a 2 b TRACKING SOLUTIONS

UID QUARTERLY: WINTER 2008

INTRODUCTION

We welcome you to the UID Quarterly Winter 2008 Edition, brought to you by A2B Tracking Solutions as an educational service. In this issue you will find some strong evidence that UID is a great strategy for your company or military installation to utilize, well beyond compliance.

What you'll find in this issue:

UID Success - MCI (Verizon) - We present ScanMan, an early UID-like project that has stood the test of time in a commercial environment. Enormous cost savings were realized immediately and continue to this day.

UID Solutions - In UID and ERP - a Promising Union - you will read why ERP systems are unsuitable to achieve UID compliance. But you will begin to imagine what ERP and UID can accomplish for your organization when used side-by-side.

GSA Advantage! www.gsaAdvantage.gov

Vendor's Corner - Cognex answers some frequently asked questions about verification issues and how the AIM DPM standard makes marking easier.

Opinion - AIM North America announces formation of the UID Supplier Alliance (USA), a committee of leading providers of UID technologies and solutions who are dedicated to providing leadership for UID success.

UID Education - View a full schedule of UID Web Seminars, hosted by Data Capture Institute President and bar code pioneer David Collins as well as an additional UID/RFID Web Seminar co-sponsored by epcSolutions and A2B Tracking.

News from A2B Tracking - Find out what has been going on at A2B.

UID SUCCESS:

Serialized Item Tracking Success at MCI (Verizon) Parallels UID Methodology and Results

verizon

In the mid-1990s MCI (now Verizon) recognized the need to identify millions of individual, high-cost telecom assets deployed throughout the US and Latin America. The lack of a control system meant poor visibility of duplicates, spares and replacement parts and no comprehensive failure and repair history. Besides contributing to waste, this lack of visibility hindered the ability to track support contractors' and primary network vendors' activities.

The Scanman Project emerged in a theoretical way at the executive level. Under the leadership of Senior Manager Will Sniffen, the practice of the solution to a very costly problem took shape. The initial goal was to uniquely serial barcode identify the installed asset base by "seek and apply" and "opportunistic" labeling, both methodologies encouraged by the UID Policy Office. The latter method meant that labels were applied to assets at critical events such as part replacement and repair as well as entry or exit through shipping and receiving portals. Sniffen published a light-hearted Scanman "comic book" which detailed how the program would work in order to educate the workforce and gain buy-in. He also held a celebration when the one millionth item was labeled.

In addition to labeling existing parts, Scanman dictated that 150 suppliers were contractually bound to label parts at manufacture and to submit pedigree information to a data warehouse at MCI upon shipping from the supplier facility. The required pedigree information was specified by MCI, through the label content and design. This requirement parallels the DoD's UID obligation to contractors who manufacture and ship end item deliverables (EID) and those who are custodians of government furnished property (GFP).

MCI leveraged the Uniform Code Council (GS1) standard 8004 for serialized asset identification. (This standard serves the same purpose as ISO standard 15434, required

by the UID mandate for labeling DoD assets, and it is grandfathered as a commercial equivalent under current UID policy.) All MCI labels included the purchase order number, the shipper's tracking number, the existing serial number and the MCI 8004 manufacturer code and serial number. The label information and registration is similar to an EDI exchange and nearly the same as registering item unique identifiers (IUID) in the DoD's IUID Registry.

By utilizing the 8004 serialized identifier, the MCI repair center was able, over time, to build a database of failure statistics for field replaceable units (FRUs). The failure statistics were used to maximize financial efficiency, for both part number and component level board repair. For instance, if a low value part came in for repair a third time, as evidenced by the scan of the item unique serial number, it would be discarded, as the cost of a new part was less than a third repair. The disposal itself was also tracked to generate part failure history.

If the item was of high value, the problem was diagnosed and common failure causes were accumulated at a component level. The benefit of this data was the ability to see patterns over time and thus make component changes that extended the life of the item.

The statistics were also used for operational compliance. If a given site tried to hoard spares through inaccurate inventory, that site was audited and the managers were reprimanded. Also, failure rates and replacement costs were tracked by network, by site, by region, by VP etc. There were instances where Scanman was used to track entire shipments of parts that were sold or stolen and appeared on Ebay or at third party gray market pawn shops.

The Scanman database was also used to level spares inventory across the company so that any site could draw any item, from any other location, to speed repair time.

In the DoD's Wide Area Workflow, the elimination of waste and the cost savings of decreased spares is a number too large to calculate in the early stages of UID compliance. But the strategic benefit afforded by real time location, visibility, repair history and access to replaceable parts is an obvious battlefield advantage. For example, an advanced weapons system could be grounded for want of accurate part failure and repair history. Once the IUID Registry is fully populated, additional DoD databases will be available for insightful engineering analysis.

At MCI, by utilizing information from the Scanman database, many existing blanket support contracts were renegotiated to time and material contracts, saving the company $70 million the first year alone. In some instances $20 to $30 million dollar maintenance contracts were converted to time and material, resulting in 60-80% annual cost reductions on those contracts. Additional savings were realized through tracking equipment (mainly routers, channel service units and data station units) deployed at thousands of customers' premises. The visibility obtained through tracking enabled accounting to identify equipment that was leased, rented to own, rented and purchased outright, thereby allowing timely and accurate customer billing. This data was not previously available and boosted revenue by $10's of millions while at the same time increasing customer satisfaction and decreasing billing costs.

Organizational change of the magnitude of Scanman and UID require top-down foresight and leadership. Scanman was conceived and promulgated at the MCI executive level. The execution of the project was pushed down throughout the organization and out to the organization's suppliers. To achieve its full potential, UID requires the same executive level command and oversight from ranking military and congressional leaders.

Not unlike Scanman at MCI, UID gives the military's highest command strategic control over the assets at their disposal, by providing data on where those assets are located and how they will perform. Similarly, DoD contracting officers will be able to base contract awards on past performance, while the centralization of data on government furnished property in the IUID Registry is already eliminating duplication and waste.

The Scanman project was so successful that it remains in affect at Verizon today, ten years later.

Congress started an economic groundswell with the CFO Act of 1990. The resulting UID mandate demonstrates that the DoD is serious about utilizing business best practice to streamline the military while vastly improving strategic advantages. Furthermore, the savings to taxpayers is enormous. With the rollout of UID, Congress can demonstrate a successful government program, which eliminates waste and increases efficiency, to their constituencies at home.

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UID SOLUTIONS:

UID and ERP – a Promising Union

If you think the large investment you may have in an ERP system will allow you to manage IUIDs, to meet UID compliance requirements, think again. The problem is that ERP systems are not set up for the proper creation and management of IUIDs. Also, ongoing changes in UID policy make ERP systems even more unsuitable for this purpose. But all is not lost. When UID and ERP merge, the result is an explosion of efficiencies that is limited only by the imagination.

First, let us consider some of the reasons why ERP systems are unsuitable for UID compliance purposes:

1. There are stringent business rules for the creation and use of UIDs that involve technology practices outside the scope of ERP.
2. Ever evolving schema and definitions affect the IUID registration process, while ongoing changes in UID policy and IUID Registry requirements require flexible development.
3. A UID system must have the ability to validate and verify IUIDs.
4. A UID system must drive multiple marking devices.
5. Management of embedded relationships is a UID imperative.
6. Mobile computing must be integrated for IUID harvesting, validation, and embedding.

ERP systems do well what they were designed to do – handle resource planning, financials and inventory. Indeed ERP is an essential mainstay in many enterprises. Yet ERP was never designed or intended for managing the data and tracking serialized items in the manner required by UID policy. Nor is ERP software designed to handle the business rules and requirements associated with the creation of UID marks any more than it is designed to handle the reporting of correct UID information to the IUID Registry.

Numerous policy changes have been released as UID policy has evolved. The current policy document, MIL-STD-130N, released in December 2007, encompasses more than 70 changes in 44 pages. There are also frequent changes to the IUID (item unique identifier) schema, which allows for submission to the IUID Registry. These changes are inevitable and necessary as requirements and UID policy evolve. The end result of the changes will be a thoroughly robust solution to meet the needs of the military. That said, every time either the policy or the schema changes, changes must take place within the software dealing with UIDs, in order to ensure that compliance is maintained. Large ERP systems such as Oracle and SAP lack the flexibility to make changes quickly enough to keep up with these ever evolving UID requirements.

Validation and Verification the Keys to UID

A UID compliance data management system must have the ability to perform validation and verification routines on each and every IUID and to archive these results, in order to create a clean audit trail. As any government contractor knows, periodic audits are a given.

When previously marked items are received, such as sub-assemblies from vendors, and then incorporated into final assemblies, validation provides proof that the proper format and syntax were used to create each IUID. This is a key issue when linking sub-assembly items to parent items. If the component syntax is bad, UID software will not allow the linking process to continue. ERP systems do not leverage scanning devices to handle IUID validation.

Verification requires that all 2D Data Matrix bar codes meet mark quality standards ISO 15415 and SAE AS9132 as well as the new AIM DPM standard. The metrics for measuring the quality of 2D Data Matrix bar codes are chosen based upon the bar code generating process such as printing or direct part marking.

Multiple Marking Options a Must

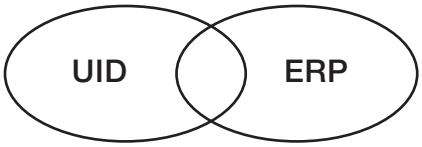
Given the diversity of item materials and environments to which items are subjected, a UID system must have the ability and flexibility to drive multiple marking devices, including thermal transfer printers for polyester labels, CO2 Lasers, Dot Peen, Metal Photo® systems and other devices. Large manufacturing environments and military installations with diverse parts and assets will require numerous marking technologies to handle the full scope of parts and assets. A UID data management system must be able to drive these numerous devices. ERP systems do not have this capability.

The IUID Registry requires specific information for each IUID as well as for embedded relationships within the item. Subcomponents that meet UID requirements must be marked and associated with the top level item. This capability for specific item and embedded data management is not built into ERP systems.

One final benefit of UID software is its integration with data capture tools and mobile computing to leverage IUID marking and data collection. Scanning the mark for data collection, embedded relationships, and validation are all important aspects for a UID data management system. The ability to do this away from a desktop computer or

tethered scanner allows for greater efficiencies as IUIDs are prepared for submission to the IUID Registry. ERP does not support mobile computing.

ERP and UID Together = Unprecedented Efficiency



So where does this leave you, after you've made a large investment in an ERP system? Keep in mind that a UID data management system is not intended to replace or handle the tasks of your ERP system. Rather, UID and ERP systems are meant to work together in order to create greater efficiencies. When the two systems talk to each other, crucial information in the ERP system, such as part and serial data, flows to the UID system for use in creating IUIDs and driving the marking of items. Likewise, you will want to push the UID data back into the ERP system for greater reporting and accountability. As these two systems work hand-in-hand, you will start to see opportunities to leverage the IUID mark throughout the organization.

For example, have you thought of utilizing the IUID mark and scanning technology in the manufacturing process, to gain visibility into what parts are where, and in what stage of assembly? Have you thought of using the IUID mark to track items within your maintenance depot in order to ascertain which items come in for repair and how often? Have you thought of scanning the IUID in shipping and/or receiving to control data on parts flowing into and out of your facilities? The payback for gaining visibility throughout your organization is enormous.

We will continue our look at the opportunities to leverage UID and ERP in the Spring Edition of UID Quarterly, due out in May 2008.

For a closer look at how one organization has utilized a UID-like tracking environment for cost savings and efficiency, see the **MCI/Verizon Case Study** in this edition of UID Quarterly.

VENDOR'S CORNER:

COGNEX

Making Your Mark: What tools are available to make the process easier for you?

by Carl W. Gerst III
Sr. Director and Business Unit Manager, ID Products
Cognex Corporation

Here are some frequently asked questions about verification issues and how the AIM DPM standard makes marking easier.

1. Why do I have repeatability issues when using AS9132? Why do marks that are easily read fail when verified using AS9132?

First, it is important to understand why AS9132 was developed. AS9132 was designed to help users understand how to apply a mark (using dot peen, laser etch and/or electrochemical etch marketing methods). For example, it does a terrific job of describing to someone how large a "dot" needs to be in relation to the surface texture of the part.

AS9132 was never designed or intended to be a verification standard. The first thing a verification standard must define is system set-up. Just like a professional photographer, the set-up of lighting, exposure control and image resolution are critical steps in getting a good image. It is critical to have these elements well defined in order to achieve repeatability. AS9132 does not define these critical implementation issues. This leaves it is up to the various vendors to decide how to implement system set-up. Like system set-up, AS9132 defines metrics that the system needs to measure such as cell size, cell position, etc. Once again, a problem arises because AS9132 provides no guidance as to how these measurements should be calculated. Thus, different vendors will have different implementations. This, combined with the set-up issues, will lead to repeatability problems between different vendors.

The other issue AS9132 has is that many of the metrics that are defined do not correlate well with overall readability (i.e. how easy is it to read the part). For example, AS9132 specifies that cells cannot be marked any larger than 5% of their nominal or ideal size. It is quite common for laser marks, that are very easy read, to be marked with cell sizes larger than 5%. When using AS9132 these easily read marks get failing grades, resulting in frustrated end users having to either scrap parts or be required to use higher cost processes (i.e. YAG lasers) to make their marks.

2. Why do I get inconsistent or failing grades when using ISO/IEC 15415?

ISO/IEC 15415 was developed and intended to be the long-term solution for camera based verification. The problem with ISO/IEC 15415 is that it made a handful of very poor assumptions that lead to poor results. First, it assumed that marks would be printed with high contrast (black on white). Second, it assumed that the

individual cells within the mark would be of equal size. This may be true in theory but unfortunately not in the real world. These assumptions lead to narrowly defining what lights could be used. It also defines and requires the use of a fixed exposure setting. This would be like telling a professional photographer once they had their camera set-up for one shot they couldn't change it for any subsequent shot.

The problems with ISO/IEC 15415 go beyond system set-up. These assumptions lead to problems in the underlying image processing steps and metric calculations as well. For example, the routine that determines a global threshold (i.e. the point that determines what is black versus what is white in the image) relies on the brightest and darkest pixels in the image. Of course, these are the points in the image that will inherently have the most variability. It is not uncommon for these two points to vary dramatically from image to image. This leads to inconsistencies and repeatability issues.

The net results is that ISO/IEC 15415 will result in failing grades on parts that are easily read. It will also lead to poor repeatability from mark to mark and vendor to vendor.

3. How does the new AIM DPM standard (now specified in the MIL-STD 130) address these mark quality issues and make my life easier?

AIM DPM is a complete re-write of ISO/IEC 15415. One of the most important steps for any verification system is to start with the best possible image before trying to analyze and measure the quality of the mark. Otherwise, it is like the old saying, "Garbage in equals garbage out." The first item addressed was system set-up. This included defining a suite of lights. By matching the right light to the surface type and marking method, the verifier has the opportunity to maximize the contrast between the light and dark cells. The second item that was addressed was the image processing step. An auto brightness routine was created that ensures the image is not too dark or too bright. Once system set-up and the image processing steps were addressed, the results improved dramatically. The last step was to re-evaluate and make changes to some of the underlying metrics to ensure the final results were repeatable and correlated well with the quality of the mark.

Performing a mark quality task, like any other task, requires the use of the right tool. For a long time, end users had no choice but to try to make AS9132 and ISO/IEC 15415 work. This lead to end users frustration and to higher overall part marking costs. The good news is the right tool is finally available in AIM DPM and has now been adopted by the MIL-STD 130.

OPINION:

Industry Leaders Unite to Spur UID Progress

by Mary Lou Bosco,
Manager, AIM North America

The UID program could be looked at as a glass half full or half empty. There are currently about 2.6 million items in the IUID registry and 1,000 participating contractors -- more than ever before. But those figures represent a small percentage of the UID program's potential. Adoption of UID and awareness of the value added by the requirement are steadily gaining momentum. The UID Supplier Alliance (USA) Committee intends to bolster that momentum, however, in order to see the UID glass overflowing with benefits for all concerned.

The USA Committee includes many of the leading providers of UID and other automatic identification and data capture (AIDC) solutions. It was founded last November by AIM North America, which represents the AIDC industry. AIM has been instrumental in helping the military and organizations in manufacturing, aerospace, logistics and other industries learn about AIDC technologies, and has helped develop and standardize many of the technologies used today, including the Data Matrix bar code symbology at the heart of the UID program.

The USA Committee has representatives from 13 companies, which include most leading providers of UID technology and solutions. Collectively these members have helped implement hundreds of successful UID marking and data management systems, and have seen how the systems benefit maintenance, inventory, production and traceability operations for the military and contractors alike.

"The UID program and its underlying systems are a very effective asset for improving responsiveness, reducing labor and preventing errors -- but they are often underutilized," said John O'Brien, UID Program Manager, SIEMENS Energy & Automation, Inc. "We know that many potential users overestimate the cost and effort that's required to take advantage of the UID policy. We want to use our experience to clarify

the requirements and opportunities. When people are educated about what UID is and what it can do, they almost always immediately get ideas of how they can use it to support our warfighters and to use their own resources more efficiently."

The UID Supplier Alliance Committee has three major goals:

1. **Present a clear and consistent message on UID requirements.** One of the major challenges is to fight misperceptions. Many contractors think UID marking requirements do not apply to them or would be too burdensome. In fact, there are very few exemptions to the UID marking requirement. Most contractors can meet their requirements with inexpensive labeling equipment, and about half of the suppliers who currently participate in the program are classified as small businesses.
2. **Educate and influence government leaders about the benefits of UID compliance.** Later this month committee members will take their message to Capitol Hill, where they are scheduling briefings with multiple senators and congressmen. Members are ready to present numerous examples of how unique identification data can contribute to military readiness and save taxpayer dollars by making maintenance and inventory operations more efficient.
3. **Establish a plan for success.** "UID has been considered a strategic imperative. Leadership is needed to make sure it's carried out," said Lt. Col. (Ret.) Greg Redick, who led the UID program's development before he retired from the military. Redick now advises the UID Supplier Alliance Committee. "UID has been very successful within pockets, but the benefits are not as widespread throughout the DoD as they can be."

For more information see http://www.aim-na.org/uid.php. Contact AIM North America at info@aim-na.org or +1 724.934.5688 for more information about the USA Committee and its activities.

Editors Note:
A2B President Peter Collins has been named interim head of the AIM USA Committee.

UID AND RFID EDUCATIONAL WEB SEMINARS:

In our quest to provide ongoing education to those who are implementing UID and RFID we offer the following two seminar series:

UID Web Seminars From Data Capture Institute
David Collins, President of Data Capture Institute, has been engaged by A2B to present a series of UID Web Seminars as a non-commercial, educational service to those who are required to implement UID.

David is considered by many to be the "father of the bar code industry" having led the original bar code project, KarTrack, for Sylvannia in 1969 and later founding Computer Identics Corp, the first company to manufacturer bar code scanners. Over the years Collins and his team have overseen thousands of bar code installations around the world. He is author of the popular 1992 book, "Using Bar Code – Why It's Taken Over" and is a frequent keynote speaker and automatic data collection seminar presenter. As a member of the UID integrated product team (IPT) he is uniquely qualified to respond to the questions and concerns of companies of all sizes, including large, multi-national enterprises as they grapple with UID implementation.

Upcoming UID Web Seminar Dates
(Presented each day at 2:00 Eastern)
February 28
March 13

To register for any of these dates, email pchasse@a2btracking.com or click on this link: http://www.uidsolutions.com/webinar_signup.aspx

RFID, UID and WAWF Webinar by A2B Tracking and epcSolutions
epcSolutions , the authors of ThingsNet, the platform for the Internet of Business and the most installed Wal-Mart RFID solutions, and A2BTracking Solutions are teaming up to offer a webinar for RFID/UID solutions.

During this webinar you will receive a complete briefing on where UID and RFID came from and why it is important to the DoD and to you. You will also receive a simple, straightforward explanation of UID and RFID labeling, verification, validation and uploading to the Wide Area Workflow (WAWF) and IUID Registry. Bar code and RFID experts from A2B and epcSolutions Inc. will also present a live demonstration of UID Comply!® software and RFIDTagManager.

Upcoming RFID, UID and WAWF Webinar Dates
(Presented at 2:00 Eastern)
February 28

NEWS AND ANNOUNCEMENTS FROM A2B TRACKING:

Latest Press Releases

A2B President Peter Collins with Rhode Island Governor Carcieri at A2B headquarters.

1/24/2008 - A2B Tracking Solutions Wins Additional US Army Red River Depot Contract

PORTSMOUTH, RI (January 24, 2008) A2B Tracking Solutions Inc, the leading provider of unique identification (UID) compliance products and services, is announcing the award of a prime contract to expand the UID Comply!® data management software suite A2B...

1/23/2008 - A2B Tracking Solutions Inc. at UID & eBusiness Forum

PORTSMOUTH, RI (January 23, 2008) – A2B Tracking Solutions Inc, will be exhibiting UID Comply!® Data Management Software Suite in booths # 15 at the UID & eBusiness Forum, February 26-27, in Arlington, VA...

12/20/2007 - A2B President Named to AIM North America Board of Directors

Portsmouth, RI – (December 20, 2007) - Peter M. Collins, Founder and President of A2B Tracking Solutions Inc., was appointed to the AIM North America Board of Directors, for a three-year term, effective in January 2008. Additional appointees are Stephen G...

11/30/2007 - Governor Carcieri Visits A2B Tracking Solutions, Inc.

PORTSMOUTH, RI (November 30, 2007) – Rhode Island Governor Donald L. Carcieri recently visited the Portsmouth offices of A2B Tracking Solutions Inc. Arranged by the Rhode Island Economic Development Corporation (RIEDC), the governor's visit spotlighted A2...

Upcoming Events

We look forward to seeing in Arlington, VA on February 26-27 in booth #15.

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