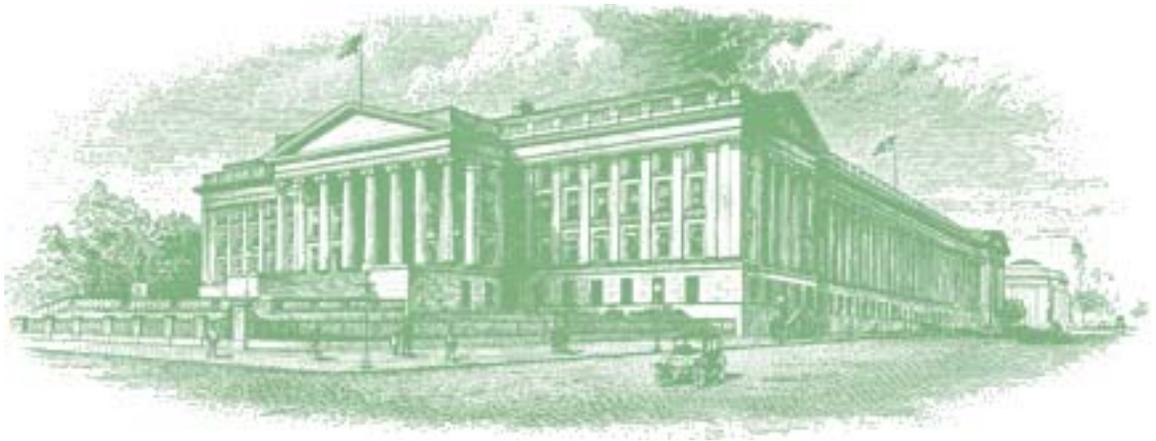




# Audit Report



OIG-12-052

INFORMATION TECHNOLOGY: Financial Management Service  
Successfully Demonstrated Recovery Capability for Treasury  
Web Application Infrastructure

May 11, 2012

## Office of Inspector General

Department of the Treasury



# Contents

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## Audit Report

Results in Brief .....	1
Background .....	2
Findings and Recommendations .....	4
GWA and SAM Did Not Fully Complete Reconstitution Test Objectives .....	4
Recommendation .....	5
TWAI Documentation Could Be Improved .....	6
Recommendation .....	7

## Appendices

Appendix 1: Objectives, Scope, and Methodology .....	9
Appendix 2: Management Response .....	10
Appendix 3: Major Contributors to This Report.....	12
Appendix 4: Report Distribution.....	13

## Abbreviations

DRE	Disaster Recovery Exercise
EROC	East Rutherford Operations Center
FRB	Federal Reserve Bank
FMS	Financial Management Service
GWA	Government-wide Accounting
ITS	International Treasury Services
NIST	National Institute of Standards and Technology
OIG	Office of Inspector General
SAM	Shared Accounting Module
SRDF	Symmetrix Remote Data Facility
TD P	Treasury Directive Publication
TWAI	Treasury Web Application Infrastructure

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*The Department of the Treasury  
Office of Inspector General*

May 11, 2012

David A. Lebryk  
Commissioner  
Financial Management Service

The overall objective of this audit was to determine if the Financial Management Service (FMS) could successfully demonstrate its disaster recovery capability for the Treasury Web Application Infrastructure (TWA).

To accomplish our objective, we reviewed planning documentation for the disaster recovery exercise (DRE), observed the exercise held at the Federal Reserve Bank (FRB) of Dallas on February 12, 2011, performed a limited security assessment of the facility while on site, and reviewed the DRE results report afterward.

We performed our fieldwork in the Washington, DC, metropolitan area and Dallas, Texas, from January 2011 through March 2012. The audit was conducted in accordance with generally accepted government auditing standards. Our objectives, scope, and methodology are described in more detail in appendix 1.

## Results in Brief

We found that FMS successfully demonstrated its disaster recovery capability for TWA. However, we found that two TWA applications, Government-Wide Accounting<sup>1</sup> (GWA) and Shared Accounting Module<sup>2</sup> (SAM), did not complete 1 of 3 DRE reconstitution test objectives. Additionally, we found that TWA documentation could be improved to include information required by the National Institute of Standards and Technology (NIST) and the Department. We are making two recommendations to the Commissioner of FMS to address these findings.

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<sup>1</sup> GWA uses web technology to simplify the reporting and reconciliation processes of Federal agencies.

<sup>2</sup> SAM is a central repository for accounting business rules. These rules are used to validate data it receives from other programs and sends reports to GWA.

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In a written response to a draft copy of this report, the Commissioner agreed with our findings and recommendations and provided plans for corrective actions (see appendix 2). With respect to GWA and SAM not completing 1 of 3 DRE reconstitution test objectives, FMS officials told us that the original issue has been fixed with the implementation of the latest software release on April 14, 2012. With regard to TWAI documentation needing improvement to include NIST and the Department's requirements, FMS management stated that they developed and issued an FMS TWAI Contingency Plan template and Contingency Plan Test Results template in the NIST suggested format in November 2011 and October 2011, respectively.

FMS's corrective actions, if implemented as described, meet the intent of our recommendations.

## Background

FMS provides central payment services to federal program agencies, operates the federal government's collections and deposit systems, and oversees a daily cash flow of \$89 billion. FMS maintains multiple financial and information systems to help it process and reconcile monies disbursed and collected by government agencies. One such system is TWAI, a secure application infrastructure with internet and dedicated telecommunications connectivity. FMS has 14 computer applications that rely on TWAI for common infrastructure services. Eight of those applications are hosted in the FRB facility in East Rutherford, New Jersey known as the East Rutherford Operations Center (EROC), and six are hosted in the FRB facility in Dallas, Texas. The eight applications hosted in EROC use Dallas as their alternate processing site in the event of a disaster, and those hosted in Dallas use EROC as their alternate processing site.

On February 12, 2011, FMS ran a DRE to verify that the eight TWAI applications hosted in EROC could be recovered to perform their functions at the alternate processing site in Dallas, and then return to their primary site.

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The eight TWAI applications tested as part of this DRE were:

- Cash Track Web – This application supports several cash management activities for Treasury.
- GWA – This application uses web technology to simplify the reporting and reconciliation processes of federal agencies.
- Intra-Governmental Payment and Collections – This application provides a standard interagency fund transfer mechanism for federal program agencies.
- Internet Payment Platform – This application provides a centralized electronic invoicing and payment information portal to agencies, payment recipients, and FMS.
- International Treasury Services (ITS) – This application is a portal for government international payments and collections.
- SAM – This is application is a central repository for accounting business rules, used to classify and validate data provided by feeder systems and report to GWA.
- Treasury General Account Deposit Reporting Network – This application allows agency personnel to prepare electronic deposit reports and provides financial institutions and FRBs with the ability to confirm deposits, create adjustments, and submit confirmed deposits and adjustments.
- Treasury Tax and Loan Plus – This application provides financial institutions and federal agencies with the ability to download forms and reports, enter federal tax deposits, make changes to existing financial information, upload files, and receive messages.

Each application team has its own contingency plan to follow in the event of a disaster. After recovering to the alternate site in response to a disaster, applications reconstitute at their primary site to resume normal operations. Part of each application's contingency plan test was a reconstitution phase consisting of three objectives: (1) Symmetrix Remote Data Facility (SRDF) to

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Primary, (2) Sorry Page Reconstitution, and (3) EROC Primary Application. The three objectives were not dependent on one another for their individual success. The goal of the “SRDF to Primary” objective was to replicate data from the contingency site to the primary site. The “Sorry Page Reconstitution” objective was to ensure that users are redirected to a “sorry page” if the application is unavailable. Lastly, the objective of “EROC Primary Application” was to verify that the application was working correctly at EROC, the primary processing site.

We reviewed the Information Technology Contingency Plans<sup>3</sup> for each of the eight applications being tested, as well as the TWAI Information Technology Contingency Plan for completeness. Each contingency plan we reviewed contained information on recovering its particular information system’s operation from EROC to Dallas. We also reviewed the DRE results report, “East Rutherford Operations Center to Dallas Disaster Recovery Exercise Results” (March 2011). The results report contained a narrative description of the DRE, metrics describing how long each application took to achieve particular goals, action items, and lessons learned.

## Findings and Recommendations

### **Finding 1                    GWA and SAM Did Not Fully Complete Reconstitution Test Objectives**

Although FMS successfully demonstrated its disaster recovery capability for TWAI, we found that GWA and SAM did not complete 1 of 3 DRE reconstitution test objectives. Specifically, the “SRDF to Primary” test objective was aborted for GWA and SAM during the exercise. The goal of the “SRDF to Primary” objective was to replicate data from the alternate processing site in Dallas to the primary site in EROC. For GWA and SAM, part of this objective was to transfer a file from GWA to SAM. The file transfer was unsuccessful. During the DRE, FMS management was unable to determine the cause of the file transfer error. Therefore, FMS management made a risk-based decision to abort the test objective

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<sup>3</sup> A contingency plan for an information system provides established procedures for the assessment and recovery of a system following a disruption.

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and open a trouble ticket to investigate the error after the DRE ended.

According to the “TWA East Rutherford Operations Center to Dallas Contingency Disaster Recovery Exercise Objectives” (January 25, 2011), “Recovery/Reconstitution” is the reconstitution method for both GWA and SAM. This means that for GWA and SAM to be considered fully successful in meeting their DRE objectives, each application must complete data replication from the alternate processing site to the primary site.

FMS management ultimately attributed the cause for the file transfer error to an improperly formatted database command. At the time of the DRE, the cause of the file transfer error was not apparent. After the DRE, an FMS investigation found the database command that was entered at the primary site was missing a pair of quote marks,<sup>4</sup> resulting in the file transfer error. The only data validation procedure in place at the time was to have a second person review the input. When the data was entered, neither the operator nor the reviewer caught the missing quote marks.

As a result, the incorrectly formatted data caused an error with two applications, GWA and SAM, which prompted FMS management to abort the objective. If the file transfer had succeeded, GWA and SAM would have successfully reconstituted in EROC and met the “SRDF to Primary” test objective. In a real disaster, this error would have delayed reconstitution in the primary processing site while the problem was investigated and fixed.

### **Recommendation**

We recommend that the Commissioner of FMS, in a timely manner, identify a solution to remedy the cause of the file transfer error identified by FMS’s investigation for GWA and SAM, and test and implement that solution.

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<sup>4</sup> The command entered was “SET AGENCY\_ID=072”, and it should have been “SET AGENCY\_ID='072'”.

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### **Management Response**

FMS officials stated that the original issue has been fixed with the implementation of the latest software release on April 14, 2012.

### **OIG Comment**

Management's corrective action, if implemented as described, meets the intent of our recommendation.

## **Finding 2**

### **TWAI Documentation Could Be Improved**

Based on our review of the DRE documents, we found that the TWAI documentation could be improved. Specifically, we found that the TWAI and ITS contingency plans, and the DRE results report were missing information required by NIST and the Department. For example, we found that the TWAI contingency plan did not have information on potential accessibility problems to the alternate processing site in the event of an area-wide disruption or disaster. Additionally, the ITS contingency plan did not include metrics to measure recovery objectives. Also, the ITS contingency plan did not make the purpose of the changes clear in its change log. Finally, the DRE results report did not include a testing point of contact and did not include a description of the DRE including expected and actual results. These elements are required by NIST Special Publication 800-53A<sup>5</sup> and Treasury Directive Publication (TD P) 85-01.<sup>6</sup>

FMS management stated that NIST Special Publication 800-34, Revision 1, "Contingency Planning Guide for Federal Information Systems" (May 2010), was followed for contingency plans and DRE testing documentation. However, the documentation was not fully compliant with NIST Special Publication 800-53A and TD P 85-01 requirements even though FMS management was aware of them.

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<sup>5</sup> NIST Special Publication 800-53A, Revision 1, "Guide for Assessing the Security Controls in Federal Information Systems and Organizations" (June 2010)

<sup>6</sup> TD P 85-01, Vol. 1, "Treasury Information Technology Security Program" (Nov. 2006)

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## **Recommendation**

We recommend that the Commissioner of FMS take action to ensure that all FMS TWAI DRE documentation fully complies with NIST Special Publication 800-53A and TD P 85-01 requirements.

## **Management Response**

FMS officials stated NIST allows for flexibility in implementing the guidance in its Special Publications and that FMS has taken the following corrective actions to ensure their documentation is consistent with NIST guidance:

- Developed and issued a required FMS TWAI Contingency Plan template for all TWAI applications in November 2011, and conducted compliance reviews against the template.
- Developed and issued a Contingency Plan Test Results template in October 2011 to ensure that the format for all contingency plan test results is consistent and follows the suggested NIST format, and conducted compliance reviews against the template.

## **OIG Comment**

Management's corrective actions, if implemented as described, meet the intent of our recommendation.

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I would like to extend my appreciation to the Commissioner of FMS and his staff for the cooperation and courtesies extended to my staff during the audit. If you have any questions, please contact me at (202) 927-5171 or Abdirahman Salah, Information Technology Audit Manager, at (202) 927-5763. Major contributors to this report are listed in appendix 3.

/s/

Tram Jacquelyn Dang  
Director of Information Technology Audits

The overall objective of this audit was to determine if the Financial Management Service (FMS) could successfully demonstrate its disaster recovery capability for the Treasury Web Application Infrastructure (TWA). This audit was included in the *Office of Inspector General Annual Plan for 2011*.

To accomplish our objective, we reviewed planning documentation related to TWA applications and disaster recovery exercise (DRE) objectives, observed the DRE exercise held on February 12, 2011 at the Federal Reserve Bank in Dallas, Texas, performed a limited physical security assessment while on site, including walkthroughs, personnel interviews, and policy reviews, and reviewed the DRE results report prepared by FMS in March 2011.

We reviewed the DRE for adherence to applicable criteria including National Institute of Standards and Technology special publications and Treasury policies to determine if the disaster recovery had been successfully demonstrated.

We performed our fieldwork in the Washington, DC, metropolitan area and Dallas, Texas, from January 2011 through March 2012.

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.

Appendix 2  
Management Response



DEPARTMENT OF THE TREASURY  
FINANCIAL MANAGEMENT SERVICE  
WASHINGTON, D.C. 20227

May 2, 2012

**MEMORANDUM FOR TRAM J. DANG, AUDIT DIRECTOR  
OFFICE OF INSPECTOR GENERAL**

**FROM:** David A. Lebryk, Commissioner  
Financial Management ~~Service~~

**SUBJECT:** Draft Report – Financial Management Service Successfully  
Demonstrated Recovery Capability for Treasury Web  
Application Infrastructure

Thank you for the opportunity to comment on the draft audit report entitled, "Financial Management Service Successfully Demonstrated Recovery Capability for Treasury Web Application Infrastructure," issued April 3, 2012. We have carefully reviewed the draft and are in agreement with all findings and recommendations. Further details on our planned corrective actions follow.

**OIG Finding 1: GWA and SAM did not fully complete reconstitution test objectives**

**Recommendation 1:** We recommend that the Commissioner of FMS, in a timely manner, identify a solution to remedy the cause of the file transfer error identified by FMS's investigation for GWA and SAM, and test and implement that solution.

**FMS Response:** The original issue has now been fixed with the implementation of the latest software release on April 14, 2012.

**Responsible Official:** Assistant Commissioner for Governmentwide Accounting

**OIG Finding 2: TWAI documentation could be improved**

**Recommendation 1:** We recommend that the Commissioner of FMS take action to ensure that all FMS TWAI DRE documentation fully complies with NIST Special Publication 800-53A and TD P 85-01 requirements.

**FMS Response:** Although it is FMS' understanding that the National Institute for Standards and Technology (NIST) allows for flexibility in implementing the guidance in its Special Publications, we have taken the following corrective actions to ensure our documentation is consistent with NIST guidance:

Appendix 2  
Management Response

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1. Developed and issued a required FMS Treasury Web Application Infrastructure (TWAI) Contingency Plan (CP) template for all TWAI applications in November 2011. This has resulted in consistent documentation in the NIST suggested format. Compliance reviews of CPs are conducted against the required template by the FMS IT Security Oversight and Compliance Staff.
2. Developed and issued a CP Test Results Template in October 2011 to ensure that the format for all CP test results is consistent and follows the suggested NIST format. Compliance reviews of CP test results are conducted against the required template by the FMS IT Security Oversight and Compliance Staff.

**Responsible Official:** Assistant Commissioner for Enterprise Business Information and Security Services (CIO)

cc: Marla A. Freedman, Assistant Inspector General for Audit  
Joel A. Grover, Deputy Assistant Inspector General for Financial Management and Information Technology Audit  
Wanda Rogers, FMS Deputy Commissioner  
David Rebich, Assistant Commissioner for Governmentwide Accounting  
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**Financial Management Service**

Commissioner

**Department of the Treasury**

Office of the Chief Information Officer

Office of Strategic Planning and Performance Management

Office of the Deputy Chief Financial Officer, Risk and Control  
Group

**Office of Management and Budget**

Office of Inspector General Budget Examiner