

**FEDERAL MARITIME COMMISSION**  
**OFFICE OF INSPECTOR GENERAL**



**Evaluation of the FMC's  
Information Technology Inventory**

**May 2018**

**FINAL**

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## **PURPOSE**

*Your Internal Controls* (contractor), on behalf of the Federal Maritime Commission (FMC), Office of Inspector General (OIG), conducted an independent evaluation of the quality, completeness, and accuracy of the FMC's information technology (IT) inventory. Your Internal Controls' evaluation focused on the FMC's maintenance of the IT inventory, as well as the various policies and procedures governing the addition, deletion, and/or modification of IT inventory at the FMC.

## **BACKGROUND**

The Federal Maritime Commission (FMC) is an independent Federal agency of the United States government responsible for regulating the U.S. international ocean transportation system for the benefit of the U.S. exporters, importers, and the U.S. consumer. The FMC's mission is to ensure a competitive and reliable international ocean transportation supply system that supports the U.S. economy and protects the public from unfair and deceptive practices.

The FMC is directed by five commissioners nominated by the President and confirmed by the Senate, each serving a staggered five-year term. No more than three members of the Commission may be from the same political party. The President designates one commissioner to serve as Chairman. For the last full fiscal year, Congress approved a 2017 budget of \$27,490,000, and the agency was authorized 134 full-time equivalent positions. The majority of these employees are located in Washington, D.C., with a small number of personnel stationed in major U.S. seaport locations in Houston, Los Angeles, New Orleans, New York, Seattle, and South Florida.

The FMC's Office of Information Technology (OIT) is responsible for the overall management of the agency's IT inventory. The OIT's mission is to provide management, technical, and administrative support to the program operations of the Commission through information resources management; IT acquisitions; technologies and applications support; computer network infrastructure support; IT strategic planning and governance; web services support; documents and records management; and cyber security. The OIT maintains two separate IT inventory lists, as follows: (1) a Microsoft Excel IT inventory list that is updated throughout the year, and is also used to conduct an annual physical inventory of all IT equipment; and (2) an automated inventory

of all devices connected to the agency computer network maintained in the OIT's help desk software. The OIT has several policies and procedures to manage IT equipment, to include procedures for excessing IT equipment, loss-theft procedures, loaner laptop procedures, procedures for conducting the annual physical inventory, and distribution and receipt of property. In recent years, the FMC has expended a considerable amount of money on IT acquisitions. Approximately \$1.4 million has been expended from fiscal year 2015 through January 2018 on IT acquisitions, including desktop and laptop computers; servers; network storage; monitors; printers; among other expenditures. Examples of those expenditures were \$93,004 for 50 laptops; \$115,147 for 77 desktops; \$12,124 for five color LaserJet printers; and \$26,550 for a backup appliance; among other purchases.

Effective internal controls are required for the accountability and safeguarding of IT equipment. For example, laptops are portable and easy to conceal, and may contain sensitive information. Consequently, laptops are at risk of loss and theft, and must be properly safeguarded and accounted for. Inventory records must be accurate and kept up-to-date to account for and safeguard IT equipment assets.

The U.S. Government Accountability Office *Standards for Internal Control in the Federal Government* (known as the Green Book), provides the overall framework for establishing and maintaining an effective internal control system. Internal control comprises the plans, methods, policies, and procedures used to fulfill the mission, strategic plan, goals, and objectives of the agency. Internal control serves as the first line of defense in safeguarding assets. In short, internal controls help managers achieve desired results through effective stewardship of public resources.

Management is responsible for designing controls to provide reasonable assurance of preventing or promptly detecting unauthorized acquisition, use, or disposition of assets. Among the types of control activities are the documentation of responsibilities through policies and procedures, management monitoring of the internal control system through ongoing monitoring and evaluation, and segregation of duties.

Management is responsible for determining the policies and procedures necessary to operate the process based on the objectives and related risks. In addition, ongoing monitoring is necessary and includes regular management and supervisory activities, comparisons, reconciliations, and other routine actions. Further, management divides or segregates key duties and responsibilities among different people to reduce the risk of error, misuse, or fraud. For example, this includes separating the responsibilities for authorizing purchases, processing and recording them, reviewing the transactions, and handling any related assets so that no one individual controls all key aspects of a transaction or event. If segregation of duties is not practical within an operational process because of limited personnel or other factors, management designs alternative control activities to address the risk of fraud, waste, or abuse in the operational process. FMC's controls over IT equipment should be designed to provide reasonable assurance that the IT equipment are safeguarded throughout their lifecycles.

### **SCOPE AND METHODOLOGY**

The scope of our testing focused on all IT inventory, such as desktops, laptops, servers, printers, monitors, routers, switches, and firewalls. This engagement also included a review of all inventory related policies and procedures. Furthermore, the evaluation encompassed a review of the position description for the OIT staff person responsible for the IT inventory, and an inspection of a judgmental sample of IT assets to assess the effectiveness of the OIT's inventory processes and records. Lastly, this evaluation included a review of the inventory software settings such as password controls and audit settings. The inspection was performed in accordance with the Council of the Inspectors General on Integrity and Efficiency *Quality Standards for Inspection and Evaluation*, January 2012.

### **RESULTS IN BRIEF**

A judgmental sample of inventory items was selected for inspection from the OIT's latest inventory list of all agency IT equipment. A total of 63 IT equipment items were sampled, consisting of several employees, different FMC offices, and various types of equipment, including laptops, monitors, printers, Blackberries, among other equipment types. Out of the 63 IT items,

23 items were not able to be located in the location identified on the IT inventory list, to include several laptops, Blackberries, All-in-One desktop computers, among other items. Subsequent to the completion of this testing, it was revealed that OIT was able to locate all but seven (7) of the 23 items that were not identified in the original testing. The 7 items are three (3) laptops and four (4) wireless hubs. There were also several IT items that lacked a serial number on the IT inventory list, making it difficult to reconcile the inventory item against the inventory list. Lastly, there were also some issues with classification of the inventory, such as IT equipment assigned to an employee that did not match the IT inventory list, or the location of IT equipment that did not match the IT inventory list.

We identified several opportunities for improvement in the FMC's IT equipment inventory management. Although OIT has several policies and procedures for managing IT equipment inventory, we recommend OIT enhance written procedures for maintaining an accurate and up-to-date IT inventory list. These procedures should include specific requirements for OIT staff responsible for maintaining the IT inventory list, as well as supervisory responsibilities for periodic verification and reconciliation of the respective list. We also identified a lack of segregation of duties without compensating controls in the FMC's IT inventory system. Specifically, there is one (1) OIT staff person that manages the IT inventory list, who is also one of two OIT staff responsible for IT purchasing. As a result, this OIT staff person is responsible for IT purchasing, and then is the only individual with access to add, remove, and update inventory in the IT inventory list. A lack of segregation of duties could create opportunities for the misappropriation of IT equipment without management's knowledge. Also, all inventory items should have a barcode that contains the serial number. OIT has indicated the possibility of purchasing a new inventory software application that can improve IT inventory management. The deficiencies and recommendations for corrective action are detailed in the table that follows.

## FINDINGS AND RECOMMENDATIONS

#	Deficiency	Risk	Cause	Criteria	Recommendation
1	<p>A walkthrough from the latest inventory listing to the physical inventory was performed and the following was observed:</p> <ul style="list-style-type: none"> <li>a. 23 out of 63 sampled inventory items were not able to be located in the location identified on the IT inventory list; subsequent to the OIG testing, all but 7 of the items were located by OIT.</li> <li>b. The receiving reports do not contain the necessary details to reconcile against the inventory on-site or the inventory listing.</li> <li>c. 12 out of 63 sampled inventory items had no serial number associated with the inventory.</li> <li>d. 4 out of 63 sampled inventory items were misclassified for either staff assignment or location.</li> <li>e. 1 out of 63 inventory items had a description that was insufficient to identify the inventory asset.</li> </ul>	<p>The following risks were identified from the deficiencies:</p> <ul style="list-style-type: none"> <li>a. Without knowing where asset inventory items are located, there is the risk that those inventory pieces could be stolen, contain personally identifiable information (PII), and may be in the hands of adversarial parties, thereby exposing the agency to exploitation.</li> <li>b. Without the appropriate source documents to show the details of each inventory item, there is the risk that inventory items could be misclassified or become lost/stolen.</li> <li>c. Without the necessary details such as serial numbers, there is an increased risk that inventory could become misclassified, lost, or stolen.</li> <li>d. Without accurate identification as to who the inventory is assigned to, there is an increased risk that inventory could be misclassified and unaccounted for.</li> <li>e. Without appropriate descriptions for inventory items, there is an increased risk that inventory could be misclassified or become unaccounted for.</li> </ul>	<p style="text-align: center;">Written policies and procedures need improvement.</p>	<p>NIST 800-53<sup>1</sup> Configuration Management (CM– 8) states, in part, the following:</p> <ul style="list-style-type: none"> <li>a. Develops and documents an inventory of information system components that:               <ul style="list-style-type: none"> <li>1. Accurately reflects the current information system;</li> <li>2. Is at the level of granularity deemed necessary for tracking and reporting; and</li> </ul> </li> <li>b. Reviews and updates the information system component inventory [Assignment: organization-defined frequency].</li> </ul>	<p>The following recommendations are noted for the respective deficiencies:</p> <ul style="list-style-type: none"> <li>a. All items on the inventory listing should be assigned to specific personnel and/or locations within the agency.</li> <li>b. A complete inventory should be maintained as up-to-date as inventory is updated. As inventory is purchased, the inventory receiving documents should be reconciled against the actual inventory item prior to it being delivered to the users.</li> <li>c. Ensure all inventory items are properly barcoded for ease of tracking.</li> <li>d. Ensure that all inventory items are assigned to the correct person to whom the inventory has been assigned.</li> <li>e. Ensure that all inventory items have a description that is clear and concise so that managing the inventory is effective and efficient.</li> </ul>

<sup>1</sup> NIST, Security and Privacy Controls for Federal Information Systems and Organizations, SP 800-53, Revision 4 (Gaithersburg, Md.: April 2013).

<b>Management Response</b>	
1a	Management agrees with the recommendation, and has taken corrective action to ensure that, going forward, all items on the inventory spreadsheet are accurately assigned to specific personnel and/or locations within the agency. As noted above, OIT will continue reliance on its existing inventory spreadsheet pending selection of an integrated software solution, to be procured no later than the end of FY 2018.
1b	<p>Management agrees with the first part of this recommendation. OIT staff has updated the inventory spreadsheet and will ensure that it is kept up to date as inventory items are received, relocated, or reassigned.</p> <p>Management also agrees with the second part of this recommendation. OIT staff does currently ascertain that IT purchases and inventory receiving documents (packing slips) are reconciled against the actual equipment received to the extent possible. For example, if purchase requests and inventory receiving documents indicate that 10 computers have been shipped to the Commission, OIT staff verify whether 10 computers have been received. However, inventory purchasing and receiving documents do not report data (such as serial numbers, barcodes, etc.) specifically identifying each piece of equipment shipped to the Commission. Going forward, OIT staff will:</p> <ul style="list-style-type: none"> <li>• record serial numbers on packing slips as items are unboxed;</li> <li>• place barcode stickers on items as they are unboxed; and</li> <li>• ensure that each items' information (serial number, barcode, location, etc.) is entered into the inventory spreadsheet before delivery of items to users or appropriate locations.</li> </ul> <p>An SOP has been developed and implemented for receiving IT equipment into inventory, copy attached.</p>
1c	Management agrees with this recommendation and will make the necessary adjustments to ensure that all IT inventory items are barcoded and that barcode information is noted in the inventory spreadsheet as items are received into the Commission's inventory (see response to #1b above).
1d	Management agrees with this recommendation. By way of clarification, management believes that when the review was conducted, all equipment assigned to an individual was located with that individual with the exception of a single item — a hard drive — which was passed from its assigned user to another employee because of a transfer of job responsibilities. OIT was not notified of this transfer of equipment by either employee. Management will consider whether to clarify, on the equipment transaction form or by policy, the obligation of each individual receiving IT property to properly notify OIT in the event an asset is to be transferred to another person or office within the Commission.
1e	Management agrees with the recommendation and has taken corrective action to ensure that all inventory items will be more clearly described in the inventory spreadsheet.



#	Deficiency	Risk	Cause	Criteria	Recommendation
2	<p>The current inventory procedures are not sufficient for maintaining an accurate and up-to-date IT equipment inventory list. Procedures do not currently address supervisory responsibilities for periodic verification and reconciliation of the inventory list. The inventory procedures also do not address asset transfers between employees; and misclassified and/or inaccurate inventory.</p>	<p>An incomplete or inaccurate IT inventory list increases the risk that IT equipment could be lost, stolen, or unaccounted for.</p>	<p>Written policies and procedures need improvement.</p>	<p>NIST 800-53, System and Communications Protection Policy and Procedures (SC- 1) states the following:</p> <p>The organization:</p> <ul style="list-style-type: none"> <li>a. Develops, documents, and disseminates to [Assignment: organization-defined personnel or roles]: <ul style="list-style-type: none"> <li>1. A system and communications protection policy that addresses purpose, scope, roles, responsibilities, management commitment, coordination among organizational entities, and compliance; and</li> <li>2. Procedures to facilitate the implementation of the system and communications protection policy and associated system and communications protection controls; and</li> </ul> </li> <li>b. Reviews and updates the current: <ul style="list-style-type: none"> <li>1. System and communications protection policy [Assignment: organization-defined frequency]; and</li> <li>2. System and communications protection procedures [Assignment: organization-defined frequency].</li> </ul> </li> </ul>	<p>Enhance policies and procedures for IT equipment management.</p>
<b>Management Response</b>					
2	<p>Management agrees with this recommendation, and OIT will review and strengthen their policies and procedures for IT equipment management as described above no later than the end of FY 2018. These efforts are inclusive of selecting an integrated software solution for OIT, to be procured no later than the end of FY 2018.</p>				

#	Deficiency	Risk	Cause	Criteria	Recommendation
3	FMC maintains a listing of the assets that were excessed; however, there is no associated date to identify when the equipment or hardware was removed from the agency nor was the method of sanitization documented for those excessed assets.	Without the appropriate documentation of when and how the inventory was excessed, there is the risk that PII will still be residing on the inventory, thereby exposing the agency to unforeseen risks.	Written policies and procedures need improvement.	<p>NIST 800-53, Configuration Management (CM- 8) states, in part, the following:</p> <p>a. Develops and documents an inventory of information system components that:</p> <ol style="list-style-type: none"> <li>1. Accurately reflects the current information system;</li> <li>2. Is at the level of granularity deemed necessary for tracking and reporting; and</li> </ol> <p>b. Reviews and updates the information system component inventory [Assignment: organization-defined frequency].</p>	Ensure that as inventory is excessed, the date of excess and method of sanitization are documented to ensure that PII is removed from the inventory appropriately.
<b>Management Response</b>					
3	Management agrees with the recommendation and has taken steps to ensure that as inventory is excessed, the date of excess and method of sanitization are documented to ensure that PII is removed from the inventory appropriately. When items in the Commission’s IT inventory are to be excessed, a spreadsheet form is completed listing each item that is to be excessed. In order to include the method of sanitization and bar code or serial number, OIT has added two columns to the spreadsheet, copy attached. OIT will begin using this new spreadsheet format immediately.				

#	Deficiency	Risk	Cause	Criteria	Recommendation
4	There is a lack of segregation of duties for maintaining the completeness and accuracy of inventory.	A lack of segregation of duties increases the risk that inventory will be incomplete and/or inaccurate without the appropriate preventive or detective controls in place.	Written policies and procedures need improvement.	NIST 800-53, Access Control (AC- 5) states the following: The organization:  a. Separates [ <i>Assignment: organization-defined duties of individuals</i> ]; b. Documents separation of duties of individuals; and c. Defines information system access authorizations to support separation of duties.	The OIT should develop policies and procedures to ensure appropriate segregation of duties in the management of computer inventory.
<b>Management Response</b>					
4	Management agrees with the recommendation. An SOP has been developed for receiving IT equipment into inventory (see comment for Recommendation #1b above) which will ensure that, to the extent possible, there is appropriate segregation of duties in the management of computer inventory.				

# Memorandum

**TO** : Inspector General

**DATE:** May 18, 2018

**FROM** : Managing Director

**SUBJECT** : Evaluation of the FMC's Information Technology Inventory

I have reviewed the findings and recommendations contained in the subject evaluation. Commission management values the Office of the Inspector General's efforts in reviewing the completeness and accuracy of the maintenance of the Commission's IT inventory as well as its written policies and procedures. We appreciate the recommendations for improvement in this important effort.

Management acknowledges that the procedures used for recording the receipt of IT equipment, maintenance of inventory, and ultimate disposal of that IT equipment should appropriately be viewed as parts of a comprehensive whole. The Office of Information Technology (OIT) is in the process of developing a suite of SOPs to address the "cradle to grave" approach envisioned in the IG's recommendations. Given certain observations raised in the evaluation, OIT has developed an SOP to address initial product receipt and entry into the OIT product inventory. That process will continue through creating new SOPs and updating others to better capture the objectives of the IG's report.

In the interest of making the Commission's inventory tracking process more robust, the OIT is currently comparing several different inventory software packages for purchase. OIT's objective is to procure a software solution that will replace our current spreadsheet format as the official OIT record of inventory, and provide an integrated means to support tracking initial receipt, assignment of IT property, and final disposition throughout the lifespan of the asset. Tracking inventory software would ultimately save staff time, mitigate human error in inputting data, more accurately track the flow of the Commission's IT inventory, and permit ongoing verification of IT-related property.

**Recommendation #1a:** All items on the inventory listing should be assigned to specific personnel and/or locations within the agency.

**Comment:** Management agrees with the recommendation, and has taken corrective action to ensure that, going forward, all items on the inventory spreadsheet are accurately assigned to specific personnel and/or locations within the agency. As noted above, OIT will continue reliance on its existing inventory spreadsheet pending selection of an integrated software solution, to be procured no later than the end of FY 2018.

**Recommendation #1b:** A complete inventory should be maintained as up-to-date as inventory is updated. As inventory is purchased, the inventory receiving documents should be reconciled against the actual inventory item prior to it being delivered to the users.

**Comment:** Management agrees with the first part of this recommendation. OIT staff has updated the inventory spreadsheet and will ensure that it is kept up to date as inventory items are received, relocated, or reassigned.

Management also agrees with the second part of this recommendation. OIT staff does currently ascertain that IT purchases and inventory receiving documents (packing slips) are reconciled against the actual equipment received to the extent possible. For example, if purchase requests and inventory receiving documents indicate that 10 computers have been shipped to the Commission, OIT staff verify whether 10 computers have been received. However, inventory purchasing and receiving documents do not report data (such as serial numbers, barcodes, etc.) specifically identifying each piece of equipment shipped to the Commission. Going forward, OIT staff will:

- record serial numbers on packing slips as items are unboxed;
- place barcode stickers on items as they are unboxed; and
- ensure that each items' information (serial number, barcode, location, etc.) is entered into the inventory spreadsheet before delivery of items to users or appropriate locations.

An SOP has been developed and implemented for receiving IT equipment into inventory, copy attached.

**Recommendation #1c:** Ensure all inventory items are properly barcoded for ease of tracking.

**Comment:** Management agrees with this recommendation and will make the necessary adjustments to ensure that all IT inventory items are barcoded and that barcode information is noted in the inventory spreadsheet as items are received into the Commission's inventory (see response to #1b above).

**Recommendation #1d:** Ensure that all inventory items are assigned to the correct person to whom the inventory has been assigned.

**Comment:** Management agrees with this recommendation. By way of clarification, management believes that when the review was conducted, all equipment assigned to an individual was located with that individual with the exception of a single item — a hard drive — which was passed from its assigned user to another employee because of a transfer of job responsibilities. OIT was not notified of this transfer of equipment by either employee. Management will consider whether to clarify, on the equipment transaction form or by policy, the obligation of each individual receiving IT property to properly notify OIT in the event an asset is to be transferred to another person or office within the Commission.

**Recommendation #1e:** Ensure that all inventory items have a description that is clear and concise so that managing the inventory is effective and efficient.

**Comment:** Management agrees with the recommendation and has taken corrective action to ensure that all inventory items will be more clearly described in the inventory spreadsheet.

**Recommendation #2:** Enhance policies and procedures for IT equipment management.

**Comment:** Management agrees with this recommendation, and OIT will review and strengthen their policies and procedures for IT equipment management as described above no later than the end of FY 2018. These efforts are inclusive of selecting an integrated software solution for OIT, to be procured no later than the end of FY 2018.

**Recommendation #3:** Ensure that as inventory is excessed, the date of excess and method of sanitization are documented to ensure that PII is removed from the inventory appropriately.

**Comment:** Management agrees with the recommendation and has taken steps to ensure that as inventory is excessed, the date of excess and method of sanitization are documented to ensure that PII is removed from the inventory appropriately.

When items in the Commission's IT inventory are to be excessed, a spreadsheet form is completed listing each item that is to be excessed. In order to include the method of sanitization and bar code or serial number, OIT has added two columns to the spreadsheet, copy attached. OIT will begin using this new spreadsheet format immediately.

**Recommendation #4:** The OIT should develop policies and procedures to ensure appropriate segregation of duties in the management of computer inventory.

**Comment:** Management agrees with the recommendation. An SOP has been developed for receiving IT equipment into inventory (see comment for Recommendation #1b above) which will ensure that, to the extent possible, there is appropriate segregation of duties in the management of computer inventory.

Karen V. Gregory

cc: Office of the Chairman

Attachments

FEDERAL MARITIME COMMISSION

May 2018

Office of Information Technology  
Washington, DC 20573

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**OFFICE OF INFORMATION TECHNOLOGY**  
**Receiving IT Equipment into Inventory**

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<b>Purpose</b>	To define procedures for the Office of Information Technology (OIT) to provide standard requirements for receiving new and used (new to OIT) IT equipment, and adding it to the Inventory Application
<b>Scope</b>	This policy applies to all staff involved in the receiving of IT equipment and adding it to the Inventory Application
<b>Definitions</b>	<b>Inventory Application</b> - the software application used to maintain an accurate inventory of all accountable IT assets.
<b>Responsibilities</b>	<p><b><u>Office of Information Technology (OIT)</u></b></p> <ul style="list-style-type: none"> <li>• Ensure OIT Staff are available to receive IT equipment from 7:30am until 5:00pm Eastern Standard Time, Monday through Friday, excluding US Government holidays</li> <li>• Ensure that the individual physically receiving the equipment is not the same individual entering the equipment information into the Inventory Application.</li> </ul>
<b>Procedures</b>	<p><b>The following steps will be followed by the individual physically receiving the equipment:</b></p> <ul style="list-style-type: none"> <li>• Receive equipment from OMS</li> <li>• Identify the type(s) of equipment received</li> <li>• Ensure that all items listed on the packing slip have been received</li> <li>• Upon opening equipment affix barcode labels</li> <li>• Record the serial numbers and associated barcode labels of all accountable equipment received on the packing slip</li> <li>• Provide the packing slip to the individual entering the data into the Inventory Application</li> </ul> <p><b>The following steps should be followed by the individual entering the equipment into the Inventory Application:</b></p> <ul style="list-style-type: none"> <li>• Receive the packing slip from the individual that physically received the equipment</li> <li>• Enter barcodes, serial numbers, and identifying information into the Inventory Application</li> </ul>
<b>Inquiries</b>	<b>Further information concerning this policy may be obtained by contacting the Director OIT at 202-523-5835.</b>

FINAL

**Serial Number**

**Asset Tag Number**

**Item Description**

**Previous Location**

**Reason for Excessing**

**Date Excessed**

**Method of Sanitization (if needed)**