID and Metadata adapter progID values are not used in this release**
- A Tool schema and Tombstones document type is already defined for the Excel Adapter**
- Click Cancel**

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The Tombstones document type specifies the document type for the tombstones published by the SmartPlant Adapter for Microsoft Excel.

Click **Cancel**.

Expand **ToolSchema** by clicking the (+).

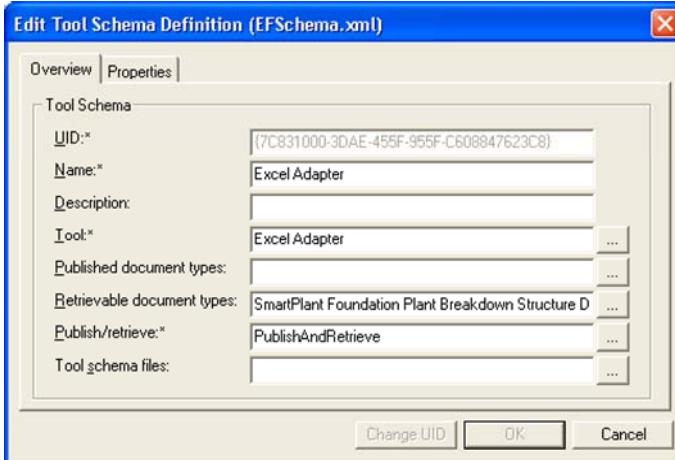
In the ToolSchema list right-click **Excel Adapter** and select **View**

The Edit Tool Schema Definition (EFSchema.xml) dialog is shown.



## Excel Adapter

- Expand ToolSchema by clicking the (+)**
- In the ToolSchema list right-click Excel Adapter and select View**



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The Published document types will need to be updated before any Excel files can be published by the SmartPlant Adapter for Microsoft Excel.

Although the Retrievable document types can be changed, the SmartPlant Adapter for Microsoft Excel only supports retrieval of the SmartPlant Foundation Plant Breakdown Structure Document.

Click Cancel.

Expand DocumentType.

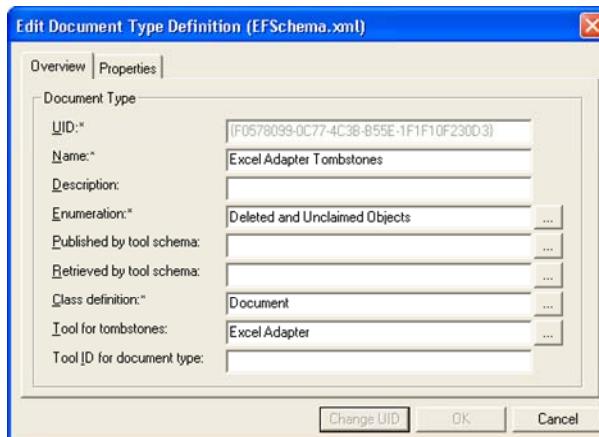
In the DocumentType list Right-click **Excel Adapter Tombstones** and select **View**.

The Edit Document Type Definition (EFSchema.xml) dialog is shown.



## Excel Adapter

- Expand DocumentType**
- In the DocumentType list Right-click Excel Adapter Tombstones and select View**



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Click **Cancel**.

Select **File |Exit**.

### 13.3.1 What is the Work Process for Publishing an Excel file?

The work process starts with a business requirement to publish an Excel file into SmartPlant Foundation for information sharing. A project team is responsible for gathering the integration requirements and further defining the details of the information sharing.

Once the requirements are defined, a SmartPlant Foundation administrator is responsible for configuring SmartPlant Foundation. This includes configuring the required SmartPlant Schema, Map file(s), and Document Template. The administrator uses the SmartPlant Schema Editor to configure the SmartPlant Schema and Map File(s) and the SmartPlant Desktop Client to configure the Document Template.

After SmartPlant Foundation is configured, a SmartPlant Foundation user uses the SmartPlant Foundation Desktop Client to select and publish the Excel file.



#### Excel Adapter

- The work process starts with a business requirement to publish an Excel file into SmartPlant Foundation**
- A project team is responsible for gathering the integration requirements and further defining the details of the information sharing**
- The administrator is responsible for configuring SmartPlant Foundation**
- The administrator uses the SmartPlant Schema Editor to configure the SmartPlant Schema and Map File(s) and the SmartPlant Desktop Client to configure the Document Template**

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*At this point the published Excel file and data is available for viewing and navigation or retrieval into another integrated tool.*

Optionally, a SmartPlant Foundation user makes changes to the Excel file, specifies to either ignore or delete missing items, and publishes again.

Task	Description
Define Integration Requirements	<p>Note: This step is performed by the project team.</p> <p>When defining the requirements, be sure to provide answers to these questions:</p> <p>Which SmartPlant Foundation users are allowed to</p>

	<p>publish Excel files?</p> <p><i>Access to the SmartPlant Adapter for Microsoft Excel publish method is controlled by associating SmartPlant Foundation user groups to the method. Which users need access?</i></p> <p>What are the SmartPlant Foundation navigation, viewing and reporting requirements?</p> <p><i>The intent here is to gather as much information as possible about the data model and mapping. What objects are required to be viewable in SmartPlant Foundation after a publish? What are those object's properties?</i></p> <p>Is any other integrated tool interested in retrieving the published file and/or data?</p> <p><i>If yes, this will require updating that tool to retrieve the Excel file and data.</i></p>
Task 2 – Analyze Excel File	<p>Note: This step is performed by the SmartPlant Foundation Administrator.</p> <p>Note: An Excel file cannot be published without selecting a document template. Since the document template provides the document name and title, a unique document template is required for each Excel file.</p> <p>These questions will help gather the information needed to configure SmartPlant Foundation to accept the Excel file.</p> <p>What type of document is it? Is it an Equipment List? Is it a Line List? Is it some type of report?</p> <p><i>All documents published into SmartPlant Foundation are given a type. Each integrating tool specifies which document type(s) it publishes or retrieves. The SmartPlant Schema defines the list of document type(s) supported. The document type must exist in this list. The list can be extended if necessary.</i></p> <p>What is the document name and title?</p> <p><i>All documents published into SmartPlant Foundation are required to have a Name and a Title. To provide a consistent naming and scoping of Excel files, the document Name and Title are set by the administrator. The name and title cannot be changed by the publisher.</i></p> <p>Which worksheets contain data that needs to be published?</p> <p><i>A copy of the Excel file will be published, but only the data on the worksheets specified will be published.</i></p>

	<p>What is the data record pattern of each sheet to be published?</p> <p>Where does the data start? Where does the data stop? Does the data span across multiple rows? Are there blank rows between each row(s) of data?</p> <p>What is the data model of the data contained on each sheet to be published?</p> <p>What objects are in each row(s) of data? Equipment with related systems or units? Instruments with related loops, lines, equipment?</p> <p>What are the properties of each object?</p> <p>Which objects and properties should be published?</p>
Task 3 – Update Tool Metadata	Using the SmartPlant Schema Editor, the document type is modeled and added to the Excel Adapter's Tool metadata in the SmartPlant Schema.
Task 4 – Create/Update Component Schema	Using the SmartPlant Schema Editor, the data model is modeled in a component schema in the SmartPlant Schema
Task 5 – Create/Update Map File	Using the SmartPlant Schema Editor, the data model is mapped in a tool schema (map) file.
Task 6 – Create Document Template	Each Excel file published into SmartPlant Foundation must be accompanied by a Document Template. The Document Template specifies details about Using the SmartPlant Foundation Desktop Client, an Excel Document Template is created
Task 7 – Publish Excel File	
Task 8 – Publish Excel File Again	Using the SmartPlant Foundation Desktop Client, the Excel file is published.



## Excel Adapter

### Tasks

- Define Integration Requirements
- Analyze Excel File
- Update Tool Metadata
- Create/Update Component Schema
- Create/Update Map File
- Create Document Template
- Publish Excel File
- Publish Excel File Again

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The SmartPlant Adapter for Microsoft Excel stores document templates and map files in a SmartPlant Foundation vault. Access to SmartPlant Foundation vaults is controlled by owning groups. By default, the SmartPlant Adapter for Microsoft Excel is configured to use the UPDATE owning group. This can be changed by updating the OwningGroup property of the SmartPlantExcelAdapter\_Settings method.



## Excel Adapter

- The SmartPlant Excel Adapter stores document templates and map files in a SmartPlant Foundation vault
- Access to SmartPlant Foundation vaults is controlled by owning groups
- By default, the SmartPlant Excel Adapter is configured to use the UPDATE owning group
- This can be changed by updating the OwningGroup property of the SmartPlantExcelAdapter\_Settings method

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## 13.4 Configure the SmartPlant SmartPlant Adapter for Microsoft Excel Samples

The SmartPlant Adapter for Microsoft Excel chapter provides instructions that assume that you can access the sample files in D:\ExcelAdapter\ExcelAdapterSamples. This preserves the original sample files in <SmartPlant Foundation installation directory>\Samples\ExcelAdapterSamples.zip. These files have been unzipped for you. The sample files include placeholders for the Plant, Area, and Unit. These values need to be updated to match the current SmartPlant Foundation values.



### Excel Adapter

- Sample files are in D:\ExcelAdapter\ExcelAdapterSamples for this course**
- This preserves the original sample files in <SmartPlant Foundation installation directory>\Samples\ExcelAdapterSamples.zip**
- The sample files include placeholders for the Plant, Area, and Unit. These values need to be updated to match the current SmartPlant Foundation values**

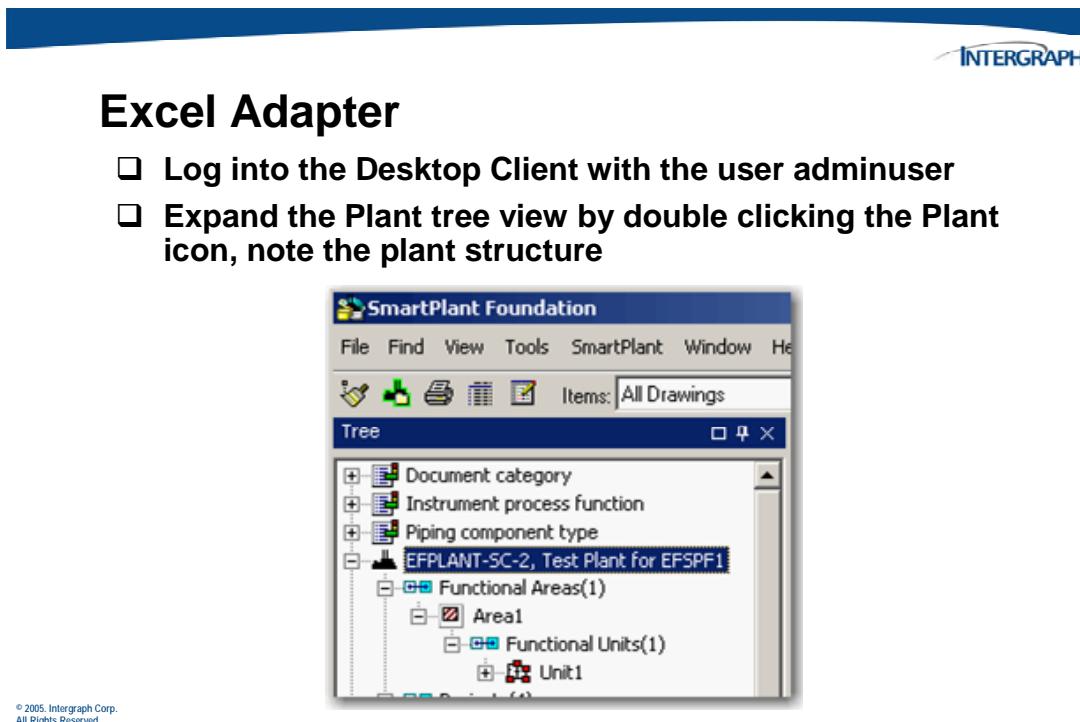
## 13.4.1 Update the Plant, Area, and Unit in the sample Excel file

Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Foundation Desktop Client.

In the Logon Information dialog, type **adminuser** in the User name field and click **OK**.

In the tree view, expand **Plant**.

The plant breakdown structure is shown in the tree view.



Notice the names of the Plant, Area(s), and Unit(s).

Open **Windows Explorer**.

Navigate to the **D:\ExcelAdapter\ExcelAdapterSamples\EquipmentList\ExcelFile** folder.

Open the **Equipment List.xls** file.

Click the **Equipment** worksheet tab at the bottom of the Excel window.

In the **Unit** column, replace <Unit> with the name of one of the units shown in the plant breakdown structure.



## Excel Adapter

- Open the Equipment List.xls file in  
D:\ExcelAdapter\ExcelAdapterSamples\EquipmentList\  
ExcelFile
- Click the Equipment worksheet tab
- Replace <Unit> with the name of the units name for the  
tree view

EQUIPMENT LIST			
suffix	Unit	Type	Steam Out Requirement
	Unit1	Horiz Pump	Y
	Unit1	Horiz Pump	Y
	Unit1	Horiz Pump	Y
	Unit1	Horiz Pump	Y
	Unit1	Horiz Pump	Y
	Unit1	Horiz Pump	Y
	<Unit>	Horiz Pump	Y
	<Unit>	Tower	N
	<Unit>	Tower	N

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Click the **PBS** worksheet tab at the bottom of the Excel window.

Replace <Plant> with the plant shown in the plant breakdown structure.

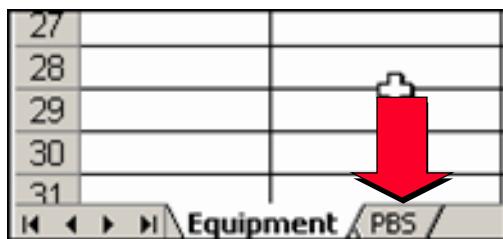
Replace <Area> with one of the areas shown in the plant breakdown structure.

Replace <Unit> with one of the units shown under the area used in the previous step.



## Excel Adapter

- Click the PBS worksheet tab
- Enter the plant breakdown structure from the tree view  
displayed in the Desktop client



	A	B	C
1			
2			
3	Plant	EFPLANT-SC-2	
4	Area	Area1	
5	Unit	Unit1	
6			

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Select File | Save.

Close Excel.

Close Windows Explorer.

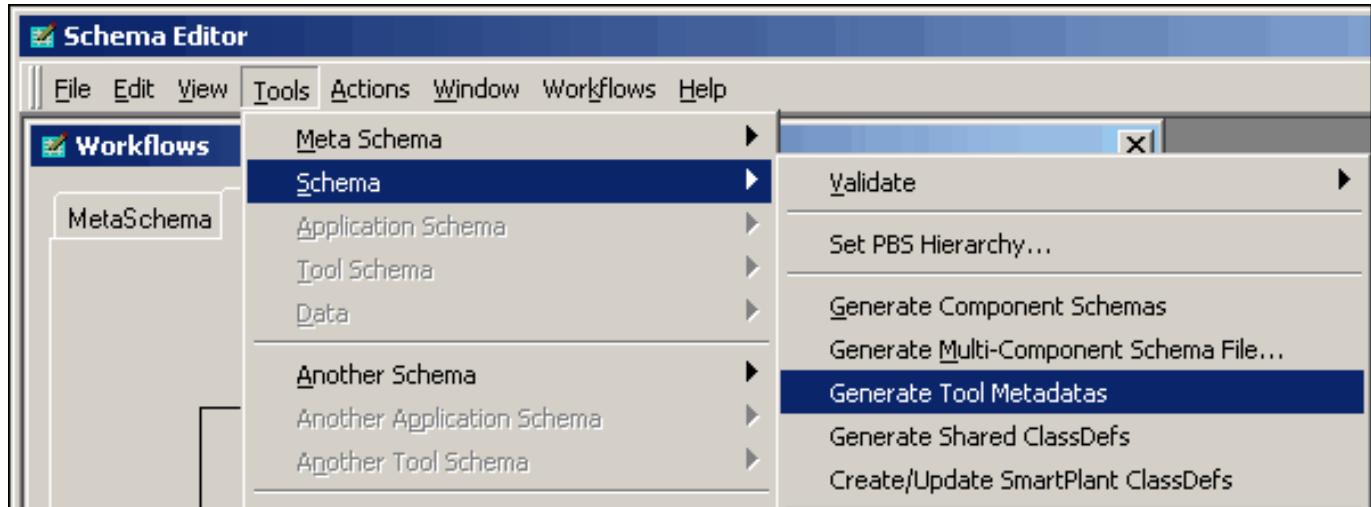
Close the SmartPlant Foundation Desktop Client.

Open the Schema Editor and generate the necessary Excel dependent files.

Open using the **EFSchema.cfg** configuration.

Select **Tools > Generate Component Schemas**

Select **Tools > Generate Tool Metadatas**



## 13.5 Lab 1

Verify the configuration setting for the SmartPlant Adapter for Microsoft Excel for the Schema Editor and the SmartPlant Foundation System Administrator outlined in the chapters. Edit the **Equipment List.xls** file with the system settings. Save the xls file so it can be used in the next chapters.



### Excel Adapter

#### Lab1

**Verify system settings**

**Configure Excel file for load**

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NOTE – Creation of the Schema Objects for the delivered XLS file is covered in Appendix A for this manual. The configured XML files will be provided to you.

## 13.6 Load the SmartPlant Schema additions into SmartPlant Foundation

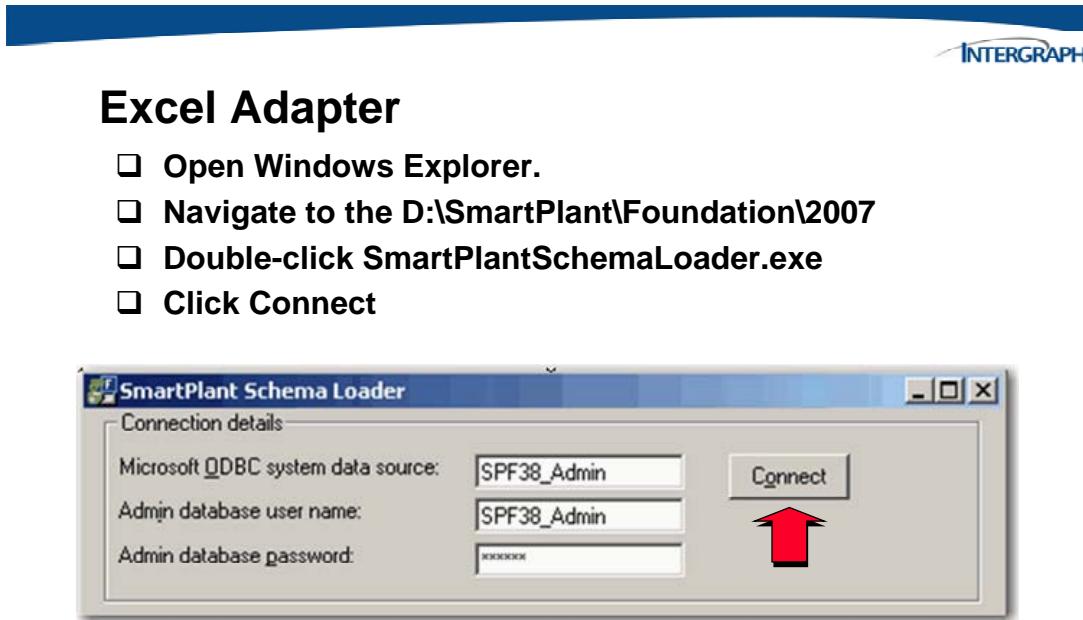
Open Windows Explorer.

Navigate to the <SmartPlant Foundation installation directory>.

Double-click SmartPlantSchemaLoader.exe.

Verify the Connection details are correct.

Click Connect.



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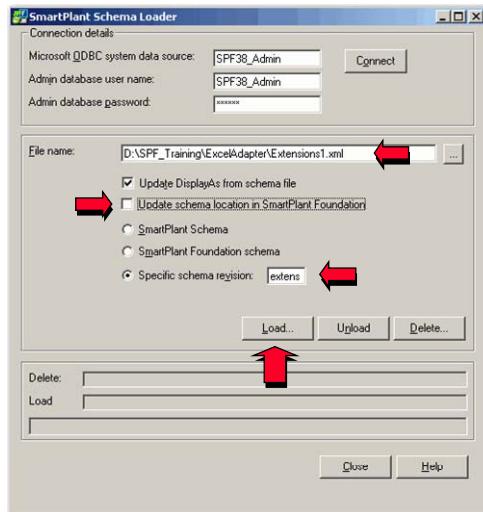
The active schema file path is shown in the **File name** field.

Click **Load**.



## Excel Adapter

- Browse for the Extensions1.xml file in D:\SPF\_Training\ExcelAdapter
- Click Load



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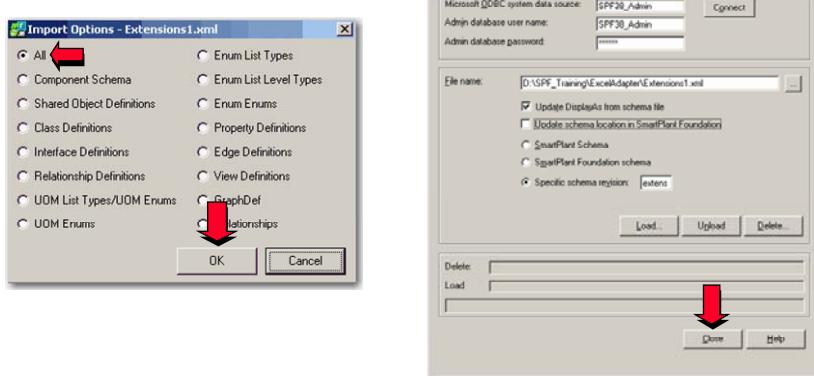
In the Import Options – Extensions1.xml dialog, click All and click OK.

The SmartPlant Schema additions are loaded into SmartPlant Foundation.



## Excel Adapter

- In the Import Options – Extensions1.xml dialog, click All and click OK
- When Successful, Click Close



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Click Close.

## 13.7 Configuring SmartPlant Foundation User Access

Click Start | Programs | Intergraph SmartPlant Foundation | System Administration.

In the Logon Information dialog, type **adminuser** in the User name field and click **OK**.

Select Tools | Find | Menu....

In the Find Menu dialog, type **SmartPlant\*** in the Enter name field and click **OK**.

Right-click **SmartPlantExcelAdapter** and select **Show Menu Items**.

Right-click **SmartPlantExcelAdapter\_Publish** and select **Show User Groups**.

Select Tools | Find | User Group....

In the Find User Group dialog, type **UPDATE\*** in the Enter name field and click **OK**.

Click and drag the **UPDATE** user group onto the **SmartPlantExcelAdapter\_Publish** menu item's Usergroups.

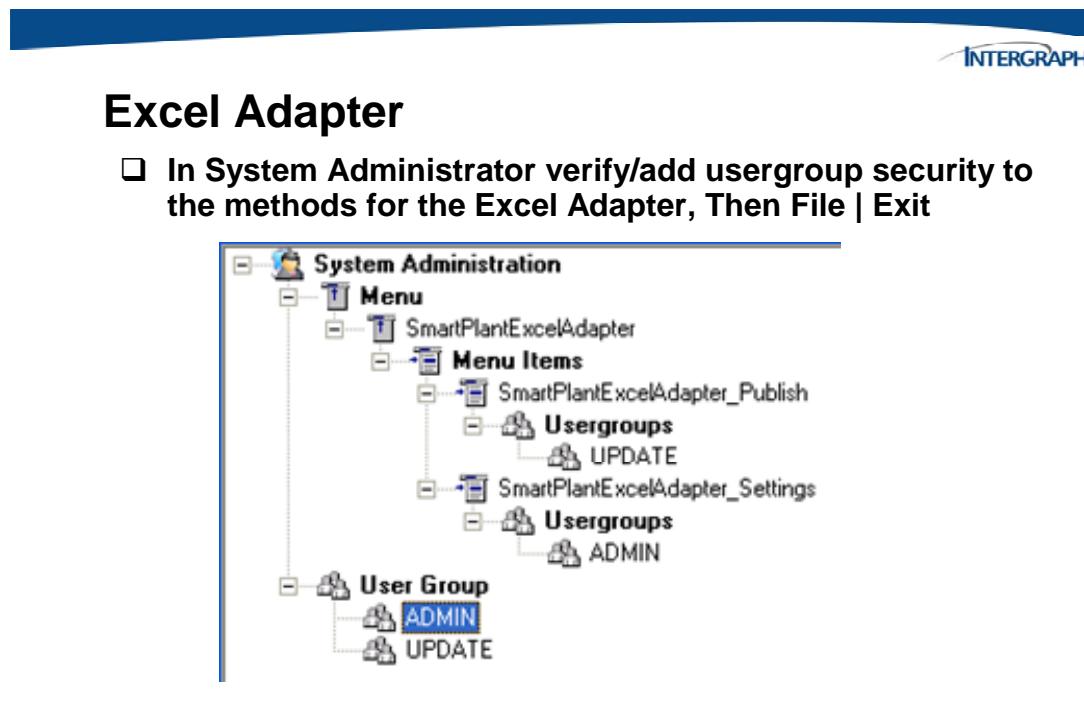
Right-click **SmartPlantExcelAdapter\_Settings** and select **Show User Groups**.

Select Tools | Find | User Group....

In the Find User Group dialog, type **UPDATE\*** in the Enter name field and click **OK**.

Click and drag the **UPDATE** user group onto the **SmartPlantExcelAdapter\_Settings** menu item's Usergroups.

The tree view should look like this:



Select File | Exit.

## 13.8 Creating the Document Template

Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Foundation Desktop Client.

In the Logon Information dialog, type **adminuser** in the User name field and click **OK**.

Select **SmartPlant | Excel Adapter | Manage Document Templates....**

The Manage Document Templates dialog is shown.

Click **New....**

The New Template dialog is shown.

Type **Unit 23 Equipment List** in the Template name field.

Type **Equipment List for Unit 23** in the Description field.

Type **UNIT23-EQL** in the Document number field.

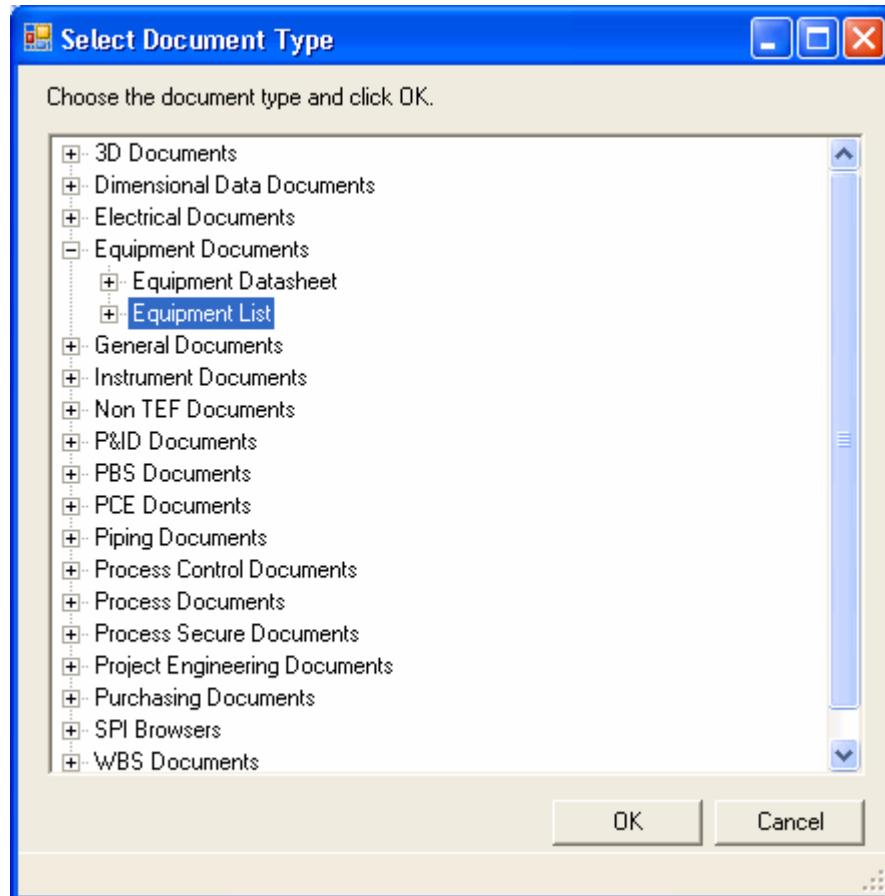
Type **Unit 23 EQL** in the Document title field.

Click **...** across from the **Document type field**.

The Select Document Type dialog is shown.

Expand **Equipment Documents**.

Click **Equipment List**.

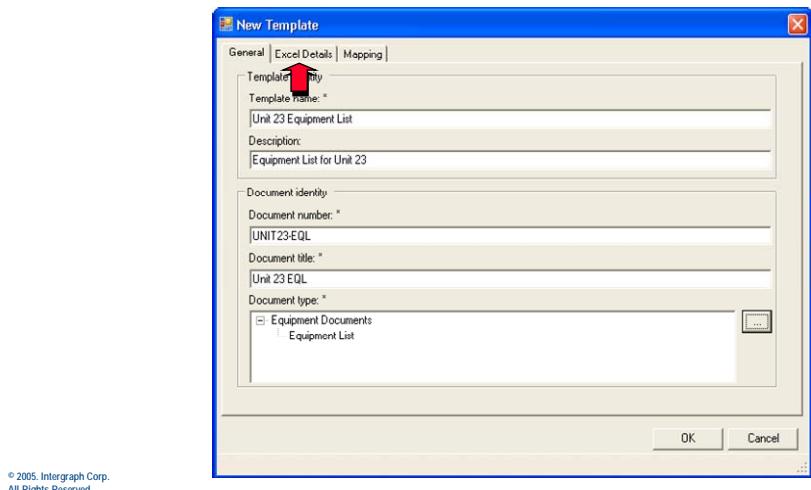


Click **OK**.

The New Template dialog should look like this:

## Excel Adapter

- Open the Desktop Client, login as adminuser
- Enter fields as described in manual



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Click the **Excel Details** tab.

Click **New....**

The Excel Worksheet Properties dialog is shown.

Type **PBS** in the Name field.

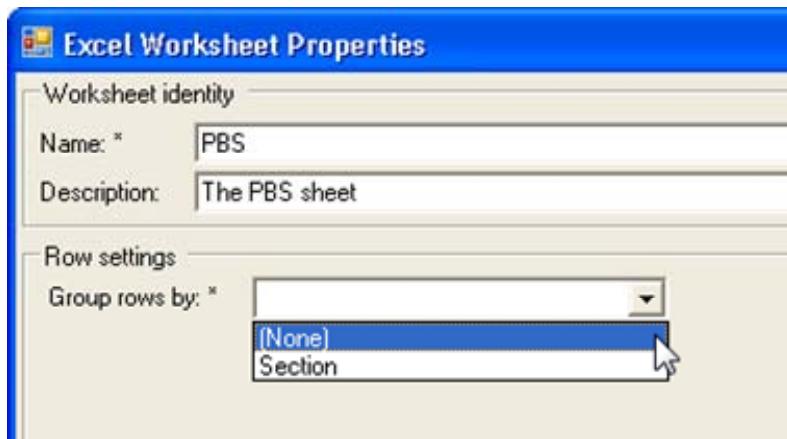
Type **The PBS sheet** in the Description field.

In the Group rows by field, select **(None)**.



## Excel Adapter

- Click the Excel Details tab and Click New
- Enter data described



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The Start reading when, Stop reading when, Record read pattern, and Column performance option sections are shown.

In the Start reading when section, select the Row = option and set it to **3**.

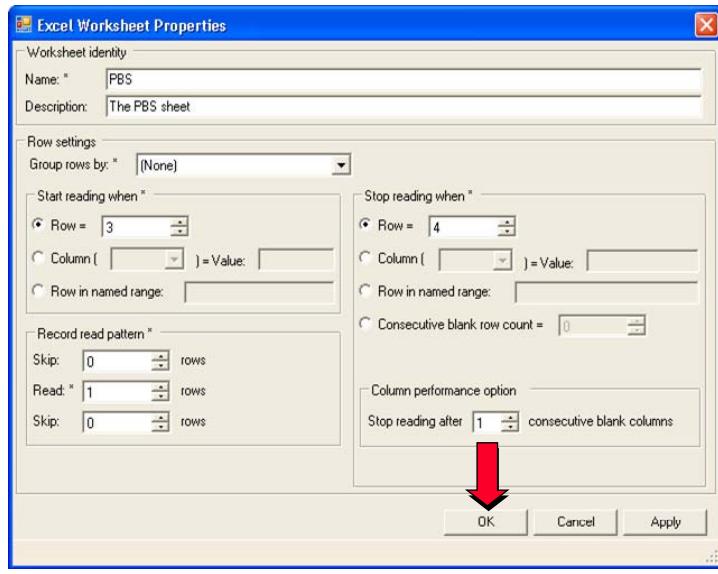
In the Stop reading when section, select the Row = option and set it to **4**.

In the Record read pattern section, leave Skip at **0**, set Read to **1**, and leave Skip at **0**.

In the Column performance option section, set Stop reading after consecutive blank columns to **1**.

The Excel Worksheet Properties should look like this:

## Excel Adapter



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**Click OK.**

The PBS worksheet is added to the Worksheets to publish list.

**Click New....**

The Excel Worksheet Properties dialog is shown.

Type **Equipment** in the Name field.

Type **The Equipment sheet** in the Description field.

In the Group rows by field, select **(None)**.

The Start reading when, Stop reading when, Record read pattern, and Column performance option sections are shown.

In the Start reading when section, select the Row = option and set it to **7**.

In the Stop reading when section, select the Consecutive blank row count = option and set it to **2**.

In the Record read pattern section, leave Skip at **0**, set Read to **1**, and leave Skip at **0**.

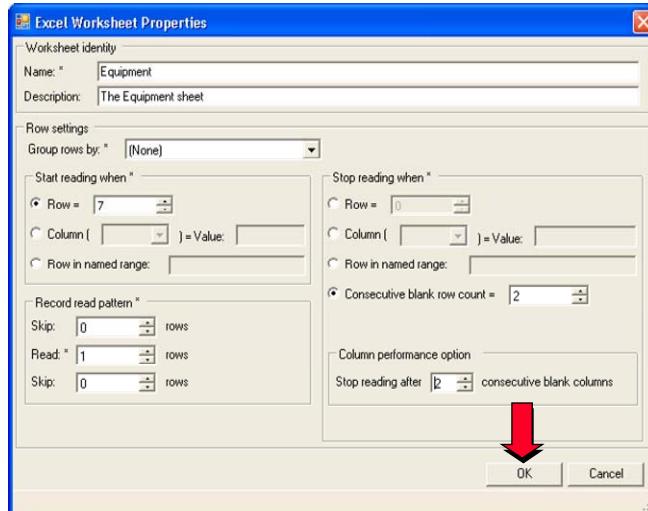
In the Column performance option section, set Stop reading after consecutive blank columns to **2**.

The Excel Worksheet Properties should look like this:



## Excel Adapter

- The PBS worksheet is added to the Worksheets to publish list.
- Click New



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Click **OK**.

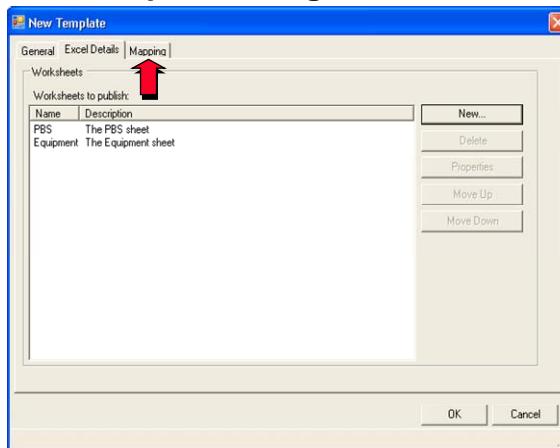
The Equipment worksheet is added to the Worksheets to publish list.

The New Template dialog should look like this:



## Excel Adapter

- The Equipment worksheet is added to the Worksheets to publish list.
- The New Template dialog should look like this



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Click the **Mapping** tab.

Click across from the **Tool schema file** field.

In the Select SmartPlant Tool Schema (Map) File dialog, browse to **D:\SmartPlantExcelAdapter\ExcelAdapterSamples\EquipmentList\ExcelFile**, click **ExcelEquipmentMap.xml** and click **Open**.

The SmartPlant Tool Schema (Map) File is parsed and the map classes and properties are shown in the Map schema tree view.



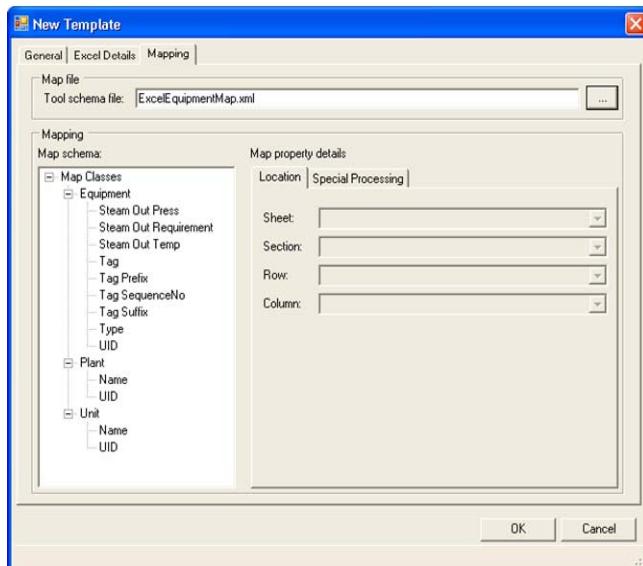
## Excel Adapter

- Click across from the Tool schema file field.
- In the Select SmartPlant Tool Schema (Map) File dialog, browse to **C:\SmartPlantExcelAdapterTutorial\ExcelAdapterSamples\EquipmentList\ExcelFile**, click **ExcelEquipmentMap.xml** and click **Open**

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## Excel Adapter



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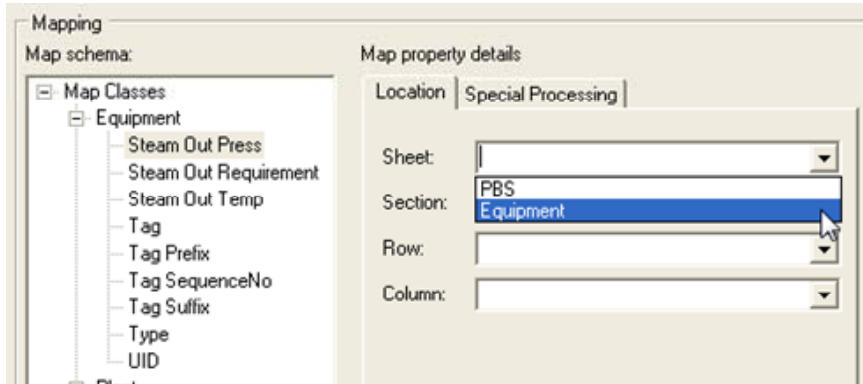
Click **Steam Out Press**.

In the Sheet combo box, select **Equipment**.



## Excel Adapter

- Click Steam Out Press and In the Sheet combo box, select **Equipment**



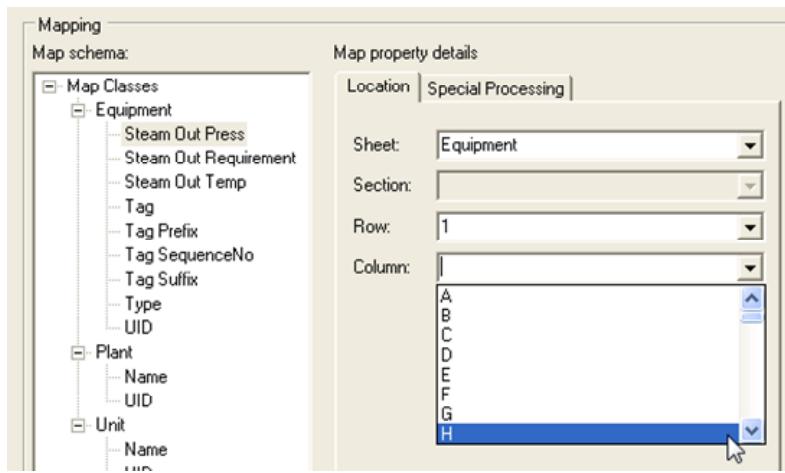
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In the Column combo box, select **H**.



## Excel Adapter

- In the Column combo box, select **H**, Continue with the other Columns



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Click **Steam Out Requirement**.

In the Sheet combo box, select **Equipment**.

In the Column combo box, select **G**.

Click **Steam Out Temp**.

In the Sheet combo box, select **Equipment**.

In the Column combo box, select **I**.

Click **Tag**.

In the Sheet combo box, select **Equipment**.

In the Column combo box, select **A**.

Click **Tag Prefix**.

In the Sheet combo box, select **Equipment**.

In the Column combo box, select **B**.

Click **Tag SequenceNo**.

In the Sheet combo box, select **Equipment**.

In the Column combo box, select **C**.

Click **Tag Suffix**.

In the Sheet combo box, select **Equipment**.

In the Column combo box, select **D**.

Click **Type**.

In the Sheet combo box, select **Equipment**.

In the Column combo box, select **F**.

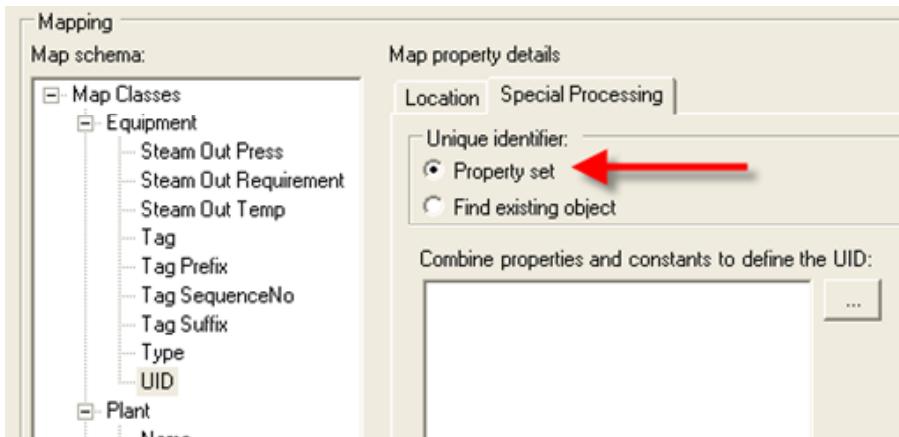
Click **UID** under Equipment.

In the Unique identifier section, click **Property set**.



## Excel Adapter

- Click **UID** under **Equipment** and In the Unique identifier section, click **Property set**



Click **...** across from Combine properties and constants to define the UID.

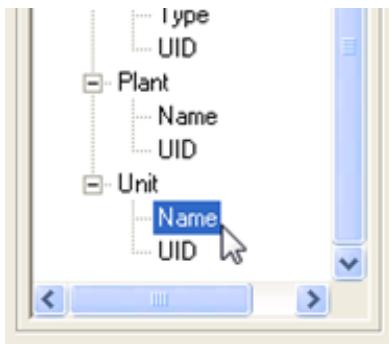
The Unique identifier Builder dialog is shown.

In the Map Schema tree view select **Name** under **Unit** and drag into the **UID field**.



## Excel Adapter

- Click across from Combine properties and constants to define the UID.
- The Unique identifier Builder dialog is shown.
- In the Map Schema tree view select Name under Unit and drag into the UID field



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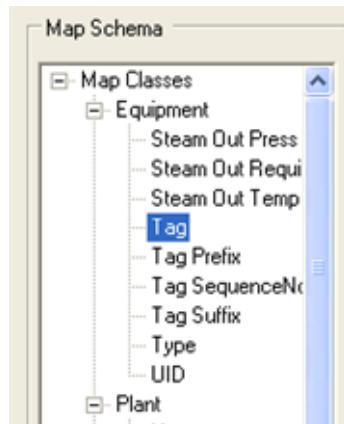
Type - in the UID field after **[Unit.Name]**.

In the Map Schema tree view select Tag under Equipment and drag into the UID field.



## Excel Adapter

- Type - in the UID field after [Unit.Name].
- In the Map Schema tree view select Tag under Equipment and drag into the UID field.



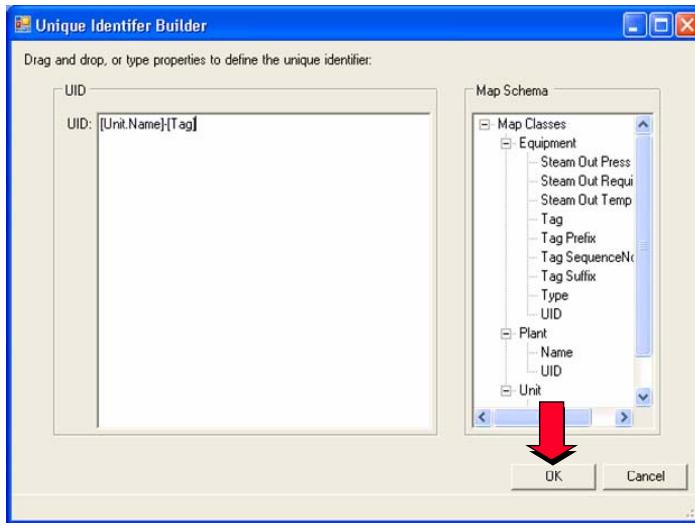
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The Unique identifier Builder dialog should look like this:



## Excel Adapter

- The Unique identifier Builder dialog should look like this:



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Click **OK**.

[UNIT.NAME]-[TAG] is shown in the Combine properties and constants to define the UID field.

Click Name under Plant.

In the Sheet combo box, select **PBS**.

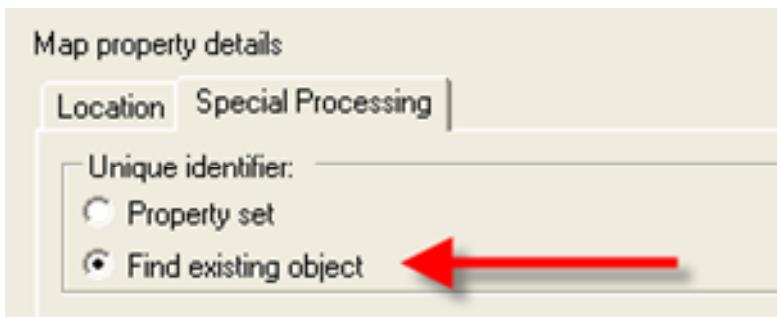
In the Column combo box, select **B**.

Click **UID** under Plant.

In the Unique identifier section, click **Find existing object**.

## Excel Adapter

- In the Unique identifier section, click **Find existing object**



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Type **IObject** in the Interface field.

Type **Name** in the Property field.

Type **Name** in the Map Property field.

Type **IPlant** in the Object must support one of the following interfaces field.



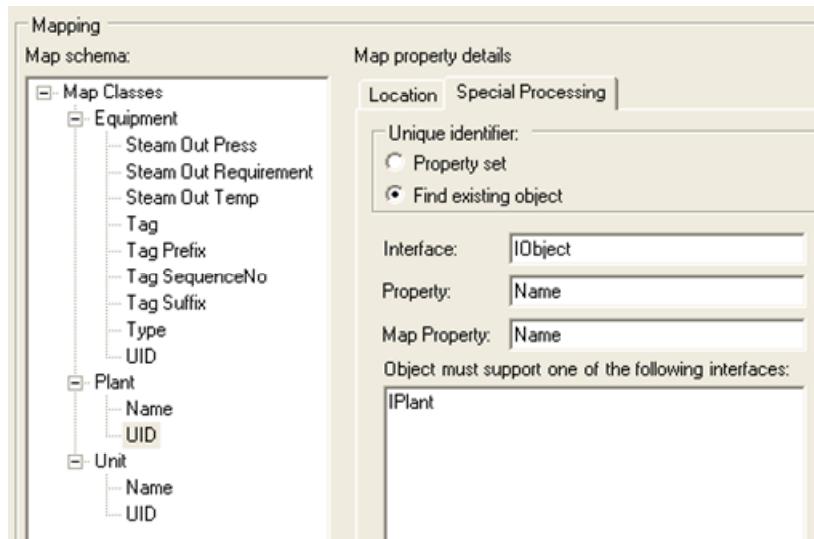
## Excel Adapter

- Type IObject in the Interface field.
- Type Name in the Property field.
- Type Name in the Map Property field.
- Type IPlant in the Object must support one of the following interfaces field

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## Excel Adapter



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Click **Name** under **Unit**.

In the Sheet combo box, select **Equipment**.

In the Column combo box, select **E**.

Click **UID** under **Unit**.

In the Unique identifier section, click the Find existing object option.

Type **IObject** in the Interface field.

Type **Name** in the Property field.

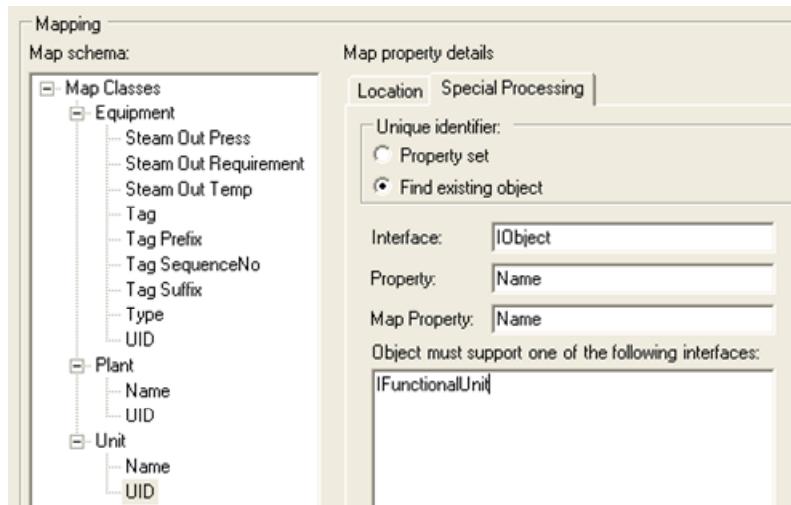
Type **Name** in the Map Property field.

Type **IFunctionalUnit** in the Object must support one of the following interfaces field.



## Excel Adapter

### Click Name under Unit Plant



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Click **OK**.

**Unit 23 Equipment List** is shown in the Available templates list.

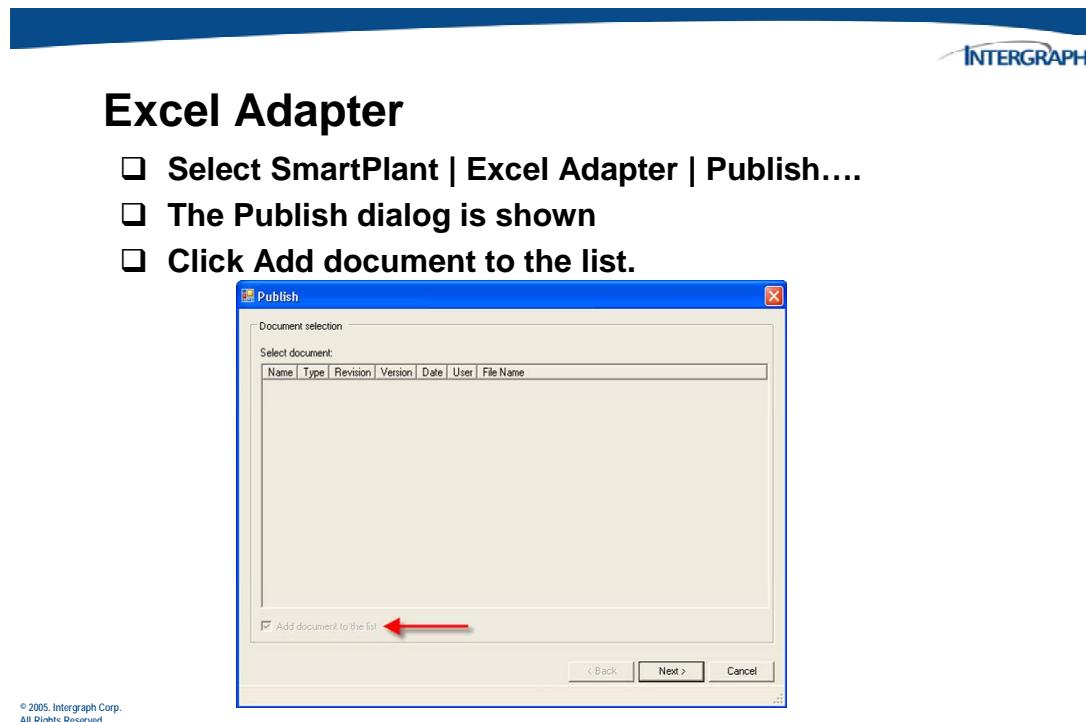
Click **Close**.

## 13.9 Validate the Document Template

Select SmartPlant | Excel Adapter | Publish....

The Publish dialog is shown.

Click **Add document to the list**.



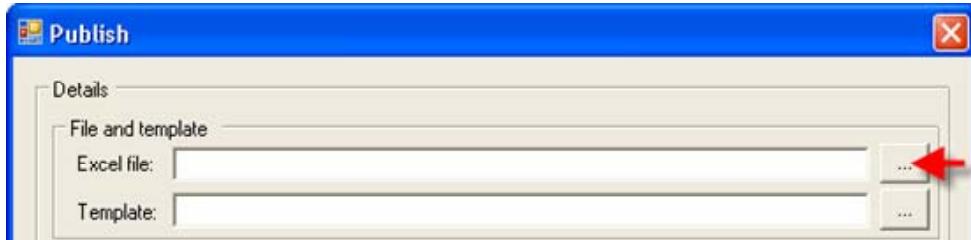
Click **Next**.

Click **...** across from the **Excel file field**.



## Excel Adapter

- Click Next.
- Click across from the Excel file field



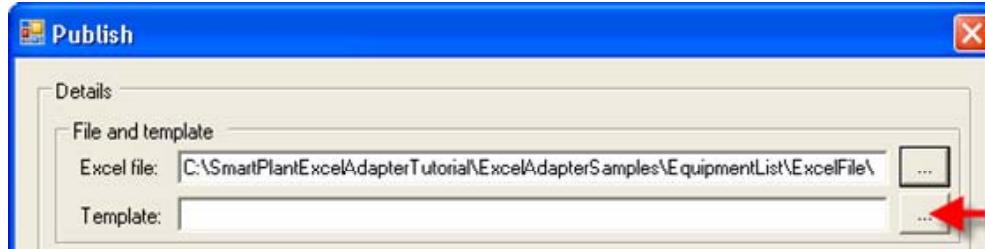
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In the Select File to Publish dialog, browse to D:\ExcelAdapter\ExcelAdapterSamples\EquipmentList\ExcelFile, click Equipment List.xls and click Open. Click ... across from the Template field.



## Excel Adapter

- In the Select File to Publish dialog, browse to D:\ExcelAdapter\ExcelAdapterSamples\EquipmentList\ExcelFile, click Equipment List.xls and click Open.
- Click across from the Template field



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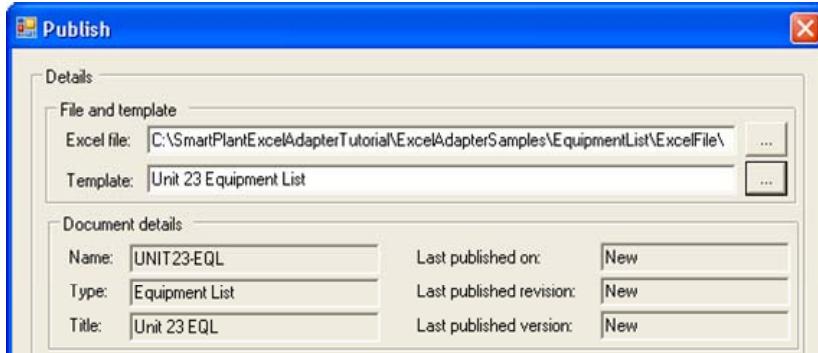
In the Select Excel Document Template dialog, in the Select template list, click Unit 23 Equipment List and click OK.

The template is used to populate the Document details section.



## Excel Adapter

- In the Select Excel Document Template dialog, in the Select template list, click Unit 23 Equipment List and click OK.
- The template is used to populate the Document details section



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In the Validate section, check Run validation.



## Excel Adapter

- In the Validate section, check Run validation.
- Click Next.
- The Validation dialog is shown.



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Click Next.

The Validation dialog is shown.



## Excel Adapter

**Publish**

Validation

A	B	C	D	E	F	G	
1							
2							
3							
4							
5							
6	Tag	Tag Prefix	Tag SequenceNo	Tag Suffix	Unit	Type	Steam Out Requirement
7	P-105A	P	105	A	Unit 23	Horiz Pump	Y
8	P-106B	P	106	B	Unit 23	Horiz Pump	Y
9	P-107B	P	107	B	Unit 23	Horiz Pump	Y

Equipment \ PBS /

Equipment | Plant | Unit |

Tag	Tag Prefix	Tag SequenceNo	Tag Suffix	Type	Steam Out Requirement	Steam Out Press	Steam Out Temp
P-105A	P	105	A	Horiz Pump	Y	50	250
P-106B	P	106	B	Horiz Pump	Y	50	250
P-107B	P	107	B	Horiz Pump	Y	45	240
P-108A	P	108	A	Horiz Pump	Y	55	260
P-109	P	109		Horiz Pump	Y	50	250
P-110	P	110		Horiz Pump	Y	45	240
P-111	P	111		Horiz Pump	Y	30	220
T-100	T	100		Tower	N	0	0
T-101	T	101		Tower	N	0	0

< Back | Finish | Cancel |

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Click the **Plant** tab in the middle.



## Excel Adapter

- Click the Plant tab in the middle

**Publish**

Validation

A	B	C	D	E	F	G	
1							
2							
3							
4							
5							
6	Tag	Tag Prefix	Tag SequenceNo	Tag Suffix	Unit	Type	Steam Out Requirement
7	P-105A	P	105	A	Unit 23	Horiz Pump	Y
8	P-106B	P	106	B	Unit 23	Horiz Pump	Y
9	P-107B	P	107	B	Unit 23	Horiz Pump	Y

Equipment \ PBS /

Equipment | **Plant** | Unit |

Name
EFPLANT-SU1

< Back | Finish | Cancel |

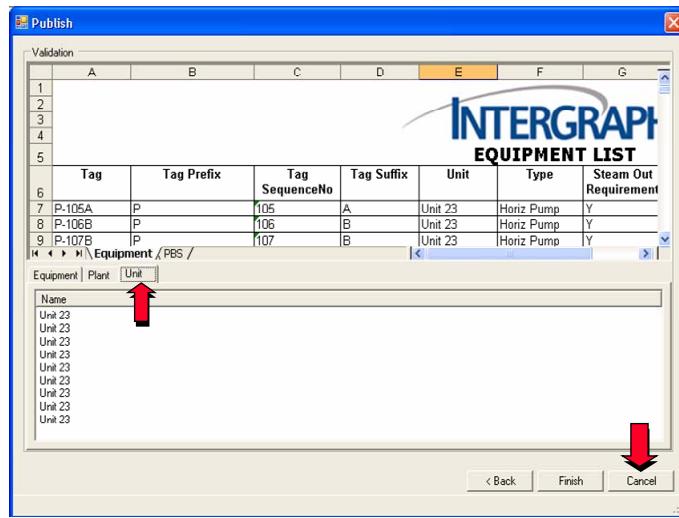
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Click the **Unit** tab.



## Excel Adapter

- ❑ Click the Unit tab



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Click Cancel.

Select File | Exit.

## 13.10 Publishing the Excel File

Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Foundation Desktop Client.

In the Logon Information dialog, type **updateuser** in the User name field and click **OK**.

Select **SmartPlant | Excel Adapter | Publish....**

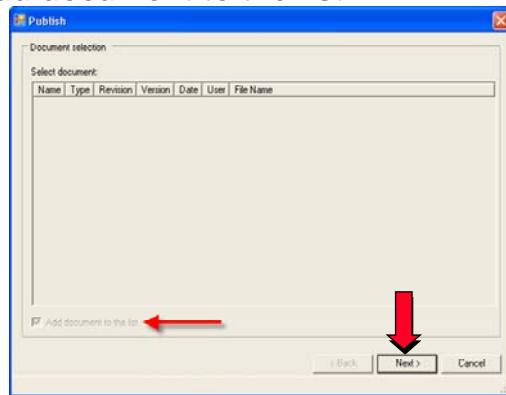
The Publish dialog is shown.

Click **Add document to the list**.



### Excel Adapter

- Login to the Desktop Client as updateuser**
- Select SmartPlant | Excel Adapter | Publish....**
- The Publish dialog is shown.**
- Click Add document to the list**



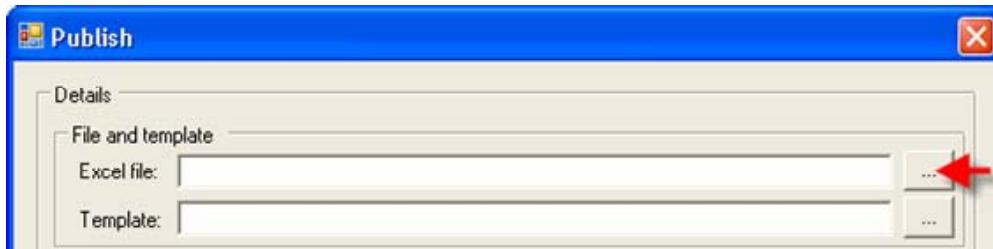
Click **Next**.

Click **...** across from the **Excel file** field.



## Excel Adapter

- Click across from the Excel file field.
- In the Select File to Publish dialog, browse to C:\SmartPlantExcelAdapterTutorial\ExcelAdapterSamples\EquipmentList\ExcelFile, click Equipment List.xls and click Open



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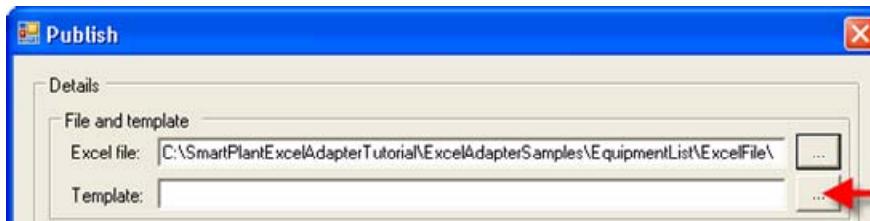
In the Select File to Publish dialog, browse to D:\ExcelAdapter\ExcelAdapterSamples\EquipmentList\ExcelFile, click Equipment List.xls and click **Open**.

Click ... across from the **Template** field.



## Excel Adapter

- Click across from the **Template** field.
- In the Select Excel Document Template dialog, in the Select template list, click Unit 23 Equipment List and click **OK**.
- The template is used to populate the Document details section.
- Click **Finish**.



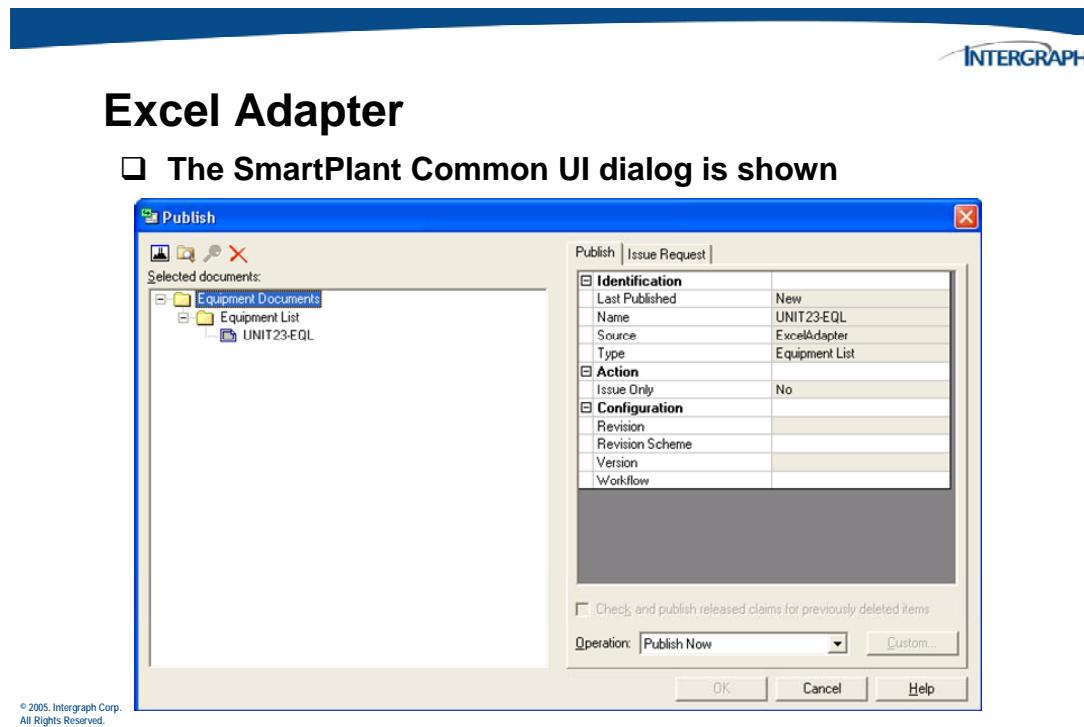
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In the Select Excel Document Template dialog, in the Select template list, click **Unit 23 Equipment List** and click **OK**.

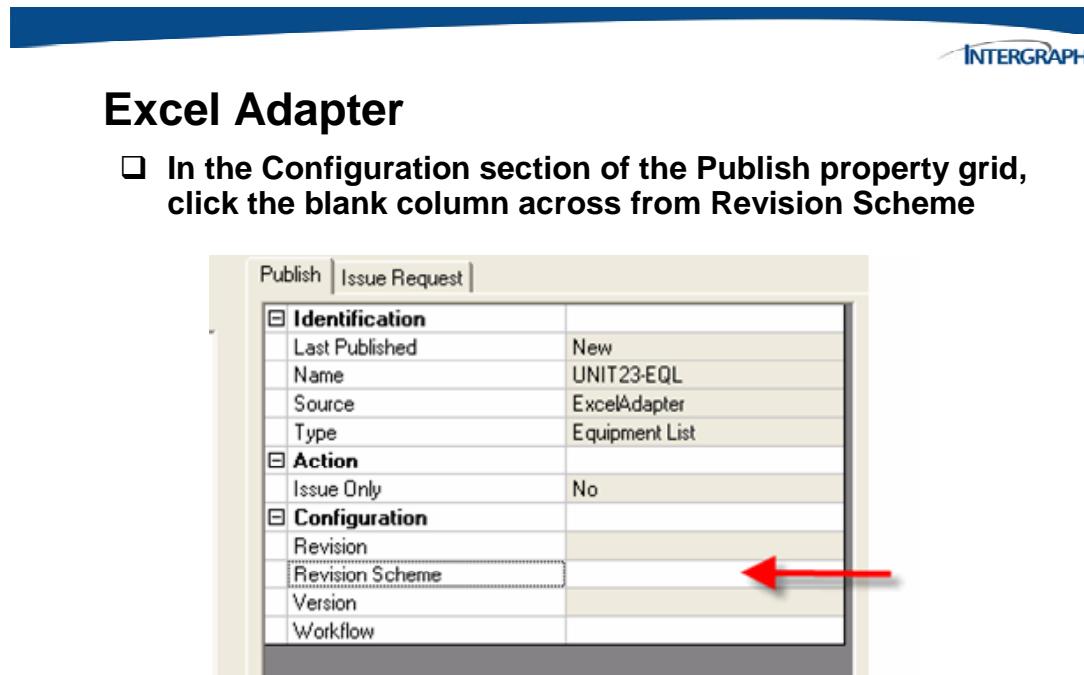
The template is used to populate the Document details section.

**Click Finish.**

The SmartPlant Common UI dialog is shown.



In the Configuration section of the Publish property grid, click the **blank column** across from Revision Scheme.



In the Revision Scheme combo box, select **Rev01A**.

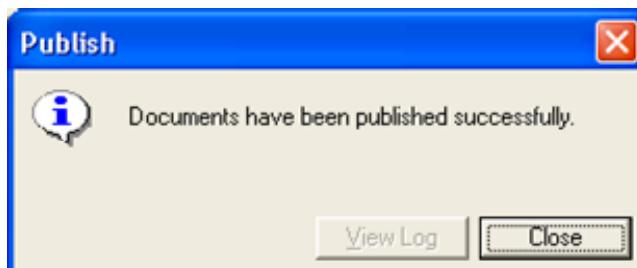
Click **OK**.

The Documents have been published successfully dialog is shown.



## Excel Adapter

- In the Revision Scheme combo box, select **Rev01A**.
- Click **OK**.
- The Documents have been published successfully dialog is shown.
- Click **Close**.



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Click **Close**.

Select **File | Exit**.

## 13.11 Grant view access to the published relationships

Click Start | Programs | Intergraph SmartPlant Foundation | Schema Object Administration.

In the Logon Information dialog, type **adminuser** in the User name field and click **OK**.

Select Tools | Find | Relationship Definition....

In the Find Relationship Definition dialog, type **PBSItem\*** in the Enter name field and click **OK**.

Right-click **PBSItemCollection** and select **Show User Groups**.

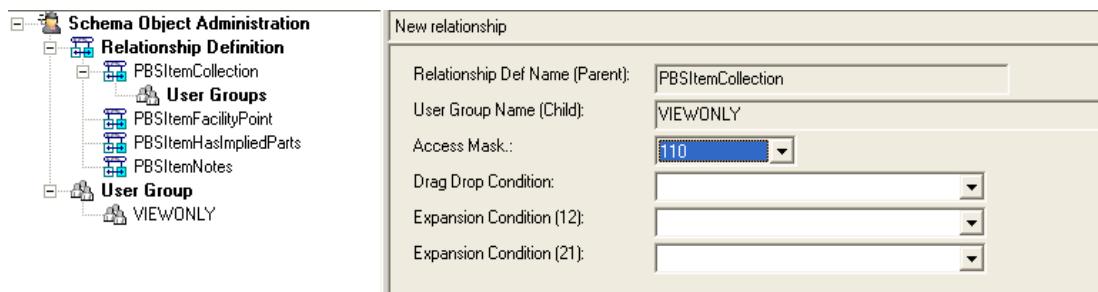
Select Tools | Find | User Group....

In the Find User Group dialog, type **VI\*** in the Enter name field and click **OK**.

Click and drag the **VIEWONLY** user group onto the **PBSItemCollection** relationship definition's User Groups.

The New relationship form is displayed.

In the Access Mask field, select **110** and click **OK**.



Select Tools | Find | Relationship Definition....

In the Find Relationship Definition dialog, type **SPFDoc\*** in the Enter name field and click **OK**.

Right-click on the **SPFDocumentItems** relationship definition and select **Show User Groups**.

Click and drag the **VIEWONLY** user group onto the **SPFDocumentItems** relationship definition's User Groups.

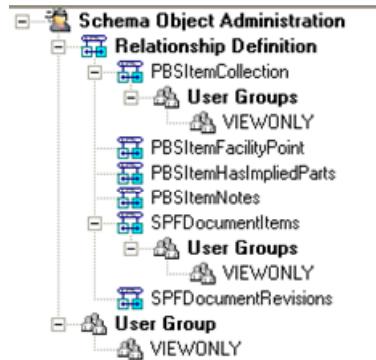
The New relationship form is displayed.

In the Access Mask field, select **110** and click **OK**.

The tree view should look like this:

## Excel Adapter

- In the Schema Object Administration find the PBSItemCollection and SPFDocumentItems
- Set 110 Mask to these relationships and add the VIEWONLY usergroup to them



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## 13.12 Create the edge definitions

Select View | Clear.

Select File | New | Edge Definition....

Type **ExcelEquipmentToUnit** in the Name field.

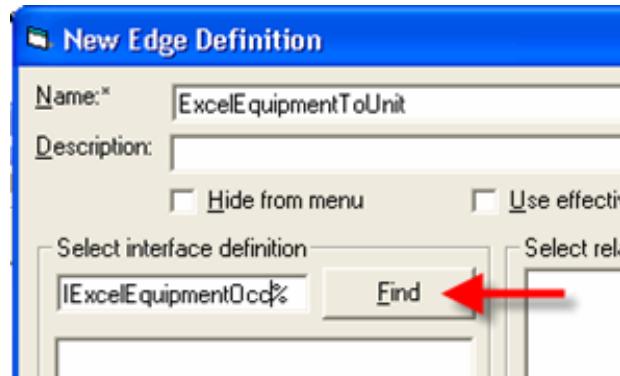
Type **ExcelEquipmentToUnit** in the Display name field.

Type **IExcelEquipmentOcc%** in the Select interface definition field and click **Find**.



### Excel Adapter

- SmarSelect View | Clear.
- Select File | New | Edge Definition tPlant



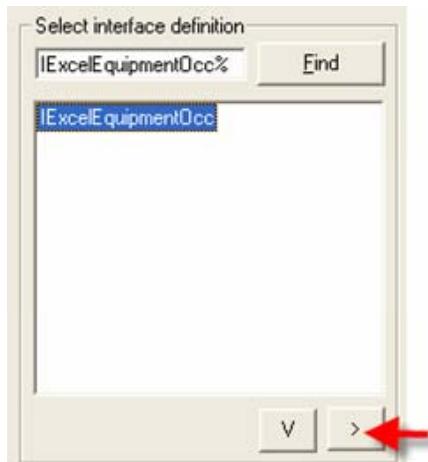
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Click **IExcelEquipmentOcc** in the interface definitions list and click **>**.



## Excel Adapter

- Click **IExcelEquipmentOcc** in the interface definitions list and click **>**.



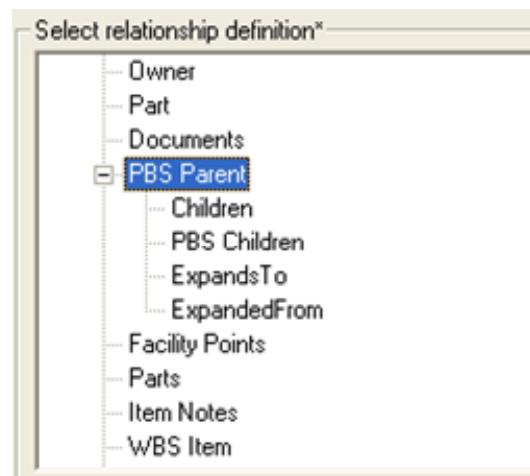
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In the Select relationship definition tree, click **PBS Parent**.



## Excel Adapter

- In the Select relationship definition tree, click **PBS Parent**



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Type **IFunctionUnit%** in the Select interface definition field and click **Find**.

Click **IFunctionUnit** in the interface definitions list and click **V**.



## Excel Adapter

- Type IFunctionUnit% in the Select interface definition field and click Find.
- Click IFunctionUnit in the interface definitions list and click V

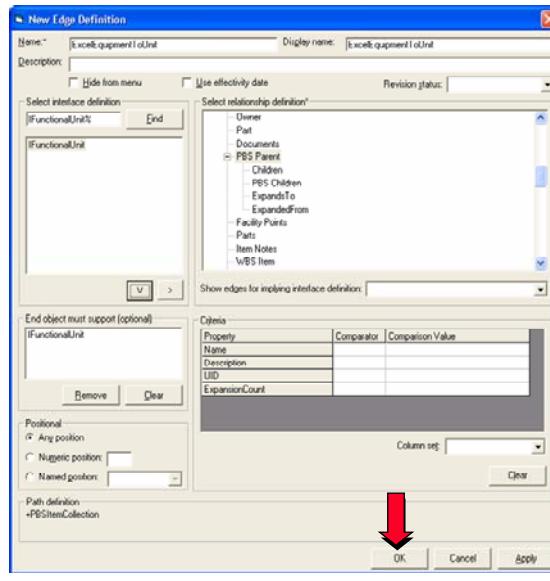


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IFunctionalUnit is added to the End object must support (optional) section.



## Excel Adapter



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Click **OK**.

Select **File | New | Edge Definition....**

Type **ExcelEquipmentToPlant** in the Name field.

Type **ExcelEquipmentToPlant** in the Display name field.

Type **IExcelEquipmentOcc%** in the Select interface definition field and click **Find**.

Click **IExcelEquipmentOcc** in the interface definitions list and click **>**.

In the Select relationship definition tree, click **PBS Parent**.

Type **IPlant%** in the Select interface definition field and click **Find**.

Click **IPlant** in the interface definitions list and click **V**.

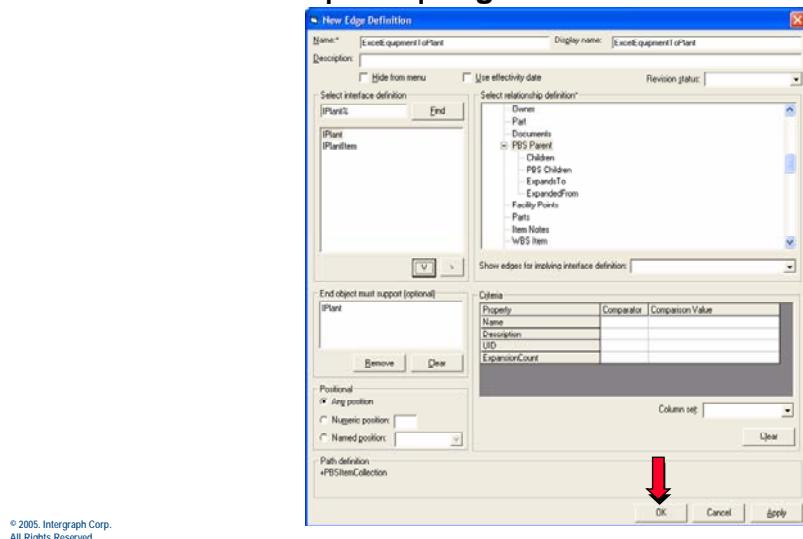
IPlant is added to the End object must support (optional) section.



INTERGRAPH

## Excel Adapter

### Select File | New | Edge Definition



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Click **OK**.

## 13.13 Create the ExcelEquipment graph definition

Select **File | New | Graph Definition....**

Type **ExcelEquipment** in the Name field.

Type **Excel Equipment Graph** in the Display name field.

Type **IExcelEquipmentOcc%** in the Select starting interface definition field and click **Refresh**.

Click **IExcelEquipmentOcc** in the interface definitions list.

In the Current graph definition tree, click **Document Item Collection** and **ExcelEquipmentToPlant** and **ExcelEquipmentToUnit**.

Click **OK**.



### Excel Adapter

- Select File | New | Graph Definition....**
- Type ExcelEquipment in the Name field.**
- Type Excel Equipment Graph in the Display name field.**
- Type IExcelEquipmentOcc% in the Select starting interface definition field and click Refresh.**
- Click IExcelEquipmentOcc in the interface definitions list.**
- In the Current graph definition tree, click Document Item Collection and ExcelEquipmentToPlant and ExcelEquipmentToUnit.**
- Click OK.**

## 13.14 Create the ExcelEquipment view definition

Select File | New | View Definition....

Type **ExcelEquipment** in the Name field.

Type **Excel Equipment View** in the Display name field.

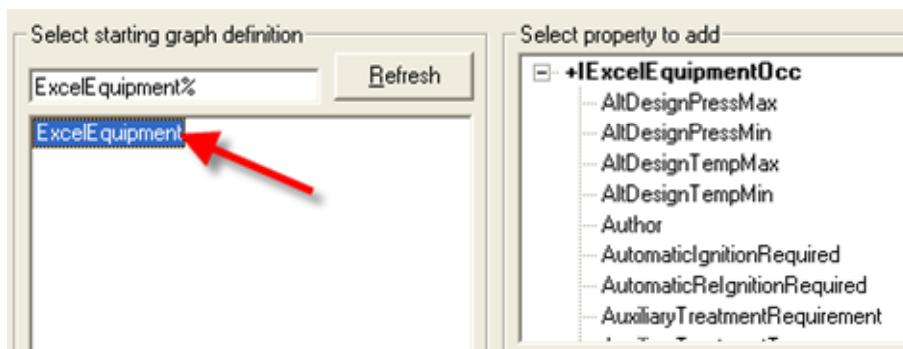
Type **ExcelEquipment%** in the Select starting graph definition field and click **Refresh**.

Click **ExcelEquipment** in the graph definitions list.



### Excel Adapter

- Select File | New | View Definition



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In the Select property to add tree, scroll and click **Name**.

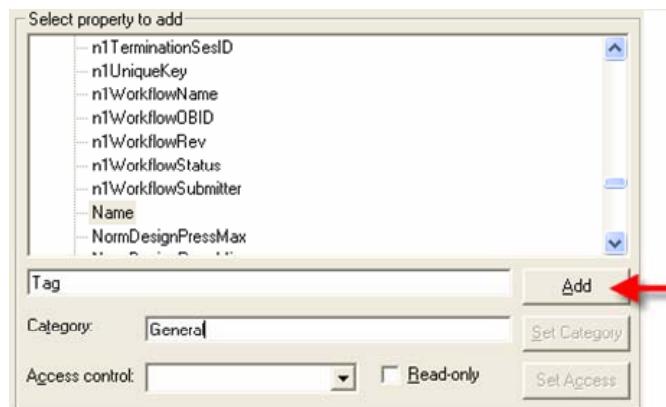
Type **Tag** in the View Property Name field.

Type **General** in the Category field and click **Add**.



## Excel Adapter

- ❑ In the Select property to add tree, scroll and click Name.
- ❑ Type Tag in the View Property Name field.
- ❑ Type General in the Category field and click Add



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In the Select property to add tree, scroll and click **EquipPrefix**.

Type **Tag Prefix** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **EquipSeqNo**.

Type **Tag SequenceNo** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **EquipSuff**.

Type **Tag Suffix** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **EqType0**.

Type **Equipment Type 1** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **EqType1**.

Type **Equipment Type 2** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **EqType2**.

Type **Equipment Type 3** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **EqType3**.

Type **Equipment Type 4** in the View Property Name field.

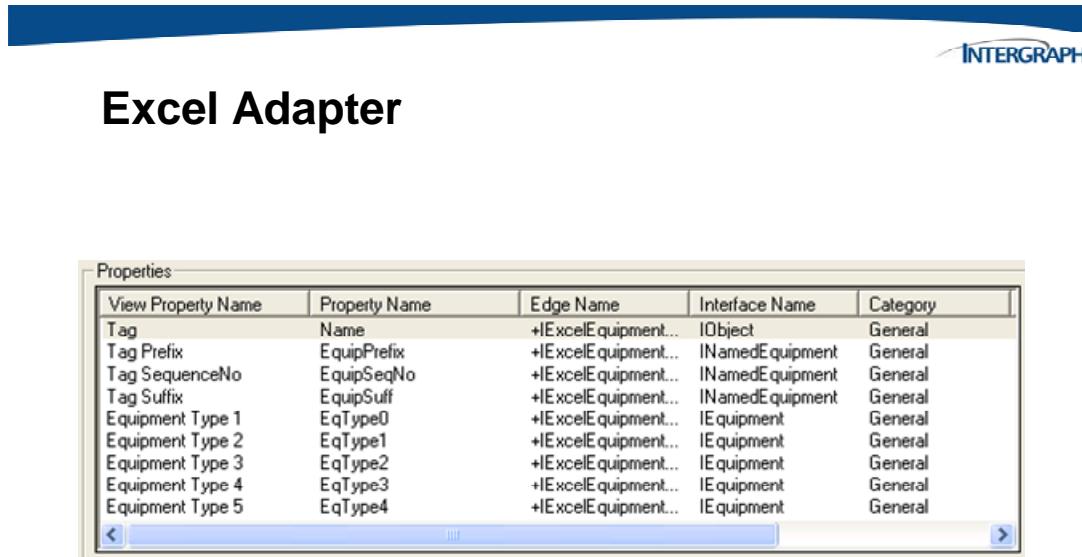
Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **EqType4**.

Type **Equipment Type 5** in the View Property Name field.

Type **General** in the Category field and click **Add**.

At this point, the Properties list should look like this:



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In the Select property to add tree, click **EqType5**.

Type **Equipment Type 6** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **EqType6**.

Type **Equipment Type 7** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, scroll and click **SteamoutReq**.

Type **Steam Out Requirement** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **SteamOutPressure**.

Type **Steam Out Press** in the View Property Name field.

Type **General** in the Category field and click **Add**.

In the Select property to add tree, click **SteamOutTemperature**.

Type **Steam Out Temp** in the View Property Name field.

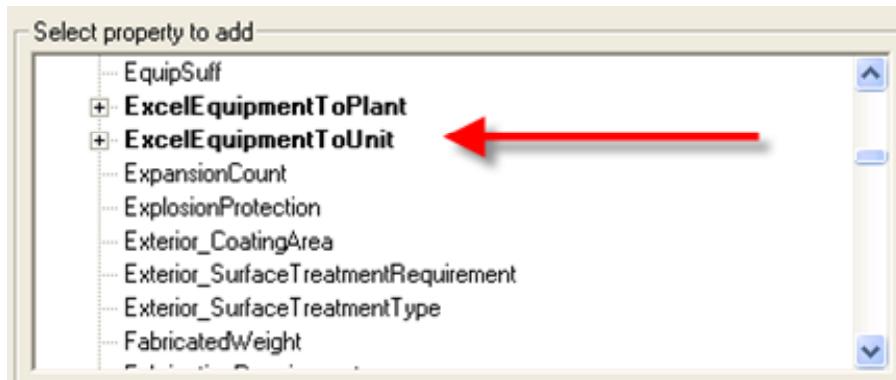
Type **General** in the Category field and click **Add**.

In the Select property to add tree, expand **ExcelEquipmentToUnit** and click **Name**.



## Excel Adapter

- After creating the View Def Properties listed
- In the Select property to add tree, expand **ExcelEquipmentToUnit** and click Name



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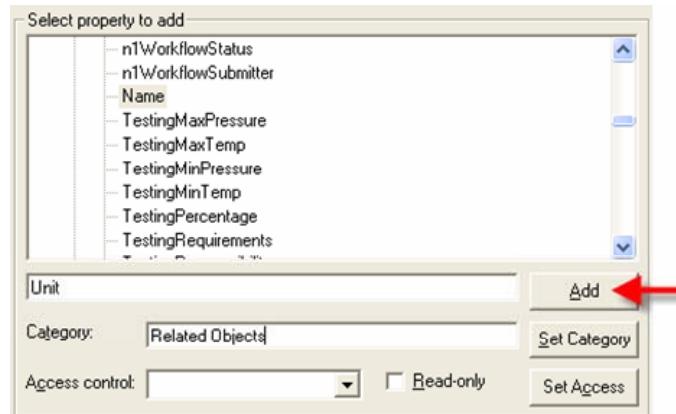
Type **Unit** in the View Property Name field.

Type **Related Objects** in the Category field and click **Add**.



## Excel Adapter

- Type Unit in the View Property Name field.
- Type Related Objects in the Category field and click Add



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In the Select property to add tree, expand **ExcelEquipmentToPlant** and click Name.

Type **Plant** in the View Property Name field.

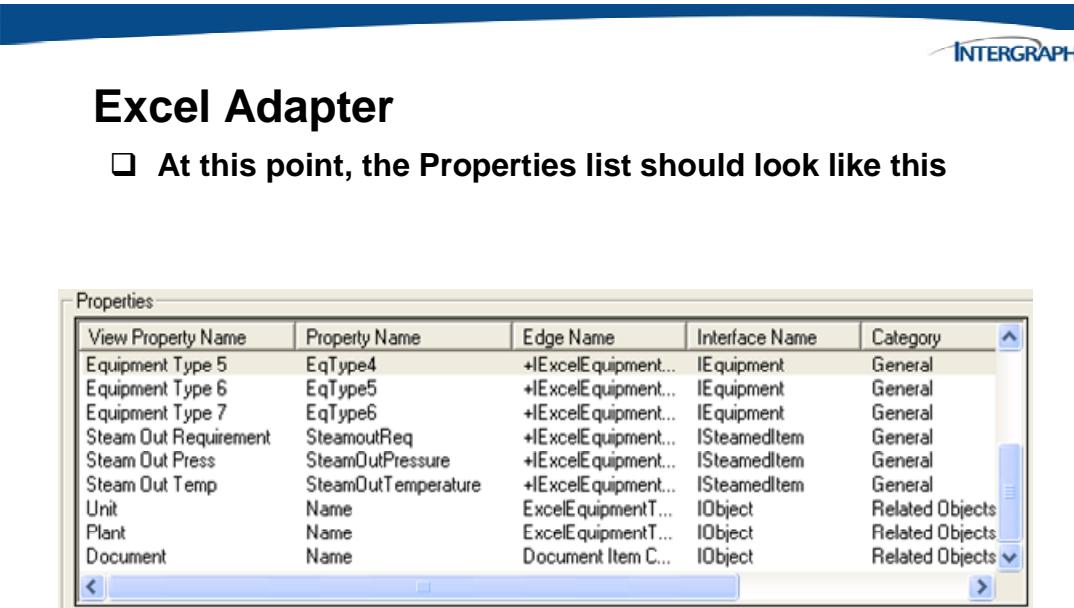
Type **Related Objects** in the Category field and click **Add**.

In the Select property to add tree, expand **Document Item Collection** and click **Name**.

Type **Document** in the View Property Name field.

Type **Related Objects** in the Category field and click **Add**.

At this point, the Properties list should look like this:



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Click **OK**.

Right-click the **ExcelEquipment** view definition and select **Show User Groups**.

Select **Tools | Find | User Group....**

In the Find User Group dialog, type **VI\*** in the Enter name field and click **OK**.

Click and drag the **VIEWONLY** user group onto the **ExcelEquipment** view definition's User Groups.

Select **File | Exit**.



## Excel Adapter

- Click OK.
- Right-click the ExcelEquipment view definition and select Show User Groups.
- Select Tools | Find | User Group....
- In the Find User Group dialog, type VIEWONLY\* in the Enter name field and click OK.
- Click and drag the VIEWONLY user group onto the ExcelEquipment view definition's User Groups.
- Select File | Exit.

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Note - You must exit Schema Object Administration to reload the cached information.

## 13.15 Configure the view definition as the default view

Click Start | Programs | Intergraph SmartPlant Foundation | Schema Object Administration.

In the Logon Information dialog, type **adminuser** in the User name field and click **OK**.

Select Tools | Find | Class View Map....

In the Find Class View Map dialog, leave \* in the Enter name field and click **OK**.

Right-click **General** and select **Show User Groups**.

Right-click **VIEWONLY** and select **Delete Relationship**.

Click **OK**.

Select File | New | Class View Map....

Type **ExcelEquipmentViewMap** in the Name field.

Type **ExcelEquipmentViewMap** in the Display Name field.

In the Class definitions field, select **ExcelEquipment**.

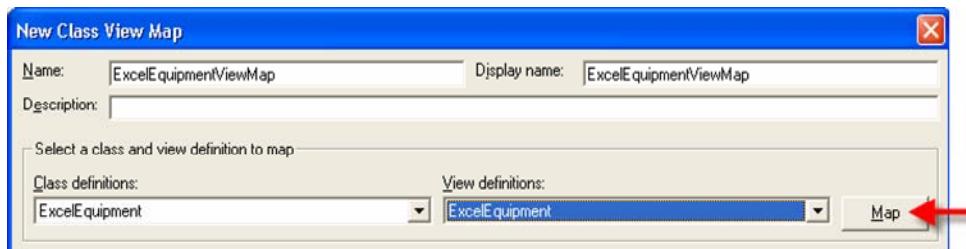
In the View definitions field, select **ExcelEquipment**.

Click **Map**.



### Excel Adapter

- Configure the view definition as the default view
- Open Schema Object Administration
- Select Tools | Find | Class View Map



Click **OK**.

Right-click **ExcelEquipmentViewMap** and select **Show User Groups**.

Select Tools | Find | User Group....

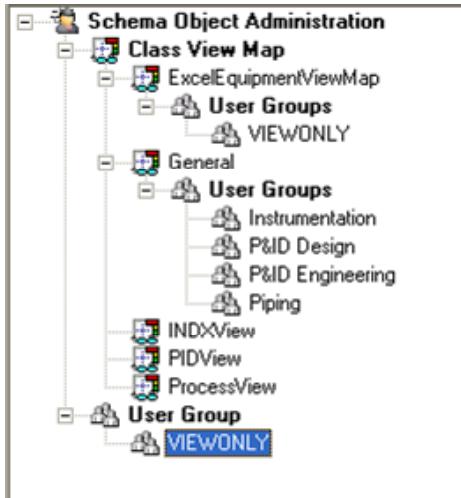
In the **Find User Group** dialog, type **VIEWONLY\*** in the Enter name field and click **OK**.

Click and drag the **VIEWONLY** user group onto the **ExcelEquipmentViewMap** class view map's User Groups.



## Excel Adapter

- Create the Class View Map and add the usergroup to the Map



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Select File | Exit.

## 13.16 Create the menu and method to find the Excel Equipment Lists

Click Start | Programs | Intergraph SmartPlant Foundation | System Administration.

In the Logon Information dialog, type **adminuser** in the User name field and click **OK**.

Select File | New | Method....

Type **QFindExcelEquipmentList** in the Method name field.

Type **Excel Equipment Lists** in the Display name field.

Select **QFindEFObj** in the Associated client API field.

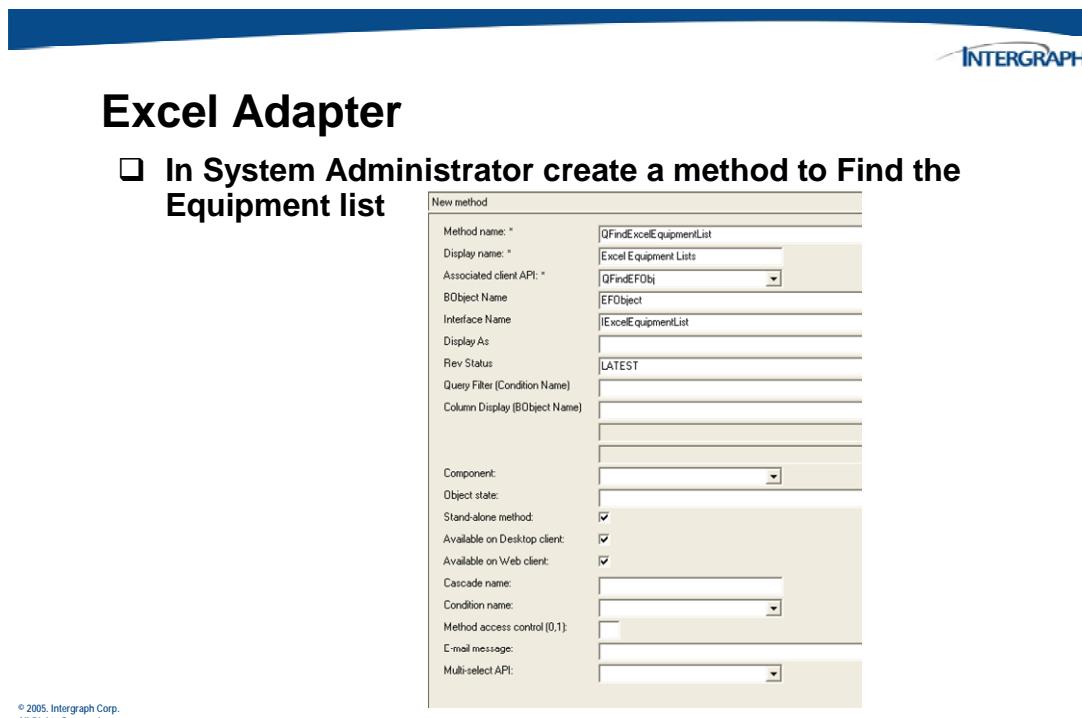
Type **EFObject** in the BObject Name field.

Type **IExcelEquipmentList** in the Interface Name field.

Type **LATEST** in the Rev Status field.

Check the **Stand-alone method** field.

The New Method dialog should look like this:



Click **OK**.

Select Tools | Find | Menu....

In the Find Menu dialog, leave \* in the Enter name field and click **OK**.

Right-click on the QueryMenu menu and select **New Menu Items....**

Type **QFindExcelEquipmentList** in the Method name field.

Type **Excel Equipment Lists...** in the Display as field.

In the Method name field, select **QFindExcelEquipmentList**.



## Excel Adapter

- Create a Menu Item to run the Method

New menu items

Menu name (Parent): *	QueryMenu
Menu item name (Child): *	QFindExcelEquipmentList
Display as: *	Excel Equipment Lists...
Icon:	
Method name:	QFindExcelEquipmentList
Separator required indicator:	<input type="checkbox"/>
Sequence number:	

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Click **OK**.

Right-click on the **QFindExcelEquipmentList** menu item and select **Show User Groups**.

Select **Tools | Find | User Group....**

In the Find User Group dialog, type **VI\*** in the Enter name field and click **OK**.

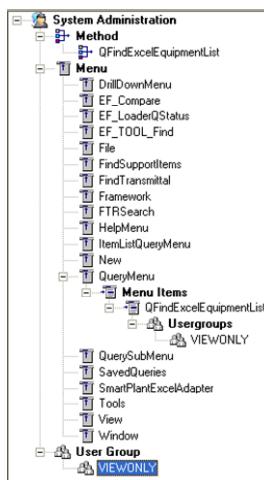
Click and drag the **VIEWONLY** user group onto the **QFindExcelEquipmentList** menu item's Usergroups.

The tree view should look like this:



## Excel Adapter

- Add a Usergroup to the menu item to grant access



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Select **File | Exit**.

**Note:** reload cache.

## 13.17 View the published file and data

Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Foundation Desktop Client.

In the Logon Information dialog, type **updateuser** in the User name field and click **OK**.

Select **Find | Equipment....**

In the Find Equipment dialog, leave \* in the Enter name field and click **OK**.

The published ExcelEquipment objects are shown:

The screenshot shows a Windows application window titled "Find Equipment = '\*'". The window contains a table with three columns: Name, Classification, and Description. The table lists nine items, all of which are classified as "ExcelEquipment". The items are: P-105A, P-106B, P-107B, P-108A, P-109, P-110, P-111, T-100, and T-101. Each item has a small yellow folder icon next to its name. The "Name" column is sorted in ascending order. The "Classification" and "Description" columns are empty for all items.

Name	Classification	Description
P-105A	ExcelEquipment	
P-106B	ExcelEquipment	
P-107B	ExcelEquipment	
P-108A	ExcelEquipment	
P-109	ExcelEquipment	
P-110	ExcelEquipment	
P-111	ExcelEquipment	
T-100	ExcelEquipment	
T-101	ExcelEquipment	

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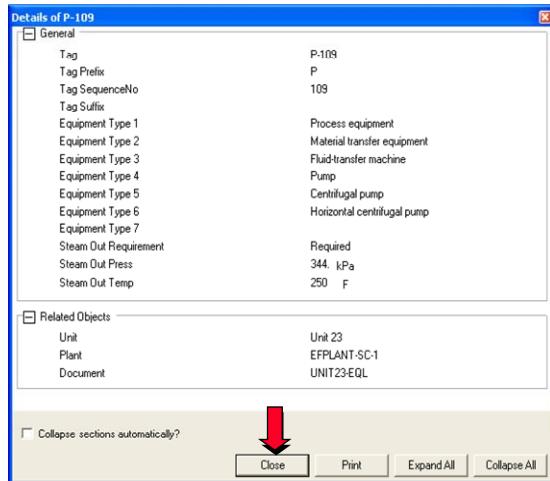
Right-click **P-109** and select **Details**.

The properties are shown:



## Excel Adapter

- Right click and show the properties for P-109



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Click Close.

Select Find | Excel Equipment Lists....

In the Find Excel Equipment Lists dialog, leave \* in the Enter name field and click OK.

The published Excel Equipment List is shown:



## Excel Adapter

- Find the Equipment Lists

Find Excel Equipment Lists = ***				
	Name of Item	Rev	Default Status	Classification
<input checked="" type="checkbox"/>	UNIT23-EQL	[01,1]	WORKING -	ExcelEq

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Right-click UNIT23-EQL and select Files | View and Markup.

The published Excel file is shown:

The screenshot shows a Microsoft Excel spreadsheet titled "View and Markup UNIT23-EQL". The title bar includes the application name and a large "INTERGRAPH" logo. The main content is a table titled "EQUIPMENT LIST" with the following columns: Tag, Tag Prefix, Tag SequenceNo, Tag Suffix, Unit, Type, Steam Out Requirement, Steam Out Press (psi), and Steam Out Temp (F). The data rows are as follows:

Tag	Tag Prefix	Tag SequenceNo	Tag Suffix	Unit	Type	Steam Out Requirement	Steam Out Press (psi)	Steam Out Temp (F)
P-105A	P	105	A	Unit 23	Horiz Pump	Y	50	250
P-106B	P	106	B	Unit 23	Horiz Pump	Y	50	250
P-107B	P	107	B	Unit 23	Horiz Pump	Y	45	240
P-108A	P	108	A	Unit 23	Horiz Pump	Y	55	260
P-109	P	109		Unit 23	Horiz Pump	Y	50	250
P-110	P	110		Unit 23	Horiz Pump	Y	45	240
P-111	P	111		Unit 23	Horiz Pump	Y	30	220
T-100	T	100		Unit 23	Tower	N	0	0
T-101	T	101		Unit 23	Tower	N	0	0

At the bottom of the window, there are buttons for "Find Excel Equipment Lists = <ctrl>" and "View and Markup UNIT23-EQL". The status bar shows "Window Area" and "Identify first corner".

Select **File | Exit**.

## 13.18 Updating the SmartPlant P&ID Tool Metadata

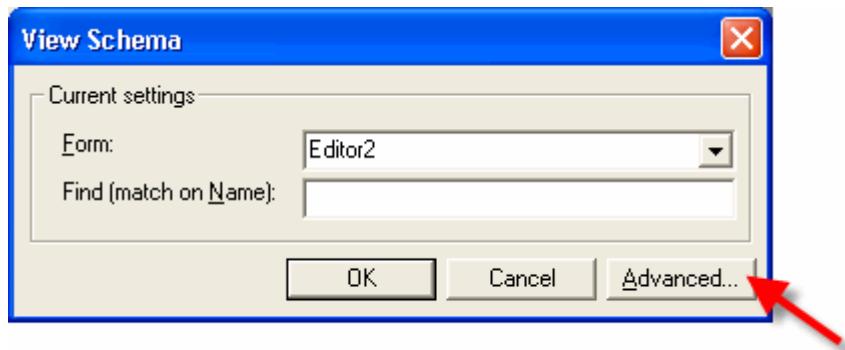
Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Schema Component | SmartPlant Schema Editor.

Select File | File Configurations | Open Configuration....

In the Open Configuration File dialog, browse to C:\Program Files\Common Files\Intergraph\EFSchema\03.08, click EFSchema.cfg and click Open.

Select View | Schema (All) ....

If the View Schema dialog is in simple mode, then click Advanced....



To limit your view to only the **Tool Metadata classes**, click **Class list** and click **...**.

The Select Class List dialog is shown.

In the All list, click **Tool Metadata (CL\_ToolSchemadocType)**.

Click the **View** tab.

Click **Tree/Multi-Tab** and click **OK**.

The Schema (All opened files) Tree/MultiTab (Extensions1.xml) dialog is shown.

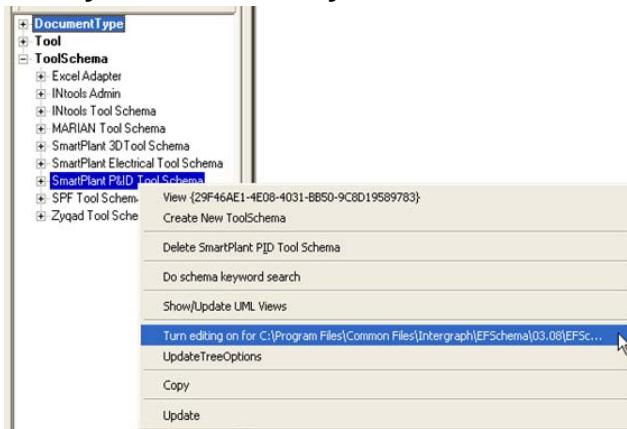
**Expand ToolSchema.**

Right-click **SmartPlant P&ID Tool Schema** and select **Turn editing on** for C:\Program Files\Common Files\Intergraph\EFSchema\03.08\EFSc....



## Excel Adapter

- Updating the SmartPlant P&ID Tool Metadata
- Open the Schema Editor
- Class list limit your view to only the Tool Metadata classes
- Click OK



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Right-click **SmartPlant P&ID Tool Schema** and select **Edit {29F46AE1-...}**.

The Edit Tool Schema Definition (EFSchema.xml) dialog is displayed.

Click **...** across from **Retrievable document types**.

The Possible RetrieveDoc Types for SmartPlant P&ID Tool Schema dialog is shown.

Type **Excel** in the Starts with field.

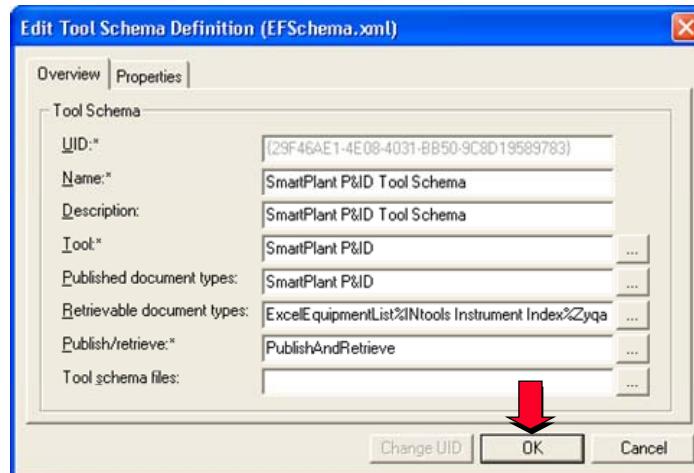
In the Selectable list, click **ExcelEquipmentList ({...})** and click **OK**.

ExcelEquipmentList is added to the Retrievable document types field.



## Excel Adapter

- Add the ExcelEquipmentList to the Retrievable document types



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Click **OK**.

Select **File | Save| Schema File**.

Select **Tools | Schema | Generate Tool Metadatas**.

Select **File | Exit**.



## Excel Adapter

- Select **File | Save| Schema File**.
- Select **Tools | Schema | Generate Tool Metadatas**.
- Select **File | Exit**

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## 13.18.1 Retrieving the Excel File into SmartPlant P&ID

Click Start | Programs | Intergraph SmartPlant P&ID | Drawing Manager.

Open a P&ID drawing (128-5001).

Select SmartPlant | Retrieve....

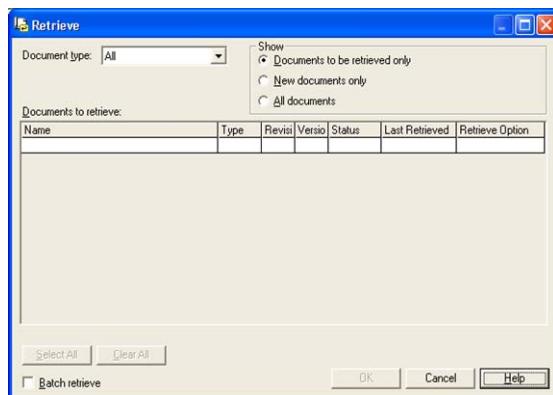
In the SmartPlant Foundation Login dialog, type **adminuser** and click **OK**.

The SmartPlant Retrieve Common UI is shown.



### Excel Adapter

- Retrieving the Excel File into SmartPlant P&ID**
- Open PID 128-5001 and perform a retrieve of the Equipment list**



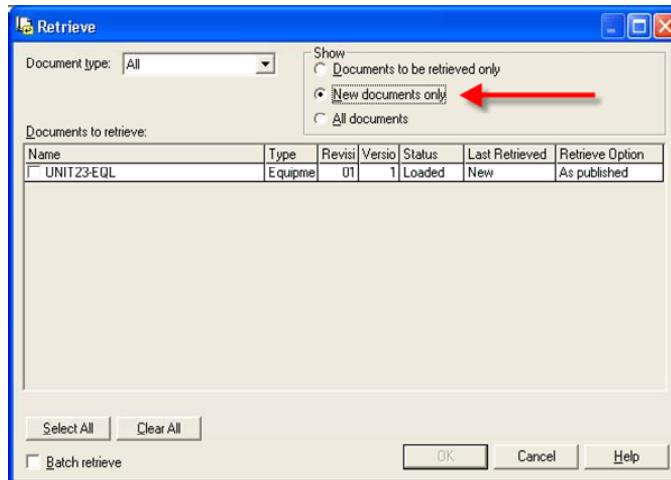
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In the Show section, click **New documents only**



## Excel Adapter

- ❑ In the Show section, click New documents only



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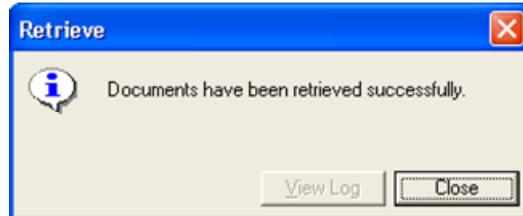
Click **UNIT23-EQL** and click **OK**.

The Documents have been retrieved successfully dialog is shown.



## Excel Adapter

- ❑ Click **UNIT23-EQL** and click **OK**.
- ❑ The Documents have been retrieved successfully dialog is shown



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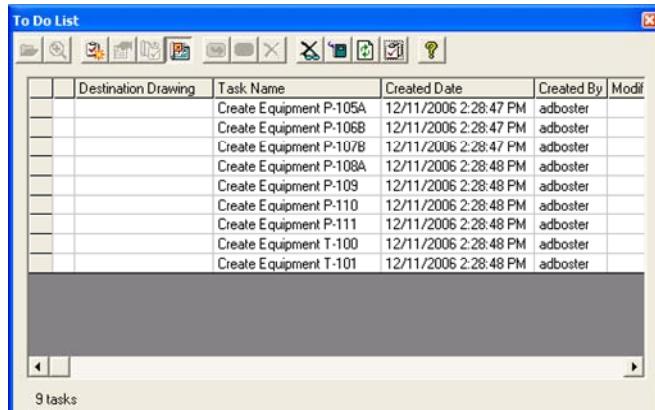
Click **Close**.

Select **SmartPlant | To Do List....**

The To Do List dialog is shown.

## Excel Adapter

- Select SmartPlant | To Do List....
- The To Do List dialog is shown

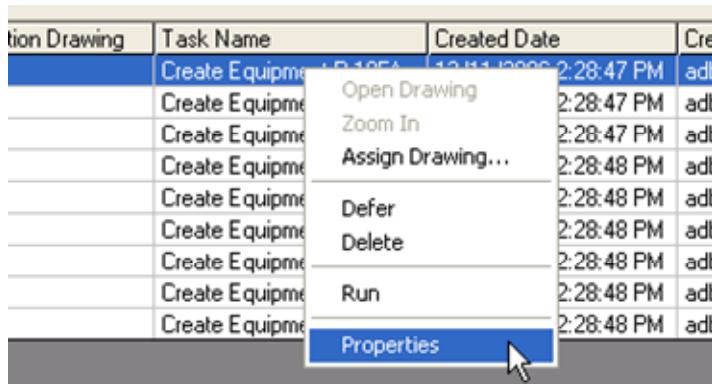


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Right-click the **first task** and select **Properties**.

## Excel Adapter

- Right-click the first task and select Properties



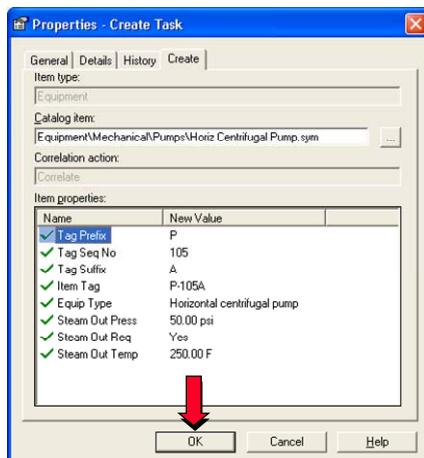
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Click the **Create** tab.



## Excel Adapter

- Click the Create tab



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Click **OK**.

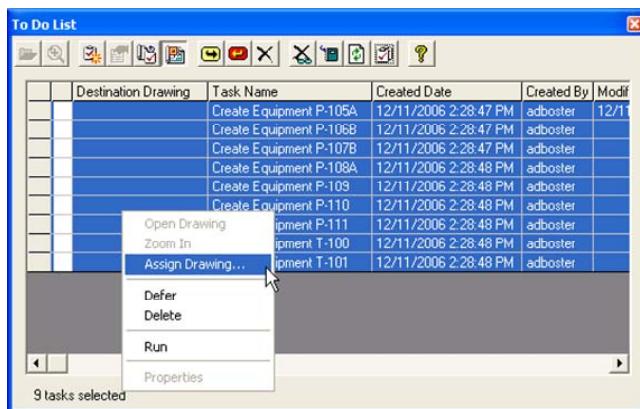
Select all the tasks by clicking the first task then shift-clicking the last task.

Right-click one of the tasks and select Assign Drawing....



## Excel Adapter

- Select all the tasks by clicking the first task then shift-clicking the last task.
- Right-click one of the tasks and select Assign Drawing



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Select a drawing (**128-5001**) and click **OK**.

The Destination Drawing column is populated.



## Excel Adapter

- Select a drawing (128-5001) and click OK.
- The Destination Drawing column is populated

To Do List

	Destination Drawing	Task Name	Created Date	Created By	Modif
	ExcelResults-001	Create Equipment P-105A	12/11/2006 2:28:47 PM	adboster	12/11/2006 2:28:47 PM
	ExcelResults-001	Create Equipment P-106B	12/11/2006 2:28:47 PM	adboster	12/11/2006 2:28:47 PM
	ExcelResults-001	Create Equipment P-107B	12/11/2006 2:28:47 PM	adboster	12/11/2006 2:28:47 PM
	ExcelResults-001	Create Equipment P-108A	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Create Equipment P-109	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Create Equipment P-110	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Create Equipment P-111	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Create Equipment T-100	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Create Equipment T-101	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM

9 tasks selected

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With all the tasks still selected, right-click one of the tasks and select Run.



## Excel Adapter

- With all the tasks still selected, right-click one of the tasks and select Run

To Do List

	Destination Drawing	Task Name	Created Date	Created By	Modif
	ExcelResults-001	Create Equipment P-105A	12/11/2006 2:28:47 PM	adboster	12/11/2006 2:28:47 PM
	ExcelResults-001	Create Equipment P-106B	12/11/2006 2:28:47 PM	adboster	12/11/2006 2:28:47 PM
	ExcelResults-001	Create Equipment P-107B	12/11/2006 2:28:47 PM	adboster	12/11/2006 2:28:47 PM
	ExcelResults-001	Create Equipment P-108A	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Create Equipment P-109	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Open Drawing	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Zoom In	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Assign Drawing...	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Defer	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Delete	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Run	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM
	ExcelResults-001	Properties	12/11/2006 2:28:48 PM	adboster	12/11/2006 2:28:48 PM

9 tasks selected

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Green check marks will appear for all successful tasks as shown here:



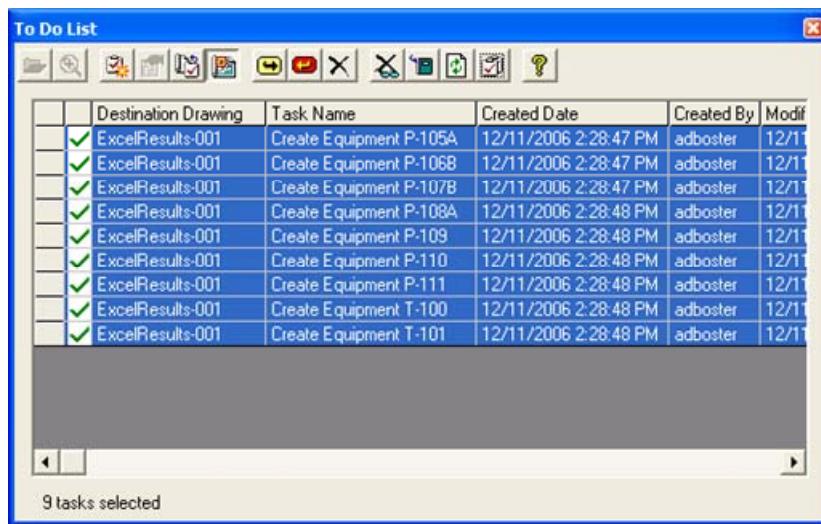
## Excel Adapter

- Green check marks will appear for all successful tasks as shown here:**
- The equipment is placed around the bottom of the drawing.**
- Click the X to close the To Do List.**
- Select File | Exit.**
- Close SmartPlant P&ID Drawing Manager**

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## Excel Adapter



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The equipment is placed around the bottom of the drawing.

Click the X to close the To Do List.

Select File | Exit.

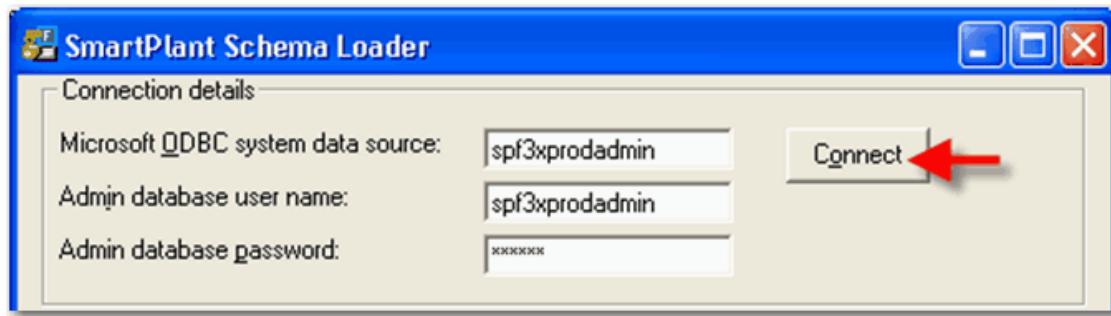
Close SmartPlant P&ID Drawing Manager.



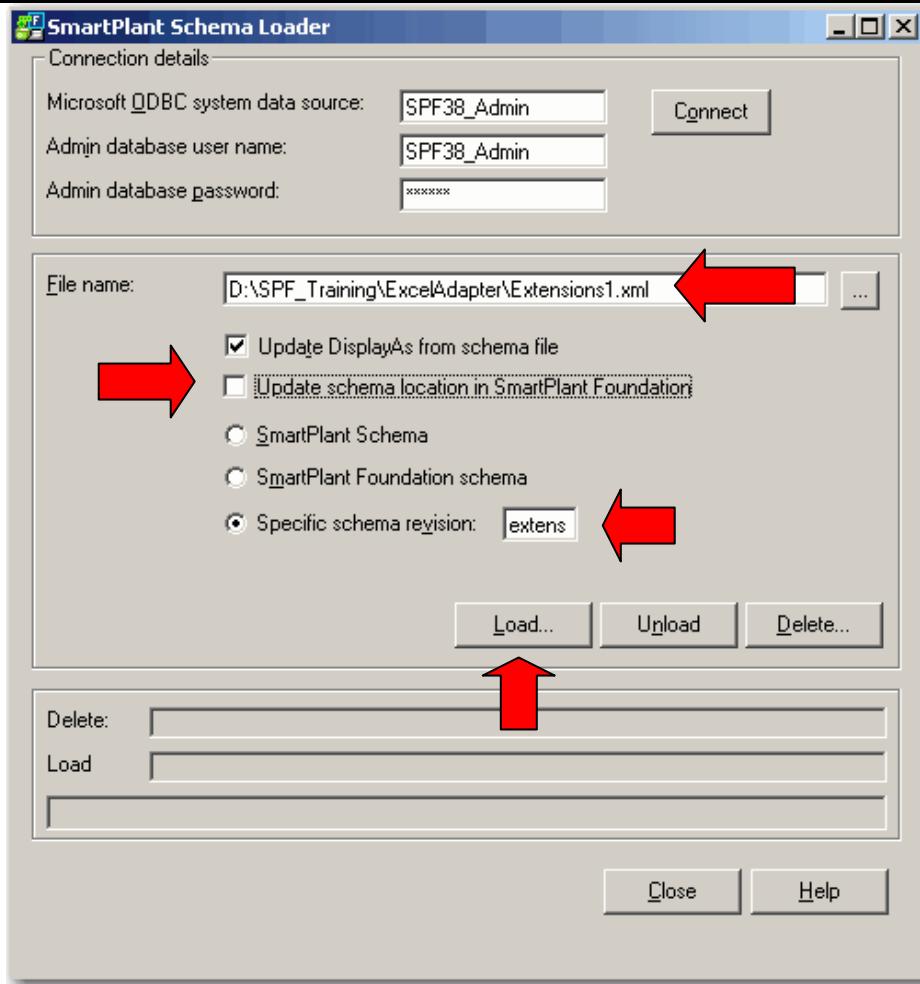
## 13.19 Activity 2 – Configuring/Publishing with the Excel Adapter

The objective of this activity is to create a excel template and publish into SPF. After this you will Retrieve the Published Excel data into P&ID and associate it with the 128-5001 PID drawing.

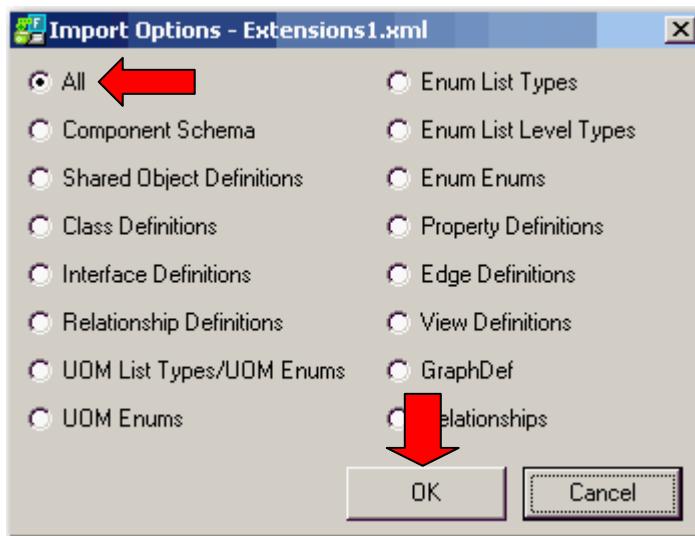
1. Use the Schema Loader to load the Updated Extensions1.xml file with the Class and property values outlined in Appendix A:
  - Open **Windows Explorer**.
  - Navigate to the <*SmartPlant Foundation installation directory*>.
  - Double-click **SmartPlantSchemaLoader.exe**.
  - Verify the Connection details are correct.
  - Click **Connect**.



- The active schema file path is shown in the **File name** field.
- Click **Load**.



- In the Import Options – Extensions1.xml dialog, click All and click OK.



- The SmartPlant Schema additions are loaded into SmartPlant Foundation.
  - Click **Close**.
2. Follow the outline in Sections 13-7 to 13-10. Activate the Methods, Create a template and Publish the provided XLS file.
  3. Perform the task outlined in 13-11 to 13-17 to view the published excel data in SPF
  4. Finish the tasks by Retrieving the data in P&ID and link the data to the 128-5001 pid drawing.



A P P E N D I X

# A

---

## SmartPlant Adapter for Microsoft Excel Schema Objects



## A. Review the delivered SmartPlant Adapter for Microsoft Excel Tool Metadata

The delivered location for SmartPlant Schema file is C:\Program Files\Common Files Intergraph\EFSchema\03.08. Tool metadata allows tools to externalize configuration information like which document types they publish and retrieve in the SmartPlant Schema instead of hard coding into the tool adapter. To view and edit this data open the SmartPlanr Schema Editor.

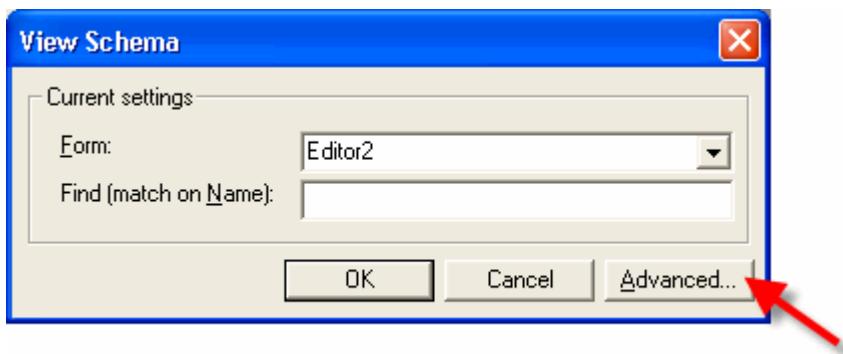
Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Schema Component | SmartPlant Schema Editor.

Select File | File Configurations | Open Configuration

In the Open Configuration File dialog, browse to C:\Program Files\Common Files\Intergraph\EFSchema\03.08, click EFSchema.cfg and click **Open**.

Select View | Schema (All)

If the View Schema dialog is in simple mode, then click **Advanced**



To limit your view to only the Tool Metadata classes, click **Class list** and click **...**.

The Select Class List dialog is shown.

In the All list, click **Tool Metadata**.

The View Schema dialog should look like this:



## Excel Adapter

- Tool metadata allows tools to externalize configuration information like which document types they publish and retrieve**
- To view and edit this data open the SmartPlant Schema Editor**
- The Select Class List should have Tool Metadata under the View Tab in the View Schema dialog**

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## Excel Adapter



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Click the **View** tab.

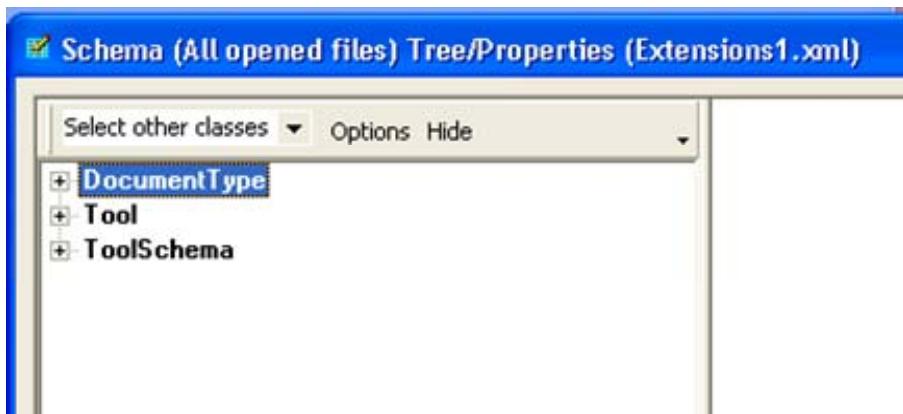
Click **Tree/Properties** and click **OK**.

The Schema (All opened files) Tree/Properties (Extensions1.xml) dialog is shown.



## Excel Adapter

- Click the View tab
- Click Tree/Properties and click OK



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Expand Tool by clicking the (+).

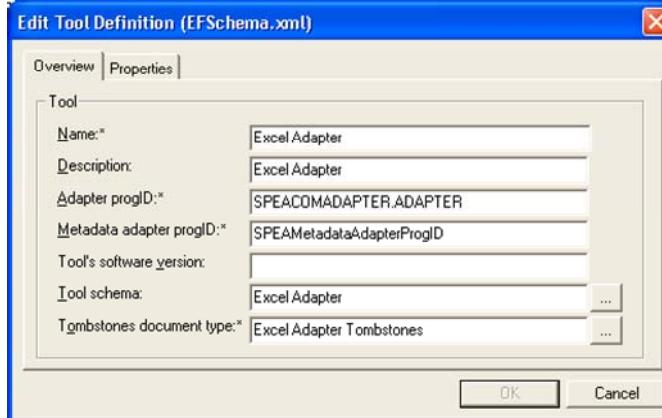
In the Tool list right-click on **Excel Adapter** and select **View ExcelAdapter**.

The Edit Tool Definition (EFSchema.xml) dialog is shown.



## Excel Adapter

- Expand Tool by clicking the (+)
- In the Tool list right-click on **Excel Adapter** and select **View ExcelAdapter**



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The Tool object represents the application or the tool integrating with SmartPlant Foundation. The Tool object should not be changed. The Adapter progID and Metadata adapter progID values are not used in this release. A Tool schema and Tombstones document type is already defined for the SmartPlant Adapter for Microsoft

Excel. The Tool schema specifies document types published and retrieved by the SmartPlant Adapter for Microsoft Excel.



## Excel Adapter

- The Tool object represents the application or the tool integrating with SPF**
- The Tool object should not be changed**
- The Adapter progID and Metadata adapter progID values are not used in this release**
- A Tool schema and Tombstones document type is already defined for the Excel Adapter**
- Click Cancel**

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The Tombstones document type specifies the document type for the tombstones published by the SmartPlant Adapter for Microsoft Excel.

Click **Cancel**.

Expand **ToolSchema** by clicking the (+).

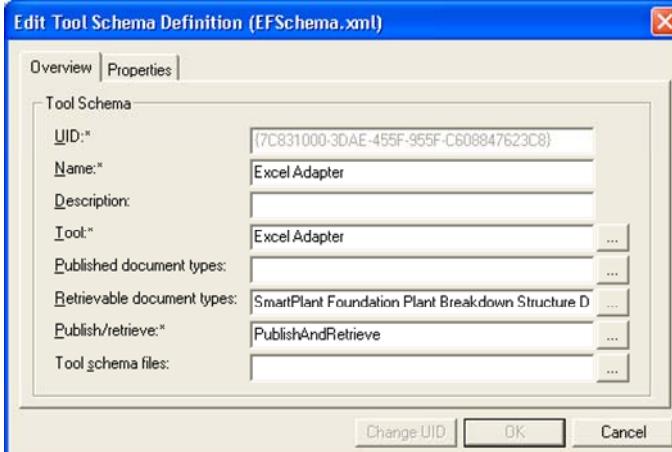
In the ToolSchema list right-click **Excel Adapter** and select **View**

The Edit Tool Schema Definition (EFSchema.xml) dialog is shown.



## Excel Adapter

- Expand ToolSchema by clicking the (+)**
- In the ToolSchema list right-click Excel Adapter and select View**



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The Published document types will need to be updated before any Excel files can be published by the SmartPlant Adapter for Microsoft Excel.

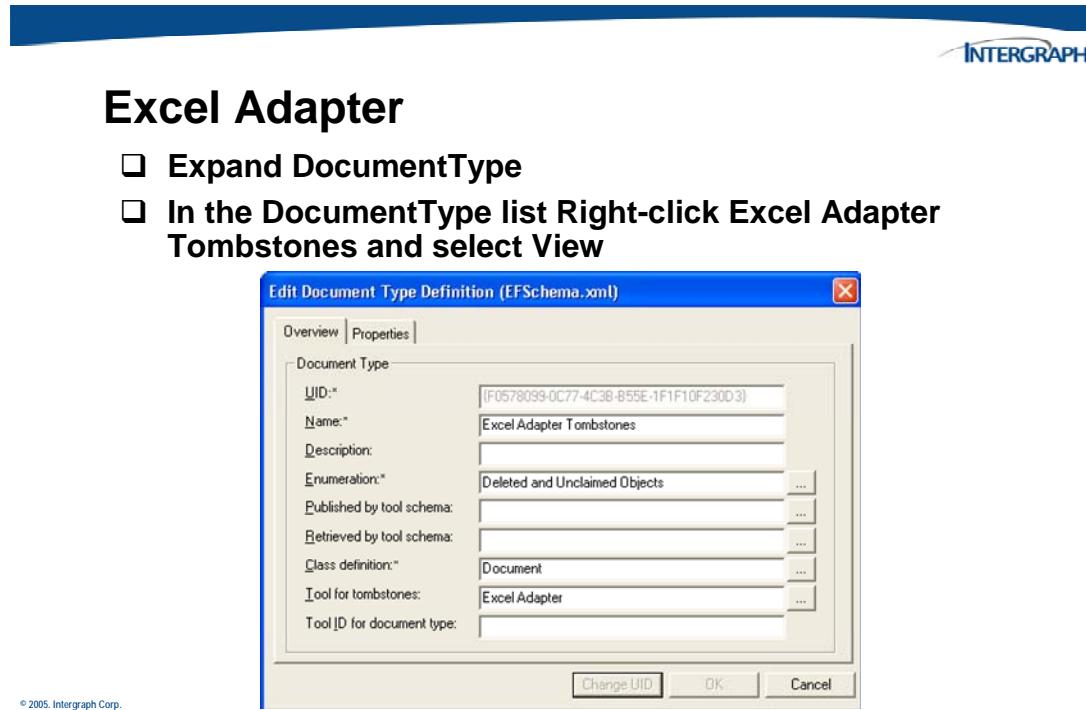
Although the Retrievable document types can be changed, the SmartPlant Adapter for Microsoft Excel only supports retrieval of the SmartPlant Foundation Plant Breakdown Structure Document.

Click **Cancel**.

Expand **DocumentType**.

In the DocumentType list Right-click **Excel Adapter Tombstones** and select **View**.

The Edit Document Type Definition (EFSchema.xml) dialog is shown.



Click **Cancel**.

Select **File |Exit**.

## A.1.1 Configure the SmartPlant Adapter for Microsoft Excel Owning Group

Click Start | Programs | Intergraph SmartPlant Foundation | System Administration.

In the Logon Information dialog, type **adminuser** in the User name field and click **OK**.

Select Tools | Find | Method....

In the Find Method dialog, type **SmartPlantExcelAdapter\_Settings** in the Enter name field and click **OK**.

The SmartPlantExcelAdapter\_Settings method is shown in the tree view.

Right-click **SmartPlantExcelAdapter\_Settings** and select **Update....**

The Update SmartPlantExcelAdapter\_Settings form is shown in the right pane

Type the name of the *owning group* in the OwningGroup field and click **OK**.

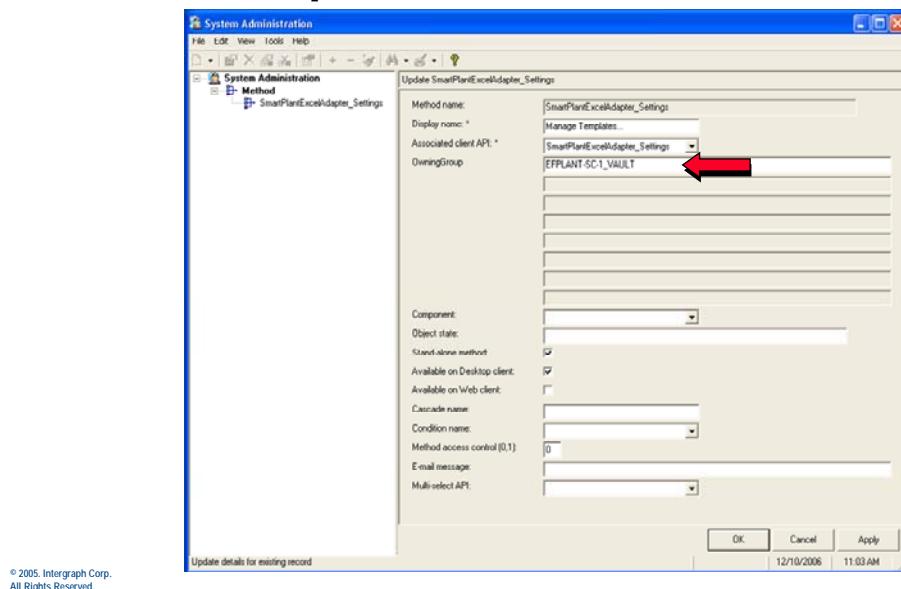


### Excel Adapter

- Click Start | Programs | Intergraph SmartPlant Foundation | System Administration
- Select Tools | Find | Method
- In the Find Method dialog, type SmartPlantExcelAdapter\_Settings
- Right-click SmartPlantExcelAdapter\_Settings and select Update
- Type the name of the owning group in the OwningGroup field and click OK



## Excel Adapter



Select **File | Exit**

## A.2 Create the Excel EquipmentList Document Type

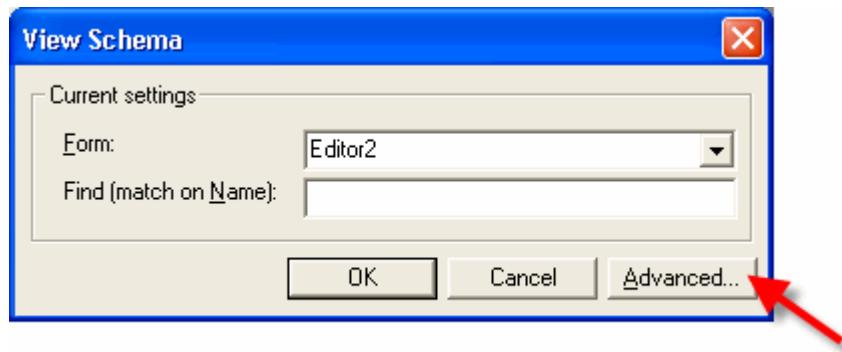
Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Schema Component | SmartPlant Schema Editor.

Select File | File Configurations | Open Configuration....

In the Open Configuration File dialog, browse to C:\Program Files\Common Files\Intergraph\EFSchema\03.08, click EFSchema.cfg and click Open.

Select View | Schema (All) ....

If the View Schema dialog is in simple mode, then click Advanced....



To limit your view to only the **Tool Metadata** classes, click **Class list** and click .

The Select Class List dialog is shown.

In the All list, click **Tool Metadata (CL\_ToolSchemadocType)**.

Click the **View** tab.

Click **Tree/Multi-Tab** and click **OK**.

The Schema (All opened files) Tree/MultiTab (Extensions1.xml) dialog is shown.

Right-click **DocumentType** and select **Create New DocumentType**.

The New Document Type Definition (Extensions1.xml) dialog is shown.

Type **ExcelEquipmentList** in the Name field.

Type **Excel Equipment List** in the Description field.

Click  across from **Enumeration**.



## Excel Adapter

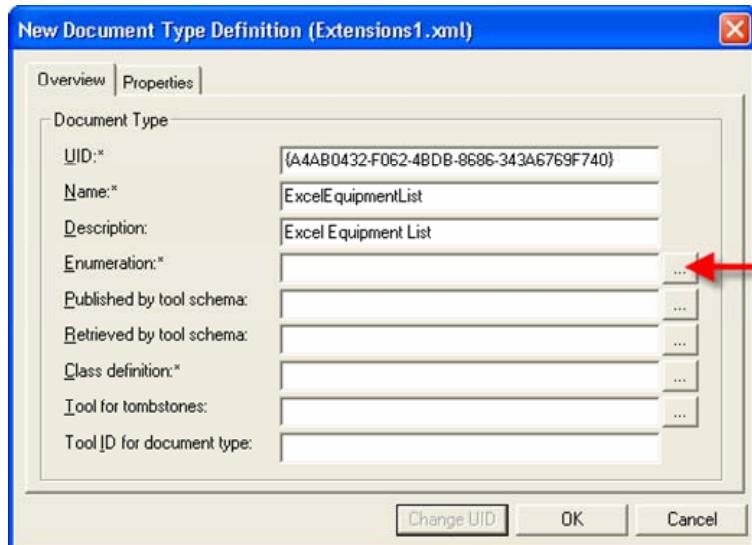
### Create the Excel EquipmentList Document Type

- Open the SmartPlant Schema Editor
- Select File | File Configurations | Open Configuration
- Open Configuration File EFSchema.cfg
- View | Schema (All)
- Limit your view to only the Tool Schema
- Click Tree/Multi-Tab and click OK
- Right-click DocumentType and select Create New DocumentType
- Type ExcelEquipmentList in the Name field
- Type Excel Equipment List in the Description field
- Click across from Enumeration

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## Excel Adapter



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The Possible EnumeratedEntry Values for ExcelEquipmentList dialog is shown.

Expand **Document category (DocCategories)**.

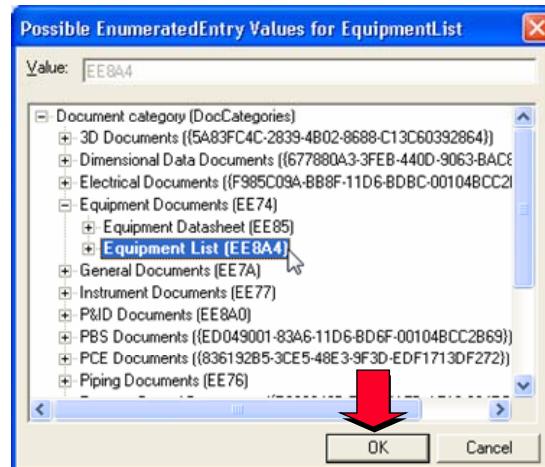
Expand **Equipment Documents (EE74)**.

Click **Equipment List (EE8A4)**.



## Excel Adapter

- Expand Document category**
- Expand Equipment Documents**
- Click Equipment List**



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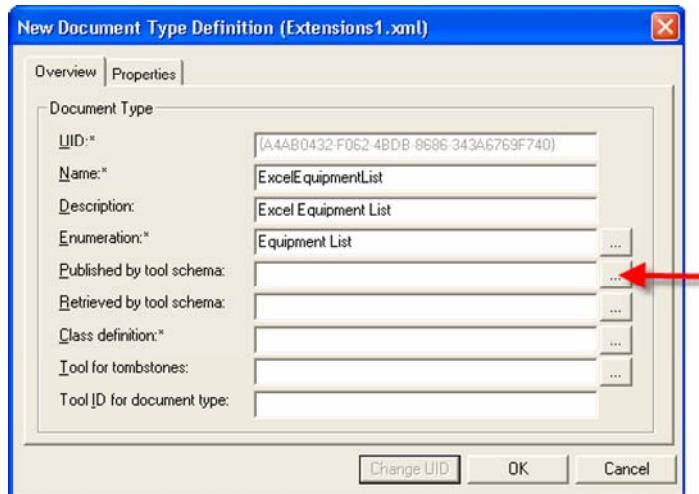
Click **OK**.

Click **...** across from **Published by tool schema**.



## Excel Adapter

- Click across from Published by tool schema**



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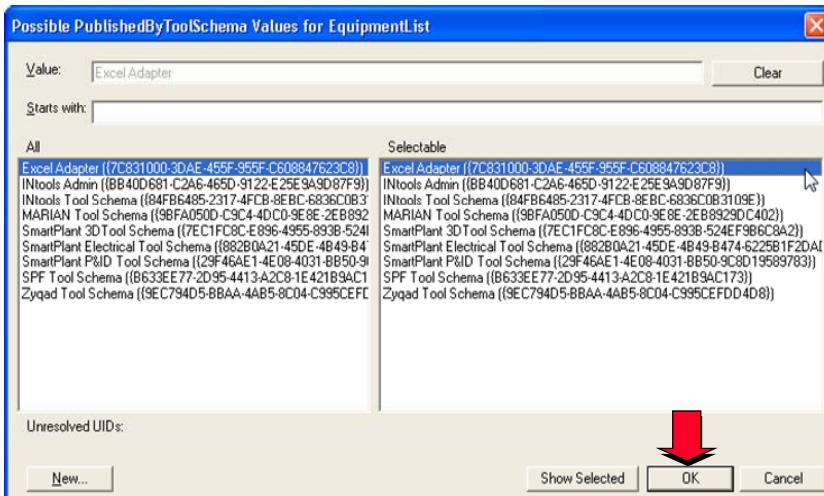
The Possible PublishedbyToolschema Values for ExcelEquipmentList dialog is shown.

In the Selectable list, click **Excel Adapter** ({...}).



## Excel Adapter

- In the Selectable list, click Excel Adapter



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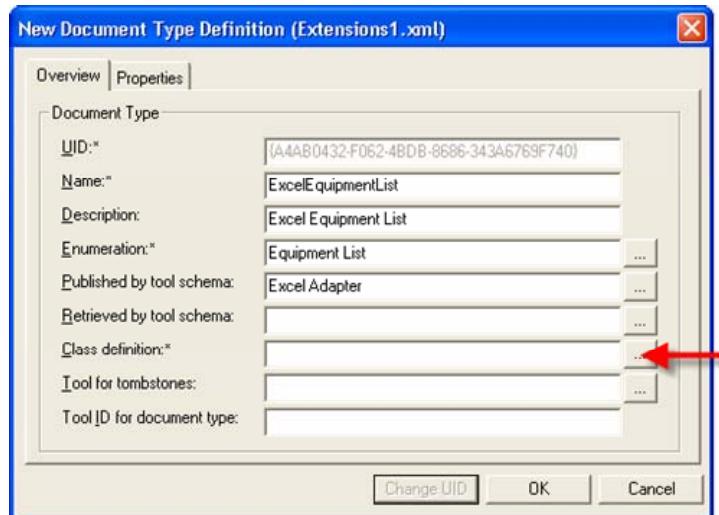
Click OK.

Click ... across from Class definition.



## Excel Adapter

- Click across from Class definition



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The Possible ClassDef Values for ExcelEquipmentList dialog is shown.

Click New... at the bottom left.

The New Class Definition (Extensions1.xml) dialog is shown.

Type **ExcelEquipmentList** in the Name/UID field.

Type **Excel Equipment List** in the Description field.

Type **Equipment List** in the Display name field.

Click **...** across from **Model definition**.



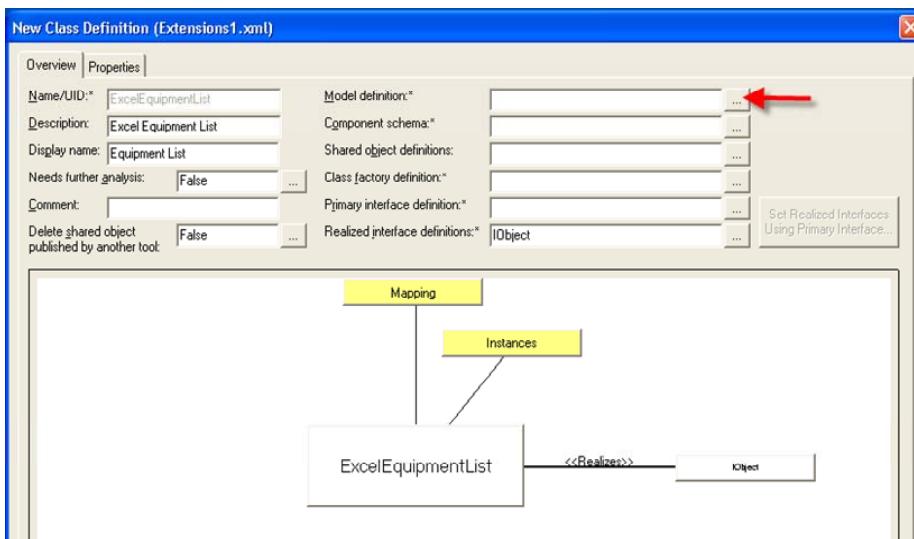
## Excel Adapter

- We need to create a Class Def for this Equipment List**
- Click New**
- In the New Class Definition**
- Type ExcelEquipmentList in the Name/UID field**
- Type Excel Equipment List in the Description field**
- Type Equipment List in the Display name field**
- Click across from Model definition**

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## Excel Adapter



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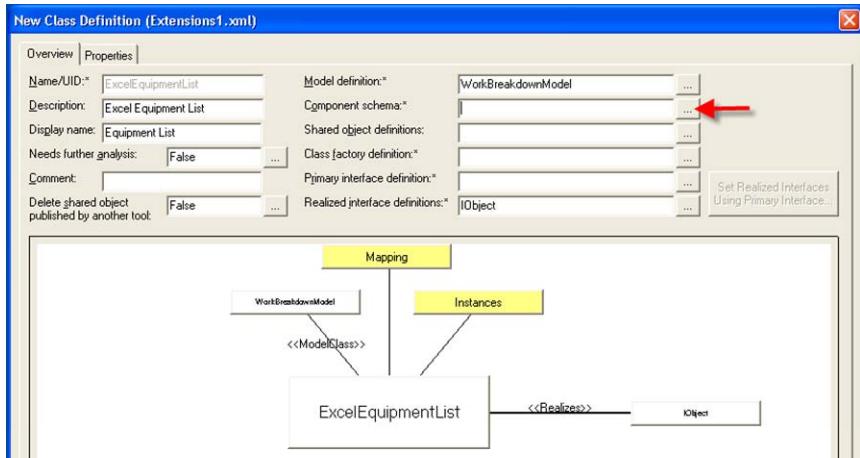
The Possible ModelForClass Values for ExcelEquipmentList dialog is shown.

Click **WorkBreakdownModel (WorkbreakdownModel)**.

Click **...** across from **Component schema**.

## Excel Adapter

- Click **WorkBreakdownModel**
- Click **across from Component schema**



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The Possible ComponentSchema Values for ExcelEquipmentList dialog is shown.

Click **New...** at the bottom left.

The New Component Schema (Extensions1.xml) dialog is shown.

Type **ExcelComponent** in the Name field.

Type **Excel Component Schema** in the Description field.

The New Component Schema dialog should like this:



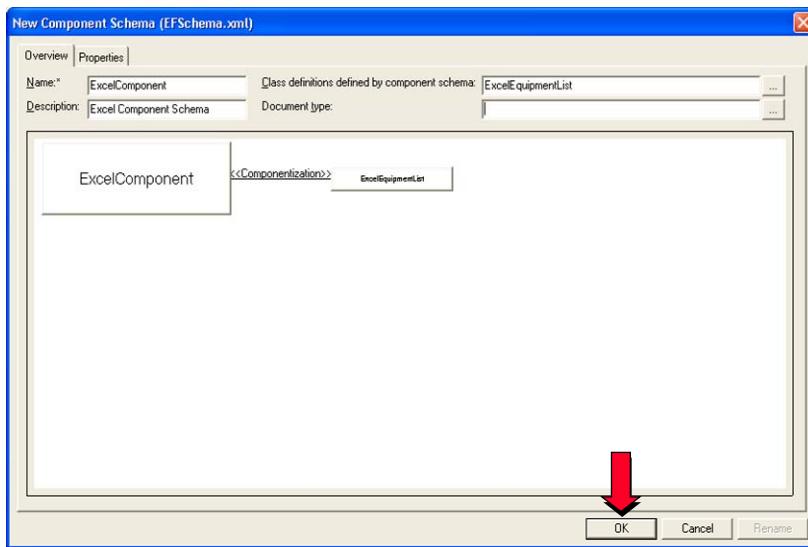
## Excel Adapter

- Under Possible ComponentSchema select New
- The New Component Schema (Extensions1.xml) dialog is shown
- Type ExcelComponent in the Name field
- Type Excel Component Schema in the Description field
- Click OK

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## Excel Adapter



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Click **OK**.

ExcelComponent (ExcelComponent) is added to the All and Selectable lists and is highlighted.

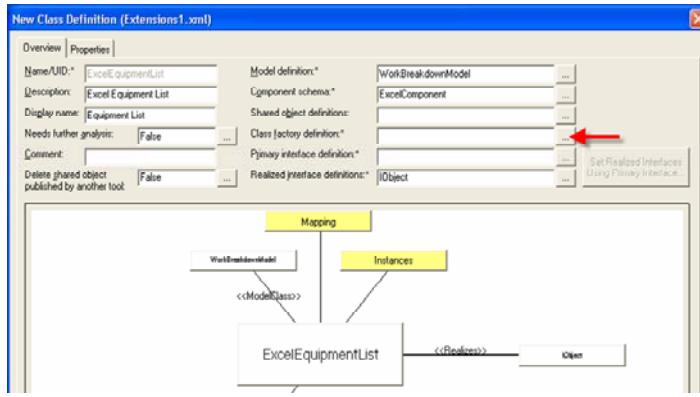
Click **OK**.

Click **...** across from **Class factory definition**.



## Excel Adapter

- ExcelComponent (ExcelComponent) is added to the All and Selectable lists and is highlighted**
- Click OK**
- Click across from Class factory definition**



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The Possible ClassFactoryDef Values for ExcelEquipmentList dialog is shown.

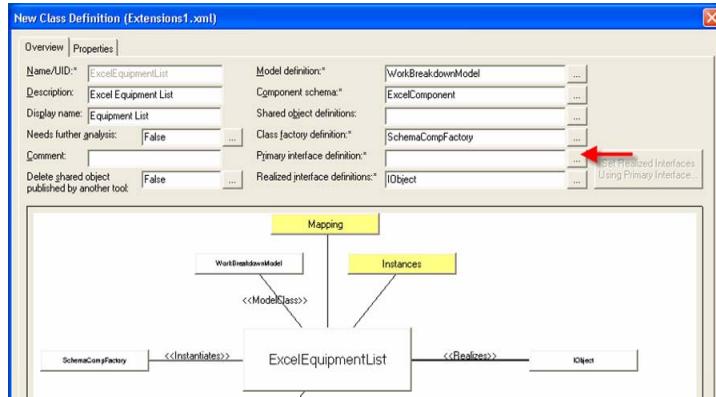
In the Selectable list, click **SchemaCompFactory (SchemaCompFactory)**.

Click **...** across from **Primary interface definition**.



## Excel Adapter

- The Possible ClassFactoryDef Values for ExcelEquipmentList dialog is shown**
- Click SchemaCompFactory**
- Click across from Primary interface definition**



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The Possible PrimaryInterfaceDef Values for ExcelEquipmentList dialog is shown.

Click **New...** at the bottom left.

The New Interface Definition (Extensions1.xml) dialog is shown.

Type **IExcelEquipmentList** in the Name field.

Type **Primary for ExcelEquipmentList** in the Description field.

Type **Equipment List** in the Display name field.

Click  across from **Implies interface definitions**.

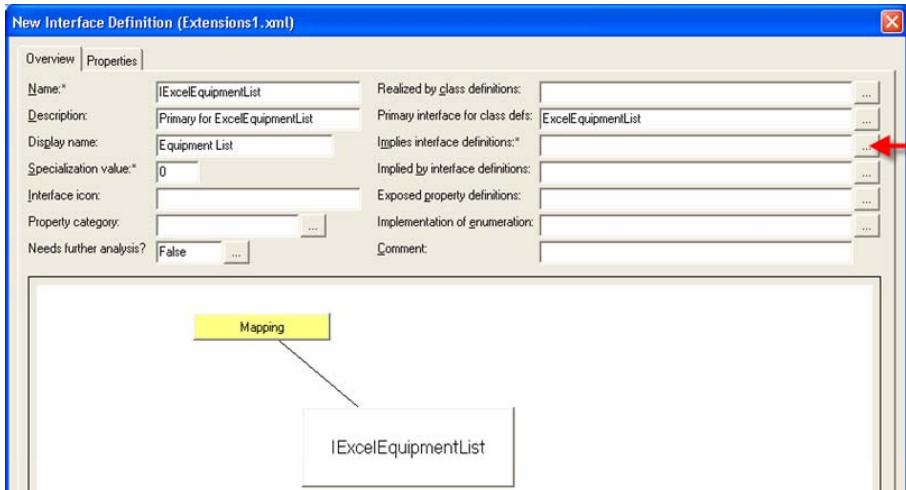


## Excel Adapter

- The Possible PrimaryInterfaceDef Values for ExcelEquipmentList dialog is shown**
- Click New**
- The New Interface Definition (Extensions1.xml) dialog is shown**
- Type IExcelEquipmentList in the Name field**
- Type Primary for ExcelEquipmentList in the Description field**
- Type Equipment List in the Display name field**
- Click across from Implies interface definitions**



## Excel Adapter



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The Possible ImpliedInterfaceDefs for ExcelEquipmentList dialog is shown.

Type **IDoc** in the Starts with field.

In the Selectable list, click **IDocument**.

Type **INon** in the Start with field.

In the Selectable list, click **INonDrawingItemCollection**.



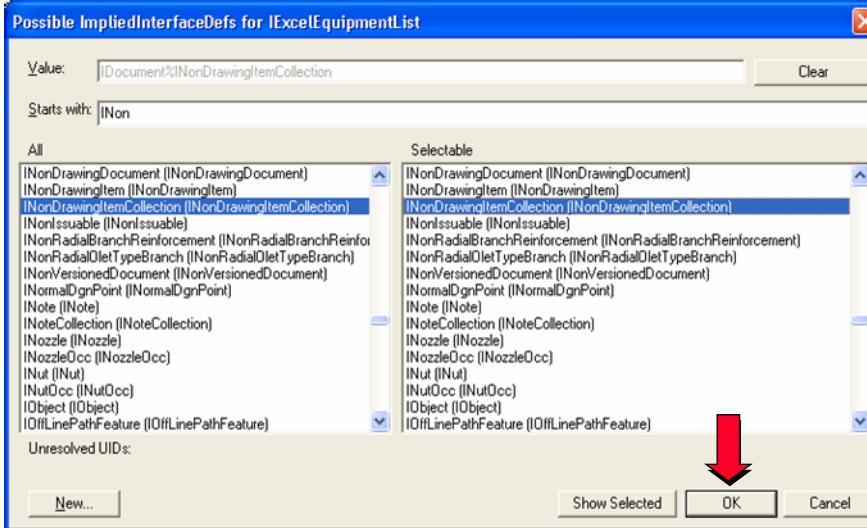
## Excel Adapter

- The Possible ImpliedInterfaceDefs for ExcelEquipmentList dialog is shown
- Type IDoc in the Starts with field
- In the Selectable list, click IDocument
- Type INon in the Start with field
- In the Selectable list, click INonDrawingItemCollection

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## Excel Adapter



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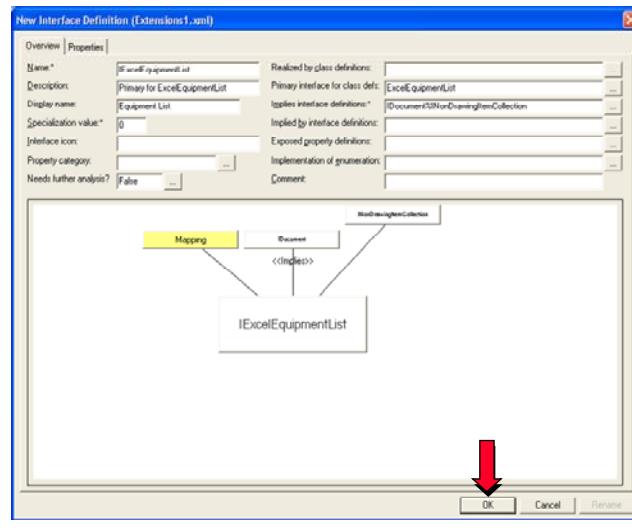
Click OK.

The New Interface Definition dialog should look like this:



## Excel Adapter

- The New Interface Definition dialog should look like this:



Click **OK**.

**IExcelEquipmentList** added to the Selectable list and highlighted.

Click **OK**.

The New Class Definition (Extensions1.xml) now looks like this:

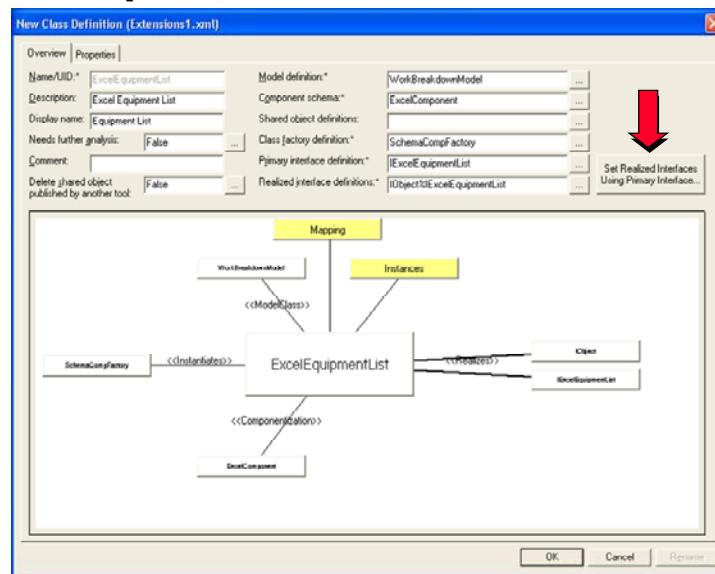


## Excel Adapter

- IExcelEquipmentList added to the Selectable list and highlighted**
- Click OK**
- The New Class Definition (Extensions1.xml) now looks like this:**



## Excel Adapter



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**Click Set Realized Interfaces Using Primary Interface....**

The Identify Realized Interfaces Using Primary Interface dialog is shown.

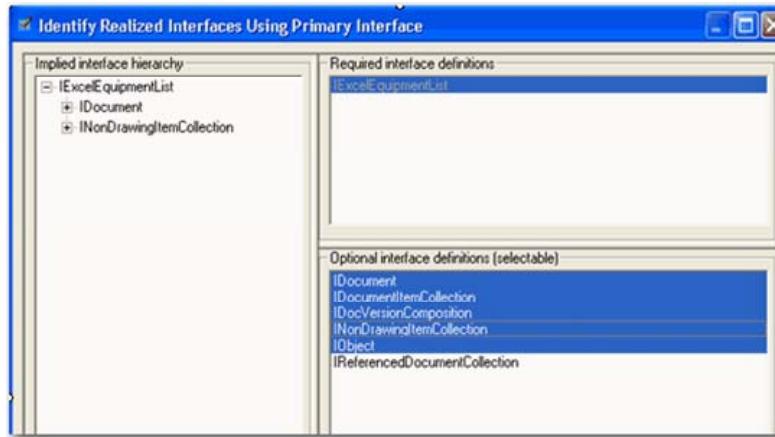
In the Optional interface definitions (selectable) list, click **IDocument**, **IDocumentItemCollection**, **IDocVersionComposition**, **INonDrawingItemCollection**.

The Identify Realized Interfaces Using Primary Interface dialog should look like this:



## Excel Adapter

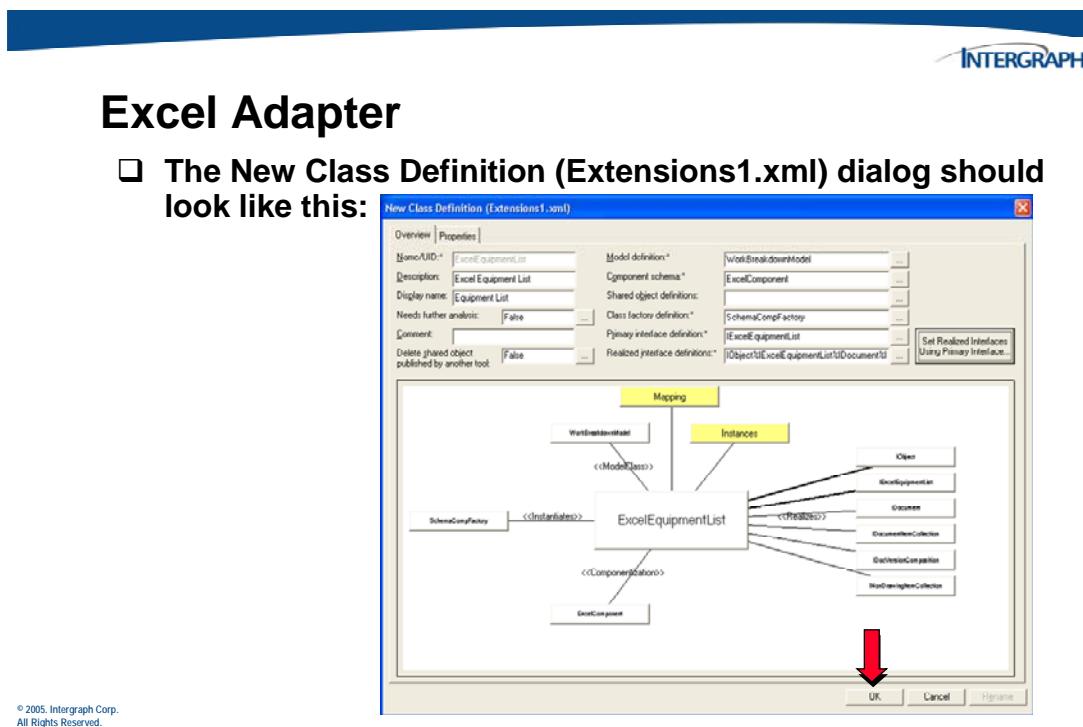
- In the Optional interface definitions (selectable) list, click **IDocument**, **IDocumentItemCollection**, **IDocVersionComposition**, **INonDrawingItemCollection**



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Click **OK**.

The New Class Definition (Extensions1.xml) dialog should look like this:



Click **OK**.

**ExcelEquipmentList** is added to the Selectable list and highlighted.

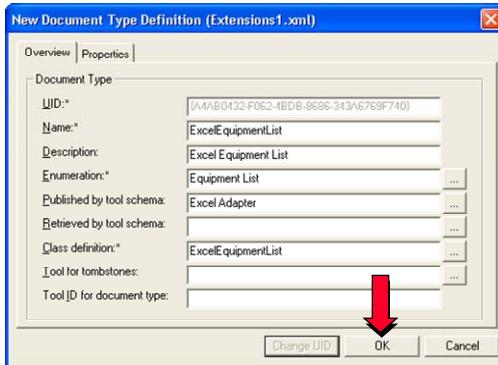
Click **OK**.

The New Document Type Definition (Extensions1.xml) dialog should look like this:



## Excel Adapter

- ExcelEquipmentList is added to the Selectable list and highlighted**
- Click OK**
- The New Document Type Definition (Extensions1.xml) dialog should look like this:**



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Click **OK**.

Select **File | Save | Schema File**.

Select **Tools | Schema | Generate Tool Metadatas**.



## Excel Adapter

- Select File | Save | Schema File**
- Select Tools | Schema | Generate Tool Metadatas**

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## A.3 Update the ExcelEquipmentList Class Definition

Select **Edit | Find....**

In the Find dialog, type **ExcelEquipmentList** in the Name field and click **OK**.

The Schema (All opened files) **Tree/MultiTab** (Extensions1.xml) dialog is shown

Expand **ExcelEquipmentList**.

Right-click the **Realized Interface Definitions** node and select **Set ‘IsRequired’ values for RealizedInterfaceDefs relationships from ExcelEquipmentList**.



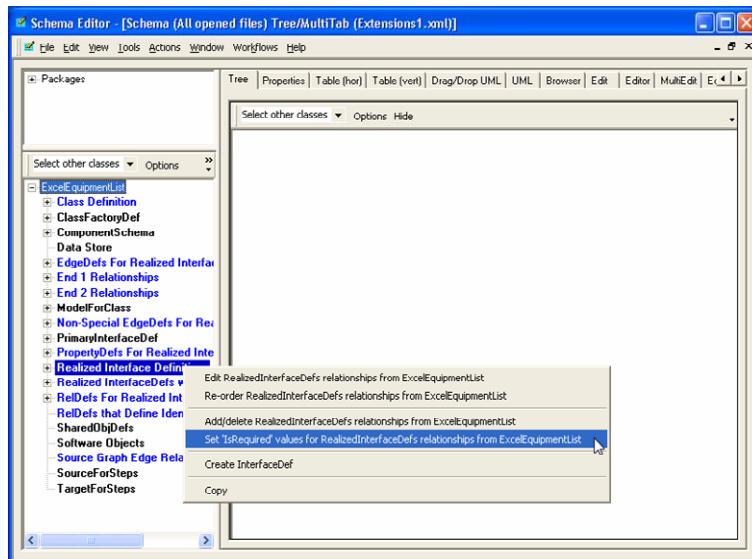
## Excel Adapter

### Update the ExcelEquipmentList Class Definition

- In the Schema Editor select **Edit | Find**
- In the Find dialog, type **ExcelEquipmentList** in the Name field and click **OK**
- The Schema (All opened files) **Tree/MultiTab** (Extensions1.xml) dialog is shown
- Expand **ExcelEquipmentList**
- Right-click the **Realized Interface Definitions** node and select **Set ‘IsRequired’ values for RealizedInterfaceDefs relationships from ExcelEquipmentList**



## Excel Adapter



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The Select Required Relationships dialog is shown.

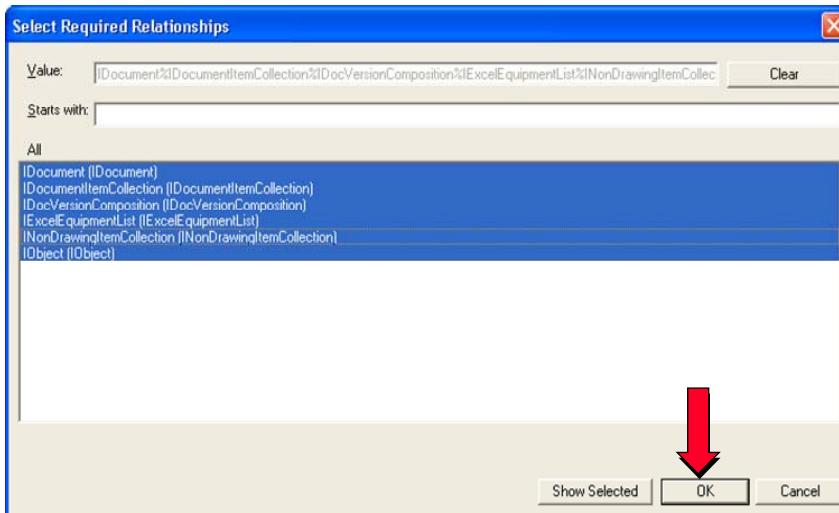
In the All list, click **IDocument**, **IDocumentItemCollection**, **IDocVersionComposition**, **INonDrawingItemCollection**.

The Select Required Relationships dialog should look like this:



## Excel Adapter

### The Select Required Relationships dialog is shown



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Click **OK**.

Select **File | Save | Schema File**.

Select **File | Exit**.



## **Excel Adapter**

- Select File | Save | Schema File**
- Select File | Exit**

## A.3.1 Creating/Updating the Component Schema

Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Schema Component | SmartPlant Schema Editor.

Select File | File Configurations | Open Configuration....

In the Open Configuration File dialog, browse to C:\Program Files\Common Files\Intergraph\EFSchema\03.08, click EFSchema.cfg and click Open.

Select View | Schema (All) ....

Click the View tab.

Select the Tree/Multi-Tab option and click OK.

The Schema (All opened files) Tree/MultiTab (Extensions1.xml) dialog is shown.

Right-click ClassDef and select Create New ClassDef.

The New Class Definition (Extensions1.xml) dialog is shown.



## Excel Adapter

### Creating/Updating the Component Schema

- Open the SmartPlant Schema Editor**
- Select File | File Configurations | Open Configuration**
- click EFSchema.cfg and click Open**
- Select View | Schema (All)**
- Click the View tab**
- Select the Tree/Multi-Tab option and click OK**
- The Schema (All opened files) Tree/MultiTab (Extensions1.xml) dialog is shown.**
- Right-click ClassDef and select Create New ClassDef**
- The New Class Definition (Extensions1.xml) dialog is shown**

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Type **ExcelEquipment** in the Name field.

Type **Excel Equipment** in the Description field.

Type **Equipment** in the Display name field.

Click across from **Model definition**.

The Possible ModelForClass Values for ExcelEquipment dialog is shown.

In the Selectable list, click **PlannedMaterialModel (PlannedMaterialModel)**.

Click  across from **Component schema**.

The Possible ComponentSchema Values for ExcelEquipment dialog is shown.

In the Selectable list, click **ExcelComponent**.



## Excel Adapter

- In the New Class Definition dialog**
- Type ExcelEquipment in the Name field**
- Type Excel Equipment in the Description field**
- Type Equipment in the Display name field**
- Click across from Model definition**
- The Possible ModelForClass Values for ExcelEquipment dialog is shown**
- Click PlannedMaterialModel**
- Click across from Component schema**
- The Possible ComponentSchema Values for ExcelEquipment dialog is shown**
- click ExcelComponent**

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Click  across from **Shared object definitions**.

The Possible SharedObjDefs for ExcelEquipment dialog is shown.

Type **SharedEq** in the Starts with field.

In the Selectable list, click **SharedEquipment\_PM**.

Click **OK**.

Click  across from **Class factory definition**.

The Possible ClassFactoryDef Values for ExcelEquipment dialog is shown.

In the Selectable list, click **SchemaCompFactory (SchemaCompFactory)**.

Click  across from **Primary interface definition**.

The Possible PrimaryInterfaceDef Values for ExcelEquipment dialog is shown.



## Excel Adapter

- Click across from Shared object definitions
- The Possible SharedObjDfs for ExcelEquipment dialog is shown
- Type SharedEq in the Starts with field
- Click SharedEquipment\_PM
- Click OK
- Click across from Class factory definition
- The Possible ClassFactoryDef Values for ExcelEquipment dialog is shown
- Click SchemaCompFactory
- Click across from Primary interface definition
- The Possible PrimaryInterfaceDef Values for ExcelEquipment dialog is shown

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Click **New...** at the bottom left.

The New Interface Definition (Extensions1.xml) dialog is shown.

Type **IExcelEquipmentOcc** in the Name field.

Type **Primary for ExcelEquipment** in the Description field.

Type **Equipment** in the Display name field.

Click **...** across from **Implies interface definitions**.

The Possible ImpliedInterfaceDefs for IExcelEquipmentOcc dialog is shown.

Type **IEquip** in the Starts with field.

In the Selectable list, click **IEquipmentOcc**.

Click **OK**.



## Excel Adapter

- Click New
- The New Interface Definition (Extensions1.xml) dialog is shown
- Type IExcelEquipmentOcc in the Name field
- Type Primary for ExcelEquipment in the Description field
- Type Equipment in the Display name field
- Click across from Implies interface definitions
- The Possible ImpliedInterfaceDefs for IExcelEquipmentOcc dialog is shown
- Type IEquip in the Starts with field
- Click IEquipmentOcc
- Click OK

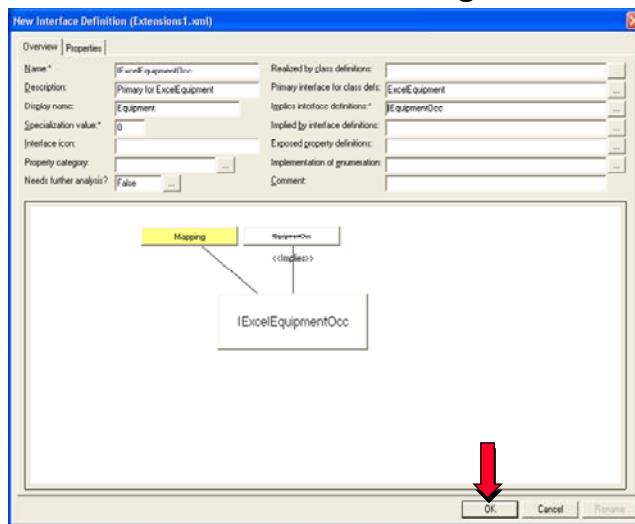
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The New Interface Definition dialog should look like this:



## Excel Adapter

- The New Interface Definition dialog should look like this:



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Click **OK**.

IExcelEquipmentOcc is added to the Selectable list and highlighted.

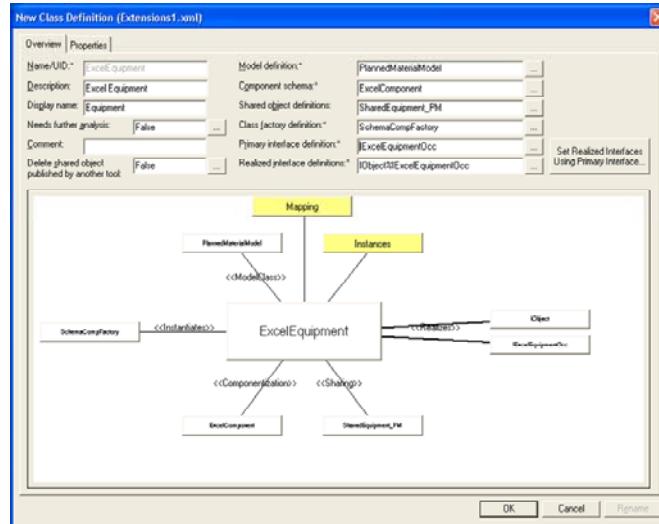
Click **OK**.

The New Class Definition (Extensions1.xml) should look like this:



## Excel Adapter

- IExcelEquipmentOcc is added to the Selectable list and highlighted



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Click Set Realized Interfaces Using Primary Interface....

The Identify Realized Interfaces Using Primary Interface dialog is shown.

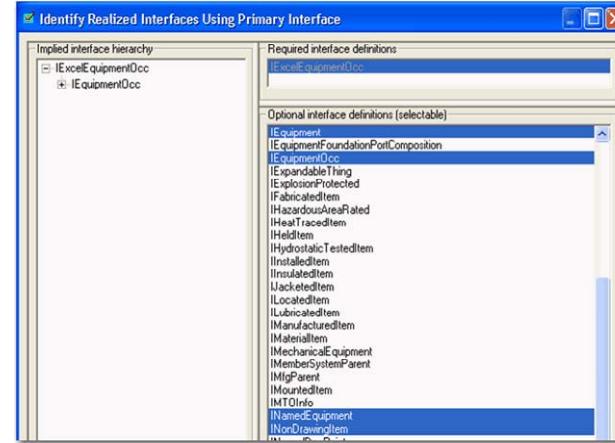
In the Optional interface definitions (selectable) list, click **Equipment**, **IEquipmentOcc**, **INamedEquipment**, **INonDrawingItem**, **IPBSItem**, **ISteamedItem**.

The Identify Realized Interfaces Using Primary Interface dialog should look like this:



## Excel Adapter

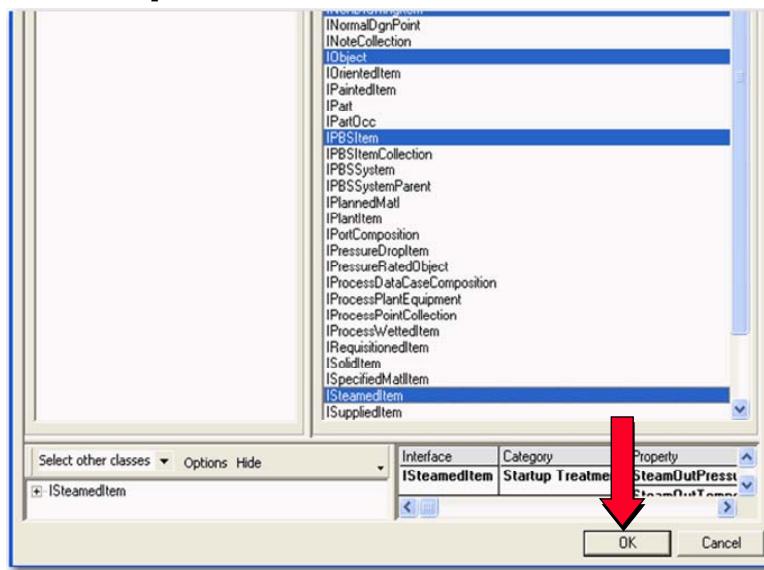
- Click Set Realized Interfaces Using Primary Interface
- The Identify Realized Interfaces Using Primary Interface dialog is shown



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## Excel Adapter



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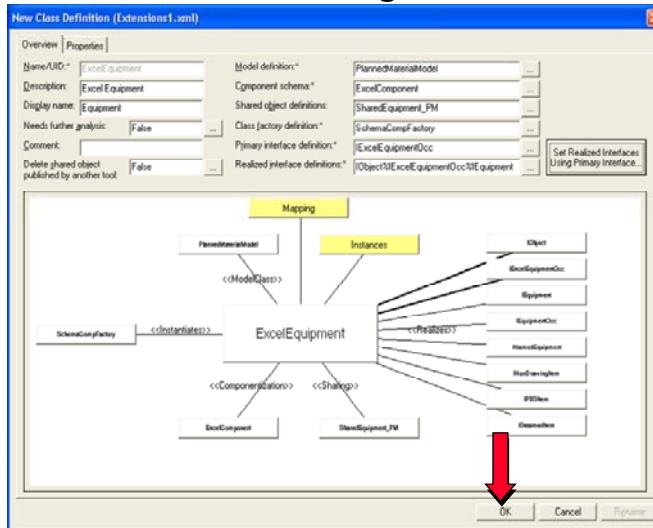
**Click OK.**

The New Class Definition dialog should look like this:



## Excel Adapter

- The New Class Definition dialog should look like this:



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**Click OK.**

Select File | Save | Schema File.

## A.4 Update the ExcelEquipment class definition

Select **Edit | Find....**

In the Find dialog, type **ExcelEquipment** in the Name field and click **OK**.

The Schema (All opened files) Tree/MultiTab (Extensions1.xml) dialog is shown

Expand **ExcelEquipment**.

Right-click the **Realized Interface Definitions** node and select **Set 'IsRequired'** values for RealizedInterfaceDefs relationships from ExcelEquipment.



### Excel Adapter

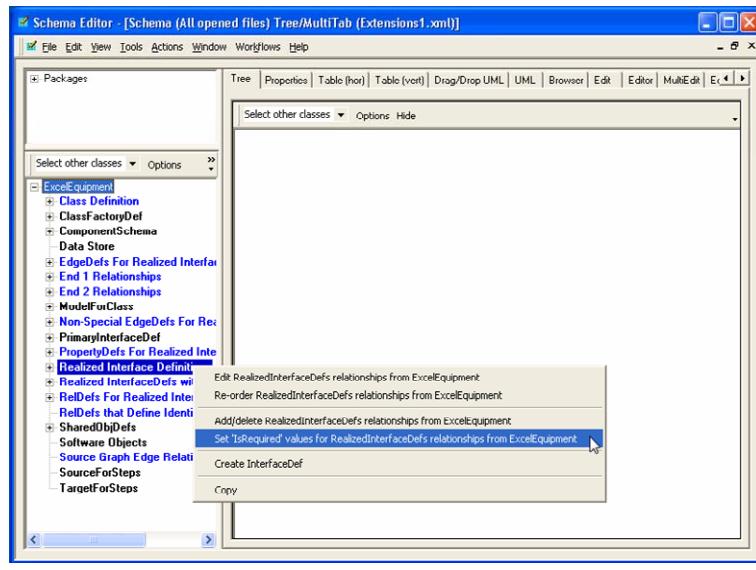
- Select File | Save | Schema File**

#### Update the ExcelEquipment class definition

- Select Edit | Find , type ExcelEquipment in the Name field and click OK**
- The Schema (All opened files) Tree/MultiTab (Extensions1.xml) dialog is shown**
- Expand ExcelEquipment**
- Right-click the Realized Interface Definitions node and select Set 'IsRequired' values for RealizedInterfaceDefs relationships from ExcelEquipment**



## Excel Adapter



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The Select Required Relationships dialog is shown.

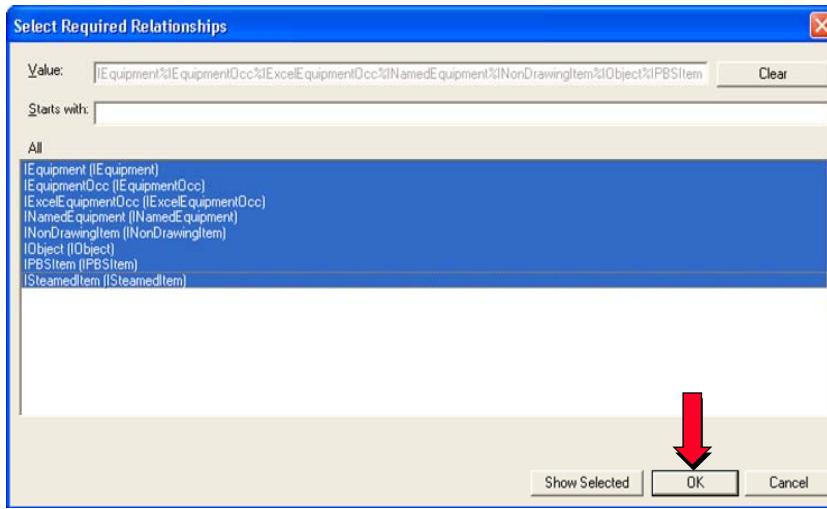
In the All list, click **IEquipment**, **IEquipmentOcc**, **INamedEquipment**, **INonDrawingItem**, **IPBSItem**, **ISteamedItem**.

The Select Required Relationships dialog should look like this:



## Excel Adapter

- The Select Required Relationships dialog is shown



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Click **OK**.

Select **File | Save | Schema File**.

Select **File | Exit**.



## Excel Adapter

- Select File | Save | Schema File**
- Select File | Exit**

## A.4.1 Creating/Updating the Tool Schema (Map) File

Click Start | Programs | Intergraph SmartPlant Foundation | SmartPlant Schema Component | SmartPlant Schema Editor.

Select File | File Configurations | Open Configuration....

In the Open Configuration File dialog, browse to **C:\Program Files\Common Files\Intergraph\EFSchema\03.08**, click **EFSchema.cfg** and click **Open**.

Select File | New | Tool Schema File....

In the New Tool Schema File dialog, browse to **D:\ExcelAdapter\ExcelAdapterSamples\EquipmentList\ExcelFile**.

Type **ExcelEquipmentMap** in the File name field and click **Save**.



## Excel Adapter

### Creating/Updating the Tool Schema (Map) File

- Open the Schema Editor**
- Select File | File Configurations | Open Configuration**
- Click to open EFSchema.cfg**
- Select File | New | Tool Schema File**
- In the New Tool Schema File dialog, browse to D:\ExcelAdapter\ExcelAdapterSamples\EquipmentList\ExcelFile**
- Type ExcelEquipmentMap in the File name field and click Save**

## A.5 Create and Map the Equipment Types Enumerated List

Select **View | Tool Schema** ....

The View Tool Schema dialog is displayed.

.Click the **View** tab

Click **Tree/Multi-Tab** and click **OK**.

The Tool Schema Tree/MultiTab (ExcelEquipmentMap.xml) dialog is shown.

Right-click **SPMapEnumListDef** and select **Create New SPMapEnumListDef**.



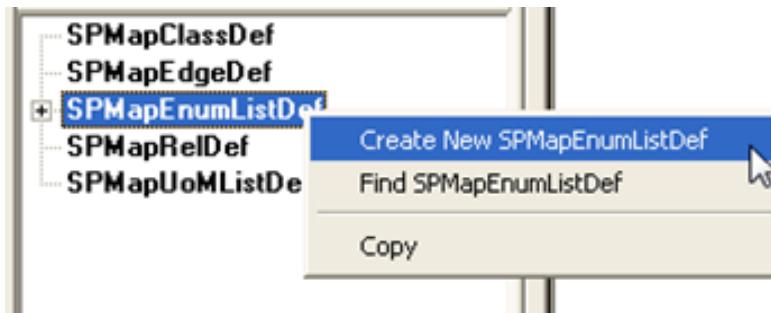
### Excel Adapter

#### Create and Map the Equipment Types Enumerated List

- Select View | Tool Schema**
- The View Tool Schema dialog is displayed , Click the View tab**
- Click Tree/Multi-Tab and click OK**
- The Tool Schema Tree/MultiTab (ExcelEquipmentMap.xml) dialog is shown**
- Right-click SPMapEnumListDef and select Create New SPMapEnumListDef**



## Excel Adapter



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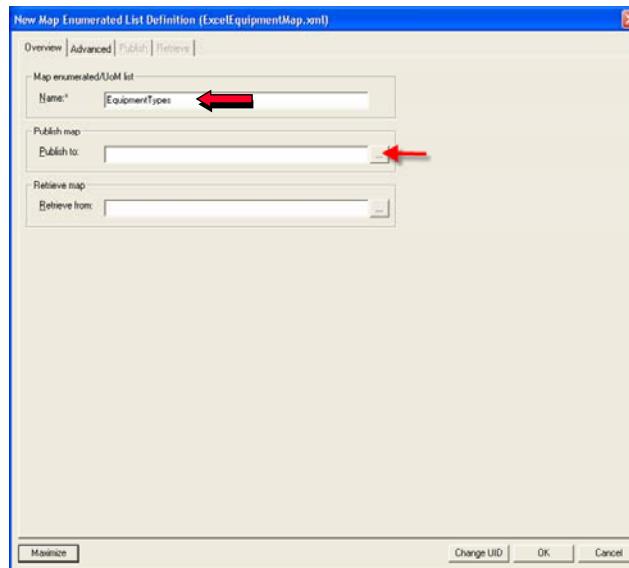
The New Map Enumerated List Definition (ExcelEquipmentMap.xml) dialog is shown.

Type **EquipmentTypes** in the Name field.

Click across from Publish to.

## Excel Adapter

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The Possible MapEnumListToEnumList\EnumList Values for EquipmentTypes dialog is shown.

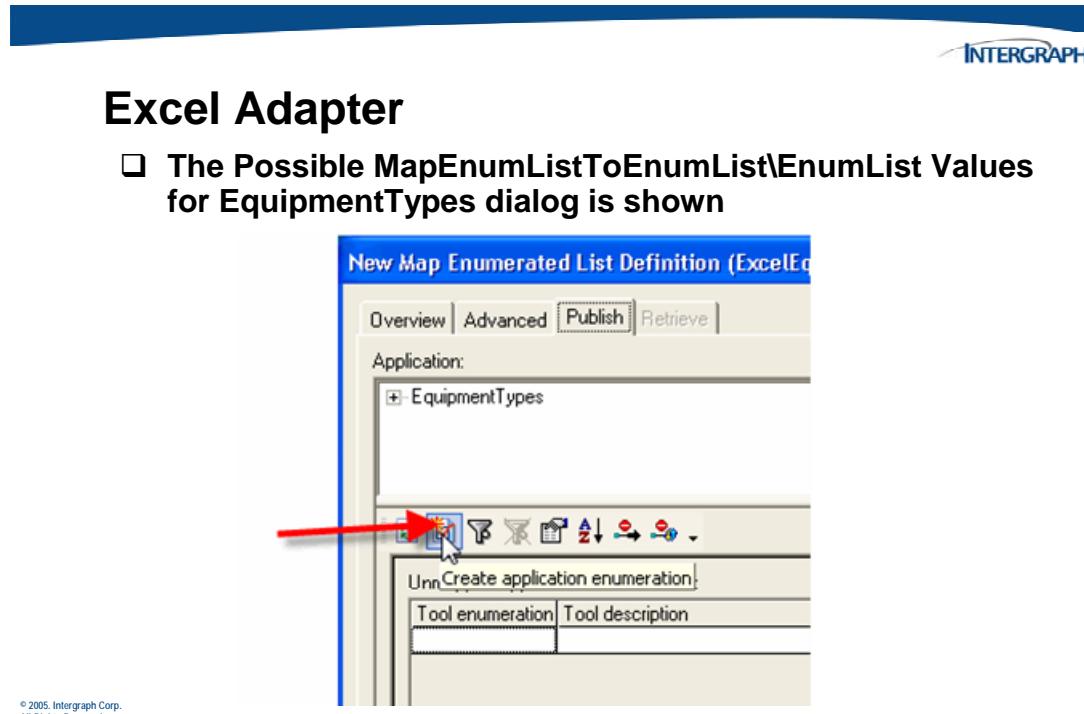
Type **equip** in the Starts with field.

In the Selectable list, click Equipment (EqTypes0).

Click **OK**.

Click the **Publish** tab.

Click **Create application enumeration**.



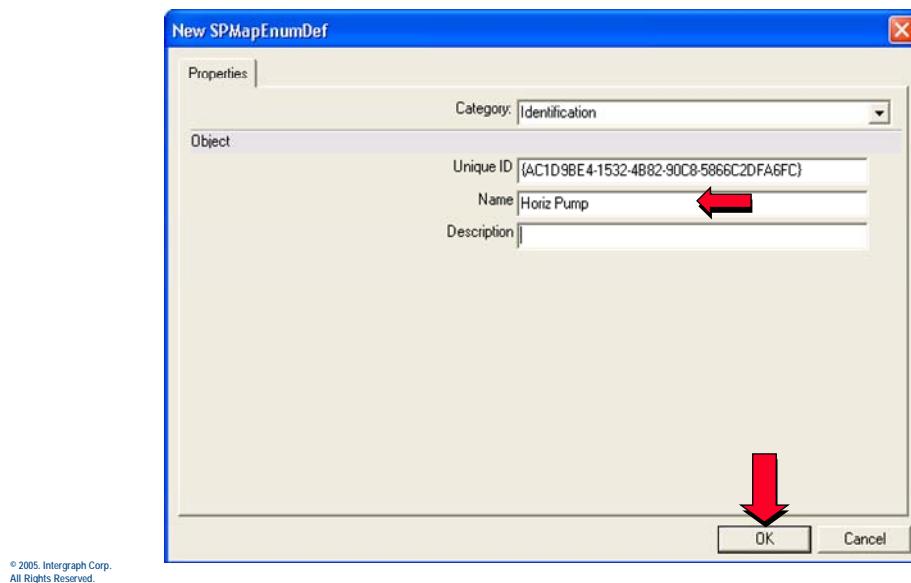
The **New SPMMapEnumDef** dialog is shown.

Type **Horiz Pump** in the **Name** field.

The **New SAPMapEnumDef** dialog should look like this:



## Excel Adapter



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Click **OK**.

Click **Create application enumeration**.

The New SPMMapEnumDef dialog is shown.

Type **Tower** in the Name field.

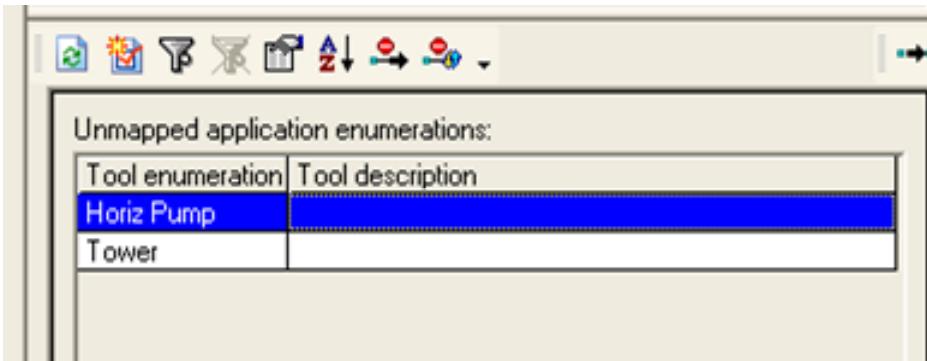
Click **OK**.

The Unmapped application enumerations list should look like this:



## Excel Adapter

- Click Create application enumeration
- The New SPMMapEnumDef dialog is shown, Type Tower in the Name field
- Click OK



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In the **SmartPlant** enumerated lists tree view, expand **Equipment**.

Expand **Process equipment**.

Expand **Material transfer equipment**.

Expand **Fluid-transfer machine**.

Expand **Pump**.

Click **Centrifugal pump**.



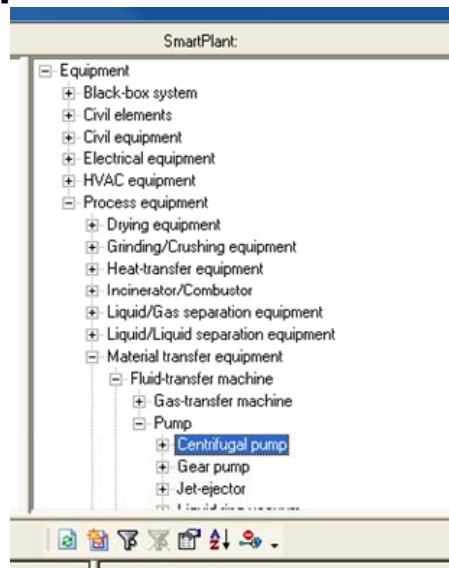
## Excel Adapter

- In the SmartPlant enumerated lists tree view, expand Equipment
- Expand Process equipment
- Expand Material transfer equipment
- Expand Fluid-transfer machine
- Expand Pump
- Click Centrifugal pump

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## Excel Adapter



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In the Unmapped application enumerations list, click **Horiz Pump**.

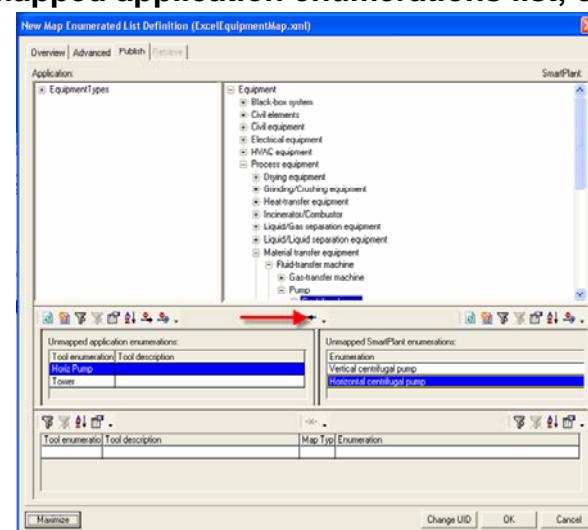
In the Unmapped SmartPlant enumerations list, click **Horizontal centrifugal pump**.

Click Map.



## Excel Adapter

- In the Unmapped application enumerations list, click Horiz Pump
- Click Map



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In the **SmartPlant** enumerated lists list, expand **Equipment**.

Expand Process equipment.

Expand Process vessel.

Click Pressure vessel.



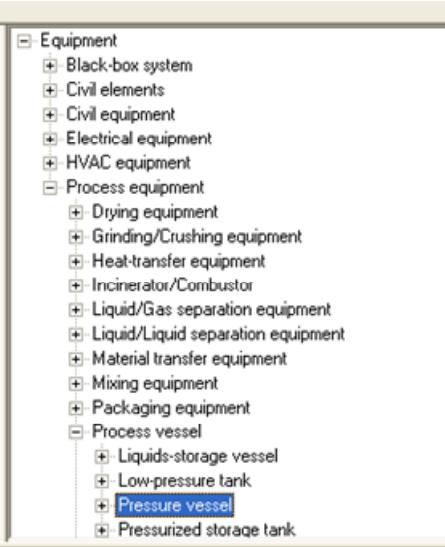
## Excel Adapter

- In the SmartPlant enumerated lists list, expand Equipment
- Expand Process equipment
- Expand Process vessel
- Click Pressure vessel

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## Excel Adapter



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In the Unmapped application enumerations list, click Tower.

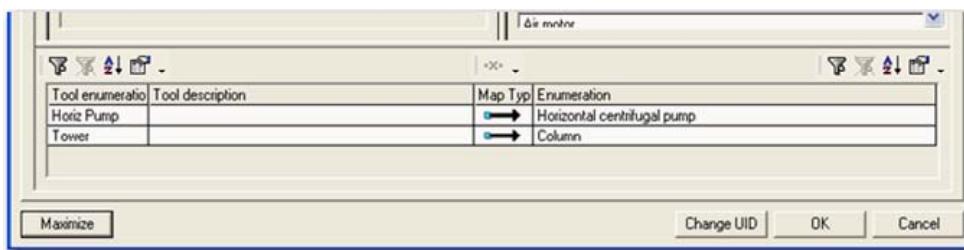
In the Unmapped SmartPlant enumerations list, click **Column**.

Click **Map**.

The New Map Enumerated List Definition (ExcelEquipmentMap.xml) should look like this:

## Excel Adapter

- In the Unmapped application enumerations list, click Tower.
- In the Unmapped SmartPlant enumerations list, click Column.
- Click Map



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You might have to click **EquipmentTypes** in the **Application** tree view to make the **Mapped Enumerations** list refresh.

Click **OK**.

Select **File | Save | Tool Schema File**.



## Excel Adapter

- You might have to click EquipmentTypes in the Application tree view to make the Mapped Enumerations list refresh.
- Click OK
- Select File | Save | Tool Schema File

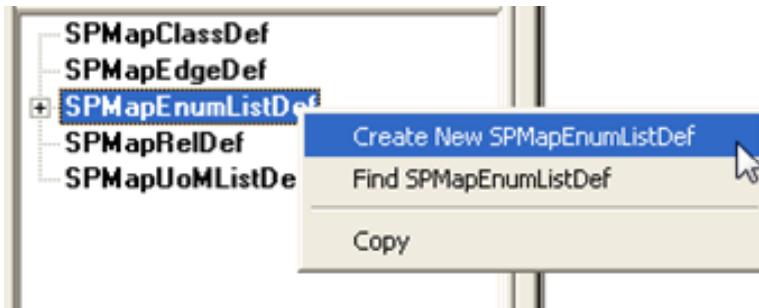
## A.6 Create and Map the Steam Out Req Enumerated List

Right-click SPMAPEnumListDef and select Create New SPMAPEnumListDef.

### Excel Adapter

#### Create and Map the Steam Out Req Enumerated List

- Right-click SPMAPEnumListDef and select Create New SPMAPEnumListDef



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The New Map Enumerated List Definition (ExcelEquipmentMap.xml) dialog is shown.

Type **SteamOutReqs** in the Name field.

Click across from **Publish to**.

The Possible MapEnumListToEnumList\EnumList Values for SteamOutReqs dialog is shown.

Type **steam** in the Starts with field.

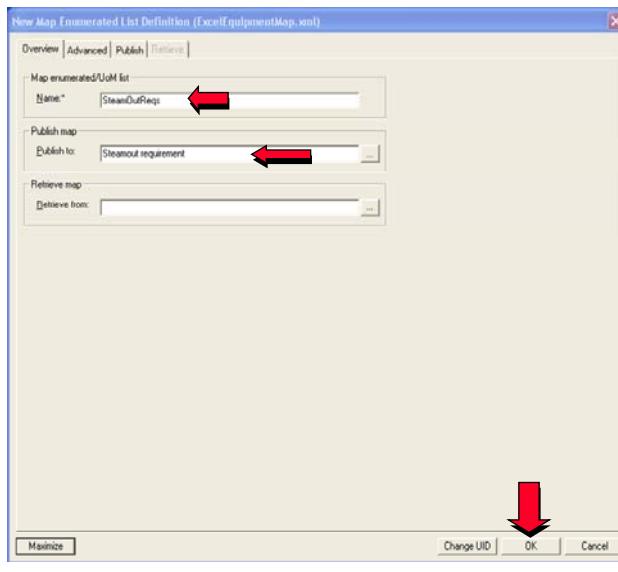
In the Selectable list, click **Steamout requirement (SteamOutReqs)**.

Click **OK**.

The New Map Enumerated List Definition (ExcelEquipmentMap.xml) should look like this:



## Excel Adapter



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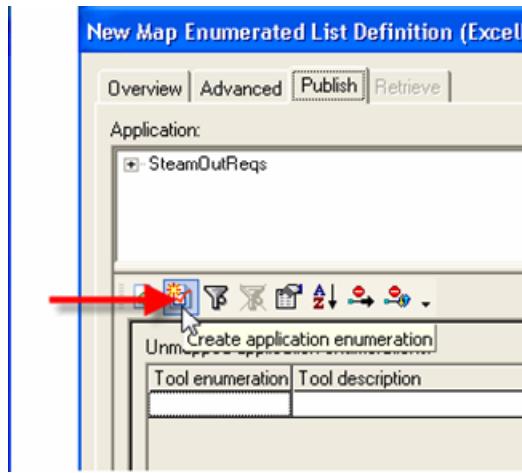
Click the **Publish** tab.

Click **Create application enumeration**.



## Excel Adapter

- Click the Publish tab.
- Click Create application enumeration



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The New SPMAPEnumDef dialog is shown.

Type **Y** in the Name field.

Type **Y** in the Description field.

Click **OK**.

Click **Create application enumeration**.

The New SPMEnumDef dialog is shown.

Type **N** in the Name field.

Type **N** in the Description field.

Click **OK**.



## Excel Adapter

- The New SPMEnumDef dialog is shown.**
- Type Y in the Name field.**
- Type Y in the Description field.**
- Click OK.**
- Click Create application enumeration.**
- The New SPMEnumDef dialog is shown.**
- Type N in the Name field.**
- Type N in the Description field.**
- Click OK.**

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Click **Create application enumeration**.

The New SPMEnumDef dialog is shown.

Type **N/A** in the Name field.

Type **N/A** in the Description field.

Click **OK**.

The Unmapped application enumerations list should look like this:



## Excel Adapter

- Click Create application enumeration.
- The New SPMMapEnumDef dialog is shown.
- Type N/A in the Name field.
- Type N/A in the Description field.
- Click OK.
- The Unmapped application enumerations list should look like this:

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## Excel Adapter

Tool enumeration	Tool description
Y	Y
N	N
N/A	N/A

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In the Unmapped application enumerations list, click **Y**.

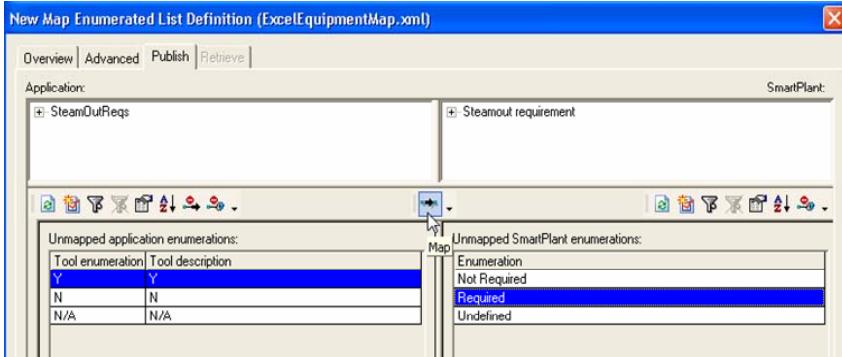
In the Unmapped SmartPlant enumerations list, click **Required**.

Click **Map**.



## Excel Adapter

- In the Unmapped application enumerations list, click Y.
- In the Unmapped SmartPlant enumerations list, click Required.
- Click Map.



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In the Unmapped application enumerations list, click N.

In the Unmapped SmartPlant enumerations list, click Not Required.

Click Map.

In the Unmapped application enumerations list, click N/A.

In the Unmapped SmartPlant enumerations list, click Undefined.

Click Map.

The New Map Enumerated List Definition (ExcelEquipmentMap.xml) should look like this:



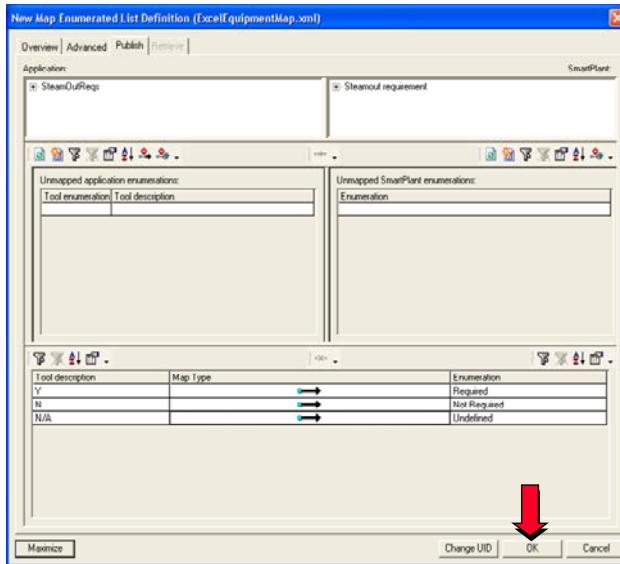
## Excel Adapter

- In the Unmapped application enumerations list, click N.
- In the Unmapped SmartPlant enumerations list, click Not Required.
- Click Map.
- In the Unmapped application enumerations list, click N/A.
- In the Unmapped SmartPlant enumerations list, click Undefined.
- Click Map.
- The New Map Enumerated List Definition (ExcelEquipmentMap.xml) should look like this:

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## Excel Adapter



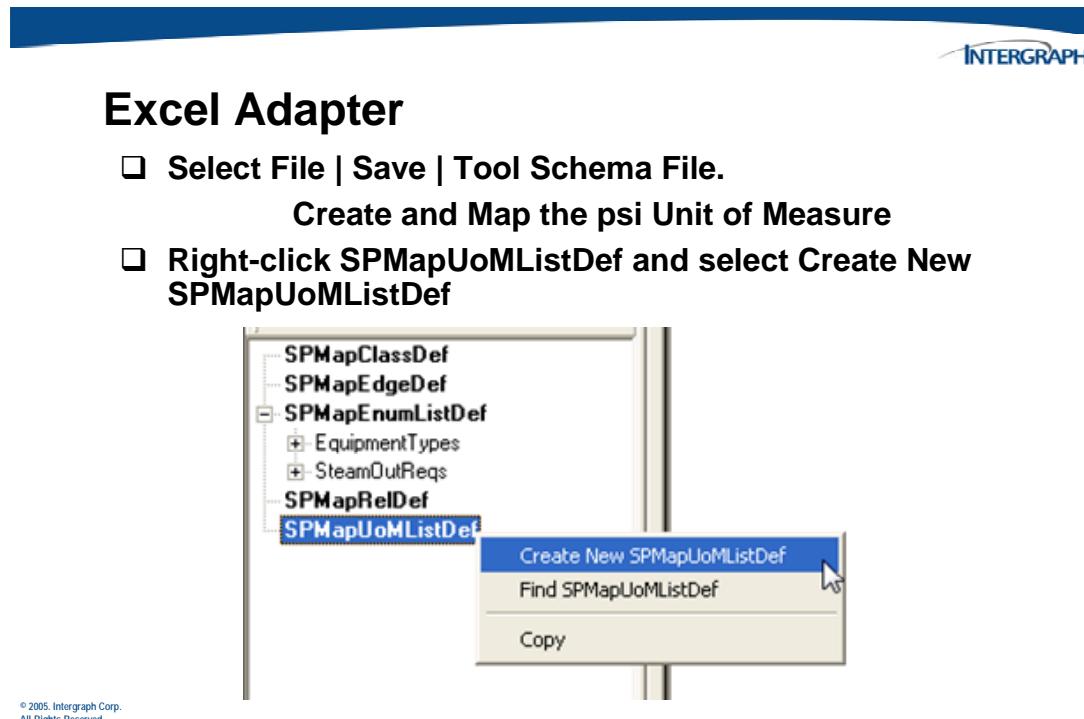
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Click OK.

Select File | Save | Tool Schema File.

## A.7 Create and Map the psi Unit of Measure

Right-click **SPMapUoMListDef** and select **Create New SPMapUoMListDef**.



The New Map Unit of Measure List Definition (ExcelEquipmentMap.xml) dialog is shown.

Type **psi UoM** in the Name field.

Click **...** across from **Publish to**.

The Possible MapEnumListToEnumList\EnumList Values for psi UoM dialog is shown.

Type **press** in the Starts with field.

In the Selectable list, click **PressureUoM (PressureUoM)**.

Click **OK**.

Click the **Publish** tab.

Click **Create application enumeration**.

The New SPMaPDef dialog is shown.

Type **psi** in the Name field.

Type **psi** in the Description field.

Click **OK**.

The Unmapped application enumerations list should look like this:



## Excel Adapter

- The New Map Unit of Measure List Definition (ExcelEquipmentMap.xml) dialog is shown.
- Type psi UoM in the Name field.
- Click across from Publish to.
- The Possible MapEnumListToEnumList\EnumList Values for psi UoM dialog is shown.
- Type press in the Starts with field.
- In the Selectable list, click PressureUoM (PressureUoM).
- Click OK.
- Click the Publish tab.
- Click Create application enumeration.
- The New SPMapUoMDef dialog is shown.
- Type psi in the Name field.
- Type psi in the Description field.
- Click OK.

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## Excel Adapter

Tool enumeration	Tool description
psi	psi

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In the Unmapped application enumerations list, click **psi**.

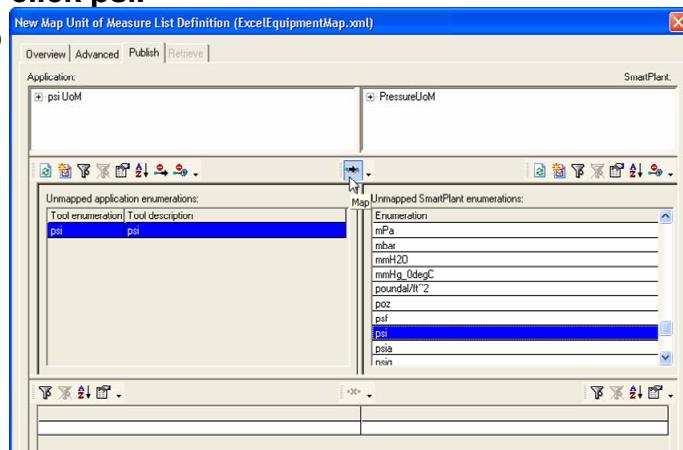
In the Unmapped SmartPlant enumerations list, scroll down and click **psi**.

Click **Map**.



## Excel Adapter

- In the Unmapped application enumerations list, click psi.
- In the Unmapped SmartPlant enumerations list, scroll down and click psi.
- Click Map



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Click OK.

Select File | Save | Tool Schema File.

## A.8 Create and Map the F Unit of Measure

Right-click **SPMapUoMListDef** and select **Create New SPMapUoMListDef**.

The New Map Unit of Measure List Definition (ExcelEquipmentMap.xml) dialog is shown.

Type **F UoM** in the Name field.

Click **[...]** across from **Publish to**.

The Possible MapEnumListToEnumList\EnumList Values for F UoM dialog is shown.

Type **temp** in the Starts with field.

In the Selectable list, click **TemperatureUoM (TemperatureUoM)**.

Click **OK**.



## Excel Adapter

- Click **OK**.
- Select File | Save | Tool Schema File

### Create and Map the F Unit of Measure

- Right-click **SPMapUoMListDef** and select **Create New SPMapUoMListDef**.
- The New Map Unit of Measure List Definition (ExcelEquipmentMap.xml) dialog is shown.
- Type **F UoM** in the Name field.
- Click **[...]** across from Publish to.
- The Possible MapEnumListToEnumList\EnumList Values for F UoM dialog is shown.
- Type **temp** in the Starts with field.
- In the Selectable list, click **TemperatureUoM (TemperatureUoM)**.
- Click **OK**.

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Click the **Publish** tab.

Click **Create application enumeration**.

The New **SPMapUoMDef** dialog is shown.

Type **F** in the Name field.

Type **F** in the Description field.

Click **OK**.

In the Unmapped application enumerations list, click **F**.

In the Unmapped SmartPlant enumerations list, click **F**.

Click **Map**.



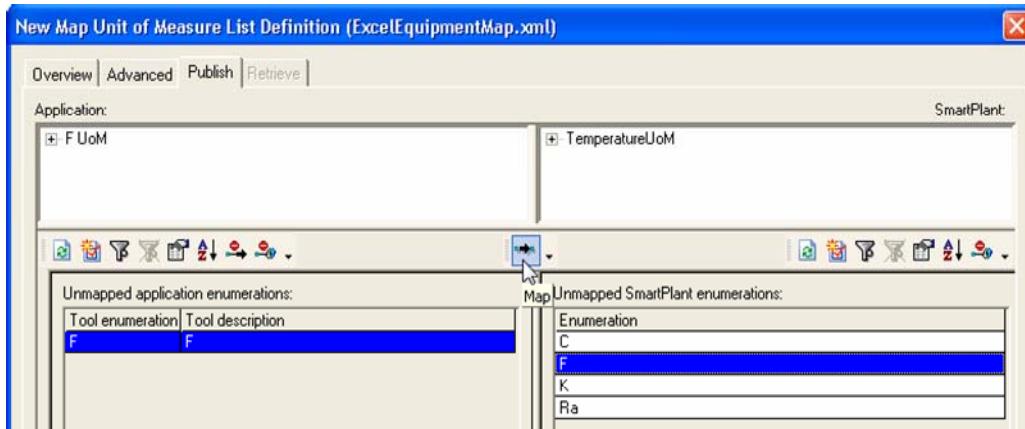
## Excel Adapter

- Click the Publish tab.
- Click Create application enumeration.
- The New SPMMapUoMDef dialog is shown.
- Type F in the Name field.
- Type F in the Description field.
- Click OK.
- In the Unmapped application enumerations list, click F.
- In the Unmapped SmartPlant enumerations list, click F.
- Click Map.

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## Excel Adapter



- Click OK.
- Select File | Save | Tool Schema File.

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Click OK.

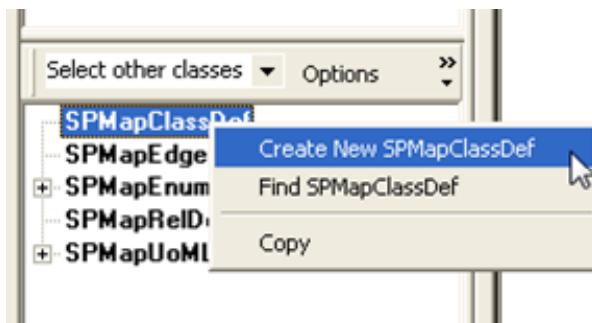
Select File | Save | Tool Schema File.

## A.9 Create the Equipment MapClassDef

Right-click SPMMapClassDef and select Create New SPMMapClassDef.

### Excel Adapter

- Right-click SPMMapClassDef and select Create New SPMMapClassDef



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The New Map Class Definition (ExcelEquipmentMap.xml) dialog is shown.

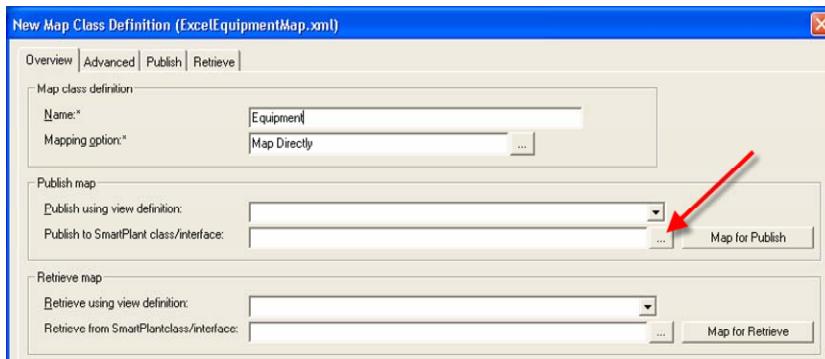
Type **Equipment** in the Name field.

Click across from Publish to SmartPlant class/interface.



## Excel Adapter

- The New Map Class Definition (ExcelEquipmentMap.xml) dialog is shown.**
- Type Equipment in the Name field.**
- Click across from Publish to SmartPlant class/interface**



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The Possible MapClassToClass\Class Values for Equipment dialog is shown.

Type **IExcel** in the Starts with field.

In the Selectable list, click **IExcelEquipmentOcc**.

Click **OK**.

The New Map Class Definition (ExcelEquipmentMap.xml) dialog should look like this:

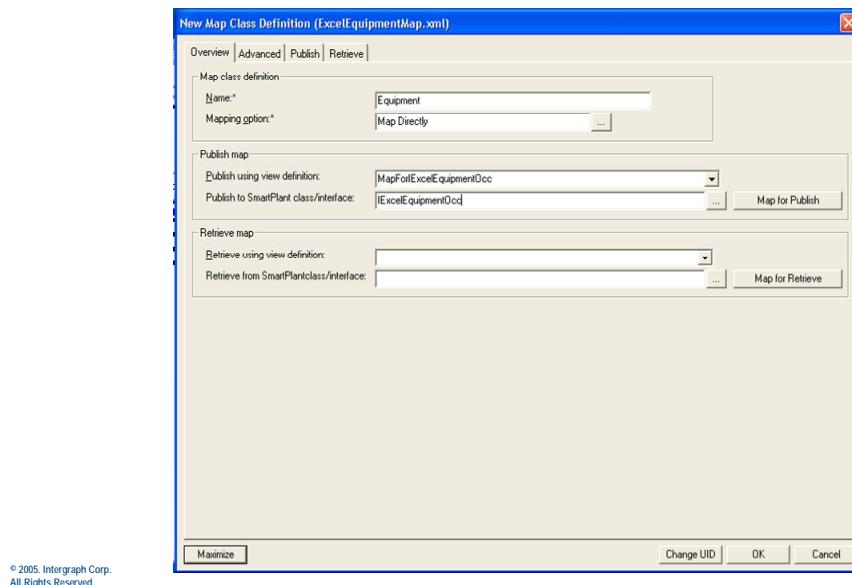


## Excel Adapter

- The Possible MapClassToClass\Class Values for Equipment dialog is shown.**
- Type IExcel in the Starts with field.**
- In the Selectable list, click IExcelEquipmentOcc.**
- Click OK.**
- The New Map Class Definition (ExcelEquipmentMap.xml) dialog should look like this:**

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## Excel Adapter



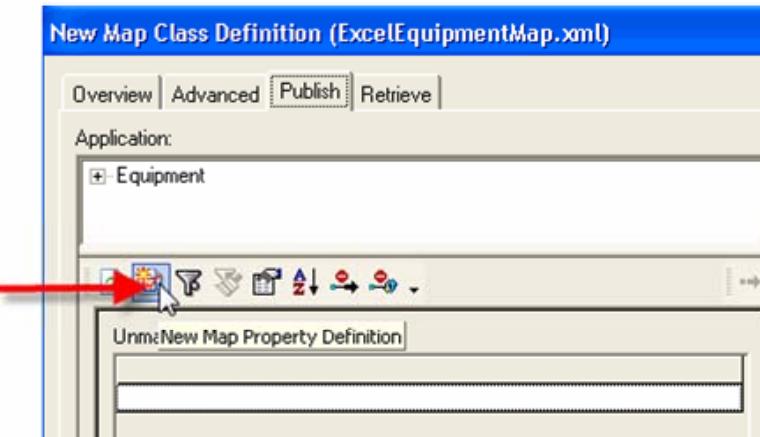
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Click the **Publish** tab.

Click **New Map Property Definition**.

## Excel Adapter

- Click the Publish tab.
- Click New Map Property Definition



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The New Map Property Definition (ExcelEquipmentMap.xml) dialog is shown.

Type **UID** in the Name field.

Click **OK**.

Click **New Map Property Definition**.

Type **Tag** in the Name field.

Click **OK**.

Click **New Map Property Definition**.

Type **Tag Prefix** in the Name field.

Click **OK**.

Click **New Map Property Definition**.

Type **Tag SequenceNo** in the Name field.

Click **OK**.

Click **New Map Property Definition**.

Type **Tag Suffix** in the Name field.

Click OK.



## Excel Adapter

- The New Map Property Definition (ExcelEquipmentMap.xml) dialog is shown.
- Type UID in the Name field.
- Click OK.
- Click New Map Property Definition.
- Type Tag in the Name field.
- Click OK.
- Click New Map Property Definition.
- Type Tag Prefix in the Name field.
- Click OK.
- Click New Map Property Definition.
- Type Tag SequenceNo in the Name field.
- Click OK.
- Click New Map Property Definition.
- Type Tag Suffix in the Name field.
- Click OK.

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Click **New Map Property Definition**.

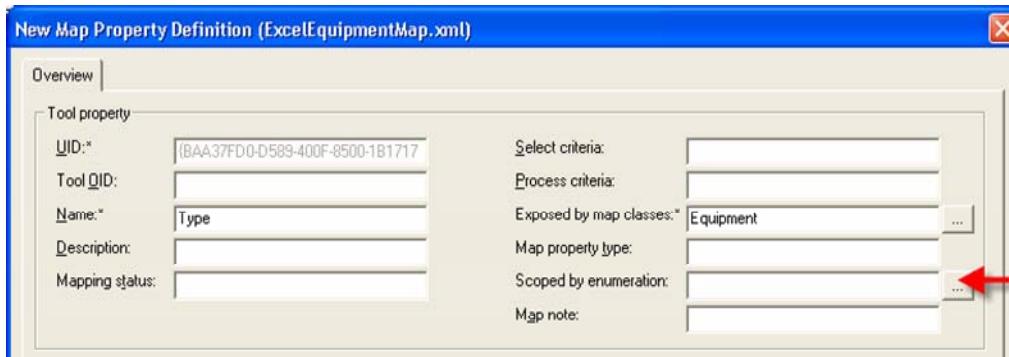
Type **Type** in the Name field.

Click across from **Scoped by enumeration**.



## Excel Adapter

- Click New Map Property Definition.**
- Type Type in the Name field.**
- Click ... across from Scoped by enumeration**



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The Possible MapEnumList Values for Type dialog is shown.

Click **EquipmentTypes**.

Click **OK**.

Click New Map Property Definition.

Type **Steam Out Requirement** in the Name field.

Click **...** across from **Scoped by enumeration**.

The Possible MapEnumList Values for Steam Out Requirement dialog is shown.

Click **SteamOutReqs**.

Click **OK**.



## Excel Adapter

- The Possible MapEnumList Values for Type dialog is shown.**
- Click EquipmentTypes.**
- Click OK.**
- Click New Map Property Definition.**
- Type Steam Out Requirement in the Name field.**
- Click across from Scoped by enumeration.**
- The Possible MapEnumList Values for Steam Out Requirement dialog is shown.**
- Click SteamOutReqs.**
- Click OK.**

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**Click New Map Property Definition.**

Type **Steam Out Press** in the Name field.

Click **...** across from **Scoped by enumeration**.

The Possible MapEnumList Values for Steam Out Press dialog is shown.

Click **psi UoM**.

Click **OK**.

**Click New Map Property Definition.**

Type **Steam Out Temp** in the Name field.

Click **...** across from **Scoped by enumeration**.

The Possible MapEnumList Values for Steam Out Temp dialog is shown.

Click **F UoM**.

Click **OK**.

The New Map Class Definition (ExcelEquipmentMap.xml) dialog should look like this:

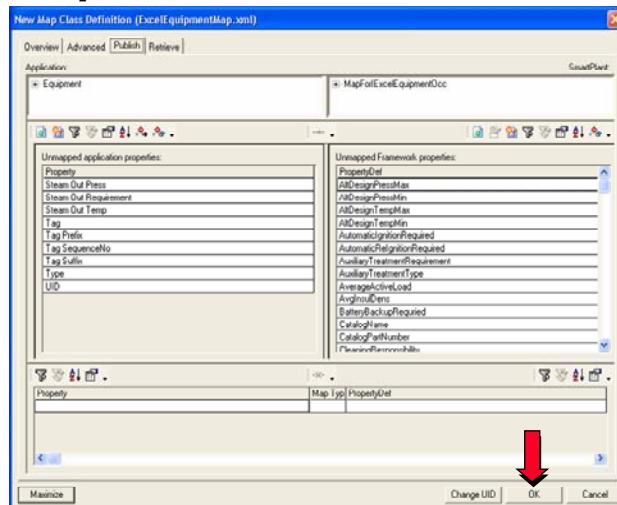


## Excel Adapter

- Click New Map Property Definition.
- Type Steam Out Press in the Name field.
- Click across from Scoped by enumeration.
- The Possible MapEnumList Values for Steam Out Press dialog is shown.
- Click psi UoM.
- Click OK.
- Click New Map Property Definition.
- Type Steam Out Temp in the Name field.
- Click across from Scoped by enumeration.
- The Possible MapEnumList Values for Steam Out Temp dialog is shown.
- Click F UoM.
- Click OK.
- The New Map Class Definition (ExcelEquipmentMap.xml) dialog should look like this:

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## Excel Adapter



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Click OK.

Select File | Save | Tool Schema File.

## A.10 Map the Equipment MapClassDef

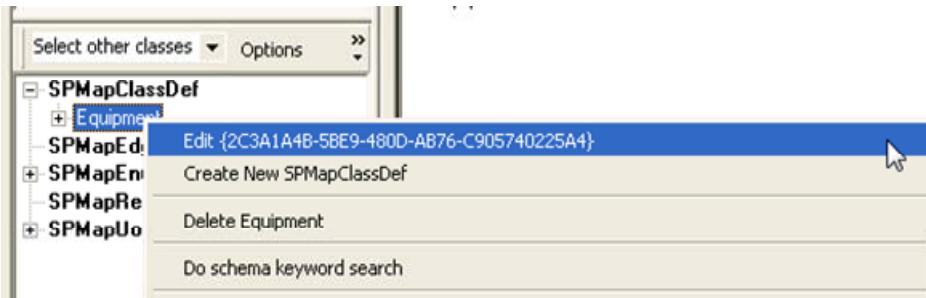
Expand SPMAPClassDef.

Right-click Equipment and select Edit {...}.



### Excel Adapter

- Expand SPMAPClassDef.
- Right-click Equipment and select Edit



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The Edit Map Class Definition (ExcelEquipmentMap.xml) dialog is shown.

Click the **Publish tab**.

In the Unmapped application properties list, click **Steam Out Press**.

In the Unmapped SmartPlant properties list, scroll down and click **SteamOutPressure**.

Click **Map**.



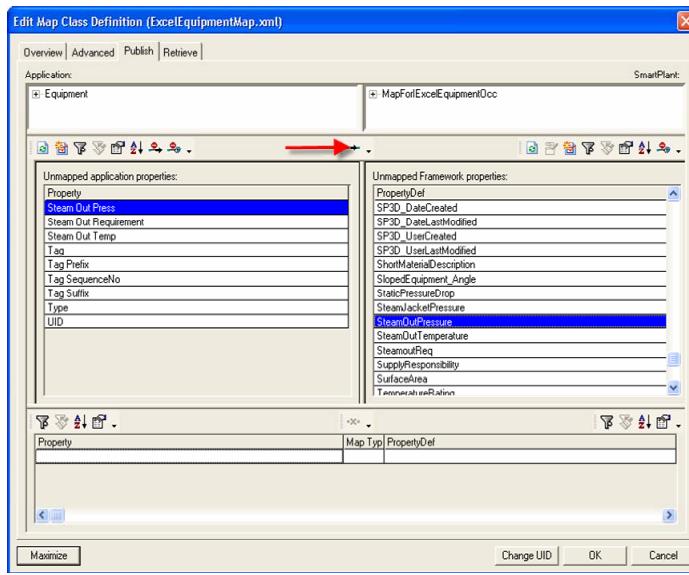
## Excel Adapter

- The Edit Map Class Definition (ExcelEquipmentMap.xml) dialog is shown.
- Click the Publish tab.
- In the Unmapped application properties list, click Steam Out Press.
- In the Unmapped SmartPlant properties list, scroll down and click SteamOutPressure.
- Click Map.

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## Excel Adapter



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In the Unmapped application properties list, click **Steam Out Requirement**.

In the Unmapped SmartPlant properties list, find and click **SteamoutReq**.

Click **Map**.

In the Unmapped application properties list, click **Steam Out Temp**.

In the Unmapped SmartPlant properties list, find and click **SteamOutTemperature**.

**Click Map.**

In the Unmapped application properties list, click **Tag**.

In the Unmapped SmartPlant properties list, find and click **Name**.

**Click Map.**

In the Unmapped application properties list, click **Tag Prefix**.

In the Unmapped SmartPlant properties list, find and click **EquipPrefix**.

**Click Map.**

In the Unmapped application properties list, click **Tag SequenceNo**.

In the Unmapped SmartPlant properties list, find and click **EquipSeqNo**.

**Click Map.**

In the Unmapped application properties list, click **Tag Suffix**.

In the Unmapped SmartPlant properties list, find and click **EquipSuff**.

**Click Map.**

In the Unmapped application properties list, click **Type**.

In the Unmapped SmartPlant properties list, find and click **EqType0**.

**Click Map.**

In the Unmapped application properties list, click **UID**.

In the Unmapped SmartPlant properties list, find and click **UID**.

**Click Map.**

The Edit Map Class Definition (ExcelEquipmentMap.xml) should look like this:

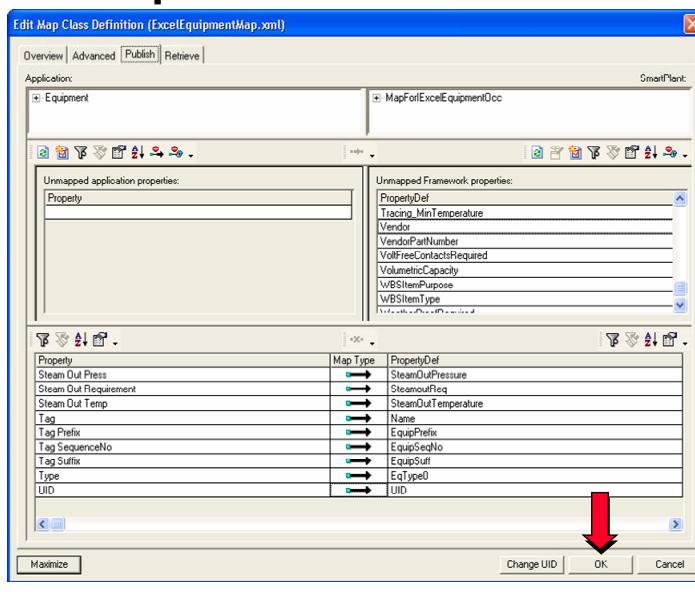


## Excel Adapter

- In the Unmapped application properties list, click Steam Out Requirement.
- In the Unmapped SmartPlant properties list, find and click SteamoutReq.
- Click Map.
- In the Unmapped application properties list, click Steam Out Temp.
- In the Unmapped SmartPlant properties list, find and click SteamOutTemperature.
- Click Map.
- In the Unmapped application properties list, click Tag.
- In the Unmapped SmartPlant properties list, find and click Name.
- Click Map.
- In the Unmapped application properties list, click Tag Prefix.
- In the Unmapped SmartPlant properties list, find and click EquipPrefix.
- Click Map.
- In the Unmapped application properties list, click Tag SequenceNo.
- In the Unmapped SmartPlant properties list, find and click EquipSeqNo.
- Click Map.
- In the Unmapped application properties list, click Tag Suffix.
- In the Unmapped SmartPlant properties list, find and click EquipSuff.
- Click Map.
- In the Unmapped application properties list, click Type.
- In the Unmapped SmartPlant properties list, find and click EqType0.
- Click Map.
- In the Unmapped application properties list, click UID.
- In the Unmapped SmartPlant properties list, find and click UID.
- Click Map.
- The Edit Map Class Definition (ExcelEquipmentMap.xml) should look like this:



## Excel Adapter



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Click **OK**.

Select **File | Save | Tool Schema File**.

## A.11 Create the Plant MapClassDef

Right-click SPMMapClassDef and select Create New SPMMapClassDef.

The New Map Class Definition (ExcelEquipmentMap.xml) dialog is shown.

Type Plant in the Name field.

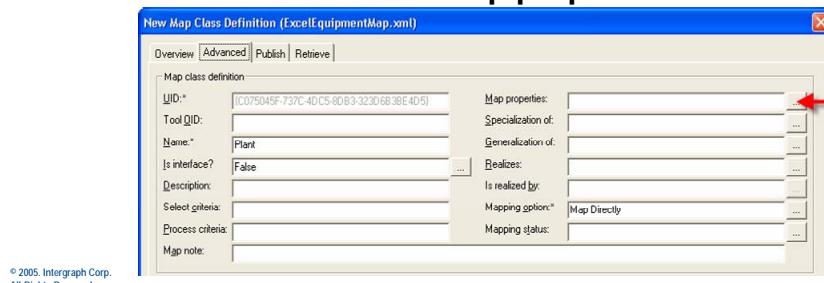
Click the Advanced tab.

Click across from Map properties.



### Excel Adapter

- Right-click SPMMapClassDef and select Create New SPMMapClassDef.
- The New Map Class Definition (ExcelEquipmentMap.xml) dialog is shown.
- Type Plant in the Name field.
- Click the Advanced tab.
- Click across from Map properties



The Possible MapProperties for Plant dialog is shown.

Click New... at the bottom left.

The New Map Property Definition (ExcelEquipmentMap.xml) dialog is shown.

Type UID in the Name field.

Click OK.

UID is added to the lists and highlighted.

Click New... at the bottom left.

The New Map Property Definition (ExcelEquipmentMap.xml) dialog is shown.

Type Name in the Name field.

Click OK.

Name is added to the lists. UID and Name are highlighted in the lists

Click OK.

The New Map Class Definition (ExcelEquipmentMap.xml) dialog should look like this:



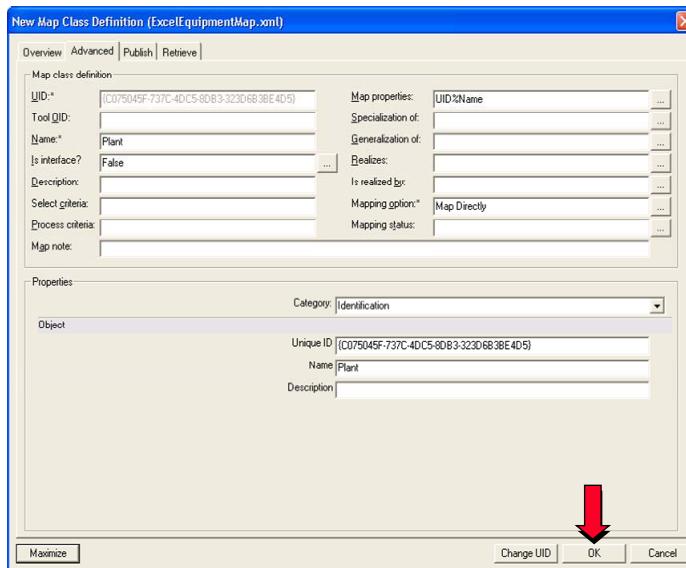
## Excel Adapter

- The Possible MapProperties for Plant dialog is shown.
- Click New... at the bottom left.
- The New Map Property Definition (ExcelEquipmentMap.xml) dialog is shown.
- Type UID in the Name field.
- Click OK.
- UID is added to the lists and highlighted.
- Click New... at the bottom left.
- The New Map Property Definition (ExcelEquipmentMap.xml) dialog is shown.
- Type Name in the Name field.
- Click OK.
- Name is added to the lists. UID and Name are highlighted in the lists
- Click OK.
- The New Map Class Definition (ExcelEquipmentMap.xml) dialog should look like this:

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## Excel Adapter



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Click **OK**.

Select **File | Save | Tool Schema File**

## A.12 Create the Unit MapClassDef

Right-click **SPMapClassDef** and select **Create New SPMapClassDef**.

The New Map Class Definition (ExcelEquipmentMap.xml) dialog is shown.

Type **Unit** in the Name field.

Click the **Advanced** tab.

Click **...** across from **Map properties**.

The Possible MapProperties for Unit dialog is shown.

Click **New...** at the bottom left.

The New Map Property Definition (ExcelEquipmentMap.xml) dialog is shown.

Type **UID** in the Name field.

Click **OK**.

UID is added to the lists and highlighted.

Click **New...** at the bottom left.

The New Map Property Definition (ExcelEquipmentMap.xml) dialog is shown.

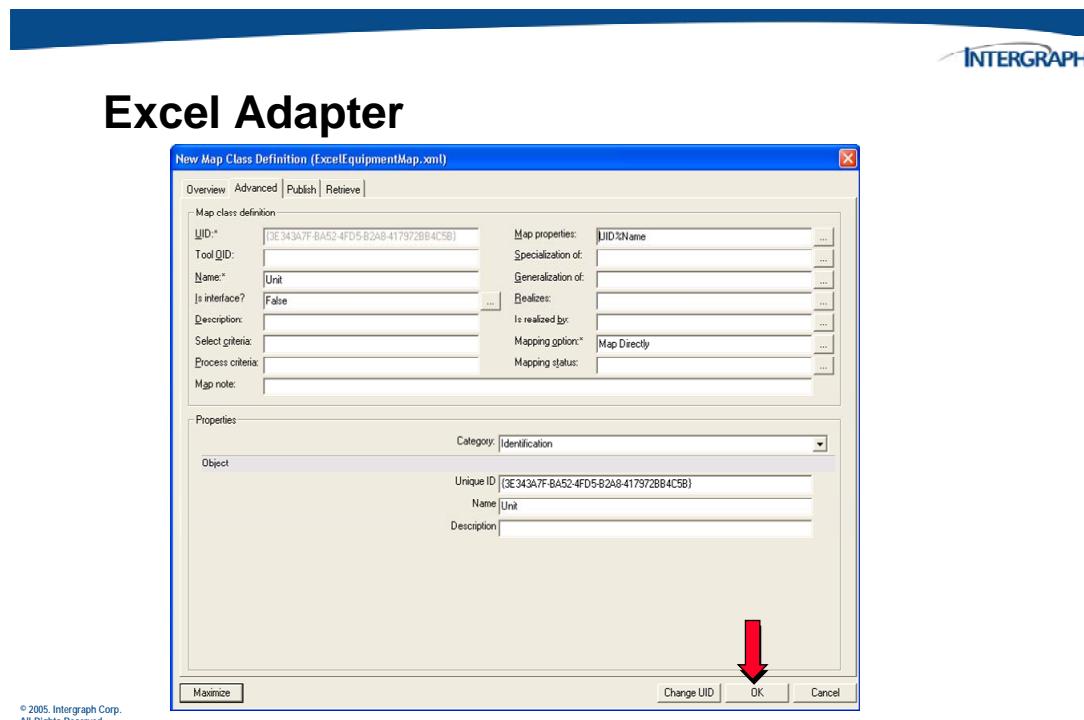
Type **Name** in the Name field.

Click **OK**.

Name is added to the lists. UID and Name are highlighted in the lists.

Click **OK**.

The New Map Class Definition (ExcelEquipmentMap.xml) dialog should look like this:



---

Click **OK**.

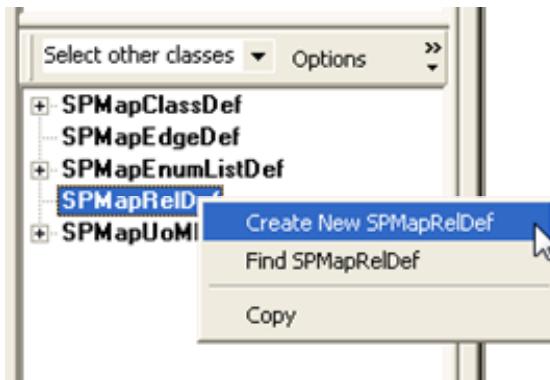
Select **File | Save | Tool Schema File**.

## A.13 Create the Plant to Equipment MapRelDef

Right-click SPMMapRelDef and select Create New SPMMapRelDef

### Excel Adapter

- Right-click SPMMapRelDef and select Create New SPMMapRelDef



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The New Map Relationship Definition (ExcelEquipmentMap.xml) dialog is shown.

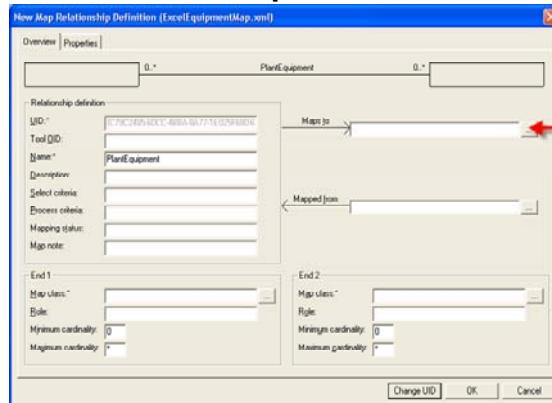
Type **PlantEquipment** in the Name field.

Click across from Maps to.



## Excel Adapter

- The New Map Relationship Definition (ExcelEquipmentMap.xml) dialog is shown.
- Type PlantEquipment in the Name field.
- Click across from Maps to



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The Possible MapRelDefToRelDef\RelDef Values for PlantEquipment dialog is shown.

Type **PBSItem** in the Starts with field.

In the Selectable list, click **PBSItemCollection**.

Click **...** across from **End 1** of tool relationship definition corresponds to end 1 of EF relationship definition?



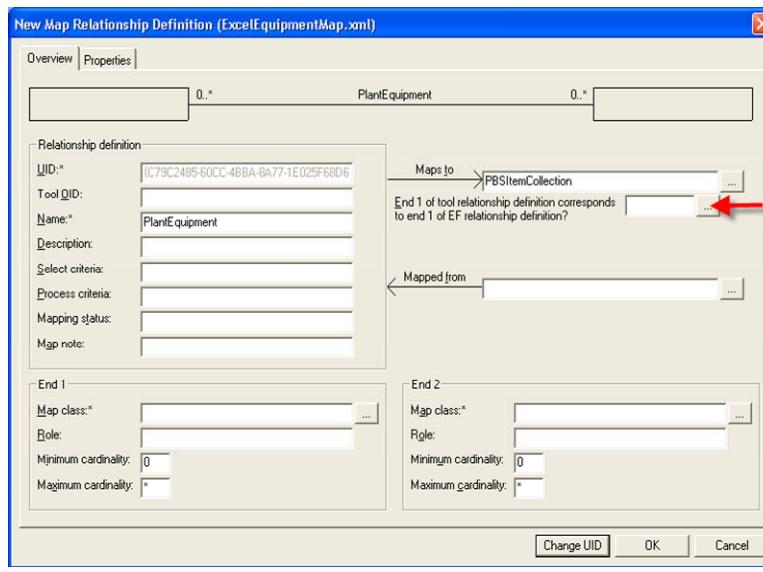
## Excel Adapter

- The Possible MapRelDefToRelDef\RelDef Values for PlantEquipment dialog is shown.
- Type **PBSItem** in the Starts with field.
- In the Selectable list, click **PBSItemCollection**.
- Click across from **End 1** of tool relationship definition corresponds to end 1 of EF relationship definition?

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## Excel Adapter



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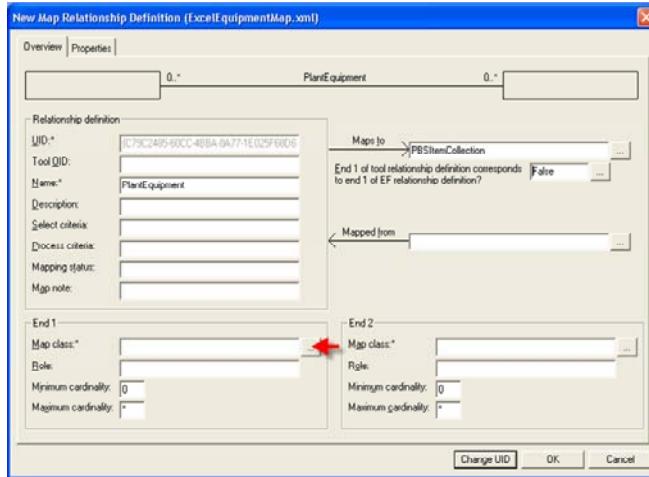
**Click False.**

In the **End 1** section, click **...** across from **Map class**.



## Excel Adapter

- Click False.**
- In the End 1 section, click **...** across from **Map class****



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The Possible FromMapClass Values for PlantEquipment dialog is shown.

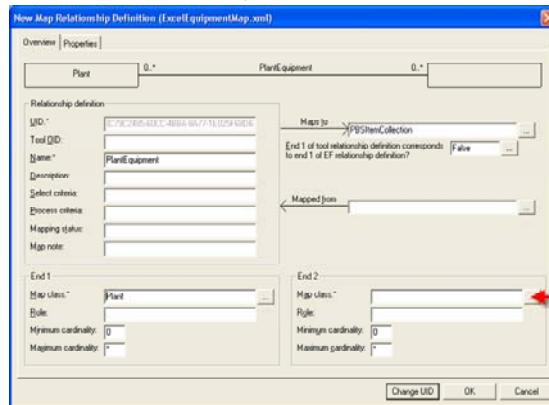
In the Selectable list, click **Plant**.

In the **End 2** section, click **...** across from **Map class**.



## Excel Adapter

- The Possible FromMapClass Values for PlantEquipment dialog is shown.
- In the Selectable list, click Plant.
- In the End 2 section, click across from Map class



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The Possible ToMapClass Values for PlantEquipment dialog is shown.

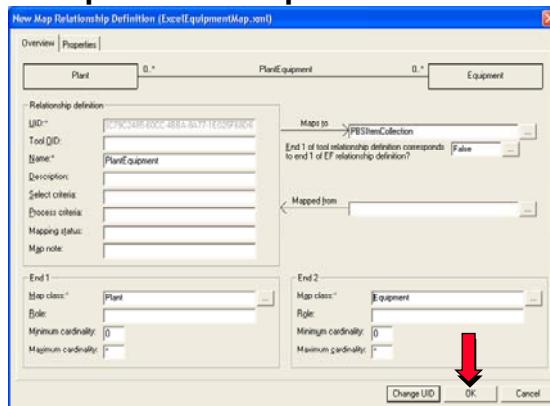
In the Selectable list, click **Equipment**.

The New Map Relationship Definition (ExcelEquipmentMap.xml) should look like this:



## Excel Adapter

- The Possible ToMapClass Values for PlantEquipment dialog is shown.
- In the Selectable list, click Equipment.
- The New Map Relationship Definition should look like this:



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Click **OK**.

Select **File | Save | Tool Schema File**.

## A.14 Create the Equipment to Unit MapRelDef

Right-click **SPMapRelDef** and select **Create New SPMaprelDef**.

The New Map Relationship Definition (ExcelEquipmentMap.xml) dialog is shown.

Type **EquipmentUnit** in the Name field.

Click **...** across from **Maps to**.

The Possible MapRelDefToRelDef\RelDef Values for EquipmentUnit dialog is shown.

Type **PBSItem** in the Starts with field.

In the Selectable list, click PBSItemCollection.

Click **...** across from **End 1** of tool relationship definition corresponds to end 1 of EF relationship definition?

Click **True**.

In the **End 1** section, click **...** across from Map class.

The Possible FromMapClass Values for EquipmentUnit dialog is shown.

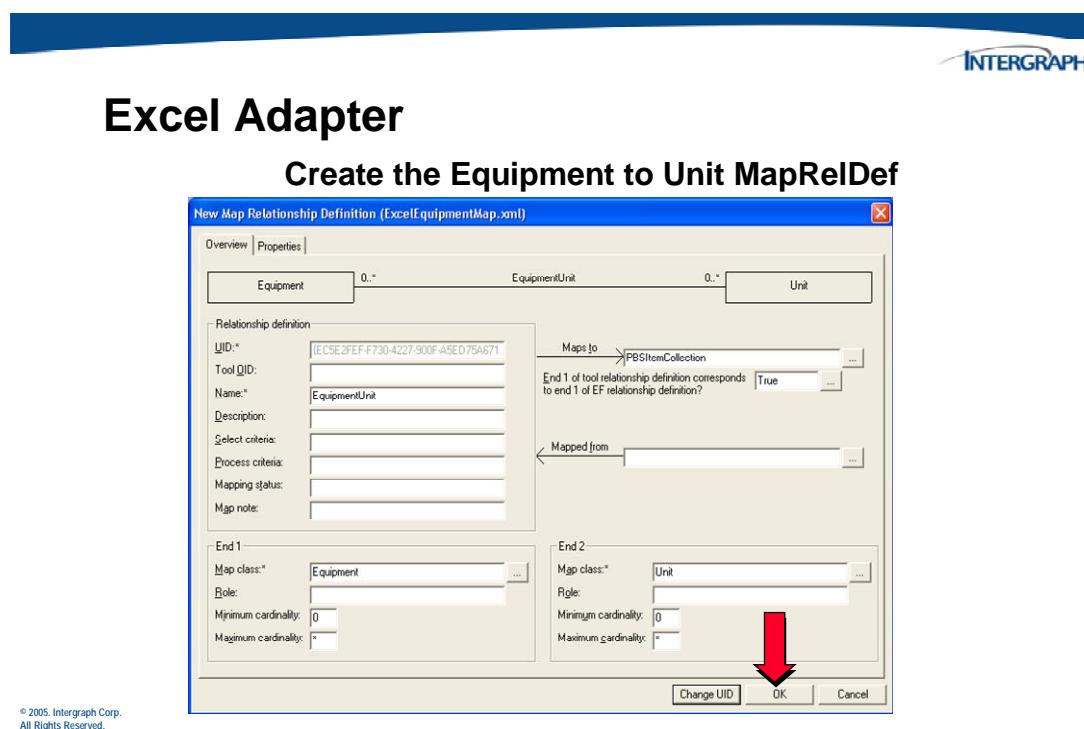
In the Selectable list, click **Equipment**.

In the **End 2** section, click **...** across from Map class.

The Possible ToMapClass Values for EquipmentUnit dialog is shown.

In the Selectable list, click **Unit**.

The New Map Relationship Definition (ExcelEquipmentMap.xml) should look like this:



Click **OK**.

Select **File | Save | Tool Schema File**.

## A.15 View the Completed Mappings

Select **View | Tool Schema ....**

The View Tool Schema dialog is displayed.

Click the **View** tab.

Click **Tree/Multi-Tab** and click **OK**.

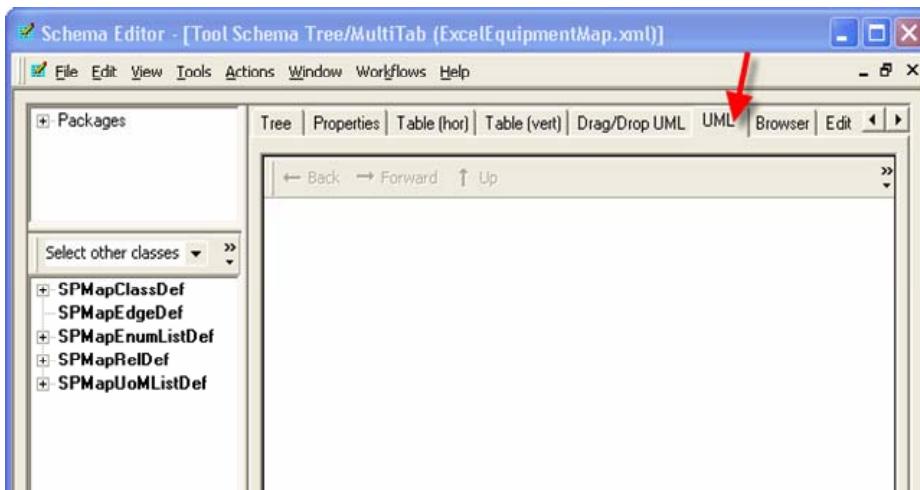
The Tool Schema Tree/MultiTab (ExcelEquipmentMap.xml) dialog is shown.

In the right side tabbed view, click the **UML** tab.



### Excel Adapter

#### View the Completed Mappings



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Expand **SPMapClassDef**.

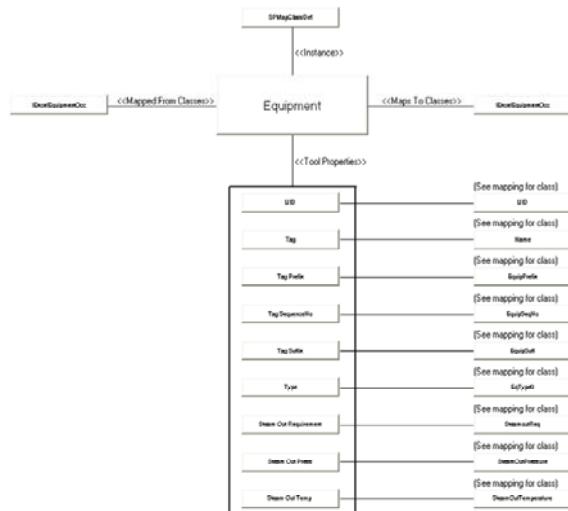
Click **Equipment**.

The Equipment UML should look like this:



## Excel Adapter

### Expand SPMMapClassDef and Click Equipment



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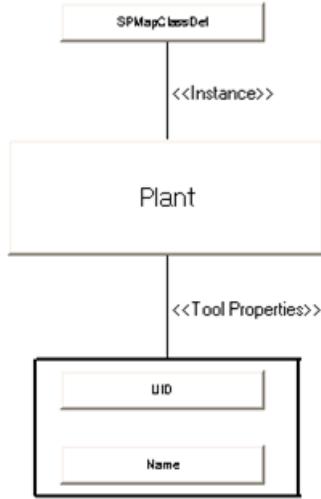
## Click Plant.

The Plant UML should look like this:



## Excel Adapter

### Click Plant



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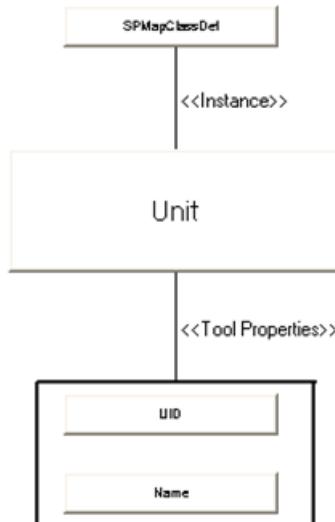
## Click Unit.

The Unit UML should look like this:



## Excel Adapter

Click Unit



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Expand SPMMapEnumListDef.

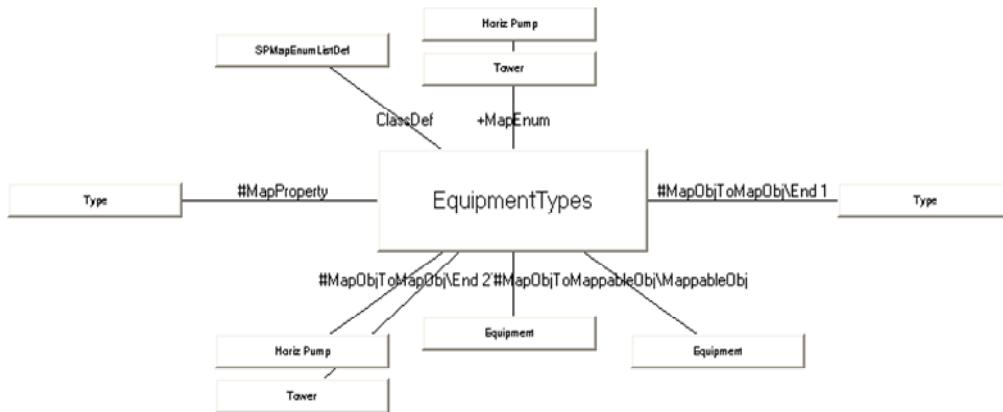
Click EquipmentTypes.

The EquipmentTypes UML should look like this:



## Excel Adapter

Expand SPMMapEnumListDef and Click EquipmentTypes



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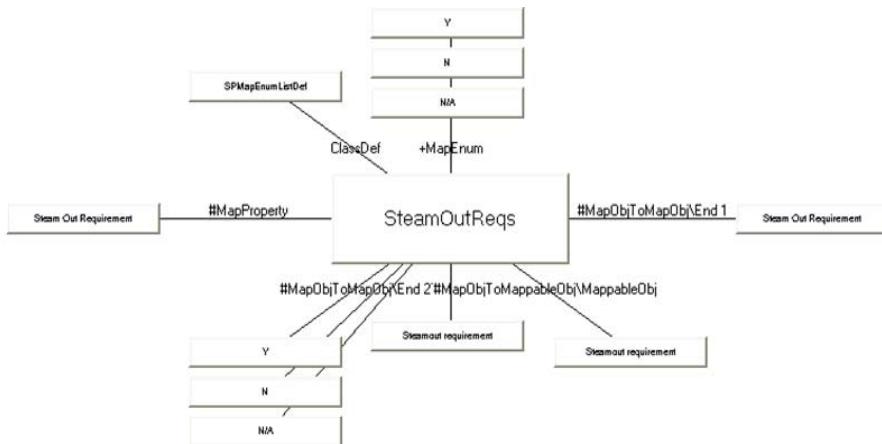
Click SteamOutReqs.

The SteamOutReqs UML should look like this:



## Excel Adapter

Click SteamOutReqs



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Expand SPMAPRelDef.

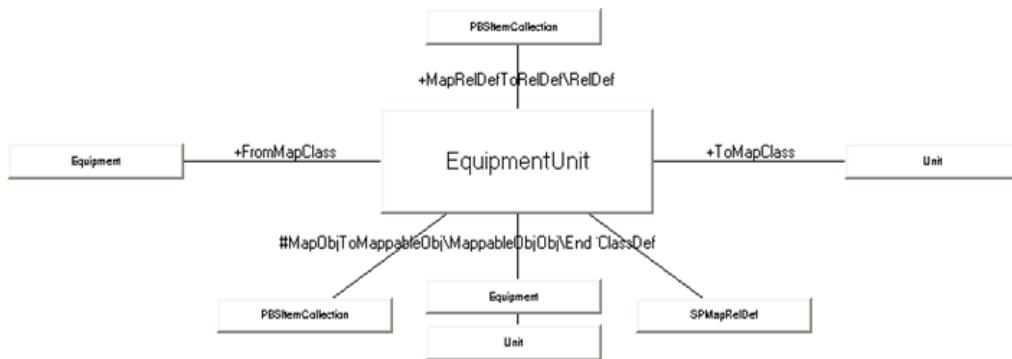
Click EquipmentUnit.

The EquipmentUnit UML should look like this:



## Excel Adapter

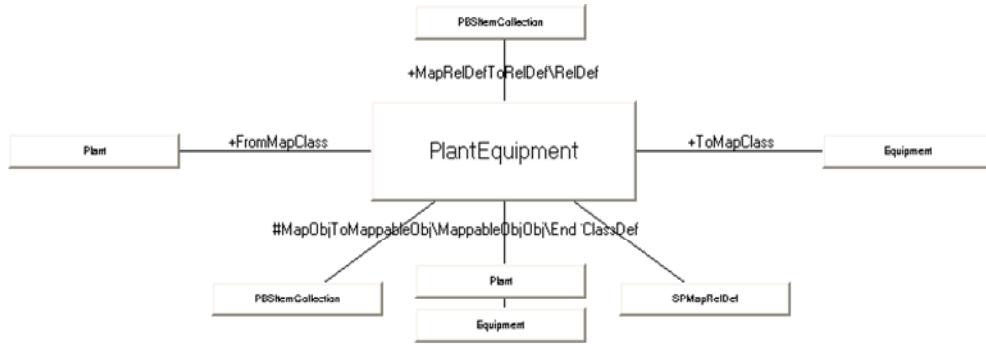
Expand SPMAPRelDef and Click EquipmentUnit



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Click PlantEquipment.

The PlantEquipment UML should look like this:

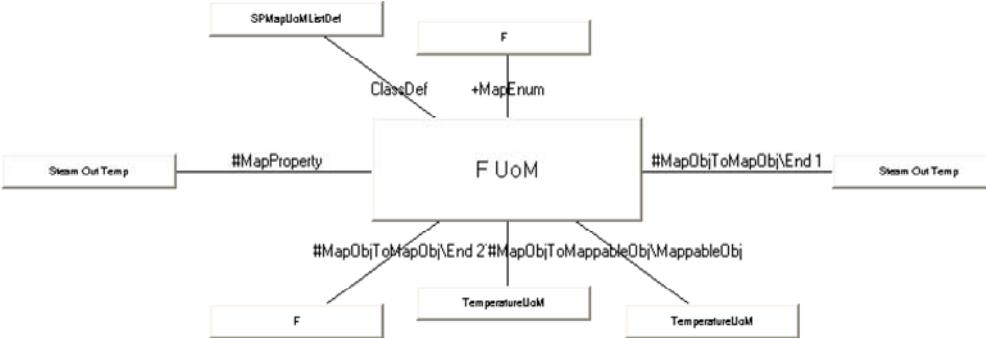


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**Expand SPMapUoMListDef.**

**Click F UoM.**

The F UoM UML should look like this:



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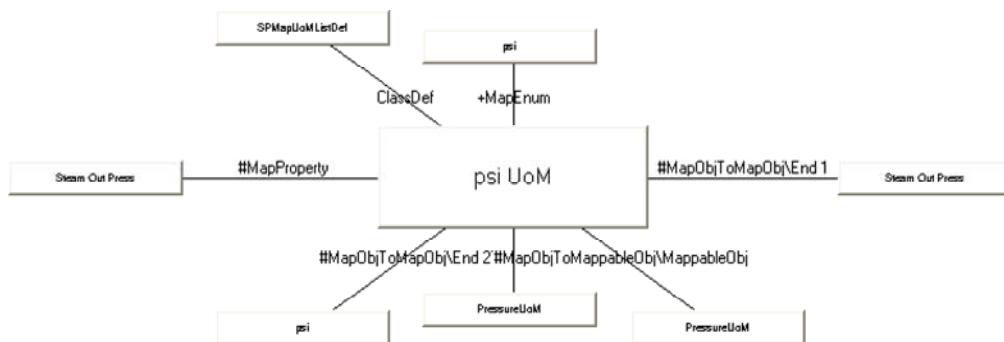
Click **psi UoM**.

The psi UoM UML should look like this:



## Excel Adapter

- Click **psi UoM**



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Select **File | Save | Tool Schema File**.

Select **File | Exit**.

If prompted to save the configuration, click **No**.



## Excel Adapter

- Select **File | Save | Tool Schema File**.
- Select **File | Exit**.
- If prompted to save the configuration, click **No**

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**DSPF1-TP-1000010A**

**SmartPlant Foundation Configuration and Administration II**

***Course Guide Volume 2***