

Release Notes 1.8

ABL.R&D.Software.SBC

Revision: 2

Date: 2024-08-02

Table of Contents

1 Document Description 4

2 Integrations 6

3 Variants..... 7

3.1 Hardware 7

3.2 Software 7

4 Releases..... 8

4.1 Version 1.8x 8

4.1.1 Version 1.8p4: 8

4.1.2 Version 1.8p3: 8

4.1.3 Version 1.8p2: 9

4.1.4 Version 1.8p1: 10

4.1.5 Version 1.8: 10

1 Document Description

Scope	<p>This document describes the releases of the Charge Point Software delivered with the ABL Single Board Computer SBC. This software implements a smart controller for the ABL charging stations consisting of wall-boxes and charging poles. The following sections give an overview of the integrations and releases of the software.</p> <p>Product names, brands, and other trademarks mentioned in this document are the property of their respective trademark holders.</p>
Purpose	
References	

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Date	Revision	Author	Description of change
2024-08-02	2	Mull	Update for 1.8p4, removed notes for SW older than 1.8

¹ <https://confluence-testit.abl.de/display/~Mull>

Date	Revision	Author	Description of change
prior	1		older revisions (note changed document versioning)

2 Integrations

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

- reev GmbH (reev), Germany
- ENIO GmbH (ETSWeb), Austria
- de Ready Plus (LISY), Germany
- chargeIT (former: Belectric Drive; LMP), Germany
- has.to.be (be.ENERGISED), Austria
- Charge Point Services (Genie), UK
- Virta Ltd., Finland
- beCharged, Belgium
- ChargeCloud GmbH, Germany
- Etrek (Ocean), Slovenia
- Last Mile Solutions (LMS), Netherlands
- Grid & Co (Gridware), Germany
- Stromnetz Hamburg (ENSO), Germany
- Polarstern GmbH; (Polaris, OCPP1.6), Germany
- Everon, Netherlands

Test systems that are/were used with the software:

- SteVe from RWTH Aachen
- OCPP Stub 1.5 from OCA
- OCPPJS experimental OCPP simulator from GIR

3 Variants

3.1 Hardware

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

- SBC3
- SBC-II

3.2 Software

Each version of the SBC 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>_<release-label>.yar

- Update type:
 - “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: update_1.8.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.

4.1 Version 1.8x

4.1.1 Version 1.8p4:

Date: 2024-08-01

Changes:

- Integrate new Alcatel firmware (V15).
- Update Porsche backend template.
- Add 3W1119W product.
- Add Stadtwerke Kiel backend template.
- Add compatibility for multigroup load management.
- Add log line to compare OCPP and SBC local time - this is useful for MeterValue debugging.
- Enable removing a legacy product from a multigroup via Web-Admin.
- Add DataTransfer to install a backend certificate by request of the central system.

Improvements:

- Enforce range for current limits in Web-Admin.
- Fine tuning for load management thresholds for large installations.
- Improve load management behavior for smart charging (small decreases of power limit).
- Improve default settings: to report more compact StopTransaction values without intermediate samplings.
- Harden URL schema handling.
- Improve load management reaction to smart charging profiles being replaced.

Resolves Issues:

- Fix issue where MDF data set could not be read on some SBCs.
- Do not abort charging in SuspendedEVSE when EV does not go back to B2.
- Fix sticky SuspendedEV status when charging profile is sent together with StartTransaction.
- Fix issue with 3P4400 (rev 2): Stations will not work again without the workaround of adding a fake external meter.
- Retry interrupted requests towards backend in order to improve instant message delivery to backend.
- Do not stick to offline state after failure during firmware update.
- Further harden against meter value overloading in Eichrecht use case.
- Correct loading of MeterValuesSignatureContexts, StopTxnSampledContexts and StopTxnSignatureContexts parameters.
- Fix "not enough cycles" issue: Correct reporting of SuspendedEV instead of Preparing.
- Avoid accidental charging stopps directly after starting a transaction.
- Fix internal error that caused inability to start new charging session at singular connectors until reboot.
- Use correct base time (OCPP) for interpretation of smart charging profiles.

4.1.2 Version 1.8p3:

Date: 2023-03-21

Changes:

- BootNotifications will not be forced preemptively on start

- StatusNotification will show information about errorCode and vendorErrorCode
- StartTransaction will not include signature if signature type is CDR
- Websocket will show stack traces for critical connection exceptions
- System Time can be changed as Installer

Resolved Issues:

- fixed issue that flash was not cleared correctly
- fixed rare issue that connection did not resume if ping failed
- fixed issue that supply limit was overwritten during update
- fixed several issues regarding incomplete charging sessions
- fixed issue that displays were not showing correct states
- fixed issue that LGWs could not be updated
- fixed security issue regarding WebAdmin login
- fixed rare issue that valid RFID would not be accepted
- fixed issue that missing RFID device was not shown as error
- fixed issue that total current was not displayed correctly
- fixed issue that phase rotation was not used correctly
- fixed issue that an internal OCPP watchdog reboot was stopping charging sessions
- fixed issue that graceful reboot did not wait correctly
- fixed issue that charging was sometimes not possible on 3P4400 Rev. 2
- fixed rare issue that signatures were incorrectly matched to meter values
- fixed conversion error for persisted dummy value: "-1000"
- fixed issue that RFID was not accepted in RFID local mode
- fixed issue that some OS commands failed during diagnosis

4.1.3 Version 1.8p2:

Date: 2022-03-31

Changes:

- Send only one Authorize.req to the backend if a user presents RFID for prolonged time.
- Corrected meter request timeouts to improve meter reading reliability.
- Reverted response format of DataTransfer GetMeterPublicKey to the state of version 1.7.
- Adjusted WLAN timeouts and retries to improve WLAN connection stability when connecting to an access point under non-optimal conditions.
- Teach-In feature for local operation mode does not work; temporarily hidden until it will be fixed.
- Improve LGW firmware update: Correctly report problems. Skip LGWs which already have the destination firmware and perform retries on LGWs with update failures. Mitigate failure as of second approach without intermediate reboot.

Resolved Issues:

- Incremental update of SBC does not work after a prior incremental update to 1.8p1. Use a full update, if you encounter this situation.
- Missing reboot of middle-ware if performing an incremental update and after provisioning.
- Wrong reboot reason SYSTEM_TERM in case of power loss.
- Broken direct connection via LAN between SBC and a PC or laptop.
- Application reboots sporadically in case of problems with USB LTE stick due to bad reception.
- Missing escalation of mobile network transport layer problems: Modem is not reset and the system gets into a loop causing it to not reconnect to the mobile network, properly.
- Long delay for recovery in load management after switching off and on the breaker for a charge point.
- Charge point not available with status start-up as not getting initialized correctly. This issue appears sporadically and shows up especially after firmware updates.
- Problems with meter values when aborting a charge start.
- Allow 0 kWh to be read from energy meters if the product is not Eichrecht conformant.

- StopTransaction with meterStop value of -1000. This has happened only in case of failures immediately after starting a charge process, for example due to locking errors.
- Metering related errors may be reported longer than they really persist.

4.1.4 Version 1.8p1:

Date: 2022-02-24

Resolved Issues:

- Broken TLS Version Handling in conjunction with reev backend.

4.1.5 Version 1.8:

Date: 2022-02-02

Security Fixes:

- Upgrade to secure Log4j version to mitigate various CVEs, checked against possible injections.
- Password check may be activated if the user can provide an initial password.

Changes:

- Overhaul of the core charge point logic:
 - Decision making and control of the charge point has been redesigned.
 - State and transaction reporting of the charge point has been improved (StatusNotification, StartTransaction, StopTransaction) to be more reliable.
 - Signatures and meter values of old transactions will be replayed after black-out (no intermediate values).
 - Enabling and disabling of the charge point works for various local issues and remote requests.
- Revisited OCPP Smart Charging to improve handling of profiles:
 - Respect ChargingRateUnit
- Reworked product tab for usability.
- Improved web interface design and usability.
- Faster extraction of software updates
- Complete modem connection escalation happens after 12 hours instead of 3 days to reduce offline periods.

Features:

- Local mode:
 - Free charging or restriction to UID lists
 - The system can now work with a locally managed list of RFIDs without a backend (OCPP).
 - The UID list can be imported, exported, and edited.
 - Furthermore, there is a simple teach-in mode.
 - UIDs can be restricted to certain connectors.
 - Connector unlocking via web interface.
 - User names can be associated to UIDs.
- Static IP configuration as an alternative to DHCP auto-configuration
- Support for TLS 1.3 (default for new setups, fielded stations will keep TLS 1.2 until reconfigured)
- Possibility to use proxies for the backend communication (http, https, ftp), and optional authentication at the proxy.
- Improved metering values:
 - Support for Power.Offered and Current.Offered
 - Added reporting of phases on values for voltages and currents.
- Meter public keys:
 - Support for automatic push (see integration manual)
 - Display in web interface
- Continuous display of signal strength and RSSI in diagnostic page (LTE only)

- Introducing a user log: This log will contain general messages regarding the operation of the charge station. This log will be fully populated over the next releases.

Resolved Issues:

- Missing protocol header for web-socket secure
- Operating hours of meters always zero
- Hanging web-socket connections when LAN loses backend connectivity at router
- Missing milliseconds in web-socket payload messages
- Missing modem escalation when no network protocols can be established

Notice:

- Recreating the device tree after software update is now automated, there is no more need to perform this step manually.

Known Issues:

- There are DNS resolving issues in case of simultaneous connections via LTE and LAN if both carriers provide contradicting DNS and/or default routes.