Experion SmartPlant Instrumentation (SPI) Adapter

Houston SPI LTUF Meeting

August 2012

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Experion SPI Adapter

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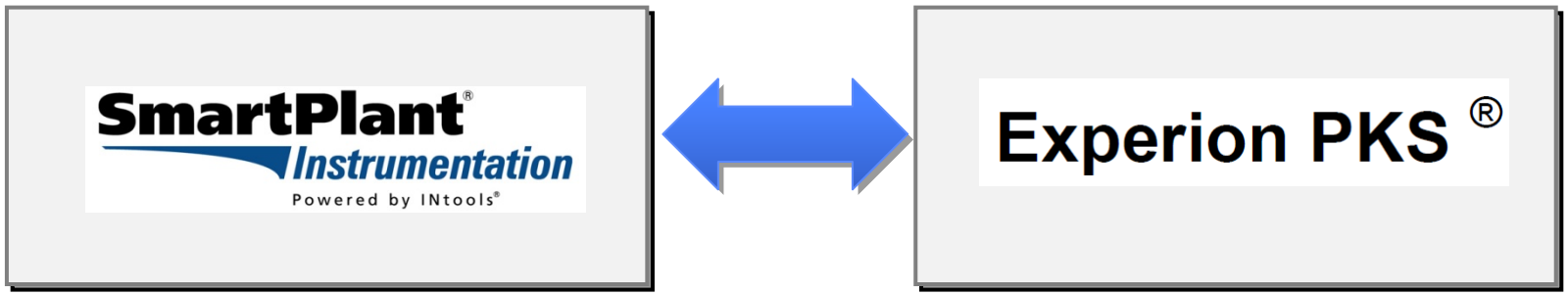
- Provides bidirectional data exchange between the Experion and SmartPlant Instrumentation (INtools)
- I/O catalog allows designers to complete field hardware designs within SPI and them simply load I/O allocations to Experion
- Allows changes in design data to flow seamlessly into Experion driving productivity and schedule
- Site modifications for Experion loops can be efficiently published to SPI to complete as-built documentation



Engineering tools to dramatically simplify the configuration of UIO

Benefits of Data Integration

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Reduced engineering effort

- Reduce duplicate data entry
- Ensure documented design matches system configuration

Standard representation of Experion within SPI

- Pre defined I/O module and termination assemblies for all Experion I/O
- Consistent loop diagrams across different projects and sites

Maintain data integrity

- Consistency can be maintained across the system lifecycle
- Documentation discrepancies can be easily identified

Rapid exchange of data

- Allows parallel activities for design and configuration
- Enables the late binding of physical and logical designs
- Reducing the cost of changes caused by incomplete data

Support for Universal Channel Technology

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- Support I/O modules utilizing Universal Channel Technology
  - Any instrument type AI, AO, DI or DO to be connected to any channel
  - I/O type definition by software configuration
- The design engineer using SPI does not need to know the specific DCS panel details
  - Eliminating the need for custom marshalling and I/O cabinets
  - Allowing the use standard cabinets designs

Streamlining Project Processes

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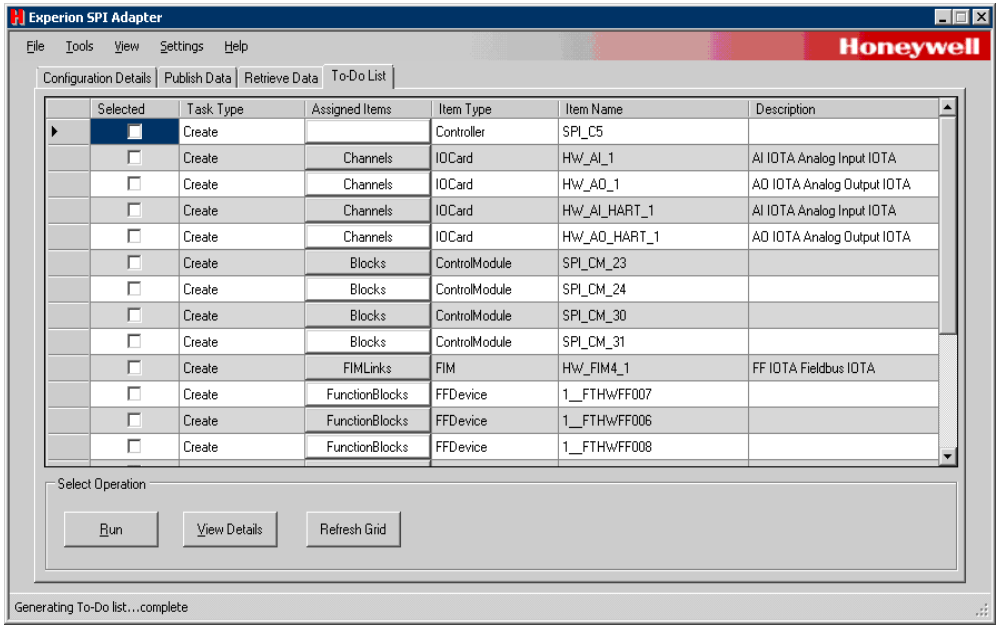
- Traditional project processes can be significantly streamlined
  - Creating and assigning of controllers and I/O modules
  - Assignment of I/O channels to control system tags
  - Synchronization of parameters across the design and configuration databases
- Exchange of HART and Fieldbus field device properties



Managing Lifecycle Activities

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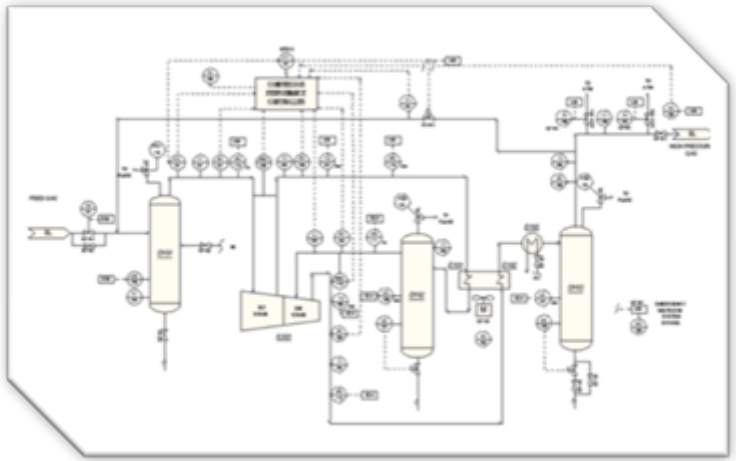
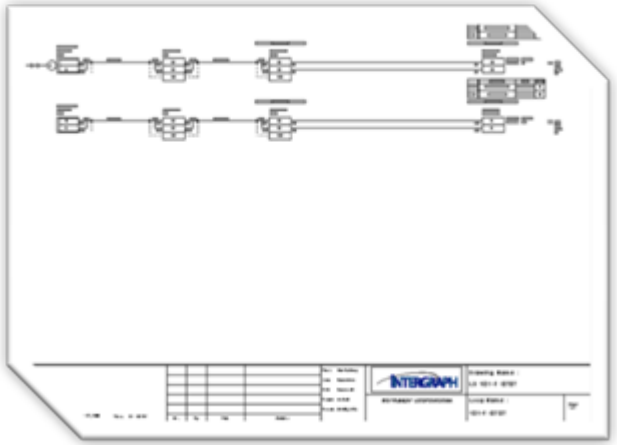
- Significant investment to support and maintain the SPI design database throughout the lifecycle of the facility
- The SPI adapter tool streamlines support - enabling the “As-Built” designs to remain in sync with online systems
- Ensure the integrity of the design database and as such maximize the usage in day-to-day operations





Support for Fieldbus Designs

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- Supports the exchange of field device information associated with HART and Foundation Fieldbus designs
- Supports configuration of virtual tags and device resident functions blocks within Experion and SPI
- Catalogs are also available for Honeywell Fieldbus and HART instruments

Honeywell I/O Catalog Library

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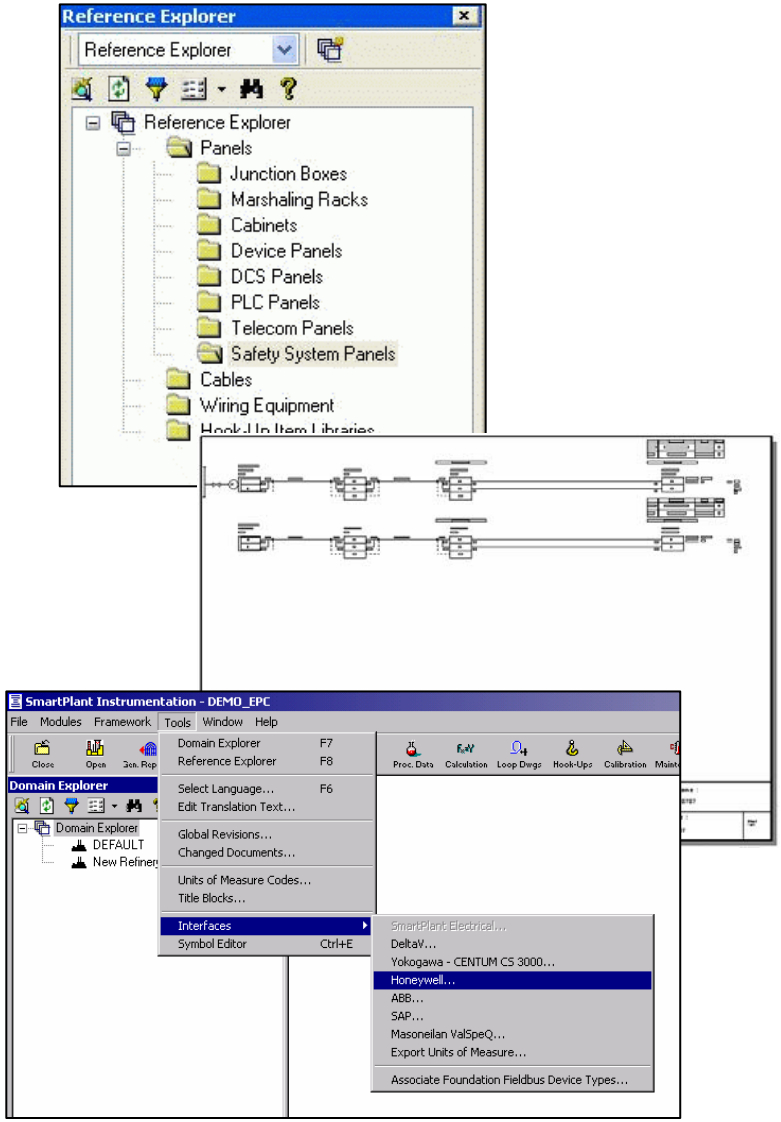
- DCS Controller I/O Catalog
  - Experion C-Series I/O
  - Experion / TPS PMIO & FTAs
  - Support for new & legacy systems
- Safety Controller I/O Catalog
  - Safety Manager / FSC I/O & FTAs
  - Supports loops for SIS, ESD, FGS
- Specialized assemblies for
  - Integrated GI/IS modules
  - Non-incendive I/O
  - Integrated F&G interfaces
- Improved Design Efficiency
  - 200+ hrs saving per project



Technical Details

Experion-SPI Adapter

R100

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Functional Specifications

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- The SPI adapter provides the import and export of the following components.
  1. Controllers
  2. IO Modules
  3. IO Channels
  4. Control System Tags
  5. HART Devices
  6. Fieldbus Devices
  7. Fieldbus Function Blocks
  8. Fieldbus Interface Modules

- Supports the SPF “file mode” transfer mechanism (XML)
- Supported from SPI 2009 SP4 (released June 2012)

Enabling the Honeywell Interface in SPI

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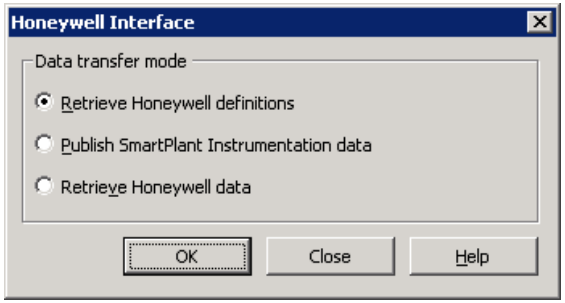
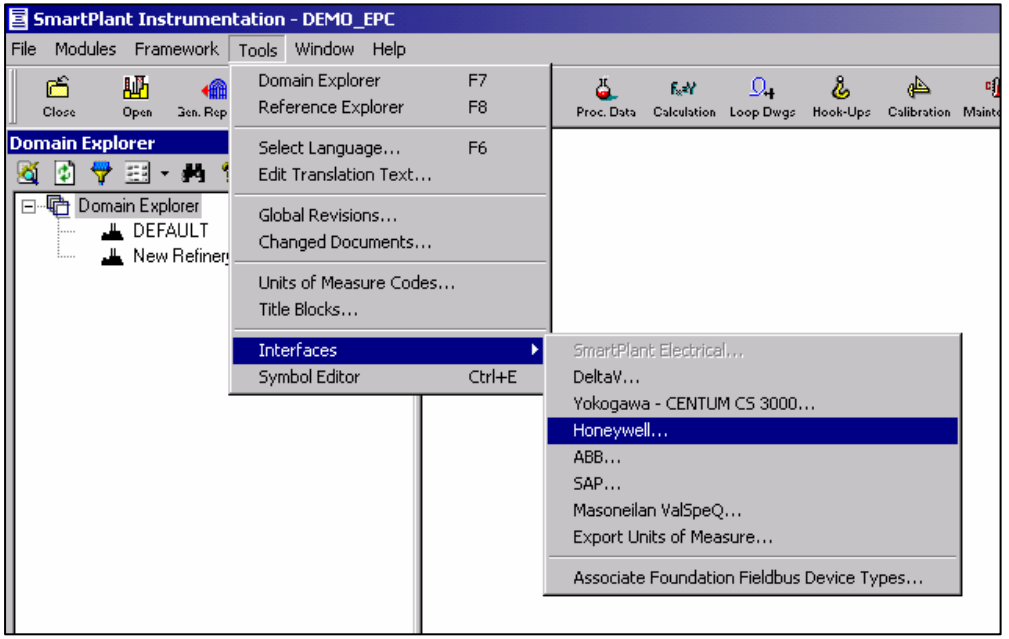
- Interface is enabled as a licensed SPI option from Intergraph
  - Appears as 'INB' code in SmartPlant License Manager
- Interface allows
  - Retrieve Honeywell definitions
  - Publish SPI data
  - Retrieve Honeywell data





Retrieve Honeywell Definitions

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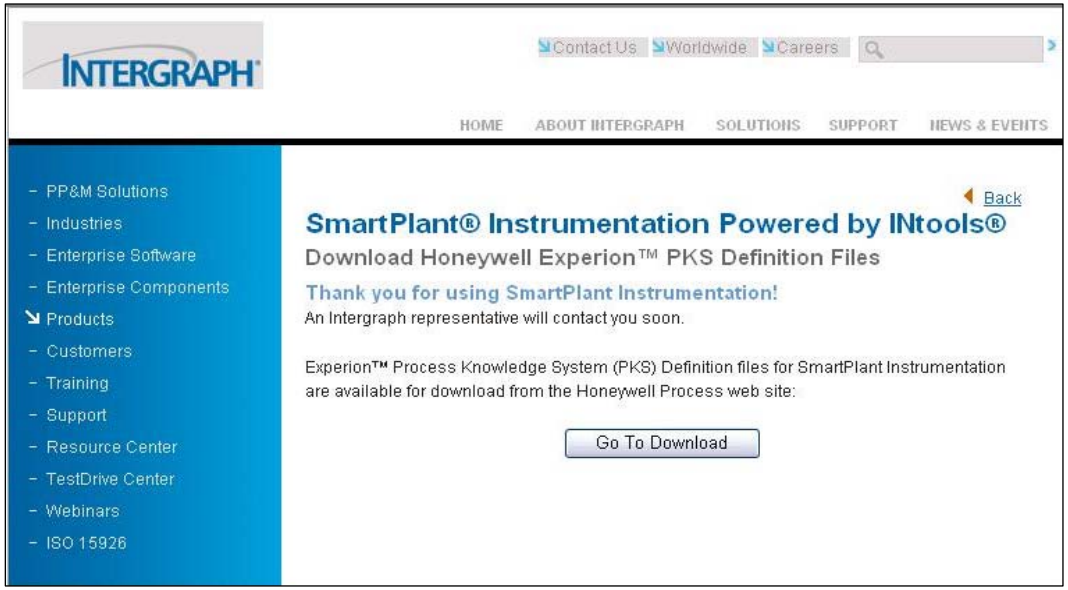
- Retrieving the Honeywell Experion PKS definitions is a prerequisite for both publishing and retrieving the Honeywell Experion PKS data
- The Honeywell definitions that you download and retrieve in SPI constitute the engineering library of the Experion I/O module and terminations



I/O Catalog Library

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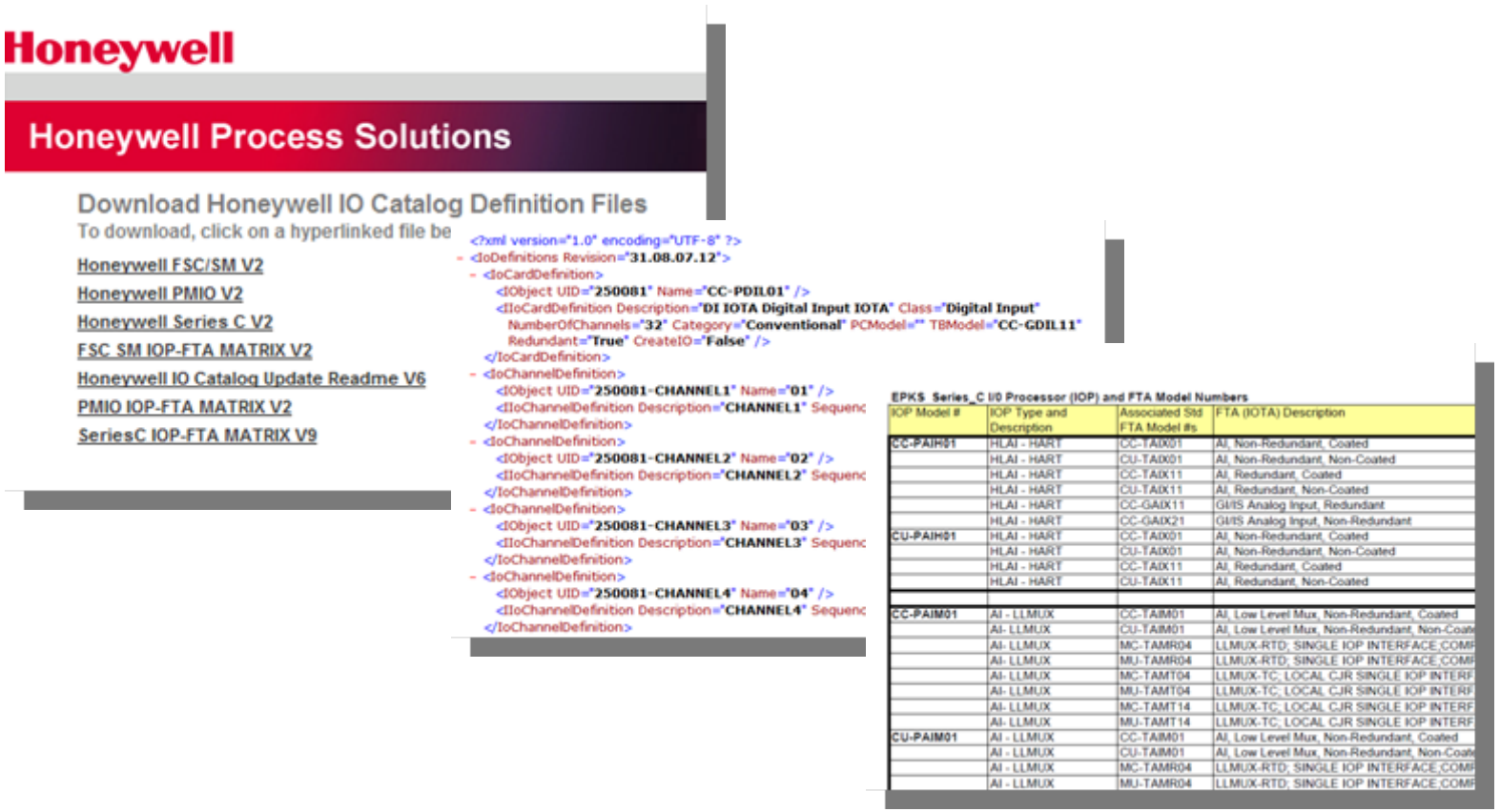
- I/O Catalog definition files are downloaded from HPS website
- Xml files are imported into SPI to populate Reference Explorer
- Help files and lookup matrix enable IO module and termination assembly associations



SPI Users Drag & Drop to Project/Domain Explorer

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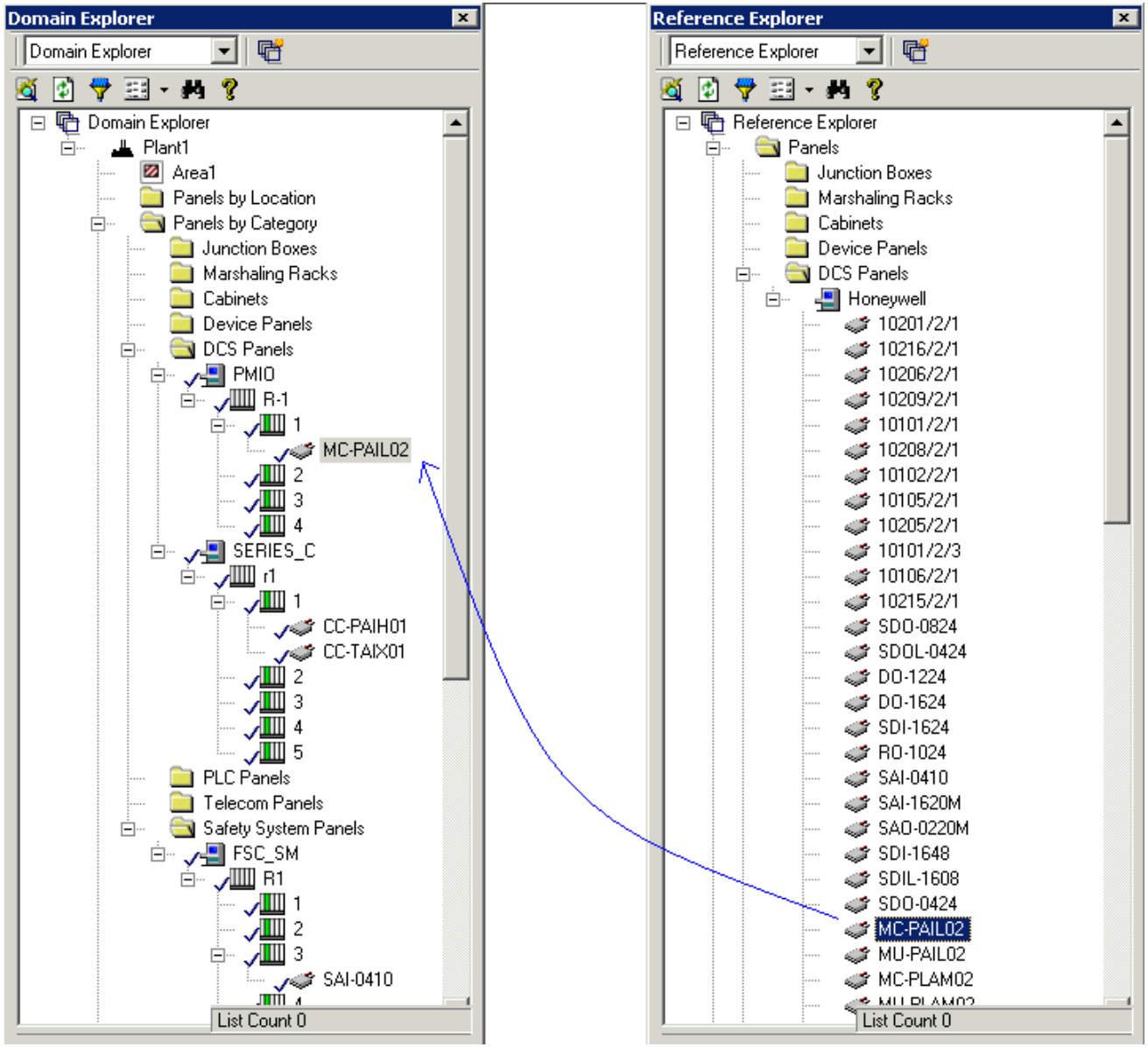

Defining Experion Cabinets in SPI

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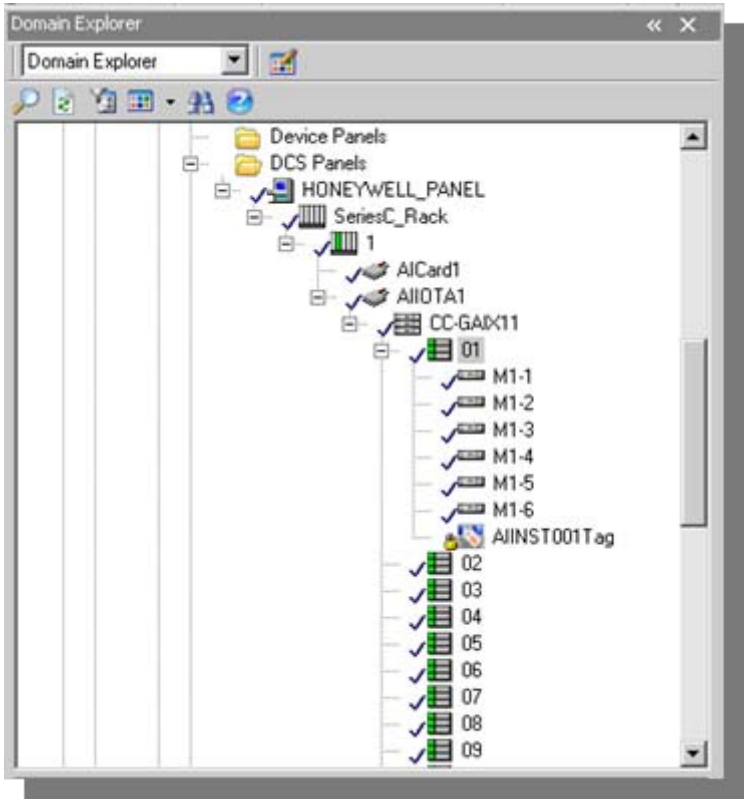
- Experion cabinets are defined under DCS Panels within Plant/Area/Unit domain
- Panel hierarchy with SPI follows “Panel / Rack / Slot / Module”
- I/O channels are associated with I/O Terminations
- I/O Terms are associated with I/O modules
- For Series C IOMs and IOTAs are always in the same position (slot)
- For PMIO IOPs and FTAs may be in different cabinets & redundant IOPs are usually in different racks
- Terminals and CS Tags reside under I/O Channels



SPI and Series C Experion terminology comparison

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SPI Term	Experion Term	Notes
DCS Panel	N/A	Controller cabinet tag may contain controllers and I/O or I/O only
Controller	CPM	CEE and IOLink objects are created automatically for new CPM. CPMs are tagged objects in Experion and must be unique
Rack	Vertical Carrier	Naming convention is Left, Mid and Right or 1-3
Slot	Position (on Carrier)	Positions are numbered from top to bottom and vary in height. Values may be 1-12.
I/O Card	I/O Module	IOM are tagged objects in Experion and must be unique
I/O Termination	IOTA or (FTA for LL Mux)	IOTA channels in SPI are associated with IOM channels in Experion

Streamlining Project Execution

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Scenario 1 – Using Traditional Workflows

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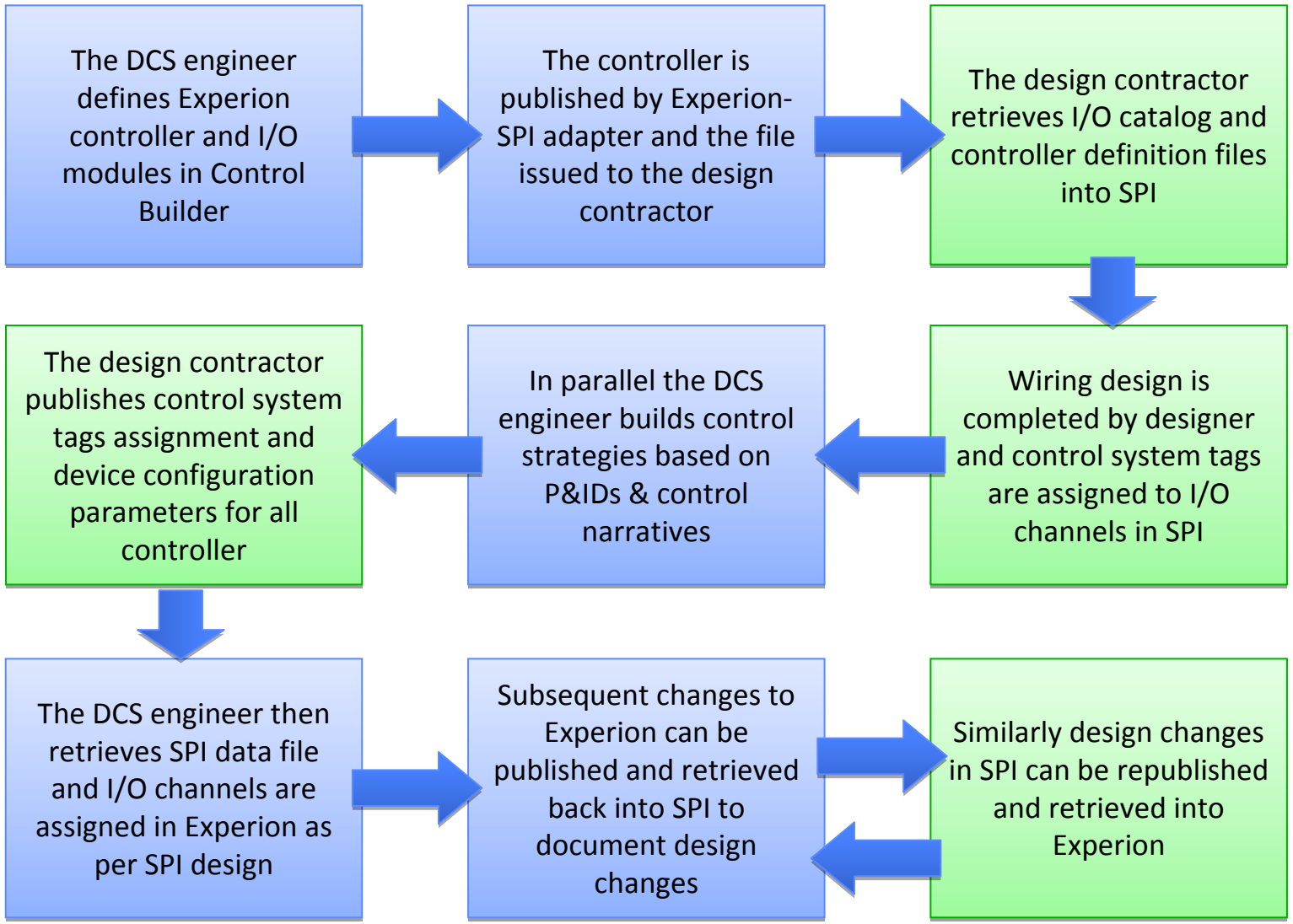

Scenario 2 – Using Alternate Workflows