

YaCHA SECC - CHAdeMO Stack



Accelerate and make CHAdeMO developments more reliable

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Trialog is working on EV charge since more than 10 years and had several opportunities to develop a strong expertise on Electro-Mobility charge protocols like IEC 61851-1, DIN 70121, ISO 15118 and OCPP 1.6/2.0.

In this context, Trialog has developed several communication stacks and validation tools.

YaCHA, the SECC CHAdeMO Communication Stack is one of these stacks. It provides a robust and reliable communication stack to perform CHAdeMO 0.9 to 1.2 charge with a compatible vehicle over CAN.

If you are using the YaCCS stack for CCS communication: YaCHA is providing the same API and Data Model than YaCCS which greatly facilitate integration of both stacks in the same environment.

Supported Features

YaCHA supports the following features:

Function	Current status of the implementation	Details
CAN	100%	CAN 2.0B, 500kbps, 100ms
CAN messages	100%	0.9 to 1.2
CHAdeMO DC state machine	100%	
Dynamic charge	100%	Only supported in 1.2
Pause charge	100%	Only supported in 1.2
Charge nominal termination	100%	
Charge emergency termination	100%	
V2H	90%	Validated on simulator. Waiting for validation with compatible EV.

YaCHA has to be integrated inside a software which:

- controls the charging station and power transfer

- interacts with the required hardware part of CHAdeMO (Seq1, Seq2, Vehicle Proximity Signal, Vehicle Charge Permission, Plug lock, etc) and provide these information to YaCHA
- uses YaCHA to access the EV data
- provides to YaCHA the EVSE data
- interacts with the YaCHA state machine.

Technical Details

The YaCHA SECC stack is developed as a C/C++ programs using the open source Boost library and the Qt libraries (LGPL3+ only):

- C++11 is a minimal requirement
- CAN communication is based on Linux SocketCAN module

The YaCHA SECC stack is regularly used on Linux based OS with kernel 4.9.11 or 5.4:

- Minimal Linux kernel version: 3.4
- Compatible with at least Intel and ARM architectures

Typical hardware: Freescale i.MX287, RAM 128MB.

Validation and Interoperability

The YaCHA SECC stack is ready to use, validated with the Glodotech test system, the Comemso mini tester, Trialog test cases, and with existing vehicles. It is currently deployed in DC charging stations in France, and under deployment into charging stations by a australian manufacturer.

The interoperability with the following EVs has been covered using a test environment: Mitsubishi Outland, Nissan NV200, Nissan Leaf, Peugeot Ion and Tesla Model S (with adapter).

From Trialog knowledge, this covers most CHAdeMO vehicles in Europe.

Contact us

*For more information about **YaCHA**, the **SECC CHAdeMO Communication Stack**, please contact us: emobilitysales@trialog.com.*