**PUBLIC VERIFIABILITY FOR ENHANCEMENT OF SECRET DATA DELETION WITH TIMEOUT**

A PROJECT REPORT

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**BONAFIDE CERTIFICATE**

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**ABSTRACT**

Existing software-based data erasure programs can be summarized as following the same one-bit-return protocol: the deletion program performs data erasure and returns either success or failure. Here we present a cryptographic solution that aims to make the data deletion process more transparent and verifiable. In contrast to the conventional black/white assumptions about TPM (i.e., either completely trust or distrust), we introduce a third assumption that sits in between: namely, “trust-but-verify”. Our solution enables a user to verify the correct implementation of two important operations inside a TPM without accessing its source code: i.e., the correct encryption of data and the faithful deletion of the key. Finally, we present a proof-of-concept implementation of the SSE system on a resource-constrained Java card to demonstrate its practical feasibility. To our knowledge, this is the first systematic solution to the secure data deletion problem based on a “trust-but-verify” paradigm, together with a concrete prototype implementation.

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| **LIST OF ABBREVIATIONS** | |
| **ABBREVIATON** | **EXPANSION** |
| JDK | Java Development Kit |

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