



Owner Operator Concerns

FLUOR

SmartPlant ©

Implementation Team



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INTERGRAPH

Owner Operator SPI Concerns



- ◆ **SPI Database Setup and Administration**
- ◆ **Initializing SPI in an Existing Plant**
- ◆ **Integration with other Plant Systems**
- ◆ **Utilizing Owner Operator SPI Functions**
- ◆ **SPI Access by Contractors**
- ◆ **Upgrading and Technical Support**
- ◆ **Tips and Tricks for Owner Operators**



SPI Setup and Administration



◆ Hosting Concerns

- Who will Host the SPI Database
 - Owner Hosted
 - Third Party
 - Main Engineering Contractor

- Location of the SPI Database
 - Secure Server
 - In Country

- Remote User Access to the SPI Database
 - Citrix
 - Terminal Services

- What Technology will be used
 - Oracle
 - Microsoft SQL Server



SPI Setup and Administration



◆ SPI Administration and User base

- I.T. Administration
 - Experience with Oracle or Microsoft SQL Server
 - Experience with Citrix or Terminal Services
- Domain Administrator
 - Full time – Part Time – Training
- System Administrator
 - Full time – Part Time – Experience
- Technical Support
 - In House
 - Intergraph
 - Third Party
- SPI User base
 - Training – Experience



Initializing SPI in an Existing Plant



- ◆ **Operational Scope of SPI**
 - Interfacing with Other Plant Systems
 - Maintaining Instrument Index
 - Maintaining Spec Sheets
 - Maintaining Wiring
 - Maintaining Loops

- ◆ **Develop Initializing Standards**
 - Implementation Standard
 - Standard Forms and Reports

- ◆ **Initial Loading of SPI Data**
 - In-house Staff
 - Contractor
 - As part of a Project

The screenshot displays a software window titled 'SmartPlant Instrumentation' with a 'Panel Strip Report' open. The report is a multi-column table listing instrument details. The columns include: Instrument Tag, Name, Date, Unit, Type, Location, and other technical specifications. The data is organized into several rows, each representing a different instrument or loop within the plant's system.

Integrating SPI with Other Plant Systems



- ◆ **Integration with DCS and Vendor Systems**
 - **Use of Manufacture Specific Interfaces**
 - ABB, Inc. - System 800xA
 - Emerson Process Management – Fisher FIRSTVUE®
 - Emerson Process Management – DeltaV™
 - Flowserve – Direct Data Exchange
 - Honeywell – Experion™ Process Knowledge System
 - Honeywell – Safety Manager
 - Yokogawa Electric Corporation – CENTUM® CS 3000 R3
 - Fluke – Fluke Calibration Tools
 - **System Integration using Custom Interfaces**
 - SAP – SAP R/3
 - Excel – Export / Import
 - Access Database Connection

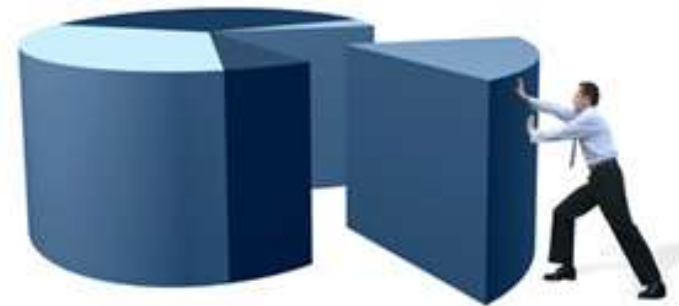
Integrating SPI with Other Plant Systems



- ◆ **Process Control Systems**
 - Basic Process Control Systems
 - Safety Instrumented Systems
 - Equipment Protection Systems
 - Fire and Gas Monitoring Systems

- ◆ **Digital Data Management Systems**
 - Plant Asset Management Systems
 - Process Data Historian Systems
 - Energy Management Systems
 - Preventative Maintenance Systems

- ◆ **Emerging Infrastructure Systems**
 - Bus Instrument Networks
 - Wireless Instrument Networks
 - Self Configuring Networks

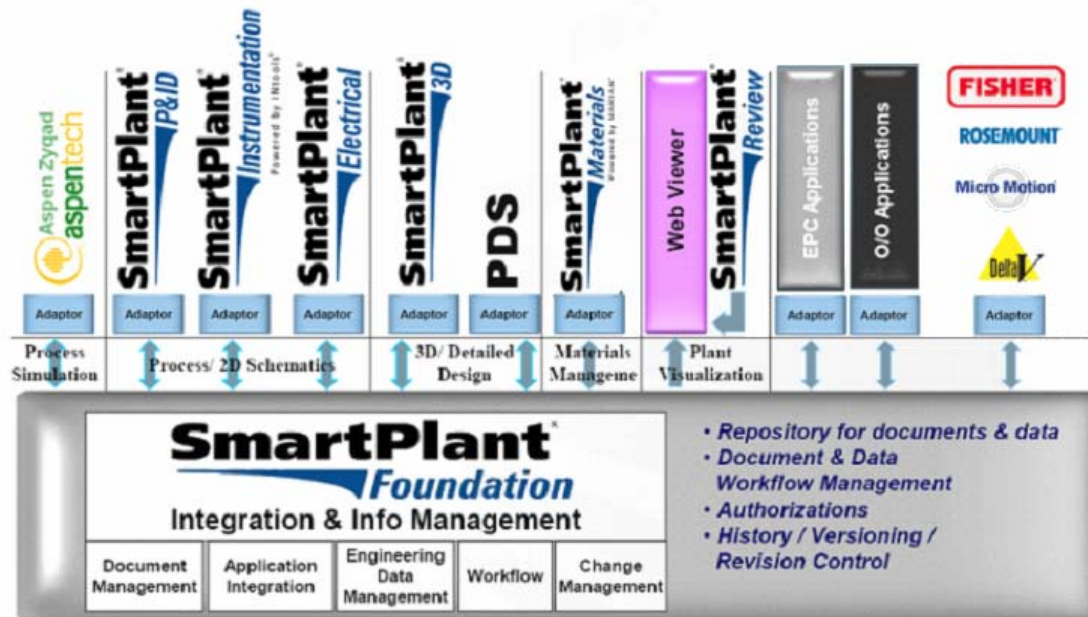


Integrating SPI with Other Plant Systems



◆ SmartPlant Foundation

- Application integration between operations, maintenance, and EPC systems for overall data and change management
- Operations, management and regulatory remote review portal
- Document management and control, including lists and sheets



Utilizing Owner Operator SPI Functions



◆ SPI Maintenance Module

– Breakdown Maintenance

- Work Requests
- Repair Forms

– Preventive Maintenance

- Schedule Periodic Maintenance Activities



◆ SPI Calibration Module

– Customizable Calibration Forms

– Multiple Instrument Type Profiles

– Allows Tracking and Calibration of Test Equipment

– Calibration Certificate Snapshot

– Recorded Errors for Each Calibration Point

– Fluke Documenting Calibrators Integration

Utilizing Owner Operator SPI Functions



- ◆ **SPI As-Built Functionality**
 - **As-Built is created automatically when initializing an Owner Operator Domain**
 - Set claim mode (exclusive or non-exclusive)
 - Set delete merged items or keep view-only records
 - **The As-Built is the Master Project that contains all Formatting for all other Projects.**
 - The As-Built cannot Be Deleted
 - As-Built data can be Claimed to each Engineering Project
 - **The Domain Administrator creates Project Schemas for each Engineering Project**
 - New Engineering Project data is separate from the As-Built until Merged
 - Modified Claimed Data is only changed in the Engineering Project until Merged
 - **When an Engineering Project is complete it is Merged into the As-Built**
 - Merging Engineering Project data with As-Built cannot be reversed
 - Engineering Projects are usually deleted after Merge



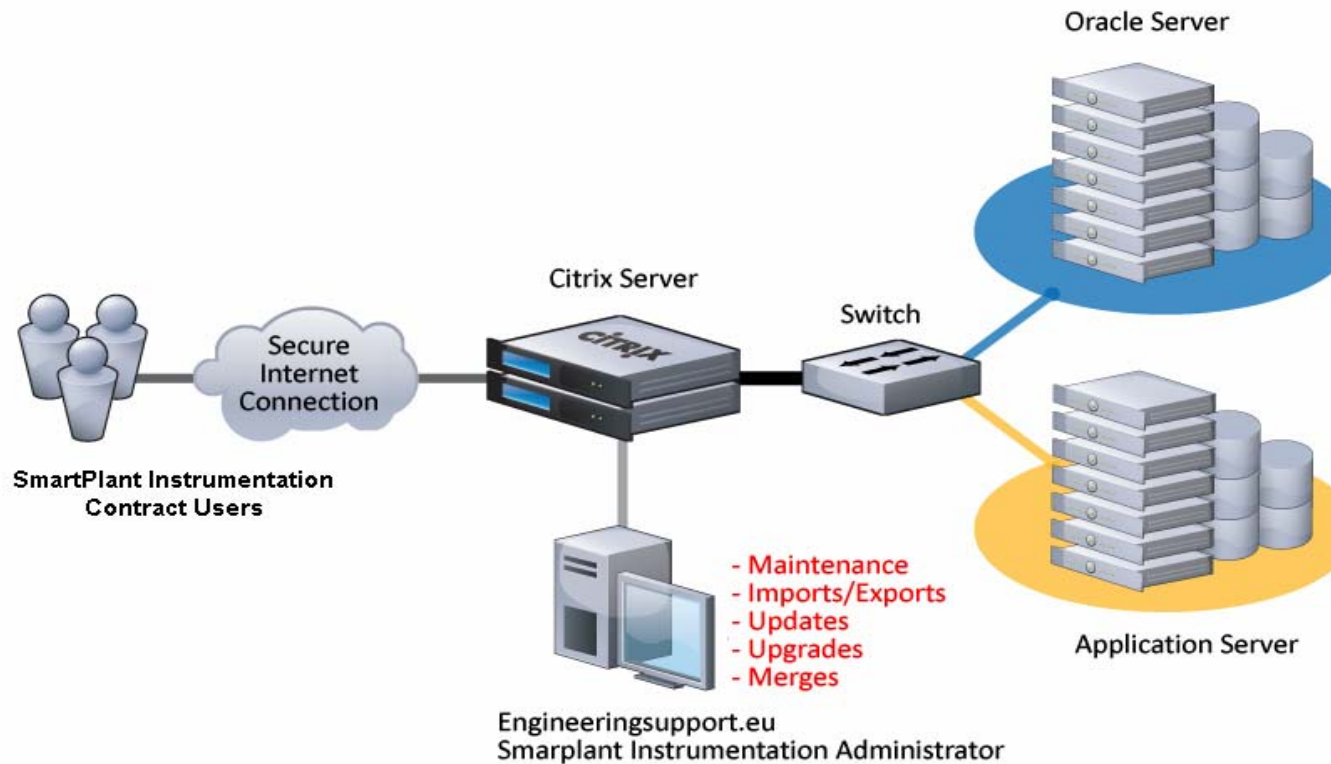
SPI Access by Contractors

- ◆ **How to police contractors from changing plant standards**
 - **Best Method – Use As-Built Functionality**
 - **Restrict Access Rights (not secure)**
- ◆ **Implementation Specification**
 - **Define Contractors Scope in SPI Specification**
 - **Require any changes to Standard tables to be approved**



SPI Access by Contractors

◆ Typical Contractor SPI Access using Citrix Server



SPI Upgrading and Technical Support



◆ Upgrading SPI

– Types of Upgrades

- **Version** – A full version Upgrade is necessary when the current Version is no longer supported by Intergraph
- **Service Packs** – Need to be applied if they add missing Functions or Fix Issues that you need
- **Hot Fixes** – Need to be applied if they repair known issues in the database, they may also keep your current version up to date longer.

– Upgrade Procedure

- **Backup current SPI Database**
- **Timing Considerations**
 - All Users must be out of Database
 - Best to do between major Projects
 - Wait until Current Versions or Service Packs have been updated by others.
- **After Upgrade** – Check all functions (Index – Specs – Wiring)

SPI Upgrading and Technical Support



◆ Technical Support

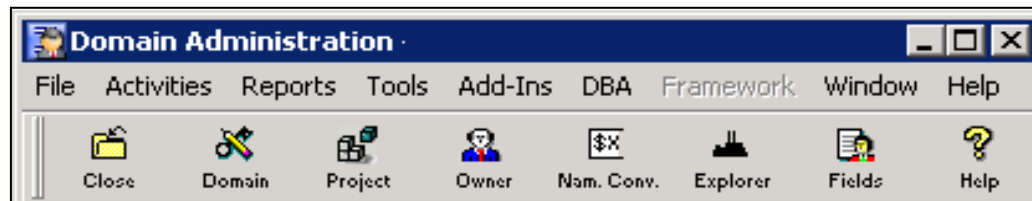
- Don't go it alone – Sign a technical support contract with Intergraph or qualified Intergraph Support Provider.
- In-house Technical Support needs to be Full Time dedicated to SmartPlant Instrumentation Administration
- Keep Administrator and User Training current by taking advantage of Intergraph and OSI training programs.
- Cross train IT and SPI specialists for best optimization of manpower
- Take advantage of Technical Conferences, Intergraph Webinars and SPI-LTUF functions to keep up to date on SPI



Tips and Tricks for Owner Operators



- ◆ Never Delete the “DEFAULT” Plant Area and Unit. You can hide the “DEFAULT” Plant by un-checking the “Default plant use” checkbox in the Domain Definition.
- ◆ Keep the Administrator “DBA” Username and Password so different users may share administrator responsibilities. This will also assure user and administration connectivity when you deliver Sybase versions of the SmartPlant Instrumentation database later on a project.
- ◆ If you are currently logged on as the System Administrator, you can switch to the Domain Administrator level without the need to log on again. You can do this only if the Domain Administrator user name and password are the same as the System Administrator's.



Tips and Tricks for Owner Operators



- ◆ It is important that IT initializes the Oracle server properly. Provide IT with: “*SmartPlant Instrumentation Installation Guide, Installing SmartPlant Instrumentation on Oracle, Running Oracle Database Setup, Oracle Database Server Table spaces*” Documentation. You should also be specific about the proper character set to use in the Oracle instance.
- ◆ If you are initializing an Oracle instance from a MS-SQL source, you must run special script files against the original file before initialization. When in doubt, run the scripts against the Sybase Watcom before initializing.



Tips and Tricks for Owner Operators



- ◆ If two Units have the same number it is possible to maintain separation by numbering the units with an offset (Units 12 for example might be numbered 12 and 012) then use the substring “Start” and “Length” to reference the proper characters in the naming conventions.

Description	Start	Length
UNIT NUMBER	2	2
INSTRUMENT TYPE	1	5
COMPONENT NUMBER	1	6
COMPONENT SUFFIX	1	3

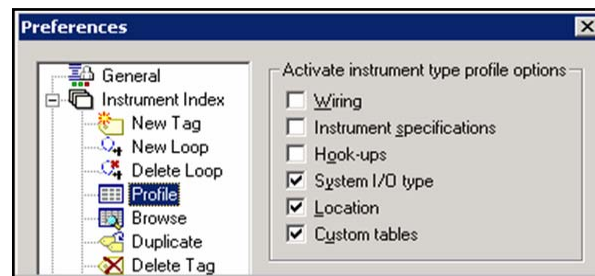
- ◆ For problems printing or viewing, Specs Sheets or Reports, or even speed problems with Citrix, check the User Preferences “General / Temporary Path” and reset the Temporary Path

Tips and Tricks for Owner Operators

- ◆ When working with the Line data table; enter only the Size and Spec instead of the entire line number. This saves time, shortens line table selection and users still have all required line information to do sizing calculations

4"-11H instead of 4"-P-1501-11H

- ◆ If the Instrument Type profiles are not set properly before you start adding tags to the database, De-activate the Profile options in the “Preferences / Instrument Index / Profile”. Then launch each option as needed from the “Browse / Action” menu



Tips and Tricks for Owner Operators



- ◆ Be concise and conservative with Instrument Types. Don't create an Instrument Type for every minor variation. Keeping Instrument Type profiles to a minimum will result in less chance for error.
- ◆ Use Global Revisions dialog box for Specifications, Process Data, Calculations, Loops, Hook-Ups, or Wiring to make revisions more consistent and better use of time.
- ◆ When moving tags from one unit to another, Use the Loop Move command or drag and drop the Loops in the Domain Explorer to move all the tags associated to a loop at one time. **NEVER DELETE AND REBUILD TAGS!**
- ◆ Do not allow tag creation in the Spec, Process or Calculation Modules. Adding Tags from Modules other than the Instrument Index will allow tags to be created without complete data

Tips and Tricks for Owner Operators



- ◆ The Instrument Tag Class is used as a wiring method identifier.
- ◆ In P&ID Table, do not use the description callout unless P&ID reference is shown on Loop Diagrams.

The screenshot shows a dialog box titled "P&ID Drawing References" with a close button (X) in the top right corner. It contains a table with two columns: "P&ID Drawing" and "Description".

P&ID Drawing	Description
100-PID01-001	
100-PID01-002	

- ◆ In the System I/O Type table – Do Not change the standard “AI”, “AO”, “DI”, “DO” or “FieldbusFF” I/O Types if you are using an External Interface

The screenshot shows a dialog box titled "System I/O Types" with a close button (X) in the top right corner. It contains a table with two columns: "System I/O Type" and "Description".

System I/O Type	Description
AI	Analog Input
AO	Analog Output
DI	Discrete Input
DO	Discrete Output
FieldbusFF	Foundation Fieldbus

Tips and Tricks for Owner Operators



- ◆ In the Status Table the “Status” column and the “Description Field” should match to prevent the pick list from being different than the data column.

Instrument Statuses	
Instrument Status	Description
FN	Furnished by others
N	New Instrument
REL	Relocated Device

Status	Location
N	Field
Furnished by others	Field
New Instrument	Field
Relocated Device	

Instrument Statuses	
Instrument Status	Description
FURNISH	FURNISH
NEW	NEW
RELOCATE	RELOCATE
DELETE	DELETE

Status	Location
NEW	Field
DELETE	Field
FURNISHED	
RELOCATE	

Tips and Tricks for Owner Operators



- ◆ When you set a browser view to be your default view, also set it to be personal so others cannot change it. Do not check “Set as default view”. The profile will turn on the default view when you save.

View profile

View name:
My View

View description:

Data level
Unit

Set as default view ← DO NOT CHECK!
 Count per group
 Personal view
 Set as Instrument Index browse view (per user)

Save
Cancel
Help

- ◆ The most common error when working with Browser Views is to allow users to work at the **Plant** or **Area** Data Levels. These levels should only be used for reporting purposes. All adding and editing of Tag Numbers, Panels and Cables should be done at the **Unit** Data Level

Tips and Tricks for Owner Operators



- ◆ Do not use single quotes in view names (JOHN'S INDEX) this will cause problems in the View list. Note: The View Name is also the Report Name in the Header of an Index Browse Report.
- ◆ Number your browser view names by placing a number before the name. Reserve 01 to 09 for your most frequently used queries and ask users to put there initials in their browser View names
- ◆ The Revision Description will not show in the header of the Standard Browse Index report.
 - **Work around: Use the “Approved” field, it will take up to 20 Characters**

DEMO		My View		
Plant: New Refinery		Sort name: P&ID+LOOP	Filter name:	LOCATION
Area: Crude Area				
Unit: Crude unit 1				
Document No.: 1234567890		Revision No.: 1		
By: JED		Checked: HIM		
Approved: <u>For Contruction</u>		Signed by: BOS		
NO DESCRIPTION - USE Approved				
Tag Number	Service	Instrument Type	Process Function Type	IO Type Name

Tips and Tricks for Owner Operators



- ◆ When using the “Find”, click the “As Typed” radio button to assure that the find is working as you enter the search string.
- ◆ When executing a series of commands – Look for Hot Key combinations to assist you. A key sequence like “Ctrl-a, Alt-o, F, Enter” could be used to reset the location field without touching the mouse.
- ◆ The Instrument Type column contains the instrument type name, the instrument type description and the Process Function. To isolate this data - Create a custom view and use the columns `CMPNT_FUNC_TYPE_NAME`, `CMPNT_FUNC_TYPE_DESC` and `PROC_FUNC_ID` fields to show the names and descriptions separately.

Instrument Type		
FO	Flow Orifice, Restriction	Flow
FO	Flow Orifice, Restriction	Flow

Tips and Tricks for Owner Operators

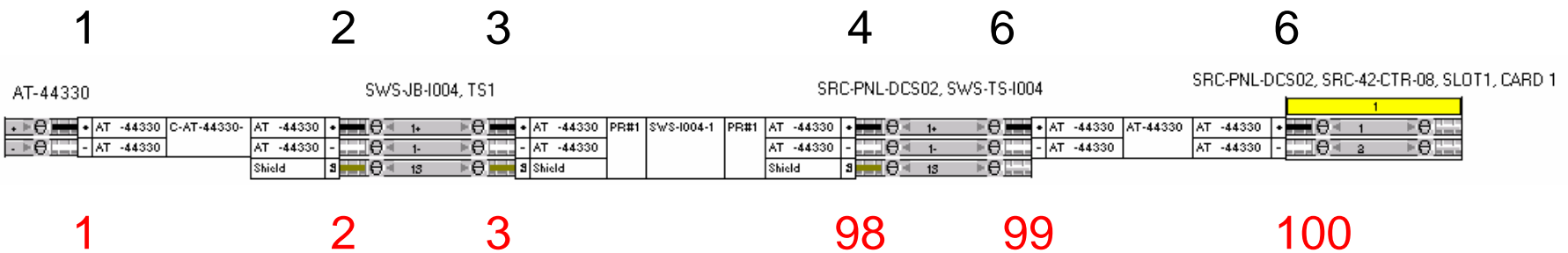


- ◆ A modified title box will not show up on the second notes page. An overlaid title box will show on the second sheet. If you modify a title box, create an overlay title box and associate it to sheets that use a second notes page.
- ◆ To provide a margin at the top of datasheet reports, set a parameter “TOPMARGIN = 250” in the INTOOLS.INI file [PRINTER] section.
- ◆ When adding a column to a spec page, Use the Page Editor in SPI to select an unused column. InfoMaker allows selection of columns that are already on the Spec.
- ◆ Enter the Form Numbers in the Description field of the Page Editor so you know what forms a page is used on.



Tips and Tricks for Owner Operators

- ◆ A modified title box will not show up on the second notes page. An overlaid title box will show on the second sheet. If you modify a title box, create an overlay title box and associate it to sheets that use a second notes page.
- ◆ When loading loop wiring, start wiring from the Field Device, not the DCS. SPI sequences wiring from the Field Device (starting with termination 1) into the DCS. If loop wiring is started from the DCS, SPI will start with termination 100 and number down. This will cause inconsistencies in the termination sequence.



Best Tips and Tricks for Owner Operators



◆ TRAIN YOUR USERS!

- The investment you have made in SPI can only be realized with users who are trained to use the tools well and get the most out of it

◆ KEEP IT SIMPLE!

- Use the minimum amount of data in SPI to support the deliverables you are creating. Remember that the data in SPI will need to be maintained for the life of the Project and/or Plant in an As-built configuration

◆ PLAN AHEAD!

- SPI depends on Instrument Types, Profiles and Support Tables being configured correctly. Every minute you spend properly configuring SPI at the beginning of a Job or Project, will save hours in rework throughout the life cycle of the database

◆ USE SPI!

- Use the tool as it is designed to be used. Don't try to make the software fit your work processes, change your work processes to fit the software. Don't take shortcuts. Work Through SmartPlant Instrumentation, not around it.



Questions