



FactoryLink Traceability Module

UGS



Traceability in Automation



- ▶ Traceability Overview
 - ▶ Understanding the key elements of Traceability
- ▶ Features Overview
 - ▶ Extending SCADA to the world of MES
- ▶ Configuration Made Easy
 - ▶ Modeling your process using tables and Excel
- ▶ Architectures
 - ▶ From stand-alone to Enterprise systems
- ▶ Part of a Bigger Picture
 - ▶ “Playing in the sandbox” with other UGS offerings



Traceability Overview



FactoryLink Traceability is different from traditional SCADA because it focuses on the product being produced rather than the process of producing a product



- ▶ Tracking – Answering the Tough Questions
 - ▶ How much of the order have we finished?
 - ▶ Where is my order?
 - ▶ Is my product in the warehouse?
 - ▶ This is a time-intensive process – at which step is my product?
 - ▶ What percentage of the parts are we scrapping?
 - ▶ Are we using our equipment efficiently?
 - ▶ Do we have enough raw materials to make this order?



- ▶ Tracing – Focus on Product Quality
 - ▶ Root cause analysis
 - ▶ Faulty equipment
 - ▶ Lack of operator training
 - ▶ Poor quality materials
 - ▶ Process timing issues
 - ▶ Monitor quality before shipping
 - ▶ Reduce scope of recall situations
 - ▶ Recall only product that is known bad, not just what was produced in a particular time period



- ▶ Mining – Viewing Data in a Way that is Useful
 - ▶ Show me the inventory we have on hand
 - ▶ Show me the equipment usage
 - ▶ Print a report on scrapped products or components
 - ▶ Identify products produced using a particular component
 - ▶ Find raw materials used to produce a part that failed QA
 - ▶ View reports that conform to company standards
 - ▶ View special reports customized for me



- ▶ Traceability Task (FLTrace)
 - ▶ Is a FactoryLink add-on based on the 7.5.1 release
 - ▶ Can be added to existing FactoryLink applications to provide MES Tracing and Tracking functionality
 - ▶ Works in redundant, mission-critical applications
 - ▶ Provides reporting and analysis tools out of the box when teamed with the Manufacturing Portal



Traceability in Discrete Manufacturing



FactoryLink Traceability User Name: MyUser

Product: **CarParts** Count Remaining: **42**

Order Number: **PO 349UKT** **Order** Inventory Management

Barcode CarParts5 Base Lot: **345** Stage CarParts7

CarParts6

Nozzle 12.91 CarParts4 Lot: **54**

Armature 7.18 CarParts3 Vendor ID: **656**

Rework

Test CarParts2

Flow 0.352 Pressure 15.964
Target Flow 0.360 Leak Press **20.987**

Test Queue Unload SN Pallet No: 1251



Traceability in Batch Processing



FactoryLink Traceability User Name: MyAdministrator

File Edit Display Insert Draw Arrange Animate Mode Tools Window ?

UGS

Fuel Injector

Cheese Production

Manufacturing Portal

Thu 03/09/2006 13:14:43

Cheese Production: Batch

Product: **Mozzarella**

Batch Number: **346098B**

Requested Packages: **210**

Start Batch

Ingredients 210.0 Gal

Filter

Pasturize **170.7 °F**

Cool

Evaporate

Cheese Production: Flavor Additions

Available Batch	
234098	450
3456	550
45089	220

Product: **Start Flavor**

Cheddar	Hickory Smoke	Pepper Jack	Baby Swiss	Colby	Mozzarella	Horseradish	Roquefort	Yellow #3	Orange	Blue Kernels	Grind
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
											Heat
											Blend
											Cool

Cheese Production: Packaging 45089_P

Slicer

Wrapper

45089_P217

1.07 lbs

Scale

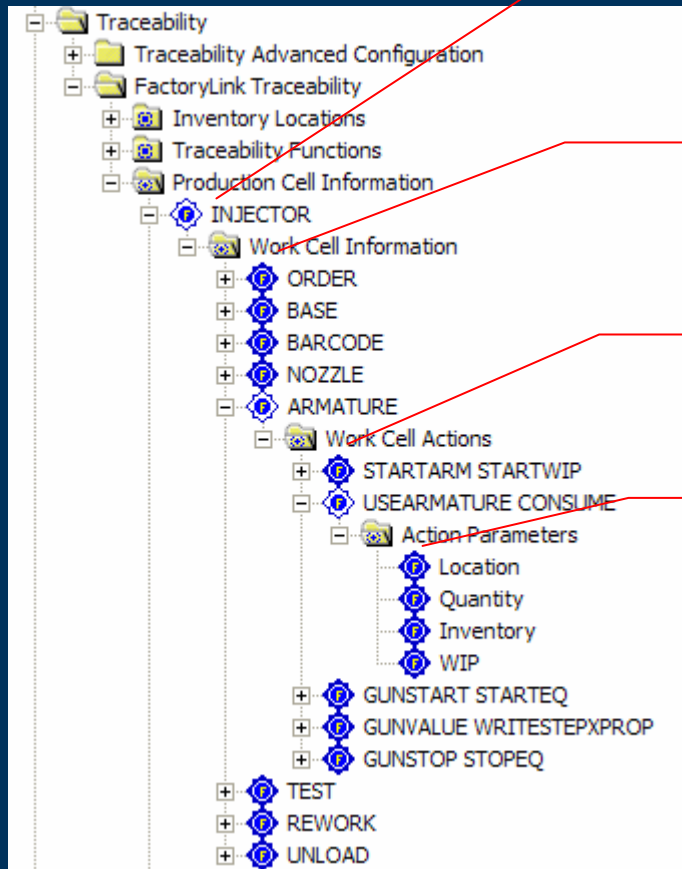
Label Station



- ▶ Configuration Highlights
 - ▶ Uses standard FactoryLink tables
 - ▶ Uses tags like other tasks
 - ▶ Has a special starter application (FLTraceNew.mps) with pre-configured elements
- ▶ Additional Configuration Tools to Get Started Quickly
 - ▶ Modeling spreadsheet
 - ▶ Application object to enter data from the spreadsheet into FactoryLink



Traceability Configuration/Modeling



Route or Production Line

Steps or Stations

Actions or Activities at the Step

Parameters for this Action



Traceability Modeling Using Excel



The screenshot shows a Microsoft Excel window titled "Microsoft Excel - traceability.xls". The spreadsheet contains instructions and a table for defining production cells. A dialog box titled "Create Work Cell" is open over the spreadsheet, allowing the user to configure a new work cell.

Spreadsheet Content:

Production Cell	Short Name	Description
INJECTOR	INJ	Diesel Fuel Injectors

Dialog Box Content:

- Work Cell Name: Base
- Short name for use with tags: BASE
- Actions performed at this Work Cell
 - Use Equipment
 - Event transfers work to specified cell
 - Work Cell could send work to scrap
 - Work Cell could send work to inventory
 - Consume materials or subcomponents (Quantity: 2)
 - Save data at this step



Other UGS Offerings for MES





XTS, FactoryLink Traceability, and Xfactory Differences



Xfactory

- ▶ Pre-Production Environment Integrated with Teamcenter Manufacturing
 - ▶ Seamless NPI Business Process
 - ▶ Full MES Enforcement; Routing, Business Rules
 - ▶ Multiple GUI Interfaces; WEB, PDA, Thick Client
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FactoryLink Traceability

- ▶ Entry-Level Traceability Solution
 - ▶ No Routing Enforcement
 - ▶ SCADA GUI
 - ▶ SCADA Functionality
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XTS

- ▶ Entry-Level Traceability Solution
- ▶ Easy to Deploy – Easy Customizations
- ▶ No Routing Enforcement
- ▶ Reporting Interface
- ▶ Low Risk - Fast Deployment, Visible ROI, Low Initial Investment



- ▶ Simple tracking functionality
- ▶ Mostly used for manual operations
- ▶ Connectivity to barcode scanners and other shop floor input devices
- ▶ Simple configuration
- ▶ No route enforcement
- ▶ Open model



Xfactory Brief Overview



- ▶ Full-featured traceability solution with mixed automated and manual stations
- ▶ Complex routing and product movement
- ▶ Route enforcement and other business rules
- ▶ Teamcenter integration
- ▶ XML configuration using ISA95 standards
- ▶ Genealogy Explorer – advanced tool for genealogy lookup



More Information



- ▶ Contact ToolWorx at 810-220-5115 or email sales@toolworx.com
- ▶ Visit our website at www.toolworx.com