

CANgineII

Android API



The Android API for the CANgineII-BT allows easy communication with the digital tachograph (DTCO) through the CANgineII Bluetooth® interface and offers functionalities to:

- Access real-time FMS data of the vehicle
- Remote authentication with company's card
- Remote download of tachograph's mass data and driver cards
- Processing and analysis of tachograph's mass data and driver cards
- Storage of tachograph's mass data and driver cards

This can be used to develop Android applications in order to:

- Data archival solutions for tachograph's mass data and driver cards
- Analysis and optimization of driving behavior
- Remote monitoring of remaining driving time



CANgineII-BT

After installing in the vehicle the CANgineII-BT is hidden and not visible anymore. Therefore, bothersome and error-prone plug connections become obsolete. The connection through Bluetooth® allows only authorized Android devices unrestricted access to vehicle and tachograph data.

Android Platform

The CANgineII Android API was designed specifically for Android devices and is compatible with Android devices starting from platform version 2.3 (Gingerbread). The reasonable prices and broad availability of Android devices, as well as integrated GPS positioning and GSM connection, make the Android platform favorable to be used as telematics units in vehicles.

The CANgineII Android API encapsulates different protocols used for communicating with the CANgineII and the digital tachograph and offers a well-documented interface.

Real-Time FMS Data

The real-time FMS data of the CANgineII-BT can be directly received and interpreted. Android devices come with enough storage capacity to record the data for longer periods for later analysis.

The company can analyze vehicle data and driving behavior of drivers and improve these by taking appropriate measures.

Remote Download

Downloading tachograph's mass data and driver cards can happen remotely, no physical access to the vehicle is required in order to comply with the regulations regarding data archiving.

An authentication with a company card is required, which has to be accessible through a company's server. A connection to the server is only required for authentication, afterwards data of the digital tachograph can be downloaded for a period of 24 hours without additional authentication.

The interface allows downloading of tachograph's massdata (Overview, Activities, Events and Faults, Detailed Speed, Technical Data) as well as driver cards (driver and co-driver card slot). Activities can be requested for specific days as well as for a period of time.

Name	Type	Size
C_201310220635_K_Musterfrau_6_3100000005809000.DDD	DDD File	21KB
M_201310220637_VS_TK032_TACHONOVA.TK00032.DDD	DDD File	98KB

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Connection to Company's Card

The authentication for downloading the digital tachograph's data requires a company card. In order to connect the Android device with the company card through TCP/IP, the card has to be connected to a server running an appropriate server software.

A running example implementation of the server application for Windows, as well as the connection class for the Android library, is available. It includes source code and can be used for testing purposes.

All interfaces are designed in ways that allow implementation of user specific communication protocols and server applications when connecting the CANgineII-BT Android API with the remote company card.

Storage of Data

Using the library, downloaded data can be saved as files. The data is saved unmodified as received by the digital tachograph and contains the digital signature of the tachograph as well. There are interfaces for automatically generating filenames according to country specific regulations.

Analysis of Data

Special parser classes allow analyzing the content of tachograph's massdata as well as driver cards. All contained information can be queried through well-documented interfaces as processed data. Knowledge of the binary encoding of the data is not required.

Amongst other things, it is possible to analyze activities of drivers and make statements regarding compliance of driving time and regarding remaining driving time.

Remote Download Example

```

ICANgine2Connection cangine =
    new CANgine2Bluetooth("00:07:80:74:97:AD");
ISmartCardConnection smartcard =
    new SmartCardConnection("192.168.114.61", 27015);
CANgine2Handler handler =
    new CANgine2Handler(cangine, smartcard);
handler.connect();
handler.authenticate( // authentication for download
    ActivityUploadRequest.getMinimumDate(),
    ActivityUploadRequest.getMaximumDate(),
    SimpleTransferRequest.Overview,
    SimpleTransferRequest.EventsAndFaults,
    SimpleTransferRequest.DetailedSpeed,
    SimpleTransferRequest.TechnicalData);
Calendar start = Calendar.getInstance();
start.add(Calendar.DATE, -7); // last week
MassData massData = handler.downloadMassData(start);
File file = massData.save(
    Environment.getExternalStorageDirectory());
  
```

