



Engineering Analysis, Intelligent Solutions

SPI 2016

Things to Consider

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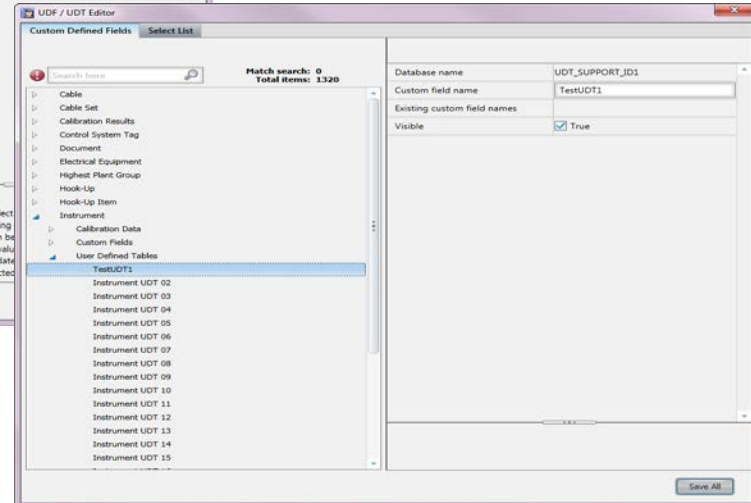
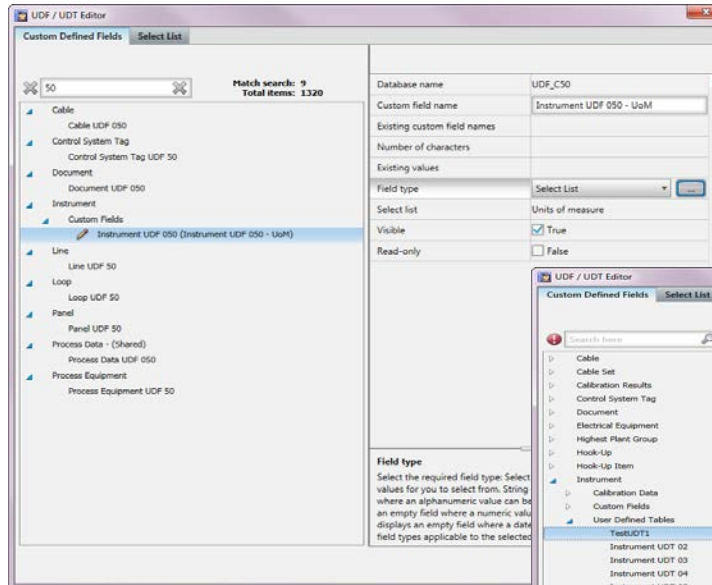
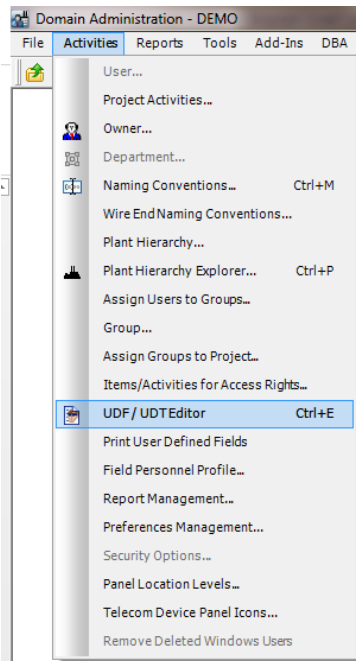
- Changes to SPI in Version 2016
- SPI 2016 Things to Consider
- Group Discussion

- How different is SPI2016?
- Will my reports and tools still work?
- Will my users need training?

- By reviewing the tables and fields within the SPI Database, we can understand where SPI2016 may be different
- SPI Database Overview
 - 629 Tables
 - 15,026 Fields
 - 25 Additional Tables
 - Most for EDE/Query Builder Functions
 - Others for Claim/Merge, TDL

UDTs and UDFs

- UDTs and UDFs are now handled at the Domain Level
 - No Longer Handled at the Plant Level
- Things to Consider when moving to SPI 2016
 - UDTs and UDFs for each Plant are now combined
 - System will allow you to choose a single distinct header for the UDF or UDT



Custom Browsers

- When moving an existing environment to SPI 2016, all Custom Browsers will become view only EDEs.
 - This is because the Browser Views are handled by the EDE and Query Builder in SPI 2016

Resolution

- Export View Only EDE to PSR, then Import the PSR into the SQL Editor
 - You will need to convert the SQL File into a Query Builder File and recreate the relations to make an editable EDE view.
- Manually rebuild View in Query Builder

The screenshot shows the 'EDE - Instrument Index' window with the 'Browser Manager' tab active. The table displays instrument details grouped by 'Instrument Type' and 'P&ID Drawing'. The columns include Instrument Name, Location Plan, Instrument Service, Instrument Type, Instrument Manufacturer, Loop Name, and Instrument Model.

Instrument Name	Location Plan	Instrument Service	Instrument Type	Instrument Manufacturer	Loop Name	Instrument Model
LT - LEVEL TRANSMITTER DISPLACER (Level)						
PLX-PID-P1-0002						
P1 LT 0123	PLX-P1-102-0021-1	P1-130-JC 2ND STAGE INTERCOOLER	LT - LEVEL TRANSMITTER DISPLACER (Level)	FISHER	P1 L 0123	DLC3010, Chamber 249C
P1 LT 0127	PLX-P1-102-0021-1	P1-129-JC 1ST STAGE INTERCOOLER	LT - LEVEL TRANSMITTER DISPLACER (Level)	FISHER	P1 L 0127	DLC3010, Chamber 249C
P1 LT 0128	PLX-P1-102-0021-1	P1-131-JCKO 4TH STAGE KNOCKOUT	LT - LEVEL TRANSMITTER DISPLACER (Level)	FISHER	P1 L 0128	DLC3010, Chamber 249C
LT - LEVEL TRANSMITTER GW (Level)						
PLX-PID-P1-0010						
P1 LT 0027 A	PLX-P1-102-0015-2	P1-1113-F CO2 ABSORBER OVERHEAD	LT - LEVEL TRANSMITTER GW (Level)		P1 L 0027	
LT - LEVEL TRANSMITTER MAG (Level)						
PLX-PID-P1-0008						
P1 LT 0103		P1-103-D SECONDARY REFORMER JKT WATER	LT - LEVEL TRANSMITTER MAG (Level)		P1 L 0103	
P1 LT 0106	PLX-P1-102-0022-2	P1-101-CA PRIMARY WASTE HEAT BOILER	LT - LEVEL TRANSMITTER MAG (Level)		P1 L 0106	
P1 LT 0121		P1-101-CB PRIMARY WASTE HEAT BOILER	LT - LEVEL TRANSMITTER MAG (Level)		P1 L 0121	
PLX-PID-P1-0010						
P1 LT 0027 B	PLX-P1-102-0015-2	P1-1113-F CO2 ABSORBER OVERHEAD	LT - LEVEL TRANSMITTER MAG (Level)		P1 L 0027	
P1 LT 0078 B	PLX-P1-102-0015-2	P1-109-F REFRIGERANT RECEIVER	LT - LEVEL TRANSMITTER MAG (Level)		P1 L 0078	
P1 LT 0091 B	PLX-P1-102-0015-2	P1-1101-E CO2 ABSORBER	LT - LEVEL TRANSMITTER MAG (Level)		P1 L 0091	
P1 LT 0091 C		P1-1101-E CO2 ABSORBER	LT - LEVEL TRANSMITTER MAG (Level)		P1 L 0091	
PLX-PID-P1-0011						
P1 LT 0008 B		P1-104-F SYN GAS COMPRESSOR SUCTION DRUM	LT - LEVEL TRANSMITTER MAG (Level)		P1 L 0008	

Supporting Table Fields in EDE Views

- There are now multiple field available for Standard Supporting Table Fields
 - Make sure to decide what field is needed when creating an EDE
 - Browser Views Default to Standard Field (Ex: Instrument Type)

Query Preview

Search Current Page

Instrument Name	Instrument Type	Instrument Type Name	Instrument Type Description
P1 TE 0074	TE - THERMOCOUPLE TYPE K (Temperature)	TE	THERMOCOUPLE TYPE K
P1 TE 0057	TE - THERMOCOUPLE TYPE K (Temperature)	TE	THERMOCOUPLE TYPE K
P1 LG 0052	LG - LEVEL GAUGE (Level)	LG	LEVEL GAUGE
P1 LG 0054	LG - LEVEL GAUGE (Level)	LG	LEVEL GAUGE
P1 LG 0053	LG - LEVEL GAUGE (Level)	LG	LEVEL GAUGE
P1 PT 0074	PT - PRESSURE TRANSMITTER (Pressure)	PT	PRESSURE TRANSMITTER
P1 PIT 0164	PT - PRESSURE TRANSMITTER (Pressure)	PT	PRESSURE TRANSMITTER
P1 PIT 0053	PT - PRESSURE TRANSMITTER (Pressure)	PT	PRESSURE TRANSMITTER

Query Attributes

Search

Instrument	Instrument	Instrument	Instrument
Attribute caption name:			
Attribute name:	Instrument Name	Instrument Type	Instrument Type Name
Display attribute:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Query Attributes | Query Preview

Attribute Explorer

Instrument

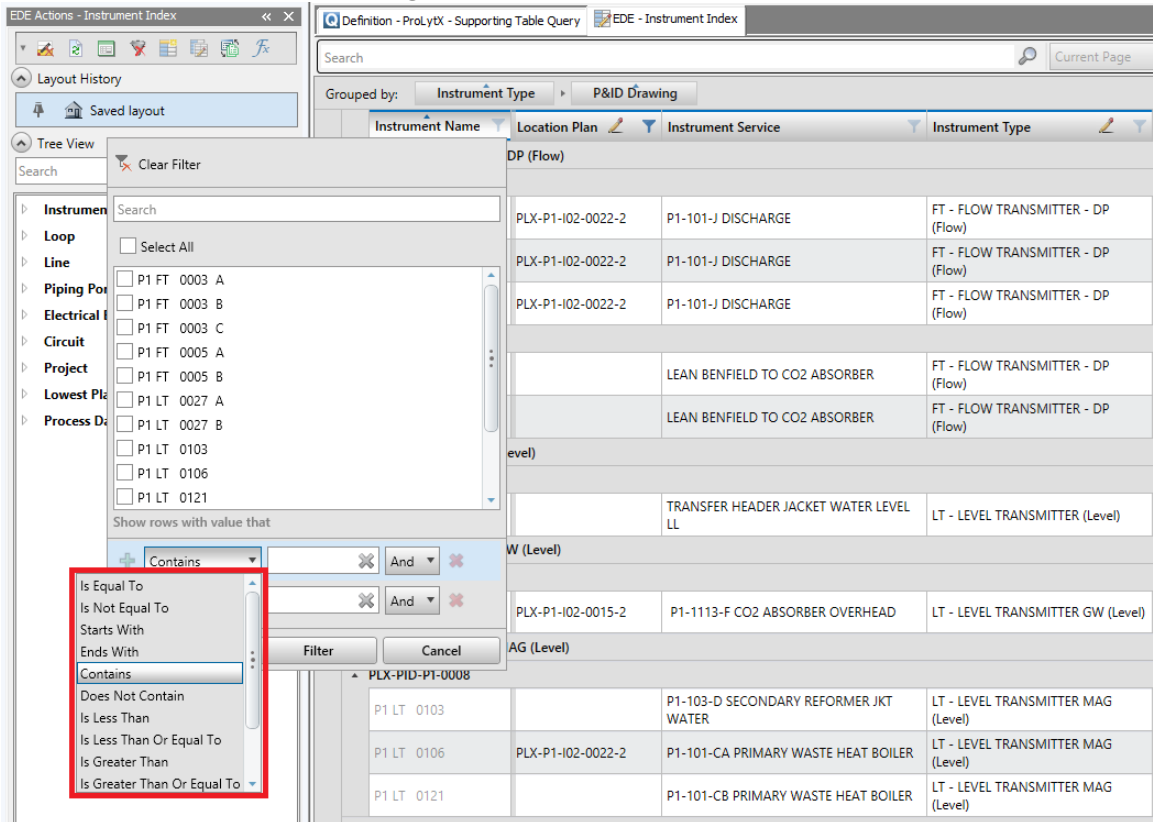
Search

- Instrument Status Description
- Instrument Status Name
- Instrument suffix
- Instrument Type**
- Instrument Type Description
- Instrument Type Name
- Intrinsic Safety Circuit Type

Browser Filters

- Filtering a View in the EDE has Changed
 - This is because the Browser Views are handled by the EDE and Query Builder in SPI 2016.
 - The use of special characters are no longer needed.
 - When moving to SPI 2016 from an existing environment, the filter will need to be rebuilt.

- Is Equal To
- Is Not Equal To
- Starts With
- Ends With
- Contains
- Does Not Contain
- Is Less Than
- Is Less Than Or Equal To
- Is Greater Than
- Is Greater Than Or Equal To
- Is Null
- Is Not Null

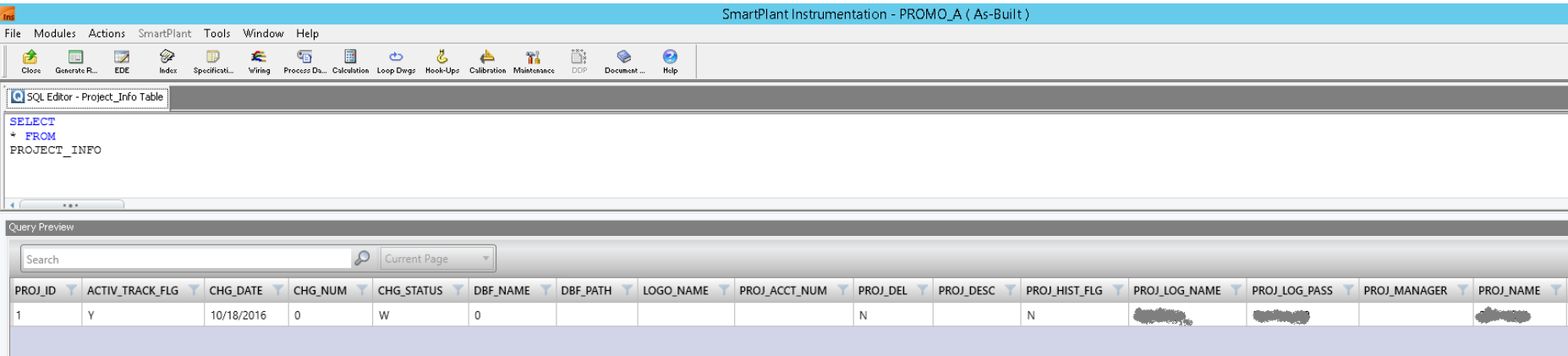


ProLytX SQL Editor

- Allows user to query all tables within the domain schema
- Admin schema tables are not able to be queried
- Invalid Characters

Query Changes_Log Report cannot be run because it contains one of the following characters ?, @, --, //,], [, /*, */, XP_ EXEC , EXECUTE , SP_EXECUTESQL that are not allowed.

- No “Update”, “Insert” commands allowed
- Cannot query custom tables
- Many SQL functions are allowed (GROUP BY, COUNT, UNION, etc)



Domain Explorer

- Domain Explorer slowness when expanding Entity Folders
 - Below Query looped 61 times before expanding Entity Folder
 - Confirmed with Intergraph that this has been resolved in SPI 2016 R1
 - R1 release date: Near the end of the Q2 2017

select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = X and ab_or.object_uid = proj_or.object_uid and ab_or.eng_proj_id = 0 and proj_or.eng_proj_id > 0 and proj_or.object_is_terminated_flg = 0

The screenshot shows the SQL Server Profiler interface. On the left, the 'Domain Explorer' pane displays a tree view of folders under 'Cables', including various 'C-P1 AT', 'C-P1 ST', 'C-P1 PY', 'C-P1 AT', 'C-P1 FT', and 'C-P1 BSH' folders. The main pane shows the 'EventClass' and 'TextData' columns for a query that is being looped. The query text is: `select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 109267 and a select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 109267 and a`. The 'TextData' column shows the query being executed repeatedly, with the internal ID changing to 56824, 96626, 60841, 61430, and 61733.

EventClass	TextData
Audit Login	-- network protocol: TCP/IP set quoted_identifier on set arithabort off set numeric_roundabort off set ansi_warnings on se
SQL:BatchStarting	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 109267 and a
SQL:BatchCompleted	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 109267 and a
Audit Logout	
Audit Login	-- network protocol: TCP/IP set quoted_identifier on set arithabort off set numeric_roundabort off set ansi_warnings on se
SQL:BatchStarting	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 56824 and ab
SQL:BatchCompleted	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 56824 and ab
Audit Logout	
Audit Login	-- network protocol: TCP/IP set quoted_identifier on set arithabort off set numeric_roundabort off set ansi_warnings on se
SQL:BatchStarting	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 96626 and ab
SQL:BatchCompleted	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 96626 and ab
Audit Logout	
Audit Login	-- network protocol: TCP/IP set quoted_identifier on set arithabort off set numeric_roundabort off set ansi_warnings on se
SQL:BatchStarting	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 60841 and ab
SQL:BatchCompleted	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 60841 and ab
Audit Logout	
Audit Login	-- network protocol: TCP/IP set quoted_identifier on set arithabort off set numeric_roundabort off set ansi_warnings on se
SQL:BatchStarting	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 61430 and ab
SQL:BatchCompleted	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 61430 and ab
Audit Logout	
Audit Login	-- network protocol: TCP/IP set quoted_identifier on set arithabort off set numeric_roundabort off set ansi_warnings on se
SQL:BatchStarting	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 61733 and ab
SQL:BatchCompleted	select COUNT ('X') as ref_id from object_registry ab_or, object_registry proj_or where ab_or.object_internal_id1 = 61733 and ab
Audit Logout	
Audit Login	-- network protocol: TCP/IP set quoted_identifier on set arithabort off set numeric_roundabort off set ansi_warnings on se

Q&A / Discussion

