USING SAP SYSTEM CONFIGURATION SECURITY TEST TO COMPLY WITH SARBANES-OXLEY ACT

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Abstract: Most observers would agree that the Sarbanes-Oxley Act (SOA) is the single most important piece of legislation affecting corporate governance, financial disclosure and the practice of public accounting. On the other hand, the SAP system is the most widely used ERP (Enterprise Resource Planning) system in the world. There are thousands of seamlessly linked components and subsystems. Conducting security tests in a complicated ERP system is still a major challenge. Based on the study of the SAP system configuration security testing at the author's company, this work-in-progress paper will discuss related configuration security weakness in SAP system and suggest practical solutions to enhance the security control of SAP to comply with SOA.

1 INTRODUCTION

As a result of significant accounting scandals and the subsequent negative effect on the stock market and stakeholder confidence, the Sarbanes-Oxley Act in the U.S. was signed into law. The Sarbanes-Oxley legislation has established a new paradigm for corporate accountability and also created a new standard for the implementation of an internal control structure (Nelson, 2003). Therefore, CEOs and CFOs must not only certifying the financial statements but also ensure the data integrity of the information system. It is not over emphasized that the system configuration security issues are becoming more important than ever before.

2 LITERATURE REVIEW

2.1 ERP

ERP (Enterprise Resource Planning) are used to track companies' financial, human resources, and logistics. It is an enterprise's nerve centre to quickly meet the stakeholders' requirements. ERP systems collect an enormous amount of information, which is used by top management all the way down to the line supervisors. Security over access and over who can change the information is a matter of great concern. Therefore, the security control of the ERP need to be carefully evaluated and tested.

ERP system not only deal with thousands of financial transactions daily, but additionally, the enterprise should properly keep their financial statements to meet legal and regulatory requirements. Legal and regulatory issues are always the baseline of the enterprise operation and management. Therefore, one of the critical successful factors of the security test in the SAP system should be, whether the goal of the authorisation control links to the top management's concern.

2.2 SAP

SAP is a large ERP system that provides the complex application software required to support the various business processes of enterprise. More than half of the top 500 companies in the world use SAP software (SAP AG Corporate Overview, 2002). This system is made up of multiple modules that correlate to business processes. Essentially, SAP can be effectively used as the only system an enterprise will need to conduct business. Therefore, any inappropriate security setting can create a snowball affect in many processes (Sims, 2001; Kirk, 2001; Larson, 2000; Juergens, 1999).

The reasons why the SAP security control is different include (Security and Control for SAP R/3, 2000):

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- SAP covers more business functions than any other product on the market which adds to the complexity of security and control issues.
- SAP is complex with thousands of configuration tables and multitudes of alternatives.
- The integrated nature of SAP increases the risk that design designs made for one SAP module might have an unexpected adverse impact on other modules.

There are few research papers regarding the ERP or the SAP security control, according to the statistics of "Enterprise Resource Planning System Research: an Annotated Bibliography" (Esteves and Pastor, 2001). Moreover, most of the security related research papers emphasis on the relationship between database level security (Riet, R., Janssen, W., & Gruitjer, P., 1998). So, this paper will propose a new approach to conduct the security test in the SAP system and will focus on the application level issues.

3 RESEARCH METHOD

The SAP security study is conducted in the system environment of author's company. Using IMG (Implementation Guide) function in SAP the review the financial related configurations in SOA related components, such as Financial Accounting, Controlling, Enterprise Consolidation. The system architecture of this research is described as following components:

- SAP version : R/3 Release 4.6C
- AIS version : 46D.1
- Database : Oracle 8.0.6.2.0
- OS : HP-UX 11.0
- Machine type : HP PA-RISC

3.1 Reset Company Code and Posted Depreciation Test

Company code and Depreciation posting is the key control point to ensure correctness of the financial statements. If this configuration is misused, the accounting entries will be deleted and the financial reports could be wrong. It is an essential security configuration to ensure the correctness of financial statements. Therefore, this setting is the first step to the financial data protection.

Menu path 1 - Reset Company Code: Financial Accounting ∏ Assets Accounting ∏ Preparing for Production startup ∏ Tools ∏ Reset Company Code.

Menu path 2 - Reset Posted Depreciation: Financial Accounting ∏ Assets Accounting ∏ Preparing for Production startup ∏ Tools ∏ Reset Posted Depreciation.

3.2 Create Asset Class Test

Asset Class controls asset master data and depreciation calculation. The asset master data includes assets classification, cost center, description, capitalization information and related invoice, goods receipt, and purchase order. The depreciation calculation is composed by depreciation key, depreciation method, depreciation start date and depreciation area. If the asset class is modified or created by non authorized persons, it will not only bias the decision making of high level management but also cause incorrect financial statements.

Menu Path 1 – Create Asset Class : Financial Accounting ∏ Assets Accounting ∏ Asset Class ∏ Create Asset Class From GL (1 to 1).

3.3 Substitution and Validation Test

Substitution and Validation are powerful tool to control mass data change in either financial data posting or master data changes in customer, vender, and fixed assets, etc. However, if these configurations are misused, the financial data could be seriously damaged and the all related transactions should be reviewed or reposted.

Menu Path 1 – Define Substitution: Financial Accounting ∏ Assets Accounting ∏ Master Data ∏ Define Substitution.

Menu Path 2 – Define Validation: Financial Accounting ∏ Financial Accounting Global Setting ∏ Document ∏ Line Item ∏ Define Validation.

3.4 Delete Transaction Data Test

These three tests are related to production data protection issue. The SAP system provides production start-up tool for the system implementation in Financial Accounting, Controlling, and Enterprise Consolidation module for migration data from testing to production environment. However, this data cleansing function would also damage production data if not proper controlled.

Menu Path 1 – Delete FI Transaction Data: Financial Accounting ∏ Financial Accounting Global Setting ∏ Delete Transaction Data.

Menu Path 2 – Delete CO Transaction Data: Controlling ∏ General Controlling ∏ Production Start-Up Preparation ∏ Delete Test Data ∏ Delete Transaction Data.

Menu Path 3 – Delete Consolidation Transaction Data: Financial Accounting ∏ Preparation for Consolidation ∏ Tool for Creating the Initial Data

Set ∏ Transaction Data ∏ Delete transaction data from real time update.

4 CONCLUSIONS

This work-in-progress paper explores four critical configurations and identifies the risks related to the control weakness. No matter what kind of risks it may face to do the system configuration management, the authorization control of the weakness would be a practical method to prevent data damage and ensure financial statement integrity.

REFERENCES

Esteves, J. and Pastor, J., 2001. Enterprise Resource Planning System Research: An Annotated Bibliography. Available: http://www.imm.ecel.uwa.edu.au/.

Juergens, M., 1999. SAP Security. Paper presented at the Spring Conference of the ISACA, Los Angeles, USA.

Kirk, L. A., 2001. Securing Information within SAP V4.6b Available: http:// /rr.sans.org/casestudies/SAP.php.

Larson, G., 2000. Auditing SAP R/3. Paper presented at the Spring Conference of the ISACA, Los Angeles, USA.

Nelson, D. (2003). Overview of Sarbanes-Oxley and mySAP Financials Tools. Paper presented at the 2003 SAP Financial Management & Business Analysis Forum, Dallas, Taxes, USA. [On-line] www.asug.com. Available: http://files.asug.com/asug/fmbasoa.pdf. Last access: 2003. October 31.

SAP AG Corporate Overview, 2002. Available from http://www.sap.com/; Internet.

Security and Control for SAP R/3, 2000. Available: http://www.anao.gov.au.

Sims, M. E., 2001. *Technical Aspect of Implementing/Upgrading SAP Security 4.6*. Available: http://rr.sans.org/authentic/SAP_sec.php.