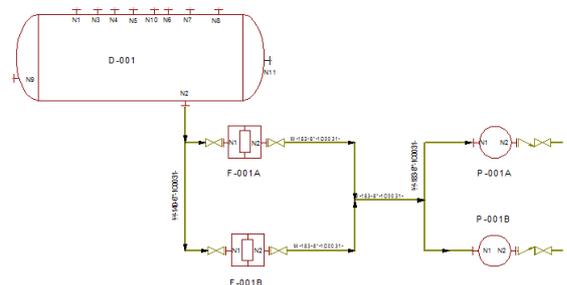# QualityAssuranceModule
Use Case 1: Check syntax of SmartPlant P&ID equipment tags

CHALLENGE

It is always a challenge to keep track if all tags apply to the naming convention which is mandatory for the project; users can make mistakes when they key in the different attributes the tags are made of.

WORKFLOW STEPS

1. Extract source data from SmartPlant P&ID using **PID ReportAdapter**

2. View data in the **QualityAssuranceModule** and apply the rule to check the tags
   Tag rule: "Tag must start with a character; plus the TagSequenceNumber must be numeric and 3 digits long, for the last digit 0 is not allowed"

Drawing Name	Item Tag	Tag Prefix	Tag Seq No	Tag Suffix	Equip Class
Po Wa	-168		168		Heat Transfer Equipment
Po Wa	F-001A	F	001	A	Mechanical Equipment
Po Wa	F-001B	F	001	B	Mechanical Equipment
Po Wa	P-001B	P	001	B	Mechanical Equipment
Po Wa	P-001A	P	001A		Mechanical Equipment
Po Wa	D-001	D	00	1	Vessel Equipment

Or
- [Item Tag] Is not like [A-Z]%
- [Tag Seq No] Is not like [0-9][0-9][1-9]

3. Create Excel report from the **QualityAssuranceModule**

	A	B	C	D	E	F
1	Drawing Name	ItemTag	Tag Prefix	Tag Sequence No	Tag Suffix	Equipment Class
2	Po Wa	-168		168		Heat Transfer Equipme
3	Po Wa	F-001A	F	001	A	Mechanical Equipment
4	Po Wa	F-001B	F	001	B	Mechanical Equipment
5	Po Wa	P-001B	P	001	B	Mechanical Equipment
6	Po Wa	P-001A	P	001A		Mechanical Equipment
7	Po Wa	D-001	D	00	1	Vessel Equipment

SOLUTION

- The **QualityAssuranceModule** makes it easy to identify the tags which are not compliant with the naming convention; these tags can be exported to an Excel report
- This type of report can be handed out to the contractors (or to other inhouse departments) with the goal to have the data reworked so that it complies with the rules

About CAXperts

Our mission is to improve the productivity of our clients by simplifying key tasks and processes. To achieve this we use our detailed knowledge of engineering systems and work processes to deliver engineered efficiency. Learn more at www.caxperts.com

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Engineered Efficiency

QualityAssuranceModule
Use Case 2: Check if flow elements and control valves are associated to pipe runs

CHALLENGE

It is always a challenge to keep track if all inline elements (like flow elements and control valves) have a correct tag number and if they are associated to a pipe run.

WORKFLOW STEPS

1. Extract source data from SmartPlant Instrumentation using **SPI ReportAdapter**

Tag Number	Service	Instrument Type	Manufacturer	Model	Line Number
101-FE - 125		FE			
101-FE -100	Feed from V-8	FE	FISHER-PORTER		4"-P-1501-11H
101-FV -100	Feed from V-8	FV	FOXBORO		4"-P-1501-11H
101-FE -102	Feed from C-1	FE			4"-P-1502-11H
101-FE -1234/A		FE			
101-FE -1446		FE			
101-FE -201	Stripping Steam to F-102	FE			1.5"-S-2001-4C
101-FE -2212	Feed to B-101 Pass A	FE			3"-FO-1212-4C
101-FV -2212	Feed to B-101 Pass A	FV	FOXBORO		3"-FO-1212-4C
101-FE -2213	Feed to B-101 Pass B	FE			3"-FO-1213-4C
101-FV -2213	Feed to B-101 Pass B	FV	MASONEILAN		3"-FO-1213-4C
101-FE -2214	Feed to B-101 Pass C	FE			3"-FO-1212-4C
101-FV -2214	Feed to B-101 Pass C	FV	MASONEILAN		3"-FO-1212-4C
101-FE -905	DCS closed loop	FE			
101-FV -905	DCS closed loop	FV			

2. View data in the **QualityAssuranceModule** and apply the rules to check the inline elements:
Rule 1: "Tag is not allowed to contain a dash followed by one or more blanks"
Rule 2: "If Tag starts with 'FE' or 'FV' then the LineNumber should not be Null"

Instrument Name	Loop_Loop Service	Instrument Function Type	Instrument Manufa...	Line_Line Number
101-FE - 125		FE		
101-FE -102	Feed from C-1	FE		4"-P-1502-11H
101-FE -1234/A		FE		
101-FE -1446		FE		
101-FE -201	Stripping Steam to F-102	FE		1.5"-S-2001-4C
101-FE -2212	Feed to B-101 Pass A	FE		3"-FO-1212-4C
101-FE -2213	Feed to B-101 Pass B	FE		3"-FO-1213-4C
101-FE -2214	Feed to B-101 Pass C	FE		3"-FO-1212-4C
101-FE -905	DCS closed loop	FE		

3. Create Excel report from the **QualityAssuranceModule**

SOLUTION

- The **QualityAssuranceModule** makes it easy to identify the tags which are not compliant with the naming convention or tags that have no association to for instance pipe runs.
- This type of report can be handed out to the contractors (or to other in-house departments) with the goal to have the data reworked so that it complies with the rules

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