C26 Defining a Taxonomy of Digital Evidence Artifacts Available From Small Unmanned Aircraft Systems

Steven B. Watson, BA, VTO, 325 Interlocken Parkway, Bldg C, Broomfield, CO 80021-8042; and David Rathbone, VTO, 325 Interlocken Parkway, Bldg C, Broomfield, CO 80021*

After attending this presentation, attendees will better understand that data of evidentiary value exists on small unmanned aircraft systems, the affiliated devices and applications, and that a logical taxonomy of data can be observed among the data types present on the devices.

This presentation will impact the forensic science community by sharing the results of data acquisitions from a variety of consumer and professional drones and by increasing comprehension of a taxonomy of the data existing on small unmanned aircraft systems as a starting point for reporting, artifact identification, and support by tools and techniques.

In the past ten years, a technology expansion on traditional remote-controlled aircraft has emerged globally. Consumer- and professional-level drones, referred to as Small Unmanned Aircraft Systems (SUAS), resemble miniature planes or helicopters and range in weight from less than 1 pound to more than 50 pounds. Prices range from a few hundred dollars to thousands of dollars.

Data of evidentiary value exists on small unmanned aircraft systems and the affiliated devices and applications. Law enforcement agencies are already receiving SUAS devices as evidence, but limited tools and techniques exist within the digital forensics community to address this new technology. Law enforcement, forensic service providers, and forensic tool vendors are actively seeking to identify what types of data exist on SUAS systems to determine if SUAS systems should be interrogated for digital evidence artifacts.

Data is acquired from data storage locations of the small unmanned aircraft systems using logical, serial, and physical acquisitions as defined in industry best practices published by the Scientific Working Group on Digital Evidence (SWGDE).[1] Where available, data is parsed with industry-available tools or using custom development when no industry tools are available. The data artifacts are examined and classified to identify a taxonomy of what data presently exists on small unmanned aircraft systems.

This study examines the data types presently on SUAS systems and seeks to define a taxonomy for use by the digital forensics community and law enforcement agencies. The outcome of this study is a proposed initial taxonomy of data from SUAS devices that can be expanded as technology evolves and additional data artifacts are discovered.

The classification of data of evidentiary value from small unmanned aircraft systems will guide law enforcement, forensic service providers, and the digital forensics community as they encounter these new technology devices during investigations.

Reference(s):

1. Scientific Working Group on Digital Evidence. SWGDE Best Practices for the Acquisition of Data from Novel Digital Devices. SWGDE. Washington, DC, 2017.

Drones, SUAS, Drone Forensics

*Presenting Author