Enhancing Data Security in ERP Projects Using XML

T. Chandrakumar, Thiagarajar College of Engineering, Madurai, India
S. Parthasarathy, Thiagarajar College of Engineering, Madurai, India

ABSTRACT
Enterprise resource planning (ERP) is integrated packaged software, which addresses most fundamental business processing functionality across different functional areas and business units, in a single software system, with single database and accessible through a unified interface and channel of communication. Meeting security requirements for privacy, confidentiality and integrity is essential in order to move business online ERP System requires an accurate, precise and Data security in business concepts of the enterprise. The authors introduce basic features and security of ERP System using Extensible Mark-up Language (XML) technology. Traditionally, XML security has developed along two distinct though related lines of research, corresponding to two facts of the XML security notion. The first fact defines XML security as a set of security techniques (encryption, digital signature) tightly coupled with XML to maintain the main features of the XML semi-structured data model while adding to it all necessary security capabilities. In this paper we will explore XML Signature specification from W3C and its implementation in .NET.

Keywords: Enterprise Resource Planning (ERP), Extensible Mark-Up Language (XML), Security, XML Encryption, XML Signature

INTRODUCTION
The Enterprise Resource Planning (ERP) system is an enterprise information system designed to integrate and optimize the business processes and transactions in a corporation. In today’s uncertain and complex business environment, Enterprise Information Systems (EIS) are critical to organizations (Tavana, 2011).

The ERP is an industry-driven concepts and systems, and is universally accepted by the industry as a practical solution to achieve integrated enterprise information systems (Moon, 2007). The primary language of the Internet, Hyper-text Mark-up Language (HTML), is not well-suited for transmitting data and executing transactions (Baker, 2005). A collection of languages, techniques, and standards developed by the World Wide Web Consortium (W3C), called an Extensible Mark-up Language (XML) technology today, contributes to many application areas, as, e.g., B2B interactions, Web services, as well as, in general, to improvement of inter- and intra-enterprise applications. In the paper, we focus just on Data security using XML technology in enterprises (Jaroslav, 2009). The research behind the Federated ERP System (FERP) addresses the problems face
with conventional ERP systems and offers reasonable and scalable IT support. This is done by decomposing the whole business logic of the ERP system into Web services (Daniel, 2009). Extensible Mark-up Language (XML) was developed to support a variety of Internet based data transmission applications, including many applications in ERP. XML has a number of constraints, particularly in the area of data integrity and security (Baker, 2005).

DATA SECURITY IN ERP

Web-based enterprise systems are based on collaborating environments that integrate business operations, partners, suppliers and employees. Enterprises are increasingly faced with the climate change challenge and with having to take measures to adapt (Pappis, 2011). With the growing security threats escalating each year achieving the balance of usability and security is getting more difficult for ERP software vendors (http://www.articlesbase.com/software-articles/erp-software-and-data-security).

Enterprise system features that focus on data security are gateways that focus on managing and analyzing a user profile from the sign up, data modification and end phases. The wide diffusion and usage of social networking Web sites in the last years have made publicly available a huge amount of possible sensitive information, which can be used by third-parties with purposes different from the ones of the owners of such information (Carminati, 2008). All data that has to be managed is contained within one back end application system and its database (Bussler, 2011). With respect to user experience these enterprise system security features ensure that within the enterprise system, authorized users have access to the information they need when they need it. Companies big and small are all faced with the issues of data security threats. The problem is so huge that the data security business and the resources required from businesses to address their data security issues are a significant cost burden (Brehm, 2007). Security is critical for ERP systems, as they are used in numerous industries including defense, intelligence, medical, and financial. First, we need to develop a security policy and a model for ERP systems. Many of the current systems focus on confidentiality aspects of security (WeiShe, 2007).

Data security has become one of the most important concerns for Enterprises. How do we protect this information from being read by intruders? Encryption provides message confidentiality by transforming readable data (plain text) into an unreadable format (cipher text) that can be understood only by the intended receiver after a process called decryption. The inverse function that the encrypted information readable again (Hashizume). Security in the e-business, integrated enterprise resource planning (ERP) world requires a new way of thinking about security – not just about the bits and bytes of network traffic, but about business transactions that inflict financial losses from systems-based fraud, abuse and errors (Holsbeck). Particularly with regard to security aspects a lot of research is already done by the World Wide Web Consortium (W3C) and the Organization for the Advancement of Structured Information Standards (OASIS http://docs.oasisopen.org/wss/2004/01/oasis-wss-soap-message-security-1.0.pdf).

XML-OVERVIEW

- XML stands for Extensible Markup Language
- XML is a markup language much like HTML
- XML was designed to carry data, not to display data
- XML tags are not predefined. You must define your own tags
- XML is designed to be self-descriptive
- XML is a W3C Recommendation
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