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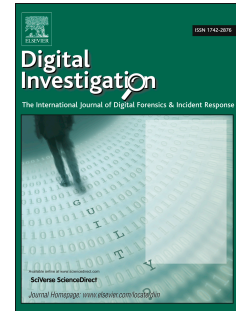
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Logical Acquisition Method Based on Data Migration for Android Mobile Devices

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Abstract:

Android dominates the mobile operating system market. The data acquisition method of Android devices has been the focus of research on mobile forensics technology. However, due to the continuous updates of the Android system version and the deployment of security technologies, existing data acquisition methods are limited and difficult to apply to new Android mobile devices. In order to address this problem, we propose a logical acquisition method based on system-level data migration services provided by Android mobile device manufacturers. The experimental result demonstrates that, for unrooted Android mobile devices, the proposed method is superior to existing logical forensic methods in terms of data acquisition capability.

Keywords: Android mobile device forensics; System-level data migration; Logical acquisition method.

1 Introduction

With the rapid development of mobile network technology, mobile devices are becoming more and more powerful. In 2017, mobile smartphone shipments amounted to around 1.47 billion units¹. As of the second quarter of 2017, Android accounted for approximately 87.7% of the mobile OS market share². Android mobile devices play a very important role in people's lives and jobs, and the importance of Android forensics is increasing.

Data acquisition is an important step in the mobile device forensics process. However, the continuous updates of Android system and the deployment of security technologies make it very difficult to acquire data from an unrooted Android device of the latest system version.

Mobile device data migration refers to the data backup, transmission and restore from a mobile device to another mobile device. In order to gain economic benefits, many Android device manufacturers have provided system-level data migration tools to facilitate the replacement of new devices for users.

This paper proposes a Logical Acquisition method based on system-level data migration, which supports the logical acquisition of system application data and third-party application data for unrooted devices with the latest Android system version, and has a wide applicability.

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