

## Document details

[Back to results](#) | 1 of 3 [Next >](#)[Export](#) | [Download](#) | [Add to List](#) | [More...](#)

ARPN Journal of Engineering and Applied Sciences

Volume 11, Issue 1, 2016, Pages 421-432

[Open Access](#)**Survey on relational database watermarking techniques** (Article)Alfagi, A.S.<sup>a</sup>, Abd. Manaf, A.<sup>a</sup>, Hamida, B.A.<sup>b</sup>, Khan, S.<sup>b</sup>, Elrowayati, A.A.<sup>c</sup><sup>a</sup> Advanced Informatics School, Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia<sup>b</sup> Department of Electrical and Computer Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia<sup>c</sup> Faculty of Electrical and Electronic Engineering, Universiti Tun Hussein Onn Malaysia, Malaysia[View additional affiliations](#)[View references \(68\)](#)

## Abstract

Digital watermarking has been in multimedia data use over the past years. Recently it has become applicable in relational database system not only to secure copyright ownership but also to ensure data contents integrity. Further, it is used in locating tampered and modified places. However, the watermarking relational database has its own requirements, challenges, attacks and limitations. This paper, surveys recent database watermarking techniques focusing on the importance of watermarking relational database, the difference between watermarking relational database and multimedia objects, the issues in watermarking relational database, type of attacks on watermarked database, classifications, distortion introduced and the embedded information. The comparative study shows that watermarking relational database can be an effective tool for copyright protection, tampered detection, and hacker tracing while maintaining the integrity of data contents. In addition, this study explores the current issues in watermarking relational database as well as the significant differences between watermarking multimedia data and relational database contents. Finally, it provides a classification of database watermarking techniques according to the way of selecting the candidate key attributes and tuples, distortion introduced and decoding methods used. © 2006-2016 Asian Research Publishing Network (ARPN).

## Author keywords

Attacks; Database watermarking; Digital watermarking; Relational databases; Watermarking techniques

ISSN: 18196608 Source Type: Journal Original language: English

Document Type: Article

Publisher: Asian Research Publishing Network

## References (68)

[View in search results format](#) All [Export](#) | [Print](#) | [E-mail](#) | [Save to PDF](#) | [Create bibliography](#) Al-Sayid, N.A., Aldlaen, D.1 [Database security threats: A survey study](#)(2013) *2013 5th International Conference on Computer Science and Information Technology, CSIT 2013 - Proceedings*, art. no. 6588759, pp. 60-64. [Cited 6 times](#).

ISBN: 978-146735825-5

doi: 10.1109/CSIT.2013.6588759

[View at Publisher](#) Franco-Contreras, J., Coatrieux, G., Cuppens-Bouahia, N., Cuppens, F., Roux, C.2 [Authenticity control of relational databases by means of lossless watermarking based on circular histogram modulation](#)(2013) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 8203 LNCS, pp. 207-222. [Cited 2 times](#).

ISBN: 978-364241097-0

doi: 10.1007/978-3-642-41098-7\_14

[View at Publisher](#)

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert](#)[Set citation feed](#)

Related documents

[Watermarking techniques for relational databases: Survey, classification and comparison](#)Halder, R. , Pal, S. , Cortesi, A.  
(2010) *Journal of Universal Computer Science*[Prefix oriented N4WA coding scheme for improved tampering detection in relational data](#)Haider, W. , Sharif, M. , Bashir, H.  
(2016) *Kuwait Journal of Science*[A hybrid watermarking scheme for relational databases copyright protection and tamper proofing](#)Hamadou, A. , Sun, X. , Shah, S.A.  
(2011) *International Journal of Advancements in Computing Technology*[View all related documents based on references](#)

Find more related documents in Scopus based on:

[Authors](#)[Keywords](#)