FactoryTalk Analytics Platform and MES integration with the PI System Infrastructure

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AGENDA

- WHY NOW, WHY ANALYTICS
- DEFINING ANALYTICS – BREATHE & SCOPE
- FACTORYTALK ANALYTICS PLATFORM OVERVIEW
- FACTORYTALK MES INTEGRATION W/ PI SYSTEM
- ANALYTICS DEMO
Digital Transformation is Revolutionizing Manufacturing
Analytics Really Do Matter

- Analytics are driving Digital Transformation Initiatives
- Focused on Business Outcomes
- Using machine learning and other predictive tools
- Leveraging technology advances – IoT, Mobility
- Data Infrastructure is a critical first step
FactoryTalk Analytics Platform Overview
FactoryTalk® Analytics Platform
A full stack analytics platform

CONNECTED ASSETS

DATA INGRESS
- STREAMING DATA
- ENTERPRISE DATA

ORCHESTRATED DATA

APP MARKETPLACE
- ASSET MANAGEMENT & RELIABILITY
- OPERATIONAL PRODUCTIVITY
- ENTERPRISE RISK

CONNECTED SERVICES

OPEN, SECURE
IIoT CONNECTIVITY

Edge
DataFlowML
DataView
Edge

- Data from real-time sources. Find problems faster.
- Stores and forwards data. Nothing important gets lost due to latency.
- Enables closed loop feedback applications. Instant reaction.
- Provides advanced analytics in the “hardware stack”. Easier support.

DataFlowML

- Combines different forms of data for Analytics. No more Excel or SQL.
- Data pipelines are built using leading AI and ML tools.
- Scalable from on-premise server to cloud based infrastructures.
- Handles big data and unstructured data such as text, imagery, audio, etc.

DataView

- Self-service visual analysis tool. Anyone can use it with no pre-configuration of reports or dashboards.
- AI “learns” what you want to see and adjusts accordingly.
- Insightful Storyboards may be saved and shared.
- Runs on any form factor or device.
Why FactoryTalk® Analytics Platform?

- **Scalable Platform** – Multiple applications built on a common platform allows you to buy what you need now with the ability to scale later
- **Scalable Compute** – Execute as close to the source and consumer of the data as possible including close loop
- **Open and Secure** – Leverage your investment in technology and remain platform neutral
- **Improved Time to Value** – Minimize the need of IT expertise and data scientist for repeatable tasks and applications
- **Domain Expertise** – Manufacturing Outcome and Expertise
- **Multiple ML libraries** on a common platform

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MES (PharmaSuite) / PI System Integration
MES – OSIsoft PI System Integration

**Objective:** Provide interface to PI System for exporting MES Equipment model to PI Asset Framework and MES Execution information to PI Event Frames

**Customer Value:** “One version of the truth”. MES and process data combined for reporting, analysis, etc.

- Executed Batch Record
- Executed Workflow Record
- Equipment Model

→ the complete MES context

![Diagram showing integration of MES with OSIsoft PI System](image)

- **Business Intelligence,**
  - Statistical Analysis,
  - Root Cause Analysis,
  - OEE, Trends in MES ...
### Equipment Model / PharmaSuite configuration

#### General Information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Time Stamp</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

#### ProcessData 1

- **actualPurity**: 97%  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Measure

- **batchIdentifier**: E123  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: string

- **materialIdentifier**: RA_12001  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: string

- **liquidPosition**: True  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: string

- **substitutionFlag**: False  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: string

- **targetContainerClosed**: True  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: string

- **uniqueRecipeName**:  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: string

- **weightingType**: Active substance  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: string

#### Material Balance

- **nominalQuantity**: 103 g  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: string

- **orderStepPriority**: 2  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Other

- **originalQuantity**: 106 g  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Measure

- **plannedPurity**: 106%  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Measure

- **plannedQuantity**: 106 g  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Measure

- **purityPosition**: 0  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Other

- **substitutionFlag**: true  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Other

#### Production Order

- **Line Change**: O9  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Other

- **Line Clearance**: O9  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Other

- **Identify Position(C):**: O9  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Other

- **PreProcessData**: O9  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Other

- **Print Room Label**: O9  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Other

- **Get and Check Temp**: O9  
  Time Stamp: 2017-11-26 13:44:02.82  
  Description: Constant: Other
Equipment Model / PharmaSuite configuration
DEMO

FactoryTalk Analytics DataView
Analytics DataView Demo

• Example: Caster Operations
  • Find operational insights by analyzing data from disparate data sources

Heat number created
LIMS data captured
Caster operations data
Questions?

Please wait for the **microphone**

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Thank you