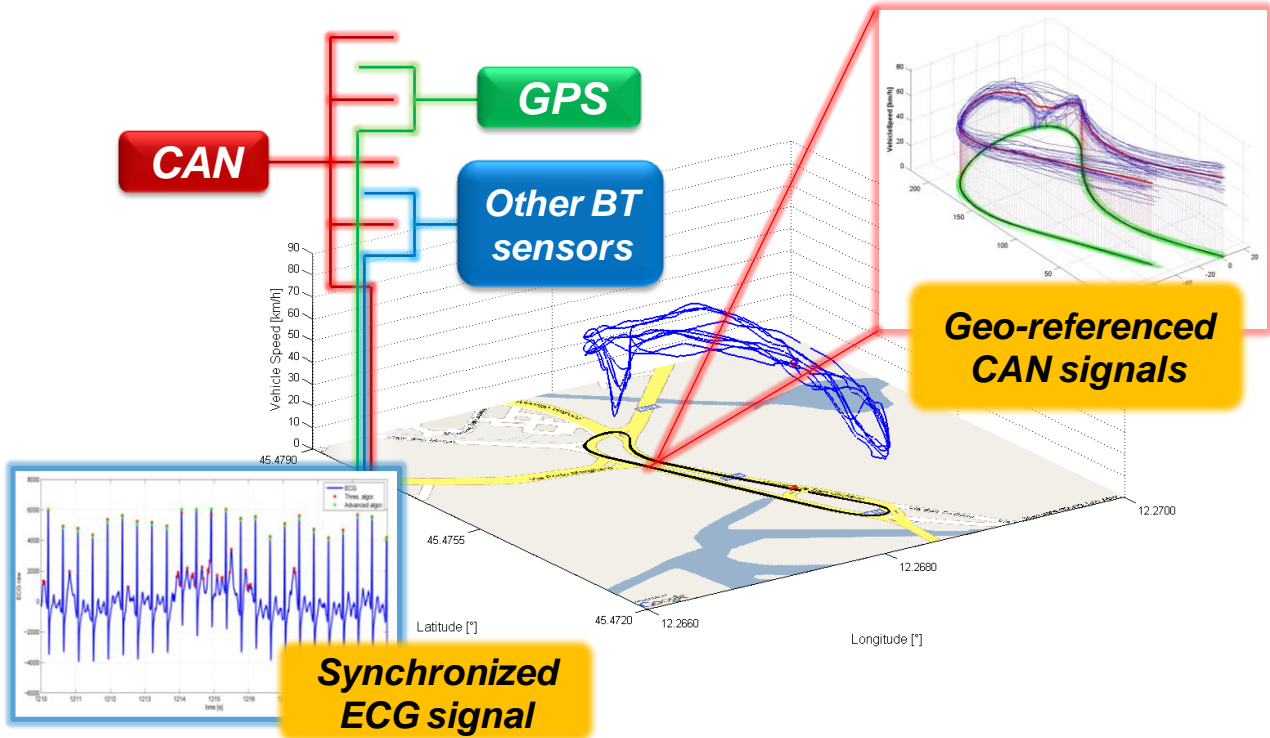




# CANpanionTools™

POST PROCESSING TOOLS FOR THE AUTOMATIC GENERATION OF EXCEL BASED REPORTS OF THE ACQUISITION SESSIONS AND THE ANALYSIS OF DATA ACQUIRED BY THE CANpanion™ MAIN PRODUCT



## OVERVIEW

**CANpanionTools™** is a desktop application for the extraction of the information enclosed in the compressed (.zip) files acquired and uploaded to server by the **CANpanion™** platform. The program allows the automatic generation of reports and the extraction of the set of signals of interest in several data format with a quick three step procedure, in particular in a MATLAB®<sup>1</sup> ready structure.

## SOFTWARE DESCRIPTION

**CANpanionTools™** is a user friendly application developed in MATLAB® environment for the analysis of data through the generation of:

- MS Excel® based reports summarizing the main information on the acquisition session
- MATLAB® ready data format or Comma Separated Value (.csv) files including a set of signals selected by the user

<sup>1</sup> MATLAB® is a product made by Mathworks Inc. (Natick, MA)



## AUTOMATIC MS Excel® BASED REPORTS

The automatic generation of reports allows the user relying on a secure, time-saving, efficient and standardized procedure for tests sessions tracking. These reports include four different sheets:

1. General Data containing general information on the acquisition session (e.g. date, driver, type of vehicle, settings, SW version, etc...)
2. Signal Specs containing the specifications of the acquired signals

3. CAN HW Settings containing the CAN hardware settings (e.g. network bit rate)
4. Data Catalogue containing the list of files generated by the **CANpanion™** (for each file the initial and final latitude, longitude and time are provided, if the GPS signals were present)

## SIGNAL EXTRACTION

The signal extraction foresees three steps:

1. Step 1: selection of the signal to extract
2. Step 2: selection of the files containing the CAN messages (these files are listed in the sheet Data Catalogue of the automatic report)
3. Step 3: user information (e.g. file name) and selection of interpolation time interval (as option).

The signal extraction provides, besides the raw data signals, also a synchronized matrix with the whole set of signals selected by the user referring to a common time basis, generated by the CAN network.

## DATA FORMAT AND STRUCTURE

The signal extraction procedure provides either MATLAB® ready data format (MATLAB® structure saved in a .mat file) or Comma Separated Value (.csv) files.

The output structure includes the following 1<sup>st</sup> level fields:

- **.extracted\_series\_info** containing information on the extraction session (e.g session name, date and author of the extraction, etc.)

- **.DA\_info** containing information on the data acquisition (CANpanion version, start/stop time, etc.)
- **.circ\_buffer\_set** containing information on the acquired buffer set (e.g. number/name of files, extraction catalogue, etc.)
- **.extract\_intp\_sync\_sig** containing the extracted signals and signals specifications (e.g. raw data, synchronized matrix, etc.)

## MATLAB® PLOT GENERATION

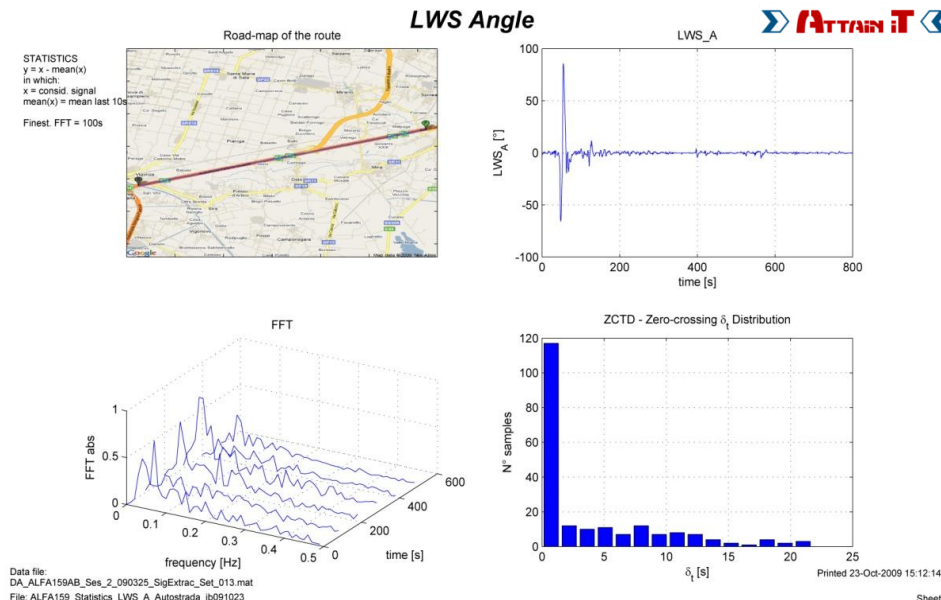
The MATLAB® ready data format allows generating professional plots, with integrated company logo, using a flexible configuration file provided together with **CANpanionTools™** and running in MATLAB® environment.

The configuration file can easily be filled-in indicating the signals to plot and tags to be reported in the figure such as file name, data file name, title. Axes names and signal units are automatically reported in the figure, thanks to the information contained in the output structure described above.

## SYSTEM REQUIREMENTS

Windows XP

MATLAB® for exploitation of the data structure and for plots generation



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