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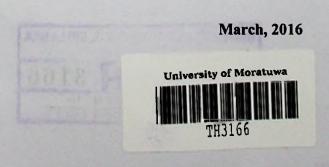
# Study of Security Issues in the ERP System Implementation And Development of the Security Analysis Tool

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#### **Declaration**

I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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The above candidate has carried out research for the Masters dissertation under my supervision.

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Date

#### **Dedication**

This thesis is dedicated to my beloved wife, Dhanushka Priyangi, to my children's Oneli Sethumya and Methum Sethmina they have always encouraged me to do this master degree.

Also this thesis is dedicated to my parents, D M Jayasekara and Lalitha Ekanayake who have given me a tremendous education since beginning of my life, mother in law C. Herath, my brother Ranga and his wife Imali, sister in law Eranga and her husband Dananjaya.

Finally, this thesis is dedicated to all who believe in the richness of learning and value of knowledge sharing among members in communities.

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#### **Abstract**

There is a growing tendency in the security of an ERP systems. This has resulted in security issues when an implementing an ERP system. Despite many researchers have discovered various solution for the improve ERP system implementation security there are lack of solutions to analysis security issues of Microsoft Dynamics Navision ERP system.

The solution take various inputs parameters related to the ERP systems. Having giving the input system will be analysis the security threats related to ERP system. After the analysis phase system will produce a report; it consists a list of security issues, suggestions and solutions for those identified issues. This solution can be useful to; ERP systems security auditors, ERP systems own organizations, ERP systems implementation organizations or anyone who interested to investigate the ERP system implementation security issues.

System modules are developed using Open Source technology by using Apache as web server, MySQL as a database server and PHP/Perl/Python as scripting language. System uses existing Open Source libraries and security scanning tools to perform security analysis. The over system has been designed to work in platform independent manner. System can be accessible using any modern web browser also the users can access the system by hosting the application on they own or rented LAMP or WAMP server.

Based on the identified security issues online survey questionnaire was design to understand what target audience are really thinking about the ERP systems security. After the statistically analyzing collected data it shows that those identified issues are significant to the ERP systems security. After development of the security analysis tool, it was tested by the target audience by using the test cases. The results show that our solution can evaluated the ERP systems related security issues.

In summary, the proposed security analysis tool offers unique features necessary for the security of Microsoft Dynamics Navision ERP systems. It also overcomes the limitations associated with existing security approaches and enables the protection of the three major components; people, policy and technology.

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#### List of Abbreviations

Abbreviation Description

ERP Enterprise Resource planning systems

CIA Confidentiality, Integrity and Availability

MS Microsoft

SQL Structured Query Language

PHP Hypertext Preprocessor

HTML Hypertext markup language

NAV ERP Microsoft Dynamics Navision Enterprise Resource Planning system

BI Business Intelligence

LAMP Linux, Apache, MySQL, and PHP/Python/Perl

WAMP Windows, Apache, MySQL, and PHP

Nmap Network Mapper

DEM Dynamic Enterprise Modeler

HTTP Hypertext Transfer Protocol

RSS Really Simple Syndication

XML Extensible Markup Language

IT Information Technology

MRP Manufacturing Requirements Planning

BYOD Bring Your Own Device

VPN Virtual Private Network

OS Operating System

NAT Network address translation

phpMyAdmin PHP based MySQL database management tool

VM Virtual machine

US-CERT United States Computer Emergency Readiness Team

ESE Extensible Storage Engine

EDB Extensible Storage Engine Database File

libesedb Library and tools to access the ESE and EDB format

NT New Technology (Microsoft Windows term)

ntdsxtract NT directory information extract