



A Triad Technology Partners White Paper

**The business case for integrating RFID solutions with
your property and asset management solution**

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Executive Summary

Government agencies spend tremendous time, manpower, and money to satisfy mandatory asset audit requirements. The use of Radio Frequency Infrared Device (RFID) technology and integrated mobile solutions can dramatically reduce the time to execute these critical audits. By capturing and utilizing key asset information on mobile devices, and engaging either passive or active RFID technology, physical audits can be completed more quickly. The ability to efficiently locate, identify, and validate assets enables key asset management personnel to spend more time maintaining or optimizing the effective life of infrastructure. Additional benefits of an RFID audit solution include: improved understanding and knowledge of asset location, faster turnaround on preventive and deferred maintenance activities, more comprehensive asset lists for tracking and depreciation, and increased accuracy on all critical asset data.



Current State of Asset Audits

Executive Order 13327 mandates that federal agencies conduct an annual inventory audit of their assets for roll up to General Services Administration (GSA). The purpose of the reporting requirement is to afford the Executive and Congressional branches increased visibility into infrastructure spending. In theory, this Executive Order should lead to more optimized procurement and maintenance practices and better lifecycle management and control. In reality, the current methodologies that agencies use to fulfill this requirement result in costly surveys and often-inaccurate results. There are many ways in which the utilization of RFID and mobile technologies could aid agencies in not only fulfilling the executive mandate, but also improving overall management of assets throughout their lifecycle. Executive Order 13327 requires personnel to physically verify the assets. This process is a time consuming and expensive. Agencies must first find some way to assemble an asset listing, either in a provided or developed report or a spreadsheet. Auditors then need to take their asset data to the relevant facility and perform a physical verification. Performing this process consumes a great deal of time and both financial and human resources.

Most agencies use an outdated methodology to successfully pass these audits. Those agencies that employ a technology solution, such as an asset management or property management solution have the capability to produce reports or spreadsheets of asset information. This asset data can be sorted by location and distributed to auditors. For those agencies without a computerized solution, or with only a spreadsheet tracking assets, assembling the data can be an extremely time consuming process.

When auditors go to into the facility to validate data, the first step is to simply find the pieces of equipment under audit. Based on guidelines, not all infrastructure assets in any given location are subject to the rules of the audit, therefore, picking out the relevant items can be an arduous task. Next, when assets are found, the key data elements required by GSA need to be validated. If all data elements are correct and validated, the auditor can indicate a successful audit and move to the next piece of equipment. In the event more assets appear than are indicated, the auditor needs to create a new item. Conversely, in the event that an asset indicated is not found, the auditor must indicate an unsuccessful attempt to audit the item. Another likely scenario is that data is incomplete or inaccurate, requiring the auditor to notate these issues on the audit log. All of these situations require that the system of record be manually updated by either the auditor or other personnel. This update can lead to additional errors due to re-keying of data or, in the case of other personnel entering changes, misreading information provided by the auditor. This creates a recurring problem for subsequent audits, creating additional time and cost to correct.

In all cases, these scenarios show an outdated methodology that requires agencies to commit significant resource and effort to complete required audits. In a world of limited resources, the time each organization spends on these audits decreases the allotted time agencies can spend managing, maintaining, and optimizing their facility and asset infrastructure. As a result, many agencies' infrastructures are poorly maintained and underperforming. By improving audit processes, time and resources are freed up to focus on the critical tasks required of the agency.

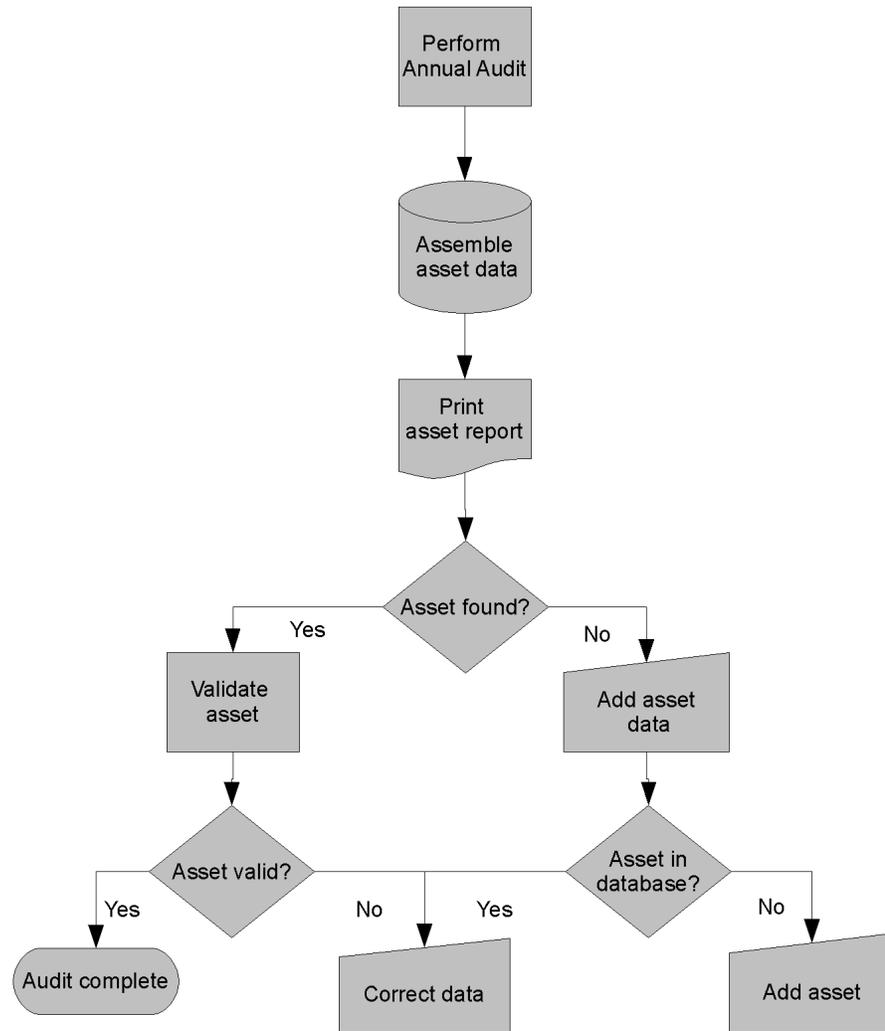


Figure 1 – Current audit process



The Solution: Mobile RFID Audits Reduce Cost and Time

Implementing handheld technology enabled with RFID allows agencies to rapidly find and validate their asset infrastructure. Coupling an RFID-capable device with mobile asset auditing software allows personnel to easily identify locations for audit and bring those items down to a handheld device, either via wireless technology, if permissible, or via dock and sync technology, bringing the accurate asset listing out into the field.

Introduction to RFID

RFID stands for Radio Frequency Identification. RFID solutions today are categorized as either Passive RFID or Active RFID.

Passive RFID technology utilizes tags that contain no independent power source. This allows for a smaller form factor. Passive tags contain a stored ID number which can be read when either the tag passes through a pylon, or when a handheld reader is within reading range, typically 6-10 feet. These tags are excited by the reader to emit their signal to the reader and then pass that information to the software indicating a change.

Active RFID technology utilizes tags that typically store more information than just an identification number and potentially have additional sensors. Active tags provide increased functionality but require a larger form factor due to the tag's need for power. Data such as the UID tag, location, maintenance history, or any other data deemed important can be stored directly on the active tag.

For more information on RFID technology, please see Triad Technology Partners "RFID Technology Primer"

Once a business and technical decision is reached on the RFID infrastructure, the basic business process to deploy either an active or passive RFID solution is similar. The auditor can go to the field with tags and a handheld device to perform the audit and affix labels. The auditor will use the mobile solution to locate an asset and then affix an RFID tag, linking that tag ID to the asset record. This creates the linkage between the tag and asset, allowing the RFID middleware to communicate asset changes to the asset or property management solution. While this enhanced capability and process can increase the time to complete the initial audit, the future year benefits are even more significant.

In subsequent years, an auditor will have the ability to download data, by location, to the handheld solution, move to that location and make a sweep of the area to pick up all tags in that proximity. Items that match will be reconciled against the asset database of record, and the assets not found in the area or list will be identified. For assets that are in the room but not listed as such, the auditor has the option to update the location or notate for further review. For assets listed in the database but not located, the auditor can notate that the item was not found. Many times, the item will be found in a different location scan during the audit and this correct location can be immediately noted upon discovery, in the field with the handheld device.



Figure 2 – Sample RFID Enabled Handheld

Pylons or antennae at entrances/exits will also help to track asset movement throughout the year, reducing the potential for undocumented asset movement. For organizations that are compelled to have an auditor physically inspect or view the asset, printing barcode identification of the asset ID on the RFID tag will allow this redundancy. This step would require that the auditor both do an RFID scan of the area and scan the item's individual barcode. Individual barcode scans add time to the audit. However, since the RFID scan confirms the known population of assets, the auditors will know exactly what assets are available to scan and can proceed directly to the barcode scan. For many organizations, the extra assurance of the barcode scan provides another level of verification that leads to peace of mind.

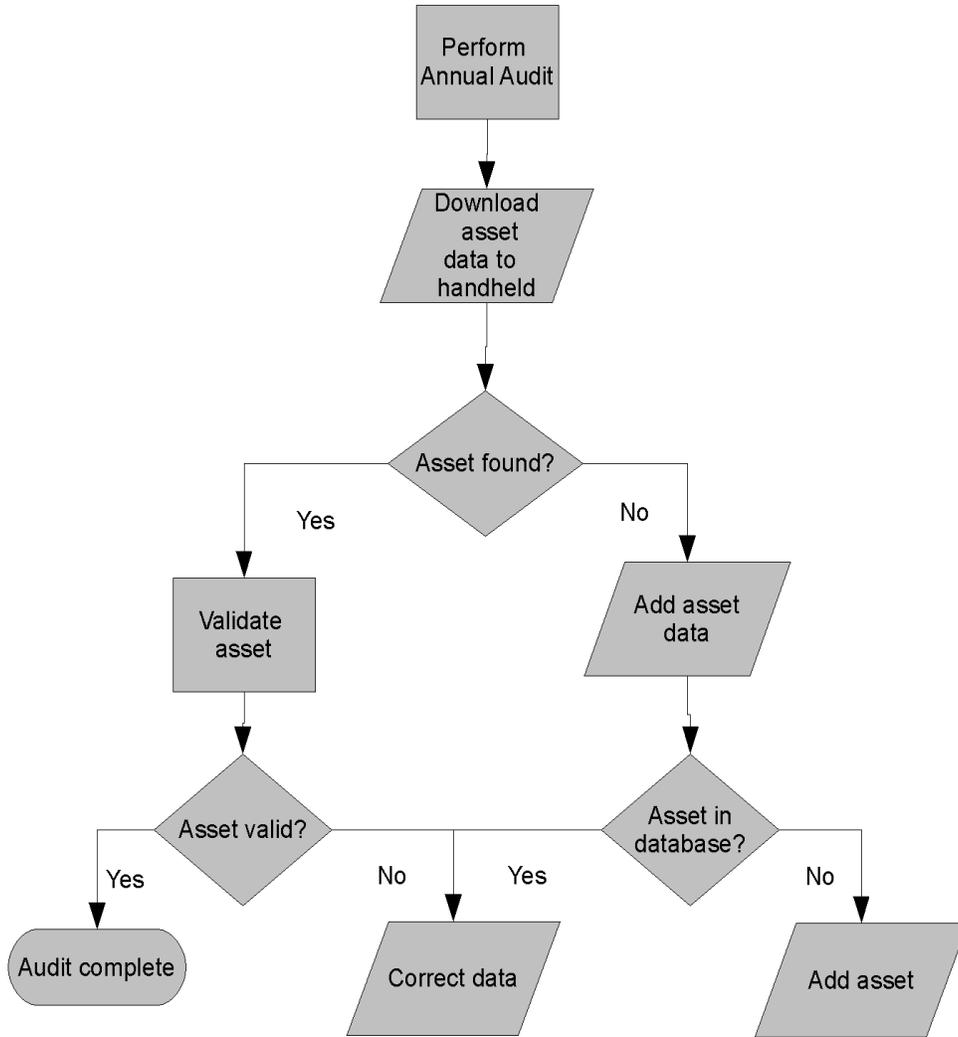


Figure 3 – Revised audit process

In the figure below, a scenario using passive RFID tags within a data center environment is shown. Readers or pylons are placed at each entry or egress point in the area. This ensures that any assets removed from the data center are identified and transactions recorded by the software solution to highlight the change. When performing the audit, auditors enter the location with handheld scanners and the expected asset list for inspection. Again, assuming passive tags, an effective distance is roughly 6-10 feet, meaning that personnel will be required to walk through the location scanning for tags to be excited by the handheld reader. Assets on the list and not found will be highlighted, as well as a highlighted list of assets within the data center not found on the handheld device.

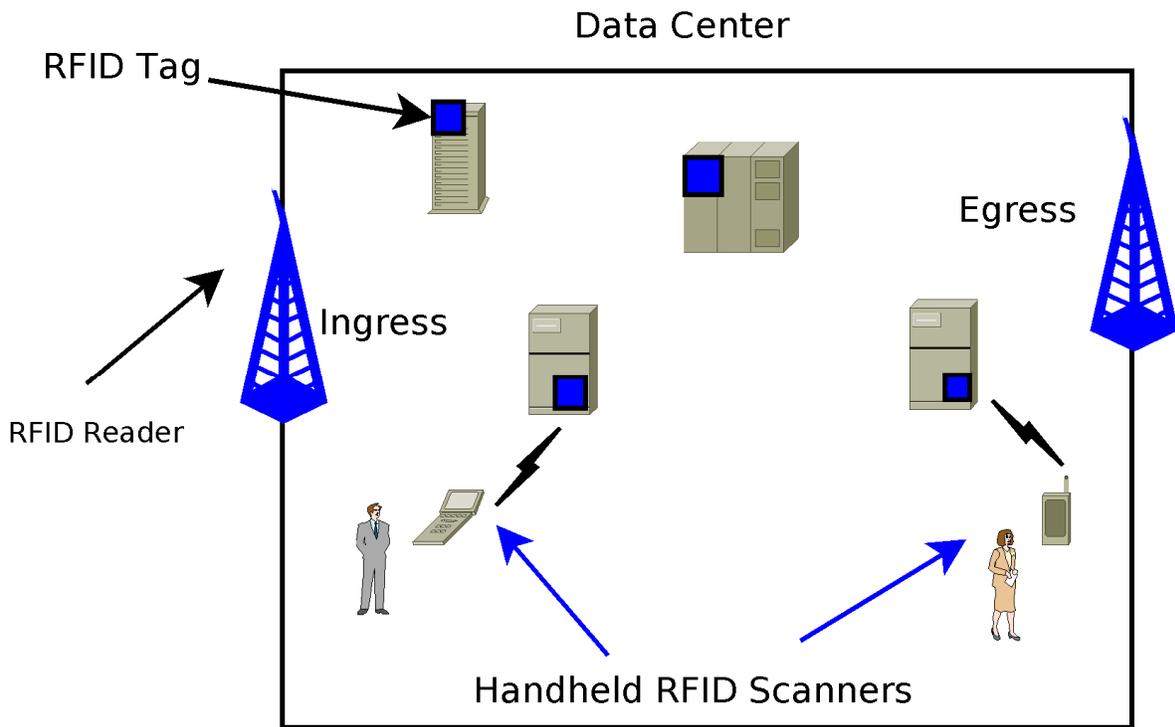


Figure 4 – Passive RFID



Business Case for Implementation

When implementing a mobile-based RFID audit system, an organization's year one costs for such audits will likely increase. Obviously, the cost to procure and deploy the RFID solution must be taken into account. However, these costs may be derived from different budgetary sources, and can certainly be justified by the subsequent benefits that will inevitably occur.

By performing a comprehensive audit that includes locating assets for audit and affixing the appropriate RFID tag to assets, the fidelity of asset data will be enhanced. Audit personnel can perform a thorough review of the asset, and corresponding asset management data, before affixing a tag. This provides the auditor the opportunity to collect, via handheld device, a more accurate picture of infrastructure assets to send directly back to the asset or property management system. This data provides the opportunity for more effective procurement decisions. With the ability to have more comprehensive review and execution of maintenance and engineering activities, an organization can make wiser decisions about asset lifecycle management. Additionally, with complete and accurate data, maintenance technicians are afforded the opportunity to locate assets more quickly when performing maintenance, increasing wrench time. With handheld technology, technicians decrease paperwork time, and can spend more time performing the actual labor required to complete required maintenance.

A final benefit is decreased time and associated cost with performing an audit. By decreasing cost of audits, these funds can be re-directed to other activities within the maintenance and engineering functions, or transferred to other key priorities. In reclaiming the time to execute an audit, federal agencies have the opportunity to re-position auditors to perform other key activities within their organization helping to optimize and better manage critical infrastructure.

Conclusion

By enabling technology within the asset infrastructure, government agencies can more effectively audit infrastructure. By holistically approaching an audit with the goal of electronically tagging all assets, auditors can better ensure a complete physical audit during implementation and significantly reduce time and cost on subsequent audits by electronically validating the accuracy of asset data, its location, and its function. Linking an RFID solution to the existing asset management solution will help to optimize the audit objectives, satisfy reporting requirements, and significantly lessen personnel and cost impact.