SAP RFID Solution
Product Overview and Roadmap

Priyanka Khaitan
SCM Solution Mgmt
The RFID Solution Landscape

Tags
- EPC or Other Constructs -

Devices
- RFID
- Mobile Device
- Lightstack
- Printer

Device Management/Controller
- All

Auto-ID Infrastructure
- All

Exchange Infrastructure
- All

Enterprise Applications
- ERP
- SCEM
- BW

Function
- Hold Data
- Transmit data using radio waves

- Read / write / Transmit data to systems

- Manage multiple Readers & standardizes data

- Store and translate raw EPC data to business data

- Route business data and events to applications

- Provide Decision Support and execute transactions

Delivery
- Hardware Expertise Consulting

- System Integration Services: Value generation with RFID

Partner SAP

SAP Offerings: 

- = SAP Offering
- = Partner Offering
## SAP Auto-ID Infrastructure Product Profile

| Business Processes                                      | ■ Automatic inbound/outbound processes with integration to back-end system  
|                                                      | ■ Automatic validations of inbound/outbound processes to Advanced Shipping Notification (ASN) based on EPCs  
|                                                      | ■ Returnable transport items, Kanban  

| Tag Commissioning                                      | ■ Write an Electronic Product Code (EPC) on each individual tag  
|                                                      | ■ Write EPCs in batch mode using an RFID label printer  
|                                                      | ■ Support multiple-tag commissioning modes, multiple hierarchies  

| User Interface (UI)                                    | ■ Has mobile/desktop UI  
|                                                      | ■ Offers enhanced execution guidance in both mobile and desktop UI  

| Master Data                                            | ■ Import master data for integrated scenario  
|                                                      | ■ Maintain product, location, and business master data locally for standalone deployment  

| EPC Number Ranges                                      | ■ Maintain EPC number ranges locally in SAP Auto-ID Infrastructure (AII)  
|                                                      | ■ Configure EPC encoding according to current and emerging standards  

| Deployment                                             | ■ Integrate deployment on SAP application system  
|                                                      | ■ Deployable with integration to non-SAP back-end  
|                                                      | ■ Deployable standalone  

| Reporting                                              | ■ Business Monitoring and Reporting  
|                                                      | ◆ Stock situation at different locations  
|                                                      | ◆ Movements across/within locations  
|                                                      | ◆ Dwell time/cycle time  
|                                                      | ◆ Current status of tracked objects  

|                                                      | ■ Technical Monitoring and Reporting  
|                                                      | ◆ Read/write rate quality reports  

|                                                      | ■ BW extractors from SAP All  

Three layers of EPC Data Management

**Enterprise**

- **Edge Server**: Provides business context to RFID data.
  - Local track & trace

**Facility or Location**

**AII**

- **Device Controller**: Collects and validates RFID read data.

**Reader**

**Use example**

Provides information to the Enterprise and to the Enterprise partners on EPC data.

**SAP OIS**

- Query Interface
- Capture Interface
- AUTO-ID Repository
- Event Management
- Analytics
- Security Services
Supporting Enterprise Wide Deployments
Auto-ID Infrastructure – Standalone or Integrated

Auto-ID Infrastructure

Support from 4.6C and higher

Legacy Application
RFID Business Processes

**Generic Processes**

Outbound Processing
- optionally integrated with Event Management

Inbound Processing

Reusable Transport Item Tracking

**Extended Processes**

Wal*Mart / DoD Mandate Support
- Case-level tagging
- Item level tagging

Supply Chain Visibility

**Pharma-Specific Processes**

E-Pedigree Support
- In conjunction with Partner

Product Tracking and Authentication
SAP RFID Enabled Process Overview

Distribution Center Process Flow

Inbound Receiving  Picking  Packing  Manifest  Order Assembly  Out-Bound Shipping

Distribution Center

Tag Commission  Pack  Load  Store

Encode and apply tags  Associate item / case / pallet tags  Validation

AII

THE BEST-RUN BUSINESSES RUN SAP™
SAP RFID Enabled Process Overview

Distribution Center Process Flow

- Inbound Receiving
- Picking
- Packing
- Manifest
- Order Assembly
- Out-Bound Shipping

Distribution Center

Tag Commission → Pack → Load

Encode and apply tags
Associate item / case / pallet tags

Store

Validation

AII

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RFID enabled Outbound Processing

Manufacturer

Pick or Produce

Pack

Associate Items / Pallet / Tags

Create HU

AII

Create Delivery

Wholesaler

SAP EM

SAP ERP

Delivery

Cust. Order

Purchase Order

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Example – Hierarchies Supported

Scanned with RFID

Child GRAI-1
Child GRAI-2
Child GRAI-3
Child GRAI-N

Scanned with RFID

GRAI
SSCC
GRAI
GRAI
GRAI-N

Scanned with RFID

S-GTIN-96
S-GTIN-96
S-GTIN-96

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Example – Hierarchies Supported

- GRAI
  - Scanned with RFID
    - MAT No 1
    - MAT No 2
    - MAT No 3
    - MAT No N
  - Scanned with Barcode

Scanned with Barcode
RFID enabled Outbound Processing

Manufacturer

Commission Tags

Pack

Load Goods

Wholesaler

Scan IDs

Associate Items / Pallet / Tags

Create Delivery

Create HU

SAP EM
Optional

SAP ERP

Delivery

Goods Issue

Create Event Handler for Deliv

Update with Pick

GI

Adv. Ship Notification

Purchase Order

Wholesaler

Manufacturer

Scan IDs

Associate Items / Pallet / Tags

Create Delivery

Create HU

SAP EM
Optional

SAP ERP

Delivery

Goods Issue

Create Event Handler for Deliv

Update with Pick

GI

Adv. Ship Notification

Purchase Order
Pedigree Notification - Data Generation / Assembly

**Generation of Pedigree Notifications Process Flow**

- ERP System
  - Systems sends ASN
  - System logs feedback messages (optional)
- XI System
  - System enriches ASN with IDs (optional)
  - System generates pedigree notifications
- Third-Party Vendor
  - System creates pedigree

**Pedigree Notification Generation System Components**

- SAP All System
- ERP System
- XI System
- Third-Party Vendor System

**SAP Application Components**
- SAP All 4.0 SP03 or higher
- SAP ECC 6.0
- SAP NetWeaver 2004s Usage Type Process Integrations (PI/XI) SP07 or higher
- XI Content for SAP All 4.0 SP03 or higher
SAP RFID Enabled Process Overview

Distribution Center Process Flow

- Inbound Receiving
- Picking
- Packing
- Manifest
- Order Assembly
- Out-Bound Shipping

Distribution Center

- Tag Commission
- Pack
- Load
- Store

Encode and apply tags
Associate item / case / pallet tags
Validation

AII

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RFID enabled Inbound Processing

Manufacturer → Check and Receive Goods

Compare to ASN EPCs

AII

Register EPCs

Post Goods Receipt

Advance Ship Notice

(Proof of Delivery)

SAP R/3

Wholesaler
RFID enabled Inbound Processing

Vendor sends ASN

Additional segments which contain the data fields for the EPC such as material number, storage location, product type, and EPC.
RFID enabled Returnable Transport Items (RTI) Process

1. **Initial Commissioning of new empty returnable container**
   - Containers are being collected for filling/ packing

2. **Filling/ packing of Container**
   - Containers are being filled/ packed and loaded for shipment to the business partner

3. **Inbound of Filled**
   - Containers are being unpacked/ emptied and moved to an empties location

4. **Unpacking Of Returnable Containers**
   - Returnable Containers are being unpacked/ emptied and moved to an empties location

5. **Return Of Empties**
   - Empty Returnable Containers are being collected for filling/ packing
   - Containers are being filled/ packed and loaded for shipment to the business partner
   - Empties are being packed and loaded for return

6. **Return Receipt and Inspection of Empties**
   - Empties are being received back and inspected
   - If damaged
   - If ok

**SAP**

*THE BEST-RUN BUSINESSES RUN SAP*
How Event Management works

- Each relevant business object or process is represented by an event handler in SAP EM, including attributes (IDs, info/control parameters) and statuses.
- Milestones and expected measurements contain information about what is planned to happen to the object or process.
- Actual events and measurements are posted manually or from within another system (B2B exchange, web, handheld).

![Diagram showing event types]

- Actual events
- Expected events
- Process milestones
- Event 1: Regular event
- Event 2: Early/Late event
- Event 3: Unreported event
<table>
<thead>
<tr>
<th>Status</th>
<th>Event</th>
<th>Planned Date/Time</th>
<th>Actual Date/Time</th>
<th>Reason Code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Picking Begin</td>
<td>May 28, 2003;7:00 AM</td>
<td>May 28, 2003;7:00 AM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Picking End</td>
<td>May 28, 2003;9:00 AM</td>
<td>May 28, 2003;9:00 AM</td>
<td></td>
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<tr>
<td></td>
<td>Packing</td>
<td>May 28, 2003;11:00 AM</td>
<td>May 28, 2003;11:00 AM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arrival Carrier</td>
<td>May 30, 2003;5:00 AM</td>
<td>May 30, 2003;5:00 AM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loading Begin</td>
<td>May 30, 2003;7:00 AM</td>
<td>May 30, 2003;7:00 AM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loading End</td>
<td>Jun 2, 2003</td>
<td>Jun 2, 2003</td>
<td></td>
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<tr>
<td></td>
<td>Unplanned Event - Delay</td>
<td>Jun 3, 2003;12:08 AM</td>
<td>BREAKDOWN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plant Departure</td>
<td>Jun 3, 2003;10:00 AM</td>
<td>Jun 3, 2003;10:00 AM</td>
<td></td>
</tr>
</tbody>
</table>

Select one or more actions.

- Report Proof of Delivery
Notifying the Stakeholders

Exception Detected

Examples:
- Overdue
- Unexpected event
- Outside the tolerances

Fax

Short Message

E-mail

Universal Work List
Preconfigured Business SAP BI Reports

Business Monitoring & Reporting
- Stock Situation at Different Locations
- Movements across Locations
- Movements at Location by Action Type
- Cycle Time across Locations

Technical Monitoring & Reporting
- Read Rate quality reports
- Write Rate quality reports

BW extractors from SAP All:
- BW relevant data is processed in SAP All and written to the BW delta queue in SAP All.
- BW pools the data out of the BW delta queue and writes it to the BW cubes.
- Available with SAP Auto-ID Infrastructure 4.0
Questions?

Q&A