C29 Smart Home (Home Automation) Forensics: An Analysis of an Amazon® Echo™

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After attending this presentation, attendees will obtain the results of research regarding the availability of forensic artifacts maintained by smart home (home automation) devices such as the Amazon® Echo™.

This presentation will impact the forensic science and investigative communities by providing sources for data potentially relevant to criminal investigations maintained within home automation devices such as the Amazon® Echo™.

Digital Forensic Examiners (DFEs) are responsible for extracting data from a growing number of electronic devices and performing analyses on a multitude of different resultant data types. It is the responsibility of the members of the Digital and Multimedia Evidence (DME) community (DFEs and researchers) to determine how to extract data maintained on these new electronic devices, interpret the extracted data correctly, and discover if the data may be a potentially useful source of information to aid in future investigations. With the expansion of smart home devices, it has become the responsibility of the DME community to search for potentially pertinent data stored within devices such as the Amazon® Echo™.

The Amazon® Echo™ is a voice-enabled wireless smart speaker developed by Amazon.com, Inc. and released in the United States in 2015. The device consists of a cylindrical speaker with a seven-piece microphone array. A smaller version of the device was released as the Amazon® Echo Dot™. The device connects to the voice-controlled intelligent personal assistant service, Alexa™, which responds to a "wake word" of the name "Alexa." The device is capable of voice interaction, music playback, making to-do lists, setting alarms, streaming podcasts, playing audio books, and providing weather, traffic, and other real-time information. It can control several smart devices using itself as a home automation hub. In the default mode, the device continuously listens to all speech, monitoring for the wake word to be spoken. The device hears from across the room with far-field voice recognition, even while music is playing.

This presentation will consist of an overview of the Amazon® Echo™ device, a history of the device's usage in police investigations, and an overview of data types extracted from exemplar devices. This presentation will provide the results of an exploratory study into forensic artifacts left behind on the Amazon® Echo™ and explore how these artifacts may be used to aid future criminal investigations.

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Amazon® Echo™, Forensic Artifacts, Digital

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