SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Audit of Software Licenses

Project #19-07

Prepared by
Office of the Inspector General

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

January 31, 2020

Governing Board Members

Re: Audit of Software Licenses
Project No. 19-07

This audit was performed pursuant to the Inspector General's authority set forth in Chapter 20.055, F.S. Our objective primarily focused on determining whether all software used within the District is purchased from legitimate vendors, properly accounted for and properly licensed. We also examined the process for negotiating and executing software license agreements. Alyassia Taylor and I prepared this report.

Sincerely,

J. Timothy Beirnes, CPA
Inspector General

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BACKGROUND

In accordance with the FY 2019 Audit Plan, our Office completed an Audit of software licenses.

Software license compliance and proper software asset management are important to ensure that the District does not encounter security issues resulting from unauthorized software uploads that may contain malicious code. Having a comprehensive and efficient software management program reduces the District's costs as licenses are purchased and maintained only as needed by the District. Moreover, proper license management ensures that the District is in compliance with software piracy laws. Noncompliance with these laws could result in significant fines and impunities.

The District currently has 515 software titles in its library. With varying versions of these titles, there are over 1,500 software products managed by the District. These do not include the programs developed in-house. The IT Bureau Asset Management team is responsible for ensuring that all software installed on the machines and network is licensed. The team uses a database called Asset Lifecycle Management (ALM) as the system of record for the District's licensed products. The team also uses two systems – System Center Configuration Manager (SCCM) and Cherwell Asset Management (CAM) – to determine whether the software on the machines on the system contain appropriately licensed software.

OBJECTIVES, SCOPE, AND METHODOLOGY

The objective of the audit was to examine the process for negotiating and executing software license agreements. The audit will also determine whether all software used within the District is purchased from legitimate vendors, properly accounted for, and properly licensed.

To accomplish our objectives, our work included, but was not limited to, the following steps:

- Interviewing pertinent District staff;
- Reviewing Information Technology contracts and documentation; and
- Reviewing controls over the ALM system, the Cherwell system, and SCCM
- Reviewing reports generated from the ALM, CAM, and SCCM systems

The audit scope covers software currently in the ALM system as well as software purchased since Fiscal Year 2016.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

AUDIT RESULTS

Executive Summary

Overall, our testing showed that the controls that are in place over the software license compliance are working effectively to protect the networks at the District from unlicensed or unauthorized software. Our testing showed that software on the networks appears compliant with licensing agreements and District usage policies. Access controls are in place to ensure that only local administrators can install software on the District network.

The Asset Management team is tracking software license and maintenance costs effectively. The team has documented procedures for managing software maintenance costs.

We noted that the Asset Management team does not have controls documented for the process of sweeping the network for unlicensed or unauthorized software. Although there were no instances of unlicensed software found during the sweeps, the District is at risk of losing the knowledge base that is currently in the Asset Management team. The team has functioned well as a unit and has decades of experience.

The Asset Management staff use a manual effort to reconcile the software license sweep conducted on the network. The process is not as efficient as it could be and is time-consuming. The software license sweep on the network is done quarterly. However, the team is in the process of researching a new software that will incorporate all of the aspects of the license management including the software sweep and product library for the district's licenses.

Software License Management is Working Effectively

Overall, the IT Department has controls in place over software license management. The District's licenses are maintained in the Asset Lifecycle Management (ALM) Database. Two additional systems are used to determine whether the software that is on the network is licensed and approved.

Licensed Software

The District's controls over ensuring that only licensed software is on the network are in place and working effectively. Users are prevented from installing or downloading unlicensed software through user access levels and network controls. Only local administrators can install software on machines. Our attempts to install unauthorized software were unsuccessful (i.e., the desired result). Local admin employees who were asked about installing unauthorized software were knowledgeable about the District's software policies. The IT Department reviews employees with local admin access on a quarterly basis to ensure that they have business needs for this level of access. Local admins must complete a form authorizing their need for admin privileges.

Software Costs

The District has successfully purchased software and maintenance packages below budgeted amounts throughout the scope of the audit. This has freed up funds for the IT Department to use elsewhere. The maintenance savings are tracked in a spreadsheet. The spreadsheet calculates the difference between the budgeted amount for the software (including a 3% annual projected increase) and the actual amount paid for the software maintenance costs. The savings spreadsheet shows a diligence towards using the District's resources more effectively and saving costs. Based on the information in the spreadsheet, we were able to attribute the cost savings between fiscal years 2016 to 2019 to several actions by the team. We grouped these situations into categories below. The Cost Avoidance category was used for instances when the cost of the software was lower than expected, with no clear reason for the lower than expected cost. There were instances that did not fit into one of these categories, such as when an invoice was received (and paid) in the following fiscal year. These amounts were considered "Other."

Software License Cost Savings FY 2016 – FY 2019	
Reduction in Licenses or Hardware Support	$430,637
Acquiring Less Expensive Software/Hardware	$175,269
Reduction in Maintenance Costs	$157,272
Early Payment Discounts	$100,666
Cost Avoidance	$68,294
Other	$14,644
Total	**$946, 782**

When the time comes to renew licenses and maintenance contracts, the Asset Management team reviews the usage logs in SCCM to determine whether the District uses the amount of license seats purchased. The team ensures that the maintenance fees reflect for necessary software. If there are licenses that appear to be unused, the department which uses the software is questioned as to whether the licenses are necessary.

The team purchases enterprise software (such as SAP and Microsoft Office Suite) under predetermined State of Florida contracts. SAP and Microsoft contracts are for the duration of three years. Using the pre-existing state contracts diminishes the risk of overpaying for software. Both the Microsoft and SAP purchase orders were with authorized vendors and for terms allowable under the State of Florida contracts.

Controls Over the Software License Management Process Could Be Improved

The controls over the process of managing software licenses could be improved. The process is the responsibility of the Asset Management Team in the IT Department. The team is comprised of employees who have many years of experience within the District and IT. They know the processes well. However, they do not have written procedures for many of the processes that comprise software license management.

The Asset Management team does not have procedural manuals or written documentation regarding the processes for maintaining software license compliance. The processes for running compliance sweeps and maintaining the software license library have developed due to the years of experience of the Asset Management staff. However, these procedures are not documented, and it is possible the process could not be reproduced in a timely manner by someone newly assigned to the responsibility.

The software maintenance costs – along with the total amount the District has come under budget for software costs during the year – are tracked using an Excel spreadsheet. Microsoft Excel spreadsheets have inherent risks which should be addressed by additional controls to protect the data therein. The spreadsheet is accessible only by certain members of the Asset Management team via a shared folder, however, there are no controls to prevent overwriting or deleting data in the spreadsheet. Moreover, the spreadsheet is not password protected. Anyone who has access to the shared folder can access the spreadsheet. Typically, in spreadsheets there is no audit log to determine who edited the data, or what data has been edited. The team can mitigate the risks of using the spreadsheet by saving or printing a back-up copy of the data and limiting access through password protection.

Recommendations

1. **The Asset Management staff should develop written procedures for maintaining the software library and conducting the license compliance sweeps of the network.**

   Management Response: Formal procedures will be documented and placed in a location accessible to the Asset Management Team.

   Responsible Division: Information Technology

   Estimated Completion: March 31, 2020

The Process for Ensuring Software Compliance Could Be More Efficient

The procedures for running a license sweep on the network could be more efficient. Currently, the Asset Management staff runs a report in CAM of the software that is detected on the network and reconciles it to the software products listed in ALM. There are several reasons a software title may appear as noncompliant in the system, but actually be compliant in reality. The report may include software that was removed from the network. After software is removed, it can still show an executable (.exe) file on the network. This trace file is seen as noncompliant with the current software licensing in the report. Therefore, when the employee runs the report and sees these types of files on the report, they must manually review the report and revise it to reflect compliance. In other circumstances, the report will include products that are not identifiable by the system and show as noncompliant. These titles may be compliant but were not in the system's library. In these circumstances, the employee adds the software title to the CAM system. The employee then makes notes in the software regarding the reasons the software may appear noncompliant but are in fact compliant or no longer on the system (such as, with .exe files as mentioned above). Once the manual process is complete, the report is run again, in which these items will reflect a compliant rating. The process can be time consuming and requires experience and knowledge in the software that is currently allowed on the network. There is not an automated step in the process to clear titles that falsely appear "noncompliant." When asked, the staff responsible for the compliance reporting stated that clearing noncompliant reports may take up to an hour or longer if there are items on the list that are unknown to the staff and require additional research before clearing.

According to the Asset Management staff, the IT Department is currently discussing the purchase of additional components in the CAM system that would allow a more streamlined approach to license management. This purchase would replace the aging ALM library and would allow the software compliance reports to reflect software that is in the District's library of licensed software, without the need for a manual reconciliation step in the process. A more efficient method for determining software compliance will help the District reduce time spent on software compliance monitoring. In addition, having a single system for all the software titles and compliance will reduce risk of overlooking noncompliance software during manual revisions.

Recommendations

2. **The IT Department should evaluate the cost and benefit of software that could integrate all the licensing compliance needs of Asset Management into one system.**

   Management Response: Information Technology is in the process of evaluating software products to replace the end of life Asset Lifecycle Management (ALM) tool. The intent is to select a product that in addition to replacing ALM also includes software metering and software discovery tools.

   Responsible Division: Information Technology

   Estimated Completion: September 30, 2020