

**vizinex** RFID  
the way you imagined

 **XTREME RFID**  
a cascade engineering company

GUIDE

# Closing the Loop

HOW TO DEPLOY RFID FOR RTIs



## Introduction & Purpose

As the reader likely knows, RFID offers an efficient, cost-effective and automated method for RTIs (and their contents) to be tracked throughout the supply and use chain.



With an RTI tracking solution in place, RTIs are automatically identified when they're in proximity to a moving or stationary reader. Essentially, passive RFID tags are intelligent barcodes that use radio signals, rather than line of sight, to deliver information about the asset. That means multiple RTIs can be identified at once, in a totally automated fashion – the tag and the reader communicate with little human intervention.

This is, naturally, a wonderful goal – and a great state for organizations to aspire to. But what about actually getting there? Is it possible to deploy RFID RTI tracking using only in-house resources? What factors should be considered? How should hardware and software be sourced?

This guide exists to answer just these questions. Read on.

## DIY, or Find a Partner?

Like many business infrastructure projects, it is theoretically possible to deploy RFID asset tracking and inventory control using only in-house resources. The hardware needed is widely available (if not a commodity, in the true sense of the word), and basic system design is logical. If you've built a successful business, you can almost certainly figure out the basics of an RFID solution.

But while it's possible to deploy RFID on your own, it's not recommended in the vast majority of cases. Gaining true ROI from an RFID system designed to track the lifecycle of your RTIs isn't about basics. It's about the kind of nuance and finishing touches that only a dedicated professional can provide.

The cost of bringing in an experienced RFID system integrator is quickly made up for in efficiency, system performance and reduced hassle and elapsed time before "go-live." They'll know the questions to ask, the hardware vendors to tap and the best practices necessary to help you deploy a solution that meets your exact business goals. They'll probably even answer some questions you didn't know to ask. Remember: This is a mission-critical system, not an ancillary piece of the puzzle. It's essential to get it totally right – "mostly there" won't cut it.

## What Factors Should Be Considered?

As with any large-scale technology implementation, there are many factors to be considered when it comes to an RFID-based RTI management system. Thus, you'll want to work with your chosen integration partner to think through factors including:

- How much visibility you currently have into your supply and use chain, and how much you need to function effectively
- How often RTIs must be replaced or serviced and how that process works
- How much the RTIs in question cost
- Whether you can work with your RTI provider to integrate RFID technology directly into the item itself, or whether "in the field" tagging must be used
- The current state and maturity of your technology infrastructure
- Whether your current facilities will remain in use well into the future, or whether a move/expansion is in the offing
- How you can encourage adoption among internal users and supply chain partners
- What, if any, special regulations exist for your industry, and how the new system will comply with them

Now, this is certainly not a comprehensive list of factors that must be accounted for once you've decided to make the leap to RFID for RTI tracking. It is, however, a good summary of the kinds of things you'll need to consider as the project begins. In essence, you'll need an honest assessment of your current situation, a good idea of where you want to go – and a plan to get there.

## How Should I Source Hardware and Software?

While actual system design and deployment varies wildly from organization to organization, no asset management system can be put into place without the requisite software and hardware assets.

The software, typically called "middleware," is relatively simple: Trust your integrator. They'll know what will work with (and can handle) the intricacies of your particular situation, and what can integrate with your existing infrastructure (particularly ERP/MRP systems). Vet the software as you would any other purchase, certainly, but don't consider it a discrete purchase; it's inevitably part of a greater whole.

RFID hardware – the tags, in particular – is something of a different story. RFID software exists to normalize data and make it usable to the viewer. RFID tags actually allow for that data to be created. They're the front line in the fight for better management of and visibility into the supply chain – the linchpin of the entire system.

But there's a problem with RFID tags. As more and more tag makers enter the burgeoning market, there is a creeping perception that RFID tags are commodities. One, the thought goes, is as good as another.

This couldn't be further from the truth. All RFID tags are not created equal – especially when it comes to a job as demanding as supply chain management. And the wrong choice in tags can doom a system to negative ROI before it's even put into production.

**What's to be done? Be sure to cover these four topics.**

### **1. When will tagging occur?**

First, think once more about whether RFID will be integrated into the RTI itself, at the manufacturing stage. If it will be, the OEM has only a few choices. Chief among these is ViziCore™ technology, from Vizinex RFID. ViziCore™ utilizes a patented tag construction methodology as the basis for low-cost solutions that can withstand the rigors of the manufacturing process, including injection or compression molding, enamel curing and autoclave cycles. ViziCore™ implementations are maintenance-free, last the life of the product and – because they're passive RFID tags – require zero maintenance.

### **2. What is my container made of?**

RFID tags are designed to work on particular materials. A mount-on-metal tag, for instance, will likely not perform well on wood. Conversely, a tag made for wood won't perform well on metal. The right tag for the right surface is critical if in-the-field tagging will be performed.

Xtreme RFID is the leading provider of tags for plastic and wood applications. The Xtreme Tag® Duo, for instance, is a unique solution for those surfaces. It consists of a pair of identical rugged RFID tags that are pre-encoded with the same identification information. The tags are coupled together to ensure that the two identical tags are attached to the same asset. Many companies attach multiple tags to a container or asset to provide read redundancy and increase overall system effectiveness. For such applications, it is critical that the tags match and that they be delivered in a format to make attachment error-free, efficient and easy. For further redundancy and fail safes, the Duo can include human readable numbers or barcodes.

For metal substrates, the Allied VX-Mid – combining ViziCore™ technology with Xtreme’s proprietary plastic injection molding process – offers excellent long-term performance from a small, rugged tag. The VX-Mid is ideal for a wide range of RTI management use cases; it can be affixed by screws, welding or adhesive, and is designed to withstand the harsh lifespan of an RTI. It’s rated to withstand submersion beneath four miles of water, and has withstood five drops of a 1.8kg ball from 1.52 meters in laboratory testing.

### **3. What read range do I need?**

Tuning your tag’s read range to your exact needs is highly important. Many RTI tracking solutions utilize RFID readers in bay doors. If the tag can be read from too far away, it might register on multiple readers. If its read range isn’t long enough, it might be missed. Bigger isn’t always better; if you only need 10 feet, be sure your integrator uses a tag rated for 10 feet – not 20.

### **4. What is my environment like?**

RTIs should always be affixed (or integrated with) an RFID tag that will last the lifespan of the asset. That means ruggedization is key. A label-style RFID tag could be torn or pulled off – leaving the item invisible to the system. The tag you ultimately choose needs to be able to stand up to any eventuality – rain, snow, heat, impact ... anything.

## **Summary**

Once you’ve chosen to move forward with an RFID-based solution for tracking your RTIs (and their contents), there are many decisions to be made. In our experience, it’s best to trust a proven, reliable system integrator with designing and deploying the solution. They’ll know the in’s and out’s of the process, and how to help you generate maximum supply chain visibility (and ROI). Make sure you understand your current state, and where you want to go. Finally, take care when selecting an the RFID tags you’ll be using (or having integrated with your items at the manufacturing stage). There are many RFID tags on the market, but they’re not all the same. You need a tag that can withstand any eventuality and consistently perform optimally within the bounds of your system.

## ABOUT VIZINEX RFID

Vizinex RFID, headquartered in Allentown, PA, designs and manufactures RFID tags for diverse asset tracking applications from rugged environments in the oil industry, to medical devices requiring repeated sterilization, to long-range vehicle tracking. With prototyping and manufacturing located in the U.S., our time from concept to delivery is unmatched. Vizinex RFID maintains a tradition of innovation, superior functionality and outstanding customer support, allowing us to deliver RFID ... the way you imagined.

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## ABOUT XTREME RFID

Xtreme RFID is an expert in rugged RFID tag manufacturing for extreme environment applications. We have been encapsulating RFID inlays in one-piece plastic housings, allowing system integrators to utilize RFID in new markets since 2005. We have the experience and know-how needed to assess your application's requirements and provide the right solution for your RFID needs.

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