End User Manual for the Transparency Software

Please note that only the German version is binding. No guarantee is given for the accuracy of the translation. To use the links, please go to the German version.

This documentation contains all relevant information related to the Transparency Software. Please read this manual carefully before using the software for the first time.

General Information

In the field of electromobility, charging processes are carried out by consumers at public or semi-public charging facilities, which are then usually billed to the consumer on a time-delayed basis. In Germany, the requirements for billing charging processes are regulated by law and arise, among other things, from the requirements of the Measurement and Calibration Act (MessEG) and related regulations such as the Price Indication Ordinance (Preisangabenverordnung - PAngV). Operators of charging facilities and mobility providers are obligated to comply with these legal requirements.

In order to be able to verify charging processes for valid data on a time-delayed basis, the operator of the charging facility can use a so-called digital signature process to sign measured values collected in compliance with calibration law for subsequent verification. In this process, the charging facility generates a digital signature, which confirms the conformity of the measured values. This signature can be verified for validity using electronic tools, such as this Transparency Software.

In the course of creating digital signatures in connection with charging processes, we would first like to explain the general process by which a signature is created and subsequently verified.

To start a charging process at a charging device, you identify yourself using an RFID card or a mobile application. With this identification, you can authorize a charging process so that it can be started at the charging device. If your vehicle already supports Plug & Charge, the charging process can technically be authorized simply by connecting the vehicle.

The charging device has a display unit that displays the information relevant to the charging process. This information includes the start time of the charging process and the initial meter reading at the beginning of the charging process. This information can be viewed either on a display or through a viewing window at the charging station. Please note that the display may vary depending on the charging device; If there is no local display, please contact the operator of the charging facility for information on how to check the measured values on site.

End the charging process either via the charging device or via your vehicle. The charging device will now display the start value, end value, and current time. You will also find a public key for the meter's signature unit on the charging device, usually on the display or on a

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sticker affixed near the display. Please write down this key or take a photo with your mobile device to ensure subsequent verification of the measured value.

After the charging process is complete, the charging device generates a digitally signed data set from the start and end values. This data set is digitally signed using a "private key" of the charging device. The accuracy of the signature can then be verified using the public key, which is visibly displayed on the charging device.

The digitally signed information about the charging process is transmitted via the connected IT systems from the charging device to your mobility provider, with whom you have authorized and identified yourself at the charging device. Based on your mobility contract, you will receive an invoice for your charging sessions at the same time or at a later date – for example, monthly. In addition to the recorded meter readings, the invoice will include the start and end times of the charging session, a unique transaction number, and the associated costs.

Your mobility provider will provide you with the digitally signed measurement data for bill verification. You can usually download these via a QR code on the bill or via your customer portal on a PC system. Please note that two measurement data sets – one at the start and one at the end – may be available for a charging session.

Please download these data sets to your PC system using the provided access. Also, download and launch the Transparency Software from the Transparency Platform.

You will then be able to open the downloaded signature data in the Transparency Software and verify its accuracy.

The Transparency Software will display the digitally signed information contained in the data set during the verification process, in addition to verifying the signature. You can then compare this data with your bill to verify the accuracy of the measurement.

Requirements

To operate the Transparency Software, your system must fulfil at least the following system requirements:

Windows

- Windows 10 (8u51 and higher)
- Windows 8.x (desktop)
- Windows 7 SP1
- Windows Vista SP2Windows Server 2008 R2 SP1 (64-bit)
- Windows Server 2012 and 2012 R2 (64-bit)
- RAM: 128 MB
- Data carrier capacity: 124 MB for JRE; 2 MB for Java Update
- Processor: at least Pentium 2 266 MHz processor

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Mac OS X

- Intel-based Mac under Mac OS X 10.8.3+, 10.9+
- Administrator authorisations for the installation

Linux

- Oracle Linux 5.5+[1]
- Oracle Linux 6.x (32-bit), 6.x (64-bit)[2]
- Oracle Linux 7.x (64-bit) 2 (8u20 and higher)
- Red Hat Enterprise Linux 5.5+[1], 6.x (32-bit), 6.x (64-bit)[2]
- Red Hat Enterprise Linux 7.x (64-bit)[2] (8u20 and higher)
- Suse Linux Enterprise Server 10 SP2+, 11.x
- Suse Linux Enterprise Server 12.x (64-bit)[2] (8u31 and higher)
- Ubuntu Linux 12.04 L TS, 13.x
- Ubuntu Linux 14.x (8u25 and higher)
- Ubuntu Linux 15.04 (8u45 and higher)
- Ubuntu Linux 15.10 (8u65 and higher)

Instructions for Use

The Transparency Software is a computer program that can be run on a desktop or mobile PC system. The application is not currently available as a mobile application for phones or tablets. The application is also based on the JAVA framework, which requires JAVA to be installed on the PC system.

To install and use the application, please proceed as follows:

1. Download the latest version of the Transparency Software to your computer and unzip it to any folder.
2. Ensure that the latest version of the JAVA framework is installed. If you cannot start the Transparency Software, JAVA is probably not installed. Simply install the JAVA framework using the JAVA web installer.
3. Double-click to open the Transparency Software.

To verify digitally signed measurement values, you need the following information:

1. Digitally signed data set in a format supported by the Transparency Software.
2. Public key of the charging device.

The public key can be part of the digitally signed data set provided to you by your mobility provider. If the public key is not included in the data set, you can obtain it in the following ways:

1. From the charging station label (on-site).
2. From the Federal Network Agency's PKI database.

When performing the signature verification, please ensure that you can verify the charging device's public key and that you trust the source of the key. This can be the key physically

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applied to the charging device or the digitally stored value at the Federal Network Agency. A public key printed on the invoice may be incorrect and lead to incorrect verification results.

Determining Applicability

The Transparency Software is designed to verify signatures of most charging devices on the market. To determine beyond doubt whether your version of the Transparency Software is suitable for performing a meter reading check, you must coordinate the applicability of the Transparency Software with your mobility provider.

Your mobility provider is legally obligated to provide you with a "Measurement Data User Procedure." In this procedure, the mobility provider specifies which charging devices are approved for use with which version of the Transparency Software. Please note that certain charging stations may only be approved for older versions of the Transparency Software.

Therefore, please read the Measurement Data User Procedure carefully and act exclusively according to the specifications described therein. Your mobility provider is obligated to provide you with appropriate support in conducting meter reading checks. If you have any questions, please contact your contact person at the mobility provider or the customer support provided by the mobility provider.

Downloading Data Packages

You will always receive digitally signed data packages exclusively from your mobility provider, to whom you paid the invoice for the charging session to be tested. The mobility provider is obligated to provide you with digitally signed measurement values if the charging session was billed using this method.

The mobility provider is not obligated to provide digitally signed data packages if the charging session is free of charge (free charging) or if the charging session was carried out using another method approved by calibration law (e.g., local measurement value storage).

If you do not know how to obtain signed data packages from your mobility provider, please contact them and request that they provide you with the data required for the test.

Performing the Invoice Verification

After opening the application, you will see the general application window. In this window, you can open the file containing the signature package using "File – Open." The file and signature formats will be automatically recognized. You will also find the public key pre-filled in the text field. If it is not present, you can enter it manually. Then click the "Verify" button to perform the signature verification.

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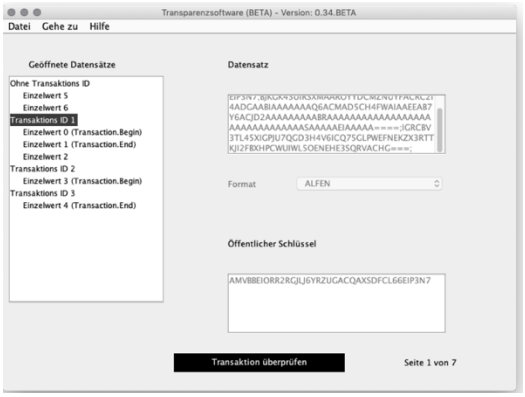

Step 1: Select the transaction, click the "Verify Transaction" button.

Step 2: Verify the results of the measurement verification.

Please now check whether the measurement values displayed here match the data printed on the invoice. You must also verify that the public key is also correct and matches the public key of the charging device.

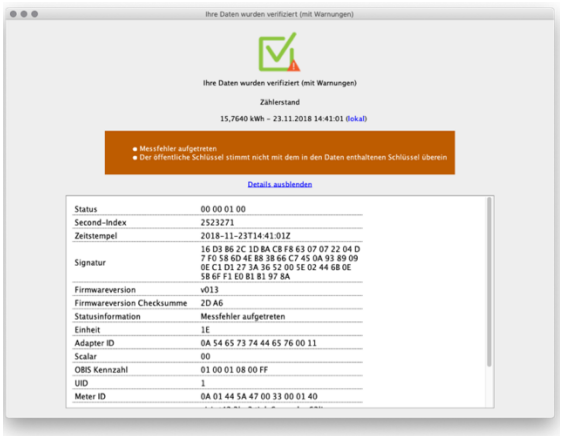

Figure: Incorrect measured value verification

If the measurement verification is incorrect, the Transparency Software will notify you that the verification could not be completed successfully.

The reason for the error or unsuccessful verification will also be displayed. Please ensure that you have entered the data correctly and that the public key you used to verify the measured values matches the charging device.

Note on how to handle complaints

If the verification results are negative, please double-check that the public key was entered correctly and that it also belongs to the charging device being verified. If this data is correct and an invalid signature verification is still displayed, please inform your mobility provider of this issue. As a consumer, you are generally entitled to withhold payments for incorrectly recorded charging transactions. However, please note that withholding payments in the event of incorrect operation may result in liability claims being asserted against the provider.

Please note that the Transparency Software is merely a tool for verifying digital signatures. Any complaints regarding incorrectly issued invoices must always be directed exclusively to your mobility provider. Contacting the charging device operator is also ineffective in most cases. Therefore, please always contact your contact person at your mobility provider first.

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If you have reason to believe that mobility providers or charging facility operators are acting fraudulently, or if an agreement cannot be successfully reached in the case of incorrect measured values, please contact the relevant State Office for Weights and Measures as the responsible supervisory authority.

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