C15   An Analysis of Acquisition Methods of Ring Video Doorbell Files

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Learning Overview: After attending this presentation, attendees will have a better understanding of the different methods available to acquire Ring Inc. home security video files as well as the different quality and attributes available with each method.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by quantifying the available information to examiners (video resolution/quality, availability of metadata, embedded timestamp) when acquiring Ring video files through different methods, resulting in a more informed approach to file acquisition.

Ring Inc. has millions of users and has partnered with over 500 law enforcement agencies nationwide in providing access to video that is streamed to the Ring Inc. servers.[1] Should that video capture any criminal or other activity that the user wishes to share, there are at least eight ways that the user could transmit the video using methods provided within the Ring Inc. website and mobile app. When applicable, video files can also be obtained directly from Ring Inc. through legal process or by law enforcement through the Ring Neighbors Public Safety Service (NPSS). An additional method of acquisition is also available using common website debugging tools.

Current best practices suggest legal service directly to the service provider to obtain video files as the service provider would likely provide the best quality video and contain the most available data for examiners.[2] This study is not aware of any research that has been conducted verifying this guidance and/or evaluation of video files received from Ring video doorbells compared to other acquisition methods. Additionally, Ring Inc. provides no documentation and/or guidance as to the best method to download/acquire video files. Legal service to the provider is often more time consuming and puts an additional burden on the investigator/examiner, the judiciary, and the provider, yet may not yield any better results.

Being that there are at least eight different methods of acquisition/download, it is possible that different methods may yield different results (e.g., resolution, metadata, embedded timestamp). In order to fully evaluate these variables, research was conducted on Ring video doorbell files acquired/downloaded using eight different methods. File format and structure was evaluated to identify methods that contained the same data as well as methods that could produce additional information that could benefit examiners (i.e., embedded timestamp, file creation metadata).

The results of this research can serve to help examiners make informed decisions on the best method of acquisition based upon specific examination needs. This research could also assist examiners/investigators in identifying the provenance of purported Ring video doorbell video files submitted to them. This information could not only help authenticate videos but ensure that the best available video files are used in any subsequent examination.

Reference(s):

1. J. Herrman. Who's Watching Your Porch? *The New York Times*. Last modified 19 January 2020. https://www.nytimes.com/2020/01/19/style/ring-video-doorbell-home-security.html.
2. Scientific Working Group on Digital Evidence. *SWGDE Best Practices for Digital & Multimedia Evidence Video Acquisition from Cloud Storage*. Last modified 25 April 2018. https://drive.google.com/file/d/1p_-8SWRmPxwKtT1V7i3vOIZ30RgF5zhn/view.

Video Forensics, Cloud Data, Video Acquisition

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