

# Smart Instrumentation

## Project and As-Built Changes

2013 and Prior vs 2016 and Later

Smart Instrumentation TUF

08/23/2022

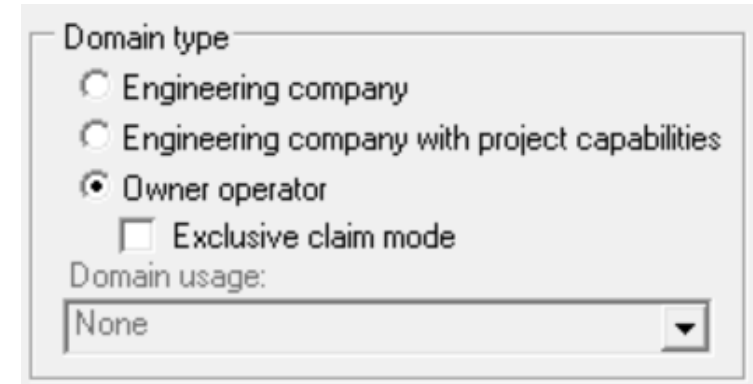
# Introduction

- Wayne Sterling
  - ▶ Global Expert – Technical Applications (Smart Instrumentation)
  - ▶ 16 years supporting / administering Smart Instrumentation
  - ▶ 26 years with BASF
- BASF
  - ▶ Largest chemical company in the world
  - ▶ Many sites across North America – including Geismar, LA – Freeport, TX – Houston, TX



# Project / As-Built – Owner Operator Mode

- Significant changes in the Project / As-Built functionality occurred between versions 2013 and 2016.
- Initially upon release (in SPI 2016) these changes had reduced functionality and much slower performance (compared to SPI 2013). Much of the missing functionality and performance issues have been addressed in later version / service pack / hotfix releases.



Domain type

Engineering company

Engineering company with project capabilities

Owner operator

Exclusive claim mode

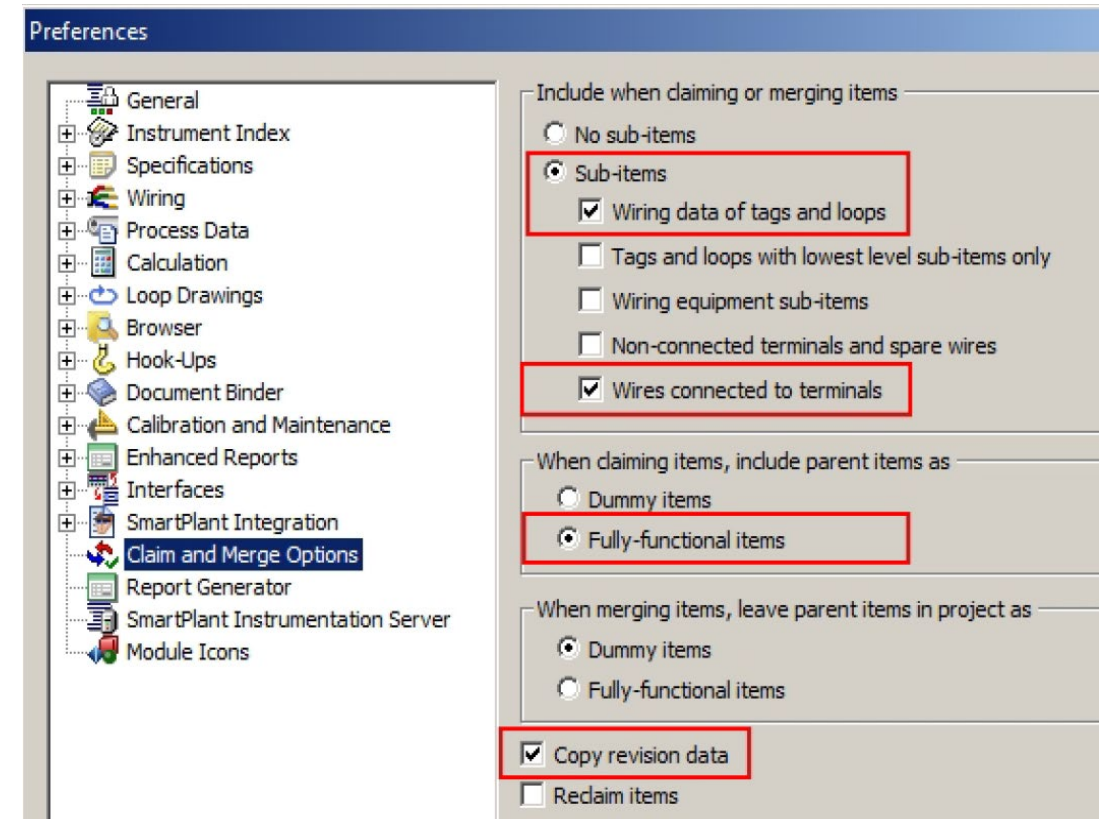
Domain usage:

None

# Claim Options - 2013 and Prior



- User Preferences – Claim & Merge Options
  - ▶ Claims and Merges were dependent on each individual user's preferences
  - ▶ Preferences would have to be changed as needed for different claim requirements
    - No sub-items
    - Sub-items
  - ▶ Parent items (panels, cables, cable pairs, etc.) required to be fully-functional to be usable in the project
- Claiming could be performed in the SPI client or the SPI admin applications. SPI Admin was preferred as it has log file creation.



# Claim Options – 2016 and Later



## ■ Domain Explorer – Project Activities

### ▶ Project Activities

#### ● Claim

##### – All

– Claim this item and all sub-items

##### – Tags & Loops

- Loops & Tags are claimed as active items
- Wiring: Panels & Cables are in-active
  - Only Terminals are active
  - Only Wires are active

##### – Specification and Process Data only

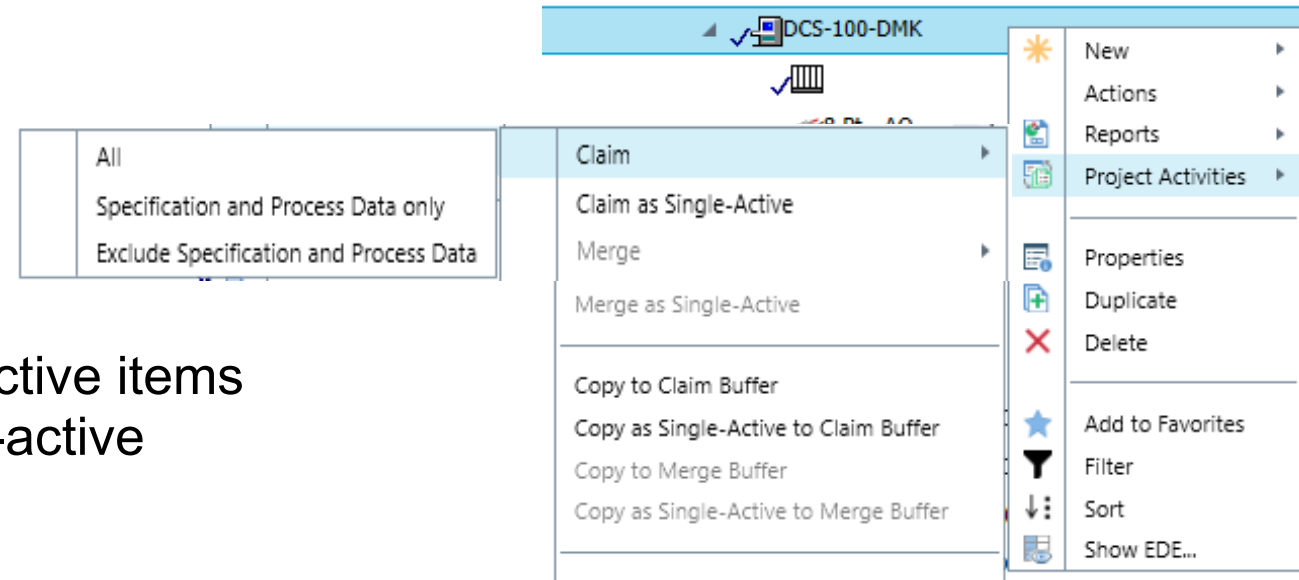
– Spec. / Process Data Only - No Wiring Items

##### – Exclude Specification and Process Data

– Wiring Only / No Spec or Process Data

#### ● Claim as Single-Active

– Claim only this item, with no sub-items



# Claim Options – 2016 and Later

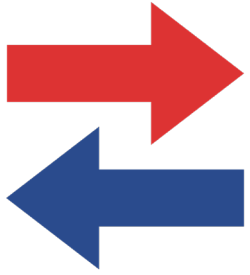


- Project To Do List (Claim/Merge Buffer)
  - ▶ Settings for Claim/Merge Options
    - All, Specification Sheets & Process Data Only, or Wiring Only
- Parent items no longer required to be fully-functional to be usable in the project
- All Claim & Merge tasks are now performed in the SI client application (no longer possible in SI Admin)

The screenshot shows the 'Project To Do List' application window. The main window title is 'Project To Do List'. Below the title bar, there is a 'Wiring Diagram' button, a search filter 'T-1150M5', and a 'Loop' dropdown menu. A gear icon in the top right corner is highlighted with a red box. A 'Settings' dialog is open, also with a red box around it. The dialog has a search bar and a table with columns 'Availability', 'Task Type', and 'Name'. The table contains several rows of task data. The 'Settings' dialog has two sections: 'Match Revision Mode' with options 'Match revisions by Revision ID' (selected) and 'Match revisions by Revision Number'; and 'Claim/Merge Options' with options 'All' (selected), 'Specification and Process Data only', and 'Exclude Specification and Process Data'.

Availability	Task Type	Name
<input checked="" type="radio"/>		15IF1-15N
<input checked="" type="radio"/>		15MR-14
<input checked="" type="radio"/>		15MRTS1
<input checked="" type="radio"/>		H15-1-06
<input checked="" type="radio"/>		TZE-1150
<input checked="" type="radio"/>		TZT-1150

# Claim & Merge Behavior – 2013 and Prior



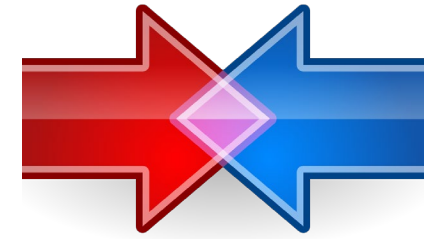
- Items claimed to the project were associated to their As-Built source by the SCOPE\_ITEM\_RELATION table.
- If an item was already claimed to the project, it would not be re-processed unless the re-claim items user preference was set.
- Completely merged items would be removed from the project. Partially merged items would remain in the project as dummy items (depending upon claim preferences).

Reclaim items

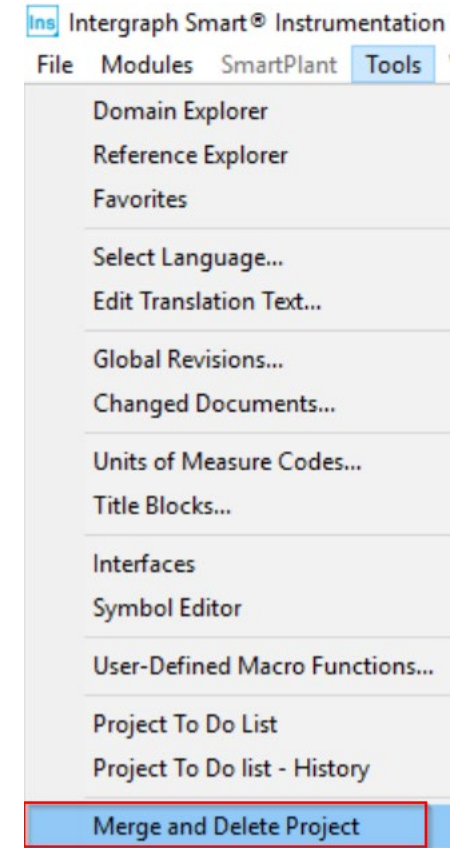
When merging items, leave parent items in project as

- Dummy items
- Fully-functional items

# Claim & Merge Behavior – 2016 and Later

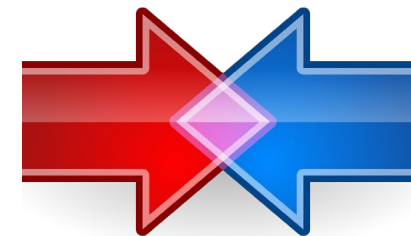


- Items claimed to the project were associated to their As-Built source by the OBJECT\_REGISTRY table.
- All items claimed are processed, any items previously claimed would be “re-claimed” and would overwrite any project changes.
- Tools > Merge and Delete Project (Project Owner) – Simple option to completely merge and delete a project in a single step. Requires all users to be out of the domain.

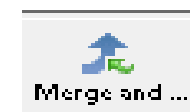
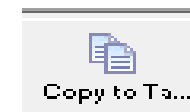




# Claim & Merge Behavior – 2016 and Later



- Default merge (copy to target) option copies items from the project to the as-built and leaves them as fully functional items in the project.
- Merge and Deactivate option only available for manually copied items in the merge buffer (not available for an entire project copy).
- Claimed project items that were deleted must be processed manually in the Project To Do List during project merge from the Delete Items tab.



Project To Do List - As-Built

Wiring Diagram

No Available Scopes

Search

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

Status	Name	Item type
Delete	EZDV -191 -1	Cable
Release Claim	EZDV -191 -2	Cable
	EZDV -191 -2	Panel-Device Panel
	EZDV -191 -1	Panel-Device Panel

Displaying Rows:4  
Selected Rows: 1

Buffer Delete Items

# Caution – 2016 and Later



- Claiming shared items (shared ground terminal, lines, process equipment, etc.) can unexpectedly add many in-active items to a project.
- Project claims and merges now exclusively occur in the SI client application which will consume a SI license seat.
- No claimed indication flags for items that have already been claimed in the Project To Do List (Claim Buffer).

Availability	Task Type	Name	Item type
○		...	Cable
○		...	Cable Set
●		...	Drawing-Calculation
●		...	Drawing-Process Data
●		...	Drawing-Process Data
●		...	Drawing-Process Data
●		...	Drawing-Process Data
●		...	Drawing-Specifications
●		...	Drawing-Specifications
●		...	Drawing-Specifications
●		...	Instrument-Conventional
●		...	Instrument-Conventional
●		...	Instrument-Conventional
●		...	Line
○		...	Loop
○		...	Panel-Device Panel
○		...	Panel-Device Panel
○		...	Process Equipment
●		...	Terminal
●		...	Terminal
○		...	Terminal Strip
○		...	Terminal Strip
●		...	Wire
●		...	Wire

# Caution – 2016 and Later



- Releasing Claims on As-Built items now involves more steps
  - ▶ Project To Do List – History or Item Origin
    - Even minor modifications to items will make them ineligible for release
  - ▶ If item(s) have been modified – alternative workflow is to claim the item(s) from As-Built to the Project again, then perform a merge and deactivate.
  - ▶ Deleted Root Items (Loops, Tags, Panels, Cables) can be released from the Deleted Items tab
- Must create a LOG folder under the SmartPlant \ Instrumentation folder to enable claim and merge logging.

Availability	Task Type	Name	Item type
▲ Loop A-20H			
●	✓ Create	LD A-20H	Drawing-Loop Drawings
●	✓ Create	AT -20H	Instrument-Conventional
●	✓ Create	A-20H	Loop
●	✓ Create	0 - LD A-20H	Revision-Loop Drawings

Program Files (x86) > SmartPlant > Instrumentation

- bin
- Examples
- Help
- Import
- Log

# Pain Points – 2016 and Later



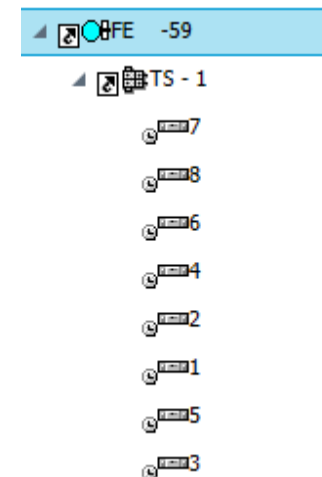
## ■ Panel Strip Report (Revisions)

- ▶ Default claiming does not make the strip active – so the panel strip document and the revisions against it are not claimed by default.
- ▶ Extra effort to single-item active claim panel strips for project revisioning required

Number	By	Date	Description	Checked By	Approved By
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## ■ DEMO / Rename Items

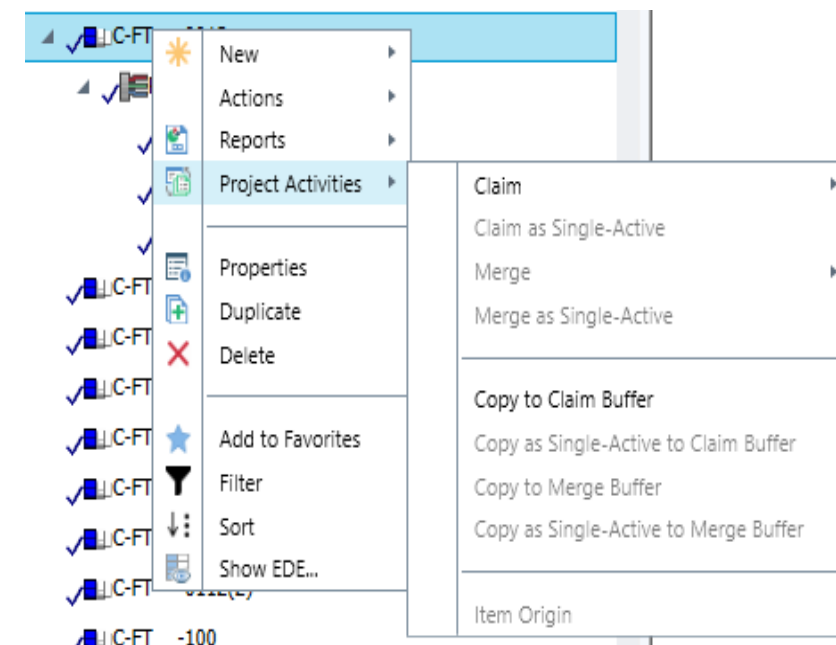
- ▶ Items to be DEMOed (deleted) or renamed must be fully claimed including device panels and device cables (where terminals and wires are only claimed as active by default).



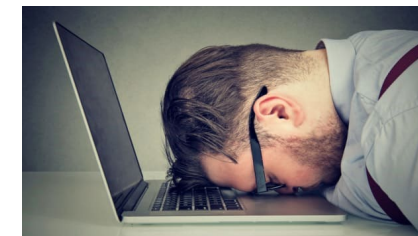
# Pain Points – 2016 and Later



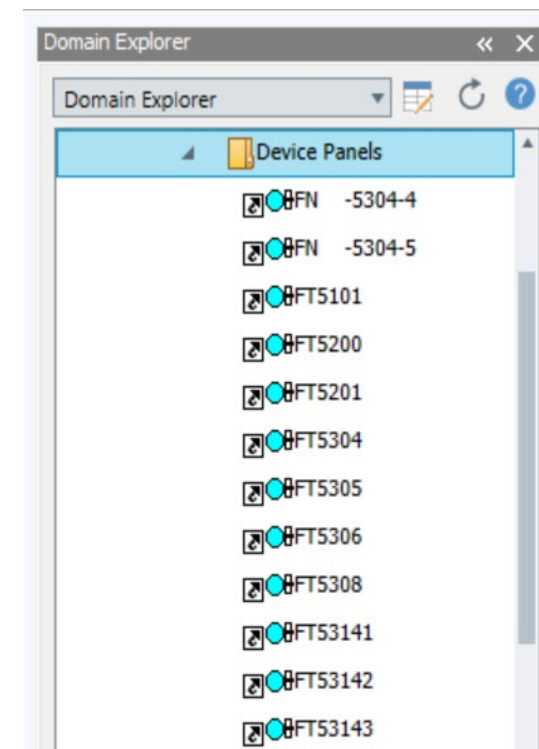
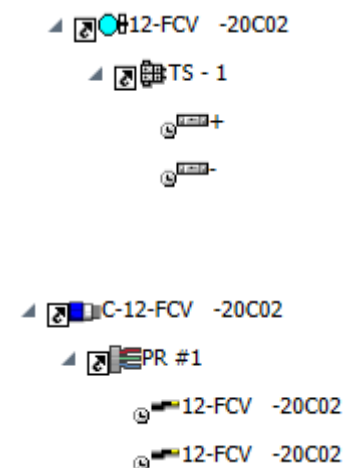
- Cannot Single-Item Active Claim Cables
  - ▶ Only wires or the entire cable can be claimed
  - ▶ Limits the ability to use cable properties or cable\_udf flags for cable schedule generation in projects
    - Single pair cables can be claimed
    - Multi-pair cables are very problematic as the entire cable – all pairs, terminals would be claimed to the project
    - Forced to generate most cable schedules externally in Excel



# Pain Points – 2016 and Later



- Manually copying project items to the merge buffer for processing (for Merge and Deactivate) is very time consuming, especially when parent items are in-active and cannot be mass selected. They must be expanded to the active items for selection (wires or terminals).
- ▶ Full Project Merge and Deactivate is currently listed on the Smart Instrumentation Ideas voting page (SI-I-22)



# Pain Points – 2016 and Later



- Access permissions bug – view only as-built users cannot claim items to their Projects (or claim buffer) where they have Read/Write access. [Worked in 2013 and prior]
- No combined view for all items in the Project To Do List (except for the entire project copy merge)

Item or activity:	
Name	Mode
Copy items to project	Full (Add / Delete / Update)

F-5102	Loop
Search <input type="text"/>	
F-213501	Loop
F-215201	Loop
F-222501-1	Loop
F-311113	Loop
F-311102	Loop
F-306B	Loop
F-513402	Loop
F-512502	Loop
F-5103	Loop
F-5102	Loop

# Improvements – 2016 and Later



- Merged project data consistency (quality) has improved
- Project merges can be performed with active users in the domain (as long as project items are not open in the project or As-Built) when the project has As-Built deletes. [Oracle]
- Partial project merges / specific item merges are much better than previous versions.



# Improvements – 2016 and Later

- Can initiate claims from the As-Built to any project (no longer have to use Project & As-Built view of the project)
- No longer requires checking preferences – Project Activities offers multiple selections for different claim scenarios.
- Project To Do List offers more visibility into items that will be claimed into the project that previously was only available in the SPI Admin client.



Project To Do List - BASF PROJECT ENLIGHTEN

Wiring Diagram F-100 Loop

Search

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

Availability	Task Type	Name	Item type
<input type="radio"/>	Create	C-FT -100	Cable
<input type="radio"/>	Create	C-FT -100A	Cable
<input type="radio"/>	Create	SNGL PR	Cable Set
<input type="radio"/>	Create	SNGL PR	Cable Set
<input checked="" type="radio"/>	Create	LD F-100	Drawing-Loop Drawings
<input checked="" type="radio"/>	Create	FT-100-PD	Drawing-Process Data
<input checked="" type="radio"/>	Create	FO(Z)-100-SP	Drawing-Specifications
<input checked="" type="radio"/>	Create	FT-100A-SP	Drawing-Specifications
<input checked="" type="radio"/>	Create	FT-100-SP	Drawing-Specifications
<input checked="" type="radio"/>	Create	FO(Z) -100	Instrument-Conventional
<input checked="" type="radio"/>	Create	FT -100	Instrument-Conventional
<input checked="" type="radio"/>	Create	FT -100A	Instrument-Conventional
<input type="radio"/>	Create	1"(043,20-LN2-002.503)	Line
<input checked="" type="radio"/>	Create	F-100	Loop

# Future – SDx and Integration 2.0



- SDx and Integration 2.0 likely mean more changes are coming to Smart Instrumentation Project / As-Built functionality.



We create chemistry