

EVC V4.2X version 29.02

User manual
For PTB Validator

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1 Preface

The LMS PTB transaction and event validator is a Linux compatible program for validating transaction logs and event logs. Its purpose is to enable an end-user to validate measurement information retrieved from the PTB version of the EVC4.2 Charge controller.

2 Utility content

You should have received the following files:

File	Description
PTBValidatorV2-x86_64	The PTB Linux GUI validation utility in ApplImage format
PTB data validator for EVC42.pdf	This manual
eventlog.txt	Example event log
transactionlog.txt	Example transaction log

3 Usage

3.1 Log format

3.1.1 Transaction log

To prevent tempering or accidental corruption of transaction data from the EVC, PTB transaction data is send to the central system is accompanied by Elliptic curve Digital signature (ECDSA).

Each charger channel will have it's own private/public key set. Public keys will be readable from the unit. Each charging station will have a transparent window

The data format is as follows:

U/YYYY-MM-DDTHH:MM:SSZ/ID/A/RRRRRRR/TTTTTT/PPPPPPWh/FN/ST

where:

Item	Description
U	1=start transaction, 2=intermediate value, 3=stop transaction
YYYY-MM-DDTHH:MM:SSZ	Date/time in ISO 8601format (Z is for UTC time)
ID	Identification number of PTB measurement capsule
A	Channel number
RRRRRRR	RFID
TTTTTT	Transaction ID
PPPPPPWh	Energy consumed (unit is Wh)
FN	Sequence number
ST	Error state

3.1.2 PTB event Log

The PTB event log will log information on the following events:

- Firmware updates attempts and results

- Change notifications of PTB specific parameters

The end-user may download the log from www.evc-net.com.

Service personell may download the log locally using EVCManager.

To avoid tampering of the PTB event log, the log will contain an Elliptic curve Digital signature (ECDSA-256).

The logs consist of the following format:

YYYY-MM-DDTHH:MM:SSZ/Q/E/I

Item	Description
YYYY-MM-DDTHH:MM:SSZ	Date/time in ISO 8601 format (Z =UTC time)
Q	Sequence
E	Event
I	Info

The Central system will check the incoming events and will show an error when incoming events have invalid signatures or missing sequence numbers.

The EVC will calculate the signature using the private key from charger channel 1.

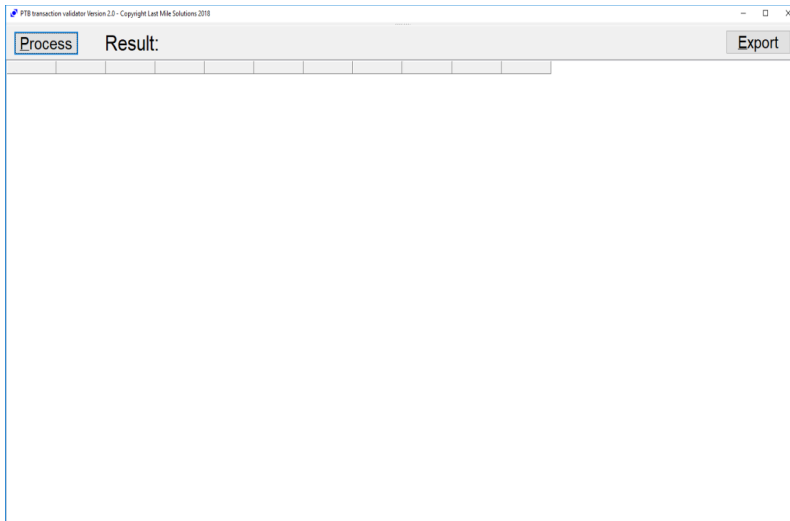
3.2 Linux GUI utility

The logs can be checked using a Linux GUI application.

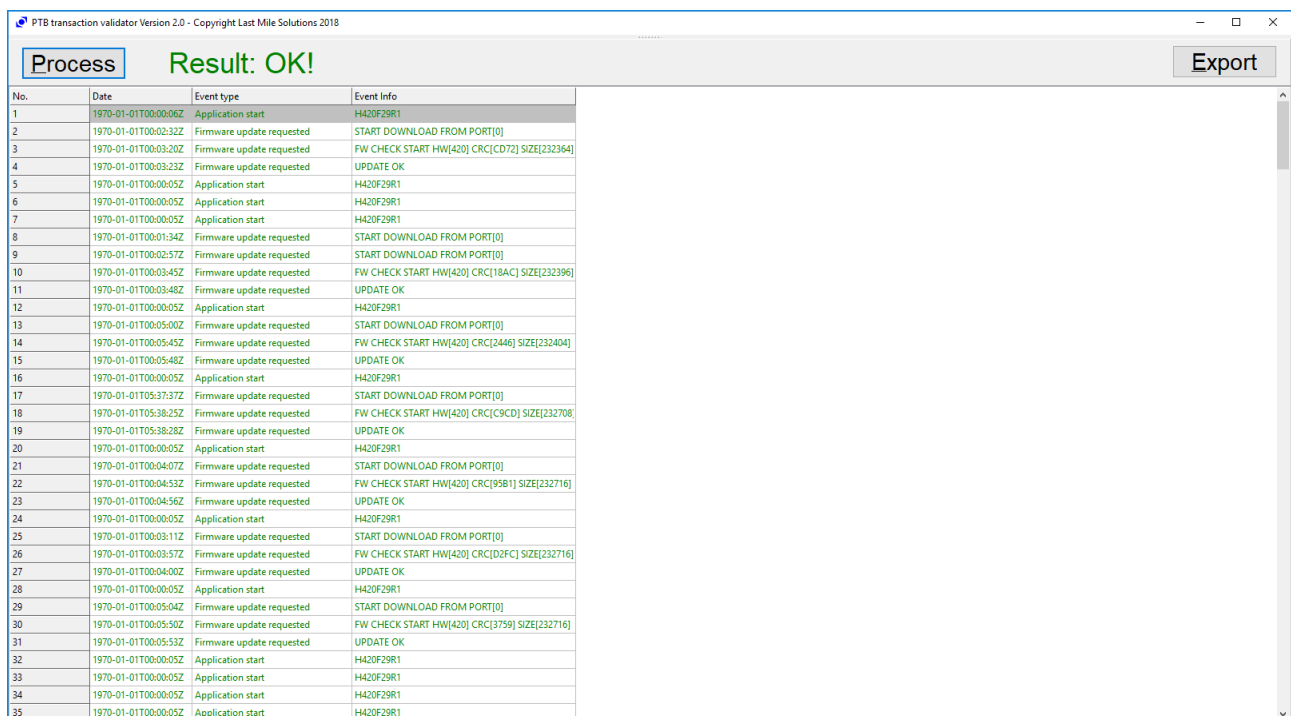
To verify the example transaction log (transactionlog.txt):

Click on the PTBValidatorV2.exe utility.

Click on “Process” to open the the file transactionlog.txt.



Done! Green lines are valid, Red lines are invalid.



No.	Date	Event type	Event Info
1	1970-01-01T00:00:06Z	Application start	H420F29R1
2	1970-01-01T00:02:32Z	Firmware update requested	START DOWNLOAD FROM PORT[0]
3	1970-01-01T00:03:20Z	Firmware update requested	FW CHECK START HW[420] CRC[CD72] SIZE[232364]
4	1970-01-01T00:03:23Z	Firmware update requested	UPDATE OK
5	1970-01-01T00:00:05Z	Application start	H420F29R1
6	1970-01-01T00:00:05Z	Application start	H420F29R1
7	1970-01-01T00:00:05Z	Application start	H420F29R1
8	1970-01-01T00:01:34Z	Firmware update requested	START DOWNLOAD FROM PORT[0]
9	1970-01-01T00:02:57Z	Firmware update requested	START DOWNLOAD FROM PORT[0]
10	1970-01-01T00:03:45Z	Firmware update requested	FW CHECK START HW[420] CRC[18AC] SIZE[232396]
11	1970-01-01T00:03:48Z	Firmware update requested	UPDATE OK
12	1970-01-01T00:00:05Z	Application start	H420F29R1
13	1970-01-01T00:05:00Z	Firmware update requested	START DOWNLOAD FROM PORT[0]
14	1970-01-01T00:05:45Z	Firmware update requested	FW CHECK START HW[420] CRC[2446] SIZE[232404]
15	1970-01-01T00:05:48Z	Firmware update requested	UPDATE OK
16	1970-01-01T00:00:05Z	Application start	H420F29R1
17	1970-01-01T05:37:37Z	Firmware update requested	START DOWNLOAD FROM PORT[0]
18	1970-01-01T05:38:25Z	Firmware update requested	FW CHECK START HW[420] CRC[C9CD] SIZE[232708]
19	1970-01-01T05:38:28Z	Firmware update requested	UPDATE OK
20	1970-01-01T00:00:05Z	Application start	H420F29R1
21	1970-01-01T00:04:07Z	Firmware update requested	START DOWNLOAD FROM PORT[0]
22	1970-01-01T00:04:53Z	Firmware update requested	FW CHECK START HW[420] CRC[95B1] SIZE[232716]
23	1970-01-01T00:04:56Z	Firmware update requested	UPDATE OK
24	1970-01-01T00:00:05Z	Application start	H420F29R1
25	1970-01-01T00:03:11Z	Firmware update requested	START DOWNLOAD FROM PORT[0]
26	1970-01-01T00:03:57Z	Firmware update requested	FW CHECK START HW[420] CRC[D2FC] SIZE[232716]
27	1970-01-01T00:04:00Z	Firmware update requested	UPDATE OK
28	1970-01-01T00:00:05Z	Application start	H420F29R1
29	1970-01-01T00:05:04Z	Firmware update requested	START DOWNLOAD FROM PORT[0]
30	1970-01-01T00:05:50Z	Firmware update requested	FW CHECK START HW[420] CRC[3759] SIZE[232716]
31	1970-01-01T00:05:53Z	Firmware update requested	UPDATE OK
32	1970-01-01T00:00:05Z	Application start	H420F29R1
33	1970-01-01T00:00:05Z	Application start	H420F29R1
34	1970-01-01T00:00:05Z	Application start	H420F29R1
35	1970-01-01T00:00:05Z	Application start	H420F29R1

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The source code used for this utility is covered by the following license.

```
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 * Public key-based signature verification program
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 *
 * This file is part of mbed TLS (https://tls.mbed.org)
 */
```

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