

Create Your Own **SmartPlant[®]** *Instrumentation* Training Program

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SmartPlant[®]

Implementation Team



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INTERGRAPH

Introduction to SPI Training?



- ◆ While formal SmartPlant Instrumentation (SPI) training is always an option – some may wish to develop their own SPI training program or to customized a program to fit their work practices and unique organizational goals
- ◆ This presentation will introduce you to some of the elements and procedures to consider when setting up or customizing a SPI training program



Why Do a SPI Training Program?



- ◆ **Consider your reasons for developing a SPI training program**
 - **To create or maintain your maximum SPI user capability**
 - **Optimizing the functionality of your SPI by the users**
 - **Consistent use of SPI for your Projects or Operations**
 - **Maintain the quality of your SPI deliverables**
 - **SPI update training for your users**
 - **To control costs of training**



SPI Training Requirements



- ◆ **Target Your SPI Training Needs and Requirements**
 - **SPI Trainers and Administration Training**
 - **Update Training for existing SPI users**
 - **IT training for SPI on DBMS & Citrix**
 - **New and existing SPI user training**
 - **Supplemental or Focused Training**
 - **Instrumentation Training**
 - **Instrument Engineering**
 - **Instrument Design**
 - **Process Engineer**
 - **Process Tech**
 - **Maintenance**
 - **Operations**
 - **Management**



SPI Training Formats



- ◆ **Consider the most viable formats for your training program**
 - **Presentation type Instructor Led Classroom training**
 - **Hands on Instructor Led Classroom training**
 - **Self Paced Computer Based user training**
 - **Lunch and Learn short sessions**
 - **Just in Time user training**
 - **One on One user training**
 - **On the Job user training**
 - **Guest instructors**
 - **Outside classes**
 - **Combinations**



SPI Training Costs



- ◆ **Costs associated with SPI – Licensing, Support & Training**
- ◆ **Establish and Maintain a SPI Training Budget**
 - Based on Onsite or Offsite training
 - Is SPI Training Project Billable?
 - Included costs for SPI training
 - Preparation of materials
 - Software Licensing
 - Accommodations
 - Hardware costs
 - Trainers Time
 - Student Time
 - Travel Time
 - Other



SPI Training Instructors

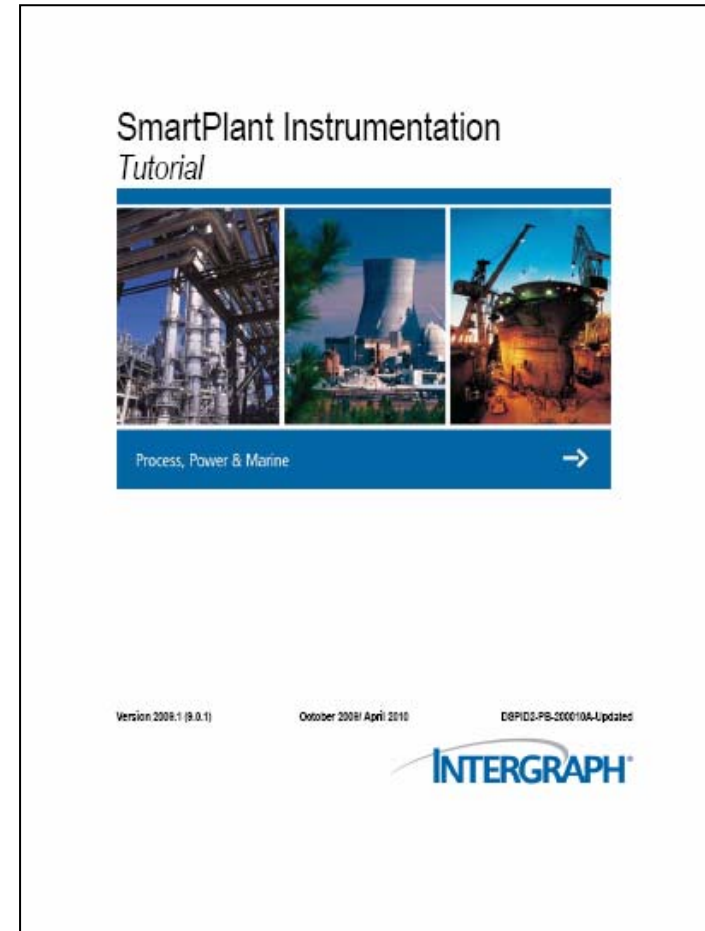
- ◆ **When Developing or Hiring SPI Training Instructors**
 - Consider the Trainers knowledge and skills
 - Look for Outside Training resources
 - Develop Super Users as Trainers
 - Develop Specialty Trainers
 - Train the Trainers



Using the SPI Tutorial



- ◆ The SPI Tutorial is included in the Documentation of SPI
- ◆ The SPI Tutorial uses the In_demo.db database installed as a stand alone Sybase or an Oracle or SQL Server project per Student
- ◆ Recommended supplemental material includes:
 - *SmartPlant Instrumentation User's Guide*
 - *SmartPlant Instrumentation Online Help*





Using the SPI Tutorial

- ◆ **System Administrator Activities**
 - How to initialize a domain.
 - Add users to the SPI user list
 - Create and assign a Domain Administrator

- ◆ **Domain Administrator Activities**
 - Set up the plant hierarchy
 - Define tag and loop naming conventions
 - Define a group and assign users to the group
 - Assign access rights for a group
 - Add custom fields and tables to the Instrument Index

- ◆ **General Tasks**
 - Open a specific unit in SmartPlant Instrumentation.
 - Define default units of measure and preferences.

Global Access Rights

Access mode:
Full (Add / Delete / Update)

Group name:
All

Domain level access rights:
 Enable item selection:
Item:
All

Access rights on the level <Plant>:
 Enable item selection:
<Plant>:
All
Item:
All

Access rights on the level <Unit>:
 Enable Item selection:
<Unit>:
All
Item:
All

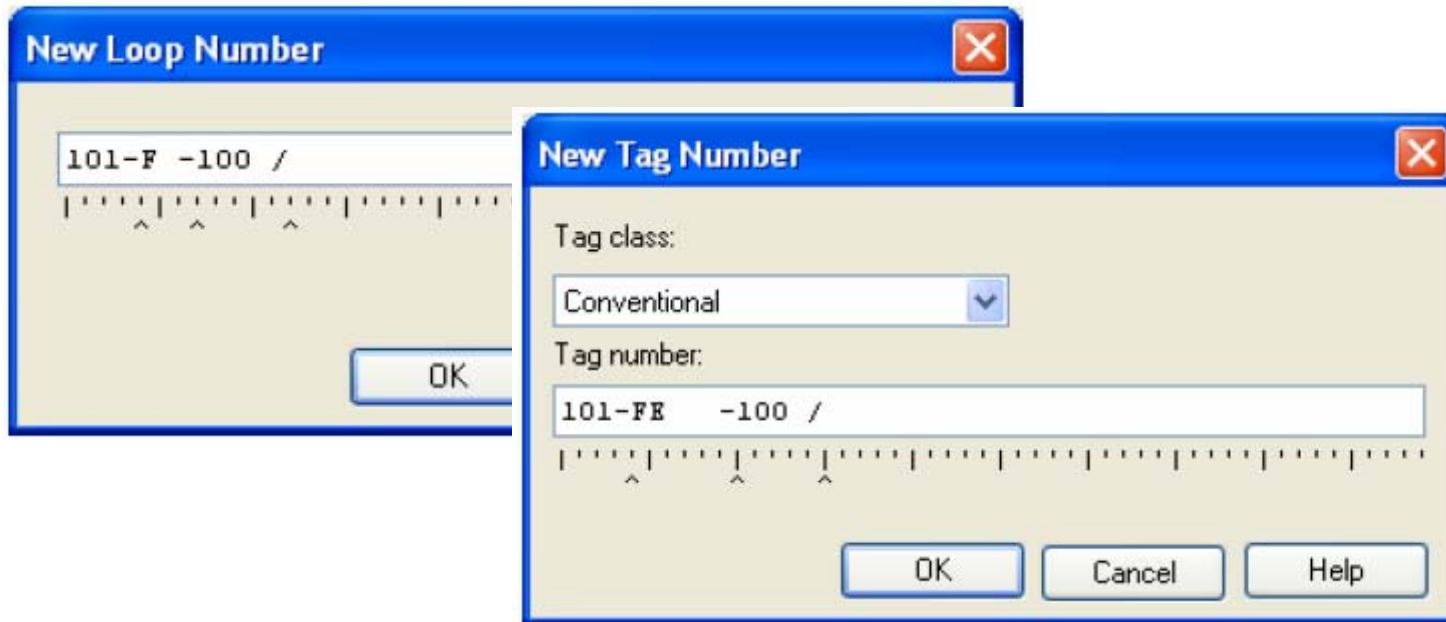
OK Cancel Help

Using the SPI Tutorial



◆ Creating Instruments and Loops

- Define data in supporting tables, including instrument type profiles, P&ID drawing numbers, and lines.
- Create loops and associated tags.
- View and edit instrument data using the Instrument Index Standard Browser.
- Generate and print out reports.

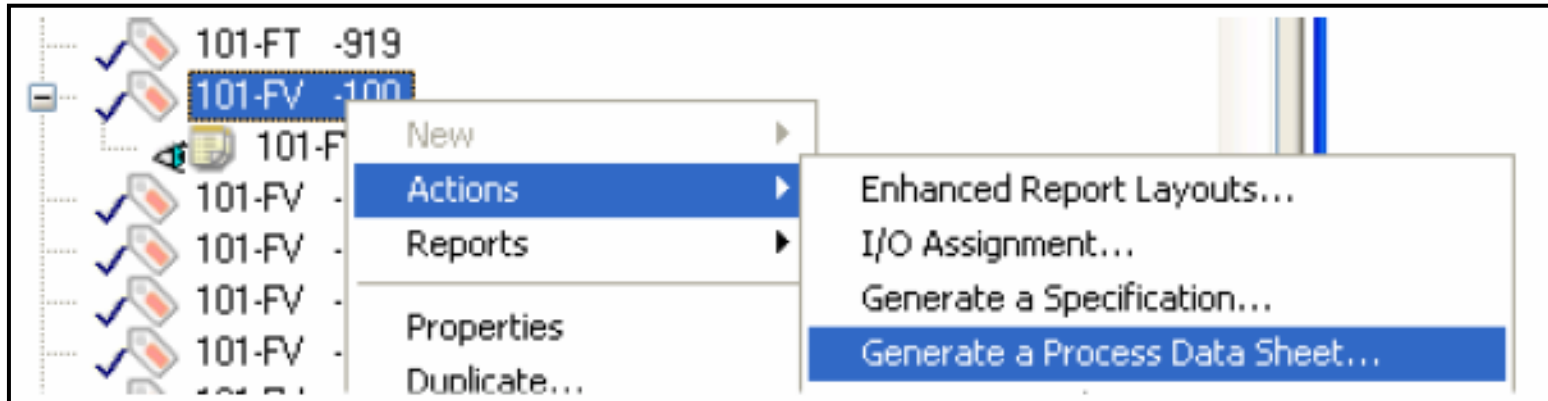


Using the SPI Tutorial



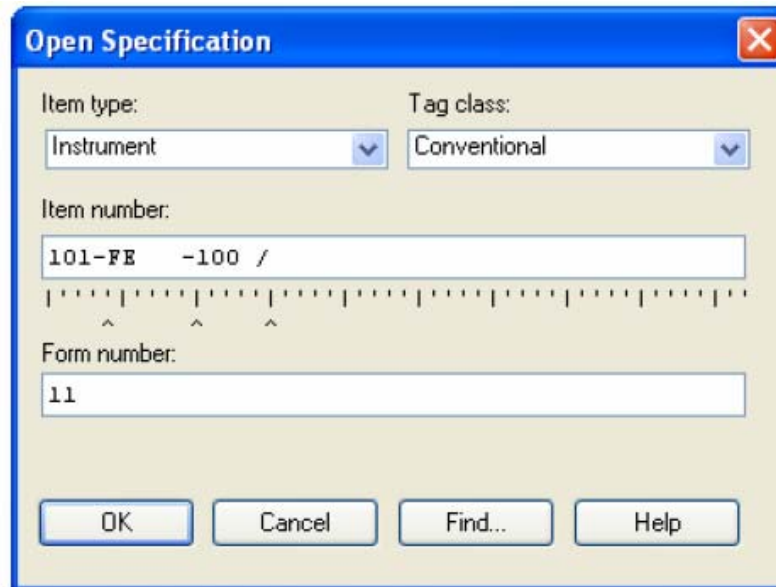
◆ Defining Process Data, Performing Calculations

- Create lines
- Define line process data
- Define instrument process data for flow elements, control valves, etc.
- Perform instrument sizing calculations



Using the SPI Tutorial

- ◆ **Creating and Modifying Specifications**
 - Generate single-tag and multi-tag specifications
 - Copy data to specifications
 - Modify specification pages
 - Perform revisions on specifications.



Open Specification

Item type: Instrument Tag class: Conventional

Item number: 101-FE -100 /

Form number: 11

OK Cancel Find... Help

Using the SPI Tutorial



◆ Performing Wiring Operations

- Create panel-strip-terminal reference items and copy them to your plant.
- Create cable-set-wire reference items and copy them to your plant.
- Assign tags to DCS channels.
- Connect cables / wires as appropriate.
- Design the wiring for specific control loops, including connection type definitions and cross-wiring connections.

Cable Connection Definition

Cable:
E-101-MR-DCS-001

Cable end to connect
Location:
 End1 DCS
 End2 MARSHALLING

Panel:
101-DCS-001

Terminal strip:
TB1

Start at terminal:
1-x

Cable set connection details

Seq	Cable Set	Connection Type	Terminal Side
1	Pr 1	3 in a row	<input checked="" type="radio"/> L <input type="radio"/> R
2	Pr 2	3 in a row	<input checked="" type="radio"/> L <input type="radio"/> R
3	Pr 3	3 in a row	<input checked="" type="radio"/> L <input type="radio"/> R
4	Pr 4	3 in a row	<input checked="" type="radio"/> L <input type="radio"/> R
5	Pr 5	3 in a row	<input checked="" type="radio"/> L <input type="radio"/> R
6	Pr 6	3 in a row	<input checked="" type="radio"/> L <input type="radio"/> R
7	Pr 7	3 in a row	<input checked="" type="radio"/> L <input type="radio"/> R
8	Pr 8	3 in a row	<input checked="" type="radio"/> L <input type="radio"/> R

Select all cable sets

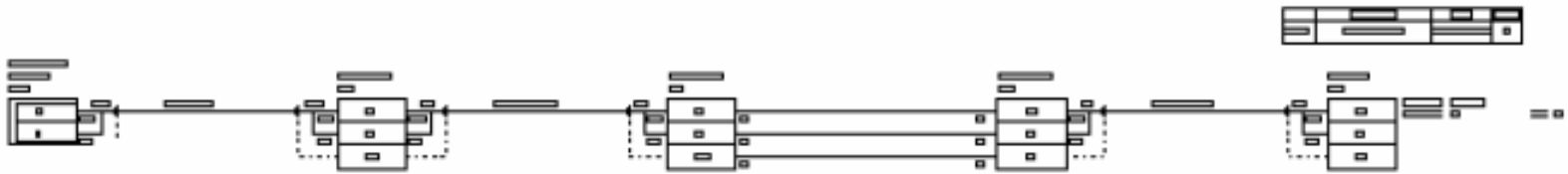
Connect Cancel Help



Using the SPI Tutorial

◆ Generating Loop Drawings

- View and modify a loop drawing.
- Display additional data in enhanced SmartLoop using macros
- Change layout settings and include annotations for enhanced reports
- Create block types and blocks for CAD loop drawings.
- Associate block with instruments.
- Add revisions.
- Browse macros.
- Generate a CAD loop drawing





Using the SPI Tutorial

- ◆ **Generating Hook-Up Drawings**
 - Create hook-up types and hook-ups
 - Add items in a hook-up library.
 - Assign hook-up items to hook-ups.
 - Assign instruments to hook-ups.
 - Generate a Bill of Material.
 - Generate a hook-up drawing using the Enhanced Report Utility

- ◆ **You may wish to use the included SPI tutorial as a basis for your custom training program**

The screenshot shows the 'Hook-Up Properties' dialog box with the following fields and controls:

- Global path:** Global path is not defined
- Hook-up type:** VALVES (dropdown menu)
- Hook-up:** CONTROL VALVE WITH I/P FIG.1
- Hook-up description:** CONTROL VALVE WITH I/P
- Item sub-library:** Default Sub-Library (dropdown menu)
- Applied generation method:** (empty text field)
- Drawing block name:** HookUp_CV.sym
- Drawing block file name and path:** C:\Program Files\SmartPlant\Instrumentation\RAD\Symbc (with a 'Browse...' button)
- Generation output path:** (empty text field)

Buttons on the right side of the dialog include: OK, Cancel, < Previous, Next >, Pipe Specs, View, and Help.

Customizing Your Training Program



- ◆ **The SPI Tutorial is limited and will probably need to be supplemented with additional training as required**
 - Training for specific users: Process, Design, Maintenance etc...
 - Training for specific tasks: Fieldbus, Spec Sheets, Process data etc...
 - Training scaled to purpose: Lunch & Learn, Manager training etc...
 - Training based on upgrades: Update training, New feature training etc...
 - Training for consistency: Seed and Standard practices training etc...
 - Training for additional modules: External Editor, Import Module etc...



Customizing Your Training Program



- ◆ **Other options for Custom SPI Training and Support are:**
 - Build a “Sandbox” plant in your SPI project for training and experimentation
 - Bring your global champions together and have an SPI Training Summit
 - Place Tutorials on your companies Knowledge Sharing program
 - Join LinkedIn SPI Forum Groups and ask specific questions
 - Send your super users to attend training at HEXAGON conferences
 - Check out the Intergraph PP&M Resource Center for Whitepapers & Webinars



<http://www.intergraph.com/ppm/webinars.aspx>

Intergraph is considering developing a web based SPI virtual training program and is looking for companies to partner with to assist in developing such a program

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Training Program Resources



- ◆ **Intergraph PP&M Training: SmartPlant Instrumentation**
 - Register for classes Online, or call 1-800-766-7701
 - Outside of Houston – Contact your local Intergraph Office:

North America



[Canada](http://www.intergraph.com/global/ca/) www.intergraph.com/global/ca/



[Mexico](http://www.intergraph.com/global/mx/) www.intergraph.com/global/mx/



[United States](http://www.intergraph.com) www.intergraph.com

Europe, Middle East, and Africa (EMEA)



[Austria](http://www.intergraph.com/global/at/) www.intergraph.com/global/at/



[Belgium](http://www.intergraph.com/global/be/) www.intergraph.com/global/be/



[Croatia](http://www.intergraph.com/global/hr/) www.intergraph.com/global/hr/



[Denmark](http://www.intergraph.com/global/dk/) www.intergraph.com/global/dk/



[Finland](http://www.intergraph.com/global/fi/) www.intergraph.com/global/fi/



[Germany](http://www.intergraph.com/global/de/) www.intergraph.com/global/de/



[Israel](#) [Multiple Websites](#)



[Jordan](http://www.qce.com.io) www.qce.com.io



[Netherlands](http://www.intergraph.com/global/nl/) www.intergraph.com/global/nl/



[Oman](#)



[Portugal](http://www.intergraph.com/global/pt/) www.intergraph.com/global/pt/



[Russia](http://www.intergraph.com/global/ru/) www.intergraph.com/global/ru/



[Saudi Arabia](http://www.atheeb.com) www.atheeb.com



[Spain](http://www.intergraph.com/global/es/) www.intergraph.com/global/es/



[Switzerland](http://www.intergraph.com/global/ch/) www.intergraph.com/global/ch/



[Ukraine](http://www.intergraph.com/global/ua/) www.intergraph.com/global/ua/



[United Arab Emirates](#)



[Bahrain](#)










Training Program Resources



- ◆ **Intergraph PP&M Training: SmartPlant Instrumentation**
 - Outside of Houston – Contact your local Intergraph Office:

Europe, Middle East, and Africa (EMEA)

	Czech Republic	www.intergraph.com/global/cz/
	Hungary	www.intergraph.com/global/hu/
	France	www.intergraph.com/global/fr/
	Italy	www.intergraph.com/global/it/
	Kuwait	
	Poland	www.intergraph.com/global/pl/
	Serbia	
	Slovakia	
	Sweden	www.intergraph.com/global/se/
	United Kingdom	www.intergraph.com/global/uk/








	Bulgaria	www.intergraph.com/global/bg/
	Egypt	www.qt-egypt.com
	Ireland	Multiple Websites
	Iraq	www.bi4edm.com/
	Norway	www.intergraph.com/global/no/
	Romania	www.intergraph.com/global/ro/
	Slovenia	
	South Africa	Multiple Websites
	Turkey	www.intergraph.com/global/tr/





Training Program Resources



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Asia Pacific

 Australia	www.intergraph.com/global/au/
 Indonesia	www.intergraph.com/global/id/
 New Zealand	www.intergraph.com/global/nz/
 Thailand	Multiple Websites
 India	www.intergraph.com/global/in/
 Myanmar	www.credent-asia.com
 Singapore	Multiple Websites
 Vietnam	www.credent-asia.com

 Hong Kong	www.intergraph.com/global/hk/
 Malaysia	www.intergraph.com/global/my/
 South Korea	Multiple Websites
 China	www.intergraph.com/global/cn/
 Japan	www.intergraph.com/global/jp/
 Philippines	www.intergraph.com/global/sa/
 Taiwan	www.intergraph.com/global/tw/

South America

 Argentina	Multiple Websites
 Ecuador	
 Brazil	www.sisgraph.com.br
 Panama	

 Chile	Multiple Websites
 Peru	
 Colombia	Multiple Websites
 Venezuela	www.intergraph.com/global/ve/

Training Program Resources



- ◆ **Intergraph PP&M and Overload Services Inc. offer the following courses:**
 - SmartPlant Instrumentation for Users (TINT1001)
 - SmartPlant Instrumentation Installation and System Administration (TINT1003)
 - SmartPlant Instrumentation Customization & Data Management (TINT1004)
 - SPI 2009 Update Class (TINT1005)
 - SmartPlant Instrumentation Advanced Wiring & Reporting (TINT1006)
 - SmartPlant Instrumentation As-Built/Operating Owner (TINT1007)
 - Infomaker Customization (TINT1065)
 - SmartPlant® 3D Virtual Training (SPVT)
 - SmartPlant Electrical Basic User (TELE1001)
 - SmartPlant Electrical Advanced User (TELE1002)

- ◆ **Custom courses can be developed specifically for a licensed user and the classes can be taught at Intergraph or Overload Services Inc. location in the Houston area or at your facility**

SPI Training Questions?



**If you think training is expensive,
the lack of it will cost you more!**

