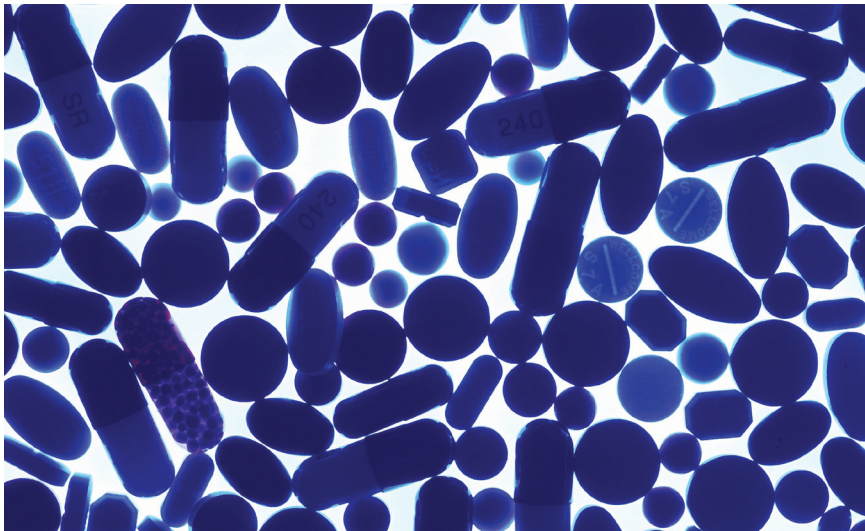




## IBM WebSphere RFID Information Center: Controlling product data to minimize risk



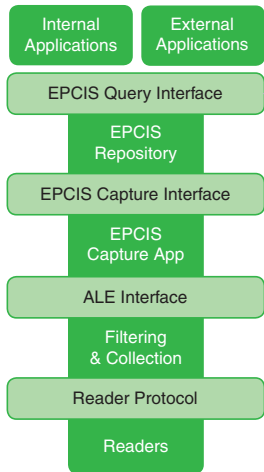
Each year, pharmaceutical companies lose billions of dollars to supply chain security lapses and counterfeiting. Security lapses can quickly erode brand confidence and public safety, and can take organizations anywhere from 12 to 18 months to recover market share. The situation is equally challenging from a counterfeiting perspective: the World Health Organization estimates that up to eight percent of the world's drug supply is fake, resulting in \$35 billion a year in lost sales to the pharmaceutical industry, as well as dangers to public health.<sup>1</sup> In addition, burdensome logistics, decreased productivity, excess inventory and safety stock can compromise the bottom line. And finally, pharmaceutical companies are highly regulated and must meet stringent state and federal compliance guidelines. The question is, can huge losses from shipment errors, diversion, product expiration and theft be prevented?

### Highlights

- *Track and trace drugs from the manufacturer to the final sale*
- *Automate shipment notification and receipt verification*
- *Enable more effective product authentication and ePedigree generation*
- *Gain visibility into inventory information*
- *Share event data securely with trading partners in real time*
- *Enable product authentication to quickly identify counterfeit medicines*



### EPC Network Architecture



### Solution Network Architecture

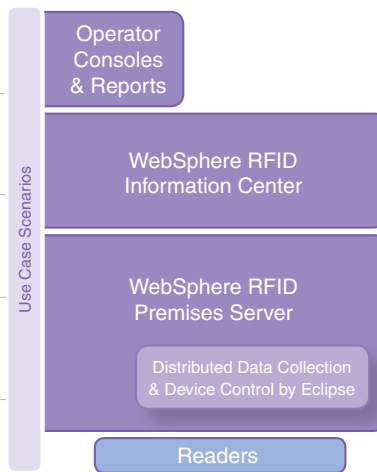


Figure 1. How the EPCIS standard is fully addressed by RFIDIC.

That's where IBM WebSphere® RFID Information Center (RFIDIC) comes in. A robust track and trace solution, RFIDIC not only helps pharmaceutical companies meet regulatory compliance, but can also help achieve significant return on investment (ROI) through product authentication and counterfeit prevention.

Value is created because serialization is the driving capability of RFIDIC. Sensors, whether barcode or RFID tag, carry a unique serial number which is read and processed, quickly, accurately and securely. This fundamental quality is the basis for any sensor-based solution and the benefits it delivers. Without competent serialization, data cannot be trusted.

### Establish confidence through efficient product tracking

Building confidence starts with establishing secure product track and trace capabilities among trading partners throughout the supply chain. A standards-based repository is key to this process. EPCglobal, an open standards organization, leads the development of the Electronic Product Code™ (EPC) standard promoting the use of Radio Frequency Identification (RFID) to boost trading partner networks. Based on a layered Service Oriented Architecture (SOA), EPCglobal Electronic Product Code Information Services (EPCIS) provides a standard and secure way to communicate data created by sensors such as

RFID tags and tie it to existing business information and trading partners.

With an EPCIS-compliant product, an enterprise can maintain a transaction records and register changes of custody within the network, including:

- *Compliance*
- *Supply chain visibility*
- *Reverse logistics*

### Enter IBM WebSphere RFID Information Center

WebSphere RFID Information Center, the IBM implementation of EPCIS, offers a highly configurable and scalable repository to track product movement. RFIDIC can track units, cases, pallets and any other packaging type bearing a unique identity. Because of this, it is equipped to help you easily monitor product data along each point up and down the supply chain.

WebSphere RFID is designed to help capture, manage and securely share volumes of events and queries in real time by streaming events through parallel assembly lines that scale horizontally with the number of processors. In addition to product information captured from sensors, it can help manage reverse logistics, supply chain visibility and pedigree creation. Once aggregated, this data can be made readily accessible to users through screens, reports or dashboards.



Figure 2. Secure product movement: capture, share data, query & assembly pedigree.

Enterprise systems can easily access the repository through reporting views and open services like Web services or XML. High-volume and granular sensor data is captured for entry. In addition, data duplication is controlled to the extent that enterprise or external systems can consume quality information without the need to store data in each system.

Pharma companies can further extract value from the product movement data that is housed in RFIDIC. By analyzing product movement data in the context of other enterprise data (such as data about product, location, supplier or vendor), business users can begin making more extensive inquiries into the security and health of their products and the performance of their supply chain. RFIDIC can be linked to Master Data Management systems like IBM WebSphere Product Center, which centralizes enterprise product, location and supplier information. This helps dramatically enhance the business benefits derived from investing in both a product movement information repository and a master data system.

**Improving critical business processes, efficiency and ROI**

Shipment verification and product authentication can have a dramatic impact on both operations and return on investment. In addition to flexible configuration and the ability to scale to handle dozens of events per second, RFIDIC offers multiple features designed to address the top challenges facing the pharmaceutical industry. These include:

- **Targeted recall.** *WebSphere RFID includes a directed recall function that leverages serialization with the EPC Network to track down recalled products in a much more cost-effective process than the current manual broadcast process.*
- **Inventory levels.** *The ability to detect and prevent inventory shortages and excess, including high-value inventory, can help improve inventory visibility to ensure current, accurate inventory levels. Inventory labor can also be reduced.*

- **Shipment verification.** *RFIDIC enables shippers to verify that an EPC-tagged product is received at the intended location within the expected timeframe. This allows shippers to confirm receipts and mitigate the opportunities for theft or diversion of high-margin items in the supply chain, such as service level agreements.*
- **Serialized returns.** *RFIDIC also allows you to validate each unit of return for information, including sale, pricing and terms, to help further monitor and control products.*
- **Product authentication.** *You can leverage the entire RFID and EPC network to more quickly find counterfeit medicines throughout your supply chain—before they reach the consumer.*

**Promote secure interoperability across and beyond the organization**

RFIDIC offers multiple layers of security at the most granular level possible (attribute, attribute-value, and role level), along with digital signatures and certifications, and is fully aligned with EPCglobal EPCIS 1.0 standards for event capture and query. Partner access to your repository can be controlled via EPCglobal, which is designed to enable trading partners to interoperate more securely. The Query and Security features also provide a parameterized interface for trading partner queries.



RFIDIC enables security-rich product movement including: capture, share data, query and assembly pedigree. Data communication can be achieved in three ways:

*1. Push/document-based compliance, where data is pushed from trading partner to trading partner.*

*2. Direct EPCIS to EPCIS (track and trace), where each enterprise makes the transactional data in its EPCIS accessible to a pre-determined partner's EPCIS.*

*3. EPC Network (track and trace), where transactions are registered with the network, enabling the network to build electronic pedigrees on demand.*

#### **Ease the burden of compliance measures**

To combat drug counterfeiting, pharmaceutical organizations must soon meet stringent drug pedigree regulations. An electronic record of the transaction history, an ePedigree helps ensure the shipped drugs are authentic. At item, case or pallet level, the drugs can be traced all the way back to the original manufacturer. Without the correct pedigree, a drug can be determined to be illegitimate or valid.

Through its robust track and trace capabilities, RFIDIC helps ease the burden of compliance regulations.

With the ability to verify products at multiple points along the supply chain, RFIDIC helps increase the safety, validity, and efficiency of products and product movement.

To maximize business benefits, IBM offers a standards-based prepackaged Shipment Verification module that enables shippers to confirm receipts, while providing visibility of shipments to receivers.

#### **A track and trace solution based on industry standards and customer input**

Built in conjunction with pharmaceutical customers, WebSphere RFID Information Center incorporates the capabilities needed to help enhance, manage and securely share RFID and other sensor technologies. As the industry continues to evolve, its flexible infrastructure is designed to continually provide new enhancements to meet new challenges without requiring an entire system overhaul. With this level of flexibility, pharmaceutical organizations can confidently meet the challenges of today and tomorrow.

#### **For more information**

To learn more about WebSphere RFID Information Center, please visit [ibm.com/software/data/masterdata/rfid](http://ibm.com/software/data/masterdata/rfid).

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<sup>1</sup> Between 6% and 10% of medicine on the world market is reported to be counterfeit with estimated sales of over US \$35 billion a year, World Health Organization, May 3, 2005.

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