

Audit Report

Software Licenses

November 2020



Software is a significant part of the City's technology spending. However, the City does not fully know what software licenses it has or how much it spends on those licenses. The City does not have a clear or consistent process to evaluate what software licenses it needs and may pay for licenses that are not fully used by departments. The City could identify ways to save money and improve the compliance of its software licenses if the City had an inventory and Citywide management of software licenses.

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Cover: Computer, <https://pixabay.com/photos/coding-programming-css-1853305/>

Objective

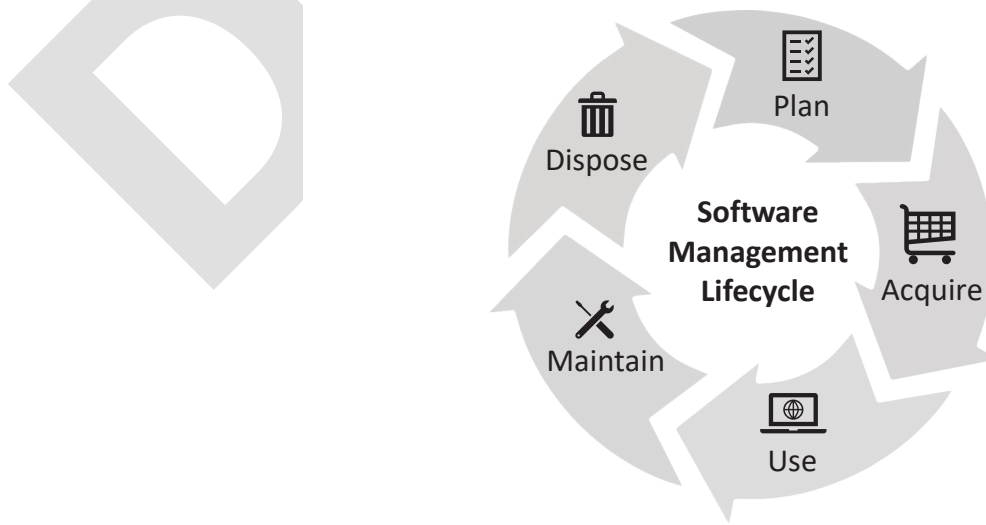
Is the City managing software licenses to minimize costs while maintaining compliance with applicable requirements?

Background

People, businesses, and governments must pay for the right to use certain software. When someone pays for the right to use software, they enter into an agreement with the software vendor on how and when the software can be used. The vendor and the person, business, or government paying for the software license needs to comply with the terms of the agreement.

According to the National Institute of Standards and Technology, there is a cycle to managing software licenses effectively. An organization needs to strategically plan what software licenses it needs and then acquire the license through an agreement with the vendor. The organization uses the software and ensures the software is maintained. Eventually, the organization can dispose of the software when it is no longer useful. The organization starts the process again by planning what software licenses it needs.

Exhibit 1: The Software Management Lifecycle Consists of Several Phases



Source: Office of the City Auditor analysis and summary of the IT Asset Management lifecycle from the National Institute of Standards and Technology, September 2020.

Software is a significant part of the City’s technology spending. Every department uses software to accomplish its mission. The City has multimillion-dollar contracts for software licenses from vendors such as Microsoft and Oracle that are used Citywide. The City also has many other smaller contracts for software licenses that are only used by certain departments.

The Government Accountability Office (GAO) outlines leading practices for managing software licenses. However, the City has not implemented these leading practices to manage software licenses cost-effectively or to maintain compliance with software license agreements.

Exhibit 2: The City Has Not Implemented Leading Practices for Managing Software Licenses

GAO’s Leading Practices for Managing Software Licenses	The City Has Not Implemented Leading Practices for Managing Software Licenses
Centralized management	Decentralized management
Establish software license inventory	No inventory of software license counts or costs
Track and maintain inventory	
Analyze software license data	No clear process to analyze software license data
Provide sufficient training	No Citywide policies, guidance, or training on managing software licenses

Source: Office of the City Auditor analysis of the GAO’s leading practices and the City’s management of software licenses, September 2020.

What We Found

Summary

Software is a significant part of the City's technology spending. However, the City does not fully know what software licenses it has or how much it spends on those licenses. The City does not have a clear or consistent process to evaluate what software licenses it needs and may pay for licenses that are not fully used by departments. The City could identify ways to save money and improve the compliance of its software licenses if the City had an inventory and Citywide management of software licenses.

Finding 1

The City could identify ways to save money and improve the compliance of its software licenses if the City had an inventory and Citywide management of software licenses.

The GAO's leading practices for managing software licenses include centralized management.

Centralized Management of Software Licenses

The City's management of software licenses is decentralized across the City.

Communications and Technology Management (CTM) is the primary information technology (IT) department for the City. However, some departments have their own IT functions that operate separately from CTM, and many departments have at least some IT personnel who work with CTM.

CTM provides and manages some software licenses for the City as a whole such as Microsoft and Oracle, but CTM does not manage all the software licenses used in the City. Departments manage some of their own licenses. Some departments manage licenses for other departments while CTM manages the rest.

When licenses are managed by several different departments, it is difficult for the City to know how many licenses it has, what they cost, or if they comply with license terms. CTM staff said that they cannot manage the entire City's software license compliance and have to depend on individual departments. As a result, how departments monitor the compliance and security of software licenses depends on which department manages the software. One department noted that they have controls on employees' computers to prevent downloading unlicensed software. Another department noted that there is no way for them to know if an employee is using unlicensed software.

Additionally, the City does not appear to have a centralized way to prevent City employees from using free, unmanaged software. Free and unmanaged software may not protect the City's data and may create security risks. As an example, the City has a contract with Box for file sharing services. However, some City employees use free and unmanaged file-sharing services such as Dropbox instead of the service for which the City pays.

The City does have information and technology governing groups that include staff from departments across the City, such as the IT Steering Committee. However, it does not appear that these groups have provided strategic direction on Citywide management of software licenses.

Establish, Track, and Maintain a Software License Inventory

The City does not fully know what software licenses it has or how much its software licenses cost.

The City does not have an inventory of software licenses. CTM knows the counts and costs of the software licenses that CTM manages. However, CTM does not have counts or costs of the software managed by other departments unless the department tells CTM. There is no easy way for someone to see what or how many software licenses the City has across all departments.

Currently, CTM and the other four departments we reviewed during this audit use a variety of Excel spreadsheets to keep track of their software licenses.¹ However, CTM is working on an IT Asset Management project to develop an inventory of both hardware and software assets using the program ServiceNow. CTM staff report the project should be completed in 2024 or 2025. Austin Energy is also working on a project to develop an inventory of their software assets using ServiceNow, which staff report should be completed by December 2020.

The City also does not fully know how much it spends on software licenses. There does not appear to be a standard way to capture software license costs across the City. The City has budget line items related to software. However, these budget line items may pick up transactions or vendors that are not related to software licenses. CTM staff reported that it would be very difficult to estimate how much they spend on software licenses because there are several parts of software license costs. In addition to the initial rights to use the software, the City must also pay to maintain the software and pay for personnel who support the software.

Without information on what software licenses the City has and how much they cost, the City cannot effectively identify ways to save money and maintain software license compliance.

Analyze Software License Data

The City does not have a clear process to analyze software license data to know what software licenses it needs. As a result, the City may pay for licenses that departments do not fully use.

CTM can evaluate departments' software license needs when CTM refreshes the departments' computers, which happens about every three to five years. CTM can also evaluate a department's needs when a maintenance contract with a software vendor needs to be renewed, which generally happens annually. However, CTM does not always evaluate all licenses across the City, and there is no centralized or consistent process to evaluate departments' needs for software licenses.

The GAO's leading practices for managing software licenses include establishing a software license inventory and maintaining the inventory.

The GAO's leading practices for managing software licenses include analyzing software license data.

¹ We reviewed the software license management of Austin Energy, the Development Services Department, Municipal Court, and the Parks and Recreation Department.

The City's management of the Office 365 licenses demonstrates how the City does not have a consistent process to assess its need for software licenses.

Most City departments use Office 365, which is managed by CTM. However, there is no formal process to assess how many and what type of Office 365 licenses each department needs. The two primary types of Office 365 licenses that the City uses are G5 and G3. These licenses allow users to send and receive email and have access to desktop supported Microsoft applications and other features. The City also has some Plan 2 licenses, a much cheaper and more basic license for primarily sending and receiving email.

Most of the City's Plan 2 licenses are for members of City boards and commissions, who only need to send and receive email.

Exhibit 3: The City Spent \$7.4 Million on Three Main Types of Office 365 Licenses with Varying Costs in Fiscal Year 2020

License Type	Plan 2	G3	G5
Description	Allows users to send and receive email	Allows users to send and receive email as well as have access to desktop supported Microsoft applications and other features	Builds on the G3 license with additional features such as conference bridging, business analytics, and more security
Users	2,372	9,476	5,916
Cost per user	\$6.18 per month	\$29.66 per month	\$54.54 per month
Annual cost	\$175,908	\$3,372,698	\$3,871,904

Source: Office of the City Auditor interviews with CTM staff and analysis of CTM's Office 365 license cost, September 2020.

Of the nearly 15,400 "G" licenses, approximately 38% are G5 licenses and 62% are G3 licenses. It appears that CTM arrived at this percentage split based on how many G5 licenses the City could afford as opposed to how many G5 licenses departments actually needed.

To allocate G5 and G3 licenses across City departments, CTM staff reported that they gave each department the same split of G5 and G3 licenses as the City overall. The needs and functions of departments across the City vary widely. However, there does not appear to have been an assessment of how many G5 and G3 licenses each department needed based on their individual mission. We calculated that about 70% of departments received the Citywide split of G5 and G3 licenses in fiscal year 2020 as opposed to factoring in their individual business needs.

G5 licenses cost \$24.88 per month more than G3 licenses in fiscal year 2020. The City is not using resources cost-effectively if departments have G5 licenses that they do not actually need.

In addition to whether an employee needs a G3 or G5 license, there is also a question of whether an employee needs either of these licenses.

The Plan 2 license has less functionality but is much cheaper than either the G3 or G5 licenses. The City primarily uses Plan 2 licenses for members of City boards and commissions, who need to be able to send and receive email but do not need access to the full Office 365 capabilities.

CTM staff said they are operating under direction from a previous City Manager to give all full-time City employees a G3 or G5 license even if using Office 365 is not part of their job. CTM staff said a previous City Manager was concerned about digital equity for City employees and wanted all City staff to have full access to Office 365. However, some City employees may work primarily in the field and rarely use all features of Office 365. CTM staff said that some employees could use the Plan 2 license instead of the more expensive G3 license, but they followed the previous direction for all full-time City employees to have a G3 or a G5 license. This decision does not appear to have been reevaluated recently.

Additionally, departments sometimes need Office 365 licenses for people who are not full-time City employees such as temporary employees or contractors. CTM staff reported that individual departments make the decision about how many Office 365 licenses they need, and that decision is often outside of CTM's control.

The City does not have a process to assess how many or what type of Office 365 licenses City employees or affiliates need. As a result, some of these licenses may not be fully used. In fiscal year 2020, the City appears to have spent about \$500,000 on G5, G3, and Plan 2 licenses for users who have never logged in to email or did not log in during 2020.²

We identified 2,781 licenses for which users have never logged in to email or did not log in during 2020. This is about 16% of the total number of Office 365 licenses the City has and about 7% of the total cost.

Exhibit 4: The City Appears to Have Spent About \$500,000 for Licenses for Users Who Have Never Logged In to Email or Did Not Log In During 2020

License Type	Plan 2	G3	G5	Total
Users	1,818	815	148	2,781
Cost	\$134,823	\$290,075	\$96,863	\$521,761
Percent of users	65.4%	29.3%	5.3%	100%
Percent of cost	25.8%	55.6%	18.6%	100%

Source: Office of the City Auditor analysis of CTM email login data, September 2020.

As shown above, 65% of these licenses are Plan 2 licenses. The primary function of Plan 2 licenses is to send and receive email. If no one is logging in to email, these licenses may not be needed.

If the City had consistent processes to analyze license usage data, the City could better assess the need for all software licenses, including Office 365, and potentially identify opportunities to save money.

² We analyzed data as of August 31, 2020, which applies to users who did not log in to email from January 1, 2020 through August 31, 2020.

Provide Sufficient Training

The GAO's leading practices for managing software licenses include providing sufficient training.

There are no Citywide policies, guidance, or training specific to software license management. The City provides training for people to understand how to use the software as opposed to training on software license management.

Some City departments expressed a belief that it is CTM's role to manage most software licenses. CTM sees its role more as helping departments get access to the software instead of being a centralized manager. Without any Citywide policies, guidance, or training, departments are unclear about who has what responsibility for managing software licenses.

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Recommendations and Management Response

1

To ensure the City knows how much is spent on software licenses, the City's Chief Information Officer should work with City departments to develop an inventory of software license counts and associated costs as part of their ongoing effort to create an IT Asset Management program.

Management Response: Agree

Proposed Implementation Plan:

1. Clarify CTM Authority on Software Licensing. This recommendation assigns responsibility to CTM and the City's Chief Information Officer (CIO), but it does not mention any expectation of other departments or Information Technology (IT) staff being required to and responsible for responding timely and accurately. Further, it is unstated that the City's CIO has authority for oversight (including over software license management) for all IT throughout the City of Austin.

Therefore, in order to clearly delineate responsibilities and authorities related to this IT function among departments, the City's CIO will seek a resolution clarifying this responsibility from the IT Steering Committee (ITSC). This clarity will be necessary to fulfill the recommendations in this report and will establish clear responsibilities and authorities similar to the way the Human Resources Director or Purchasing Officer functions. It is expected that the ITSC will approve such resolution and refer it to the City Manager's Office (CMO) to empower the City's CIO to fulfill this audit report implementation plan.

2. Seek License Information from Other Departments. The City's CIO will commence an effort to obtain license counts and allocation information from all departments. The effectiveness of this effort will depend on the results and timeliness of step 1. CTM will compile responses on selected licenses deemed to be major costs or risks, but will not include all licenses departments may have as this would result in an ineffective and costly process. This prioritization will assure maximum value from the effort.

3. Coordinate with IT Asset Management (ITAM) Program. The ITAM Program has just recently established a project manager and a working group with assigned contracted staff. The first priority is hardware asset management to meet critical security needs and the second will be software asset management. The City's CIO will work with the ITAM project manager and ITAM Executive Steering Committee to determine project timelines and report those to the ITSC.

4. Develop Staffing Plan. The City's CIO will develop a staffing plan for the software licensing management function, consisting of roles within CTM and possibly roles in other departments as well. The staffing plan is expected to contribute to a net savings to the City, when both the staffing and current license behaviors are considered. This staffing plan may include components to be submitted with the City FY2022 budget.

5. Manage Licenses on an Ongoing Basis. The City's CIO, with participation of all City departments, will begin work on managing licenses toward citywide savings. As this work will begin before the staffing plan is in place, high-impact priorities will be addressed first. Because there may be large numbers, these would include only the largest one or two software contracts, with smaller ones deferred until after the staffing plan is enacted.

Proposed Implementation Date: Step 1: 1/31/2021
Step 2: 6/30/2021
Step 3: 3/31/2021
Step 4: 2/28/2021
Step 5: Starting 10/1/2021

2

To establish the City's software license management process, the City's Chief Information Officer should work with the Chair of the IT Steering Committee to develop a policy for departments on how to manage software licenses consistent with leading practices. This policy should clearly set out the standards for the City's software license activities. At a minimum, the policy should include guidance on:

- the roles and responsibilities for the software license management process;
- ensuring compliance with software license terms;
- ensuring the security of software licenses, including regulating the use of free, unmanaged software;
- using software license data to assess the need for software licenses; and
- training City staff on software license management.

Management Response: Agree

Proposed Implementation Plan:

1. Clarify the CIO Role and Authority. The City's CIO will work with the Chair of the ITSC to clarify the CIO's role and authority. The City's CIO will recommend the establishment of advisory committees as necessary.

2. Policy and Standard Operating Procedure (SOP) Development. Develop a policy with the scope as outlined above, plus a defined SOP to include what software is in immediate scope and the procedure by which departments must report license counts, tracking methods, compliance, and allocations to CTM for overall software ITAM.


3. Policy Dissemination. After a software licensing management policy is developed, the City's CIO will work with the City Manager's Office to draft a memorandum to support ongoing software license management and, with the agreement of the ITSC Chair, disseminate the policy Citywide.

Proposed Implementation Date: Step 1: 1/31/2021
Step 2: 6/30/2021
Step 3: 7/20/2021

Management Response



MEMORANDUM

TO: Corrie Stokes, City Auditor 
FROM: Chris Stewart, Interim Chief Information Officer, Communications & Technology Management
DATE: November 5, 2020
SUBJECT: Software License Audit Report

Thank you for the opportunity to respond to the November 2020 Software License Audit Report. The Communications and Technology Management (CTM) Department strives for highly effective enterprise software procurement and license management. I have reviewed the audit report and agree with all recommendations related to the Software License Audit.

As noted in the report, the procurement and management of software licenses is decentralized in the City of Austin. CTM provides many software programs in use by most departments, but CTM does not provide or manage a significant portion of the software licenses used throughout the City. Because of the vast numbers and diversity of software licenses across City departments and the decentralized nature of managing the associated licensing, it will be imperative to have the City's CIO authority defined in order to successfully adhere to the audit recommendations.

CTM will begin requesting pertinent software information from all departments for reporting purposes. Initially, the information provided may be on a voluntary basis. It is my hope the policy developed with the IT Steering Committee will require all departments to comply with the license management policy at the CIO's direction.

CTM does not intend to require all licenses to be provided, but will request licensing information based upon numbers of licenses, dollar amounts, and associated risk. There are many software applications that introduce little to no risk to the City and are efficient solutions to quickly meet individual business needs at little to no cost. Collecting all of this information across the City would most likely be an unachievable goal and if attempted would likely cost more than the savings would yield. CTM is committed to managing software licensing information as defined by the developed policy.

To assist with data collection and maintenance of that information, CTM has begun an Information Technology Asset Management (ITAM) project that is intended to capture hardware, software, and system asset information from across the City. Though in the early stages of development, the project should closely align with both collection and maintenance of licensing information from all departments.

It has been a pleasure working with the Office of the City Auditor through this process. Please contact me at chris.stewart@austintexas.gov or 512-978-1535 if you have any questions.

cc: Nuria Rivera-Vandermyde, Deputy City Manager

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Scope

The audit scope included the City's management of software licenses in fiscal years 2019 and 2020.

Methodology

To complete this audit, we performed the following steps:

- researched leading practices related to software license management;
- interviewed key personnel in Austin Energy, Communications and Technology Management, the Development Services Department, the Information Security Office, Municipal Court, and the Parks and Recreation Department;
- reviewed policies and procedures relevant to the City's management of software licenses;
- reviewed the City's IT governance structure;
- analyzed spending information related to software licenses;
- analyzed department data about software licenses;
- evaluated internal controls related to the City's management of software licenses; and
- evaluated the risk of fraud, waste, and abuse with regard to the City's management of software licenses.

Audit Standards

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.

The Office of the City Auditor was created by the Austin City Charter as an independent office reporting to City Council to help establish accountability and improve City services. We conduct performance audits to review aspects of a City service or program and provide recommendations for improvement.

Audit Team

Patrick Johnson, Audit Manager
Kelsey Thompson, Auditor-in-Charge
Kathie Harrison

City Auditor

Corrie Stokes

Deputy City Auditor

Jason Hadavi

Office of the City Auditor

phone: (512) 974-2805

email: AustinAuditor@austintexas.gov

website: <http://www.austintexas.gov/auditor>



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