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Gareth Davies

University of South Wales, UK

Cyber investiagtions: Digital forensics & automobile electronics II

Today's vehicles are fitted with systems that deliver a more connected driving experience than ever before, with many automobile companies rolling out systems capable of synchronising with both the owner's and passenger's device(s) via wired and wireless interfaces. This makes for a vehicle environment in which advanced device interactivity becomes possible. What's more, most of the in-car systems are connected to the CAN bus – a dedicated central network on which the various ECU components communicate. With this in mind, it is believed that the systems in question have the potential to generate and maintain evidence that may be of digital forensic value. Considering the nature of forensics, it is paramount for emerging technology to be identified and investigated early. Research work undertaken into three different vehicle infotainment systems–namely the Ford Sync module, Volkswagen, and Mercedes are discussed. The results of said research are surprising with large amounts of relevant data pulled from the systems– certainly enough to entice the field on bringing more attention to the subject of cyber security and cyber vehicle forensics. In recent years the focus on infotainment system and assisted driving have pushed the automobile industry towards a more synchronised environment. Owners are now able to not only access what can now be considered as simple features reading content from CDs/DVDs/SD Cards/USBs, but also carry out more advanced operations such as, using in-built GPS navigation, pairing their mobile devices for app utilisation; accessing calls/texts and other app communications, surfing the web via an inbuilt SIM card and web browser, or even performing basic vehicle operations such as locking/unlocking/honking via an app that connects the owner's mobile device to the vehicle. Creating such a synchronised environment and by introducing additional data channels it is likely that a wealth of relevant forensics information is in existentence on various car platforms, which could provide value in an investigation, however, with the many different infotainment systems and manufacturers, paired with the current lack of research and focus in this area of forensics, data acquisition is difficult, oftern unreliable and certainly a challenge to interpret from these bespoke systems.

Biography

Gareth is a Senior Lecturer (Digital Forensics) and Researcher at University of South Wales. The main focus of his research is the forensic analysis of physical data storage technologies, in particular data recovery of malfunctioning hardware such as hard disk drives & memory chip-based devices. Over the past eight years, he has built a name for himself as a Consultant and Investigator on forensic and evidential recovery cases. Clients include UK Cyber Crime Units, The National Crime Agency, Government and large commercial organisations. He is registered as an expert in Forensic Data Recovery on the National Crime Agency database. He has organised international conferences and regular workshops to demonstrate new research & cutting edge technologies to the law enforcement community. He is also a committee member of the Association of Digital Forensics, Security and Law (ADFSL) based in the USA.

gareth.davies@southwales.ac.uk

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