

DEDICATION

First of all I thank god for giving me knowledge and strength to accomplish this greatly desired dream of my life.

Secondly, I dedicate this thesis to my mother Awatif Zain Alabdeen and my father Elhadi Elsiddig for bringing me up to the level that I fulfilled their dream and see me accomplishing it.

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الآية

سورة
البقرة

لَا يُكَلِّفُ اللَّهُ نَفْسًا إِلَّا وُسْعَهَا لَهَا مَا كَسَبَتْ
وَعَلَيْهَا مَا كَسَبَتْ رَبَّنَا لَا تُؤَاخِذْنَا إِنْ نَسِينَا
أَوْ أَخْطَاْنَا رَبَّنَا وَلَا تَحْمِلْ عَلَيْنَا إَصْرًا كَمَا
حَمَلْتَهُ عَلَى الَّذِينَ مِنْ قَبْلِنَا رَبَّنَا وَلَا تُحَمِّلْنَا مَا
لَا طَاقَةَ لَنَا بِهِ وَاعْفُ عَنَّا وَاعْفِرْ لَنَا وَارْحَمْنَا
أَنْتَ مَوْلَانَا فَانصُرْنَا عَلَى الْقَوْمِ الْكَافِرِينَ ۝

286

صدق الله
العظيم

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المستخلص

تكامل الأنظمة في مفهومه العام يعني ضم أجزاء متفرقة لكي تعمل معاً أو تشكل وحدة واحدة. مؤخراً، هنالك إهتمام كبير لتوفير المعلومات الواردة من عدة مصادر في شكل موحد. الهدف الرئيسي لعملية التكامل المعلوماتي هو المشاركة وتبادل المعلومات. إن الجزء الحيوي والهام في عملية التكامل المعلوماتي هو التوصل إلى حلول لما يحدث من تضارب بين الأطراف المشاركة. قد يحدث هذا التضارب نتيجة لتباين خصائص الأطراف المشاركة.

آلية التحكم في الوصول على أساس الوظيفة، هي طريقة لتقييد الوصول لمصادر معلومات نظام ما فقط للأشخاص المسموح لهم. لقد ظل تكامل قواعد البيانات موضوعاً لعدد من البحوث والدراسات، ولقد ثبت جدواه عبر تقنيات متعددة. ومع ذلك، فإن تكامل الأنظمة القائمة على آلية التحكم في الوصول على أساس الوظيفة يحتاج المزيد من الدراسات والبحث.

تحاول هذه الرسالة توفير نموذج لتكامل الأنظمة القائمة على آلية التحكم في الوصول على أساس الوظيفة والتي هي بالضرورة ذات خصائص متباينة، مستقلة، تعمل في نفس المجال والتي قررت التكامل بهدف المشاركة. هذا النموذج يعرف ويوفر حلول للتضارب بين الأنظمة القائمة على آلية التحكم في الوصول على أساس الوظيفة المتباينة. ويوفر إطار عمل مبسط يمكن إستخدامه في حالة تكامل هذه الأنظمة.

لقد تم إختيار نظامي رعاية صحية كدراسة حالة بهدف التأكد من إمكانية تطبيق النموذج المقترح، و التحقق ما إذا كانت الأغراض التي من أجلها صمم النموذج المقترح قد تم تحقيقها.

ABSTRACT

Integration generally means combining parts so that they work together or form a whole. Recently, considerable attention has been paid to present information from various sources in an integrated format. The main purpose of integration is to share information. The most vital part in integration process is resolution of conflicts between participating parts. Conflicts may arise as a result of heterogeneity in parts.

Role-based access control (RBAC) is an approach to restricting access to the resources of a system only to authorize users. Database integration has been the subject of much research and has been proven feasible through various techniques. However, integrating RBAC security features needs more studies and research.

This thesis is trying to provide a model for integrating RBAC systems which are heterogeneous, autonomous and work in related fields which decided to integrate for information sharing purpose. This model identifies and resolves conflicts between heterogeneous RBAC systems and proposes a simple framework to be used when such systems are integrated.

Two healthcare systems were selected as a case study in order to confirm model feasibility, and verify whether the objectives that the proposed model is designed for are achieved.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DEDICATION	I
	ACKNOWLEDGMENT	III
	المستخلص	IV
	ABSTRACT	V
	TABLE OF CONTENTS	VI
	LIST OF TABLES	VIII
	LIST OF FIGUARS	IX
	LIST OF ABBREVIATIONS	X
	INTRODUCTION	1
	Prefaces	1
	Problem Definition	1
	The Research Objectives	2
	Importance of the Research	3
	Scope of the Research	3
	The Thesis Organization	4
1	DATABASE SECURITY AND INTEGRATION	5
	1.1 Background	5
	1.2 Information and Database Security	5
	1.3 Threats	7
	1.4 Access Control	8
	1.5 Database Integration	10
	1.6 Integration and Heterogeneity Problem	12
2	ROLE BASED ACCESS CONTROL	13
	2.1 RBAC Family of Reference Models	13
	2.2 RBAC Policies	16
	2.3 RBAC Advantages	16
	2.4 The Proposed NIST Standard for RBAC	17
	2.5 RBAC Heterogeneity Issues	17
	2.6 Integrating RBAC Systems	18
	2.7 Related Work	19
	2.7.1 RBAC	19
	2.7.2 Integrating Access Control Information	20

3	RESEARCH DEVELOPMENT PHASES	21
	3.1 Introduction	21
	3.2 Research Development Phases	21
	3.2.1 Research Identification and Analysis	21
	3.2.2 Design the Proposed Model	23
	3.2.3 Prototyping Phase	23
	3.2.4 Testing Phase	25
4	THE PROPOSED MODEL	26
	4.1 Introduction	26
	4.2 The Proposed Model Assumptions	26
	4.3 The Model Structure	26
	4.3.1 Extracting and Representing Module	27
	4.3.2 Extracting Rule Module	28
	4.3.3 Conflicts Investigation Module	28
	4.3.4 Similarity Rule Module	29
	4.3.5 Integration	30
	4.3.6 Integration Rule Module	30
	4.3.7 Representation Rule Module	32
	4.3.8 The Global System	32
5	CASE STUDY	33
	5.1 Introduction	33
	5.2 The Case Study	33
	5.2.1 Phase1: Extracting Core Features	34
	5.2.1.1 Alamal Clinic	34
	5.2.1.2 Bahri Clinic	36
	5.2.2 Phase2: Conflict Investigation	38
	5.2.3 Phase3: Integration	39
	5.2.4 Phase4: Global system	40
	5.3 Testing the Proposed Model	41
	5.4 Model Precedent and Advantages	42
6	CONCLUSION AND FUTURE WORK	43
	6.1 Conclusion	43
	6.2 Future Research	43
	LIST OF REFERENCES	45

LIST OF TABLES

TABLE NO.	TITLE	PAGE
1.1	Database security services	6
1.2	Database integration approaches	11
5.1	Alamal Clinic - Set of Roles	34
5.2	Alamal Clinic - Set of Users	34
5.3	Alamal Clinic - Set of Permissions	35
5.4	Bahri Clinic - Set of Roles	36
5.5	Bahri Clinic - Set of Users	37
5.6	Bahri Clinic - Set of Permissions	37
5.7	Conflict investigation of two clinics	39

LIST OF FIGURES

FIGURES NO.	TITLE	PAGE
1.1	Summary of potential threats to the computer systems	8
1.2	Access controls at different levels in a system	9
1.3	Database integration process	10
2.1	Core RBAC	14
2.2	Hierarchical RBAC	14
2.3	Constrained RBAC	15
2.4	Relationship among RBAC models	15
3.1	Research development phases	22
4.1	The proposed model structure	27
5.1	Alamal organization structure	37
5.2	Bahri organization structure	38
5.3	Generalization Technique	40
5.4	The Integrated System	41

LIST OF ABBREVIATIONS

- RBAC : Role Based Access Control
- DAC : Discretionary Access Control
- MAC : Mandatory Access Control
- ACL : Access Control List
- DBMS : Database Management System
- NIST : National Institute of Standards and Technology