GAO RFID Inc.

Physical Inventory Techniques

Introduction to RFID based Physical Inventory

This document offers insight into the activity of conducting physical inventory projects and, in particular, GAO RFID's approach to it using an RFID based solution. Because physical inventory is a labor intense activity that is prone to error, it is prudent to affix RFID tags as tracking labels to the items being counted. This not only improves accuracy, it greatly enhances future count activities. This document will also explore tracking using RFID label tags and associated tracking technologies, known as automatic data capture (ADC).

Purpose

The primary purpose of a physical inventory is to establish a current, accurate baseline of existing capital assets. Accurate insurance payments, depreciation schedules, tax and compliance reporting and a host of other financial considerations are all predicated on a true picture of your capital asset landscape.

During physical inventory, track-able items (real, personal, fixed assets and consumable inventory) are physically accounted for. The intent is to single out track-able assets (i.e. an asset that may be physically seen and verified), verify asset existence and capture related information. The resulting data allows for the reconciliation of existing systems as well as identification of exceptions (missing assets or assets found but not listed).

Methods

There are various methods of conducting physical inventory. These include partial counts known as cycle counts, closed inventory whereby a full inventory is conducted while operations cease and an open inventory whereby a full inventory is conducted during the course of normal ongoing operations.

Cycle Counting

A cycle count is a partial count of selected items within specific areas. The count is "cycled" through various items and various areas over time. The results are used as a "barometer" measurement of the whole, without having to verify the entire asset base.

Full Count

Closed and open inventories are essentially full blown physical counts. The major difference is that a **closed** inventory is less error prone than an open inventory. In a **closed** inventory nothing moves or changes until the count has been completed. This assures the highest level of accuracy. During an **open** inventory, the asset base can change allowing for a greater possibility of error. Business operational requirements often dictate the viability of an open vs. closed inventory.

There are many methods for conducting physical inventories and, when outsourcing this activity to external vendors, there are a variety of methods for pricing the project. Time and materials is the most common, whereby the vendor charges an hourly rate and, in addition, is reimbursed for materials consumed and expenses incurred. Another common pricing mode is to charge a fixed fee per item (or asset) counted. The obvious drawback to the "hourly" method is the fact that the total cost is not known in advance and is therefore difficult control. The "by asset" method assumes you have an accurate estimate of the number of assets. One aspect is constant across all pricing methods; the more involved the inventory the greater the cost will be. Labor and travel expense are the primary drivers of the vendor's cost, so the time/personnel/# of locations required to conduct the inventory will impact the price. **GAO RFID offers a fixed project fee based upon time frames required and approximate counts per location.**

About GAO RFID Technology

GAO RFID specializes in planning and conducting physical inventory capture. The process is defined into 3 stages; **Planning, Execution, and Information Cleansing/Loading.**

I. Planning

Planning is the first, and a mission critical priority for any successful inventory. **Emphasis is on detail.** It is our attention to precise planning that enables efficient, as well as accurate, physical inventory capture. Our plans detail every aspect of the project including schedules and milestones and are used as the sole guiding document that all inventory representatives follow. Our Project Managers and Inventory Controllers conduct all the planning elements in conjunction with our clients. Planning elements include the definition and establishment of:

- Data collection and related standards and/or RFID, size, and appearance
- RFID tag placement in a uniform fashion
- Communications
- Building/location access
- Schedules
- Daily sweeps
- Information management
- Contingency plans
- Post inventory deliverables and timeframes

The plan becomes a formal "working" document, which has precise details regarding the project. It serves as both the project guide as well as the document of record once the project has been completed. Once the planning has been completed, the plan is presented for approval by the client. Once approval has been granted, team training is initiated using the plan as the basis. The plan contains pictures/definitions of the various asset classes, contains specific information pertaining to conventions, customer-specific schedules and rules/requirements. Building blueprints are used to establish sequence and coordinate teams. Further, potential delays and problem areas are identified and contingency plans established

to mitigate them should they arise. These elements are the basis for training and team preparation as well as the road map for success. Once the plan has been approved, variations to the plan are achieved through a formal adjustment process.

It has been our consistent experience that the effort invested in the planning stage is returned with dividends in the time (and therefore the cost) required to conduct the physical count. **Success is assured when all personnel involved are fully prepared, potential problems identified and contingency paths clearly defined.**

II. Execution

****** For full White Paper with specific metrics on the successful implementation of a Physical Inventory please contact your GAO representative.***

COUNTING CONVENTIONS

Counting conventions refer to what is to be counted, what information is to be gathered and how counters will identify items. The following offers several examples of counting conventions typically applied when counting varying types of assets.

Furniture

Furniture is normally counted and labeled by assigning an item code and an asset number to each piece. The serial number would be a reflection of the asset number. Pictures can be taken of each piece (one per model type) and imported into the asset's profile record. RFID labels are normally placed in a consistent area, which is out of sight yet is easily accessible.

Artwork

Each individual piece of art has its picture taken, frequently its value is appraised and location, artist and physical size will be captured. Asset tracking labels are not normally applied although they can be affixed to the rear of the art.

Computing

Frequently desktop computers are considered a single asset configuration (i.e. monitor, CPU, keyboard, mouse, disks, etc.) and counted as one. Alternatively, depending on value, each component can be counted and labeled separately. The CPU can also be counted as the parent while all the other components (monitor, keyboard, mouse, etc.) can be counted as

children and associated logically with the parent record. Counting methods can be tailored to your software requirements/capabilities.

Asset Labels

Labels usually take the form of RFID Tags or Smart Tags that incorporate human readable numbers, barcode (typically code 39 or 128) and RFID in a single tag. When you label, the question becomes what data is to be placed on them? We recommend:

Serial number – This refers to the manufacturer's serial number found on the back of the asset and is often a unique identifier when aligning results to your GL/ERP.

Model number

This refers to the manufacturers model number found on the back of the asset as opposed to the manufacturer's name of generic model name (often found on the front on an asset). Or, in the case of furniture, this can be a descriptive title such as L-desk, desk chair, conference table, file cabinet, etc. This then enables us to sort and report on like models.

Asset number- refers to the capital asset number assigned to make the capital asset unique on the fixed asset general ledger.

*** Asset Number Ranges**

Most Asset Management Software can accept asset number ranges and then apply them in a sequential fashion. In order to utilize this feature, a range must be supplied. We recommend applying a single RFID label to each asset which includes the asset number as described above.

Type & Label Placement

RFID labels come in different shapes/sizes as well as materials. The type of asset and its usage/environment directly affect the type of label that should be applied. Example, medical equipment that is sterilized or food processing equipment that is washed at a high temperature requires more durable labeling.

The placement of asset labels matters. We recommend placement on the front of each asset in the same general locale on each asset (i.e. upper right hand corner) for

ease of viewing and access. With furniture we would recommend a consistent spot but out of normal sight for the sake of appearance.

We recommend labeling each individual location (within a site) with an RFID label. To do so you must establish location identifiers (location name/number). Ideally, facility maps are provided to the inventory teams with locations depicting their respective identifiers on the map(s). This allows the teams to navigate and identify locations as they progress through the inventory. As you may have multiple sites (buildings/cities etc.), you should also have site identifiers in order to group assets together within a site.

Classifications

If you need to track various types of assets independently, the inventory teams should classify assets (or group like assets together) within the inventory database. To do so you must identify potential asset categories and define which assets fall into each category (other than the obvious such as furniture and computers). For example, would scrub sinks fall into biomedical or fixtures? If this is important to you then we would need to compile a list of your asset types and the categories you would like them classified within.

BOM Level

BOM refers to Bill of Materials and includes the count of all sub-components that make up a single asset. You must define to what level of the BOM each asset must be tracked. We recommend tracking to the highest possible level and then mapping hierarchical results to the level that you record a capital asset on the general ledger. Once the decision is made, each asset (or BOM component) to be tracked will be given a bar-coded label and tracked within the inventory database.

Allocation

Many companies allocate assets (within their GL by department and/or cost center) for budgeting reasons or cost of sales determination. Often assets are also allocated by employee name for accountability purposes. We need to determine if we are to allocate assets and, if so, in what fashion. We recommend by department and employee (when applicable).

Type

Asset types include: Capital, Expense and Inventory (stock within a stock room). You need to decide which types to include in the inventory and to assist with identifying expendable assets if they are to be counted. We can then differentiate assets (within the database) and report on them by type.

Pictures

The teams can take pictures of each asset model and associate the picture with the asset profile. You will decide if we were to take the pictures and, if so, for which asset classifications.

Resources

A common perception is that the act of conducting a physical inventory for large, diverse international organization that possess thousands (or hundreds of thousands or even millions) of assets will by definition require extraordinary amounts of manpower and resources.

In fact just the opposite is true. Experience shows us that there are **substantial economies of scale providing proper planning and coordination is applied**. Simply applying lots of manpower to overwhelm the problem often produces poor result in terms of efficiency, productivity and accuracy. Augmenting the data collection activities with automatic data capture tools such as optical character recognition, bar coding and radio frequency identification further reduces the dependence on the labor pool and information accuracy increases incrementally.

The objective is to **carefully plan** the activities, **keep the workforce to the bare minimum** required and to **utilize various data collection methodologies and technologies** where appropriate. GAO RFID has successfully conducted worldwide engagements involving hundreds of locations containing thousands of asset categories situated in 50 countries or more. This particular engagement was successfully counted and reconciled in less then as sixty (60) days utilizing as many personnel.

III. Information Cleansing

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