A. Purpose:

To assist law enforcement agencies in retrieving data from infotainment/telematics systems located in vehicles.

Many of the newer vehicles encountered today are equipped with an Infotainment and or a Telematics system. The Infotainment system is a combination of information and entertainment for use within the vehicle. Pairing to this system occurs through Bluetooth® or USB connection to the vehicle system and data is transferred or streamed. Other information contained may also include vehicle performance, maintenance and status. The telematics system is a combination of the telecommunication and information for interaction of the vehicle to exterior sources. This interaction can occur via wireless connectivity by utilizing a paired mobile device or onboard cellular connectivity to the internet or a dedicated service. Depending on the vehicle, these may be one hardware system or separate modules.

The vehicle's manufacturer and OEM (original equipment manufacturer) will determine how much data and the type of data that is contained in these systems. The following data may be present:

- Global Positioning System events and possible locations (not available is navigation is not included in the vehicle model). List of entered addresses, routes or track points captured at various intervals including possible velocity.
- Vehicle information such as serial/part number of infotainment/telematics system, software version of the operating system and original vehicle identification number (VIN).
- Loaded entertainment files such as audio, video or images.
- Connected devices such as media players, USB devices, SD cards with some containing unique serial numbers or identification numbers.
- Bluetooth or Wifi connections with names of connected devices that may be personalized along with MAC address.
- Call logs, contacts and SMS messages with possible time stamps included.
- Vehicle events such as gear shifting, lights on/off, doors opening/closing, odometer readings, pairings and attachments and system reboots.

B. Responsibility:

Forensic Science Examiners assigned to the Multimedia and Image Enhancement and/or Computer Crimes Unit or performing casework in the Unit.

C. General Procedure:

1. Laboratory personnel shall assist the law enforcement agency in retrieving data and/or the infotainment/telematics system from a vehicle in accordance to the law. The burden of consent or search rights will be the responsibility of the requesting agency.

Upon request for vehicle data retrieval assistance, the Deputy Director or their designee shall be informed of the request and will determine if the Unit will provide assistance. All contact information will be recorded on the Crime Scene Assistance Form (current version is located in the Controlled SOPs folder – Other Forms).

2. When processing a vehicle, there are in general two possible routes that will occur depending on the make, model and year of a vehicle and the iVe Berla software's recommendation. The data may be extracted on-site and then analyzed at DSS or the Infotainment/Telematic system must be removed and analyzed at DSS.

   Prior to responding to process a vehicle, the examiner will use QR-CC-58 (Vehicle Forensics - Vehicle Data Extraction/Analysis Worksheet) to determine if the vehicle in question is supported by the software to perform the retrieval/extraction. This QR will be used to document if the vehicle is supported or not by the software.

3. If the vehicle is supported, examiners will make arrangements to meet law enforcement personnel at the location of the vehicle. Law enforcement personnel must be present at all times on-scene when the Unit is conducting retrieval.

4. The examiner will document capture techniques utilized in obtaining the data or the infortainment/telematics system on QR-CC-58 (Vehicle Forensics - Vehicle Data Extraction/Analysis Worksheet).

5. If data files are able to be extracted, the requesting agency will provide a completed Request for Analysis Form (RFA) (SOP-ER-02:1). The request will indicate that the data files will be brought back to the Laboratory to be converted into a readable format depending on the data information requested in the case. A copy of the extracted data will be burned to CD/DVD media and will be provided to the officer. The officer will sign the RFA and also initial the QR-CC-58 indicating the transfer of the extracted data completing the Chain of Custody information.

   Upon return to the Laboratory, the examiner will download the recovered data files to some type of electronic media and submit these files to the Evidence Receiving Unit. A laboratory case will be initiated or continued in Justice Trax and the submitted evidence will be assigned to the examiner to conduct the analysis. The request type for this analysis will be "Vehicle Data Acquisition/Analysis". The electronic media will be transferred to the examiner to conduct the analysis of the data.

   The examiner will analyze the extracted data in the iVe software and provide any case related information to the submitting agency. A report will be generated providing the data information requested by the requesting agency.

QR-CC-58 (Vehicle Forensics - Vehicle Data Extraction/Analysis Worksheet) will also be used for the analysis step of this process and the QR-CC-5 (Laboratory Notes). If additional pages are necessary, the examiner may use the QR-CC-6 (Analysis Notes) worksheet.

6. In the event that the infotainment/telematic system must be removed from the vehicle this system will be disassembled and turned over to the law enforcement agency representative. The law enforcement agency will handle all chain of custody, consent/warrant and other paperwork relating to the seizing of the system. The law enforcement will be responsible for submitting the system to the laboratory to be examined. A laboratory case will be initiated or continued in Justice Trax . The request type for this analysis will be "Vehicle Data Acquisition/Analysis". The entire infotainment/telematics system will be transferred to the examiner to begin working on this request.

D. Hot Swapping Method

1. An alternative method that can be used is to create a forensic image of the firmware locked hard drive, also known as "Hot-swapping". The examiner should review the available options prior to using this technique. If other forensically sound techniques are available, these should be attempted first. This process will "trick" the hard drive to think that it is still connected to the module and connected to the vehicle. The examiner may be able to conduct this by creating SATA splitter cables etc, for a more secure connectivity.

   To perform this action the following hardware can be used:

   a. A portable imaging device (such as theTX1)

   b. A male to female SATA cable (to connect the hard drive's data port to the infotainment unit)

   c. A female-to-female SATA cable (to connect the hard drive's data port to the Tableau)

   d. A portable imaging device SATA power cable (to provide constant power throughout, from the Tableau)

   e. A destination hard drive (bigger than the source hard drive)

   With the vehicle battery disconnected and the hard drive still removed from the infotainment unit, 'hook up' the infotainment function cables from the vehicle (do not screw in the module as access to the hard drive bay is needed). This will give the examiner access to insert a male to female SATA cable into the hard drive data port on the NTG-6 module.

   Connection:

a. The hard drive power cable to the portable imaging unit

b. The female-to-female SATA data cable to the portable imaging unit

c. The portable imaging unit power to the Tableau unit.

d. The male-to-female SATA cable to the infotainment unit

e. The forensic image destination hard drive to the portable imaging unit

2. Connect the hard drive's data port to the male to female cable leading to the infotainment unit and the hard drive power cable from the portable hard drive unit to the hard drive

3. Turn on the power to the portable imaging unit. Wait for the source hard drive to spin up and then re- connect the cars battery.

4. The vehicle's infotainment system should boot up as normal and the infotainment functions (maps, etc) should be accessible on the center screen.

5. Disconnect the data cable, leading to the infotainment unit, from the hard drive.

6. Connect the female-to-female data cable leading to the portable imaging unit to the hard drive.

7. Wait for the Tableau to show a connected source and then proceeded to create a forensic image. The hard drive should start imaging.

D. References:

iVE Vehicle Forensics Help File in software or online

Training books and notes from applicable software/methods