



HEXAGON 2011

Building A Smarter World



INTERGRAPH @ HEXAGON 2011

SmartPlant Electrical Product Update

Meir Stein

Nico Hoffmann

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- We have diverse means to perform a fast, accurate, consistent, massive data population and propagation
- We have a User defined Rule base data integrity validation system
- We can assign loads to buses, do load balancing in batch
- We can run Load lists and Summaries, bus totals and roll up
- We have a Bidirectional SPEL ETAP interface to perform our analysis tasks
- We do cable management- create raceway systems, route cables and calculate tray fill
- We integrate with SPPID, SP3D, SPI so we are not working in a silo, isolated from other disciplines...
- We issue alphanumerical Excel output report, graphical schematics, SLD, Cable block diagrams and wiring diagrams

- So, SPEL is a great tool to perform basic engineering activities

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- What do we hear?
 - We like the rule based data model...
 - We love data base oriented and driven software...
 - But:
 - Most of our deliverables are rich in graphics
 - We are used to work in graphical environment, it is flexible, everybody understand graphical presentation
 - We want to keep and work in a Graphical front end...
 - Graphics, and more graphics.....

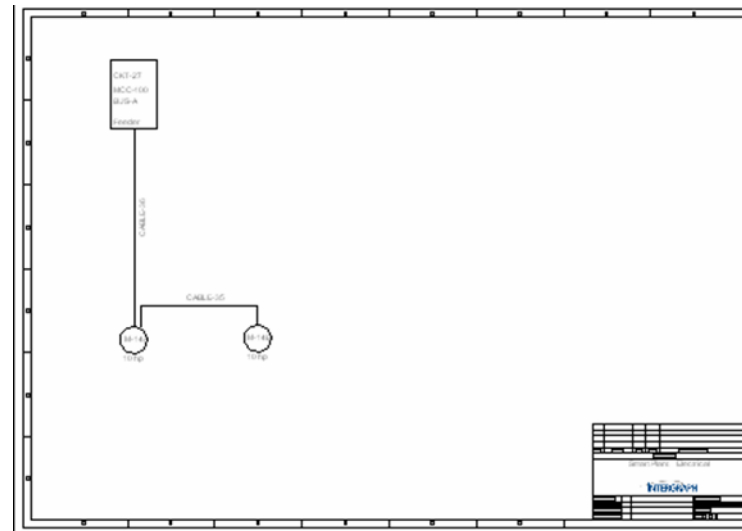
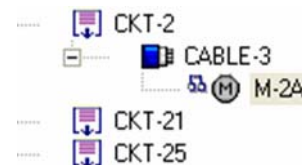
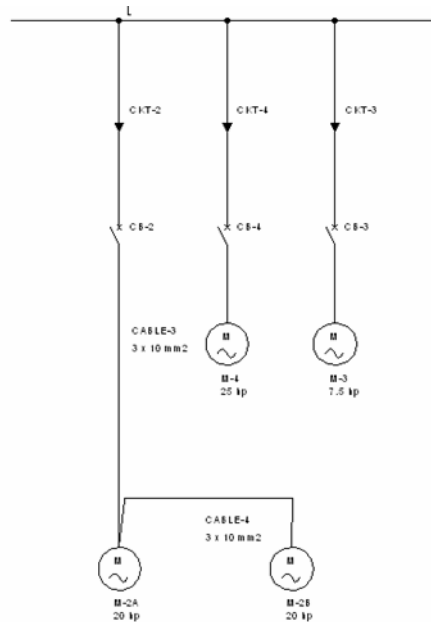
So, what do we do?

- We pick the challenge and start a five step program
- 1st step: Introduce graphical front end in cable block diagrams in 2009SP2
- 2nd step: Use ref items in the Cable Block diagrams to create project items introduced in 2009SP3
- 3rd step: Typical cable block diagrams and graphical profiles in 2009SP4
- 4th step: Introduce the SLD graphical front end environment in v2013
- 5th step: Enhance SPEL B with Detailed design capabilities (wiring, schematics, 3 lines, etc)

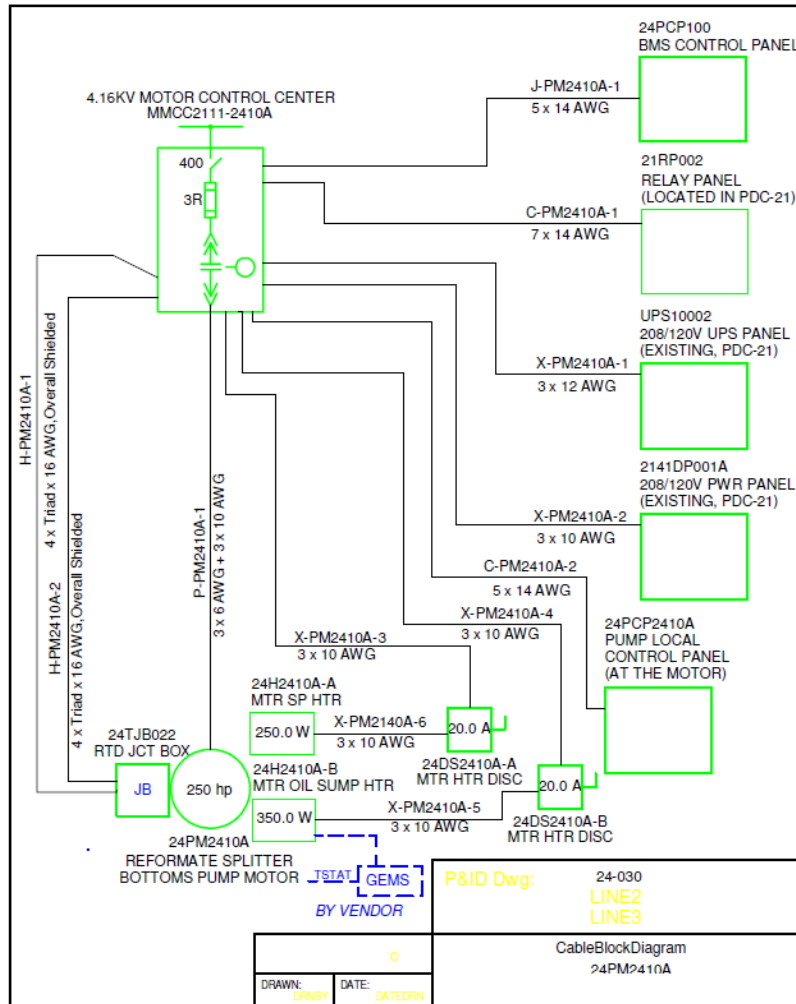
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- 1st step of the plan [Show me](#)

So, what did we have in 2009SP3?

- SLD management, algorithm enhancements- improve graphical output
- Improvements in the Project AsBuilt functionality (EPC-OO collaboration)
- Cable Block Diagrams functionality [2nd Step-show me](#)
- Connecting equipment in Parallel

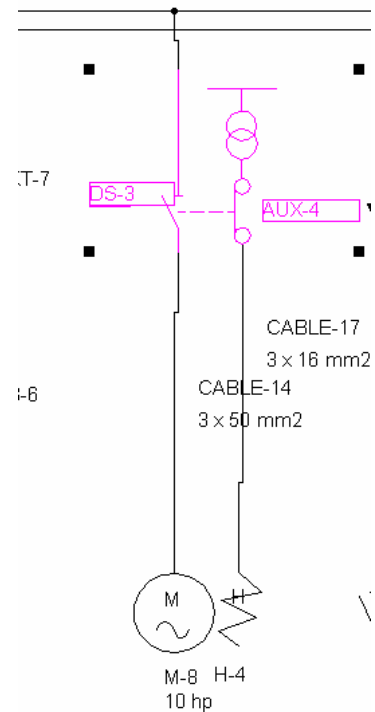
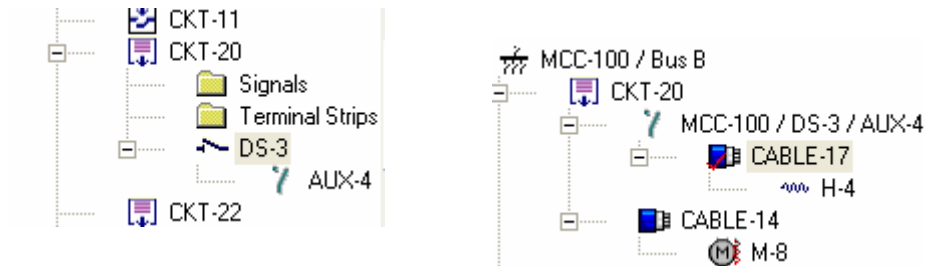


Example of what can be done in 2009SP3- customer evidence



=> Cable schedule, equipment list

- Space heaters and auxiliary contacts



- Enhancing the usability of Single core cable assemblies
 - Edit the number of neutral and grounding cables

Single-Core Cable Assembly Common Properties [CableAssembly A]

Assembly tag: CableAssembly A ... Cable arrangement: Phase arrangement: 3 PH + N + G

Description: Width: Height: Area

Select Predefined Cable Assembly...

Current carrying cores

Item Tag	Specification	Formation	Phase	Tag Suffix
CABLE-131/L1	Power - mm2	1 x (1 x 6 mm2)	L1	L1
CABLE-131/L2	Power - mm2	1 x (1 x 6 mm2)	L2	L2
CABLE-131/L3	Power - mm2	1 x (1 x 6 mm2)	L3	L3

Neutral cables

Item Tag	Category	Specification	Formation	Tag Suffix
CABLE-131/N1	Power	Power - mm2	1 x (1 x 4.0 mm2)	N1
1/C - 35 mm ² - (Ground) (Ne	Grounding	Grounding	1 x (1 x 35 mm2)	

Grounding cables

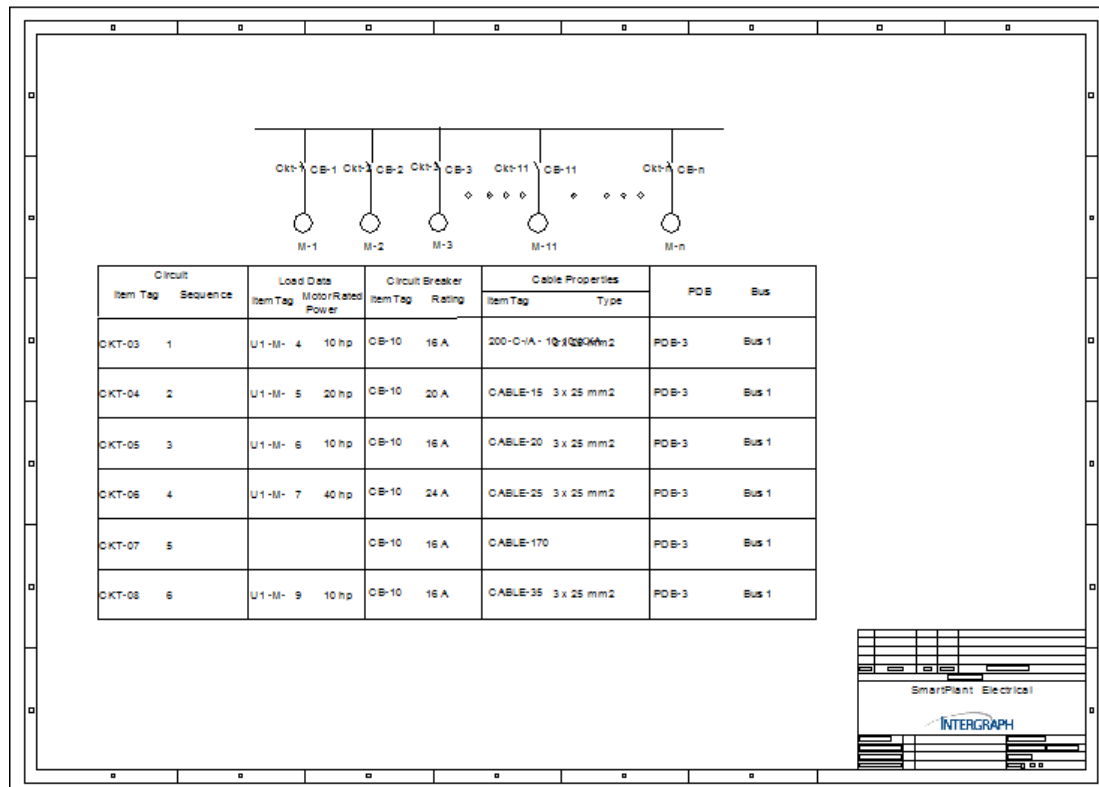
Item Tag	Category	Specification	Formation	Tag Suffix
CABLE-131/G1	Power	Power - mm2	1 x (1 x 4.0 mm2)	G1

OK Cancel Apply Help

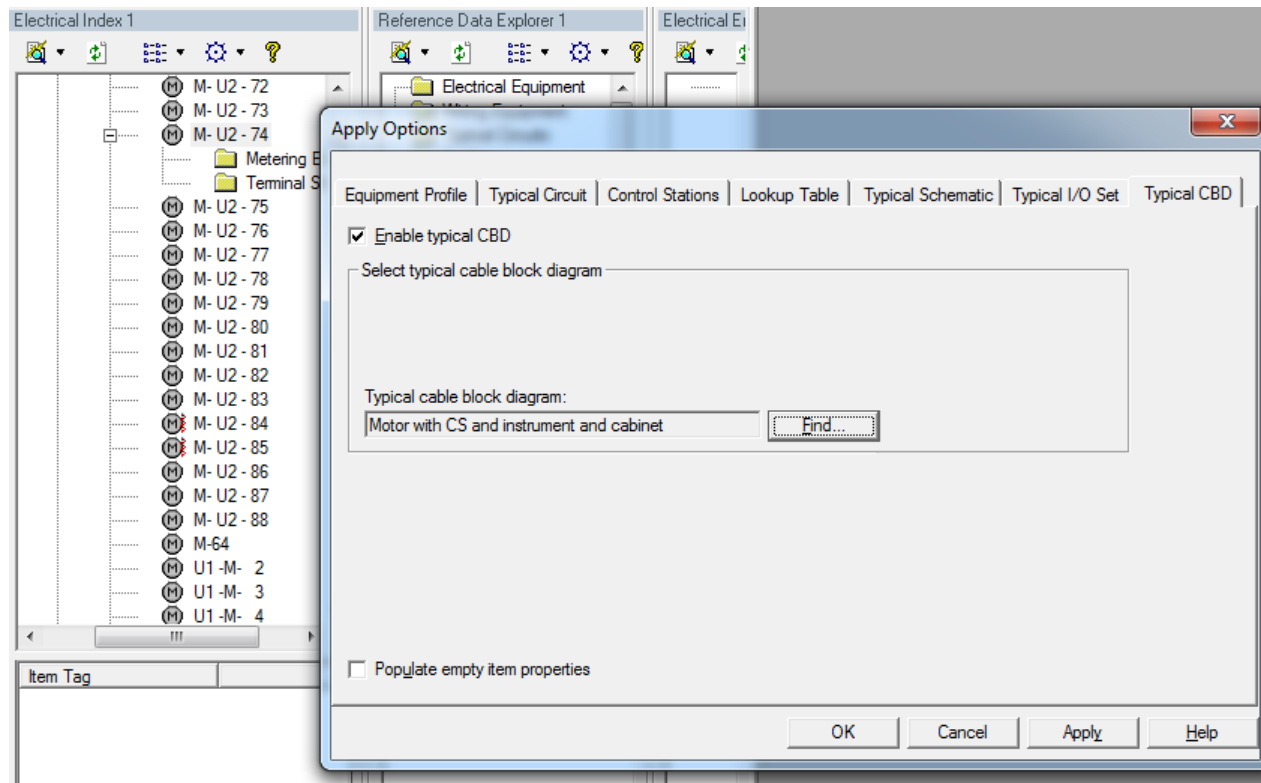
- Supporting construction activities - the “As installed” length of cables (pulled length)

Installed data			
Marked length - side 1:	Marked length - side 2:	Installed length:	<input checked="" type="checkbox"/> Cable installed:
125 m	346 m	221.0 m	

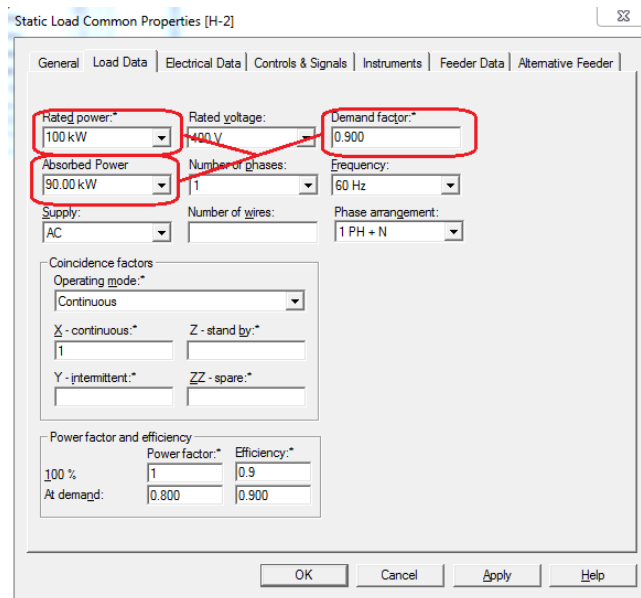
- Supporting “Typical SLD’s” by using multi tag schematics



- Scheduled for September 2011
- Typical cable Block diagrams [Step 3- Show me](#)
 - And yes.....we also have the Apply typical CBD on a set of loads in batch



- Enabling users' customization of their own data entry custom forms-[Show me](#)
- Using Power cables category for the Neutral and Earth usage in single core cable assemblies (not only grounding cable category)
- Add Absorbed power property and functionality for static loads
 - The software now enables you to calculate the required demand factor if you enter the required rated power and absorbed power values for that static load



Static Load Common Properties [H-2]

General | Load Data | Electrical Data | Controls & Signals | Instruments | Feeder Data | Alternative Feeder

Rated power:* 100 kW | Rated voltage: 400 V | Demand factor:* 0.900

Absorbed Power: 90.00 kW | Number of phases: 1 | Frequency: 60 Hz

Supply: AC | Number of wires: | Phase arrangement: 1 PH + N

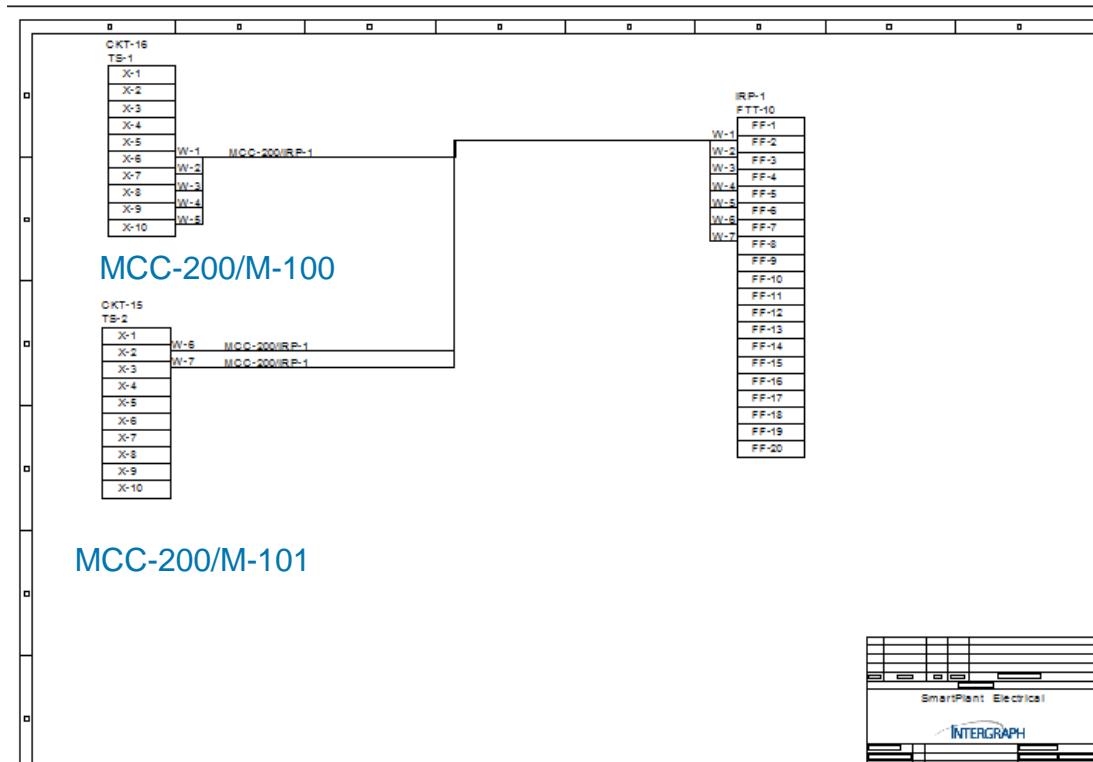
Coincidence factors
Operating mode:* Continuous

X - continuous:* 1 | Z - stand by:*
Y - intermittent:* | ZZ - spare:*

Power factor and efficiency
Power factor:* 1 | Efficiency:* 0.9
At demand: 0.800 | 0.900

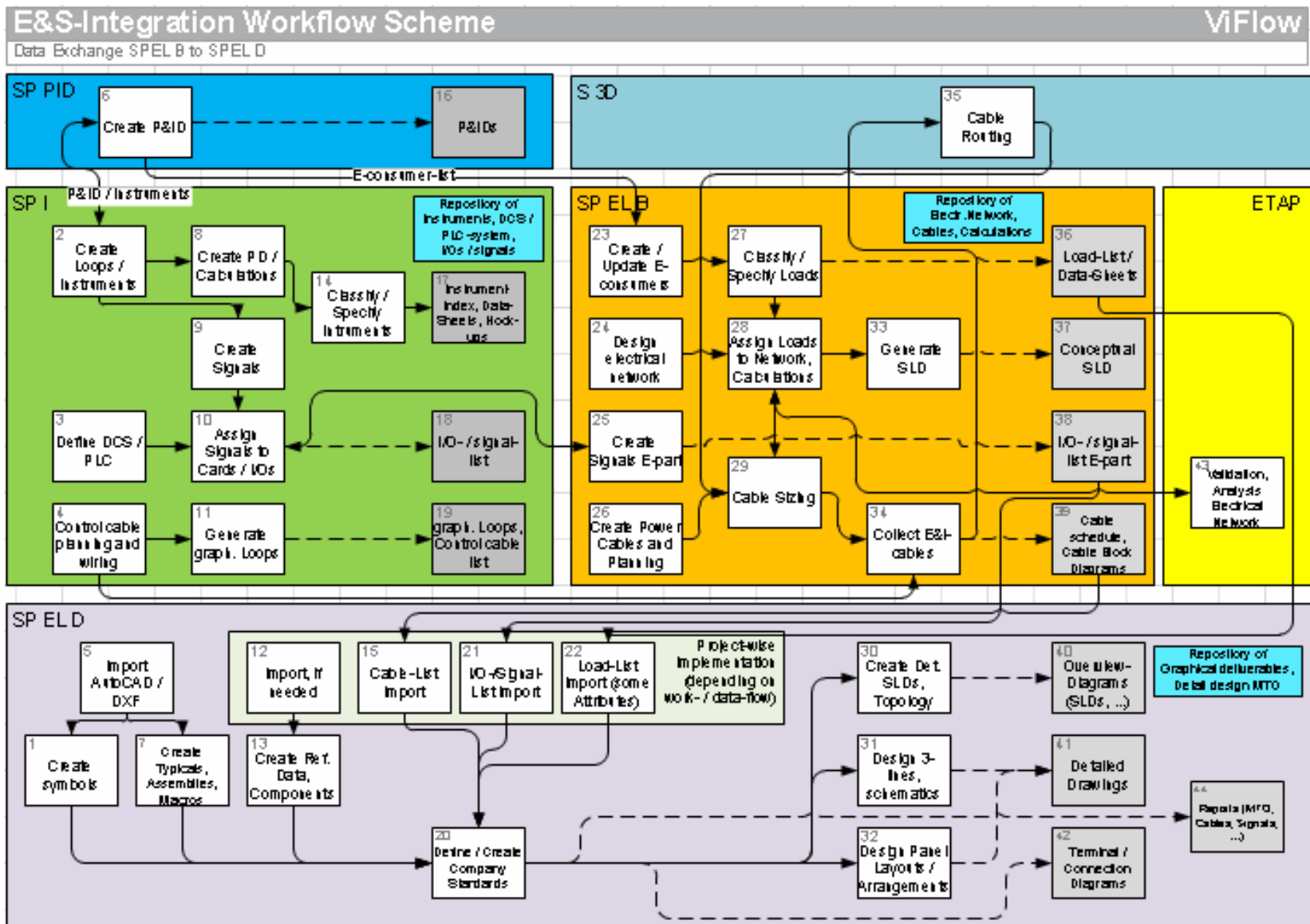
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- Ability to split a non power cable wires and terminate them to multiple circuits strips
- Better control of *wires* and *sets* connectors in wiring diagrams



- v2009SP5 planned for 2Q2012- focus on Integration enhancements
- v2013 planned for 4Q2012
- Main epics candidates:
 - Addressing Deliverables
 - Graphical: SLD as a graphical front end environment- [Step 4](#)
 - Alphanumerical: Improving usability and User Experience of report customization
 - Basic Engineering: Supporting Multi case loading operations scenarios
 - Apply a filter on All Feeder load summaries report
 - Single item revision management
 - Automation layer

E&S integration workflow scheme



SmartPlant Electrical Detailed Product Update

Nico Hoffmann



- Scheduled for Q2 / 2011
- Support of Windows 7 und Win Server 2008 (64bit), only with special installation / unsupported by Intergraph
- Russian support
- OS support Asia (especially China, Russia, ...)

Customizing-Deliverable:

- P2P SPEL B/D as basis for project-wise implementation

- Scheduled for H2 / 2011
- Quarterly SPs/Patches
 - Performance optimization for large amounts of data
 - New features according to customer requirements, (if possible in the patch path)
 - General optimizations and improvements (GUI, features, graphic, data model)
- Comprehensive support of extensively distributed workflow (XDE / WPV), Part 1
- Support of 64-bit Windows 7 / Win Server 2008 / Win Server 2008 R2,
 - unsupported by Progress
- Internationalization in steps (Chinese Characters, Codepages), Part 1 (opt. SP)
- DXF / DWG – Import – Improvements
- Optional: Integration into SmartPlant Product Family (P2P project-wise)

- Scheduled for H2 / 2012
- Quarterly SPs/Patches
 - Performance optimization for large amounts of data
 - New features according to customer requirements, (if possible in the patch path)
 - General optimizations and improvements (GUI, features, graphic, data model)
- Comprehensive support of extensively distributed workflow (XDE / WPV), Part 2
- Change recognition in graphical documents
- Persistent storage of revisioned and changed data of graphical and external documents
- Base developments for an enhanced and more fluent handling of very large amounts of data
- Further internationalization (GUI, Unicode, others), depending on requirements
- Optional: Integration into SmartPlant Product Family (P2P project-wise)

- **Our vision and mission are business driven and defined with our Enterprise Process, Power and Marine customers therefore:-**
 - Intergraph is committed to SPEL D (Power by Sigraph) as E (&I) solution and will extend the integration of SPEL D with our enterprise where the main prime focus market is Central Europe.
 - SP Instrumentation remains our prime Instrumentation solution and will focus to closely Integrate with SPEL B and enterprise while the scope will be extended to support the required detailed wiring.
 - An export/import point to point interface is developed between the electrical solutions for specific projects where market/business requires and it is appropriate. This bridges the gap between basic and Detailed engineering and design.

Thank You!

