Cryptanalysis of ID-Based Deniable Authentication Protocol Based On Diffie-Hellman Problem on Elliptic Curve

Authors : Eun-Jun Yoon

Abstract : Deniable authentication protocol is a new security authentication mechanism which can enable a receiver to identify the true source of a given message, but not to prove the identity of the sender to a third party. In 2013, Kar proposed a secure ID-based deniable authentication protocol whose security is based on computational infeasibility of solving Elliptic Curve Diffie-Hellman Problem (ECDHP). Kar claimed that the proposed protocol achieves properties of deniable authentication, mutual authentication, and message confidentiality. However, this paper points out that Kar's protocol still suffers from sender spoofing attack and message modification attack unlike its claims.

Keywords : deniable authentication, elliptic curve cryptography, Diffie-Hellman problem, cryptanalysis

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