IJARSCT



International Journal of Advanced Research in Science, Communication and Technology

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 5, Issue 5, June 2025



Implementation and Evaluation of an Automated Android Log Extraction Tool for Digital Forensics

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Abstract: Digital forensic investigations involving Android devices are frequently delayed by the manual nature of log extraction, which is often time-consuming, error-prone, and requires technical expertise. This paper presents the design, implementation, and evaluation of an Android Log Extraction Tool aimed at automating and simplifying the forensic log collection process. Utilizing Android Debug Bridge (ADB) and Logcat, the tool provides a graphical user interface (GUI) for ease of use, secure log handling, and integrated report generation. Performance analysis demonstrates over 80% improvement in log retrieval time, enhanced reliability, and user independence. This paper also explores legal considerations, comparative analysis with other methods, and potential enhancements. The results indicate the tool's practical value for digital forensic teams, particularly in resource-limited environments.

Keywords: Android forensics, ADB, Logcat, Mobile forensics, Log extraction, Data integrity, Digital forensics



