SAP Global Batch Traceability (GBT)
- manage quality investigations & product withdrawal/recall

Stephen Cloughley, Sr. Director, SAP Labs LLC
SAP Global Batch Traceability (GBT)
- manage quality investigations & product withdrawal/recall

Stephen Cloughley, Sr. Director, SAP Labs LLC
What is a batch?
What is a Batch?

*Example: Process Industry*

<table>
<thead>
<tr>
<th>Batch Number</th>
<th>C1020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>CAE_200</td>
</tr>
<tr>
<td>Batch Status</td>
<td>„Released“</td>
</tr>
<tr>
<td>Shelf Life</td>
<td>12.2014</td>
</tr>
<tr>
<td>Alcohol</td>
<td>55 %</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

Batch = Material or product quantity with homogenous characteristics

Shelf Life: 12.2014
What is a Batch?

Example: Discrete Industry

Production Order 700012

Input Batches

C2 → C1

Output Batch

Production Line 1

700012

Batch Number: 700012
Material: P-100
Batch Status: „Released“
Production Date: 02.01.2011
Production Order: 700012

Batch = Production Order Quantity
**What is a Batch?**

*Example: Process Industry*

**Production Order 700012**

**Input Batches**
- C2
- C1

**Production Line 1**

**Output Batch**
- 700012

**Batch = Date Code**
- e.g. the quantity of a product produced on a specific production date
- e.g. the quantity of a product with the same shelf life expiration data

**Table:**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch Number</td>
<td>700012</td>
</tr>
<tr>
<td>Material</td>
<td>P-100</td>
</tr>
<tr>
<td>Batch Status</td>
<td>„Released“</td>
</tr>
<tr>
<td>Production Date</td>
<td>02.01.2011</td>
</tr>
<tr>
<td>Expiration Date</td>
<td>02.01.2015</td>
</tr>
<tr>
<td></td>
<td>...</td>
</tr>
</tbody>
</table>
What are the prevailing issues in the absence of a corporate batch genealogy solution?
What is the situation at customers today?
Shortcomings that are addressed by GBT

- In case of an issue with a **batch/serial number/handling unit**
  - no complete product genealogy tracing
    - of all materials purchased, consumed, manufactured, and distributed in the supply network

- Today’s capability restricted to single SAP ECC instance
  - No **cross-system** tracing capability.

- Inability to analyze **multiple tracking objects** (e.g. batches/serial numbers/handling units) bottom up or top down **in a single run**

- **Data is inconsistent**
  - missing data links between the tracking objects
  - broken links across systems
Do any of these issues sound familiar?

How can I search, explore and get reports from the corporate product genealogy - from a single point of entry?

How can I bring together batch genealogies from distributed batch record systems within and across organizations?

How can I find quickly remaining bad batch quantities from across all my organizational and business partner locations?

How can I quickly identify the delivery item record to customers in case of batch issues in order to execute targeted holds, withdrawals or recalls?

How to overcome missing batch ID linkages that arise as batches travel from one system to another?

How can I quickly determine the distribution records and get internal stock overview for multiple batches and their children batches in a single run?

How can I create distribution, stock overview and/or material balance reports at the push of a button to gain the necessary insight as to what to report, restrict & recall fast?
Key Value Proposition
Run better with SAP Global Batch Traceability

Solution KPI: *Time to insight*

Gain immediate insight into your corporate product batch genealogy

Fast reporting on the precise identification of the distribution record to drive pinpointed hold, withdrawal and recall actions

Process multiple batches in a single run
KPI and value of SAP Global Batch Traceability

SAP Global Batch Traceability provides a corporate-level view on a cross-system product genealogy and the distribution of related tracked objects, and

„enables rapid investigation and, when required, precision withdrawal/recall & timely regulatory reporting“

Key solution KPI: Time to Insight

Value

The identification of the distribution record related to a product batch genealogy enables fast and efficient execution on holds, withdrawals and recalls limiting

• Impact on consumer health and associated corporate liabilities
• Your financial risk exposure relating to product issues
• The Impact on your brand

Comply with regulatory reporting deadlines in case of product issues
Solution Scope

The SAP Global Batch Traceability Repository

The way SAP Global Batch Traceability receives product batch genealogy and related traceability data
The SAP Global Batch Repository captures and unifies product batch genealogy and related tracked objects data from either a single or distributed SAP ERP and non-SAP system(s).
The difference between ERP Batch Management and SAP Global Batch Traceability
# The Difference between ERP Batch where used list and Global Batch Traceability

<table>
<thead>
<tr>
<th>Features</th>
<th>ERP Batch Where Used List</th>
<th>Global Batch Traceability (GBT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Down / Bottom Up Analyze (Tree View)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Top Down / Bottom Up Analyze (Graphical View)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Across system tracing capabilities</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Considering Non SAP Systems</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Considering Handling Units (<em>), Serialnumbers (</em>)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Considering Non SAP Tracked Objects (e.g. Pallets)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Analyze multiple tracked objects in one run</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Identify broken links and maintain batch network</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Report (Distribution records) to inform the government office and customers</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>New data model for high performance</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

(*) Integration of Handling Units and Serial Numbers is not in Standard GBT 1.0. Please consult Juergen.Wettengl@sap.com
The Solution Experience

The end-user experience embedded in a product issue resolution process
SAP Global Batch Traceability embedded in the product issue resolution process

Product issues notif. ➔ Global Batch Exploration ➔ Precision Action

<table>
<thead>
<tr>
<th>Customer/supplier</th>
<th>Manufacturing</th>
<th>Customer</th>
<th>Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP ERP1</td>
<td>SAP ERP2</td>
<td>SAP ERP3</td>
<td>Business Partner System</td>
</tr>
<tr>
<td>3rd party Batch System</td>
<td>3rd party Batch System</td>
<td>3rd party Batch System</td>
<td>Business Partner System</td>
</tr>
<tr>
<td>Business Partner System</td>
<td>Business Partner System</td>
<td>Business Partner System</td>
<td>Business Partner System</td>
</tr>
</tbody>
</table>

SAP Global Batch Traceability Repository
SAP Global Batch Traceability embedded in the product issue resolution process

Product issues notific. ➞ Global Batch Exploration ➞ Precision Action

Product issue notifications

SAP ERP1 ➞ SAP ERP2 ➞ SAP ERP3 ➞ 3rd party Batch System ➞ 3rd party Batch System ➞ 3rd party Batch System ➞ Business Partner System ➞ Business Partner System ➞ Business Partner System

Customer/supplier ➞ Manufacturing ➞ Customer ➞ Manufacturing

SAP Global Batch Traceability Repository
Search batches

Explore genealogy graphically

View top-down where-used list

View bottom-up where-used list

Create reports

Identify & maintain broken links

Report on multiple batches in a single run
SAP Global Batch Traceability embedded in the product issue resolution process

Product issues notific. ➔ Global Batch Exploration ➔ Precision Action

Product issue notifications ➔ Root cause analysis ➔ Root cause results

Product issue notifications:
- Customer/supplier
- Manufacturing
- SAP ERP1
- SAP ERP2
- SAP ERP3
- 3rd party Batch System
- 3rd party Batch System
- 3rd party Batch System
- Business Partner System
- Business Partner System
- Business Partner System

Global Batch Traceability Repository

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Search batches

Explore genealogy graphically

View top-down where-used list

View bottom-up where-used list

Create reports

Identify & maintain broken links

Report on multiple batches in a single run
### Global Batch Traceability Network: Top-Down

<table>
<thead>
<tr>
<th>Batch Number</th>
<th>Material Number</th>
<th>Material Description</th>
<th>Plant</th>
<th>Logical System</th>
<th>Event Quantity</th>
<th>Uom for Event Quantity</th>
<th>Batch Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1_2912-1</td>
<td>GBT-FINISH 1</td>
<td>2 Liter Bottle Apple/Orange Fruit Drink</td>
<td>1100</td>
<td>04ACLINT023</td>
<td>0,000</td>
<td>KG</td>
<td>F1_2912-1</td>
</tr>
<tr>
<td>2212_1</td>
<td>GBT-PACK1</td>
<td>2 Liter Bottle (empty)</td>
<td>1100</td>
<td>04ACLINT023</td>
<td>10,000</td>
<td>KG</td>
<td>2212_1</td>
</tr>
<tr>
<td>4500020689/2011/00030</td>
<td>GBT-PACK1</td>
<td>2 Liter Bottle (empty)</td>
<td>1100</td>
<td>04ACLINT023</td>
<td>30,866,000</td>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>S1_2912-1</td>
<td>GBT-55M11</td>
<td>Mixture Apple/Orange Type A</td>
<td>1100</td>
<td>04ACLINT023</td>
<td>10,000</td>
<td>KG</td>
<td>S1_2912-1</td>
</tr>
<tr>
<td>2212_2</td>
<td>GBT-RAW2</td>
<td>Orange Concentrate</td>
<td>1100</td>
<td>04ACLINT023</td>
<td>10,000</td>
<td>KG</td>
<td>R2_2912_2</td>
</tr>
<tr>
<td>R1_2912_1</td>
<td>GBT-RAW1</td>
<td>Apple Concentrate</td>
<td>1100</td>
<td>04ACLINT023</td>
<td>20,000,000</td>
<td>KG</td>
<td>R1_2912_1</td>
</tr>
<tr>
<td>4500020613/2011/00010</td>
<td>GBT-RAW1</td>
<td>Apple Concentrate</td>
<td>1100</td>
<td>04ACLINT023</td>
<td>20,000,000</td>
<td>KG</td>
<td></td>
</tr>
</tbody>
</table>
### SAP Business Client

#### Global Batch Traceability Network: Bottom-Up

<table>
<thead>
<tr>
<th>Levels</th>
<th>Display Network</th>
<th>Display Connecting Business Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom-Up</td>
<td>Material Number</td>
<td>Material Description</td>
</tr>
<tr>
<td>F1_2912-1</td>
<td>GST-FINISH1</td>
<td>2 Liter Bottle Apple/Orange Fruit Drink</td>
</tr>
<tr>
<td></td>
<td>GST-FINISH1</td>
<td>2 Liter Bottle Apple/Orange Fruit Drink</td>
</tr>
<tr>
<td></td>
<td>GST-FINISH1</td>
<td>2 Liter Bottle Apple/Orange Fruit Drink</td>
</tr>
</tbody>
</table>

**Features**
- Search batches
- Explore genealogy graphically
- View top-down where-used list
- View bottom-up where-used list
- Create reports
- Identify & maintain broken links
- Report on multiple batches in a single run
SAP Global Batch Traceability embedded in the product issue resolution process

- Product issues notification
  - Product issue notifications
  - Root cause analysis
  - Root cause results

- Global Batch Exploration

- Precision Action
  - Enable Internal Reports
  - Notifications
  - Holds
  - Withdrawals
  - Targeted Recalls

- Customer/supplier
- Manufacturing

- SAP ERP1
- SAP ERP2
- SAP ERP3

- 3rd party Batch System
- 3rd party Batch System
- 3rd party Batch System

- Business Partner System
- Business Partner System
- Business Partner System

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- Search batches
- Explore genealogy graphically
- View top-down where-used list
- View bottom-up where-used list
- Create reports
- Identify & maintain broken links
- Report on multiple batches in a single run

**Distribution List**

<table>
<thead>
<tr>
<th>Start Batches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch ID</td>
</tr>
<tr>
<td>F1_2012-1</td>
</tr>
</tbody>
</table>

**Start Batches**

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Material ID</th>
<th>NW Node</th>
<th>NWNodeType</th>
<th>Actual GI Date</th>
<th>Plant</th>
<th>In/StockLoc</th>
<th>Delivery</th>
<th>Del. Qty</th>
<th>Unit</th>
<th>Sold-to</th>
<th>Ship-to</th>
<th>Goods Return</th>
<th>Goods Rpt Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Liter Bottle Apple/Orange Fruit Drink</td>
<td>GBT-FINISH1</td>
<td>F1_2012-1</td>
<td>Batch</td>
<td>30.12.2011</td>
<td>1100</td>
<td>0005</td>
<td>80015049</td>
<td>3</td>
<td>KG</td>
<td>3000</td>
<td>3000</td>
<td>Thomas Bush Inc</td>
<td>112800 South 25th Ave / MAYW</td>
</tr>
<tr>
<td>2 Liter Bottle Apple/Orange Fruit Drink</td>
<td>GBT-FINISH1</td>
<td>F1_2012-1</td>
<td>Batch</td>
<td>30.12.2011</td>
<td>1100</td>
<td>0005</td>
<td>80015050</td>
<td>4</td>
<td>KG</td>
<td>4000</td>
<td>4000</td>
<td>North Energy Ltd</td>
<td>Calgary AB T2P 4K9</td>
</tr>
</tbody>
</table>
SAP Global Batch Traceability embedded in the product issue resolution process

Product issues notification
- Product issue notifications
- Root cause analysis
- Root cause results
- Maintain broken batch links

Global Batch Exploration

Precision Action
- Enable Internal Reports
- Notifications
- Holds
- Withdrawals
- Targeted Recalls

Customer/supplier
- Manufacturing

SAP ERP1
- 3rd party Batch System
- Business Partner System

SAP ERP2
- 3rd party Batch System
- Business Partner System

SAP ERP3
- 3rd party Batch System
- Business Partner System

SAP Global Batch Traceability Repository

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Search batches
Explore genealogy graphically
View top-down where-used list
View bottom-up where-used list
Create reports
Identify & maintain broken links
Report on multiple batches in a single run

### Search: Network Nodes with Missing Events

**Search Criteria**
- Material Number
- Plant
- Logical System
- Identified On

**Result List:** 15 Network Nodes With Missing Events

<table>
<thead>
<tr>
<th>Network Nod</th>
<th>Network Nod</th>
<th>Initial/Target</th>
<th>Not Relevant</th>
<th>Plant</th>
<th>Material Number</th>
<th>Material Desc</th>
<th>Logical System</th>
<th>Identified</th>
<th>Identified</th>
<th>Identified</th>
<th>Identified</th>
<th>Changed</th>
<th>Changed</th>
<th>Changed</th>
</tr>
</thead>
</table>
Search batches  Explore genealogy graphically  View top-down where-used list  View bottom-up where-used list  Create reports  Identify & maintain broken links  Report on multiple batches in a single run

Distribution List

Start Batches

<table>
<thead>
<tr>
<th>Batch ID</th>
<th>Material Number</th>
<th>Material Description</th>
<th>Plant</th>
<th>Logical System</th>
</tr>
</thead>
<tbody>
<tr>
<td>C_7701</td>
<td>GET-SEM1</td>
<td>Mixture Apple/Orange Type A</td>
<td>1100</td>
<td>Q4ACLNT023</td>
</tr>
<tr>
<td>C_3102</td>
<td>GET-SEM1</td>
<td>Mixture Apple/Orange Type A</td>
<td>1100</td>
<td>Q4ACLNT023</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mat. No.</th>
<th>Material Description</th>
<th>NW Node</th>
<th>NW Node Type</th>
<th>Actual GI Date</th>
<th>Logical System</th>
<th>Plant</th>
<th>IntLogLoc</th>
<th>Delivery</th>
<th>Del Qty</th>
<th>Unit</th>
<th>Sold to</th>
<th>Ship to</th>
<th>Goods Recipient</th>
<th>Goods Rpt Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBT-SEM1</td>
<td>Mixture Apple/Orange Type A</td>
<td>C_7701</td>
<td>Batch</td>
<td>07.03.2012</td>
<td>Q4ACLNT023</td>
<td>1100</td>
<td>0001</td>
<td>80015074</td>
<td>20</td>
<td>KG</td>
<td>3000</td>
<td>3000</td>
<td>Thomas Bush Inc.</td>
<td>1 1 2800 South 25th Ave / MAYWOOD IL 60153</td>
</tr>
<tr>
<td>GBT-FINISH</td>
<td>2 Liter Bottle Apple/Orange Fruit Drink</td>
<td>C_5801</td>
<td>Batch</td>
<td>07.03.2012</td>
<td>Q4ACLNT023</td>
<td>1100</td>
<td>0001</td>
<td>80015075</td>
<td>20</td>
<td>KG</td>
<td>4000</td>
<td>4000</td>
<td>North Energy Ltd</td>
<td>Calgary AB T2P 4K9</td>
</tr>
<tr>
<td>GBT-FINISH</td>
<td>2 Liter Bottle Apple/Orange Fruit Drink</td>
<td>C_3102</td>
<td>Batch</td>
<td>01.03.2012</td>
<td>Q4ACLNT023</td>
<td>1100</td>
<td>0001</td>
<td>80015068</td>
<td>10</td>
<td>KG</td>
<td>3000</td>
<td>3000</td>
<td>Thomas Bush Inc.</td>
<td>1 1 2800 South 25th Ave / MAYWOOD IL 60153</td>
</tr>
<tr>
<td>GBT-FINISH</td>
<td>2 Liter Bottle Apple/Orange Fruit Drink</td>
<td>C_3302</td>
<td>Batch</td>
<td>01.03.2012</td>
<td>Q4ACLNT023</td>
<td>1100</td>
<td>0001</td>
<td>80015069</td>
<td>20</td>
<td>KG</td>
<td>4000</td>
<td>4000</td>
<td>North Energy Ltd</td>
<td>Calgary AB T2P 4K9</td>
</tr>
</tbody>
</table>
Use Case Examples

1. From notification of a finished product issue to push of a button reporting in order to execute precision holds, withdrawals and recalls

2. From the identification of a production line malfunction issue to push of a button reporting in order to execute precision holds, withdrawals and recalls
Julie, a consumer, reports a product issue concerning a finished product.
John, a Quality Management Expert, starts the investigation
The Quality Management Expert’s first objective is to get an overview of the product issue at hand.
The Quality Management Expert’s first objective is to get an overview of the product issue at hand.
The quality issue investigation established a problem with the raw material batch ID C_2902
The quality issue investigation established a problem with the raw material batch ID C_2902
The QM Expert’s next objective is to precisely establish the distribution record for the bad batches.
The QM Expert’s next objective is to precisely establish the distribution record for the bad batches
The QM Expert can likewise request a report on the remaining internal stock distribution.
Bill, a plant supervisor, identifies a malfunction on a production line
John, a Quality Management Expert, can now immediately explore the issue and pinpoint all affected bad product batch stock.
The supervisor calls and advises that there has been issue with production line A on (the) 12th December 2011.
The supervisor calls and advises that there has been issue with production line A on (the) 12th December 2011.
Immediately the QM expert understands that the second batch was already distributed to external parties
Immediately the QM expert understands that the second batch was already distributed to external parties.
You can easily refocus the batch network graph and set for example a raw material batch ID as a root node.
Push of button creation of a distribution report for multiple batches in a single run
Push of button creation of a distribution report for multiple batches in a single run
Create a Material balance report at a push of a button
Create a Material balance report at a push of a button
Get the transparency and insight needed to execute precision holds, withdrawals or recalls

- Protect your consumer
- Protect your brand
- Minimize your corporate risk and financial exposure in case of product issues
Thank you
Thank you

Please contact:

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