ASSET TRACKING GUIDE

Practical step-by-step instructions fortracking IT hardware and other fixed assets

AMI AssetTrack®

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ASSET TRACKING GUIDE

This document provides guidelines for implementing an asset tracking solution at an organization of any significant size. It is intended for asset managers who need to keep track of a large number of physical assets such as computer equipment, vehicles, furniture or other high-value objects.

The most common method for tracking assets is to perform regular wall-to-wall inventories whenever an asset report is needed. Inventories are time consuming and expensive, and since assets move around on a daily basis, the data collected during an inventory is outdated before the finished reports are even published.

By including processes that update your asset database during the activities that change asset information, a database can be current at all times. The objective of this document is to show how to use technology to make capturing these changes fast, easy, and less expensive, using mobile and web-based technology.

With an effective asset tracking process, you can have confidence that your asset inventory is complete, current and accurate at all times. You never know exactly when you need asset information. You need to be sure you have the right information when the need arises.

Building your requirements

Before you begin tracking asset data you need to ask yourself why you even need to. Determine who in your organization needs access to your asset data. What do they need the information for?

Defining the business goals

You must be able to define in clear terms the business value of the asset tracking solution you put in place. It can't be just, "we need to know what we have." Instead, make a list of tangible reasons, such as these:

- We are audited regularly and it takes us too long to inventory everything each year
- We are concerned we are losing assets we assign to end-users
- We want to cut spending by reusing assets we reclaim from departing employees
- We are concerned we are paying too much for maintenance contracts
- We need to rollout out Windows 7 to the enterprise next year and we have no way to forecast hardware refresh costs
- We can't track the useful life of assets to get an understanding of the return

Everything you do with asset tracking must align with your business goals. Otherwise, you won't find the ROI you're looking for and, ultimately, your asset tracking system will be mothballed.
From there you can set the scope of:

- What types of assets you need to track
- The data elements required in your asset database
- The sources of information relevant to asset tracking within your organization

Identify Reporting Requirements

The whole point of an asset tracking system is to produce reports that help your organization make intelligent business decisions. Thus, the first step in your solution design should be to specify the reports your tracking system needs to produce, and work backwards from there.

There can be many different audiences for asset reports, and you must identify and interview each of them. Get a list of the reports they need and identify each piece of information that is needed to make each report.

Examples of reporting audiences:

- Purchasing needs to know when assets have been received in order to reconcile invoices for payment, therefore you need to capture purchasing information such as purchase order number, the cost and the date of acquisition.
- Helpdesk needs to know which assets are in use by which personnel to aid in support calls, therefore you must capture the assigned user and model information.
- The CIO needs to know how many computers must be upgraded to support a new operating system such as Vista, therefore you must capture hardware configuration about each on-network and off-network asset.
- Accounting needs to know the value of assets by each state to ensure property taxes are paid accurately, therefore you must track the physical location of every asset as well as the current depreciated value.

These are just a few examples. You will certainly have others that need access to asset data.
If you do not identify your reporting requirements ahead of time, there is no way to ensure you will capture the necessary information. This puts you at risk of failing to meet your business requirements and losing support for your asset tracking solution.

Choose the type of assets to track

One of the biggest mistakes asset managers make when setting up asset tracking solutions is trying to track too much. The starting position for most people is to track everything owned, but experience shows items such as keyboards, mice and other low-value assets should not be tracked. There is simply too much effort required to track low value assets such as these, and little value in doing so. Save time by focusing on high-value assets first, and then expand to include other asset types as your tracking solution matures.

For IT departments, we recommend tracking the following assets:

DEFINITELY	RECOMMENDED	NOT RECOMMENDED
Desktops Laptops	Personal Printers	Keyboards
Servers	PDAs	Mice
Network Printers	Phones	
Switches / Routers	Monitors	

Identify your control tables

To make asset reports understood by all, you need to store asset information in a way that everyone recognizes. This means you're using the same locations, categories, employee lists, vendor lists, that the rest of the enterprises uses. For each type of data, you want one source of truth shared by the enterprise. Ultimately, this will save you money when you want to integrate your asset tracking system with other systems in your organization.
Identify the existing sources of information within your organization that your asset tracking solution needs. This includes your HR list, physical locations list, model catalog, etc., that may already exist in another system. By identifying the master sources of data in your organization, you can set up initial exports or regular feeds from those sources into your asset tracking database. This will keep your asset tracking system synchronized with your organizational data while minimizing redundant data entry.

Location

Your data collectors should select from a pre-existing location list when assigning assets to a physical location. If you have a facilities management system that contains location information, export it from that system once, or set up an automatic feed of location data from your facilities system. The latter is more difficult, but once established, any new locations added to your facilities system will automatically be added to your asset tracking system.

If you do not have an electronic source of location information, you will need to establish one on your own. In this case, we recommend creating a location record for each building in your organization as a simple, flat list. If your organization is quite large, with multiple campuses or spread across the globe in many countries, you may organize your environment into a more complex hierarchy that groups your locations together.

Note: You can reorganize your locations into a more complex hierarchy at a later time. It is best to start with a simple, flat list of locations first, then organize locations into groups once you understand your reporting requirements. Starting off with a complex location hierarchy will create more work and data entry errors, which isn't worth it until you understand your reporting requirements.

Models

Each asset in your asset database should be assigned manufacturer and model information that identifies the kind of asset (e.g., “Dell Latitude D610”). You will want to pre-populate your database with as many models as you know exist in your environment to facilitate fast, accurate and consistent data entry.

If your organization uses a procurement system that includes model information, you should use the same model information in your asset tracking solution. This will facilitate easier reconciliation with purchasing since you will be able to compare received assets to the items on purchase orders.

If you do not have a pre-existing model list, you will need to manually create one. Like locations, we recommend that you keep your model list clean and simple. For each variation of a particular model, (such as the numerous configurations of the Latitude D620 from Dell), create a new model record for each configuration. For example, create two model records for each Latitude configuration, such as “Latitude D620 512MB” and “Latitude D620 1024MB.”

Employees

Identify the source of employee information within your organization, such as PeopleSoft, Active Directory, SAP or internally developed application. Import this data into your asset tracking solution on a regular basis. When possible, attach location information to these employee records. This will make it possible to filter which employee records are sent to which mobile devices by only sending employees within a given set of locations. This filtering will help with performance of your data entry screens and increase accuracy by reducing the number of choices presented to your data entry personnel.

Organizational units/cost centers

Your organization is undoubtedly broken into some sort of hierarchy of divisions, business units, cost centers, etc. Each asset in your asset tracking solution can be assigned to a particular entity within your organization, which is essential for chargeback reporting.

Organizational unit lists are typically not as large as locations and employee lists, and can therefore be managed manually. However, you want to be sure your organizational data matches those defined by your administration so that the asset reports you generate are meaningful to the rest of your organization.

Assets

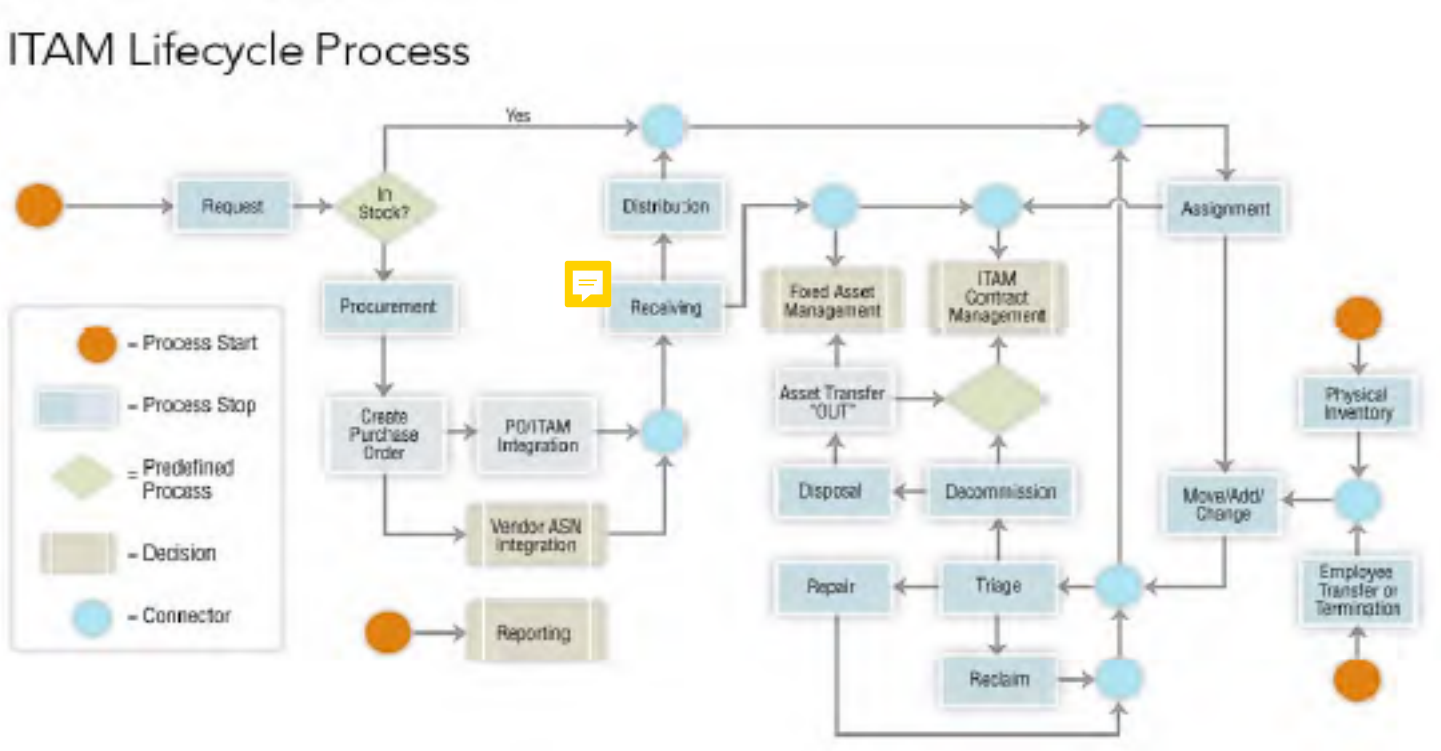
In some cases you may already have an existing asset database on hand, such as an Excel spreadsheet or Access database you are attempting to replace with a more robust asset tracking solution. You can leverage this existing work by doing a one-time import of asset data into your new asset database. However, you should only do this if you trust the data in that original asset database. Otherwise it may be better to start over by performing a new baseline inventory.

The asset lifecycle

When developing asset tracking solutions, the first place to start is to define the various stages through which assets move as they are procured, received, used and eventually disposed by your organization. We call this the “Asset Lifecycle.” By defining your asset lifecycle, you can see the transitions that take place for a given asset. These transitions are where you need to put in processes to update your asset repository. We’ve often heard these transitions called “Catch Points.”

Asset lifecycle diagram

The following diagram shows the typical asset lifecycle process for large organizations:



The items in the diagram above are different statuses activities that change the status of an asset. In the above diagram, an asset starts its life as an initial Request and moves through various lifecycle stages until the asset is eventually Disposed. It is important to map the asset lifecycle specifically for your organization, by customizing the diagram you see above. There may be fewer or more activities based on the types of assets you're tracking and the way your organization does business. You should be able to define all the steps that affect asset information.

Lifecycle stages defined

The following list describes each of the stages as defined by AMI. As we get further into building asset tracking solutions together, I will be using these definitions to explain how the solutions should work.

Request **When a request for a new asset is made.** Typically, a request should be created and tracked so the asset, when procured and received, can be quickly delivered to the requestor.

Procurement **The actual cutting of a PO to a vendor.** This results in On Order assets in the repository, as those which have been ordered but have not yet been received from the vendor.

Receiving **An asset is Received once your receiving personnel take possession of the asset.** An asset may be received when it is first shipped from a vendor, or if it is returned from a remote employee. Received assets can then be stored in the warehouse or forwarded to the Staging/Configuration department for installation to an end user.

Distribution **Distribution is the sending of assets to warehouse or stockroom locations as available for use.** Stored assets are usable assets in a stock location. Fulfillment coordinators should check for Stored assets to determine what assets are available to fulfill new equipment requests.

Assignment **Assignment is the process of installing an asset and assigning responsibility for it.** Installed assets are asset currently deployed to end-users and in use.

Move/Add/Change **This is when assets are moved or reassigned.** Results in asset records being updated in the database.

Repair **In Repair assets are those that have been returned to a vendor for repair,** and are expected to be returned to your company.

Retired **Retired assets are assets that are no longer of use to your company but have not yet been properly disposed.** Retired assets are still in the possession of your company and may be retained for a certain period to keep employee data while a new asset is used. Retired assets must be properly disposed before the assets are taken off the books.

Disposed **A Disposed asset is one that has been (or at least should have been) officially wiped of data, transferred to a disposal company and the disposal company has provided an official certificate of disposal.** Once an asset is Disposed, it may be removed from the fixed asset and taxable property registers. The asset record remains in the asset repository for reporting purposes.

Developing processes for each lifecycle transition

To design your asset tracking solution, look at the ways assets currently move between lifecycle stages (receiving, staging, install and disposal, etc.), and document your current processes. Then, add the use of the appropriate tools such as mobile devices and barcodes into these processes that make it easy to update your asset database. Furthermore, an established and documented process map provides the context by which your personnel are monitored. Only when everyone who touches assets is bought in to the common process can asset tracking succeed. We will discuss AMI's best practice recommendations for performing inventories, receiving, installs, moves and disposals, later in this document.

Assembling the tools

Before you start designing an asset tracking solution for your organization, you will need to make a few decisions about the hardware and software you have available.

Asset repository (Database and admin user interface)

Asset information must be stored in a centralized database accessible by your entire organization via the intranet. There are numerous products on the market at varying price and feature levels, from basic off-the-shelf shrink-wrapped applications to enterprise-class IT management suites.

AMI recommends using a scalable repository product with a data reconciliation interface, allowing asset managers to review and validate data collected before changes are applied to the database. The system should allow for customization of fields and forms, have robust search and export capabilities, and provide an API enabling integration with existing systems at your organization.

Asset tags—Barcode and/or RFID

Every asset in your environment needs to have a unique identifier, so that you can easily track it as it moves throughout the environment. We call this the “asset tag.”
The asset tag must be accessible via a barcode and/or RFID label to make it easy to update the record without doing any manual data entry that could cause errors and waste time.

Use your own asset tags

While it is possible to use manufacturer serial number tags to uniquely identify assets, it is important to have a consistent tagging scheme across all assets. It becomes too difficult to maintain quality data with varying asset ID methodologies as manufacturers establish their own numbering schemes and tag placements. Often, manufacturers don't provide accessible serial number tags, which necessitates tagging on your own anyway.

By controlling tagging of assets, you can:

- Ensure all assets are tagged the exact same way to eliminate confusion.
- Implement tagging schemes that can ensure no incorrect data is collected by humans or automated systems. You can't accidentally use a manufacturer order number instead of your own asset tag by misreading a label or scanning the wrong barcode.
- Ensure tags are placed in a location accessible by a scanner when installed, in stock or on the dock.

Choosing between barcode and RFID Technology

You have a choice as to which technology to use for asset tags: Barcode, RFID or a hybrid approach using both.

- Barcode systems use lasers or cameras to read barcode labels. These systems have been around for decades, are less expensive, but require line-of-sight access to barcode labels in order to be read. This can be time consuming as each label must be found and read.
- RFID (Radio Frequency Identification) uses radio frequency waves to sense tags within its read field. An RFID reader emits a signal, which can detect RFID tags that contain data, such as an Asset Tag value. There are many types of RFID tags and readers, which create read fields of widely varying sizes. This can be just a few centimeters (NFC), to a loading dock door (Passive RFID) to hundreds of feet (Active RFID).

The promise of RFID is very alluring for those of us (including your truly) who strive for maximum efficiency and accuracy. RFID, in many cases, is a heck of a lot faster and easier for collecting a lot of data in an automated way. RFID can detect things you can't even see, helping to ensure everything is tracked whether a human scans it or not. It's the way of the future with asset tracking, for sure, but when you dig into the details and start planning a business case for RFID, you realize quickly there are a lot of options with a vast range of price tags.

Today, it is entirely possible to equip a data center with a fully automated RFID solution that can track assets down to a rack location with no human intervention. Possible—but in most cases—extremely cost-inefficient. The core issue is in hardware costs. RFID technology is expensive, and to fully equip a typical data center requires a lot of it. For example, let's suppose it costs "X" dollars to install an RFID reader at each entrance and exit. To expand the use of RFID down to tracking at the rack level requires putting readers in every rack, which can easily cost thirty-five times as much as a portal system alone.

Barcode labels

Barcodes are tried, true and cheap. They work well, though require a human being to perform a scan using line-of-sight. That said, it is easy to establish a barcode tagging scheme at low cost, and the efficiency gained in using handheld scanners to read barcodes is well known. In fact, even with RFID, there are cases where you want to scan only a single asset. In those cases, barcode labels are better than RFID, which can scan many assets at once, even when you don't want that to happen.

You have the choice of purchasing a barcode label printer with software, or purchasing pre-printed barcode labels from a label manufacturer. However, while barcode printers and software provide a level of flexibility, pre-printed barcode labels are not expensive, have generally higher quality, and are easier than purchasing a printer and creating your own tags.

Use pre-printed barcode labels from a professional barcode label manufacturer. Self-printing leads to more inconsistencies and errors, which ultimately costs more.

Choosing the appropriate kind of label depends on its application. There are few attributes to consider:

- **Material:** (Polyurethane, Metal, Paper) Label material correlates to durability. Metal and polyurethane labels are more expensive, but last a lot longer and are nearly impossible to tamper with.
- **Adhesive:** Aggressive adhesives are highly durable and make labels extremely difficult to remove. While a bit more expensive, these labels are quite effective.
- **Format:** Choosing a format for asset tag values can help with asset tracking. For example, choosing an asset tag format that requires “MOD137 check digit verification” means asset tags can be validated by your mobile computer or web form at data entry time. This helps with tags that are keyed in manually, as if a character is mistyped, the validation will fail alerting the user right away.

Mobile Devices

Mobile devices make it easy to update information for large numbers of assets over a wide area. Using devices with barcode or RFID scanners allows you to quickly and accurately capture asset information in a very non-invasive way. Spreadsheets and other manual data entry methods are time consuming, which often lead to personnel failing to comply with proper asset tracking procedures. In addition, the number of data entry errors is reduced dramatically by using barcodes or RFID tags, saving you a lot of time tracking down information so you can fix problems with the data.

For the warehouse

For high-volume warehouse environments, ruggedized mobile devices that can withstand drops and harsh conditions are preferred. While more expensive, ruggedized devices withstand harsh environments and are less expensive to operate in the long run. Motorola, Intermec, Honeywell and Psion are companies that create rugged Windows Mobile™ devices.

For field technicians

For personnel roaming around your environment, such as break/fix technicians, smartphone devices iPhone and Android are often preferred, as these devices enable asset tracking applications without requiring techs to carry additional hardware.

Barcode scanning using smartphones is done via the internal camera or via a Bluetooth or sled scanner hardware attachment. Scanning using the internal camera is okay when scanning large, easy-to-read barcodes in good light conditions. For more difficult or higher-volume scanning, Bluetooth or attached scanning hardware is needed.

*Socket Communications Series 7 Bluetooth Hand Scanner

Recommended asset tracking processes

Once you have done your homework, identified your reporting requirements and existing data sources, modeled your asset lifecycle, and identified the tools you have available, you can begin designing your asset tracking processes. There will be many processes: one for each stage in the asset lifecycle you have defined. These processes should be easily documented so that your staff can follow the steps without difficulty.

The processes mapped out here assume you have mobile data collection technology like AssetTrack software from AMI.

Location tagging

You can barcode a lot of stuff, not just your assets. One of the biggest efficiency gains you can make with asset tracking is barcoding your locations.

Just like assets, assign a unique location code to each location in your environment. Be sure to use tagging patterns that are uniquely different from your asset tags, so that your scanning tools can recognize the difference. AMI's standard tagging scheme recommendation is:

- **Asset Tag Pattern:** "A plus eight digits"
- **Location Tag Pattern:** "L plus eight digits"

Using this pattern allows you to scan out of order which is extremely important when doing a lot of tracking. You want your users to be able to move assets by scanning two tags, in whatever order. Super fast and efficient.

Baseline inventory

If you are starting from scratch or your asset database is wildly inaccurate, a "wall to wall" baseline inventory is needed to capture everything you have deployed so you are starting with a good set of data. Once you have a solid baseline inventory, you then implement day-to-day processes that keep your asset database current as changes occur.

Planning your inventory locations

Inventories are performed cube-to-cube, room-to-room and no matter how you cut it will require a decent chunk of effort. The key to making inventories efficient is planning and tools. To begin, take your physical location list and estimate the number of IT users in each location. This will give you a baseline estimate on the number of resources needed at each location. After you run a pilot you will be able to plan a schedule of visits to each location to perform your baseline inventory.

Selecting a pilot location

Select one of your locations to inventory as a pilot. You will use this pilot location to measure the speed at which inventory data can be collected per person. You will then be able to estimate the resources required to inventory the rest of your environment. We recommend performing an inventory of 1000 assets as a pilot.

Preparing your data collectors

Each data collector for your inventory project will need a mobile computer with scanning software, a roll of pre-printed unique barcode labels and—if using AMI's AssetTrack software—Scan Sheets that enable fast entry of location or model information. The availability of Scan Sheets and other features will be dependent on which mobile software you choose to use to collect your baseline inventory. Assign each data collector one or more locations to visit, inform them on which asset types are considered in scope, and have them report back with their collected inventory data.

Performing the inventory

Use the following process to capture inventory data in each room or cube in your environment.

Then follow these steps for each cube:

1. Enter the room/cube and visually identify each of the assets that are in scope for the inventory.
2. Apply a unique asset tag to each asset in a location that is easy to access once the equipment is installed. For desktops, place the asset tag at the top front of the computer, so that it can be scanned without having to climb underneath the user's desk. For laptops, place the tag on the top cover near the front of the computer, in a place accessible when the laptop is docked.
3. Enter the location information into the mobile device for the room/cube. If using a tool like AssetTrack, scan the appropriate location barcode to choose the physical location.

4. Next, choose the user responsible for the assets in this room/cube. Most mobile tools will let you search for the end user by tapping in the first few characters of the user's last name. If you are lucky enough to work for an organization that has barcodes for employee ID s on a user's badge, you can scan that badge number to select the assignee.

5. For each location:

- Choose the model, manufacturer and Asset T ype for the first asset. For example, if the first asset is a Dell Latitude 610, choose that model from your model list. If using AssetTrack software, scan the appropriate model barcode from your scan sheet to have all three fields automatically completed for you.
- Now that you have selected the model for the laptop, scan the asset tag that you have applied to it.
- Next, scan the serial number for the laptop. The asset should be added to your asset list.
- Repeat steps 5.a through 5.c for each additional asset in this location. If there are multiple assets of the same model in the cube, scan those together to prevent having to reselect the model from the product catalog.

Save the record and move to the next cube.Once you've finished scanning all the assets at the given location, return the device to your asset manager, or upload the data directly to the server if you have a system like AssetTrack that is capable of doing so.

Reconciling Inventory Data

The data collected by your data collectors should not be applied directly to your database. The data should be collected and normalized before it is applied. This reconciliation process will allow you to:

- Find duplicated models, location and assignees that were created during data collection.
- Identify which data collectors need training.
- Identify locations that were missed during the inventory.

We recommend using a system like AssetTrack with an upload queue and automated scrubbing tools so you can review the scanned data before applying the changes to your database. You can optionally use spreadsheets and Excel to work with collected data in a more manual fashion. See Reconciling Collected Data later in this document for more information on scrubbing data.

Moving beyond the baseline inventory

Now that you have captured a baseline, ideally you should never have to again. But that depends on how well you set up your day-to-day asset tracking processes so that you capture changes to asset information as they occur. If you don't track properly on a day-to-day basis, then you will eventually have to do another baseline inventory as your data gets out of date.

Receiving assets

When assets show up at the door you need to establish a process for registering the new assets into your database and to show that they have been received. The process you design must be easy and accurate, otherwise your receiving personnel will not comply with the process.

Designing and receiving process

The process you establish for receiving will depend on a few factors about your environment and your vendors:

Can your Procurement System export PO information to file?

Does your organization use a procurement system that can export purchase order information to file? Does the item catalog from which your purchasers buy a common list of items shared by your asset tracking system?
If so, you should feed purchase order information to your receiving personnel so that they are aware of what is on order. This enables the "three way match" ensuring that a) what you order is b) what you received is c) what you paid for.

Are Advanced Shipping Notices Available from your Vendors?

Do your vendors provide electronic feeds of asset that are shipped that you can import into your asset repository before the assets arrive? If Advanced Shipping Notices (ASN) are available, you can and should set up a nightly import routine that creates asset records in your repository before the equipment arrives. Using ASNs, you minimize data entry at receiving time since you won't have to capture information like model, serial number, cost, and PO number at the receiving dock. This information will be created when the ASN is imported.

However, not all vendors provide ASNs, so you need to determine whether you can take advantage of them. Don't worry, even if ASNs are not available, receiving can be made pretty efficient with the use of the correct tools.

Are all assets received in a centralized location?

Do you have a centralized receiving location or do you have assets shipped directly to your end users? If you do not have centralized receiving, it will be extremely difficult to develop an effective receiving process. People just won't follow the process if someone isn't watching them. End users especially will never understand why it's so important to properly receive assets, and will simply ignore whatever mandates you send to them in email.

Centralized receiving allows you to control how assets are registered in your repository and tagged. Our clients have both centralized and end user set-ups. AMI recommends centralized receiving to ensure receiving is done properly. This will prevent your asset environment from becoming populated with assets not in your database. (At AMI we call these "Rogue" assets). This is counter-intuitive to many people who feel drop-shipping saves a lot of time and money. It does, until you are audited.

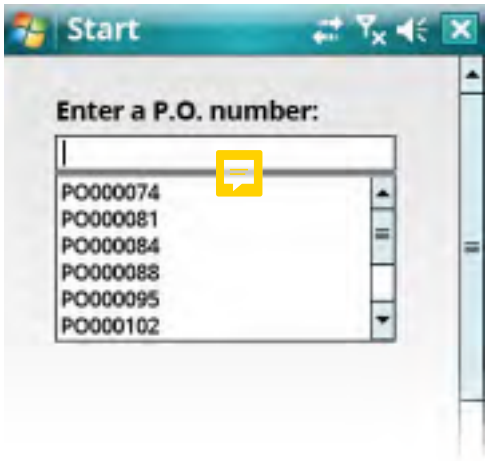
Do your vendors apply barcodes?

Do your vendors ship assets in boxes that contain serial numbers to the outside? If they don't, you should probably find a new vendor, but until you do realize that you will have to crack open every box at the receiving dock since you won't have access to a barcode that you can use to identify the asset.

Preparing your receiving personnel

AMI recommends the use of mobile scanners to make capturing details about received assets fast and accurate. Provide at least one mobile scanner, a roll of pre-printed barcode asset tags and Scan Sheets if you are using AMI AssetTrack to each receiving location. Create scan sheets that have the location for each receiving point available as a barcode. Ensure your mobile devices are loaded with the latest and most accurate data from your repository before starting to receive assets..

Receiving assets



To receive assets when they arrive at the dock:

1. First, group the assets by purchase order.
2. Next subdivide the assets in each order by model. For example, take all the Dell Latitude D610 laptops from a single PO and put them together. The assets in each group should be the same model number. This will make it easier for you to scan the assets with your mobile computer.
3. If you have fed purchasing data to your receiving system, choose or scan the PO number barcode from the list.
4. Next, enter the receiving location for the assets into the mobile computer. You should only have to do this once. The location information should remain on the form as you move through each group. If you are using a product like AssetTrack, scan the appropriate receiving location barcode from your Scan Sheet. Use location codes to quickly scan in location information.
5. If you are not using ASNs, scan or enter the PO number for this shipment. Capturing the PO number is essential for invoice reconciliation. If you have an ASN import process working, your PO information should already be in your repository
6. Then, start with the first model group in this and select the manufacturer and model number for that group into the mobile computer. If you are using AssetTrack, you can simply scan the model barcode from your Scan Sheet. You have to do this only once per model group.

7. Now that you've selected the model for your first group, use the mobile device to scan the serial numbers of each of the asset in that group. As you scan each serial number, assets should be added to the received asset list on the mobile computer with the right technology.
8. When finished with the first group, move to the next model. Change the manufacturer and model information, and then proceed with scanning each of the serial numbers in the next group. Repeat this step for each of the remaining groups.

Once you've finished scanning all the assets, send the receiving data to your asset manager for processing. We recommend using a system that allows data collectors to upload the data from their mobile devices to the server directly. We also recommend using a system with an upload queue so asset managers can review the scanned data before applying the changes to your database. Clients have agreed with our statement that the AssetTrack Concole "Queue" is the most valuable tool in the entire process. See Reconciling Collected Data for more information.

Where do I apply asset tags?

You'll notice in the above process that we didn't put asset tags on the assets. We received the assets by scanning only the serial number. This means that the assets will have no asset tag in your database.

We recommend this so you don't have to crack open boxes at the receiving dock. Opening a shipment of laptops is extremely time-consuming. We would prefer that you affix asset tags to the equipment when staging the assets for deployment. That is the time when you have to open the box to install the OS, applications, your auto-discovery agent, etc. anyway. We feel this is the perfect time to affix an asset tag without causing a major interruption in your daily workflow.

However, some of our customers require that asset tags be placed on every asset as soon as it is in their possession. This is typically to ensure that the fewest number of people are responsible for tagging, so that if equipment doesn't get tagged, you know who to discipline. If you must tag at the dock, insert a step to capture both the asset tag and serial number together, to ensure your repository associates the two values together correctly.

Installing/Staging assets

When assets are deployed to users, your asset database must be updated to reflect the user and location of the installed assets. This is also the point at which AMI recommends applying an asset tag to the assets. Some organizations apply asset tags at the receiving dock, but this requires opening every box which is very time consuming and unnecessary. When assets are installed, they are unboxed and generally configured with an image. This is a perfect time to apply an asset tag label to the asset.

To track assets as they are installed:

1. Apply an asset tag label to the asset in a location that is easy to access once the equipment is installed. See the Inventory process for detailed information on tag placement.
2. Next, scan the serial number barcode of the asset. This is how the system will identify the asset since the database doesn't yet have an asset tag associated with the piece of equipment.
3. Then, scan the asset tag you just applied. Once you upload and apply your data, this will associate the serial number and asset tag together.
4. Enter the location where the asset is installed into the mobile computer.
5. Select the user to which the asset is assigned into the mobile computer.
6. Save the record

Once you've finished installing all the assets, upload the data from your mobile device to the server to update your database. We recommend using a system with an upload queue so you can review the scanned data before applying the changes to your database. See Reconciling Collected Data for more information.

Note - Your mobile device application should detect if an unknown serial number is scanned and audibly prompt the technician to enter additional information needed to create a new asset record, such as make, model and serial number.

Moving assets (iMac process)

Assets are constantly being moved from one location to another for a variety of reasons:

1. New assets are installed from inventory
2. Assets are replaced during a break/fix call
3. And users or departments move to new locations
4. Assets are refreshed

Any time an asset is moved, you should record the move in your asset database in order to maintain database accuracy. Otherwise you must employ a thorough audit process to ensure all locations are regularly scanned.

AMI recommends inserting steps into your move processes so that asset location, user and status information can be updated as the move occurs. In order for these steps to not interfere with the work the technician must perform, mobile devices with scanning tools should be used to make the data entry process easy.

To track assets as they are moved, follow the same process as installing equipment:

1. Enter or scan in the new destination location for the assets
2. Enter the new user information for the assets.
3. Send the updated asset data to your asset manager for review and application to the repository.

As with other processes, AMI recommends that changes to asset data collected by your field personnel not be applied directly to your database.

Disposing assets

Tracking the disposal of assets is one of the most important stages in your asset tracking process. Removal of equipment from your possession is key to reducing property tax and insurance liabilities by getting assets off your books, as well as ensuring compliance with e-waste and data destruction policies mandated by the government.

To properly dispose assets:

1. Collect the assets to be disposed.
2. Destroy data using a DOD compliant process.
3. Using your mobile device, select a Disposed lifecycle status which indicates the assets are no longer in your possession.

Scan each of the asset tags of the assets that are disposed. Any undetected asset tags scanned should alert the data collector that additional asset data is needed.

Auditing your database

No matter how effective your asset tracking solution, assets will be moved without anyone updating the database. Users will simply grab the LCD monitor off the desk of coworkers that has left. Technicians will take equipment from the warehouse and install it without notifying asset management. Equipment will be disposed without anyone recording the changes. Equipment will be stolen.

From time to time you should audit your database to ensure its accuracy. Auditing your environment helps you to identify the health of your asset tracking process and identify where things are breaking down. Performing audits also provides a way to “true-up” your database, ensuring accuracy by updating the database with current information collected during the audit.

Audit scope and schedule

AMI recommends a rolling audit process where a portion of your environment is audited on a regular cycle. The cycle and scope of your audits will be based on the size of your organization and staff levels. However, a good starting place is to perform a monthly audit of 1/12th of your asset environment. In other words, slice your environment into twelve pieces, and audit one piece every month and don't repeat a piece until all pieces are done. This ensures your entire asset environment is audited each year.

This audit schedule is wildly over-simplified here. You will have to look at your environment, staff level and available tools to determine your rolling audit schedule. But if you can establish a schedule that ensures your entire environment is swept, you will be assured that assets that have fallen through the cracks will be picked up and returned to their proper place in your asset database.

Audit process

Follow this process to audit a portion of your environment.

Collecting Audit data

When performing an audit, you really only care about certain pieces of data in your asset database. These are the location, assigned user, the lifecycle status and optionally cost center. These fields are the dynamic fields that change throughout the life of an asset. Other fields such as manufacturer, model, serial, PO number, cost, etc. never change. We call these static fields; fields that should never change in value unless you are correcting an initial data entry error.

When performing an audit, you will have your data collection team visit a site and capture the location, assigned user and status information for each asset, which necessary for the audit.

Note – When collecting audit data you do not need to capture information such as model, manufacturer and serial number for assets unless the asset is not currently in the database. In order to know whether this data needs to be collected, you need mobile device software that can alert the data collector when an unknown asset tag is scanned. Check with your tool vendor to determine if this feature is supported.

Comparing audit data

When finished collecting data for the audit, upload the data to a central location. Once the audit data is collected, it can then be compared to the repository for generating accuracy statistics.

Note – AMI recommends the use of an asset tracking tool that allows you to easily collect and review data collected by your entire audit team for use in generating accuracy reports.

Use a reporting tool or programming interface to compare your collected audit data with the data in the repository. Some accuracy reports that will help you measure your asset tracking processes include:

- Location accuracy percentage–What percentage of your audited assets have the correct location information?
- User accuracy percentage
- Cost center accuracy percentage
- Detailed list of assets with non-matching data–Of the audited assets that don't match the data in the repository, produce a list of the asset details.

There are many tools you can use to generate these reports. Your asset tracking software may do this for you or Microsoft Excel and Access both provide facilities to quickly generate reports based on collected asset data.

Applying audit data

Once the audit reports have been generated and saved, you should apply the collected data to your database to "true-up" the data. Your asset tracking system should provide the means to apply collected audit data after audit reports have been generated. After applying your audit data, all assets included in the audit will be updated with the latest accurate information.

Advanced Topics

Reconciling collected data

AMI recommends reviewing the data collected by the mobile devices or collected via web forms before applying the changes to your asset database. This is especially important in environments where there are multiple users collecting data assets, and where field personnel are different than the asset managers responsible for the quality of asset data.

The asset tracking tools you select may or may not have facilities for reconciling collected data. AMI strongly recommends using a tool with a reconciliation system (like the “Queue”) to prevent data from streaming into the database directly.
The items that you should be checking for in collected data:

- New models, locations, assignees, cost centers, etc. that were created during data collection
- Missing data such as serial numbers or asset tags which are required for every asset record
- Other inconsistencies such as a large shipment of laptops received for which there is no corresponding order in purchasing
- Static data that is changing, such as changing model number, manufacturers or asset types (This information should not change unless there was an initial error in data entry.)

There will undoubtedly be other business rules specific to your organization that will need to be checked, further stressing the point that your asset tracking process should include a data reconciliation system of some kind.

Importing vendor advanced shipping notices

What is an advanced shipping notice?

In an ideal world hardware vendors are able to produce and deliver 'Advanced Shipping Notices' when they ship equipment to you.These notices are files that contain the serial number, manufacturer, make, and model information for each of the assets in the shipment. Your vendor should send these to you ahead of the shipment so that you can import the asset data before the equipment arrives. If you do this, you will save yourself a ton of time at the receiving dock, since you won't have to capture this information manually.

Normalizing ASN Data

First, a warning: ASN files can be messy and can often contain extra data that is not needed. AMI has seen many ASN files with line items for shipping charges and discounts, multiple values for the same manufacturer ("Dell" and "Dell Inc."), and varying product descriptions for similar products ("Dell Latitude D610" and "D610 Back To School Special!!!!").

Importing the ASN

To import ASN files, you will need a tool such as AMI's ASN Processor that can trim and normalize the files sent by your vendor into a format that can be easily imported into your asset database. The tool you select must be "trainable" so that you can set up rules for normalizing the data the way you need. This training involves mapping strings representing model numbers to models in your asset repository, so that as assets are entered into your repository with the correct model information.

RFID

Everyone loves the idea of RFID because it eliminates the need for human intervention. Here are some things to consider.

- RFID tags don't prevent theft. An end user can place their hand over the RFID tag and prevent the tag from being read by many door readers.
- To set up a comprehensive RFID tracking system, you must have fixed readers throughout your environment. This means every door, elevator and room depending on how granular you need your location accuracy. Figure $5000 USD per reader and do the math to figure out the cost.
- Metal cases require that you have a ¼" space between the metal material and the RFID chip. Therefore the 15c RFID tags won't work on laptops and servers.
- Passive RFID tags, which are the cheaper ones, have a much shorter read range than expensive Active tags.
- Before you implement and RFID solution, you need a consulting company to come on-site and do an assessment of your environment. They will check the types of assets you want to track to select the proper tags, the RF environment to check for conflicts in certain frequency ranges, and to map your physical environment so they can quote the correct number of fixed and mobile readers, antennae and installation services.

So, bottom line is that everyone wants RFID to be easy, but it's not yet. RFID will mature over the coming years as some of the physical issues like tags, chips and readers are figured out. During that time, business software such as Microsoft BizTalk RFID and AMI's AssetTrack will streamline RFID implementations.

Integrating physical tracking data with auto-discovery

When you have both physical asset tracking using scanners as well as network discovery, having both systems feed a common asset repository is a great way to leverage both technologies. Typically joining asset tracking data and discovery data is handled by matching serial numbers, so that the barcode or rfid tag on the outside of the device matches the serial number detected by the discovery agent. When this is available, you can have both systems update the same asset record, giving you the ability to see both sets of data together in reports.

Auto-discovery systems alone fail to capture assets that are not on the wire, which includes everything in the warehouse plus all non-discoverable assets in the field. by implementing both systems together, you provide a complete tracking system that misses nothing. also, by implementing physical and auto discovery tracking, you have two data sources to compare and find exceptions, such as all assets that have been scanned by not discovered and vice versa. This can help you find gaps in your tracking tools and fix errors with discovery agents that are not installed or working properly.

About the author

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Thomas Watson is the president and co-founder of ami in seattle, WA. AMI offers asset tracking software and solutions to enterprise and small-to-midsize (smb) organizations, as well as comprehensive itil solutions integrated with the ca, hp, and provance platforms. Watson has been working in iT asset tracking software space for ten years and has developed line-of-business software applications for seventeen.

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