

MultiPort Companion INT 101

Application notes in Video/DVD/Game Rental and Distribution Environment



Revision: 1.0
Date: October 6th, 2005

© 2005 Intelletto Technologies Inc. All rights reserved. The information contained herein has been obtained from sources that are believed to be reliable. Intelletto Technologies disclaims all warranties as to the accuracy, completeness or adequacy of such information and have no liability for errors, omissions or inadequacies in the information contained herein or for interpretations thereof. The reader assumes sole responsibility for the selection of these materials to achieve its intended use. The opinions expressed herein are subject to change without notice.

Video stores or video distribution environments are prime applications of RFID technology. It is the intention of this paper to discuss the issues that need to be addressed in order to implement RFID in a video stores and distribution centre environment and demonstrate the benefits of using MultiPort companion to help such establishments realize the benefits of RFID implementation.

First let us discuss the implementations issues:

RFID standards:

Standard question basically deals with the following:

- RFID frequency and standards.
- What data should be represented on the tags attached to the books and how should they be encoded.
- How to communicate a request for detailed information regarding a tag number to and from a local or a remote Library Information System?

Video and DVD applications are mainly concerned with 13.56 MHZ HF band. This is an area where ISO18000-3 and ISO 15693 standards are quite established along with a number of other standards such as Icode1 and TI-Tagit, and more.

Type of data that needs to be represented on the tags attached to a video tape, CD, Video game or DVD and how they should be encoded has to be discussed. This data can range from a simple item number along with a store id (or storage location id in Video distribution environment) to time and date of check out/in, the number of times checked out and many other bits and pieces of information that might be of use. It is not the intention of this document to discuss the nature of the information that

needs to be stored on an RFID tag in Video/DVD/Game rental and distribution environment. However any such establishment that is in the process of deciding on or has decided to go ahead with RFID implementation need to come up with a tagging strategy:

Tagging Strategy

Tagging strategy is basically required to address the following:

Tag prices:

Given the permanent nature of the tags that are attached to the video tape, CD, Video game or DVD, the tag price in our opinion, becomes of secondary importance in the ROI calculation of the RFID application in such an environment. Also as the RFID applications pickup in other industries, which use the same frequency and standards as the libraries, one should expect the tag prices to fall. One such parallel market is Pharmaceutical e-Pedigree tracking.

How will the tags be attached to the items?

Will the video tape, CD, Video game or DVD be tagged by manufacturers in the long term or will they have to be tagged in the rental and distribution environments? It is quite obvious that in the short term, the items will have to be tagged in-house or at least in the distribution centres. In order for manufacturers to attach RFID tags to their individual items at the point of origin, they will have to be doing that with an eye towards the production (burning the CDs/DVDs and recording of tapes/games), distribution, sales and rental usage of these products. This would mean that many different groups across many industries have to come together on this issue and negotiate the tag technology that they would like to see attached to the items for

down stream use. This will probably take a while.

What data to represent on the tags?

This data can range from a simple item number along with a store id (or storage location id in Video distribution environment) to time and date of check out/in, the number of times checked out and many other bits and pieces of information that might be of use.

Will they be able to tag all their items with RFID?

The same type of tag (in terms of physical shape) can not be applied to video tape, CD, Video game or DVDs.

All items will not be tagged with RFID in a video sale and rental environment at least not in the short term. Imagine renting two movies (one new release and one classic) along a purchase of pop corn and soda. Therefore in a sale and rental environment, RFID and barcode will have to co-exist for a long period of time. Also from a deployment and implementation perspective RFID will have to be applied selectively and incrementally, so as not to introduce an enormous upfront implementation cost. In a distribution environment, the use of RFID would definitely be more widespread. However from a procedural point of view, the necessary documentations used in the fulfillment purpose will probably stay, barcode driven for a good period of time.

Transparency of the RFID hardware to the existing applications

Most DVD/Video sales, rental and distribution environments are already running a computerized information system that is barcode driven. The user would certainly want to minimize the overhead of changing the application and adapting it to use the RFID technology. Therefore it is

best if the RFID reader can be implemented transparent to the application software so that when a number is fed through the system, software should not need to care whether it is coming from a barcode reader or from an RFID reader. This way rental, sales and distribution environments who are running barcode driven computerized systems can very easily migrate to RFID without requiring software modifications from their software vendors.

What can MultiPort Companion do for your RFID implementation in Rental, Sales and Distribution Environment?

On the frequency band issue:

The MultiPort device operates in 13.56 MHZ HF frequency.

On the standard issue:

Most popular 13.56 MHZ band air interface standards are covered by MultiPort. These standards include ISO18000-3, ISO 15693, Icode1 and TI-Tagit. This will allow the user complete flexibility in terms of their RFID tag supplier

Transparency of the RFID hardware to existing software applications

MultiPort Companion facilitates the implementation of 13.56 MHZ RFID in Video/DVD/Game rental, sales and distribution environment by allowing existing applications that use barcode technology through the RS232 port, to use RFID technology as well without the need to modify the application software. The device will sit between the RS232 port and the barcode reader. It has a built in RFID reader. Any data scanned through the barcode or RFID readers will be written to the RS232 port making the type of the reader transparent to the application software scanning the serial port.

What if all items do not have RFID tags?

Not an issue. As explained in the previous section, MultiPort companion allows information systems to use RFID and barcode interchangeably without the need of any modifications to the software. Therefore the user can gradually phase in their RFID implementation and not worry about immediate software overheads.

How to perform the RFID tag encoding process?

MultiPort has a mode that will enable the user to perform read from barcode write into RFID tag. This mode will allow the encoding operation to proceed quite easily. The barcode scanner attached to the MultiPort will scan the barcode attached to the item. Then the MultiPort will write the data into the RFID tag.

Use of RFID tag for loss prevention.

RFID tags can be used for loss prevention applications. The MultiPort security bit operation acts in activation and deactivation modes.

- **EAS Activator.**
In activator mode, the MultiPort will activate the EAS bit if it is deactivated. If the EAS bit is already active, the device will alert the user that activation was not necessary.
- **EAS Deactivator.**
In deactivator mode, the MultiPort will deactivate the EAS bit if it is activated. If the EAS bit is already deactive, the device will alert the user that activation was not necessary.

What if user does not want to write the exact copy of the item barcode into the tag?

MultiPort will read the data in two modes of raw and formatted reads for either or both of the barcode and RFID readers.

- Raw read is when the system would simply put what ever was read from the barcode or RFID reader into the serial port of the PC.
- Formatted read is when the device parses the data read from the barcode or the RFID reader and adds/removes information to/from it.

MultiPort has the ability to perform different formatting on barcodes and RFID reader, therefore the user will be able to write a variation of the barcode data into the RFID tag.

What if the operator wants to do different things with the same MultiPort?

MultiPort will allow the user to switch the operating mode manually without the need of a PC. Therefore the requirement of software change has been eliminated in this regard as well. For example imagine that the MultiPort is in Read/EAS bit flip mode. Meaning that each time it scans an RFID tag, it places the value into the serial port and flips the EAS bit on the RFID. A customer brings a DVD to the counter that does not have it's tag encoded. The user can easily switch the MultiPort's mode to perform read barcode/RFID write. Once the operation is performed and the tag is properly encoded, the user can switch the mode again and use it in Read/EAS flip mode. This will allow ease of operations and complete transparency to the software application that is running the device.