

# SmartPlant Instrumentation

## Roadmap – SPI 2016

### Houston SPI LTUF

Guy Masin,  
SmartPlant Instrumentation Product Owner  
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Process, Power & Marine Division



- SPI v2016
  - Integration
  - Query Builder / EDE
  - Project / As Build (PAB)
  - UDF / UDT Editor
- SPI v2016 R1
- SPI v2018

## **Enhanced To-Do List (E-TDL), business drives and benefits**

- Improve the readability of retrieved information
- Enhanced Functionality and user experience

# Enhanced To-Do List Design – Document List

Search

Drag a column header and drop it here to group by that column

Document Name	Source Application	Retrieve Date	User	Revision	Version	Active Tasks	Inactive Tasks
IntergraphPPM1	SmartPlant P&ID	2/9/2015 1:39:00 PM	DBA	A1	2	3	0
MEX Test	SmartPlant P&ID	2/9/2015 1:39:00 PM	DBA	13	1	5	0
Flow Loop	SmartPlant P&ID	2/9/2015 1:39:00 PM	DBA	13	2	17	0

Double Click

Color Coded

Document List P&IDs

Displaying Rows: 3  
Selected Rows: 0

Documents List PID Drawing Inactive Tasks

P&ID - Flow Loop

# Enhanced To-Do List Design – P&ID Navigation

**To Do List**

Search

Drag a column header and drop it here to group by that column

Document Number (Name)	Instrument Name	Piping Port (Nan	Process Equipn	Loop Name
Flow Loop	U1-FT -500			
Flow Loop	U1-FIC -500			
Flow Loop	1-FE -500			
Flow Loop	1-FE -500			
Flow Loop	1-FY -500			
Flow Loop	1-FV -500			
Flow Loop	U1-FV -500			
Level Loop	U1-LSH -1600		U1--V-1600	U1-L-1600
Level Loop	U1-LIC -1600		U1--P-1600	U1-L-1600
Level Loop	T -1600		U1--V-1600	U1-L-1600

Displaying Rows: 10  
Selected Items: 1

Documents List | PID Drawing | Inactive Tasks

**P&IDs**

**PID - Level Loop**

**PID - Flow Loop**

# Enhanced To-Do List Design – TDL Layout

The screenshot displays the 'To Do List' window in the software. The window contains a table with the following columns: Instrument Name, Piping Port (Name), Loop Name, Line Number, and Process Equipment. The table lists various tasks such as U1-HS -100, U1-JT -100, U1-FV -1800, U1-FV -1800, U1-FIC -1800, U1-FV -1600, U1-FE -1600, U1-PT -2000, U1-FV -1600, U1-LT -1700, and U1-FIC -1600.

Annotations include:

- EDE Actions:** A callout box pointing to the 'EDE Actions - To Do List' sidebar on the left.
- Drag & Drop for adding a column:** A callout box pointing to the table headers, with arrows indicating the process of dragging a header to group by that column.
- Task properties:** A callout box pointing to the 'Task Properties' window on the right, which shows details for 'Instrument - U1-FE -1600'.

Instrument Name	Piping Port (Name)	Loop Name	Line Number	Process Equipment
* U1-HS -100		* U1-C -100		
* U1-JT -100		* U1-C -100		
* U1-FV -1800		* U1-L -1700		* U1-V-1600
* U1-FV -1800	* 2			
* U1-FV -1800				
* U1-FIC -1800				
U1-FV -1800				
* U1-FE -1600	* 2			* O-198-3"-2D-N
* U1-FE -1600	* 1			* O-198-3"-2D-N
* U1-PT -2000				* O-198-3"-2D-N
U1-FV -1600	* 2			
U1-FV -1600	1			
* U1-LT -1700		* U1-L -1700		* U1-P-1600
* U1-FIC -1600				

Task Properties window details:

Property	New
Instrument Name	U1-FE -1600
Loop Name	U1-F -1600
Process Function	Flow
Line Number (Name)	198-3"-2D-N
Drawing	
Instrument Status Name	
Instrument Type	

# Enhanced To-Do List Design – Inactive Tasks

The screenshot shows the 'To Do List' window in the SmartPlant Instrumentation - SPIGM application. The window contains a table of tasks with columns for Task Type, Item Type, Item Name, Task Status, Source Document, PBS, Source Application, and Macro. The tasks are categorized into Completed, Deferred, Deleted, and Ignored. A callout bubble labeled 'Inactive Tasks' points to the 'Ignored' section, and another bubble labeled 'Restore' points to the 'Restore' button in the bottom toolbar.

Task Type	Item Type	Item Name	Task Status	Source Document	PBS	Source Application	Macro
<b>Completed Tasks 2</b>							
Create	Loop	U1-C -100	Completed	IntergraphPPM1	UNIT	SmartPlant P&ID	
Create	Instrument	U1-JT -100	Completed	IntergraphPPM1	UNIT	SmartPlant P&ID	
<b>Deferred Tasks 1</b>							
Create	Instrument	U1-HS -100	Deferred	IntergraphPPM1	UNIT	SmartPlant P&ID	
<b>Deleted Tasks 3</b>							
Create	PipingPort	2	Deleted	Flow Loop	UNIT	SmartPlant P&ID	
Create	PipingPort	1	Deleted	Flow Loop	UNIT	SmartPlant P&ID	
Create	Instrument	U1-FE -1600	Deleted	Flow Loop	UNIT	SmartPlant P&ID	
<b>Ignored Tasks 3</b>							
Create	PipingPort	2	New	MEX Test	UNIT	SmartPlant P&ID	
Create	Instrument	U1-FV -1800	New	MEX Test	UNIT	SmartPlant P&ID	FVExp
Create	PipingPort	1	New	MEX Test	UNIT	SmartPlant P&ID	

Displaying Rows: 9  
Selected Items: 1

Documents List | PID Drawing | **Inactive Tasks**

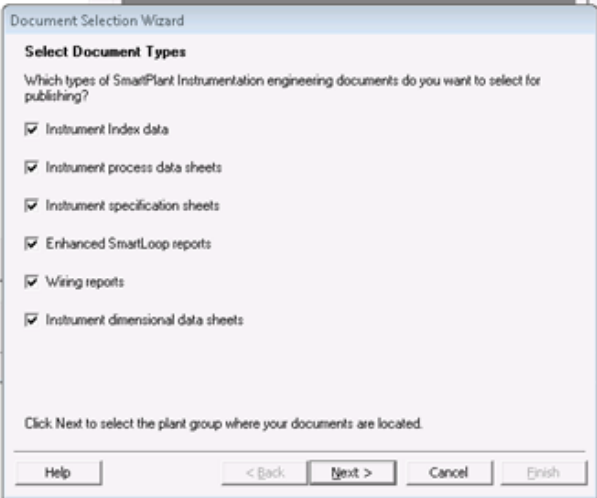
Properties | Run | Defer | Delete | Ignore | **Restore** | Refresh | View Actio... | Flat view | Tree view | Task View | Report | Regenerate...

- Completed
- Deferred
- Delete
- Ignored

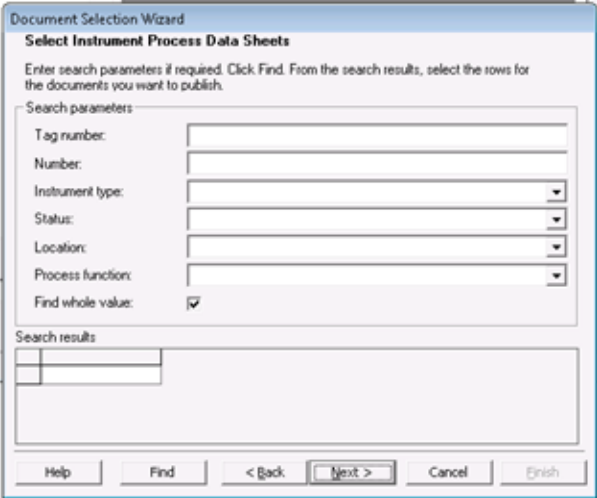
Inactive Tasks

Restore

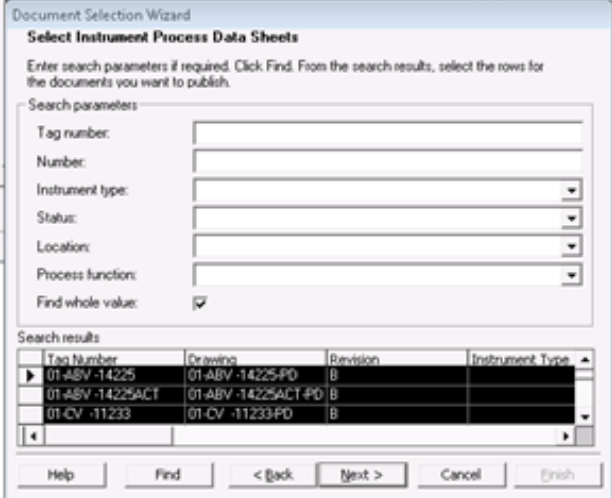
## The old UI had a specific un-customizable wizard



Need to determine which document types to publish



Choosing for each of the chosen document types which documents to publish



Very limited scroll area for selecting the document for publish



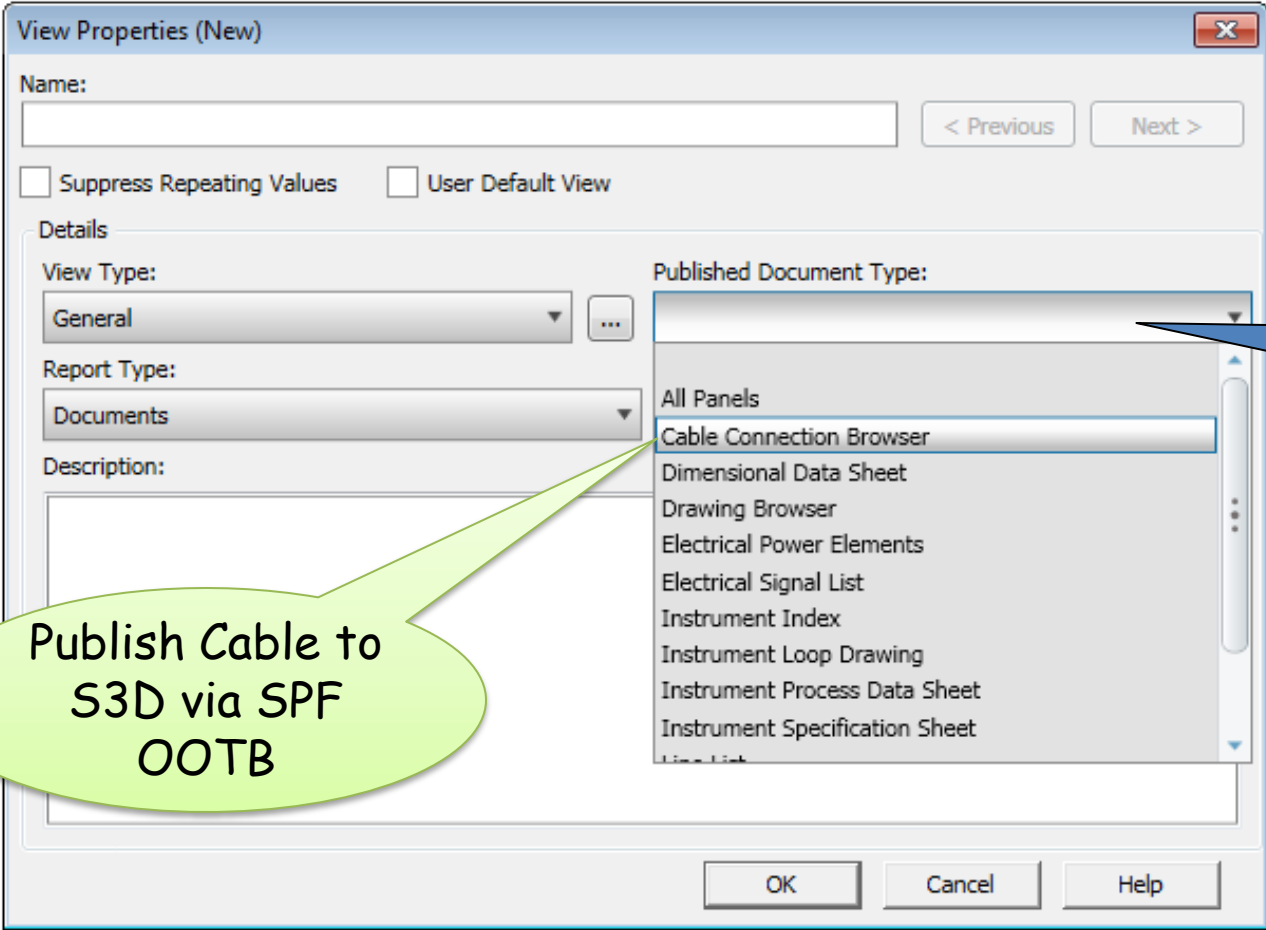
## The Old Wizard is replaced by a single flexible search window

The screenshot shows a software window titled "BrowsersModuleForm" with a search interface. At the top right, there is a search bar with the placeholder text "Enter search (Ctrl+F)" and a magnifying glass icon. Below the search bar, it says "Found 2 results". On the left, there is a section for "Item Type" set to "Document" and an "Advanced" search mode toggle. A dropdown menu is open, showing options: "Documents for publish", "Documents for publish", "PD Find Instrument Module", "Instrument Calculation", and "All documents". Below this is a table with columns: "Document", "Document Type", "Last Revision Number", and "Plant Hierarchy Path". The table contains two rows of data. At the bottom, there are "OK", "Cancel", and "Help" buttons. Three blue callout bubbles are overlaid on the image:

- Top right bubble: "Free search + highlight" (pointing to the search bar)
- Bottom left bubble: "Any customized query can be used Incl. all UDFs (document, revision)" (pointing to the dropdown menu)
- Bottom center bubble: "All document types" (pointing to the table)

Document	Document Type	Last Revision Number	Plant Hierarchy Path
LT -1552-PD	Instrument Process Data Sheet	P0	SPF44\Area1\Unit1
LT -1552-SP-	Instrument Specification Sheet	P0	SPF44\Area1\Unit1

## Define the EDE's Document type upon Creation

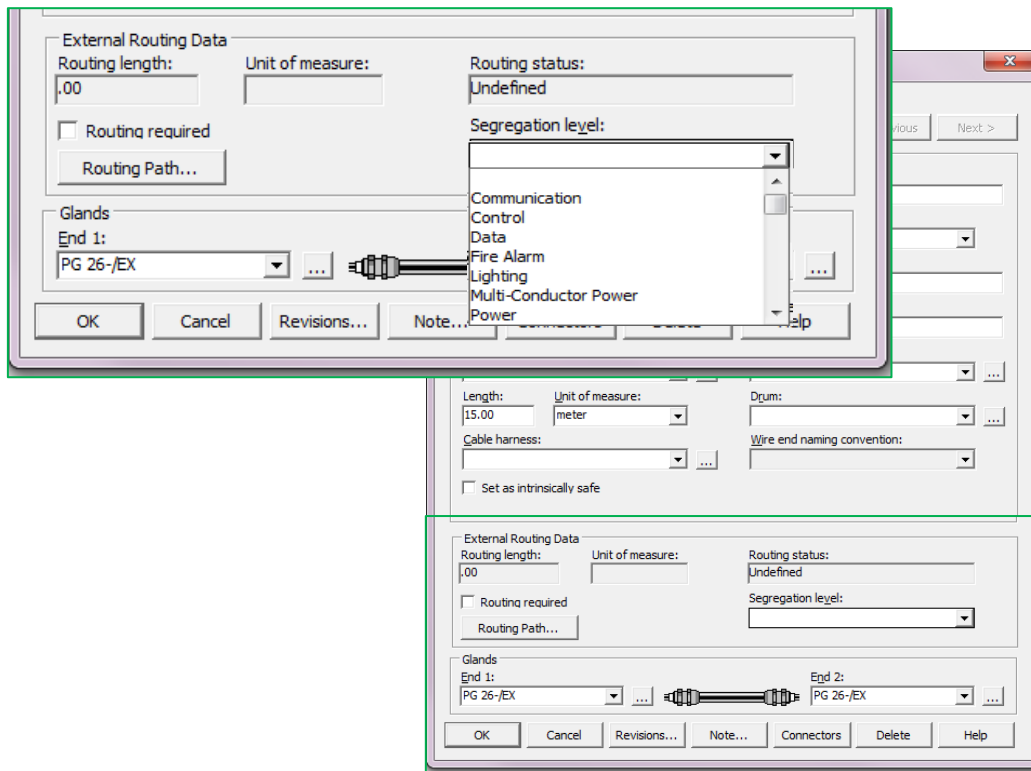


Publish Cable to S3D via SPF OOTB

Publish Document type

# SPI – S3D Cable integration

- Auto-route Instrumentation and Control (I&C) cables in S3D.
- Improve the design accuracy by retrieve the routed cable length and path from the S3D model.
- Harmonization - similar to SPEL – S3D integration but for I&C cables



- Updated information in the Cable properties
- Visible but un-editable in the EDE

- Extension to current supported ICC1 – supporting Publish / Retrieve capabilities of As Build information by.
- The functionality extension consists of:
  - Enable Projects to be integrated with SPF
  - Publish and Compare is supported (not able to retrieve data) on project level

## **Query Builder**, business drives and benefits

- Allows users to create instantly flexible queries within SPI
  - Knowledge of SPI is required but not data model
  - Simple to use and provides engineering and design context
- Replace the need for 3<sup>rd</sup> party tools as Infomaker etc...

# Query Builder - main screen

The screenshot shows the SmartPlant Instrumentation Query Builder interface. The main window is titled "Query Builder - Demo Basic Query".

- Item Types Explorer (Orange box):** A sidebar on the left containing a search bar and a list of item types such as "Binder Package Item List", "Cable", "Cable Set", "Calibration Results", "Channel", "Circuit", "Control System Tag", "Dimensional Data", "Document", "Domain", "Electrical Equipment", "Highest Plant Group", "Hook-Up", "Hook-Up Item", "Instrument", "Instrument External Document", and "Instrument Function Block".
- Relationship definition (Blue box):** A central diagram showing a hierarchy of relationships. An "Instrument" node is connected to three "Instrument" nodes, which are in turn connected to "Process Data - (Shared)", "Spec", and "Panel" nodes. A "Selected attributes" dialog box is open, listing "Instrument Name" and "Instrument Service".
- Attribute Explorer (Red box):** A sidebar on the right showing a search bar and a tree view of attributes for the selected "Instrument" item. The tree includes "Calibration Data", "Changes Tracking", "Custom Fields", "Fieldbus/Profibus/HART/Telecom", "General Properties", and "Identification". The "Identification" section is expanded, showing attributes like "Calibration Type", "CS Tag Instrument Type Alias", "Electrical Equipment Name", "Fieldbus/Profibus Segment", "Full Instrument Name for Sorting", "General Process Function Sub-Categc", "Instrument Criticality", "Instrument Criticality Name", "Instrument I/O Type", and "Instrument I/O Type Description".
- Query Attributes (Green box):** A section at the bottom showing a list of attributes for the query. Each attribute has a "Display attribute" checkbox and a "Sort" button. A "Sort" callout bubble points to the "Sort" button for the "Instrument Service" attribute. The attributes listed are:
  - Instrument: Instrument Name
  - Instrument: Instrument Service
  - Process Data - (Shared): Process Data Sheet Number, Document Number (Name)
  - Spec: Specification Number, Document Number (Name)
  - Panel: Junction Box, Panel Name
- Type Selection (Orange box):** A label pointing to the "Item Types Explorer" sidebar.
- Browser Columns (Green box):** A label pointing to the "Query Attributes" section.
- Item Properties (Red box):** A label pointing to the "Attribute Explorer" sidebar.

At the bottom of the window, there are buttons for "Save Query", "Preview", and "Arrange". The status bar shows "Ready" and the date/time "26/02/2015 11:24".

# Query Builder – Data Preview

Floating Preview

The screenshot displays the SmartPlant Instrumentation - DEMO (As-Built) interface. The main window shows a menu bar (File, Modules, QueryBuilder, Actions, SmartPlant, Tools, Window, Help) and a toolbar with various icons. Below the toolbar are several panes: Item Types Explorer, Browser - Instrument-loop, Wiring Module, Specifications Module, and Query. On the right side, there is an Attributes Explorer pane showing a tree view of instrument attributes: Instrument, name, General, Identification, Instrument Custom Fields, Instrument DCS, Instrument General, Instrument Other, and Safety. At the bottom right of the Attributes Explorer, there is a Reference Explorer and another Attributes Explorer pane. The date and time 06/05/2013 05:16 are displayed at the bottom right.

The Query Preview window is a floating window showing a table of instrument data. The table has the following columns: Instrument Name, Instrument Manufacturer, Instrument Model, Instrument Service, Loop Number, Line Number, and Line Type. The table contains 139 records.

Instrument Name	Instrument Manufacturer	Instrument Model	Instrument Service	Loop Number	Line Number	Line Type
101-FE -100	FISHER-PORTER		Feed from V-8	101-F -100	4"-P-1501-11H	PROCESS
101-FT -100	ROSEMOUNT	1151DP4E22S2B1M2	Feed from V-8	101-F -100	4"-P-1501-11H	PROCESS
101-FY -100	DANIEL		Feed from V-8	101-F -100		
101-FV -100	DANIEL		Feed from V-8 - test for compare	101-F -100	4"-P-1501-11H	PROCESS
101-PI -100	ASHCROFT	MGS-136	Heat exchanger inlet	101-P -100	4"-P-1501-11H	PROCESS
101-PI -102	ASHCROFT	MGS-136	Heat exchanger outlet	101-P -102	4"-P-1501-11H	PROCESS
101-HY -101	FISHER	461	C-101 Bypass	101-H -101		
101-HV -101	FISHER	ET	C-101 Bypass	101-H -101	3"-FO-1212-4C	PROCESS
101-FE -102			Feed from C-1 - test for compare	101-F -102	4"-P-1502-11H	PROCESS
101-FT -102	ROSEMOUNT	1151DP4E22S2B1M2	Feed from C-1	101-F -102	4"-P-1502-11H	PROCESS
101-PI -101	ASHCROFT	MGS-136	F-102 Stripper inlet	101-P -101	4"-P-1502-11H	PROCESS
101-TW -203			F-102 Overhead	101-T -203	4"-P-1503-11H	PROCESS
101-TI -203	ASHCROFT	EVERY-ANGLE-13/02	F-102 Overhead	101-T -203	1"-FL-5001-15	PROCESS
101-PSH -208	ASCO	8351B23	F-102 Overhead	101-P -208	1"-FL-5001-15	PROCESS
101-PT -201	ROSEMOUNT	3051S1256	F-102 TOP	101-P -201		
101-LT -201	MASONIELAN	9600	F-102 Middle section	101-L -201		
101-LY -201	FISHER	461	F-102 Middle section	101-L -201		
101-LV -201	FISHER	ED	F-102 Middle section	101-L -201	2"-C-1003-3C	PROCESS
101-TW -202			F-102 Top	101-T -202	3"-FO-1212-4C	PROCESS
101-TE -202	ASHFORD	TE-11-34/13	F-102 Top	101-T -202		
101-TT -202	ROSEMOUNT	3051S1256	F-102 Top	101-T -202		
101-TY -202	FISHER	461	F-102 Top	101-T -202		
101-TV -202	FISHER	V500	F-102 Top	101-T -202	1.5"-S-2001-4C	UTILITIES
101-TW -201			F-102 TOP	101-T -201	1.5"-S-2001-4C	UTILITIES

Total Records : 139

SPI main window

# Query Builder – SQL Editor

**View Only EDE**  
Reporting/ Filtering /Sorting capabilities

**Open**

**View Only**

**Convert**

**Actions for SQL**

- Open SQL Editor
- Convert to Query Builder
- Export to SQL
- Generate View Only EDE

**Convert to an editable EDE using the QB.**  
User will need to relate each item type couple

cmpnt_name	cmpnt_serv	loop_name
101-TELE -001	Tag for Telecom lab	
101-TELE -002	Tag	
101-TELE -003	Tag	
101-TELE -004	Tag for Telecom lab	
101-SPK -101	Tag for Telecom lab	
101-SPK -102	Tag for Telecom lab	
101-SPK -103	Tag for Telecom lab	
101-SPK -104	Tag for Telecom lab	

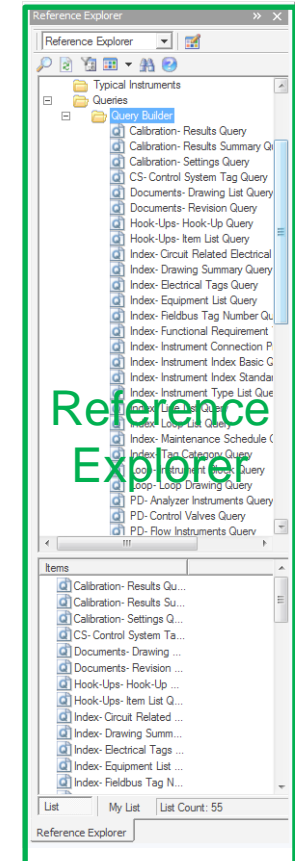
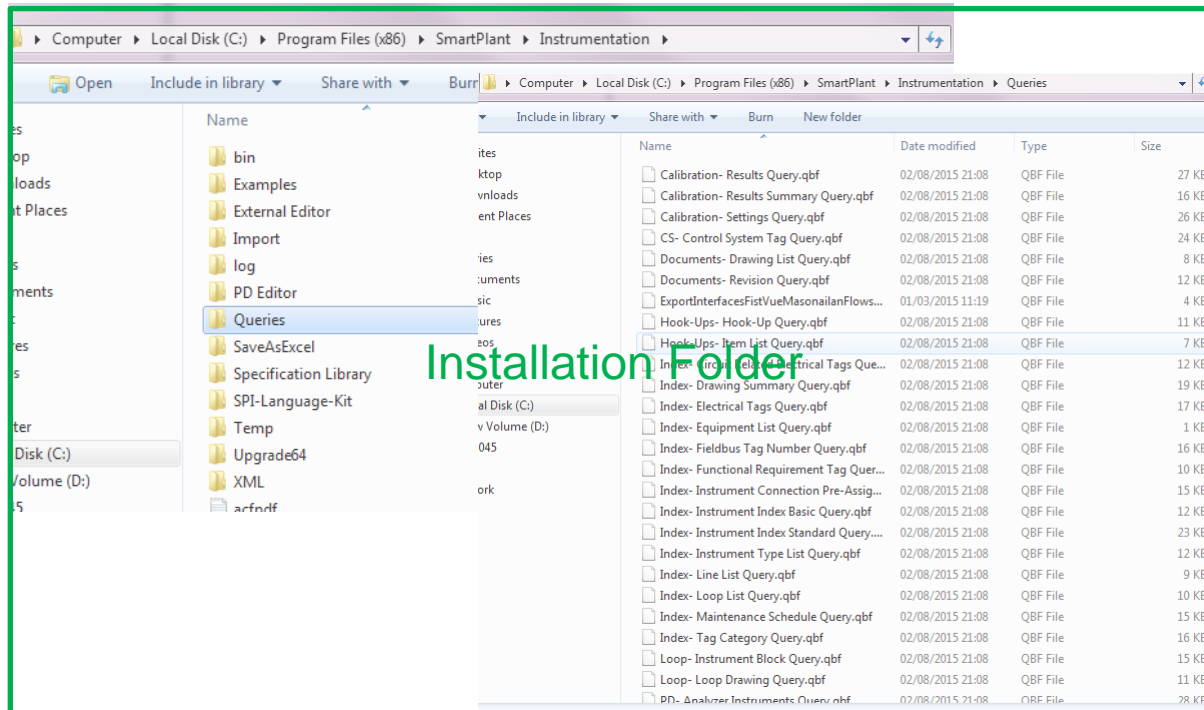
Query Attributes

Instrument	Instrument	Loop
Attribute caption name:		
Attribute name:	Instrument Name	Instrument Service
Display attribute:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



# Out of the Box (OOTB) Queries

- SPI 2016 will contain OOTB queries based on the previous delivered browsers.
- These Queries will be accessible in QBF format from the installation folder as well.



- **Engineering Data Editor**, business drives and benefits
  - Improve usability
  - Ease of use
  - Intuitive, no need for training (like MS Excel)
  - Enhanced Functionality

# Engineering Data Editor – Main Windows



SmartPlant Instrumentation - DEMO ( As-Built )

File Modules EDE SmartPlant Tools Window Help

Close Generate Re... EDE Index Specifications Wiring Process Data Calculation Loop Dwgs Hook-Ups Calibration Maintenance DDP Document B... Help

EDE Explorer

Search

Instrument Index

- Default View
- DEMO VIEW
- Electrical List
- Flow Instruments
- JB-Tag Index
- Main Instrument Indx
- New Fieldbus Tag Number List
- New JB Pre-assignment
- New Line
- PLC I/O List
- Procurement List
- Process Data & Calculation
- Specifications
  - New Main Filter
  - New Specifications
- Wiring
- Hook-Ups
- Loop Drawings
- Control System
- Dimensional Data
- Document Binder
- Documents
- General
- Private

EDE Explorer

Search

Search

Current Page

Drag a column header and drop it here to group by that column

Instrument Name	Instrument Service	Process Data Sheet Number	Junction Box
101-FI -201	Stripping Steam to F-102		101-JB-PLC-001
101-FI -2214	Feed to B-101 Pass C		101-JB-DCS-001
101-FI -100	Feed from V-8-test 2	101-FT -100/PD	101-JB-DCS-001
101-FI -103	Test	101-FT -102/PD	101-JB-DCS-001
101-FI -106	Test	101-FT -103-PD	101-JB-DCS-001
101-FI -127	flow loop	101-FT -105-PD	104-JB-103
101-FI -2212	Feed to B-101 Pass A	101-FT -113-PD	TESTPS
101-FI -2213	Feed to B-101 Pass B		101-JB-115
101-FT -119 /A			101-FT -119-SP
101-FT -119 /B			101-JB-119
101-FT -119 /C			101-FT -119 /B-SP
101-FT -1550	Reflux to		101-FT -119 /C-SP
101-FT -1551			101-JB-124
101-FT -1552			101-FT -124-SP
101-FT -1553			101-JB-127
101-FT -1554			101-FT -127-SP
101-FT -1555			101-JB-133
101-FT -1556			101-FT -133-SP
101-FT -1557			101-JB-149
101-FT -1558			101-FT -149-SP
101-FT -1559			PSJB-P2C2
101-FT -1560			PSJB-P2C2
101-FT -1561			PSJB-P2C2
101-FT -1562			PSJB-P2C2
101-FT -1563			PSJB-P2C2
101-FT -1564			PSJB-P2C2
101-FT -1565			PSJB-P2C2
101-FT -1566			PSJB-P2C2
101-FT -1567			PSJB-P2C2
101-FT -1568			PSJB-P2C2
101-FT -1569			PSJB-P2C2
101-FT -1570			PSJB-P2C2
101-FT -1571			PSJB-P2C2
101-FT -1572			PSJB-P2C2
101-FT -1573			PSJB-P2C2
101-FT -1574			PSJB-P2C2
101-FT -1575			PSJB-P2C2
101-FT -1576			PSJB-P2C2
101-FT -1577			PSJB-P2C2
101-FT -1578			PSJB-P2C2
101-FT -1579			PSJB-P2C2
101-FT -1580			PSJB-P2C2
101-FT -1581			PSJB-P2C2
101-FT -1582			PSJB-P2C2
101-FT -1583			PSJB-P2C2
101-FT -1584			PSJB-P2C2
101-FT -1585			PSJB-P2C2
101-FT -1586			PSJB-P2C2
101-FT -1587			PSJB-P2C2
101-FT -1588			PSJB-P2C2
101-FT -1589			PSJB-P2C2
101-FT -1590			PSJB-P2C2
101-FT -1591			PSJB-P2C2
101-FT -1592			PSJB-P2C2
101-FT -1593			PSJB-P2C2
101-FT -1594			PSJB-P2C2
101-FT -1595			PSJB-P2C2
101-FT -1596			PSJB-P2C2
101-FT -1597			PSJB-P2C2
101-FT -1598			PSJB-P2C2
101-FT -1599			PSJB-P2C2
101-FT -1600			PSJB-P2C2
101-FY -100	Feed from V-8-test 2		101-JB-DCS-001
101-FY -103	Test	101-FT -201/PD	101-21-144446
101-FY -106	Test	101-FT -2212/PD	101-21-134435
101-FY -127	flow loop	101-FT -2213/PD	101-21-134568
101-FY -2212	Feed to B-101 Pass A	101-FT -2214/PD	101-21-123456
101-FY -2213	Feed to B-101 Pass B		101-21-123456

Clear Filter

Instrument Name Contains [ ] And

Instrument Service Contains [ ] And

Process Data Sheet Nur Is Equal To [ ] And

Filter Cancel

Layout History

Click to add column

Double Click to open

Click to open report

EDE Explorer

Domain Explorer EDE Explorer EDE Actions -!

Displaying Rows: 49  
Selected Cells: 1

Page 1 of 1

Reference Explorer

Ready

New Refinery\Crude Area\Crude unit 1

26/02/2015 02:54

# Engineering Data Editor – Layout Control



**SmartPlant Instrumentation - DEMO (As-Built)**

File Modules Actions SmartPlant Tools Window Help

Close Generate Re... EDE Index Specifications Wiring Process Data Calculation Loop Dwgs Hook-Ups Calibration Maintenance DDP Document B... Help

Item Types Explorer

Search

Show related items Show all items

- Binder Package Item List
- Cable
- Cable Set
- Calibration Results
- Channel
- Circuit
- Control System Tag
- Dimensional Data
- Document
- Domain
- Electrical Equipment
- Highest Plant Group
- Hook-Up
- Hook-Up Item
- Instrument
- Instrument External Document
- Instrument Function Block
- Instrument- System Category
- Instrument Type

EDE - Basic Demo EDE Definition - Basic Demo EDE

Instrument

Process Data - (Shared)

Spec

Panel

**Edit the EDE Definition**

Attribute Explorer

Instrument

Search

- Calibration Data
- Changes Tracking
- Custom Fields
- Fieldbus/Profibus/HART/Telecom
- General Properties
- Identification
- Instrument, Calibration, DCS Range
- Plant Hierarchy
- Power Supply
- Procurement
- Specification Sheet

Domain Explorer EDE Explorer EDE Actions -!

Reference Explorer Attribute Explorer

Query Attributes

Search

Attribute caption name:	Instrument	Instrument	Process Data - (Shared)	Panel	Spec
Attribute name:	Instrument Name	Instrument Service	Process Data Sheet Number	Junction Box	Specification Number
Display attribute:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Query Attributes Query Preview

Save Query Preview Arrange

Ready

New Refinery\Crude Area\Crude unit 1

26/02/2015 04:56

# Engineering Data Editor – Compare



User has the ability to compare between any two EDE revisions (Does not have to be the SAME EDE) – Current to previous

EDE Report Comparison Wizard

Progress

Welcome

EDE View Type

EDE View

Revision

Print options

Show first column on each page  Insert a page break  Total sum/average

Mark Changes Report

Instrument Name	Instrument Revision	Instrument Type	Instrument Manufacturer	Instrument Model	Loop Name
101-AC -111 /C	Analyzer	AT - ANALYZER TRANSMITTER (Analyzer)			101-A -111
101-AE -111 /A	Analyzer	AIT - ANALYZER INDICATING TRANSMITTER (Analyzer)			101-A -111

Domain: DEMO Project: As-Built  
Plant: New Refinery

Delta Report

Current revision details: Document Number: Baic I.I Date & Time: 03-01-2015 21:30:50  
Archived revision details: Document Number: My I.I Revision No.: P1 Date & Time: 12-09-2014 10:06:01

Page 2 of 2  
Date: 03-01-2015

Attribute Name	Revision Value	Report Value
<b>Instrument 101-FT -200</b>		
Process Function	[Does not exist]	Flow
Intermediate Plant Group	[Does not exist]	Crude Area
Highest Plant Group	[Does not exist]	New Refinery
Lowest Plant Group	[Does not exist]	Crude unit 1
<b>Instrument 101-FV -182</b>		
Instrument Name	[Does not exist]	101-FV -182
Instrument Type	[Does not exist]	FV - Control Valve (Control Valve)
Instrument Location	[Does not exist]	Field
Line Number (Name)	[Does not exist]	4"-P-1801-11H
Tag Class	[Does not exist]	Conventional
Process Function	[Does not exist]	Control Valve
Intermediate Plant Group	[Does not exist]	Crude Area
Highest Plant Group	[Does not exist]	New Refinery
Lowest Plant Group	[Does not exist]	Crude unit 1

Delta Report between 2 different EDEs

List of columns missing in current report vs archive report

Instrument UDF 011

Help

# Engineering Data Editor - Default view

Setting "My I.I." EDE to be a *specific user's* default EDE.

Each time *the user* will click on the EDE module button, this EDE and its view actions will be opened .

Instrument Name	Instrument Type	Instrument Group	Instrument Description
101-ALARM-001	ALARM SIGNAL (General)		
101-FE -100	FE - D/P TYPE FLOW ELEMENT (Flow)		Feed from V-8
101-FE -102	FE - D/P TYPE FLOW ELEMENT (Flow)		Feed from C-1
101-FE -103	Test		
101-FE -103 /A	FE - D/P TYPE FLOW ELEMENT (Flow)		Feed from C-1
101-FE -201	FE - D/P TYPE FLOW ELEMENT (Flow)		Stripping Steam to F-102
101-FE -2212	FE - D/P TYPE FLOW ELEMENT (Flow)		Feed to B-101 Pass A
101-FE -2213	FE - D/P TYPE FLOW ELEMENT (Flow)		Feed to B-101 Pass B
101-FE -2214	FE - D/P TYPE FLOW ELEMENT (Flow)		Feed to B-101 Pass C
101-FE -905	FE - D/P TYPE FLOW ELEMENT (Flow)		DCS closed loop
101-FE -906	FE - D/P TYPE FLOW ELEMENT (Flow)		DCS closed loop
101-FE -907	FE - D/P TYPE FLOW ELEMENT (Flow)		DCS closed loop
101-FE -908	FE - D/P TYPE FLOW ELEMENT (Flow)		DCS closed loop
101-FE -909	FE - D/P TYPE FLOW ELEMENT (Flow)		DCS closed loop
101-FE -910	FE - D/P TYPE FLOW ELEMENT (Flow)		DCS closed loop
101-FE -919	FE - D/P TYPE FLOW ELEMENT (Flow)		DCS closed loop
101-FI -201	FI - LOCAL INDICATOR (General)	ROSEMOUNT	441
101-FI -2214	FI - LOCAL INDICATOR (General)		
101-FI -300/B	VFD - VIRTUAL FIELD DEVICE (General)		
101-FT -100	FT - D/P TYPE FLOW TRANSMITTER (Flow)	ROSEMOUNT	1151D4E225281M2
101-FT -102	FT - D/P TYPE FLOW TRANSMITTER (Flow)	ROSEMOUNT	1151D4E225281M2
101-FT -103	FT - D/P TYPE FLOW TRANSMITTER (Flow)		
101-FT -103 /A	FT - D/P TYPE FLOW TRANSMITTER (Flow)		
101-FT -103 /B	FT - D/P TYPE FLOW TRANSMITTER (Flow)		
101-FT -1550	FT - Fieldbus FT (Flow)		
101-FT -1551	FT - Fieldbus FT (Flow)		
101-FT -1552	FT - Fieldbus FT (Flow)		

Note: If no default is selected, only the EDE explorer will be opened

# Engineering Data Editor - Expression

SmartPlant Instrumentation - DEMO (As-Built)

File Modules EDE SmartPlant Tools Window Help

Close Generate Re... EDE Index Specifications Wiring Process Data Calculation Loop Dvgs Hook-Ups

**The Expression command**

EDE Actions - Basic Demo EDE

Search Current Page

Layout History Add Expressions

Drag a column header and drop it here to group by that column

Instrument Name	Instrument Service	Process Data Sheet Number	Junction Box	Specification Number	Instrument-JB
101-FE -905	DCS closed loop				No JB
101-FE -906	DCS closed loop				No JB
101-FE -907	DCS closed loop				No JB
101-FE -908	DCS closed loop				No JB
101-FE -909	DCS closed loop				No JB
101-FE -910	DCS closed loop				No JB
101-FE -919	DCS closed loop				No JB
101-FI -201	Stripping Steam to F-102				No JB
101-FI -201	Stripping Steam to F-102		101-JB-PLC-001		101-FI -201 - 101-JB-PLC-001
101-FI -2214	Feed to B-101 Pass C				No JB
101-FI -2214	Feed to B-101 Pass C		101-JB-DCS-001		101-FI -2214 - 101-JB-DCS-001
101-FI -300/B	Mass Flow				No JB
101-FI -100	Feed from V-8-test 2	101-FI -100/PD		101-21-133452	No JB
101-FI -100	Feed from V-8-test 2	101-FI -100/PD	101-JB-DCS-001	101-21-133452	101-FI -100 - 101-JB-DCS-001
101-FI -102	Feed from C-1	101-FI -102/PD	101-JB-DCS-001	101-21-1344520	101-FI -102 - 101-JB-DCS-001
101-FI -102	Feed from C-1	101-FI -102/PD		101-21-1344520	No JB
101-FI -103	Test	101-FI -103-PD		101-FI -103-SP	No JB
101-FI -103	Test	101-FI -103-PD	104-JB-103	101-FI -103-SP	101-FI -103 - 104-JB-103
101-FI -105		101-FI -105-PD		101-FI -105-SP	No JB
101-FI -105		101-FI -105-PD	TESTPS	101-FI -105-SP	101-FI -105 - TESTPS
101-FI -109				101-FI -109-SP	No JB
101-FI -110				101-FI -110-SP	No JB
101-FI -1101	Created from Batch Maco Creat			101-FI -1101-SP	No JB
101-FI -1102	Created from Batch Maco Creat			101-FI -1102-SP	No JB
101-FI -1103	Created from Batch Maco Creat			101-FI -1103-SP	No JB
101-FI -112				101-FI -112-SP	No JB
101-FI -113		101-FI -113-PD		101-FI -113-SP	No JB

if (

[Junction Box]

Exp

Displaying Rows: 250  
Selected Cells: 1

Page 1 of 1

Create your Expression column

[Junction Box]

### **Project / As Build, Business drives and benefits**

- Improve visibility of the scoped when claiming or merging
- Part of SPI (not Admin) to get most of SPI tasks benefits as reports like ESL etc...
- Improve the robustness of supported workflows

**Recommending to view the following Webinar**

<http://forms.intergraph.com/20150415-PPM-Efficiently-Managing-Project-SmartPlant-Instrumentation>

- Harmonize the process with the below operations
  - Claim
  - Merge
- Remove the constraint of multi users operations when data is claimed or merged
- Predictability



# Project To-Do List

The screenshot displays the SmartPlant Instrumentation interface. The main window shows a 'Wiring Diagram' for 'Tag Number: 101-F1 -100'. The diagram consists of two rows of instrument symbols connected by lines. The top row includes symbols for 101-F1 -100 (TS-1), 101-JB-DCS-001 (TS-1), 101-MR-DCS-001 (FT-1), 101-MR-DCS-001 (TP-1), and 101-DCS-001 (1/1 B A/I). The bottom row includes symbols for 101-F1 -100 (TS-1), 101-JB-DCS-001 (TS-1), 101-MR-DCS-001 (FT-1), 101-MR-DCS-001 (TP-1), and 101-DCS-001 (1/1 (8 A/I)). A blue box labeled 'Graphic view' highlights the diagram area.

On the left, the 'Domain Explorer' shows a tree view of the project structure, including 'Loops' and 'Items'. An orange box highlights this area.

In the bottom center, a 'Scope - Table view' is displayed, showing a table of instrument items. A green box highlights this table.

In the bottom right, a 'Scope - Tree view' is displayed, showing a hierarchical tree of the project structure. A red box highlights this tree view.

Availability	Name	Item Type
	101-FE -100	Instrument-Conventional
	101-F1 -100	Instrument-Conventional
	101-FY -100	Instrument-Conventional
	101-FV -100	Instrument-Conventional

Domain Explorer

Scope – Table view

Scope – Tree view

---

## **UDF / UDT Editor**, Business drives and benefits

- Harmonize the definitions of UDF\* / UDT captions across the domain
- Allow to build custom select lists
- Expose the use of select list for UDF fields for EDE use

\* Caution – not yet supporting Spec's UDF

# UDF/UDT Editor



Admin

Domain Administration - DEMO

File Activities Reports Tools Add-Ins DBA

- User...
- Project Activities...
- Owner...
- Department...
- Naming Conventions... Ctrl+M
- Wire End Naming Conventions...
- Plant Hierarchy...
- Plant Hierarchy Explorer... Ctrl+P
- Assign Users to Groups...
- Group...
- Assign Groups to Project...
- Items/Activities for Access Rights...
- UDF/ UDT Editor Ctrl+E**
- Print User Defined Fields
- Field Personnel Profile...
- Report Management...
- Preferences Management...
- Security Options...
- Panel Location Levels...
- Telecom Device Panel Icons...
- Remove Deleted Windows Users

UDT

UDF

UDF / UDT Editor

Custom Defined Fields Select List

Search here Match search: 0 Total items: 1320 Database name: UDT\_SUPPORT\_ID1

50 Match search: 9 Total items: 1320 Database name: UDF\_C50 Custom field name: Instrument UDF 050 - UoM Existing custom field names: Existing values: Field type: Select List

- Cable
  - Cable UDF 050
- Control System Tag
  - Control System Tag UDF 50
- Document
  - Document UDF 050

UDF / UDT Editor

Custom Defined Fields Select List

50 Match search: 9 Total items: 1320 Database name: UDF\_C50 Custom field name: Instrument UDF 050 - UoM Existing custom field names: Existing values: Field type: Select List Select list: 1542 Visible:  True Read-only:  False

- Line
  - Line UDF 50
- Loop
  - Loop UDF 50
- Panel
  - Panel UDF 50
- Process Data - (Shared)
  - Process Data UDF 050
- Process Equipment
  - Process Equipment UDF 50

Admin

Select List and Supporting Tables Dialog Box

unit

Select List

Instrument unit of measure flag  
Process data unit of measure flag  
Unit/Percent

Supporting Tables

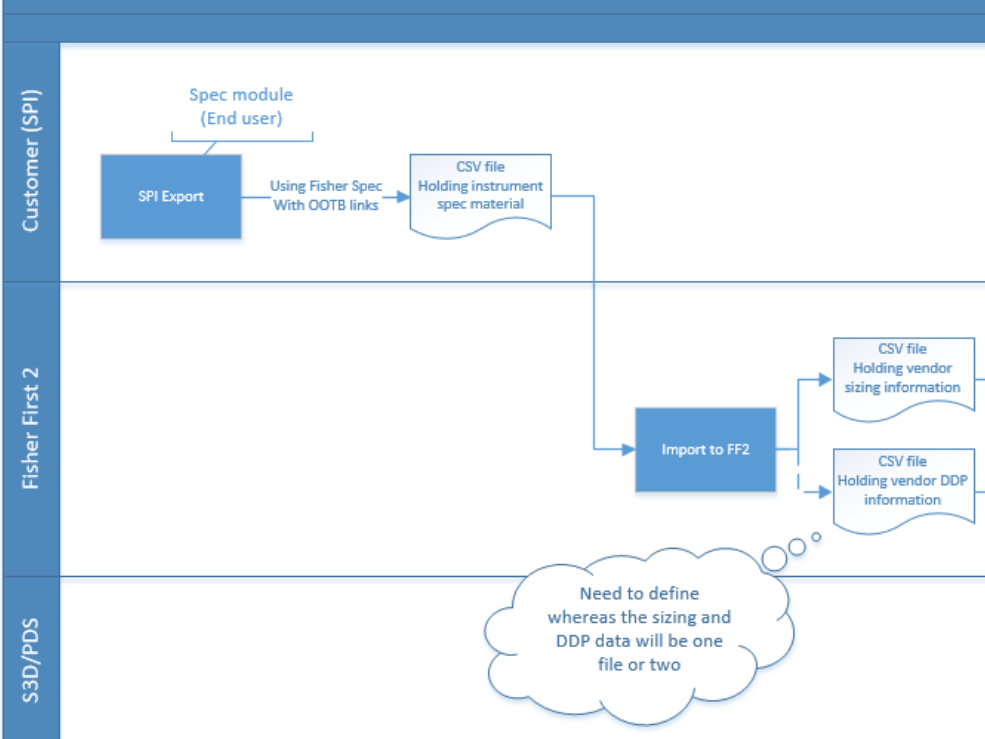
OK

# SPI – Fisher Interface



- The SPI-Fisher interface was updated:
  - A new Fisher specification sheet will be
  - New Fisher compatible links have been
  - DDP support

Fisher specification sheet - Out of the Box (OOTB) solution (Planned to be a part of the SPI-Fisher interface)

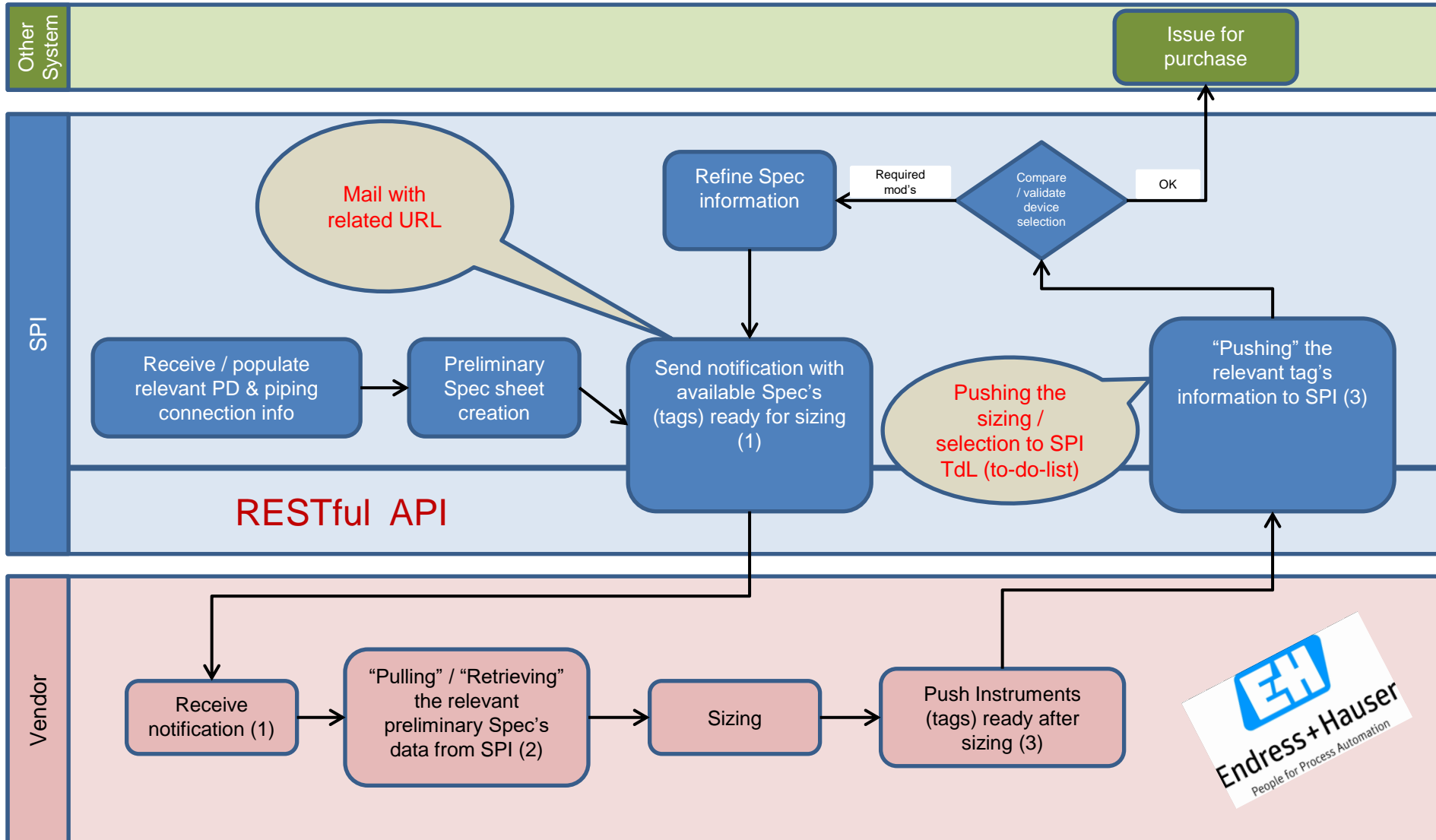


Customer:	FISHER SPECIFICATION SHEET				
Contact:					
Customer Reference:	Contact:				
Item: 1	Rev: Qty:				
Tags: 101-FVF -2009	Quote:				
Description:	Price:				
1 Fluid:-BENZENE	State: Gas/Vapor	Crit. Press. PC49.23	bar-g	Shutoff Drop:	bar
SERVICE CONDITIONS		Units:	Max	Min	Norm
2 Flow Rate	Am3/h	500	300	400	600
3 Inlet Pressure	psi-g	100	100	100	100
4 Outlet Pressure	psi-g	90	90	90	90
5 Inlet Temperature	deg C	200	200	200	200
6 Density/ Spec. Grav. / Mol. Wt				1	
7 Viscosity / Specific Heats Ratio					
8 Inlet Vapour Pressure					0.01
9 * Required Cv		696	418	557	835.385
10 * Travel	%	80	56	66	102
11 Allowable / * Predicted	dBA	/ 56	/ 56	/ 57	/ 58
12					
PIPE LINE		ACTUATOR Type:		Spring & Diaphragm	
* Size, * Schedule In: 8 in STD		Mfr/Model:		Fisher /	
Insulation:		Size: 70		Eff Area: 220 in2	
VALVE BODY/BONNET		Type: Globe		On/Off: Modulating:	
Size: 8 ANSI CL150		Max Allow Press: 50 psig		Spring Action: Close	
Max Press/Temp: 100 psi-g / 200 deg C		Min Required Press:		Available Air Supply Pressure	
Mfr/Model: Fisher / ET		Max:		Min:	
Body/Bonnet Matl: WCC Steel		Bench Range:		See A1 - See A1	
Ports:		Act Orientation:		Handwheel Type:	
Valve Guiding: Cage		Air Failure Valve: Down		Set at:	
Liner Mat/ID:		Ext Act:		Input Signal: 4 to 20 mA dc	
End Connection In: CL15CRF Fk		POSITIONER Type: I/P		Mfr/Model: DVC6200 SS	
End Connection Out: CL15CRF Fk		Incr Signal Output:		Gauges: 0-60 psig/0-4 bar By-Pass:	
Flg Face Finish:		Cam Characteristic:		Action: Direct	
End Ext/Matl: None		Certificate: IECEx		Ext Pos:	
Flow Direction: Down		SWITCHES Type:		Qty:	
BONNET Type: Plain		Mfr/Model:		Contacts/Rating:	
Lub-Iso Valve: No Lube:		AIRSET Mfr/Model: 67CFR Filter/Regulator		Actuation Points:	
Packing Material: Single PTFE		Set Pressure:		Ext Switch:	
Packing Type:		Filter:		Gauges:	
Bolt, Bonnet: SA-193-B7 Studs/2H Nuts		Ext AirSet:		TESTS Hydro Press:	
Ext Bonnet:		Mfr/Model: 67CFR Filter/Regulator		Ext Test:	
TRIM Type: 57C		Set Pressure:		ANSI/FCI Leakage Class: ANSI CL V	
Size: 8 Inch		Filter:		SPECIAL ACCESS:	
Characteristic: Equal Percent		Gauges:		NEC Class: Group: Div:	
Balanced/Unbalanced: Balanced		Ext AirSet:		Rev. Date Revision Orig. App.	
Rated CV: 81B FI: 0.86 Xt: 0.807		TESTS Hydro Press:			
Plug Material: S41600 SST		Ext Test:			
Retainer Material:		ANSI/FCI Leakage Class: ANSI CL V			
Cage Material: CB7Cu-1 SST		SPECIAL ACCESS:			
Bushing Material:		NEC Class: Group: Div:			
Seat Material: S31600 SST (PTFE Seat)		Rev. Date Revision Orig. App.			
Stem Material: S31600 SST Stem Size: 3/4 Inch					
Push Down To: PDTC Yoke Boss Size: 3 9/16					
Ext Trim: Ext Trim:					
Notes:					

\* Information supplied by mfr unless already

- 
- Tentatively scheduled for 4Q2016 / 1Q2017
    - Master Tag Registry (MTR) - phase I support
    - ESL fully converted to Dot.net
    - Disconnected Workshare (overhaul- previous 'Import Project')
    - Expose Web Services to support vendor integration as well as SmartPlant Enterprise Portal (SPEP) –SmartPlant Explorer's (SPEX) Replacement

# SPI – Vendor Interface - Phase 1



- ✓ Introduce replacement technology to Infomaker forms for:-
  - ❖ Flexible Process Data module functionality
- ✓ Control Logic Diagram
- ✓ Engineering dashboard

# Discontinue INtools 6

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- INtools version 6 and versions before that will be discontinued by December 31, 2015
- The software will no longer be in delivery from the product center order desk after that date.
- Reasoning is the technical platform is no longer available for these versions & very low usages
- Support can help with any upgrade questions/services
- Contact support or product Center if you have an questions or concerns