

STATE OF FLORIDA AUDITOR GENERAL

Information Technology Operational Audit

Report No. 2024-045
November 2023

STATE BOARD OF ADMINISTRATION

Selected Financial Systems and
Information Technology General Controls



Sherrill F. Norman, CPA
Auditor General

Board of Trustees and Executive Director of the State Board of Administration

Article IV, Section 4(e) of the State Constitution (1968), as amended, establishes the State Board of Administration (SBA). The SBA Board of Trustees is composed of the Governor, as Chair, the Chief Financial Officer, and the Attorney General. The Trustees delegate administrative and investment authority to an appointed Executive Director. Lamar Taylor served as Interim Executive Director and Chief Investment Officer during the period of our audit.

The team leader was Suzanne Varick, CPA, and the audit was supervised by Brenda Shiner, CISA.

Please address inquiries regarding this report to Brenda Shiner, CISA, Audit Manager, by e-mail at brendashiner@aud.state.fl.us or by telephone at (850) 412-2946.

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STATE BOARD OF ADMINISTRATION

Selected Financial Systems and Information Technology General Controls

SUMMARY

This operational audit of the State Board of Administration (SBA) focused on evaluating selected significant information technology (IT) controls applicable to the Florida PRIME, Eagle, and PeopleSoft Financials and Supply Change Management (PeopleSoft Financials) systems, and other selected significant IT general controls. The audit also included a follow-up on applicable findings included in our report No. 2021-045. Our audit disclosed the following:

Finding 1: SBA change management controls for program code changes for Florida PRIME, Eagle, and the PeopleSoft Financials Structured Query Report need improvement to ensure that all program code changes are managed by, and do not bypass, the SBA change management process. A similar finding for Florida PRIME was noted in our report No. 2021-045.

Finding 2: SBA access controls for Eagle need improvement to ensure that access is appropriately restricted and application functionality changes are properly controlled.

Finding 3: Certain security controls related to logical access, user authentication, and logging and monitoring need improvement to ensure the confidentiality, integrity, and availability of SBA data and IT resources.

BACKGROUND

The State Constitution¹ establishes the State Board of Administration (SBA) governed by a three-member Board of Trustees (Trustees) composed of the Governor, as Chair, the Chief Financial Officer, and the Attorney General. The Trustees delegate authority to an Executive Director who is responsible for managing and directing all administrative, personnel, budgeting, investment policy, and investment functions.

The SBA provides a variety of investment services to State and local governmental entities, including investing the proceeds of the Florida Retirement System Pension Plan, administering the Florida Retirement System Investment Plan, managing the Florida Hurricane Catastrophe Fund, administering the Local Government Surplus Funds Trust Fund (Florida PRIME),² and investing the proceeds of more than 25 other funds. Pursuant to State law,³ the SBA is to ensure that moneys invested are handled in the best interests of the State. The SBA uses several applications in the performance of their investment responsibilities, including the Florida PRIME, Eagle, and PeopleSoft Financials and Supply Change Management (PeopleSoft Financials) systems. The Florida PRIME system is a Web-based system developed internally by the SBA to administer Florida PRIME. Daily, Florida PRIME investment

¹ Article IV, Section 4(e) of the State Constitution.

² Pursuant to Section 218.405, Florida Statutes, the Local Government Surplus Funds Trust Fund was established to provide an investment vehicle for local governmental units to invest surplus funds. Since August 2009, the SBA has used the name "Florida PRIME" to refer to the Fund.

³ Section 215.44(2)(a), Florida Statutes.

transactions are uploaded into Eagle, SBA's investment portfolio management system, and ledger entries for transactions posted in Eagle are translated and sent to PeopleSoft Financials for posting to the general ledger. The SBA utilizes PeopleSoft Financials for general ledger, purchasing, accounts payable, and asset management, as well as financial tracking and management and financial statement reporting. Annually, data from PeopleSoft Financials is transmitted to the Florida Accounting Information Resource Subsystem for the State's year-end reporting.

FINDINGS AND RECOMMENDATIONS

Finding 1: Change Management Controls

Effective change management controls are intended to ensure that all program code changes are properly authorized, tested, and approved for implementation into the production environment. Effective change management controls also include reconciling and reviewing all system changes implemented into the production environment for approval and appropriateness. The SBA's *Information Technology Change Enablement* procedure required changes to application program code or configuration follow the change control process established and managed by the SBA's change management module (ticketing system) within the service desk software. SBA Applications and Development desktop procedures required a monthly review of program code changes to SBA's major financial systems (i.e., Florida PRIME, Eagle, and PeopleSoft Financials).

To evaluate the appropriateness of SBA change management controls for Florida PRIME, Eagle, and PeopleSoft Financials Structured Query Report (PeopleSoft Financials SQR) program code changes, we requested for these environments a system-generated list of all program code changes implemented into production during the period July 2022 through January 2023. However, the SBA was unable to provide a system-generated list of all program code changes implemented for the three environments.

Instead, the SBA provided a reconciliation of Florida PRIME, Eagle, and PeopleSoft Financials SQR production program changes made during the period July 2022 through January 2023. According to SBA management, to ensure that all program code changes implemented into the Florida PRIME, Eagle, and PeopleSoft Financials SQR production environments were requested and approved in the ticketing system, each month SBA management reconciled program code files with a Windows Explorer modified date to ticketing system approval records for the same period. However, our review of the SBA's monthly reconciliation process found that it did not ensure that all program code changes were requested in and managed by the ticketing system because only the most recent modified date recorded by Windows Explorer was used to identify program code changes, and program code files with more than one modification in a month were not identified or evaluated by SBA management. Additionally, the reconciliation only confirmed that an approval for implementation was recorded on a closed ticket as recorded in the ticketing system for approximately the same date the identified program code change file was changed and did not ensure that the program code changes made were associated with the closed ticket, thereby limiting assurance that the program code changes made were approved.

Our comparison of the nine tickets representing program code changes listed on the monthly reconciliation spreadsheet for the period July 2022 through December 2022 to a report of closed tickets for the same time frame found that four tickets representing program code changes included on the reconciliation were not listed on the report of closed tickets. In response to our audit inquiry, SBA management indicated that the corresponding tickets for two of the four program code changes were misclassified in the ticketing system and therefore not included on the report of closed tickets. SBA management further indicated that the corresponding tickets for the other two program code changes were not included on the report of closed tickets because one of the tickets was not closed and the ticket number listed on the reconciliation spreadsheet for the other ticket was inaccurate.

Absent sufficient change management reconciliation controls for Florida PRIME, Eagle, and PeopleSoft Financials SQR program code changes that identify all program code changes, the risk that unauthorized program code changes may be implemented into the Florida PRIME, Eagle, and PeopleSoft Financials SQR production environments is increased. Similar findings for Florida PRIME were noted in prior audits of the SBA, most recently in our report No 2021-045 (Finding 1).

Recommendation: To help ensure that all program changes are managed by, and do not bypass, the SBA change management process, we recommend that SBA management enhance reconciliation controls to ensure that all implemented Florida PRIME, Eagle, and PeopleSoft Financials SQR program code changes are identified during the reconciliation process and accurately matched to closed tickets.

Finding 2: Appropriateness of Eagle Access Privileges

Effective access controls include measures that limit a user's access privileges to only those functions necessary to perform their assigned job duties and promote an appropriate separation of duties. The SBA *Enterprise Access Control* policy required that, to the extent possible through technology systems, user accounts incorporate the principal of least privilege by default and that users were only to have permissions to access systems required to perform a legitimate documented task relative to their job function.

As part of our audit, we conducted inquiries of SBA personnel, examined SBA logical access control records for Eagle end-user and developer accounts, and evaluated the appropriateness of Eagle end-user access and developer access to the Eagle program code. Our audit procedures found that:

- The Eagle end-user accounts assigned to three of eight Applications and Development employees allowed full control permissions to the Automation Center within Eagle, inappropriately permitting the users to manage and schedule all processes (events and jobs). According to SBA management, due to employee turnover, full control permissions to the Automation Center were assigned to the three employees.
- Contrary to an appropriate separation of duties, the developer responsible for Eagle program code changes was also assigned access privileges allowing them to implement Eagle program code changes into the production environment. In response to audit inquiry, SBA management indicated that, although SBA *Information Technology Change Enablement* procedures disallowed developers from implementing their own program code changes, the Eagle deployment software was not configured to prevent developers from implementing their own program code changes to production.

The existence of inappropriate Eagle end-user and program code deployment access privileges increases the risk that unauthorized modification to Eagle processes or program code may occur and adversely affect Eagle application functionality.

Recommendation: We recommend that SBA management limit Eagle end-user and program code deployment access to only those functions that are appropriate and necessary for the user's assigned job duties.

Finding 3: Security Controls - Logical Access, User Authentication, and Logging and Monitoring

Security controls are intended to protect the confidentiality, integrity, and availability of data and information technology (IT) resources. Our audit procedures disclosed that certain security controls related to logical access, user authentication, and logging and monitoring need improvement. We are not disclosing specific details of the issues in this report to avoid the possibility of compromising Florida PRIME, Eagle, and PeopleSoft Financials data and SBA IT resources. However, we have notified appropriate SBA management of the five findings in the three areas needing improvement.

Without appropriate security controls related to logical access, user authentication, and logging and monitoring, the risk is increased that the confidentiality, integrity, and availability of Florida PRIME, Eagle, and PeopleSoft Financials data and SBA IT resources may be compromised. Similar findings were communicated to SBA management in connection with prior audits of the SBA, most recently in connection with our report No. 2021-045.

Recommendation: We recommend that SBA management improve certain security controls related to logical access, user authentication, and logging and monitoring to ensure the confidentiality, integrity, and availability of Florida PRIME, Eagle, and PeopleSoft Financials data and SBA IT resources.

PRIOR AUDIT FOLLOW-UP

Except as discussed in the preceding paragraphs, the SBA had taken corrective actions for the applicable findings included in our report No. 2021-045.

OBJECTIVES, SCOPE, AND METHODOLOGY

The Auditor General conducts operational audits of governmental entities to provide the Legislature, Florida's citizens, public entity management, and other stakeholders unbiased, timely, and relevant information for use in promoting government accountability and stewardship and improving government operations.

We conducted this information technology (IT) operational audit from December 2022 through June 2023 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 the audit findings and our conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for the audit findings and our conclusions based on our audit objectives.

This IT operational audit of the State Board of Administration (SBA) focused on evaluating selected significant IT application-level general controls and business process application controls applicable to the Florida PRIME, Eagle, and PeopleSoft Financials and Supply Change Management (PeopleSoft Financials) systems, and other selected significant IT general controls during the period July 2022 through March 2023 and selected actions subsequent thereto. For those areas addressed by this audit, our audit objectives were:

- To evaluate the effectiveness of selected significant IT controls in achieving management's objectives in the categories of compliance with controlling laws, administrative rules, and other guidelines; the confidentiality, integrity, availability, relevance, and reliability of data; the safeguarding of IT resources.
- To determine whether management had corrected, or was in the process of correcting, all applicable deficiencies disclosed in our report No. 2021-045.
- To identify statutory and fiscal changes that may be recommended to the Legislature pursuant to Section 11.45(7)(h), Florida Statutes.

This audit was designed to identify, for the IT systems included within the scope of the audit, deficiencies in management's internal controls that were significant to our audit objectives; instances of noncompliance with applicable governing laws, rules, or contracts; and instances of inefficient or ineffective operational policies, procedures, or practices. The focus of this audit was to identify problems so that they may be corrected in such a way as to improve government accountability and efficiency and the stewardship of management. Professional judgment has been used in determining significance and audit risk and in selecting the particular IT controls, legal compliance matters, and records considered.

As described in more detail below, for the IT systems included within the scope of this audit, our audit work included, but was not limited to, communicating to management and those charged with governance the scope, objectives, timing, overall methodology, and reporting of the audit; obtaining an understanding of and evaluating the IT systems and related significant controls; exercising professional judgment in considering significance and audit risk in the design and execution of the research, interviews, tests, analyses, and other procedures included in the audit methodology; obtaining reasonable assurance of the overall sufficiency and appropriateness of the evidence gathered in support of the audit findings and our conclusions; and reporting on the results of the audit as required by governing laws and auditing standards.

This audit included the selection and examination of IT system controls and records. Unless otherwise indicated in this report, these items were not selected with the intent of statistically projecting the results, although we have presented for perspective, where practicable, information concerning relevant population value or size and quantifications relative to the items selected for examination.

An audit by its nature does not include a review of all records and actions of agency management, staff, and contractors and, as a consequence, cannot be relied upon to identify all instances of noncompliance, fraud, waste, abuse, or inefficiency.

In conducting this audit, we:

- Reviewed applicable laws, rules, SBA policies and procedures, and other guidelines, and interviewed SBA personnel to obtain an understanding of the SBA's organizational structure,

statutory requirements, operational processes, and selected SBA application-level general controls and business process application controls applicable to the Florida PRIME, Eagle, and PeopleSoft Financials systems, and other selected IT general controls.

- Obtained an understanding of SBA processes for approving, assigning, reviewing, and deactivating access to Florida PRIME, Eagle, and PeopleSoft Financials applications and databases, including processes for ensuring an appropriate separation of incompatible duties; the paths and processes for authenticating to the SBA network domain, Florida PRIME, Eagle, and PeopleSoft Financials applications, databases, and databases instances, including the use and impact of password management systems; processes for requesting, authorizing, testing, approving, implementing, and reconciling Florida PRIME, Eagle, and PeopleSoft Financials program code changes; physical access controls to protect SBA data and IT resources; and significant Eagle and PeopleSoft Financials interface processes.
- Evaluated logical access controls, including policies, procedures, and processes, for assigning privileged access to the SQL Server instance hosting the Florida PRIME database, the SQL Server instance hosting the PeopleSoft Financials database, and the Florida PRIME, PeopleSoft Financials, and Eagle databases. Specifically, we evaluated for:
 - Florida PRIME, the appropriateness of access privileges for the six active accounts assigned privileged permissions to the SQL Server instance hosting the Florida PRIME database and the four active accounts assigned privileged roles or permissions to the Florida PRIME database as of January 12, 2023.
 - PeopleSoft Financials, the appropriateness of access privileges for the five active accounts assigned privileged permissions to the SQL Server instance hosting the PeopleSoft Financials database and the seven active accounts assigned privileged roles and permissions to the PeopleSoft Financials database as of December 13, 2022.
 - Eagle, the appropriateness of access privileges for the eight open database accounts with CREATE SESSION and 1 or more of 14 selected high-risk system privileges as of January 8, 2023.
- Evaluated logical access controls, including policies, procedures, and processes, for assigning and restricting Florida PRIME, Eagle, and PeopleSoft Financials privileged server access privileges. Specifically, we evaluated:
 - The appropriateness of local administrator access privileges for the 10 accounts on the Florida PRIME external application server, the 13 accounts on the Florida PRIME database server, and the 14 accounts on the Florida PRIME internal application server as of December 16, 2022.
 - The appropriateness of local administrator access privileges for the eight accounts on the Eagle Windows application server as of December 15, 2022.
 - The appropriateness of administrative-level access privileges for the seven accounts with one or more of three high-risk access privileges on the Eagle application servers as of December 15, 2022.
 - The appropriateness of local administrator access privileges for the nine accounts on the PeopleSoft Financials application server as of December 20, 2022.
- Evaluated the appropriateness of administrative-level access to the password access management vault.
- Evaluated logical access controls, including policies, procedures, and processes, for authorizing, assigning, and periodically reviewing user accounts for Florida PRIME, Eagle, and PeopleSoft Financials applications and the administrative user and service accounts for the SBA network domain. Specifically, we evaluated the appropriateness of:

- Access privileges for the ten Florida PRIME internal end-users (with internal administrative program access) as of January 13, 2023.
- Access privileges for the eight active Eagle end-users assigned full access permissions to high-risk Eagle Centers (Eagle components with related functionality) as of January 25, 2023.
- Access privileges for the 11 active PeopleSoft Financials users with security administrative permissions allowing the users to create PeopleSoft user IDs as of January 24, 2023.
- The nine administrative user accounts and the six administrative service accounts as of December 13, 2022, for the SBA network domain.
- Interactive log on capabilities for the six administrative service accounts as of December 13, 2022, for the SBA network domain.
- Evaluated the adequacy of user identification and authentication controls for the Florida PRIME application (internal and external users), external application server, and database; SQL Server instance hosting the Florida PRIME database; Eagle application and database; PeopleSoft Financials application and database; SQL Server instance hosting the PeopleSoft database; and SBA's network domain.
- Evaluated the effectiveness of SBA logging and monitoring controls.
- Evaluated the appropriateness of physical access controls for the SBA's data center and other sensitive IT areas, including the adequacy of policies, procedures, and processes established to protect SBA IT resources and data. Specifically, we:
 - Observed controls for physical access to the SBA data center and other sensitive IT areas as of February 9, 2023.
 - Obtained an understanding of SBA processes for granting, discontinuing, logging, and periodically reviewing physical access privileges to the SBA data center and other sensitive IT areas.
 - Evaluated the appropriateness of physical access privileges to the SBA data center and other sensitive IT areas assigned to the 18 keycards active as of February 6, 2023.
 - Examined SBA records to determine the adequacy of the quarterly access review of physical access privileges to the SBA data center and the other sensitive IT areas completed for the quarter ended December 2022.
- Evaluated Florida PRIME, Eagle, and PeopleSoft Financials logical access controls for the development and production environments. Specifically, we evaluated the appropriateness of access privileges for the:
 - Five accounts with access to the Florida PRIME development environment and the three accounts with access to promote Florida PRIME program code changes into the production environment as of February 2023.
 - Two accounts with access to the Eagle development environment as of February 27, 2023, and the 21 accounts with access to the Eagle production environment as of March 14, 2023.
 - Ten accounts with access to the PeopleSoft Financials PeopleCode development environment as of January 26, 2023, and the nine accounts with access to implement PeopleSoft Financials PeopleCode program code to the PeopleSoft Financials PeopleCode production environment as of January 26, 2023.
 - Two accounts with access to the PeopleSoft Financials Structured Query Report (PeopleSoft Financials SQR) development environment as of January 26, 2023, and the

19 accounts with access to implement PeopleSoft Financials SQR program code to the PeopleSoft Financials SQR production environment as of January 26, 2023.

- Interviewed SBA personnel and examined SBA policies, procedures, and processes for Florida PRIME, Eagle, and PeopleSoft Financials change management, including program code change reconciliation processes and program code reviews. Specifically, we examined the nine closed service tickets consisting of four Florida PRIME, one Eagle, and four PeopleSoft Financials program code changes applied during the period July 2022 through January 2023, as documented in the SBA's program code reconciliation, to determine whether the program code changes were appropriately authorized, tested, approved, and implemented into the production environment.
- Evaluated the adequacy of the interface controls related to selected high-risk files sent from Eagle to PeopleSoft Financials for General Ledger processing. Specifically, on February 8, 2023, we observed an SBA employee performing interface processing, including reconciling interface totals and resolving errors listed on the PeopleSoft import exception report.
- Communicated on an interim basis with applicable officials to ensure the timely resolution of issues involving controls and noncompliance.
- Performed various other auditing procedures, including analytical procedures, as necessary, to accomplish the objectives of the audit.
- Prepared and submitted for management response the findings and recommendations that are included in this report and which describe the matters requiring corrective actions. Management's response is included in this report under the heading **MANAGEMENT'S RESPONSE**.

AUTHORITY

Section 11.45, Florida Statutes, provides that the Auditor General may conduct audits of the IT programs, activities, functions, or systems of any governmental entity created or established by law. Pursuant to the provisions of Section 11.45, Florida Statutes, I have directed that this report be prepared to present the results of our IT operational audit.



Sherrill F. Norman, CPA
Auditor General

MANAGEMENT'S RESPONSE



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October 30, 2023

Ms. Sherrill Norman
Auditor General, State of Florida
G74 Claude Pepper Building
111 West Madison Street
Tallahassee, Florida 32399-1450

Dear Ms. Norman:

Our responses to the preliminary and tentative findings and recommendations which may be included in your report on the Operational Audit of the State Board of Administration are discussed below:

Finding Number 1:

Recommendation: To help ensure that all program changes are managed by, and do not bypass, the SBA change management process, we recommend that SBA management enhance reconciliation controls to ensure that all implemented Florida PRIME, Eagle, and PeopleSoft Financials SQR program code changes are identified during the reconciliation process and accurately matched to closed tickets.

Response: Management agrees and will implement enhanced change management processes and reconciliation for program code and will ensure documentation is retained to demonstrate changes are appropriately authorized, approved and implemented.

Finding Number 2:

Recommendation: We recommend that SBA management limit Eagle end-user and program code deployment access to only those functions that are appropriate and necessary for the user's assigned job duties.

Response: Management agrees and will improve access restrictions and controls for changes to application functionality for those with assigned job duties related to Eagle code support.

Finding Number 3:

Recommendation: We recommend that SBA management improve certain security controls related to logical access, user authentication, and logging and monitoring to ensure the confidentiality, integrity, and availability of Florida PRIME, Eagle, and PeopleSoft Financials data and SBA IT resources.

October 30, 2023

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Response: Management has received the Auditor General's specific recommendations with respect to this finding and will continue to improve certain security controls related to the items mentioned therein.

Please do not hesitate to contact me if you have any questions or need additional information.

Sincerely,

A handwritten signature in cursive script that reads "Lamar Taylor".

Lamar Taylor
Interim Executive Director/CIO

LT/apw

cc: Maureen Hazen
Kimberly Stirner
Loveleen Verma