SmartPlant Instrumentation

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Process, Power & Marine Division
Agenda

- Review SPI 2009 SP4 enhancement
  - Integration
  - Functionality
- Review SPI 2013 enhancement
  - Integration
  - Functionality
- Review SPI 2014 enhancements
SPI 2009 SP4
Integration Enhancements
Released June 2012
### SPI 2009 SP4 – Publish enhancements

- **Publishing large data sets:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Time to publish in SPI 2009 SP3</th>
<th>Time to publish in SPI 2009 SP4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,500 tags</td>
<td>16 min</td>
<td>4 min</td>
</tr>
<tr>
<td>10,000 tags</td>
<td>N/A</td>
<td>26 min</td>
</tr>
<tr>
<td>100,000 tags</td>
<td>N/A</td>
<td>7 hour</td>
</tr>
</tbody>
</table>

These results are statistic averages

- **Publishing from Plant level**
SPI 2009 SP4 – Retrieve enhancements

- Enhancing SPI retrieve capabilities

<table>
<thead>
<tr>
<th>Date set</th>
<th>Parameter</th>
<th>Time to retrieve in SPI 2009 SP3</th>
<th>Time to retrieve in SPI 2009 SP4</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 task (from SPEL)</td>
<td>27 min</td>
<td>4 min</td>
<td></td>
</tr>
<tr>
<td>1,755 task (Wiring tasks)</td>
<td>3 hours</td>
<td>10 min</td>
<td></td>
</tr>
<tr>
<td>200 PID drawings (1386) tasks</td>
<td>N/A</td>
<td>19 min</td>
<td></td>
</tr>
</tbody>
</table>

These results are statistic averages

Aug 2012
Batch document publish was limited to **50 documents** which would take approximately **60 minutes**.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sum Time 2009 SP3 (Min)</th>
<th>Sum Time 2009 SP4 (Min)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1500 specification</strong></td>
<td>N/A</td>
<td>81</td>
<td>with PDF (view file) All 1000 xml files created All 1000 pdf created</td>
</tr>
<tr>
<td><strong>1000 specification</strong></td>
<td>N/A</td>
<td>40</td>
<td>with no PDF (view file) All 1000 xml files created</td>
</tr>
</tbody>
</table>

These results are statistic averages
SPI 2009 SP4 – Multi-Document Revise enhancements

- Batch document revise was limited to 50 documents which would take approximately 60 minutes.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sum Time 2009 SP3 (Min)</th>
<th>Sum Time 2009 SP4 (Min)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date set</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000 specification + 120 PD sheets</td>
<td>N/A</td>
<td>2.5</td>
<td>From click the finish button in the wizard until revise window open</td>
</tr>
</tbody>
</table>

These results are statistic averages.
SPI 2009 SP4 – SPI’s revisions & Integration enhancements

- Ability to use SPI’s (internal) revisions:
  - Use of the Spec Binder in an integrated environment.
SPI 2009 SP4 – The To-Do-List enhancement

- Remove redundant of conflicting tasks
  - Handling tasks with duplicated item tags.
- Mark for Deletion (MFD) / Overwrite functionalities.
  - MFD- A preference controlled task type. Delete tasks are substituted by the MFD. The MFD items cannot be run, they can be change to a delete task. A custom browser can be supplied, will show which tag has a MFD task associated to it. A rule can be supplied as well, which will disable modification for tags that have a MFD task.
  - Overwrite – a new task type. A duplicated tag (same tag number) retrieved by SPI will receive an Overwrite task (instead of a Create task created till now). Running this task will substitute the referenced instrument it SPI to the duplicated tag retrieved (the second tag retrieved).
SPI 2009 SP4 Enhancements

Batch Loop Duplication functionality enhancement:

[Image of software interface for Batch Loop Duplication]

Aug 2012
SPI 2009 SP4 Enhancements Cont.

Batch Specification Compare functionality enhancement:

![Batch Specification Compare functionality enhancement](image)

Aug 2012
Domain Explorer Filter usability enhancement:

No need to insert filter name (changed to a description)
Find Window Enhancement: Associate Conventional & Bus Tags with the **same Spec**

**Multi list**

<table>
<thead>
<tr>
<th>Tag Number</th>
<th>Instrument Type</th>
<th>Service</th>
<th>Form Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-FT-2214</td>
<td>FT</td>
<td>Feed to B-101 Pass C</td>
<td>56</td>
</tr>
<tr>
<td>101-FT-300</td>
<td>FT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>101-FT-400</td>
<td>FT</td>
<td>Profinet P1</td>
<td></td>
</tr>
<tr>
<td>101-FT-500</td>
<td>FT</td>
<td>Profinet P1</td>
<td></td>
</tr>
<tr>
<td>101-FT-51</td>
<td>FT</td>
<td>Loop for Automating lab</td>
<td></td>
</tr>
<tr>
<td>101-FT-52</td>
<td>FT</td>
<td>Loop for Automating lab</td>
<td></td>
</tr>
</tbody>
</table>

Aug 2012
SPI 2009 SP4 Enhancements Cont.

Specification Data Dictionary select all:

<table>
<thead>
<tr>
<th>Field Properties</th>
<th>Table Name</th>
<th>SPI 2009 SP3</th>
<th>SPI 2009 SP4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>view_line</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>component</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>spec_sheet_data</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pd_general</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **view_line**
  - Template Fields: All
  - Browser Fields: None
  - Editable in IEE: All

- **component**
  - Template Fields: All
  - Browser Fields: None
  - Editable in IEE: All

- **spec_sheet_data**
  - Template Fields: All
  - Browser Fields: None
  - Editable in IEE: All

- **pd_general**
  - Template Fields: All
  - Browser Fields: None
  - Editable in IEE: All

- **flow**
  - Template Fields: All
  - Browser Fields: None
  - Editable in IEE: All

Fields selected for browser: 1
SPI v.2009 SP4 enhancements Cont.

- Consolidated Multi Strip Report- Showing choseable panels, their interconnections and each of their adjacent equipment.
SPI 2009 SP4 Enhancements Cont.

- Add ability to batch print Hook-up drawings based on flexible criteria
- Enable batch print Hook-up drawings using flexible user definable criteria, so that required Hook-up document packages can be quickly, efficiently and easily prepared
- Viewing documents from an UN-logged unit
- Update ASME pipe standard to ASME B36.10M-2004 & ASME B36.19M-2004
- Document binder revision failure (For example due to power failure) roll-up to previous
- Browser Save As (Plant/Area/Unit) – an additional field will be added (Path + Unit number)
SPI 2009 SP4 Enhancements Cont.

- Import utility - create cables with complete structure using reference cable type identification
  - To have the ability to import a new plant cable to SPI based on the reference cable name
  - The mechanism should copy the reference cable from the reference data and name the cable according to the source (the cable name in the external file)

- Honeywell DCS bidirectional integration support

- Ability to integrate CHARM configuration
SPI 2013
Schedule for Q1 2013
Integration Enhancements

To-Do-List Enhancement

- To-Do-List Refresh
- Approve Inconsistencies
- Containment of redundant or conflicting tasks
- Remove design basis relationship from an Object
- For example: An already retrieved and then altered instrument has been deleted from its origin drawing in SPP&ID; There will be a possibility to dissociate this instrument and associate it to a different SPP&ID instrument (if exists)
- Ability to group tasks per mutual (same) type (like a pipe-run)
Functional Enhancements

- Add separate access rights to Instrument Index supporting tables.
Functional Enhancements cont.

- Supporting UOM customization

- Can be used in Process data, calculation and specs (used types such as Flow)
- Shipped UOMs are non-editable.
SPI v2013

- Functional Enhancements cont.
  - Adding Wiring Equipment connection report per signal
Functional Enhancements Cont.

- Supporting Oracle 11g
- Reuse Multi strip reports based on drawing name
- Rename/Duplicate tag option should not require selecting instrument type
- Add revision description to delivered index browse title-block.
- Update Orifice Calculations ISO-5167 - 2003 STD
- Update Thermowell calculations to ASME PTC 19.3 TW-2010
- Make User Preferences Per Domain
- Ability to view/print reports when Proc. Data Status = Locked out to Process
SPI 2014
Schedule for Q2 2014
SPI 2014 Enhancements

- Control Logic Diagram
Control logic diagram

Applying graphics

Drag and Drop Plant items to the drawing

Aug 2012
Control logic diagram

Control logic drawing

Individual Sheets

Plant objects per sheet

Aug 2012
Smart Query Builder & Enhance EDE (Browser) module (2014)

- **SmartPlant Query** (first milestone) - allows users to create instantly any possible query from SPI
  - No need to know the SPI data model
  - Simple to use and provide engineering and design context
  - Replace the needs of Infomaker
  - Browser module will be able to use the smart query instead of customize browser
  - In future plans to expand beyond and be platform to other modules of SPI, as well for other E&S applications
Smart Query Builder (within SPI) – Type Selection
Smart Query Builder (within SPI) - main screen

Relationship definition

Item Properties

Browser Columns
Smart Query Builder & Enhance EDE (Browser) module (2014)

- SPI’s **Enhanced EDE (Browser) module**
  - Enhanced Functionality and user experience.
  - Modern look and feel
Get the feel of SPI’s new EDE (Browser) – Filter (1 of 2)
Get the feel of SPI’s new EDE (Browser) – Filter (2 of 2)
Get the feel of SPI’s new EDE (Browser) - Grouping
Projects/ As Build, improve usability

- Improve the visibility of what is scoped when we claim or merge
- Improve the stability of the procedure and remove special cases
- Give engineers better view of what the results
- Harmonize the scoping process with the below operations
  - Claim
  - Merge
  - Integration – shared correlation engine and opening our engineering projects to integrate with SPF
  - Project export (backup of engineering project + ICCx)
- Remove the constraint of multi users operations when you merge data