INVESTIGASI FORENSIK DIGITAL *SMART* CCTV PADA EKOSISTEM *SMART HOME* MENGGUNAKAN STANDAR ACPO DAN SNI ISO/IEC 27037:2014

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INTISARI

Latar Belakang: Perkembangan teknologi *smart home* memicu potensi kejahatan berbasis IoT, seperti *smart* CCTV yang terhubung dengan sistem Home Assistant dan Tuya serta menyimpan data digital bernilai forensik. Namun, akuisisi dan analisis bukti digital dari sistem ini masih jarang diteliti, khususnya terkait penerapan standar forensik yang sah di Indonesia.

Tujuan: Mengembangkan metode investigasi forensik digital pada perangkat smart home, khususnya smart CCTV, berdasarkan pedoman ACPO dan SNI ISO/IEC 27037:2014 untuk menjamin validitas dan integritas barang bukti digital.

Metode Penelitian: Identifikasi, pengumpulan, akuisisi fisik dan logis, preservasi, dan analisis. Akuisisi dilakukan menggunakan *tools open s*ource seperti FTK *Imager*, Autopsy, DMDE, SQLite *Viewer*, dan *tools carving* untuk memeriksa SD *card* CCTV, Home Assistant, serta direktori aplikasi Tuya pada *smartphone* Xiaomi yang sudah di *root*.

Hasil: *File* gambar atau video dari SD *card* CCTV tidak dapat dibuka akibat kerusakan, *fragmentasi*, atau enkripsi. Home Assistant menyimpan konfigurasi dan *log streaming* ke server Tuya melalui RTSP. Di Tuya, ditemukan *database* SQLite berisi *ID* perangkat dan topik MQTT, namun sebagian *file* terenkripsi.

Kesimpulan: Investigasi forensik digital berbasis standar ACPO dan SNI ISO/IEC 27037:2014 berhasil diterapkan pada ekosistem *smart home.* Artefak digital seperti log, konfigurasi sistem, *metadata*, dan *file database* dinyatakan sah sebagai barang bukti sesuai Pasal 6 UU No. 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik.

Kata kunci: forensik digital, *smart* CCTV, *smart* home, ACPO, bukti digital.

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ABSTRAC

***Background**: The development of smart home technology has increased the potential for IoT-based crimes, such as those involving smart CCTV connected to systems like Home Assistant and Tuya, which store valuable digital forensic data. However, the acquisition and analysis of digital evidence from these systems remain rarely explored, especially regarding the implementation of legally recognized forensic standards in Indonesia.*

***Objective:** To develop a digital forensic investigation method for smart home devices, particularly smart CCTV, based on ACPO guidelines and SNI ISO/IEC 27037:2014 to ensure the validity and integrity of digital evidence.*

***Method:** Identification, collection, physical and logical acquisition, preservation, and analysis were carried out. The acquisition process used open-source tools such as FTK Imager, Autopsy, DMDE, SQLite Viewer, and carving tools to examine the CCTV SD card, Home Assistant, and the Tuya application directory on a rooted Xiaomi smartphone.*

***Result:** Image or video files from the CCTV SD card could not be opened due to damage, fragmentation, or encryption. Home Assistant stores camera configurations and streaming logs to the Tuya server via RTSP. In the Tuya app, a SQLite database containing device IDs and MQTT topics was found, but some files were encrypted and inaccessible.*

***Conclusion:** The implementation of digital forensic investigation based on ACPO and SNI ISO/IEC 27037:2014 standards was successfully applied in the smart home ecosystem. Digital artifacts such as logs, system configurations, metadata, and database files were deemed valid as digital evidence in accordance with Article 6 of Indonesian Law No. 11 of 2008 on Electronic Information and Transactions.*

***Keywords:** digital forensics, smart CCTV, smart home, ACPO, digital evidence.*

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