MICHIGAN

AUDIT REPORT

PERFORMANCE AUDIT
OF

COMPUTER EQUIPMENT INVENTORY

DEPARTMENT OF TECHNOLOGY, MANAGEMENT, AND BUDGET

February 2014

THOMAS H. MCTAVISH, C.P.A.
AUDITOR GENERAL

The auditor general shall conduct post audits of financial transactions and accounts of the state and of all branches, departments, offices, boards, commissions, agencies, authorities and institutions of the state established by this constitution or by law, and performance post audits thereof.

– Article IV, Section 53 of the Michigan Constitution

Performance Audit

Computer Equipment Inventory

Department of Technology, Management, and Budget

Report Number:
071-0515-13

Released:
February 2014

Computer equipment inventory includes desktop computers, laptop computers, and servers owned by State of Michigan executive branch departments and agencies. The Department of Technology, Management, and Budget (DTMB) maintains two inventory systems to record and track the State's computer equipment inventory. DTMB provides guidance to the departments and agencies regarding the use of the inventory systems as well as other processes and tools for maintaining computer equipment inventory. The departments and agencies are responsible for ensuring the accuracy of the inventory.

Audit Objective:
To assess the effectiveness of State departments' and agencies' efforts to ensure the accuracy of computer equipment inventory.

Audit Conclusion:
We concluded that State departments' and agencies' efforts to ensure the accuracy of computer equipment inventory were moderately effective. We noted one reportable condition (Finding 1).

Reportable Condition:
Selected State departments did not fully maintain an accurate inventory of computer equipment (Finding 1).

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Audit Objective:
To assess the effectiveness of DTMB's efforts to provide guidance to State departments and agencies for maintaining an accurate computer equipment inventory.

Audit Conclusion:
We concluded that DTMB's efforts to provide guidance to State departments and agencies for maintaining an accurate computer equipment inventory were effective. Our audit report does not include any reportable conditions related to this audit objective.

Noteworthy Accomplishments:
As part of an independent assessment of DTMB Data Center Operations in December 2010, an information technology consulting firm (EquaTerra) reported that the level of detail and accuracy of the Configuration Management Database are significantly better than what it typically finds in other government entities and are equivalent to what it finds in commercial and outsourced service provider databases.

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Agency Response:

Our audit report contains 1 finding and 1 corresponding recommendation. DTMB's preliminary response indicates that it agrees with the recommendation and will comply with it.

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STATE OF MICHIGAN

OFFICE OF THE AUDITOR GENERAL

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February 4, 2014

John E. Nixon, C.P.A., Director
Department of Technology, Management, and Budget
George W. Romney Building
Lansing, Michigan
and
Mr. David B. Behen, Chief Information Officer
Department of Technology, Management, and Budget
Lewis Cass Building
Lansing, Michigan

Dear Mr. Nixon and Mr. Behen:

This is our report on the performance audit of Computer Equipment Inventory, Department of Technology, Management, and Budget.

This report contains our report summary; a description; our audit objectives, scope, and methodology and agency responses; comments, finding, recommendation, and agency preliminary response; two exhibits, presented as supplemental information; and a glossary of abbreviations and terms.

Our comments, finding, and recommendation are organized by audit objective. The agency preliminary response was taken from the agency's response at the end of our audit fieldwork. The *Michigan Compiled Laws* and administrative procedures require that the audited agency develop a plan to comply with the audit recommendation and submit it within 60 days after release of the audit report to the Office of Internal Audit Services, State Budget Office. Within 30 days of receipt, the Office of Internal Audit Services is required to review the plan and either accept the plan as final or contact the agency to take additional steps to finalize the plan.

We appreciate the courtesy and cooperation extended to us during this audit.

Sincerely,

Thomas H. McTavish, C.P.A.
Auditor General

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COMPUTER EQUIPMENT INVENTORY
DEPARTMENT OF TECHNOLOGY, MANAGEMENT, AND BUDGET

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Description

Computer equipment inventory includes desktop computers, laptop computers, and servers* owned by State of Michigan executive branch departments and agencies. The Department of Technology, Management, and Budget (DTMB) maintains two inventory systems to record and track the State's computer equipment inventory. DTMB provides guidance to the departments and agencies regarding the use of the inventory systems as well as other processes and tools for maintaining computer equipment inventory. The Information Technology Asset Management system (ITAM) tracks the location of computers, the assigned user, and details about the hardware and software. DTMB uses ITAM to determine the number of computers at each department or agency for use in calculating the monthly billings for DTMB-provided hardware and software support. ITAM contains inventory records of computers in use at executive branch departments and agencies as well as deployable stock* computers, which were purchased through the DTMB procurement process and which are stored at a warehouse for future use.

DTMB utilizes computer scanning software, which is loaded on computers that are connected to the State's network, to automatically scan each computer and update computer inventory information on ITAM. The departments and agencies are responsible for ensuring the accuracy of the inventory by updating information in the scanning software and for running the scanning software manually when there is a change in the computer user. The departments and agencies also manually update ITAM for any computer equipment that is not connected to the State's network. DTMB tracks computer equipment on ITAM until a computer is retired, lost, or stolen.

See glossary at end of report for definition.

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The following table presents the number of computers owned by executive branch departments and agencies as of August 2013:

Department or Agency	Active Computers			Deployable Stock*
	Desktops	Laptops	Total	
Michigan Department of Agriculture and Rural Development	150	344	494	31
Department of Attorney General	377	290	667	14
Department of Civil Rights	65	75	140	
Civil Service Commission	548	96	644	4
Department of Community Health	2,274	1,048	3,322	138
Department of Corrections	7,831	1,286	9,117	79
Michigan Department of Education	215	580	795	33
Department of Environmental Quality	573	819	1,392	53
Governor's Office	64	69	133	1
Department of Human Services	9,699	7,013	16,712	553
Department of Licensing and Regulatory Affairs and Department of Insurance and Financial Services	2,575	1,528	4,103	308
Department of Military and Veterans Affairs	276	101	377	9
Department of Natural Resources	729	1,043	1,772	60
Department of State	2,346	156	2,502	65
Michigan Department of State Police	1,982	2,288	4,270	175
Michigan Strategic Fund	402	467	869	37
Department of Technology, Management, and Budget	2,336	2,858	5,194	459
Michigan Department of Transportation	1,999	1,563	3,562	90
Department of Treasury	1,341	685	2,026	86
Total	35,782	22,309	58,091	2,195

Source: DTMB's ITAM.

DTMB uses the Configuration Management Database (CMDB) to maintain inventory records of servers that are located in DTMB hosting centers* and at other locations. CMDB includes server location, identifying information, and active or inactive status. DTMB manually updates CMDB with server information when servers are installed, moved, or retired. As of August 2013, CMDB included 1,815 active servers in the DTMB hosting centers and 759 active servers outside of the hosting centers.

See glossary at end of report for definition.

Audit Objectives

Our performance audit* of Computer Equipment Inventory, Department of Technology, Management, and Budget (DTMB), had the following objectives:

1. To assess the effectiveness* of State departments' and agencies' efforts to ensure the accuracy of computer equipment inventory.

2. To assess the effectiveness of DTMB's efforts to provide guidance to State departments and agencies for maintaining an accurate computer equipment inventory.

Audit Scope

Our audit scope was to examine the computer equipment inventory process and records related to executive branch departments' and agencies' computers and servers. 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 finding and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our finding and conclusions based on our audit objectives. Our audit procedures, which included a preliminary survey, audit fieldwork, report preparation, analysis of agency responses, and quality assurance, generally covered the period October 1, 2010 through September 30, 2013.

Audit Methodology

We conducted a preliminary review of computer equipment inventory to establish our audit objectives. We obtained an understanding of DTMB's and executive branch departments' and agencies' processes related to the inventory of desktop computers, laptop computers, and servers. We used the results of our preliminary review to determine the extent of our detailed analysis and testing.

To accomplish our first objective, we interviewed DTMB and staff from the 10 selected departments and performed a physical inventory of 249 computers included in

See glossary at end of report for definition.

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the Information Technology Asset Management system (ITAM) and owned by the 10 selected departments. We selected computers for review based on the location of the computers and if the inventory information had not been updated in ITAM in over six months. We verified that the computers were in the State's possession and that ITAM location and user name information was accurate. During our physical inventory, we also judgmentally selected 98 additional computers to determine if they were accurately included in ITAM. We examined server detail from the Configuration Management Database (CMDB) and randomly selected a sample of servers to verify that they were still in the State's possession and that the data in CMDB was accurate.

To accomplish our second objective, we interviewed DTMB staff and reviewed policies, procedures, and standards related to computer equipment inventory. We reviewed the systems implemented by DTMB for recording computer equipment inventory. We also reviewed the guidance provided by DTMB to State departments and agencies for maintaining accurate computer inventory. We interviewed staff from 10 departments to determine their process for maintaining the accuracy of computer inventory. After considering the number of computers at each department or agency, we selected the following departments and interviewed staff to gain an understanding of their processes related to inventory: Michigan Department of Agriculture and Rural Development, Department of Community Health, Department of Corrections, Michigan Department of Education, Department of Human Services, Department of Licensing and Regulatory Affairs, Department of State, Michigan Department of State Police, DTMB, and Michigan Department of Transportation.

When selecting activities or programs for audit, we use an approach based on assessment of risk and opportunity for improvement. Accordingly, we focus our audit efforts on activities or programs having the greatest probability for needing improvement as identified through a preliminary review. Our limited audit resources are used, by design, to identify where and how improvements can be made. Consequently, we prepare our performance audit reports on an exception basis. To the extent practical, we add balance to our audit reports by presenting noteworthy accomplishments for exemplary achievements identified during our audits.

Agency Responses
Our audit report contains 1 finding and 1 corresponding recommendation. DTMB's preliminary response indicates that it agrees with the recommendation and will comply with it.

The agency preliminary response that follows the recommendation in our report was taken from the agency's written comments and oral discussion at the end of our audit fieldwork. Section 18.1462 of the *Michigan Compiled Laws* and the State of Michigan Financial Management Guide (Part VII, Chapter 4, Section 100) require DTMB to develop a plan to comply with the audit recommendation and submit it within 60 days after release of the audit report to the Office of Internal Audit Services, State Budget Office. Within 30 days of receipt, the Office of Internal Audit Services is required to review the plan and either accept the plan as final or contact the agency to take additional steps to finalize the plan.

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COMMENTS, FINDING, RECOMMENDATION, AND AGENCY PRELIMINARY RESPONSE

EFFECTIVENESS OF THE STATE'S EFFORTS TO
ENSURE THE ACCURACY OF COMPUTER EQUIPMENT INVENTORY

COMMENT

Audit Objective: To assess the effectiveness of State departments' and agencies' efforts to ensure the accuracy of computer equipment inventory.

Audit Conclusion: We concluded that State departments' and agencies' efforts to ensure the accuracy of computer equipment inventory were moderately effective.

Our audit conclusion was based on our audit efforts as described in the audit scope and audit methodology sections and the resulting reportable condition* noted in the comments, finding, recommendation, and agency preliminary response section.

We noted one reportable condition related to the accuracy of computer equipment inventory (Finding 1). In our professional judgment, this matter is less severe than a material condition* but represents an opportunity for improvement in the State's internal control* over computer equipment inventory.

We determined that Information Technology Asset Management system (ITAM) inventory records for 53,929 (92.8%) of the State's 58,091 active computers had been updated within the year prior to August 30, 2013. We applied our audit procedures to a sample of the 5,493 computers that had not been updated in ITAM within the six months prior to August 30, 2013. We noted that departments could not locate 33 (13.3%) of 249 selected computers. Also, 52 (20.9%) of the 249 computers had erroneous information in the inventory record, such as incorrect location and/or assigned user. In addition, we evaluated qualitative factors, such as controls over servers in hosting centers, the use of automated inventory systems to track computer equipment, and the overall accuracy of the inventory records.

In reaching our conclusion, we considered the reportable condition related to the accuracy of computer equipment inventory, the use of automated inventory systems to track computer equipment, and the overall accuracy of the inventory records. We believe that the results of our audit efforts provide a reasonable basis for our audit conclusion for this audit objective.

See glossary at end of report for definition.

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FINDING

1. <u>Accuracy of Computer Equipment Inventory</u>

    Selected State departments did not fully maintain an accurate inventory of computer equipment. Without an accurate inventory of computer equipment, the Department of Technology, Management, and Budget (DTMB) and State departments and agencies cannot ensure that computer equipment, which may contain confidential and sensitive data, has not been lost or stolen.

    DTMB Administrative Guide policy 1305.00 requires adherence with the guidance and principles from ISO/IEC 27002:2005*. The security standard states that all assets, including computer equipment, should be clearly identified and an inventory of all important assets should be documented and maintained.

    DTMB maintains the Information Technology Asset Management system (ITAM), a Statewide computer inventory system, to track desktop and laptop computer inventory. As of August 2013, ITAM included 58,091 active computers. However, our review disclosed that departments did not update ITAM inventory records for 4,162 (7.2%) of the 58,091 active computers in over one year (see Exhibit 1 for a summary by department or agency of the active computer inventory and the time elapsed since the computer inventory was last updated). The State of Michigan Financial Management Guide requires an annual physical inventory of equipment, which includes, at the discretion of the department or agency, equipment that is susceptible to theft such as computers. ITAM inventory records are automatically updated by the scanning software for computers that are connected to the State's network or manually updated by department or agency staff. The lack of updating inventory records in ITAM indicates that records may not be accurate or that computers may have been lost or stolen.

    We judgmentally selected 10 State departments and performed a physical inventory of 249 judgmentally selected computers (see Exhibit 2 for a summary of audit testing results by department). These computers had not been scanned or manually updated in ITAM in over six months and, therefore, were at higher risk for having been lost or stolen. We noted:

    a. Departments could not locate 33 (13.3%) of the 249 computers.

See glossary at end of report for definition.

b.	Departments did not update ITAM to reflect the correct location for 26 (10.4%) of the 249 computers. The 26 computers were located in a different building or city than the location recorded in ITAM. The location of the computer is important to help DTMB perform on-site hardware and software support.

c.	Departments did not update ITAM to reflect the correct assigned user for 52 (20.9%) of the 249 computers. Keeping accurate records of a computer's assigned user helps DTMB perform hardware and software support and bill the proper department or agency for DTMB-provided hardware and software support.

d.	Departments did not ensure that ITAM included a record of all computers. During our site visits, we judgmentally selected 98 additional computers located at the 10 selected departments to determine if these computers were included in ITAM. Eight (8.2%) of the 98 computers were not recorded in ITAM. The two departments that owned the 8 computers informed us that the computers were attached to laboratory equipment and were not included in ITAM.

Inaccurate computer inventory records occurred because departments did not always perform monthly and periodic updates of ITAM computer equipment inventory as recommended by DTMB.

RECOMMENDATION

We recommend that State departments and agencies maintain an accurate inventory of computer equipment.

AGENCY PRELIMINARY RESPONSE

DTMB and State departments and agencies agree with the recommendation and will work to maintain an accurate inventory of computer equipment. DTMB recently communicated with State departments and agencies, via its ITAM list serve, to use custodial Human Resources Management Network (HRMN) identification numbers for contractors and to rescan all contractor work stations. In addition, DTMB has updated and strengthened semiannual inventory control requirements in the ITAM Checklist. To ensure that ITAM includes a record of all computers, DTMB has obtained complete inventory records of laboratory devices from the Department of Community Health and the Michigan Department of Agriculture and Rural

Development and is working with State departments and agencies to ensure that all assets are included in the ITAM inventory records. DTMB will semiannually provide a report to State departments and agencies that identifies inventory assets in need of reconciliation to ensure compliance with DTMB Administrative Guide policy 1305.00.

EFFECTIVENESS OF DTMB'S EFFORTS TO
PROVIDE GUIDANCE TO STATE DEPARTMENTS AND AGENCIES

COMMENT

Audit Objective: To assess the effectiveness of DTMB's efforts to provide guidance to State departments and agencies for maintaining an accurate computer equipment inventory.

Audit Conclusion: We concluded that DTMB's efforts to provide guidance to State departments and agencies for maintaining an accurate computer equipment inventory were effective.

Our audit conclusion was based on our audit efforts as described in the audit scope and audit methodology sections. Our audit report does not include any reportable conditions related to this audit objective. We believe that the results of our audit efforts provide a reasonable basis for our audit conclusion for this audit objective.

Noteworthy Accomplishments: As part of an independent assessment of DTMB Data Center Operations in December 2010, an information technology consulting firm (EquaTerra) reported that the level of detail and accuracy of the Configuration Management Database are significantly better than what it typically finds in other government entities and are equivalent to what it finds in commercial and outsourced service provider databases.

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SUPPLEMENTAL INFORMATION

Exhibit 1

COMPUTER EQUIPMENT INVENTORY
Department of Technology, Management, and Budget

Active Computer Inventory and Time Elapsed Since Computer Inventory Was Last Updated
As of August 30, 2013

Department or Agency	Total Computers	Time Elapsed Since Computer Inventory Was Last Updated					
		Over 1 Year		Over 3 Years		Over 5 Years	
Michigan Department of Agriculture and Rural Development	494	25	5.1%	10	2.0%	5	1.0%
Department of Attorney General	667	15	2.2%	8	1.2%	0	0.0%
Department of Civil Rights	140	1	0.7%	1	0.7%	0	0.0%
Civil Service Commission	644	25	3.9%	13	2.0%	4	0.6%
Department of Community Health	3,322	182	5.5%	78	2.3%	14	0.4%
Department of Corrections	9,117	519	5.7%	148	1.6%	29	0.3%
Michigan Department of Education	795	69	8.7%	36	4.5%	7	0.9%
Department of Environmental Quality	1,392	50	3.6%	30	2.2%	22	1.6%
Governor's Office	133	0	0.0%	0	0.0%	0	0.0%
Department of Human Services	16,712	1,649	9.9%	1,231	7.4%	455	2.7%
Department of Licensing and Regulatory Affairs and Department of Insurance and Financial Services	4,103	70	1.7%	0	0.0%	0	0.0%
Department of Military and Veterans Affairs	377	54	14.3%	35	9.3%	13	3.4%
Department of Natural Resources	1,772	140	7.9%	13	0.7%	0	0.0%
Department of State	2,502	70	2.8%	10	0.4%	0	0.0%
Michigan Department of State Police	4,270	565	13.2%	282	6.6%	5	0.1%
Michigan Strategic Fund	869	42	4.8%	14	1.6%	5	0.6%
Department of Technology, Management, and Budget	5,194	455	8.8%	131	2.5%	22	0.4%
Michigan Department of Transportation	3,562	198	5.6%	74	2.1%	12	0.3%
Department of Treasury	2,026	33	1.6%	9	0.4%	1	0.0%
Total	58,091	4,162	7.2%	2,123	3.7%	594	1.0%

Source: The Office of the Auditor General prepared this exhibit based on data obtained from the Department of Technology, Management, and Budget's Information Technology Asset Management system (ITAM).

COMPUTER EQUIPMENT INVENTORY
Department of Technology, Management, and Budget

Summary of Audit Testing Results

| Department | Total Computers in ITAM as of August 30, 2013 | Sample From ITAM of Computers Not Inventoried Within the Six Months Prior to August 30, 2013 | | | | |
		Number of Computers	Sample Items Tested	Computer Not Located	Incorrect Location	Incorrect Assigned User
Michigan Department of Agriculture and Rural Development	494	33	25	3	0	3
Department of Community Health	3,322	270	21	1	0	2
Department of Corrections	9,117	705	34	8	10	11
Michigan Department of Education	795	100	25	9	0	1
Department of Human Services	16,712	1,915	24	0	15	15
Department of Licensing and Regulatory Affairs and Department of Insurance and Financial Services	4,103	165	25	0	0	0
Department of State	2,502	101	24	4	0	2
Michigan Department of State Police	4,270	692	26	3	0	12
Department of Technology, Management, and Budget	5,194	655	25	3	0	0
Michigan Department of Transportation	3,562	285	20	2	1	6
Totals	50,071	4,921	249	33	26	52

Source: The Office of the Auditor General (OAG) prepared this exhibit based on data obtained from the Department of Technology, Management, and Budget's Information Technology Asset Management system (ITAM) and the results of testing performed by OAG staff.

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Exhibit 2

Computers Selected at Site Visits		
Number of Computers	Computer Not in ITAM	Incorrect Assigned User
17	7	3
15	1	0
17	0	3
10	0	0
0	0	0
10	0	0
5	0	0
9	0	0
5	0	0
10	0	0
98	8	6

GLOSSARY

CMDB   Configuration Management Database.

deployable stock   Computer equipment with remaining useful life that is not in use by a department or an agency. DTMB stores deployable stock at a warehouse for future use by a department or an agency.

DTMB   Department of Technology, Management, and Budget.

effectiveness   Success in achieving mission and goals.

hosting center   A facility that stores computer systems and associated computer components.

internal control   The plan, policies, methods, and procedures adopted by management to meet its mission, goals, and objectives. Internal control includes the processes for planning, organizing, directing, and controlling program operations. It also includes the systems for measuring, reporting, and monitoring program performance. Internal control serves as a defense in safeguarding assets and in preventing and detecting errors; fraud; violations of laws, regulations, and provisions of contracts and grant agreements; or abuse.

ISO/IEC 27002:2005   A security standard published by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) that establishes guidelines and general principles for initiating, implementing, maintaining, and improving information security management in an organization. The objectives outlined in the standard provide general guidance on the commonly accepted goals of information security management.

ITAM	Information Technology Asset Management system.
material condition	A matter that, in the auditor's judgment, is more severe than a reportable condition and could impair the ability of management to operate a program in an effective and efficient manner and/or could adversely affect the judgment of an interested person concerning the effectiveness and efficiency of the program.
OAG	Office of the Auditor General.
performance audit	An audit that provides findings or conclusions based on an evaluation of sufficient, appropriate evidence against criteria. Performance audits provide objective analysis to assist management and those charged with governance and oversight in using the information to improve program performance and operations, reduce costs, facilitate decision making by parties with responsibility to oversee or initiate corrective action, and contribute to public accountability.
reportable condition	A matter that, in the auditor's judgment, is less severe than a material condition and falls within any of the following categories: an opportunity for improvement within the context of the audit objectives; a deficiency in internal control that is significant within the context of the audit objectives; all instances of fraud; illegal acts unless they are inconsequential within the context of the audit objectives; significant violations of provisions of contracts or grant agreements; and significant abuse that has occurred or is likely to have occurred.
server	A computer responsible for the central storage and management of data files so that other computers on the same network can access the files.