Drone Forensics: A Case Study on DJI Mavic Air 2

James Kin Wah Lan*, Frankie Kin Wah Lee*

*Digital & Information Forensics Centre of Expertise, HTX (Home Team Science & Technology Agency), Singapore

James_Lan@htx.gov.sg, Frankie_Lee@htx.gov.sg

Abstract — With the inundation of more cost effective and improved flight performance Unmanned Aerial Vehicles (UAVs) into the consumer market, we have seen more uses of these for both leisure and business purposes. As such, demand for digital forensic examination on these devices has seen an increase as well. This research will explore and discuss the forensic examination process on one of the more popular brands of UAV in Singapore, namely DJI. The findings are from the examination of the exposed File Transfer Protocol (FTP) channel and the extraction of the Data-at-Rest on the memory chip of the drone. The extraction was done using the Chip-Off and Chip-On technique.

Keywords — DJI, Mavic Air 2, FTP, Drone Forensics, Unmanned Aerial Vehicle

James received the Master of Computing (Security) from the National University of Singapore in 2009. From 2014 to 2019, he was the Officers-in-Charge / Principal Forensic Examiner with the Technology Crime Forensic Branch, Singapore, focusing on the digital forensic examination and investigation. Since 2019, he has been with the HTX (Home Team Science & Technology Agency), Singapore. He is currently the Acting Deputy Director of Digital & Information Forensics Centre of Expertise. His research interests are in the area of mobile/IoT security, vulnerability hunting and software reverse engineering. He has contributed widely to the forensic and security community through sharing, teaching and implementation of domain skills and knowledge.

Frankie received the Bachelor degree in Internet Science and Technology from University of Wollongong, Singapore in 2003. He is currently a Digital Forensics Research Engineer with HTX (Home Team Science and Technology Agency). His research interests include drone forensic, IoT devices, vehicular infotainment system and data recovery.