ASSET TRACKING eBOOK

A practical guide for tracking hardware and other fixed assets

AMI

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Sound Familiar?

- **CIO:** "We failed another audit, and might pay huge fines."

- **CFO:** "People are asking me for additional budget. How can I know if people are effectively using the budget they already have?"

- **Security:** "We don't know which devices have sensitive data nor where they are."

- **IT Director:** "Are we paying maintenance costs for assets we no longer use?"

- **Finance:** "Have we paid for computers we didn't receive?"

- **Asset Manager:** "I can't get our techs to update the repository when they close tickets!"

- **Asset Manager:** "How can I manage software when I can't keep track of hardware?"

If so, this document is for you. Inside you will find guidelines to build an enterprise asset tracking solution that solves these problems and more. It's intended for asset managers responsible for achieving compliance, savings, availability, and security via complete, current, and accurate asset data.

With an effective asset tracking process, you'll become confident your asset inventory is complete, current and accurate at all times.

Figure Out Your Requirements

Too often, solutions are implemented before the problems are truly understood. Make sure you and everyone else involved knows the problems you're attempting to solve. Below you'll find a simple process, with examples, of how to identify and document requirements.

1. **Define the business goals** you want to achieve
2. **Create user stories** that describe how each goal is achieved
3. **Create report mockups** to discover data requirements and get input from stake holders
4. **Extract a list of fields** from the report mockups to define required data elements
5. **Define lifecycle states** as assets move through their life
6. **Define transitions** where the state of an asset changes
7. **Maps data elements** to lifecycle states, processes and reports

Define Your Business Goals

Your executive sponsors want to know why the business needs to track assets, not how. Your stakeholders need confidence that their needs will be met. Solution architects need clear direction to build and maintain the solution efficiently. End users need to understand the reason why they have to track assets.

Start by making a list of the specific goals of the asset tracking solution that, if implemented, delivery tangible value to the business. Invite all stakeholders to contribute to this list to identify everyone's goals.

❓ *Need help determining your requirements? We can help.*

Consider the list below as a starting point.

Related To Receiving Assets

- Minimize maintenance costs by linking assets to warranties accurately
- Minimize over payments by paying only for received assets
- Succeed audits by linking assets to purchase orders
- Quickly correct a problem by knowing when a shipment does not match an order
- Save time tracking assets by registering and tagging correctly at receiving
- Get people to contribute sooner by getting them their assets now

Related To Tracking Assets

- Know where each asset is located to reclaim, service, optimize, replace or dispose it
- Minimize risk of losing sensitive data by knowing when assets go missing
- Plan budgets accurately by maintaining accurate inventory
- Minimize maintenance costs by knowing which assets are coming off warranty.

Related To Auditing Assets

- Avoid financial penalties by knowing chain-of-custody control of assets
- Grow executive confidence by proving our asset data is trustworthy
- Show external auditors your assets and processes are accurate and robust
- Save time by eliminating the need for manual inventories
- Enforce employee accountability via regular auditing of asset tracking history

Related To Disposing Assets

- Protect company data by ensuring assets are properly wiped before disposal
- Minimize taxes, maintenance and insurance by getting unused assets off the books
- Recover residual value by selling assets for cash

⊙→ *Develop your list of goals and share with all stakeholders to ensure everyone's needs are known.*

Create User Stories

Next, write requirements in a user story format. User stories identify who has the need, what that user wants to do, and why the business benefits. Expressing requirements in user story format ensures you communicate the value of the asset tracking solution in natural language that everyone can understand.

User stories have a specific format that defines a role, action, and outcome. "As a [role], I want to [action], so that I can [achieve an outcome]." This format makes it easy to know what users will perform what functions and whether the system successfully meets the user criteria. Best of all, user stories remove all the technical jargon which do nothing but to confuse people.

A few examples of user stories can get you started in building your own list:

- **As an accounts payable agent,** I want to see all received assets for an order, to know we paid only for assets we received.

- **As the CIO,** I want to see all assets assigned to a specific maintenance contract, to identify contracts to renegotiate.

- **As an asset manager,** I want to see all assets in inventory, to avoid buying assets we already have in available stock.

Expressing your requirements this way will help you define success from a stakeholder's perspective. If these user stories come true, your asset tracking system is delivering value. If not, your asset tracking system is an unnecessary cost.

User stories are a common and valuable method to capture business requirements. They are written from the user's perspective, using a simple, narrative approach.

Document Your Requirements

The requirements from your stakeholder needs to be captured in one place for all to see. This is important in ensuring goals are met, as well as to ease the administration of the technology you deploy.

A **Data Dictionary** will help you map your various reports to data fields and processes you design. It ensures technical staff know how to configure tools, end users know how to test and use the system, and that future changes to underlying technology don't break things. We typically use a spreadsheet to capture the data dictionary information. A template is provided that you are free to use.

To create the Data Dictionary, we will follow this process:

1. **List the business goals.**
2. **List the reports** needed to achieve the goals.
3. **Compile a complete, clean list of the data fields** needed for reporting requirements.
4. **Identify each state** of an asset's life.
5. **Identify the transitions** between each stage. These are your life cycle processes.
6. **Determine which processes** will update required data fields.

Create Your Data Dictionary

Create a new spreadsheet in a shared location to which all stakeholders have access. List the users and their stories you defined above in the first tab of the file. For each user story, list the particular user, and the action that user is to perform. This file will become your data dictionary.

AMI offers a [free example](#) data dictionary that you are free to copy

	Fields		Reports			Processes						
	Field Name	**Description**	**Refresh Report**	**Missing Assets**	**Receive Confirmation**	**ASN**	**Receive**	**Store**	**Deploy**	**Move**	**Retire**	**Dispose**
	The name of the field used in all systems.	The meaning of the data in this field.	Show me what to replace in the next Month, Quarter, Year	Show me assets not found during our last audit	Show me received assets, to know I will only pay for what I buy	Register assets sent by vendors ahead of shipment	Register new assets received at the dock	Place assets in stock, available for user	Deploy assets to production use.	Move an asset to a new location	Remove an asset from service and show it's ready for disposal	Asset has been disposed and we no longer have it in our possession
Project ID											M	
Project Name											M	
Capital Cost Center											M	
Supplier PO Issued			x	x	x							
In Service Date									Y	O		
Equipment POC			x	x	x							
Configuration Address										M		
Start Date												
End Date				x								
Date Removed				x	x							X
Contract #			x									
Service Level			x									
Disposal Leasing Company			x		x							Y
Disposal Verification Number			x									Y
Disposal Date					x							Y
Disposal Comment												Y
EOL Date											Y	
EOL Comment											Y	
IP Address									Y			
Device Name									Y			
Serial Number						Y						
Asset Tag						Y						
Manufacturer												
Model												
Device Type												

Legend: M = Mandatory : O = Optional

A data dictionary will help you collaborate with the team to identify what reports, data fields and processes are needed, and why.

Identify Required Reports

For each user story, **consider what reports are required** to achieve the goal. Don't worry about specific details of the reports yet. Just imagine a report you would need to view to achieve the a goal and give it a name and a simple description such as "See all assets coming off warranty next year." Later, we'll flesh out the fields needed on these reports.

Consider using the example below as a way to map your user stories to the reports. Often, the same report can address more than one story.

	Requirement		Reports						
User	**Story**	**Refresh Report**	**Stockroom Inventory Report**	**Missing Asset Report**	**Depreciation Report**	**Tax Report**	**In Use Report**	**Audit Report**
Accountant	See assets recieved, for a specific shipping order							
Accountant	See assets bought but never received			x				
Accountant	See assets for a specific maintenance license				x	x		
Asset Manager	See which assets to replace next year	x						
Asset Manager	See all asssets available but not yet in use		x				x	
Asset Manager	See assets requested but not yet ordered		x					
Asset Manager	See assets ordered but not yet shipped			x				
Asset Manager	See assets received and tagged		x					
Asset Manager	See assets received but not tagged		x					
Asset Manager	See assets currently being repaired		x	x				
Asset Manager	See assets older than a specified date	x						
Asset Manager	See assets for a specified location		x				x	
Asset Manager	See assets for a specified user				x		x	
Asset Manager	See assets reserved for users						x	
Asset Manager	See defective assets						x	
Asset Manager	See assets we disposed since a specified date		x					
Asset Manager	See how many keyboards in stock		x					
CFO	See assets received, not linked to a purchase order			x				
CIO	See computers for a given operating system	x						
CIO	See missing assets collected during an audit							x
IT Director	See assets not linked to a maintenance licsense	x						
IT Director	See assets for a specified department		x				x	
IT Director	See assets marked for retirement				x		x	

Example mapping user stories to reports

? *Each organization has unique reporting needs. AMI Asset Management experts can help.*

Create Report Mockups

Next, Create a mockup of each report. This will help you identify the information you need on each report. Keep it simple. Create a spreadsheet listing the fields needed in each report to achieve each your goals. Insert some dummy data. Share the mockups with your stakeholders to determine if the reports contain all required data.

Here's an example of a report showing assets coming off warranty next year. It addresses the user story, "As an asset manager, I need to see a list of all assets coming off warranty next year so that I can keep all assets under warranty with the minimum budget."

"See a list of all assets coming off warranty," describes a report, which I've mocked up below using Google Sheets.

	A	B	C	D	E	F	G	H	I
1	**Assets Coming Off Warranty**								
2									
3	**Model**	**Purchase Date**	**Warranty Expiration Date**	**Building**	**Office**	**Cost Center**	**User**	**Phone**	**Status**
4	Macbook Pro 2014	6/1/2014	6/1/2017	Seattle Main Office		433 Sales	Jane Doe	210-569-8985	In Use
5	Macbook Pro 2014	6/1/2014	6/1/2017	Seattle Main Office		458 Marketing	Jim McDermmit	210-569-8975	In Use
6	Macbook Pro 2014	6/1/2014	6/1/2017	Seattle Main Office		526 Marketing	John Smith	210-569-7282	In Use
7	Macbook Pro 2014	6/1/2015	6/1/2017	San Francisco Office		122 Engineering	Mike McDonald	210-569-8985	In Use
8	Macbook Pro 2015	10/1/2015	10/1/2017	San Francisco Office		132 Engineering	Tim Hargrove	210-569-8975	In Use
9	Macbook Pro 2015	10/1/2015	10/1/2017	San Francisco Office		134 Engineering	Luddy Smith	210-569-7282	In Use
10	Macbook Pro 2015	10/1/2015	10/1/2017	San Francisco Office	Stockroom 1	Stock			Retired
11	Macbook Pro 2015	10/1/2015	10/1/2017	San Francisco Office	Stockroom 1	Stock			Retired

Sample Report Mockup

In this mockup, I discover I need nine data fields. This will become essential to building the master field list, which will come next.

By creating dummy report mockups you will discover needs for specific data.

Create The Field List

Now that you've identified reports to satisfy your goals, combine all the fields from all the reports into one giant list of fields. Then, merge any duplicate fields that contain the same data. This becomes your **master field list.**

Add your field list into your data dictionary. For each field, provide a unique name, a label, a description, a data type, and any rules that apply to data in the field. This will ensure everyone understands the purpose of each field to prevent duplicates.

Define Asset Life-Cycle States

Every field in your master field list must have data captured at some process in the asset life cycle. To understand an asset's life, we must list the states an asset can have from cradle to grave. Understanding asset states will help us know where in the lifecycle our solution must capture required data.

Below are some common asset life cycle stages. Consider these as a starting point to define your asset lifecycle.

State/Sub-State	Description
Ordering	
Requested	Someone has a need and requested to use a new asset
On Order	Procurement created a purchase order to buy the requested asset
In transit	An ordered asset, in transit from the vendor to receiving location
Received	A receiving clerk has taken physical possession of the asset, shipped from the vendor (or, an asset returned from a remote employee). This asset is ready to be stored in a warehouse or stockroom as 'in stock'.
In Stock	
Installing	A received asset, awaiting to be configured for use (e.g. a laptop imaged with appropriate software). Next stage would be 'available'.
Repairing	An asset sent to a vendor for repair. Once fixed, this asset will be returned to your company (entering the 'received' state.)
Retiring	An asset deemed 'no longer of use' to your company and ready to be wiped of data (if applicable.)

State/Sub-State	Description
Ready for Disposal	An asset that has been wiped of data (if applicable) and ready to be retired
Disposing	An asset In transit to disposal company
Available	An asset stored (in a warehouse or stockroom), prepared and ready to be used by the end user
Reserved	An in-stock asset, reserved for a specific end user
Defective	An in-stock, defective asset

In Use

In Use	An asset in use by the end user

Retired

Donated	An asset donated to another entity
Sold	An asset sold to another entity
Disposed	An asset received and confirmed with an official certificate from the disposal company. This asset is removed from the books, yet remains as a record in the asset repository for reporting purposes.

Once you've identified and defined your life-cycle stages, you're ready to assemble the tools (e.g. tags, scanners, imports, tracking software, cmdb) to update your repository for each asset life-cycle stage. Document this to ensure your people know how, and do, use a common process to keep your repository up-to-date.

Identify Transitions Between States

Processes are the activities that change the state of an asset. These are the processes that you must standardize and automate. Come to an agreement with your organization on process names, and provide instructions for end users.
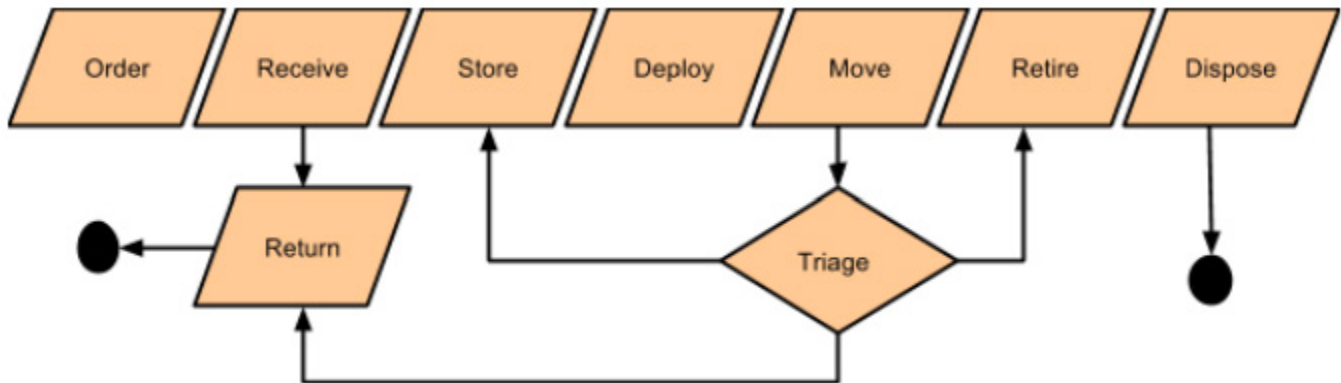
Map Fields To Processes

In the tab that contains your field list, add the processes appropriate for your environment (see, Define Your Asset Life-cycle) as columns. This will allow you to determine during which process each data field is captured or updated.

Use the data dictionary to show which process will update each field. Work with your stake-holders to identify the most appropriate places to update these fields. Ensure that every field is updated at least once in the asset lifecycle.

? *Talk with our experts about your current asset tracking processes.*

Structure Foundational Data

To make your reports understood by everyone, store asset information consistently, recognizably and centrally. Use the same locations, categories, employee lists, vendor lists, etc. across the enterprise. You can **identify existing sources of information** such as HR, Facilities, and Purchasing systems.

Schedule regular feeds from these systems into your asset tracking database. This will ensure you can share your asset information with the rest of the enterprise.

Don't reinvent the wheel. To share asset data with other business systems, share the foundational data as those systems.

Define "Asset" And "Consumable"

Carefully decide what kinds of things are important to track in your organization. In certain cases it may cost more to manage a certain type of assets then the cost of doing nothing. However, there should be clear items that you know to be required to achieve your business goals. These are your *Assets.*

Any other items you use but don't track are *Consumables.* While extremely important, consumable management is the subject of another document.

An Asset is an item with a unique identifier, that you track through its life-cycle.

Track just what's needed. For instance, do you really need to track keyboards and mice? How about Monitors? Here are some criteria for determining whether something is an asset worth tracking.

- **Value:** An item over a certain dollar amount
- **Risk:** An item containing sensitive company data

Focus only on high-value things at first. This can limit the scope of initial tracking solution deployments, so that you can more easily train users and receive valuable feedback. Once successfully with initial asset types, you can expand and mature your asset tracking process with little risk.

Here are some typical definitions of assets and consumables in US enterprise IT.

- **Assets:** Desktops, laptops, servers, network printers, switches/routers
- **Consumables:** Personal printers, PDAs, phones, monitors

Locations

To assign assets to a location, your data collectors should select items from a list of existing locations. Do not permit end users to collect non-structured, random location data or you will be unable to generate accurate reports.

Use existing Location data. Most organizations have a master location list defined in a facilities system or elsewhere. Don't reinvent your own location list, or you won't be able to easily share asset location information with other systems. If you have external master location list, setup and automatic feed from that system so that your asset location list will always remain in sync with the rest of the organization.

Use location codes. If possible, share location codes that uniquely identify location records with the external system. This way location descriptions can change in the remote system without changing the location hierarchy in your trackings system. You can also print these as barcodes to make selecting locations easy for your data collectors.

Create a location list if needed. If you do not have an existing master location list, create one. The location list needs to be as simple as possible while still achieving the business goals. A flat list of location is where you should start. If reports require that you group locations together, then considering building a location hierarchy. Consider the following when building your location list.

- **Reporting.** If you need to group multiple locations together in your reports, consider creating a location hierarchy. (e.b. two-level hierarchy State -> Building)

- **Data entry.** Will users be able to select a correct location easily? - If you have thousands of discrete locations, it will be challenging for your users to select the right one. A hierarchy can help organize locations to make it easier for users to select the location they need.

Categories

Categorize your assets to assist with reporting and data segmentation needs.

Create categories required for your reports. If you require a report listing all "IT assets," you can create a simple category called "IT asset." However, if you need to run reports of all laptops separate from servers, desktops, mobile devices, etc., then you need to create additional categories so you can filter records in reports.

Protect access to data. Often organizations need to limit access to certain categories of assets. Establish categories for your assets that enable you to grant permissions to certain classes of assets to certain groups.

Categorization hierarchy. Like locations, start simple. Define a flat list of asset categories need for reporting and data segmentation purposes. If necessary, you can define a category hierarchy. For example, have a top-level category to separate IT assets from Facility assets. Under each top-level category, define sub-classes.

Models

When creating assets, your data collectors should select items from a list of existing models (e.g. "Dell Latitude D610"). Pre-populate your database with all known models in your organization to support fast and accurate data entry. If possible, integrate models from aprocurement system to easily determine if **you received what you bought.** As with locations, **if you do not have an electronic system**, create something simple to build your list of unique models.

Users

Import user data from HR systems, active directory, PeopleSoft, SAP, or perhaps your SSOprovider to ensure assets are assigned to known individuals. Import a unique user id (e.g. abarcode on the user's badge) for each user to make data collection and reconciliation easier.

Import end user location data when available. Use the source system (e.g. PeopleSoft, Active Directory, SAP) to identify each employee's location. Then, import this data into your tracking system on a regular schedule. Your tracking solution can use location data to filter reports and limit access to records to reduce bandwidth and storage requirements. This filtering will improve performance and increase accuracy on the employee's data entry devices.

Organizations

Your system should **associate assets to organizational units** (e.g. division, business unit, cost center) if reporting requires it. This will help you **develop accurate reports** across

the organization. This is also required for proper charge back. Your administration will have defined this data hierarchy. Maintain this in your tracking system.

Purchase Orders

Import purchase order data from an ERP into your asset tracking system to:

1. **Accurately pay invoices**. Don't pay for assets never received.
2. **Receive faster.** Users don't have to select model information at the dock.
3. **Improve asset data accuracy.** Users don't have to select model information at the dock.

Purchase from a catalog when possible. When creating purchase orders, choose model information from the same model catalog used by your asset system.

Procurement people don't like catalogs. It slows them down. Often they can't find the product they want to purchase in the catalog. Often the product doesn't exist in any catalog. This means a purchase order line item doesn't have a model understood by your asset system.

Reconcile model exceptions before importing purchase order line items. Purchasing people don't like to order from catalogs. Often what a company buys is too complex to categorize as a distinct line item in a catalog. What this means is, your asset system may not know the model referred to by a specific line item. Ensure you have a process to identify purchase order line items with unclear model information, and have an asset manager assign the correct model before importing the line item into your tracking solution.

Assemble Tools

To review, you've identified goals, wrote requirements, developed reports, and defined the triggers to update your asset repository.

→ *You're now ready to make some decisions about the available hardware and software tools.*

Asset Database

Many products exist to store your asset information centrally, from off-the-shelf applications to enterprise-class, IT management suites. We recommend choosing a product that scales as you grow your solution and allows asset managers to review, validate and approve collected data, before applying it to the database. You should be able to customize fields and forms, perform robust search and export functions and use the product API to integrate with existing systems.

Some popular options for ITAM/CMDB systems are below:

- ServiceNow - The cloud-based ITIL software suite from ServiceNow is one of the most popular choices on the market as of the writing of this letter. AMI has had great experience working with the ServiceNow platform. It is powerful and very flexible, which is also its shortcoming. You need to be careful with how you configure ServiceNow as tthe platform does not guarantee data quality for you.

- HP Asset Manager - A long-time leader in the market, HP Asset Manager is the most fully featured ITAM system on the market. It's expensive to run and manage, though, and often scary to new implement. That said, you can do extremely high-volume asset management with HP Asset Manager, which is why it's been around for so long.

- [Ivanti](#) - Ivanti offers a mid-range asset management solution that is comprehensive, including software deployment, discovery, patch management, and asset management. Ivanti is very popular for mid-size organizations at a price point that is highly attractive. Ivanti recently hired Patricia Adams, one of the pioneers of IT Asset Management, so we expect great things from the Ivanti product line.

- [AMI AssetTrack](#) - To manage hardware asset inventory without all the complications of CMDB, AMI offers AssetTrack as a scalable, yet simple asset tracking database that works seamlessly with AMI's AssetTrack barcode and RFID software.

Asset Tags

Every asset must have a unique identifier for you to track it through your environment. This "asset tag" must be readable using a barcode and/or RFID label, for the asset to be automatically updated in the database. This improves speed and accuracy for collecting your asset data.

You can certainly use the manufacturer's serial number tags to uniquely identify your assets. However:

- **Serial number is often difficult to find** and scan vendor serial numbers tags
- **Vendors choose where** to place these tags, not you
- **Each vendor uses their own** serial number schemes

By creating and using your own tags, you can:

- **Place tags on assets to easily scan** and collect data as you receive them.
- **Create a consistent serial number scheme** across all company assets.
- **Improve accuracy when collecting data** by scanning your own tags, known by your tracking system.

Don't print your own barcode labels. Pre-printed barcode labels cost less, are higher quality, and are guaranteed to be unique. Self-printing labels is far more trouble than it's worth.

Barcode And RFID Scanners

Using barcode or RFID scanners, you can easily, quickly and accurately collect data for many assets within a large physical area. You'll achieve better compliance of tracking procedures and less errors than using spreadsheets and other manual data entry methods.

Tags

Barcode systems use lasers or cameras to read barcode labels. These systems are reliable and affordable but require line-of-site access to manually scan and read the labels.

Barcodes just work. They've been around for a long time, cost less than RFID, are efficient to use with scanners, easy to establish a consistent barcoding scheme, and excellent for scanning a single asset (where RFID could inadvertently scan multiple assets). However, barcodes require a human being to perform line-of-sight scanning, which can be less efficient in certain use cases.

RFID (Radio Frequency Identification) uses radio frequency to sense and read tags within its field. Many RFID readers and tags exist, supporting a wide variety of sizes from a few centimeters (NFC), to a loading dock door (Passive RFID), to hundreds of feet (Active RFID).

RFID is a fast, accurate, automated approach for collecting lots of data, even for things you can't see. You can equip a data center with a fully automated RFID solution to track assets down to a rack location. RFID technology is also an expensive (particularly hardware) and complex solution, with a vast set of options. Do the math to determine if the cost will save you money for the improved speed and accuracy for your data collection process.

➔ *Use pre-printed barcode labels from a professional barcode label manufacturer. Self-printing leads to more inconsistencies and errors, costing you time and money.*

Learn more about tagging. For more information about choosing and implementing asset tags, see [AMI's Free Asset Tagging Guide.](#)

Barcode And RFID Device Types

Choose the correct scanning hardware for each environment.

For high-volume warehouses and stockrooms, you need dedicated scanning hardware with lasers and imagers. Ruggedized mobile devices withstand drops and harsh conditions. Zebra is a long time leader of ruggedized scanner hardware. A particular favorite of AMI is the [ZebraTC75](#) Android rugged scanning device.

For field technicians roaming around your environment (such as break/fix technicians) iPhone and Android smartphones work well. Technicians can install and use asset tracking applications on these devices, without having to carry around additional hardware.

Fixed RFID readers can monitor doorways and stockrooms to provide automated, real-time inventory data as assets move. RFID fixed readers require no human intervention, which greatly saves time and improves accuracy. However, RFID systems are fallible and can be gamed, so be careful before using RFID readers as a security solution. The bad guys can still sneak through your RFID gateways.

➔ *Scanning via a camera works well for large, easy-to-read barcodes in good lighting conditions. Otherwise, dedicated scanners work best.*

Asset Tracking Software

Asset tracking software receives input from various end points such as smartphones, dedicated scanners, RFID readers, or automated feeds, and **merges that data into your Asset Database.** You can either purchase available products from an asset tracking vendor, or you build one yourself.

Asset tracking software must be **flexible, scalable, centrally-managed, and easy to integrate** with your Asset Database. It must give your asset manager the control to customize workflows,validation rules, and security.

Most importantly, **it must be easy to use** for your end users.

Some consideration when selecting asset tracking software:

- Allows configuration of fields, validation rules and workflows.
- Supports all modern device types available to end users (smartphones, scanners, RFID readers).
- Operates offline when a network connection is not available.
- Provides error detection and reconciliation by asset managers.
- Integrates in real-time with your backend asset management database.

Learn more about AMI AssetTrack software.

Establish a Baseline Inventory

Now that you've established your goals, requirements, lifecycle and tools, it is time to establish a **"baseline inventory"**. Without this your database will not reflect what assets you currently own and where they reside. Below are the steps for developing a baseline to keep your database accurate and current. Document this and keep it simple and accessible for your staff to easily follow the steps.

Step 1: Tag Locations

Barcoding locations will yield big efficiency gains. As with assets, assign unique and patterned location codes for users to scan when choosing locations. This improves data collection speed and accuracy. AMI suggests a standard tagging scheme below, which enables scanning tags inany order:

Asset tag pattern: "A" plus eight digits. (A00000001, A00000002, A00000003,...)
Locations tag pattern: "L" plus eight digits. (L00000001, L00000002, L00000003,...)

Step 2: Plan Inventory Locations

To plan your baseline inventory, estimate the number of IT users for each location in your "locations list". Use these estimates after running a pilot to schedule visits for each location to perform your baseline inventory.

Step 3: Select A Pilot Location

Select a pilot location to determine how fast each person can collect asset data. Use this to estimate the number of people needed to inventory the rest of your environment. We recommend inventorying 1000 assets for your pilot.

Step 4: Prepare Your Data Collectors

Ensure each data collector for your pilot project has a mobile device with scanning software, and a roll of pre-printed, unique barcode labels. Inform each data collector which location(s) to visit and which assets types to collect. Also, instruct each data collector on how to place asset tags on assets (see this guide to learn how).

Step 5: Perform The Inventory

You've planned and selected locations, and prepared your data collectors. You're now ready to inventory your assets.

As a data collector:
1. **Enter the room or cube to visually** identify the assets to be inventoried.
2. **Apply a unique asset tag to each asset.** Make it easy to find and scan later.

Using your mobile asset tracking software program:
3. **Specify location information** (scan the location barcode to identify your current location).
4. **Specify the end-user for the assets in this location.** Some tracking software will find the user as you type in the first few characters. Or, if present, scan the barcode of the user's employee badge to select the assignee.

5. **Specify the model, manufacturer and asset type** for the first asset.
6. **Scan the asset tag** for the specified model.
7. **Scan the serial number** of the laptop. See that the asset is added to your list.
8. **Repeat the above steps** for each asset in this location.
9. **Save the record** and move to the next cube or room.

When finished scanning all assets for a given location:

10. **Return the device** to your asset manager -or-
11. **Upload the data** to the data collection server.

Step 6: Reconcile Inventory Data

Use a reconciliation process to cleanse collected inventory data before applying it to the database to:

- Find and normalize duplicate models, locations and assignees
- Identify which data collectors need training
- Identify locations not present during the inventory

Software such as AMI AssetTrack allows asset managers to review and approve collected data before applying it to the database. You can also create and apply validation rules to automate this publishing process.

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Automate Asset Tracking Processes

Now that you've established your goals, requirements, lifecycle and tools, you can design an automated asset tracking process. We'll examine the core processes receive, track and dispose assets to save your company time and money, know where your assets are, who's using them, and to protect yourself from assets lost downstream of your disposal process.

Receive Assets

Receiving is the most critical process in the asset management lifecycle: when you take possession of, and are responsible for, the ownership of assets showing up at your dock. Design this process to be simple, easy and accurate for your receiver to accept and record assets.

Design Considerations

Some considerations for designing your receiving process:

Can you export purchase order information from your procurement system to a file?
And does it share the item catalog (used by your buyers) with your asset tracking system?
If so,import this into your procurement system to **buy only what you need** and pay only for what you received.

Do your vendors provide Advanced Shipping Notices (ASN)?

With ASN, you can import electronic feeds of shipped assets into your asset repository before they arrive. Your receivers will spend less time entering data at receiving having useful information (e.g. model, serial number, cost, and PO number) already in your tracking system.

Do you receive all assets in a centralized location?

If not, because vendors ship assets directly to your users, then your receiving process will breakdown and suffer. End users will ignore any process instructions you send them. AMI recommends you receive assets centrally. This ensures all assets you receive are logged in your database, avoiding "rogue" assets. Many people feel drop-shipping saves time and money. It does, until you are audited.

Do your vendors ship assets with scannable serial numbers on the boxes?

If not, you'll spend time opening boxes on the receiving dock, to scan barcodes on the assets. A real time sink and perhaps time to work with a new vendor.

Prepare Receiving Personnel

AMI recommends using mobile scanners to receive assets fast and accurately. For each receiving location provide at least: (1) a mobile scanner; (2) roll of pre-printed barcode asset tags and; (3) scan sheets (if using AMI AssetTrack for each receiving location).

Receive Assets

AMI recommended steps to receive assets, using a mobile device, as they arrive on your dock:

> **Step 1: Group received assets** by purchase order (PO), then by model. This will make it easyfor receivers to scan assets with a mobile device.

> **Step 2: Specify the purchase order number.** If you imported PO data into your receiving system, scan the PO number barcode or select it from a list of POs. Otherwise, manually enterthe PO number.

Step 3: Specify receiving location. You should only have to do this once as location information should remain on the form for each PO group. Ideally, use a solution like AssetTrack that supports scanning location barcodes.

For Each Asset Group:

Step 4: Specify manufacturer and model. If you imported purchase order data that includes model information, you can skip this step. However, without integration with your purchasing system, your receiver will need to choose a model for the received assets. Choosing the wrong model is a big source of pain for asset manager, so be sure you train your receiving staff onhow to find and select the correct model for your received assets.

Step 5: Scan the serial numbers for all assets in the group. This will add the asset to a 'received' list

Step 6: Repeat steps 4 and 5 for each remaining group of assets.

After receiving all assets, you'll want your asset manager to process this information. A quality system allows receivers to upload mobile data directly to the server and into a queue. Then, your asset manager can review, approve or change asset data, before committing it to the database.

Apply Asset Tags, Or Not

We've described receiving assets scanning only serial numbers. Thus, received assets will not be associated with any asset tags in your database. We recommend this approach to save time by not opening each box at the receiving dock. Instead, place asset tags on the equipment (e.g.laptops and monitors) when preparing these for end-users (such as installing the OS, applications, security agents, etc).

Some customers require their receivers to place asset tags at the dock. With less people responsible for tagging, one can know where to go to improve the process. If you must tag at the dock, capture the asset tag and serial number to associate these values with the asset.

Receive Assets

Tracking assets allow you to know where your assets are and who's using them as they flow through your environment. This helps you reclaim, service, optimize or replace assets efficiently. This also helps to maintain an accurate inventory to budget and plan effectively.

Deploy Assets

When deploying assets to end users, you'll update the database with user and location information. Also (as mentioned earlier), this is the best time to apply asset tags to the equipment.

To track assets as they are deployed, using a mobile device:

1. **Apply an asset tag** label on the equipment where it can be easily scanned once the equipment is installed.
2. **Select the location** for the deployed assets, ideally by scanning a location barcode.
3. **Choose the user** assigned to this assets, ideally by scanning a user barcode.
4. **Scan the serial number barcode** of the first asset.
5. **Scan the asset tag** you just applied, to associate the asset tag and serial number with this asset.
6. **Repeat steps 4 and 5** for all assets to be deployed.
7. **Save and upload the data** from the mobile device to the server for all deployed assets.

Move Assets

Assets move to new locations for many reasons:
- New assets get deployed from inventory

- Assets get replaced during a break/fix call
- Users and departments move to new locations
- Assets get refreshed (thus, replaced)

You should record when an asset moves to keep your database accurate and complete. Otherwise, you must perform an elaborate and regular audit process of locations to know where assets were moved to.

When moving assets, use mobile devices with scanners to track assets as they move:
1. Scan or enter the location for the new destination
2. Specify new user information
3. Save and upload the data to the server and into a queue for your asset manager to review before applying these changes to the database

Check In

Assets that are returned to from the field must be checked into stockroom inventory. Capture the stockroom location, the data, and choose the appropriate sub-state depending on the stateof the returned assets.

- Available for assets that can be redeployed
- Send for Repair for assets that need repair.
- Retired for assets that need to be wiped and disposed.

Retire Assets

Assets that are done with useful life must be removed from your environment in a controlled way. Always retire assets first prior to disposal, to ensure assets are processed according to business policy.

Dispose Assets

Track assets you send to your disposal vendor so that you can compare to the disposal report they send back. This is how you ensure your disposal vendor properly disposes assets.This proves you disposed assets properly, shifting responsibility to the vendor for any assets lost downstream of your disposal process. This will save money and reduce risk by avoiding any fines.

To properly dispose assets:

1. **Collect the assets** to be disposed
2. **Destroy any data** using a Department of Defense compliant process
3. **Select the *Disposed* life-cycle stage** using your mobile device and tracking application
4. **Scan each asset's asset tag** to update your system. Any undetected asset should alert the user to collect any additional asset information.

➡ *If you track asset changes accurately and as changes occur, you should never have to perform another baseline inventory.*

Perform Audits

No asset tracking solution will catch everything. Users grab monitors from unused desks. Technicians deploy, move and dispose assets without using the tracking system to record these stages. Performing regular audits, using a quality tracking system, allows you to quickly correct errors and identify missing assets in your database due to human error or theft. This will give you confidence that your asset database is ready to generate reports to make wise business decisions.

Audit Types

There are different ways to audit your database.

- Spot audit - Visiting a location and searching for specific assets randomly selected by audit software.
- Location audit - Scanning everything at a location to identify missing assets and correct location information.
- Sample audit - Capturing all details for a random sample of assets to compare data accuracy field-by-field

Develop Scope And Schedule

AMI recommends performing audits for a portion of your environment on a regular cycle. Audit cycles and scope depend on the size of your organization and available staff and tools. As a good starting point, consider auditing 1/12th of your asset environment each month. After a year, you will have audited your entire asset inventory. Repeat this yearly. Whatever schedule you choose, performing regular audits will help you detect missing assets, return them to their proper locations, and keep your database up-to-date.

Perform A Location Audit

Follow these steps for performing audits at regular intervals:

Step 1: Collect Audit Data

At a given location, capture each asset found at the location. Optionally capture assigned user, lifecycle state, and cost-center, if those data points are important to confirm. You do not need to capture static fields for an asset such as serial, model, manufacturer, unless it's missing from the database. Your mobile device software solution should alert the user when scanning an unknown asset tag.

Step 2: Compare Audit Data

After asset data is captured, use a reporting tool or programming interface to compare collected audit data with existing data in your repository. Some useful reports to determine the accuracy of your audit include:

- Location accuracy: What percentage of audited assets are in the correct location?
- User accuracy: What percentage of audited assets are assigned to the correct users?
- Cost center accuracy: What percentage of audited assets are assigned to the correctcost center?
- Non-matching assets: Which audited assets do not match what's in the repository (by showing a list of audited assets and details)?

Step 3: Apply Audit Data

After comparing your audit data from the reports, apply the collected data to the database using your asset tracking system. This will ensure your database is current and accurate.

Request a demo of AssetTrack software.

Advanced Topics

Reconciling Data Exceptions

You should review and reconcile data collected by your team, before applying any changesto the database. AMI recommends using a tool with a "queue" to support this process. Items in your collected data to reconcile include:

- **New models, locations, assignees and cost centers** created while collecting data
- **Missing serial numbers or asset tags** required for every asset record
- **Inconsistencies,** such as assets received with no corresponding purchase order
- **Changes to static data** (e.g. model number, manufacturer, asset type). These fields should not change unless they were entered incorrectly when received).
- **Other fields**, based on business rules specific for your organization

Use Advanced Shipping Notices (ASN)

An Advanced Shipping Notice (ASN) is a document providing detailed information about a pending delivery. This will prepare you to accept delivery. An ASN is usually sent over the Internet as an electronic file. It states when, what, how many items will be shipped, and includes the number of boxes, weight and carrier. An ASN also contains the serial number, manufacturer, make, and model information for all assets in the shipment. Import the ASN before the equipment arrives, to save time at the receiving dock, by not having to capture this information manually.

ASN files can be messy and often contain "excess" data. Examples include:

- Line items for shipping charges and discounts
- Multiple values for the same manufacturer ("Dell" and "Dell Inc.")
- Varying product descriptions for similar products ("Dell Latitude D610" and "D610 Back To School Special!!!!")

To import ASN files, use a tool to trim and normalize the ASN data into a format expected by your repository. You should be able to set up rules to help automate this process. For instance, map strings for incoming model numbers with actual models in your database. Then, your tool will import only correct and existing models into your repository.

Consider RFID

Radio-Frequency Identification (RFID) is the use of radio waves to read and capture information stored on a tag attached to an object. A tag can be read several feet away and does not have to be within direct line-of-sight of the reader to be tracked. RFID eliminates the need for human intervention. Considerations include:

- **RFID tags don't prevent theft**. An end user can place their hand over the RFID tag, to prevent it from being read by many door readers.

- **RFID technology is expensive.** To set up a comprehensive RFID tracking system, you'll need fixed readers on every door, elevator and room (depending on how granular your need for location accuracy). Figure $5000 USD per reader, and do the math to determine your ROI.

- **Not all RFID are the same.** Passive RFID tags have a shorter read range than more expensive Active tags. There are many different sizes and shapes of passive RFID tagsthat have different read ranges. Don't expect to use any old tag on any old asset. You need to do plenty of testing.

?   *Ready to see a customized demo of our industry-leading AssetTrack software?*

- **RFID doesn't work for all assets.** Metal cases require space between the metal material and the RFID chip. Therefore the .15c RFID tags won't work on laptops and servers.

Before implementing an RFID solution, hire a consulting company to assess your environment. They will help you determine:

- The proper tags for the types of assets you want to track
- Any conflicts in certain frequency ranges
- Determine the number of fixed and mobile readers, antennae and installation services

RFID technology will continue to mature, perhaps making this a mainstream solution.Meanwhile, checkout Microsoft BizTalk RFID and AMI AssetTrack to streamline RFIDimplementations.

Integrate Your Tracking And Auto-Discovery Tools

Say your data collector scanned in a serial number while receiving a computer. Later, the network discovered and detected the same serial number for that computer while in use on the network. This "matching" allows you to see both sets of data in reports, to find gaps and fix errors in your tracking tools and discovery agents.

Capturing assets using barcode or RFID tags, updates your repository for assets in the warehouse and for assets not connected to the network. Auto discovery captures assets that are connected to the network. Using tracking and discovery tools provides two data sources to compare and fix exceptions. You can see which assets were scanned and which were discovered. You'll miss nothing.

Tracking assets using scanners + network software pinging computers (auto-discovery) = more accurate information in your asset repository

Takeaways

Here's a checklist to review our recommendations for asset tracking.

STEP	DESCRIPTION	COMPLETION
Create User Stories	Express requirements in natural language	
Mockup Reports	Create dummy reports so you can identify necessary data.	
Create A Field List	Distill a master field list by combining all report data	
Build a Data Dictionary	Map data fields, to reports, and processes to ensure everything gets tracked.	
Structure Foundational Data	Map data fields, to reports, and processes to ensure everything gets tracked.	
Establish Baseline Inventory	Capture a baseline of the inventory you have today	
Automate Lifecycle Processes	Automate updating the database with efficient tools and processes for end users.	
Establish Audits	Audit regularly to find and correct errors in your data and your process.	

Contact Us

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AMI offers asset tracking software and solutions to enterprise and small-to-midsize organizations. AMI also offers a comprehensive ITIL solutions integrated with the ServiceNow, CA, HP, BMC RemedyForce and Ivanti platforms. Tom has worked in the IT asset management software market for fourteen years and has developed line-of-business software applications for twenty.

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