

# Process, Power and Marine Division

## SP3D Equipment Reference Data

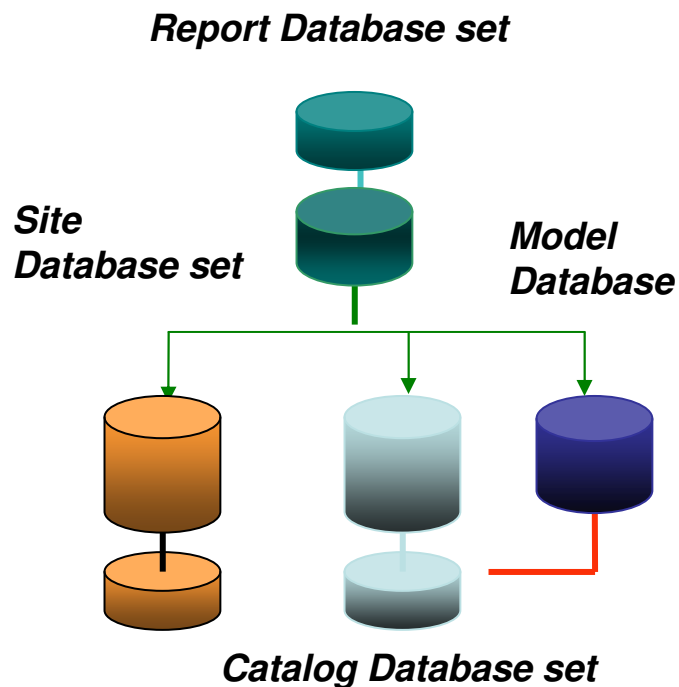


# What will be covered in this training?

## Overview:

- SmartPlant 3D Reference Data
  - Delivered Catalog
  - Bulkload Utility
  - Catalog Hierarchy
  - Module Types
  - Code List
  - Equipment Hierarchy
  - Custom Interface
  - Equipment Assembly Class

# SP3D Databases - Overview



## **Site Database:**

Contains Project Management data such as the names of the databases, global work share locations and the permissions on the model and catalog databases.

## **Catalog Database:**

Contains the design rules and the parts.

**Model Database:** Contains instances of the parts defined in the catalog.

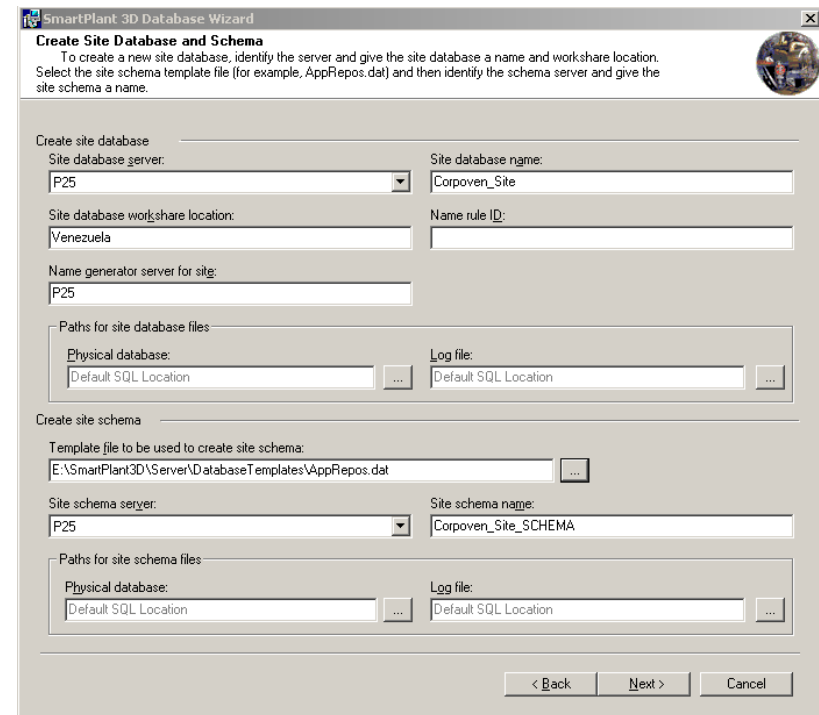
**Report Database :** Collection of views on the model, site and catalog.

**Schemas:** Contains the data about the data. Describes all the business objects for the applications (pipe, fitting, beam, etc...) and their relationships.

# SP3D Databases - Overview

## Step 1

- A site database and schema are created
  - The “.dat” file contains the MetaData (or data about the data), which describes all the business objects for the core, and project management applications and their relationships.



The image shows the 'SmartPlant 3D Database Wizard' dialog box, specifically the 'Create Site Database and Schema' step. The dialog is titled 'SmartPlant 3D Database Wizard' and has a close button (X) in the top right corner. Below the title bar, there is a section 'Create Site Database and Schema' with a brief instruction: 'To create a new site database, identify the server and give the site database a name and workshare location. Select the site schema template file (for example, AppRepos.dat) and then identify the schema server and give the site schema a name.'

The dialog is divided into two main sections: 'Create site database' and 'Create site schema'.

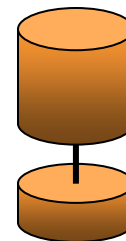
**Create site database section:**

- 'Site database server:' dropdown menu with 'P25' selected.
- 'Site database name:' text box with 'Corpoven\_Site' entered.
- 'Site database workshare location:' text box with 'Venezuela' entered.
- 'Name rule ID:' text box (empty).
- 'Name generator server for site:' text box with 'P25' entered.
- 'Paths for site database files:' section with two sub-sections:
  - 'Physical database:' text box with 'Default SQL Location' and a browse button (...).
  - 'Log file:' text box with 'Default SQL Location' and a browse button (...).

**Create site schema section:**

- 'Template file to be used to create site schema:' text box with 'E:\SmartPlant3D\Server\DatabaseTemplates\AppRepos.dat' and a browse button (...).
- 'Site schema server:' dropdown menu with 'P25' selected.
- 'Site schema name:' text box with 'Corpoven\_Site\_SCHEMA' entered.
- 'Paths for site schema files:' section with two sub-sections:
  - 'Physical database:' text box with 'Default SQL Location' and a browse button (...).
  - 'Log file:' text box with 'Default SQL Location' and a browse button (...).

At the bottom of the dialog, there are three buttons: '< Back', 'Next >', and 'Cancel'.



**Site Database  
Schema**

**Metadata from  
AppRepos.dat**

## SP3D Databases - Overview

### Step 2

- A catalog database and schema are created from a “.dat” file delivered with the product.
- The “.dat” file contains the design rules, parts and the MetaData of the other applications (Equipment, Route, Structure, etc..)

**SmartPlant 3D Database Wizard**

**Catalog Database and Schema**

You will need a Catalog Database to create a plant model. You can create a new catalog using the Bulkload program under SmartPlant 3D. Or you can restore a catalog from backup by identifying the server and giving the restored catalog a name below. Or you can use a catalog that already exists on a server by connecting the catalog to the model using Project Management.

☒ Restore catalog from backup  
☐ Use existing catalog already on server (You will choose the catalog to link to your plant model later in Project Management.)

Create catalog database

Catalog database server: P25 Catalog database name: Catalog01\_Cat

Paths for catalog database files:

Physical database: Default SQL Location Log file: Default SQL Location

Symbols and custom program file folder: \\p25\symbols

Template file to be used to create catalog database and schema: E:\SmartPlant3D\Server\Database Templates\CatalogDB.dat

Create catalog schema

Catalog schema server: P25 Catalog schema name: Catalog01\_Cat\_SCHEMA

Paths for catalog schema files:

Physical database: Default SQL Location Log file: Default SQL Location

< Back Next > Cancel



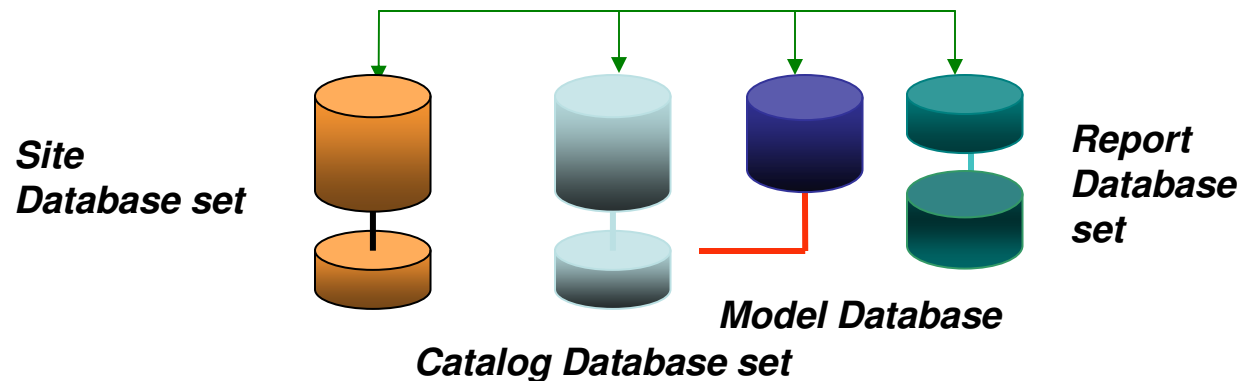
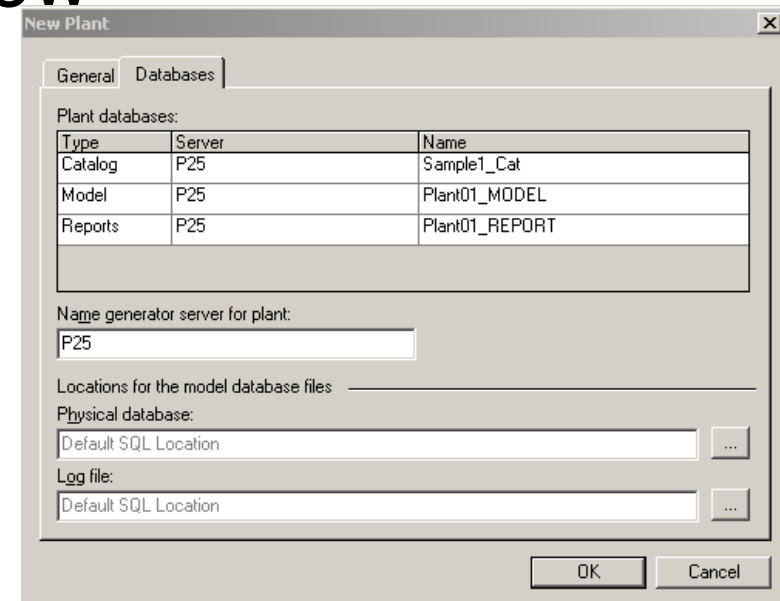
**Catalog Database  
Schema**

**Metadata from  
Catalogdb.dat**

## SP3D Databases - Overview

### Step 3

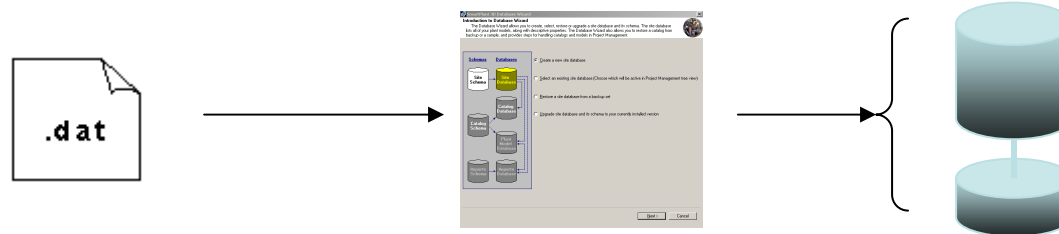
- A Model is created using the Project Management environment. This action creates a new model database and associates the Model to the desired catalog.
- The Report database and schema are created in this step.



# Catalog Database

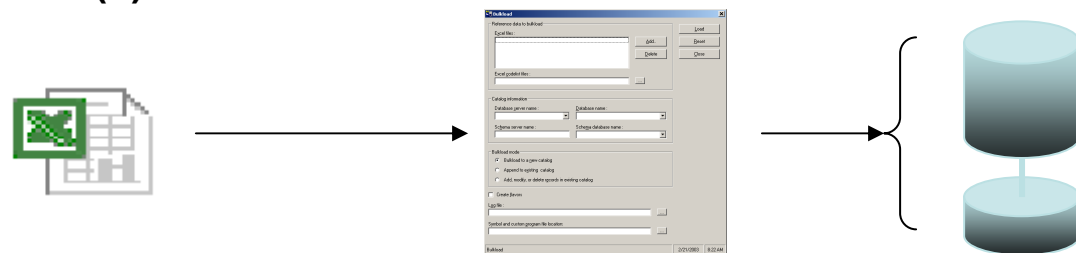
## Database Wizard:

Quick restorable Catalog Database set that contains all Intergraph delivered sample data or restore your our CatalogUser.dat



## Bulkload Utility:

Creates new Catalog Database(s), and is used to maintain existing Catalog Database(s).



# Catalogdb.Dat (SQL Backup Database)

## Reference Data

- Parts (Equipment, Piping, HVAC, Cable tray, Structure, etc..)
  - Rules (piping specifications, slabs specifications, etc...)
  - Generic data tables
  - Labels and report definition
  - IFC Rules
  - Naming rule definition
- and so on.....



# Using Excel Workbooks to Configure Reference Data:

**All non-graphical SmartPlant 3D *reference data* is stored in Microsoft Excel Workbooks. The default location for reference data workbooks is *[Product Directory]\Catalog Data\BulkLoad\DataFiles*.**

**For example,**

AllCodelist.xls

AllCommon.xls

ModuleTypes.xls

GenericNamingRules.xls

Reports.xls

IFCRule.xls

InsulationData.xls

Drawings.xls

BulkLoadIsoKeys.xls

Equipment.xls

EquipmentComponent.xls

Standard Nozzle Data.xls

Shapes.xls

# Using Excel Workbooks to Configure Reference Data: (Cont.)

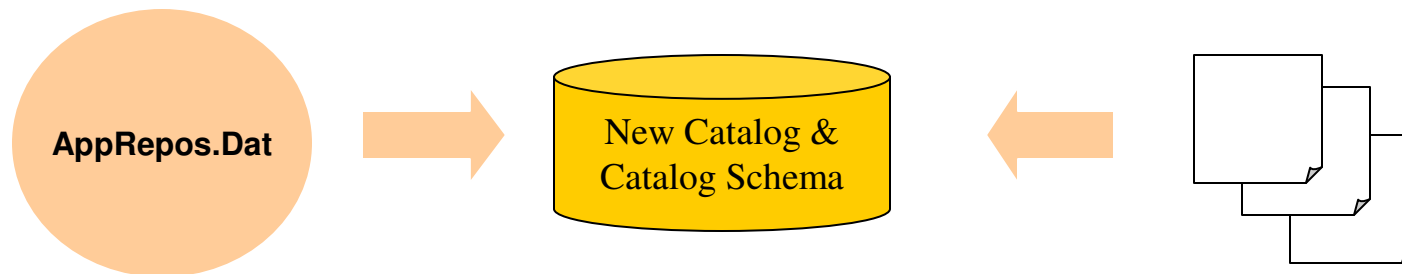
**Additional Reference Data is located in *[Product Directory]*  
*\CatalogData\BulkLoad\AdditionalDataFiles\* and  
*[Product Directory]\CatalogData\BulkLoad\SampleDataFiles***

Equipment\_SE.xls

Electrical Equipment.xls

# Catalog Database Creation

## Bulk Load Utility



To add reference data to the catalog, you use the Bulkload utility to transfer Excel workbook data into the *Catalog Database*.

**Reference Data**

**Excel workbooks**

# Bulkload Utility

The Bulkload Utility provides the primary mechanism to create/add/modify the catalog database. The data for creating the database is defined using Excel workbooks.

## Bulkload Mode:

- **Bulkload to a new catalog:** is used for creating new catalog database
- **Append:** Add new data only
- **Add/Modify/Delete:** is used for update data
- **Delete & Replace:** is used to replace data in the database with the data currently in the workbooks

The screenshot shows the 'Bulkload' utility window. It has a title bar with a close button. The main area is divided into several sections:

- Reference data to bulkload:**
  - Excel files:** A text box with 'Add...' and 'Delete' buttons.
  - Excel codelist files:** A text box with 'Add...' and 'Delete' buttons.
- Bulkload mode:** Four radio buttons:
  - ☒ Bulkload to a new catalog
  - ☐ Append to existing catalog
  - ☐ Add, modify, or delete records in existing catalog
  - ☐ Delete and replace records in existing catalog
- ☐ Create flavors
- Catalog information:** Two dropdown menus: 'Database server name:' and 'Database name:'.
- Schema information:** A text box for 'Template file to be used to create schema:' with a browse button (...).
- Log file:** A text box with a browse button (...).
- Symbol and custom program file location:** A text box with a browse button (...).

On the right side, there are three buttons: 'Load', 'Reset', and 'Close'.

## Bulkload Utility

### Create New Catalog

- Bulkload to a new catalog

**Bulkload**

Reference data to bulkload

Excel files:

E:\Program Files\SmartPlant\3D\CatalogData\Bulkload\Datafiles\Pipin  
E:\Program Files\SmartPlant\3D\CatalogData\Bulkload\Datafiles\AllCo  
E:\Program Files\SmartPlant\3D\CatalogData\Bulkload\Datafiles\Equip

Add... Delete

Excel code list files:

E:\Program Files\SmartPlant\3D\CatalogData\Bulkload\Datafiles\AllCo

Add... Delete

Bulkload mode

☒ Bulkload to a new catalog

☐ Append to existing catalog

☐ Add, modify, or delete records in existing catalog

☐ Delete and replace records in existing catalog

☐ Create flavors

Catalog information

Database server name: RHIM\HSERVER1 Database name: NewCatalog

Schema information

Template file to be used to create schema:

E:\Program Files\SmartPlant\3D\Database Templates\AppRepos.dat

Log file:

E:\Program Files\SmartPlant\3D\CatalogData\Bulkload\Datafiles\Cat2.log

Symbol and custom program file location:

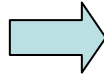
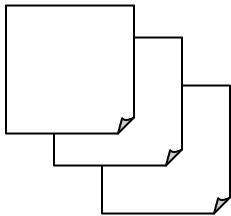
E:\Program Files\SmartPlant\3D\CatalogData\Symbols

Load Reset Close

# CatalogDB.Dat

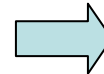
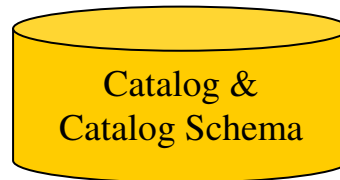
## Step 1

Company Excel  
sheets



## Step 2

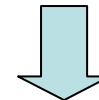
Bulk Load Utility



## Step 3

SQL Enterpriser Manager

Backup Catalog  
Backup Catalog Schema



UserCatalogdb.dat

# Bulkload Utility

## Mode:

- **Append**
- **Add/Modify/Delete**
- **Create Flavors**

Flavors apply to  
Solid Edge parts only.

**You should close all Excel workbooks  
before starting the bulkload. Do not  
open Excel during the bulkload.**

The screenshot shows the 'Bulkload' utility window with the following sections:

- Reference data to bulkload:**
  - Excel files:** A list box containing three file paths. To the right are 'Add...' and 'Delete' buttons.
  - Excelodelist files:** A list box containing one file path. To the right are 'Add...' and 'Delete' buttons.
- Bulkload mode:** Four radio buttons:
  - ☐ Bulkload to a new catalog
  - ☐ Append to existing catalog
  - ☒ Add, modify, or delete records in existing catalog
  - ☐ Delete and replace records in existing catalog
- ☐ **Create flavors**
- Catalog information:**
  - Database server name:** A dropdown menu showing 'RHIM\HSERVER1'.
  - Database name:** A dropdown menu showing 'Cat2'.
- Schema information:**
  - Catalog schema server:** A dropdown menu showing 'RHIM\HSERVER1'.
  - Catalog schema database:** A dropdown menu showing 'Cat2\_SCHEMA'.
- Log file:** A text box containing 'E:\Program Files\SmartPlant\3D\CatalogData\Bulkload\Datafiles\Cat2.log' with a file icon button to the right.
- Symbol and custom program file location:** A text box containing 'E:\Program Files\SmartPlant\3D\CatalogData\Symbols' with a file icon button to the right.

On the right side of the window, there are four buttons: 'Load', 'Reset', 'Close', and 'Cancel'.

## Bulkload Utility

### Lab

The screenshot shows the 'Bulkload' utility window. It contains several sections for configuring a bulkload operation:

- Reference data to bulkload:**
  - Excel files:** A list box containing three file paths. To the right are 'Add...' and 'Delete' buttons.
  - Excel godelist files:** A list box containing one file path. To the right are 'Add...' and 'Delete' buttons.
- Bulkload mode:** Four radio buttons:
  - ☐ Bulkload to a new catalog
  - ☐ Append to existing catalog
  - ☒ Add, modify, or delete records in existing catalog
  - ☐ Delete and replace records in existing catalog
- ☐ **Create flavors**
- Catalog information:** Two dropdown menus:
  - Database server name: RHIM\HSERVER1
  - Database name: Cat2
- Schema information:** Two dropdown menus:
  - Catalog schema server: RHIM\HSERVER1
  - Catalog schema database: Cat2\_SCHEMA
- Log file:** A text field with the path 'E:\Program Files\SmartPlant\3D\CatalogData\Bulkload\Datafiles\Cat2.log' and a file icon button.
- Symbol and custom program file location:** A text field with the path 'E:\Program Files\SmartPlant\3D\CatalogData\Symbols' and a browse button.

On the right side of the window, there are four buttons: 'Load', 'Reset', 'Close', and 'Cancel'.



## Module Types

The screenshot shows the 'Modules' dialog box in the SmartPlant 3D software. The dialog box has a tree view on the left showing the hierarchy of module types. The 'Equipment' folder is expanded, showing 'Conveyor System', 'Heat Exchanger', and 'Mixing Tank'. The 'Piping' folder is also expanded, showing 'Drain Arrangement', 'Pump Discharge Arrangement', 'Pump Suction Arrangement', and 'Vent Arrangement'. A blue bracket on the right side of the tree view groups the 'Piping' folder and its sub-items. The 'OK' and 'Cancel' buttons are at the bottom of the dialog box.

Below the dialog box is the 'types.xls' spreadsheet. The spreadsheet has a menu bar with 'Format', 'Tools', 'Data', 'Window', and 'Help'. The active cell is C15. The spreadsheet contains the following data:

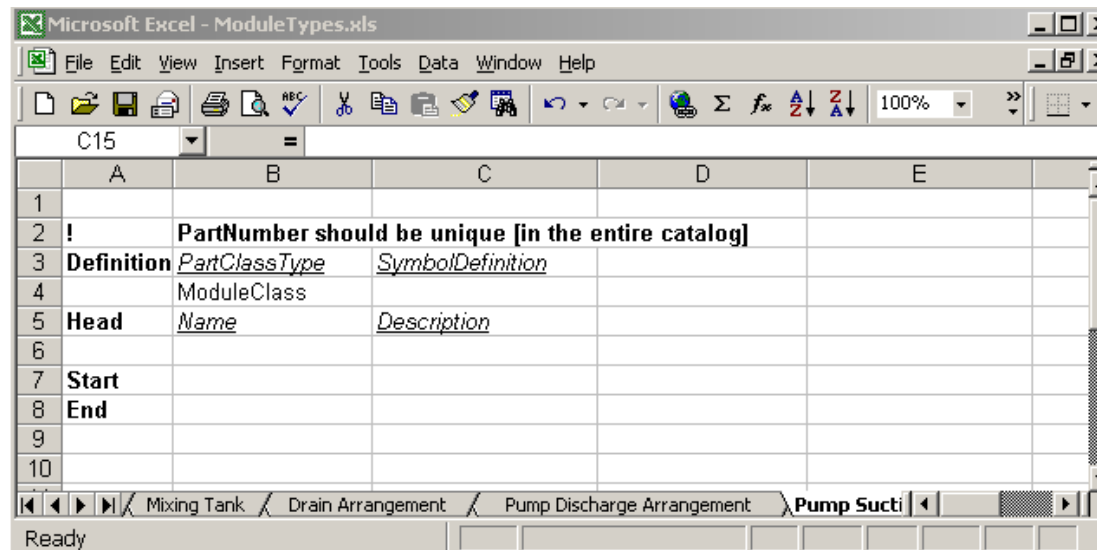
	A	B	C	D	E
1					
2	!	PartNumber should be unique [in the entire catalog]			
3	Definition	PartClassType	SymbolDefinition		
4		ModuleClass			
5	Head	Name	Description		
6					
7	Start				
8	End				
9					
10					

At the bottom of the spreadsheet, there is a tab bar with the following tabs: 'Mixing Tank', 'Drain Arrangement', 'Pump Discharge Arrangement', and 'Pump Suction Arrangement'. The 'Pump Suction Arrangement' tab is currently selected.

# Using Excel Workbooks to Configure Catalog Data

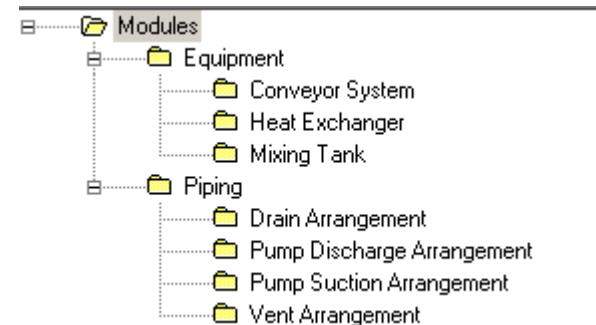
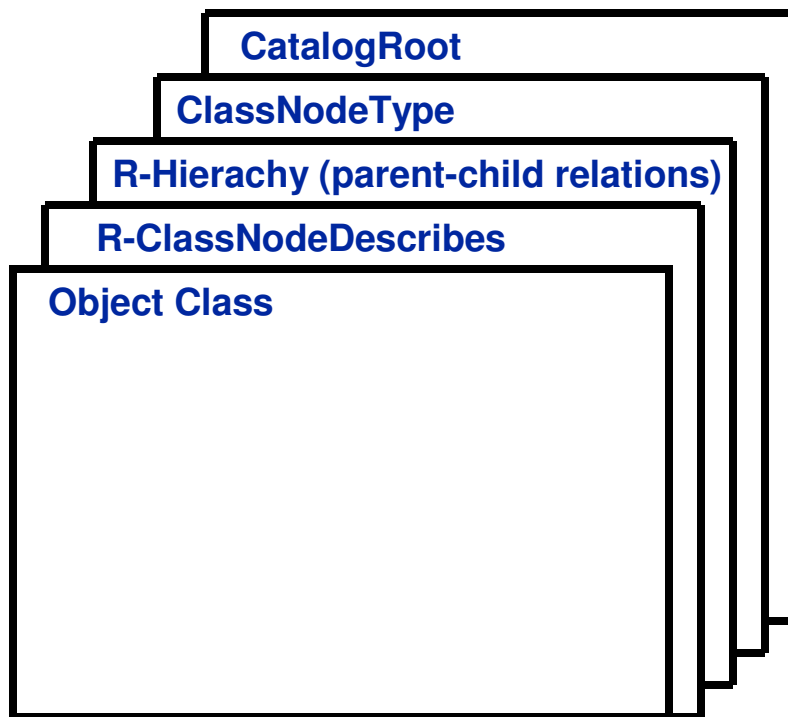
## Bulkload Excel Format

- The “Head”, “Start” and “End” are always required in the first column. One can have as many empty rows as he/she wants to, anywhere in the sheets. Comments can be put by putting “!” in the first cell of the row in which the comment needs to be put.
- Letter bulkload mode A,M,D



# Using Excel Workbooks to Configure Catalog Data

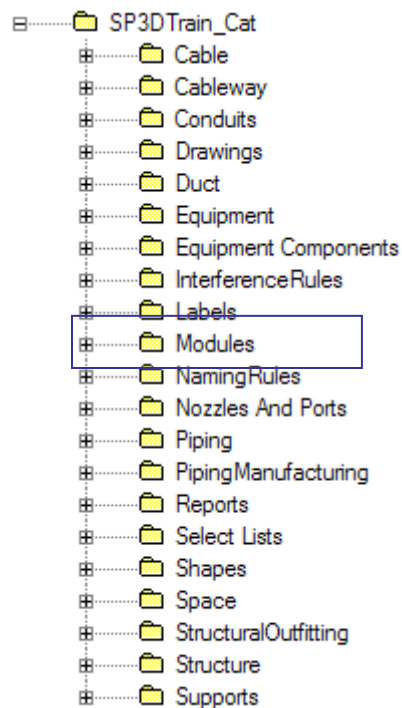
## Common Sheets



# Using Excel Workbooks to Configure Catalog Data

## Catalog Hierarchy

### •CatalogRoot



# Using Excel Workbooks to Configure Catalog Data

## ClassNodeType

allows you to create a classification folders in the Catalog hierarchy.

- **Object Name column:** folder object name
- **Name column:** folder name in the GUI.

Head	<u>ObjectName</u>	<u>Name</u>
Start		
	Equipment Modules	Equipment
	Piping Modules	Piping
End		

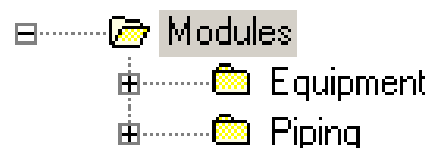
# Using Excel Workbooks to Configure Catalog Data

## R-Hierarchy

contains the parent-child relationships between folders in the Catalog Hierarchy.

- **RelationSource column:** specifies the parent object names.
- **RelationDestination column:** specifies the children object names.

Head	<u>RelationSource</u>	<u>RelationDestination</u>
Start		
	CatalogRoot	RefDataModulesRoot
	RefDataModulesRoot	Equipment Modules
	RefDataModulesRoot	Piping Modules
End		



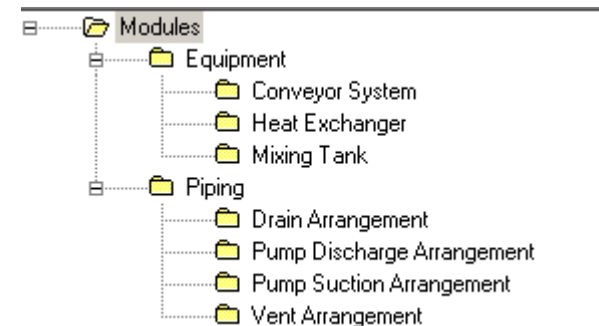
# Using Excel Workbooks to Configure Catalog Data

## R-ClassNodeDescribes

Defines the parent-child relationships between the classification folders and the part classes.

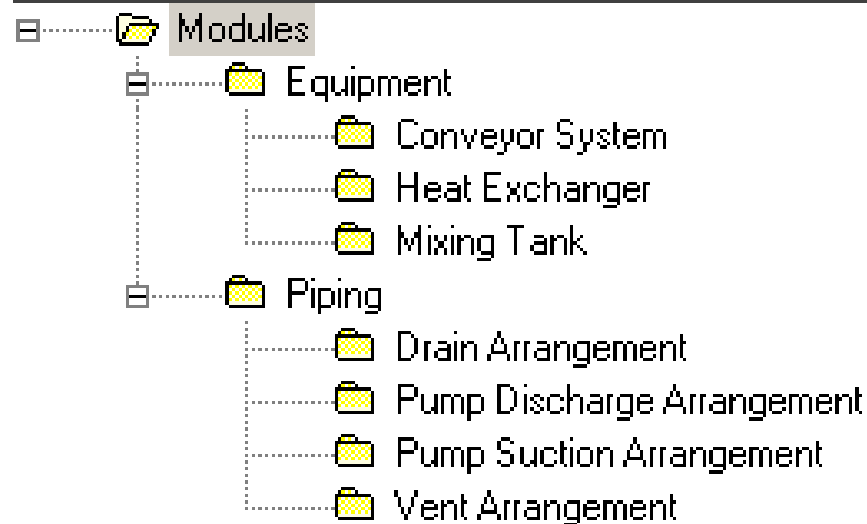
- **RelationSource column:** specifies the classification folder.
- **RelationDestination column:** specifies the object classes associated with the classification folder.

Head	<i>RelationSource</i>	<i>RelationDestination</i>
Start		
	Equipment Modules	Conveyor System
	Equipment Modules	Heat Exchanger
	Equipment Modules	Mixing Tank
	Piping Modules	Drain Arrangement
	Piping Modules	Pump Discharge Arrangement
	Piping Modules	Pump Suction Arrangement
	Piping Modules	Vent Arrangement
End		



# Using Excel Workbooks to Configure Catalog Data

## Lab

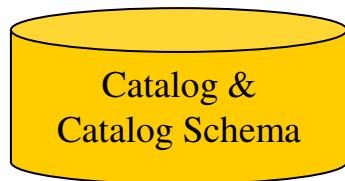




# Reference Data Management

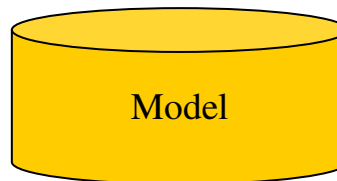
## Step 1

**Bulk Load Utility**



## Step 2

**View Generator Utility or  
Synchronize Model with  
Catalog Command**



## Step 3

**Re-generate the  
reports database  
command**



- Bulk load utility will update the views in the catalog database
- View Generator Utility will update the views in the model database
- Synchronize model with catalog command will update the views and re-compute all the part occurrences in the model
- Re-generate the report database command will re-generate the views in the model.

# Organizational Hierarchy Sheets

Hierarchy sheets provide the means to manage which items and where items are displayed in the Catalog Task.

The screenshot shows the 'Select Equipment' dialog box in the SmartPlant 3D software. The 'Address' field is set to '\Equipment\Mechanical\Pumps\Pump'. The left pane displays a tree view of the equipment hierarchy, with 'Pumps' expanded. The right pane shows a list of equipment items with their names and symbol definitions. A blue bracket highlights the 'Pumps' folder in the tree view. Below the dialog box, an 'Organizational Hierarchy Sheet' is visible, showing a table of equipment items and their GUIDs. The table has columns for 'Name', 'Symbol Definition', and 'GUIDs'. The 'GUIDs' column is highlighted with a blue box.

Name	Symbol Definition	GUIDs
PUMP 001A-E	SP3DPumpAsm.CPumpSym	681-00C8-56B76F1BEEF2}
PUMP 001A_IMP-E	SP3DPumpAsm.CPumpSym	
CPump002A&x6-E	SP3DPumpAsm.CPumpSym	
PUMP 001AM-E	SP3DPumpMAsm.CPumpMSym	
PUMP 001A_IMPM-E	SP3DPumpMAsm.CPumpMSym	
CPump002A&x6M-E	SP3DPumpMAsm.CPumpMSym	

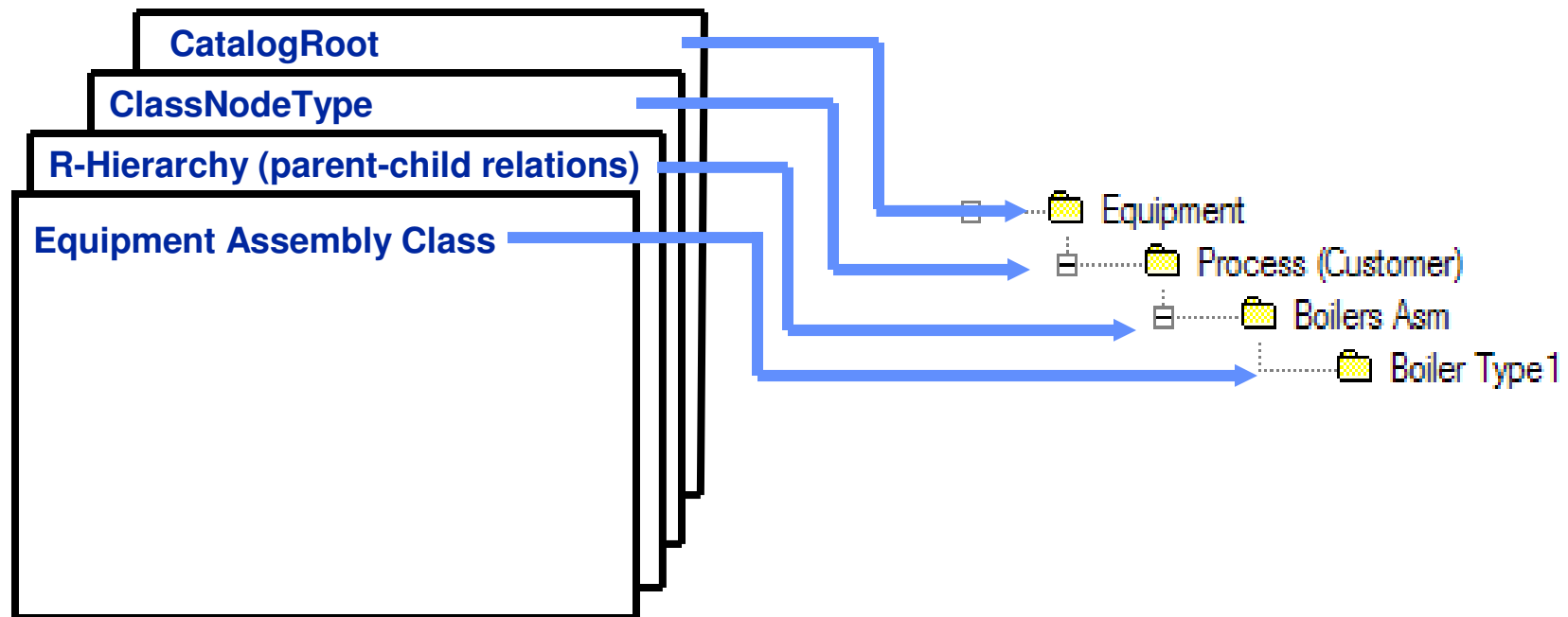
  

	Name	Symbol Definition	GUIDs
9	IJDynamicPipePort12	{F4D3DFDC-28B7-47E9-AA7C-344DE8B58EE2}	
10	IJUACoatingInfo2	{47A42A01-095B-41DB-BB80-DEC6A7109F68}	
11	IJUACapacity	{7EF078D9-B422-4176-8E79-C357B2FA89AF}	
12	IJUAFlowRate	{0BA19308-6C0D-4A58-80C9-B505228C4019}	
13	IJUAPowerConsumpti	{EF9B3A9F-3720-4697-8F20-D2F503932C09}	
14	IJUAPowerGeneration	{C3A1F-A687-4E13-6777-4FC3B4CF609F}	

The 'Organizational Hierarchy Sheet' is a table with columns for 'Name', 'Symbol Definition', and 'GUIDs'. The 'GUIDs' column is highlighted with a blue box. The table contains data for various equipment items, including 'IJDynamicPipePort12', 'IJUACoatingInfo2', 'IJUACapacity', 'IJUAFlowRate', 'IJUAPowerConsumpti', and 'IJUAPowerGeneration'.

# Using Excel Workbooks to Configure Catalog Data

## Common Sheets

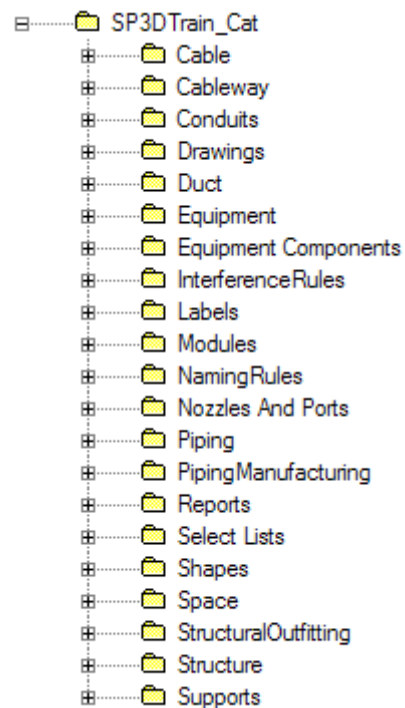


**A Equipment Assembly Class is a grouping of items that share similar characteristics**

# Using Excel Workbooks to Configure Catalog Data

## Catalog Hierarchy

### CatalogRoot



Head	Name
Start	
	CatalogRoot
	Structure
	Equipment
	Piping
	Duct
	Cable
	Cableway
	Space
	Supports
	StructuralOutfitting
End	

# Using Excel Workbooks to Configure Catalog Data

## ClassNodeType

allows you to create a classification folders in the Catalog hierarchy.

- **Object Name column:** folder object name
- **Name column:** folder name in the GUI.

Head	<u>ObjectName</u>	<u>Name</u>
Start		
	Process (Customer)	Process (Customer)
	Boilers Asm	Boilers Asm

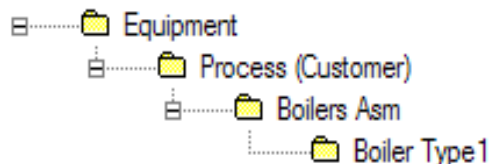
# Using Excel Workbooks to Configure Catalog Data

## R-Hierarchy

contains the parent-child relationships between folders in the Catalog Hierarchy.

- **RelationSource column:** specifies the parent object names.
- **RelationDestination column:** specifies the children object names.

Head	<u>RelationSource</u>	<u>RelationDestination</u>
Start		
	CatalogRoot	RefDataEquipmentRoot
	RefDataEquipmentRoot	Process (Customer)
	Process (Customer)	Boilers Asm
	Boilers Asm	BoilerType1



# Using Excel Workbooks to Configure Catalog Data- Part Class Sheet

**Equipment Assembly Class is a grouping of smart items that share similar characteristics**

	A	B	C	D	E	F	G	H
1								
2	!							
3	!	PartNumber should be unique [in the entire catalog]						
4								
5								
6	Definition	<u>PartClassType</u>	<u>SymbolDefinition</u>	<u>UserClassName</u>	<u>OccClassName</u>	<u>SymbolIcon</u>	<u>Nozzle(1).Id</u>	<u>Nozzle(1).Type</u>
7		EquipmentAssemblyClass	SP3DPumpAsm.CPumpSym	Pump	Pump	SymbolIcons\SP3DPumpAsm.gif	Suction	Piping
8								
9								
10								
11								
12								
13	Head	<u>Name</u>	<u>PartDescription</u>	<u>MirrorBehaviorOption</u>	<u>ReplacementPartNumber</u>	<u>ProcessEqTypes5</u>	<u>SymbolDefinition</u>	<u>Definition</u>
14								
15	Start							
16		PUMP 001A-E	Centrifugal Pump, 250mm suction, 200mm discharge	50	PUMP 001AM-E	370		SP3DPumpAsm.CPumpDef
17		PUMP 001A_IMP-E	Centrifugal Pump, 10" suction, 8" discharge	50	PUMP 001A_IMPM-E	370		SP3DPumpAsm.CPumpDef
22	End							
23								

# Class Definition

<b>Part Class Type:</b>	Type of Class (Example: EquipmentAssemblyClass)
<b>Symbol Definition:</b>	Default Geometric definition for all the parts under this class
<b>SymbolIcon:</b>	Specifies a graphic file for the preview dialog of the part class
<b>UserClassName:</b>	Sets the user name for the part class that appears in the Catalog Browser.
<b>OccClassName:</b>	Sets the occurrence name for the part class that appears in the filter dialog box.
<b>Port ID's:</b>	Defines the port ID
<b>Port Type:</b>	Defines the port Type
<b>Occurrence Attributes:</b>	are properties that you can change for a specific part in the model.



# Parts

Part section consists of the following:

- Common Properties
- Custom Assembly Definition
- Custom Properties
- Port Data

	A	B	C	D	E	F	G	H
1								
2	!							
3	!	PartNumber should be unique [in the entire catalog]						
4								
5								
6	Definition	<u>PartClassType</u>	<u>SymbolDefinition</u>	<u>UserClassName</u>	<u>OccClassName</u>	<u>SymbolIcon</u>	<u>Nozzle(1).Id</u>	<u>Nozzle(1).Type</u>
7								
8		EquipmentAssemblyClass	SP3DPumpAsm.CPumpSym	Pump	Pump	SymbolIcons\SP3DPumpAsm.gif	Suction	Piping
9								
10								
11								
12								
13	Head	<u>Name</u>	<u>PartDescription</u>	<u>MirrorBehaviorOption</u>	<u>ReplacementPartNumber</u>	<u>ProcessEqTypes5</u>	<u>SymbolDefinition</u>	<u>Definition</u>
14								
15	Start							
16		PUMP 001A-E	Centrifugal Pump, 250mm suction, 200mm discharge	50	PUMP 001AM-E	370		SP3DPumpAsm.CPumpDef
17		PUMP 001A_IMP-E	Centrifugal Pump, 10" suction, 8" discharge	50	PUMP 001A_IMPM-E	370		SP3DPumpAsm.CPumpDef
22	End							
23								

Navigation bar: PumpAsm / HorizontalCentPumpAsm / HorCFJacketedPumpAsm / HorCFPumpAsm / PumpUnitHCAsm / VerticalPumpAsm / StorageTankAsm / HorizontalDrumAsm / VerticalDrumAsm / VVAirDistrib

# Code List

**Codelists** – Key or common terms that have been grouped and enumerated.

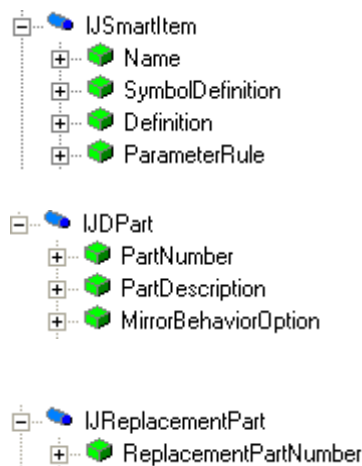
## Key Columns:

- Short/Long Description
- Codelist Number
- Sort Order (Not used in 6.0)

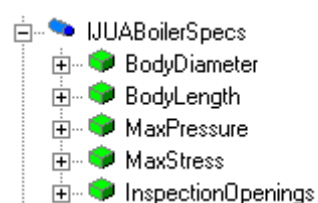
	SupplyResponsibility ShortDescription	SupplyResponsibility LongDescription	Codelist Number	Sort Order
HEAD				
START				
	Undefined	Undefined	1	
	Contractor	By Contractor	2	
	Owner	By Owner	3	
	Equipment Vendor	By Equipment Vendor	9	
	Vendor	By Vendor	10	
	Piping	By Piping	15	
	Instruments	By Instruments	16	
	Fabrication Shop	By Fabrication Shop	20	
	Others	By Others	25	
END				

## Equipment Data Model

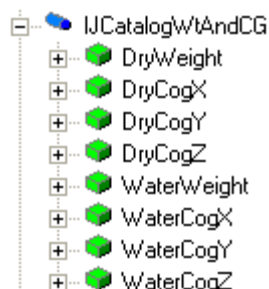
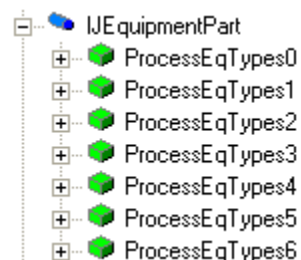
### Common Properties



### Custom Properties

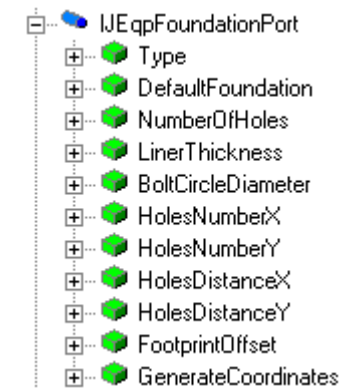
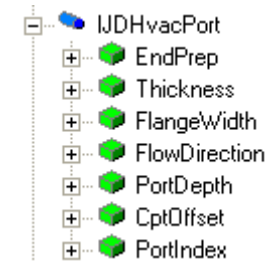
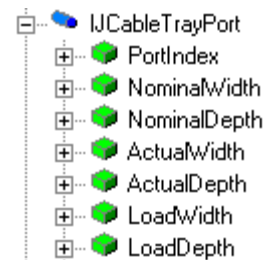
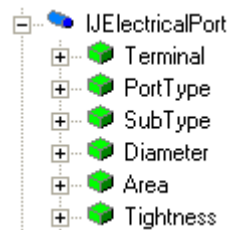
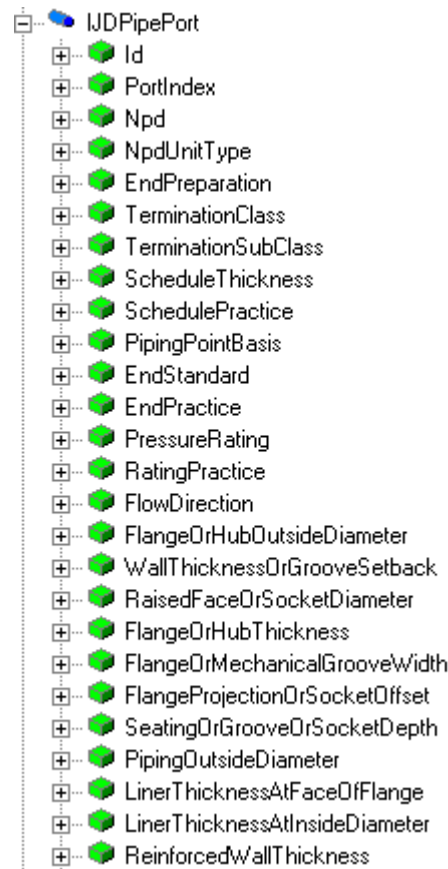


The **Custom Interfaces** sheet defines the customized user interfaces and attributes (properties) for the part classes.



# Equipment Data Model

## Port Properties



## Custom Interfaces Sheet

<u>AttributeName</u>	<u>AttributeUserName</u>	<u>Type</u>	<u>UnitsType</u>	<u>PrimaryUnits</u>	<u>CodeList</u>	<u>CodeListTableName</u>	<u>OnPropertyPage</u>	<u>ReadOnly</u>	<u>SymbolParameter</u>
CoatingArea	Coating Area	Double	Area	m^2			1	0	
MaxCapacity	Maximum Capacity	Double	volume	m^3			1	0	
FlowRate	Flow Rate	Double	flow rate	m^3/s			1	0	
VesselDiameter	Vessel Diameter	Double	Distance	mm			1	0	VesselDiameter
DomeHeight	Dome Height	Double	Distance	mm			1	0	DomeHeight
DomeHeight1	Dome Height 1	Double	Distance	mm			1	0	DomeHeight1
VesselStartPoint	Vessel Start Point	Double	Distance	mm			1	0	VesselStartPoint

- The Custom Interfaces sheet defines the customized user interfaces and attributes (properties) for the part classes in the workbook.
- An interface is a collection of attributes.
- Provides a mechanism to map the attributes of the part class to the symbol inputs.
- When you bulk load the workbook, the software looks at each user attribute on the class sheets and uses the Custom Interfaces sheet to decode the information.

# Custom Interfaces Sheet

<u>InterfaceName</u>	<u>CategoryName</u>	<u>AttributeName</u>	<u>AttributeUserName</u>
IJUAVessel	EquipmentDimensions	VesselDiameter	Vessel Diameter
		VesselLength	Vessel Length
		VesselCenterHeight	VesselCenterHeight
		DomeHeight	Dome Height
IJUAImpeller		ImpellerDiameter	Impeller Diameter
		ImpellerWidth	Impeller Width

- **Category Name (CodeList)**
- **Attribute Name**
- **Attribute User Name**

**Equipment Properties**

Occurrence | Definition | Connection | Insulation | Relationship | Configuration | Notes

Category: EquipmentDimensions

Standard  
EquipmentDimensions

Attribute Name	Value
Vessel Diameter	6 ft 6.74 in
Vessel Length	50 ft 0.00 in
VesselCenterHeight	
Dome Height	1 ft 11.62 in
Nozzle Length	2 ft 3.56 in
Nozzle Length 2	2 ft 3.56 in
Nozzle Length 3	
Nozzle Length 4	
Nozzle Length 5	
Nozzle Length 6	

OK Cancel Apply

# Custom Interfaces Sheet

An attribute with the same name can exist on more than one interface. On a part class sheet, you can scope the user attributes based on their interfaces and symbol parameters. The scoping syntax is

**Interface::UserAttribute<Symbol Parameter>.**

<u>InterfaceName</u>	<u>AttributeName</u>	<u>AttributeUserName</u>	<u>Type</u>	<u>UnitsType</u>	<u>PrimaryUnits</u>	<u>OnProperty</u>	<u>ReadOnly</u>	<u>SymbolParameter</u>
IJUAEqpParmOcc	var_a	A	Double	Distance	mm	1	0	TankLength
	var_b	B	Double	Distance	mm	1	0	NozzleLength

<u>oa:var_a&lt;TankLength&gt;</u>	<u>oa:IJUAEqpParmOcc::var_b&lt;NozzleLength&gt;</u>
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<u>var_a&lt;TankLength&gt;</u>	<u>IJUAEqpParmOcc::var_b&lt;NozzleLength&gt;</u>
3ft	8in

# Custom Interfaces Sheet

When an object uses a single attribute from an interface, the object also inherits all the attributes for that interface regardless of whether the object uses the other attributes.

<u>InterfaceName</u>	<u>CategoryName</u>	<u>AttributeName</u>	<u>AttributeUserName</u>
IJUAVessel	EquipmentDimensions	VesselDiameter	Vessel Diameter
		VesselLength	Vessel Length
		VesselCenterHeight	VesselCenterHeight
		DomeHeight	Dome Height
IJUAImpeller		ImpellerDiameter	Impeller Diameter
		ImpellerWidth	Impeller Width

The screenshot shows the 'Equipment Properties' dialog box with the 'Definition' tab selected. The 'Category' dropdown is set to 'EquipmentDimensions'. Below the dropdown, a table lists various attributes and their values:

Attribute	Value
Vessel Diameter	6 ft 6.74 in
Vessel Length	50 ft 0.00 in
VesselCenterHeight	
Dome Height	1 ft 11.62 in
Nozzle Length	2 ft 3.56 in
Nozzle Length 2	2 ft 3.56 in
Nozzle Length 3	
Nozzle Length 4	
Nozzle Length 5	
Nozzle Length 6	

At the bottom of the dialog are buttons for 'OK', 'Cancel', and 'Apply'.