

## 1 Scope

This document describes the releases of the Charge Point Software delivered with the ABL Single Board Computer SBC3. This software implements a smart controller for the ABL charging products like wall-boxes and charging stations. The following sections give an overview of the integrations and releases of the software.

Product names, brands, and other trademarks mentioned in this document are the property of their respective trademark holders.

## 2 Integrations

The software has been successfully integrated with the following operators and platforms:

- emonvia GmbH, Germany
- ENIO GmbH, Austria (ETSWeb)
- ladenetz.de Ready Plus (LISY)
- chargeIT (former: Belectric Drive; LMP)
- has.to.be, Austria (be.ENERGISED)
- Charge Point Services, UK (Genie)
- Virta Ltd., Finland
- beCharged, Belgium
- ChargeCloud GmbH
- Test systems: SteVe from RWTH Aachen, OCPP Stub 1.5 from OCA

## 3 Variants

### 3.1 Hardware

The SBC3 Charge Point Software is delivered in a single variant that covers all ABL products which are enabled with an SBC3 for use with OCPP.

### 3.2 Software

Each version of the SBC3 Charge Point Software is identified by a release label. This label is represented by the running software as well as in the update file names, as follows:

Release label: <major>.<minor>[p<patch-level>]

- Major: The major software version. Only stepped when minor numbering is maxed out or when major feature sets have been added to the software.
- Minor: The minor software version. Stepped on each new release.
- Patch level: A sub-version used for fixes to the current release. The first patch/bug-fix for a release is numbered starting at one.

Example: 1.1p3

In update file names the release label is embedded as follows:

File Name: <update-type>\_<label>.yar

- Update type:

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- “update”: A full software update.
- “incremental”: An incremental update, may rely on some base software version that has to be installed on the target, already. If this pre-requisite is not met, the updater routine rejects the incremental update.

Example: incremental\_1.1p3.yar

## 4 Releases

The most recent release is listed first. Major features that have been added are listed in the release they first appear in. For information on the complete feature set refer to the integration manual. Also, for each release the resolved and the known issues are listed.

### Version 1.5p1:

Date 2018-12-18

- Update of product templates

Resolved Issues:

- Fixed false assignment of backend-Url if no backend is configured.

### Version 1.5:

Date 2018-12-13

- Passwords are no longer saved in plain text.
- Support of Server Name Indication (SNI) for TLS
- Support of OCPP Configuration-Key "MinimumStatusDuration"

### Version 1.4p4:

Date 2018-12-05

Resolved Issues:

- Increased buffersize of middleware for exchanging messages between middleware and the Java application. This ensures that all devices can be reported to the application.
- Group-installations without a configured backend performed spordical reboots. This was because of an incorrect handling of pending requests. Fixed handling of requests if system is offline.

### Version 1.4p3:

Date: 2018-11-29

Resolved Issues:

- Reactivated slow version of modem initialization.
- Probing of all 16 possible RFID bus devices.
- Added Linux kernel patch for improving RS-485 bus handling. This resolves the EVCC2 F2 error state issue.

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**Version 1.4p2:**

Date: 2018-11-15

Resolved Issues:

- Resolved writing problems of the barebox which sometimes led to system crash at system update.
- Reintegrated phase rotation definitions in the product templates, which have been accidentally removed in software version 1.4p1.
- Corrected handling of EVCC state updates. This could have led to a state where you couldn't start a transaction.

Known Issues:

- see version 1.4

**Version 1.4p1:**

Date: 2018-09-10

Features:

- Update of product templates

Known Issues:

- see version 1.4
- Phase rotation definitions in the product templates are accidentally dropped.

**Version 1.4:**

Date 2018-08-31

Features:

- Added SBC-II as new hardware platform
- Migration of SBC3 to version 1.4
- Added support for ABL LTE dongle
- Experimental: Added support for ABL WLAN dongle
- Support of SmartCharging profile:
  - Requests: SetChargingProfile, GetCompositeSchedule, ClearChargingProfile
  - Supported profileTypes TxDefault and TxProfile (NOT ChargePointMaxProfile)
- Support of TriggerMessage
- Added in field certificate handling:
  - Ability to download Certificate Signing Requests (CSR)
  - Download of compound CSR
- Default server certificates for known backends have been incorporated.

Resolved Issues:

- Fixed issues in TransactionManager.
- Fixed issue regarding empty SOAP CP-Address

- Compliance with OCPP given restrictions to String lengths for requests

**Open Points:**

- Secure handling of WLAN-Passwords
- Support of SetChargingProfile with profile type ChargePointMaxprofile

**Known Issues:**

- The bootloader has sporadic problems when writing to flash memory. This may lead to an inoperable system when performing a system update. If this happens the system will crash during boot or later during initialization and not be recoverable.  
(Resolved with version 1.4p2.)
- The system creates sporadic communication errors on the EVCC/RFID field bus that will result in F2 errors on the EVCC2 devices.  
(Resolved with version 1.4p3.)

**Version 1.3p2:**

Date: 2018-04-18

**Resolved issue:**

- Resolved issues in experimental support of display device.

**Version 1.3p1:**

Date: 2018-04-18

**Features:**

- Added experimental support for the display device.

**Version 1.3:**

Date: 2018-04-10

**Features:**

- Support of following OCPP1.6 profiles:
  - Core-Profile,
  - Firmware Management,
  - Local Auth List Management
- Added OCPP message transport via JSON/WebSocket for OCPP1.5 and OCPP1.6
- Encrypted transport via JSON/WebSocket (wss) including certificate handling
- Support of external meter as limit for dynamic load management  
the external meter must be from the same series like the meters in the wallboxes or poles; a combination with a meter from another series (e.g. a Gavazzi meter together with Inepro meters or vice versa) must be configured manually by the software development department; Phoenix meters cannot be combined with other meters at all
- Support of EVCC2 FW 2.5
- Support for Carlo Gavazzi Meter EM210 and EM111
- Support for one phase Inepro Meter Pro1-Mod series

- Support of GPIO subdevice for EVCC2 with firmware higher than 2.1
- Changed behaviour of triggering BootNotifications. A BootNotification is only sent at start of system. If the connection breaks during operation no BootNotification will be sent again.
- Download of diagnosis data utilizing the web-based user interface
- Reverted display order of the log message entries in the web-based user interface: newest entries are at the top now

**Open points:**

- Detection, whether EV is suspends or not (i.e. if it actually draws current). This is needed to resolve the OCPP1.6 state SUSPENDED\_EV correctly

**Important note:**

- A downgrade from version 1.3 back to version 1.2 is not possible
- An upgrade from an older version (<1.3) is only possible with a full update. An incremental update from previous versions to 1.3 is not supported.

**Version 1.2:**

Date: 2017-12-15

**Features:**

- Support of ABL EVCC2 FW2.1 has been added.
- Support for Carlo-Gavazzi Meter (EM-340 series) has been added.
- Experimental support for OCPP 1.5 with JSON/WebSocket transport
- Product configurator: Installer can setup arbitrary master/slave installations and add slave products to the existing master product.
- Load-setter with externally controllable limit extended: HTTP pull supported
- Individual charge points can be controlled by remote limits (experimental)

**Resolved Issues:**

- Improved stability of meter reading in congestion scenarios.
- Transaction manager enabled for 16 charge points.
- Invalid URLs entered for central system do no longer break the start-up.
- Improved modem initialisation in roaming environments.

**Changes:**

- Syntax for controlling limits was modified, see integration manual.

**Version 1.1 patch 4:**

Date: 2017-10-10

**Resolved issues:**

- Improved offline detection and backend error handling.
- Fixed issues regarding bus-congestion when operating with more than eight charge points.
- Fixed possible exception in transaction manager startup.

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- Improved robustness of background metering when a meter becomes temporarily unavailable.

### Version 1.1 patch 3:

Date: 2017-09-07

Resolved issues:

- Fixed handling of unplausible meter values of Phoenix meter.
- Fixed issues after soft reboot.

### Version 1.1 patch 2:

Date: 2017-08-29

Features:

- Support of EVCC FW2.9
- Introduced background metering. The meter values of Energy.Active.Import.Register (Wh) are read regularly. In case of an unreachable meter an old value is taken. This ensures, that the most recent meter readings are sent to the backend instead of unplausible values.

Resolved issues:

- Handling of unplausible metervalues.
- Cleared uncertainties of StatusNotifications concerning Breakers for eMC2 and eMC3 Poles.

Remark:

- Special issue of Version 1.1 patch 1 is still active.

### Version 1.1 patch 1:

Date: 2017-08-11

Special issue:

- Temporarily set startValue of Group-Load-setter to 12A instead of 6A. 6A could cause charging issues with Renault Zoe. Please be aware of this workaround when installing a group setup and using the Group-Load-Setter.

### Version 1.1:

Date: 2017-07-28

Features:

- Support of ABL EVCC2 FW2.0 has been added.
- The web administration interface and its documentation have been reworked.
- Non-fatal alarms of the outlet controllers are now also propagated to the central system.
- Load-setter with externally controllable limit (HTTP push, OCPP).
- Preliminary support of load-setter for group setups (pre-configured ex factory).
- Time span of diagnostic data upload can be parametrized, now. By default, diagnostic information of last two days up to current time is reported.

Resolved Issues:

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- Further improvement of GPRS and backend connectivity and connection recovery.
- The problem with inoperable connectors has been resolved. See known issues, version 1.0.
- Breakers with sensing switches connected to GPIOs now work properly.
- Bus communication stability under steady load improved.

**Version 1.0:**

Date: 2017-05-23

Features:

- Support of ABL EVCC2 FW1.8 has been added.
- The behaviour after a power failure and/or in case of a broken backend connectivity can now be set more precisely (see IntegrationManual for further details).
- Fixed minor issues of load control to prevent a possible overload.
- Support for small software updates. After updating to this version, incremental, and thus shrinked, update files can be processed by the SBC3.
- The LEDs on the SBC3 represent the overall system state (see technical setup manual for further details)
- The status of the modem is represented internally more detailed. The information shown on the web administration interface is now clearer.
- A transaction is now started as soon as the car is in state B2 or C2. In older versions a transaction was only considered as started, when the car got into state C2.
- The FreeChargingUid is configurable, now.

Resolved Issues:

- Improved transaction management in case of interrupted backend connection and/or power failures. The information about open and terminated transactions is saved in order to be sent as soon as the connectivity is stable again.
- The backend connectivity and the status of the modem are supervised in order to detect and handle connectivity problems. This improves the stability of the modem and the connectivity to the backend.
- The acquisition and transmission of meter values at start/stop and during a charging session is more stable.

Known Issues (added per version 1.1):

- Sporadically, one or both connectors stop operating (new sessions) after specific conditions and after error states. This malfunction state can be overcome by a soft-reset of the station.

**Version 0.9, patch 2:**

Date: 2017-02-16

Resolved Issues:

- StopTxnSampledData configuration may be set to an empty value (i.e. an empty value is not substituted by the default value).
- Corrected setting of ShortenUIDs: No system restart necessary.
- Corrected timestamp handling in StartTransaction/StopTransaction messages: A timeout in metering will not lead to unset timestamps.

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- Corrected handling of frequent metering in relation to breaker detection: Error RCCB will always be raised if configured.
- Persistence of configured measurands (StopTxnSampleData, etc.) fixed.

### Version 0.9, patch 1:

Date: 2017-01-11

Resolved Issues:

- Synchronous read metering problems due to electromagnetic field inference solved by adapting timeout-parametes, retry-limits and behaviour of Java-application on timeouts

### Version 0.9:

Date: 2016-12-22

Features:

- Padding of 4-byte UUIDs (ISO 14443) may be disabled
- Immediate charging when off-line may be enabled
- Improved provisioning of the system (ex-factory, sw-update)

Resolved Issues:

- Correct reporting of breaker failures to the backend
- Improved transaction management when off-line concerning reporting to the backend when on-line, again.

Known Issues:

- Due to stability issues we recommend before starting a software update in emH3 to change the availability of the charge point to Unavailable

### Version 0.8:

Date: 2016-11-30

Features:

- Support for emH3 Twin-Box (3W2215)
- Basic load control for emH3 Twin-Box implemented
- WebAdmin: Network port for incoming OCPP connections is adjustable

Resolved Issues:

- In case of a Reset, triggered by the backend, open transactions are stopped first.

Known Issues:

- Breaker failures are not reported to the backend, correctly
- Due to stability issues we recommend before starting a software update in emH3 to change the availability of the charge point to Unavailable

### Version 0.7:

Date: 2016-10-12

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**Resolved Issues:**

- An empty or irregular internet URL address to the Central System made the Java-application hang and the WebAdmin administration page could not be accessed to change this. Now, a default URL will be loaded and put to the configuration, so that at least the administration page can be accessed in order to change the address to the Central System
- Transaction management implemented
- Hardware clock gets written, when system clock gets set (by OCPP)
- Software signing certificate has been renewed (prolonged). While the keys stay the same, the certificate that is deployed with the Java-application changes. Therefore, it is not possible to do a standard update (via WebAdmin or OCCP) from release 0.6 upwards.
- Handling of exit-status 18 of the ppp-daemon has been changed: if the modem cannot enter the mobile net, because it is not yet allowed to, the net is down, etc., the system will retry the initialization of the modem for 100 times with an exponential growing wait time between the retries for several days
- The device tree can be reset via WebAdmin and a clean probing can be performed, so no more placeholder devices will appear

**Known Issues:**

- Transaction management in case of broken backend connection is not robust

**Version 0.6:**

Edit: Post-release notes have been removed as not relevant to the customer.

Date: 2016-08-23

**Resolved Issues:**

- The storing process of the chargepoint.properties file is more robust now. A shutdown during the store will not erase the file any more.
- Calling of diagnosis web page of placeholder devices made the web page hung.

**Known Issues:**

- Transaction management is not robust against reset/update: Disable charge point and close transactions before rebooting or software update.
- There were internal problems with the software signing, these have been solved post-release.

**Version 0.5: Initial Release**

Date: 2016-08-05

**Features:**

- Single or twin charger
- Supported devices: ABL EVCC, ABL RFIDM20, and Phoenix Meter, GPRS Terminal
- Administrative web interface
- OCPP 1.5

**Known Issues:**

- Transaction management is not robust against reset/update: Disable charge point and close transactions before rebooting or software update.

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**Versions 0.1 through 0.4: Internal Pre-Release Builds**

These versions were used for internal testing and have not been released.