Real-time Visibility

RFID-enabled Applications for Asset Tracking

Deployment Guide
Tracking Assets Across the Value Chain

By adding real-time visibility to business systems, RFID and Auto-ID technology deliver process efficiency and cost savings. Optimizing asset utilization and indirect materials management across multiple nodes in the value chain decreases inventory and handling costs while increasing product availability.

Automating and error-proofing even a single business process can deliver a significant return on investment. Process-specific projects often pay for themselves within 9-12 months, and are targeted in one or more of the following areas:

- Receiving
- Reusable Container Tracking
- Component / Subassembly Tracking
- Tool Tracking
- Jig/Mould Tracking
- Whole Goods Tracking
- Shipping
- Yard Management

The use cases on the following pages illustrate specific areas where asset tracking can be automated in multiple points in the value chain.
OAT worked with a leading Aerospace Manufacturer to real-time enable their inbound logistics processes with RFID.

The result: a 75% reduction in handling time and more effective labor allocation, by focusing on exception handling vs. day to day operations.
Receiving: Functional Process Flows

Sample Process Flow
- Validating manifest details, ASN against physical shipments

ERP / WMS / Asset Management System
- Get Order Details from ERP/WMS
- Assign/schedule delivery to site
- Execute ERP/WMS transactions (update goods issue, send ASN, etc.) & capture event data

OATxpress™
- Get delivery manifest details for dock door
- Validate against manifest
- Send manifest fulfillment details

OATdevice manager™
- Receive container at dock 11, set date/time
- Set status to “Received”
- Validate against container fleet requirements
- Operator feedback

RFID & Auto-ID Devices & Sensors
- RTLS, Wi-Fi, Barcode, Active/Passive RF, Alarms...

Container Tracking

Sample Process Flow
- Validating order & manifest details against physical containers and their contents

ERP / WMS / Asset Management System
- Obtain list of expected receipts
- Set status to “Received”
- Execute ERP/WMS transactions (update goods issue, send ASN, etc.) & capture event data

OATxpress™
- Get delivery manifest details for dock door 11
- Associate container number and contents
- Validate against container fleet requirements

OATdevice manager™
- Receive container at dock 11, set date/time
- Operator feedback

RFID & Auto-ID Devices & Sensors
- RTLS, Wi-Fi, Barcode, Active/Passive RF, Alarms...

Alert!
- Container 14562 is needed for a RUSH ORDER
- Please expedite
2. RFID Applications in Manufacturing / Warehouse

**Component & Subassembly Tracking**

**Auto-ID Application**
- Automate barcode-based Work-in-Process tracking to document product lineage from components to subassemblies to finished product

**Web Services Integration Options for ERP, WMS, Asset Management Systems**
- Automatically update work-in-process status and component serialization as products are assembled
- Compare subassemblies with bill of materials
- Provide configurable settings to trigger alerts when assets are missing or manifest is incomplete

**Auto-ID Value Add**
- Fewer errors, shorter lead time, more thorough documentation
- Reduced search time and expedite costs
- Reduced inventory and storage costs
- Lower likelihood of rework, leading to increased productivity

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**Tool Tracking**

**Auto-ID Application**
- Automate check-in, check-out, real-time track and trace of specialized tools, molds and indirect materials, for manufacturing, maintenance & overhaul operations

**Web Services Integration Options for ERP, WMS, Asset Management Systems**
- Compare and update physical tool inventory against stock across multiple tool stores
- Update calibration status and alert operator when recalibration is due

**Auto-ID Value Add**
- Reduced expedite costs and excess inventory to compensate for lost tools
- Reduced labor costs for tracking down missing tools and managing administrative paperwork
- Improved assembly and service efficiency

Component & Subassembly Tracking

- Sample Process Flow
  - Documenting and verifying component parts during the assembly process

ERP / WMS / Asset Management System

- Get Work Order details from ERP/MES
- Assign work order to operator
- Execute ERP transactions (update component inventory, work order status) & capture event data

OATxpress™

- Get assembly instructions and component list for workstation #3
- Validate against Work Order
- Send work order status

OATdevice manager™

- Receipt at workstation #3
- Read component serial #s, batch #s, test data
- Operator feedback

RFID & Auto-ID Devices & Sensors

- RTLS, Wi-Fi, Barcode, Active/Passive RF, Alarms

Sample Process Flow

- Managing tool stores and calibration schedule

Tool Tracking

ERP / WMS / Asset Management System

- Get BOM details from ERP/ WMS/ Asset Mgt System
- Update with new location status
- Update service history, information

OATxpress™

- Get specialized tool requirements and location
- Validate against maintenance schedule
- Send service details

OATdevice manager™

- Check out tool at store #3
- Read tool information
- Operator feedback

RFID & Auto-ID Devices & Sensors

- RTLS, Wi-Fi, Barcode, Active/Passive RF, Alarms

Sample Process Flow

- Managing tool stores and calibration schedule

Alert!
Part # TR783-065 is recalled.
Please substitute Part# CR782-0621

Alert!
Tool # 16554005 is due for scheduled calibration
RFID Applications in Shipping

3.

Shipping

**Auto-ID Application**
- Automated Advanced Shipping Notices (ASNs) and verification of outgoing orders

**Web Services Integration Options for ERP, WMS, Asset Management Systems**
- Expedite rush shipments
- Verify individual items within each shipment
- Verify final destination, carrier, dock door and customs clearance
- Flag rush shipments by comparing order number & special instructions

**Auto-ID Value Add**
- 100% automated tracking & reliable confirmation of assets as they are shipped
- Significant reduction in error rates and costly correction processes
- Focus staff on exception handling vs. administrative paperwork

Jig Tracking

**Auto-ID Application**
- Automated check-in, check-out, real-time track and trace of specialized jigs and other indirect materials used for shipping high-value assets

**Web Services Integration Options for ERP, WMS, Asset Management Systems**
- Track and update location and status of specialized jigs and the assets they transport
- Alert operator when jig inventory runs below a specified level

**Auto-ID Value Add**
- Improved utilization of specialized equipment and transport vehicles
- Reduced expedite costs and excess inventory to compensate for lost materials
- Reduced labor costs for tracking down missing items and managing administrative paperwork
- Improved delivery and service efficiency

**Sample Process Flow**

- Verifying outgoing shipments, validating assets against delivery manifest

**ERP / WMS / Asset Management System**

- Get Order Details from ERP/WMS
- Assign/schedule delivery to site
- Execute ERP/WMS transactions (update goods issue, send ASN, etc.) & capture event data

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**OATxpress™**

- Get delivery manifest details for dock door 4
- Validate against manifest
- Send manifest fulfillment details

**OATdevice manager™**

- Final inspection at dock door 4
- Read package, order #, contents
- Operator feedback

**RFID & Auto-ID Devices & Sensors**

- RTLS, Wi-Fi, Barcode, Active/Passive RF, Alarms...

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**Jig Tracking**

**Sample Process Flow**

- Documenting and confirming indirect material availability with an automated check-in/check-out process

**ERP / WMS / Asset Management System**

- Confirm delivery schedule, required transport materials from ERP/EWM/Field Service/Asset Management
- Assign jigs/transport materials to Zone C in loading area
- Update jig/transport material inventory

**OATxpress™**

- Get location details for jig/other transport materials
- Validate against inventory/location table
- Send order ID, jig ID, product ID and final destination

**OATdevice manager™**

- Receive goods to be shipped in loading area, Zone C
- Receive jig at loading area, Zone C
- Operator feedback

**RFID & Auto-ID Devices & Sensors**

- RTLS, Wi-Fi, Barcode, Active/Passive RF, Alarms...

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```
Jig 77105 assigned to outgoing order AG016681
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RFID Applications in the Trailer Yard

Yard Management

Auto-ID Application
- Automate check-in and dispatch, real-time track and trace of finished goods, yard trailers and contents

Web Services Integration Options for ERP, WMS, Asset Management Systems
- Compare trailer contents with manifests, ASNs and work orders
- Update inventory and location of finished goods, place replenishment orders as needed
- Flag rush shipments by comparing order number and special instructions

Auto-ID Value Add
- Reduced error rates and costly correction processes
- Reduced expedite costs and safety stock to cover lost shipments
- Reduced labor costs for tracking down missing assets and managing administrative paperwork
- Reduction in asset shrinkage
- Improved shipping estimates, leading to better customer service

Whole Goods Tracking

Auto-ID Application
- Automate check-in and check-out, real-time track and trace of finished goods

Web Services Integration Options for ERP, WMS, Asset Management Systems
- Compare expected assets with physical assets
- Update inventory and location of finished goods, place replenishment orders as goods are transferred or sold
- Automatically locate assets across multiple yards

Auto-ID Value Add
- Reduced labor costs and expedite costs for tracking down and/or replacing missing assets
- Reduction in asset shrinkage
- Improved product availability, leading to better customer service
Trailer Yards: Functional Process Flows

**Whole Goods Tracking**

Sample Process Flow
- Verify asset location, configuration & status across multiple facilities

**Yard Management**

Sample Process Flow
- Verifying asset location and inventory counts during check-in/ check-out process

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**ERP / WMS / Asset Management System**

- Inbound customer request for Product 786456, Model AP4568
- Schedule delivery from Dallas TX to customer site
- Update shipment data and decrement inventory in ERP / WMS / Asset Management System

**OATxpress™**

- Confirm location of specific product, model #, Dallas TX facility
- Validate against manifest
- Send manifest fulfillment details

**OATdevice manager™**

- Confirm product location in Zone 15 of Dallas TX facility
- Read product#, model #, at Dallas TX loading area
- Operator feedback

**RFID & Auto-ID Devices & Sensors**

- RTLS, Wi-Fi, Barcode, Active/Passive RF, Alarms...

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**ERP / WMS / Asset Management System**

- Get delivery schedule from ERP / WMS / Asset Management System
- Assign finished goods to zone within laydown yard
- Update yard management map

**OATxpress™**

- Get location details for trailer
- Validate against inventory/ location table
- Send configuration details

**OATdevice manager™**

- Receipt at laydown yard
- Read product ID, trailer ID, location
- Operator feedback

**RFID & Auto-ID Devices & Sensors**

- RTLS, Wi-Fi, Barcode, Active/Passive RF, Alarms...

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**Pinpoint goods location in yard**
# Real-Time enabling the Value Chain

RFID & Auto-ID enabling production systems incorporates real-time asset, location and order status into day-to-day business metrics. This enables staff to uncover and address process errors before they impact product availability and customer satisfaction.

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<th>Enterprise Systems to Enable</th>
<th>Infrastructure to Enable</th>
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Leverage your enterprise systems
Manufacturers and Service Providers make significant investments in ERP, WMS, Asset Management and MRO systems. Enriching these systems with RFID, Auto-ID or sensor data can dramatically reduce the time and cost of deployment.

Take advantage of real-time data
Don't just capture RFID and Auto-ID information in a data warehouse. Take full advantage of real-time alerts and insights to reduce error rates and improve productivity.

Focus on cost reduction
Many companies can realize significant savings in expedite, transportation, labor and inventory costs by real-time enabling error-prone process areas such as Shipping & Receiving, Container Tracking and Yard Management.

Start with configurable packaged solutions
RFID & Auto-ID packaged solutions are much faster to test and deploy, and can often be easily configured for an organization’s specific needs, without requiring custom development.

Make sure your initial project has room for growth
Select a proven RFID & Auto-ID application platform with broad device support and deployment flexibility, so that you can evolve and scale easily.

Begin with the end in mind
Don’t lose sight of your business goals. Track and adjust your metrics along the way and plan for continuous improvement.
About OATSystems

OATSystems, Inc., division of Checkpoint Systems, Inc., is a recognized radio-frequency identification (RFID) solution leader with software that empowers businesses to achieve competitive advantage and ROI from RFID enabled applications. As a pioneer in developing RFID & Auto-ID technology, OATSystems has been setting the standards in RFID for over half a decade and is responsible for industry firsts that include the largest scale and largest scope of deployments, as well as the most innovative approaches to providing enterprise-wide RFID solutions.

OATSystems’ multinational client base consists of over 100 customers in retail, consumer packaged goods, consumer electronics, manufacturing, life sciences, aerospace and defense.

Contact OATSystems today at http://www.oatsystems.com/asset_tracking/index.php or 781-907-6100 and get ready to take control of your operations.