

ANALISIS KEAMANAN APLIKASI *MOBILE* SISTEM INFORMASI PANEN SAWIT MENGGUNAKAN *MOBILE SECURITY FRAMEWORK*

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ABSTRAK

Keamanan aplikasi *mobile* menjadi aspek penting seiring meningkatnya penggunaan aplikasi berbasis *Android* yang mengelola data operasional. Aplikasi *mobile* Sistem Informasi Panen Sawit digunakan untuk mendukung pencatatan dan pengelolaan data panen, namun belum dilakukan evaluasi keamanan secara menyeluruh sebelum diterapkan pada lingkungan operasional. Penelitian ini bertujuan untuk menganalisis keamanan aplikasi tersebut menggunakan *Mobile Security Framework (MobSF)* melalui pendekatan analisis statis dan analisis dinamis. Analisis statis digunakan untuk mengidentifikasi kelemahan struktural aplikasi tanpa menjalankannya, sedangkan analisis dinamis dilakukan untuk mengamati perilaku aplikasi saat dijalankan dan interaksinya dengan *API backend*. Hasil analisis statis awal menunjukkan aplikasi berada pada kategori *Medium Risk* dengan *App Security Score* sebesar 43/100. Setelah dilakukan lima tahap perbaikan yang divalidasi melalui enam kali pemindaian, skor keamanan meningkat menjadi 67/100 dan masuk kategori *Low Risk*. Analisis dinamis menunjukkan aplikasi relatif aman pada sisi klien dengan komunikasi *HTTPS* yang terenkripsi dan perilaku *runtime* yang normal. Namun, ditemukan kelemahan pada sisi *backend* berupa *endpoint API* tanpa autentikasi dan validasi hak akses, yang berpotensi menimbulkan kerentanan *Broken Access Control* dan *Insecure Direct Object Reference (IDOR)*. Penelitian ini menegaskan bahwa meskipun perbaikan statis meningkatkan keamanan struktural aplikasi, penguatan keamanan backend tetap diperlukan untuk menjamin keamanan aplikasi secara menyeluruh.

Kata Kunci: Keamanan aplikasi *mobile*, *Mobile Security Framework (MobSF)*, analisis statis, analisis dinamis, *API backend*.

SECURITY ANALYSIS OF THE MOBILE APPLICATION OF PALM HARVEST INFORMATION SYSTEM USING MOBILE SECURITY FRAMEWORK

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ABSTRACT

The security of mobile applications has become a critical aspect due to the increasing use of Android-based applications that manage operational data. The Palm Harvest Information System is a mobile application developed to support the recording and management of palm oil harvest data; however, a comprehensive security evaluation had not been conducted prior to its deployment in an operational environment. This study aims to analyze the security of the application using the Mobile Security Framework (MobSF) through static and dynamic analysis approaches. Static analysis was used to identify structural vulnerabilities without executing the application, while dynamic analysis was conducted to observe runtime behavior and interactions with the backend API. The initial static analysis indicated that the application was categorized as Medium Risk with an App Security Score of 43/100. After five stages of security improvements validated through six scanning iterations, the security score increased to 67/100, placing the application in the Low Risk category. Dynamic analysis showed that the client-side application was relatively secure, as evidenced by encrypted HTTPS communication and normal runtime behavior. However, weaknesses were identified on the backend side, where several API endpoints were accessible without authentication and access validation, potentially leading to Broken Access Control and Insecure Direct Object Reference (IDOR) vulnerabilities. These findings indicate that although static improvements enhance structural security, strengthening backend security remains essential to ensure comprehensive application security.

Keywords: mobile application security, Mobile Security Framework (MobSF), static analysis, dynamic analysis, API backend