Schaeffler SmartCheck / ProLink data exchange

Valid for firmware version 3.4.x and newer (last update September 2025)

SCHAEFFLER

Table of content

1 Introduction

SmartCheck and ProLink are devices that can connect to the outside world via several different ways. While these devices can operate stand-alone, usually users want to transfer measurement data from the devices to another software, device or cloud to work with this data. For users, it might be hard to figure out which of the options to transfer the measurement data is the best in their use case. This document will show which ways are possible to find the best solution for the current use case.

Connection	On premises (local network)	Via the internet	Provided software	User-developed software
SmartUtility	X		X	
OPTIME Cloud / ExpertViewer		X	X	
OPC/UA	X			X
Email	X	X	X	X
MQTT	X	X		X
Status Webservice	X			X
Field busses	X			X
SmartVisual	X		X	

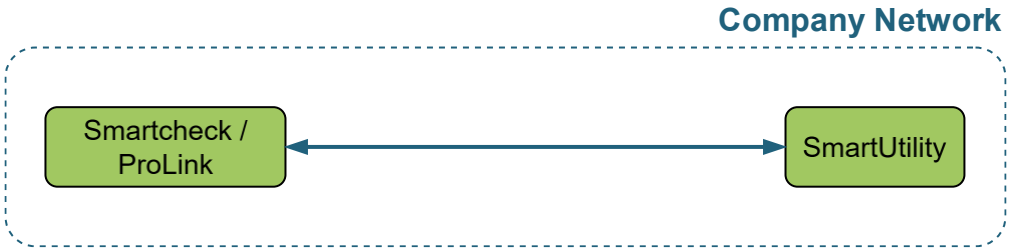
This document will provide you with an overview of capabilities. We will not go into the technical depth of the implementation, so we will not for example provide port numbers or show code examples. There are other documents that go into the technical depth, like the manuals or a document on the IT security of SmartCheck and ProLink. These can be found on our download website.

2 SmartUtility / SmartUtility Light

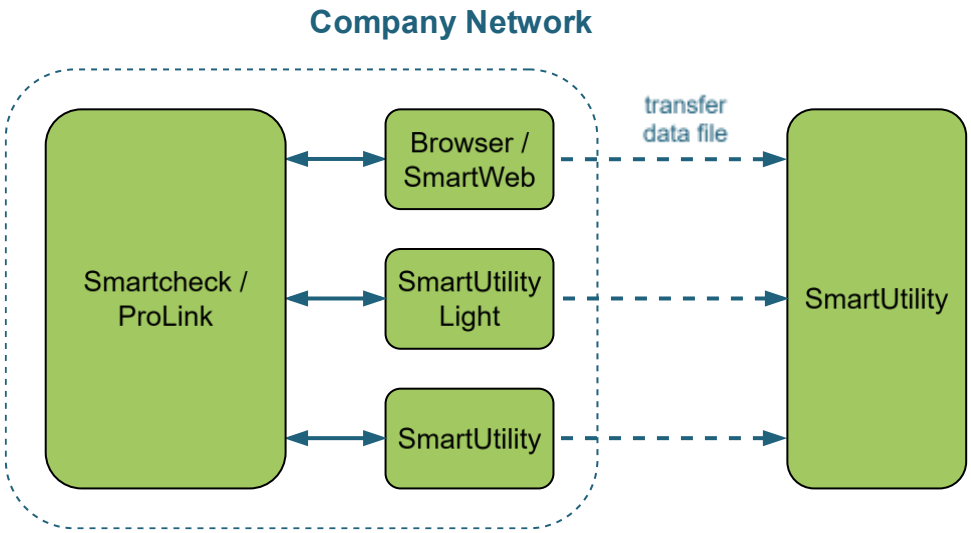
The standard way of handling data of SmartCheck and ProLink is via the SmartUtility software, which is installed on a local PC. Software can be used in a free-of-charge version (SmartUtility Light), which enables the user to find devices in the network, configure the network settings of the devices and download data from them. The full version of the software (SmartUtility), for which a license is needed, includes a database to store and a viewer to analyse the data.

There are several ways to transfer the data from the device to the SmartUtility database:

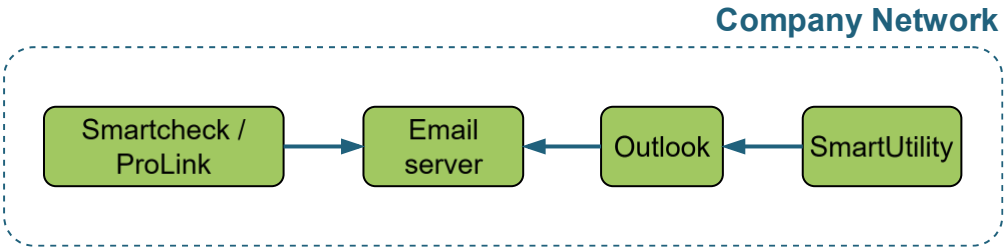
- Directly reading the data from a device via the network (http or https) using the “Download data”-button, which requires a direct network connection to the devices.



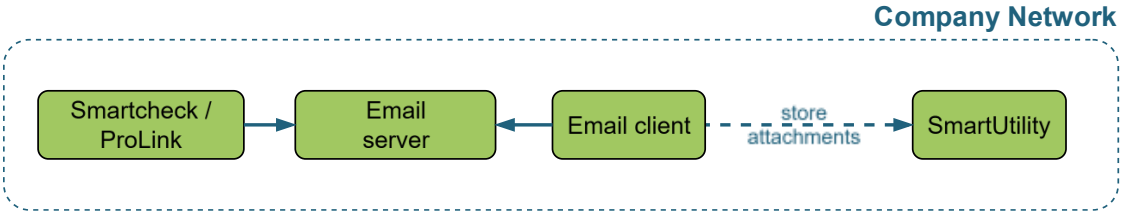
- Downloading the data as a file. This can be done directly from SmartWeb. Alternatively, the SmartUtility Light, which is the free-of-charge version of SmartUtility, or the SmartUtility can be used for this, by storing the data locally. The data can then be imported into the SmartUtility database.



- There is an automatic email import feature implemented in SmartUtility, which will scan an Outlook email box and import the data automatically into the SmartUtility database.



- From other email clients, attachments can be saved locally and imported manually into the SmartUtility database.



Importing data from a data file or from email attachments into SmartUtility can also be done on the command line, i.e. for an automated scripted solution.

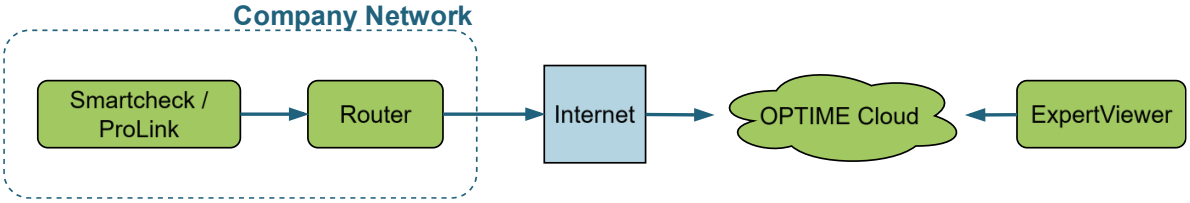
3 OPTIME Cloud / ExpertViewer

For users with an OPTIME subscription, it is possible to have SmartCheck and ProLink to send data to the OPTIME cloud directly. From there on, users with an ExpertViewer subscription can access the data.

There are currently some limitations to this solution:

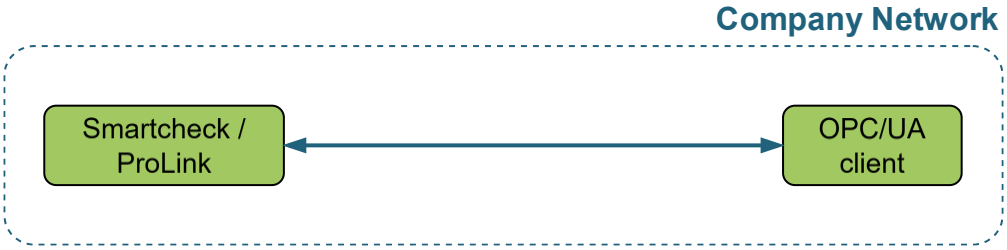
- Only the data from the Schaeffler Cloud Services measurement job are shown in the trend and raw data view in the OPTIME dashboard and OPTIME mobile app. Data of the other measurement job types is accessible only via the ExpertViewer.
- SmartCheck and ProLink can only send data from the following measurement job types: base configuration, fan, gear stage, machine analysis essentials, pump, roller bearing, and Schaeffler cloud services.

Data from these jobs can be selected in the outputs for the Schaeffler cloud 4.x communication channel on the device and will be sent to the cloud. The data will be stored in the OPTIME database, from where it can be read by the ExpertViewer to be analyzed. The ExpertViewer can also read the locally stored SmartUtility database.



4 OPC/UA

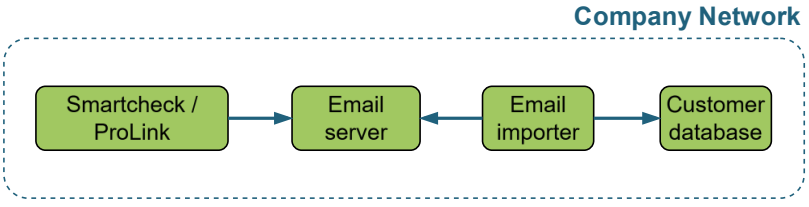
In SmartCheck and ProLink, an OPC/UA server can be activated. This enables users to read trend data, time signals, classification data and device configuration data. To try this out, we suggest to use the UaExpert software. Some of this data can be read directly with any OPC/UA client, e.g. the last measurement data. Other data is encoded in a specific Protocol Buffers format.

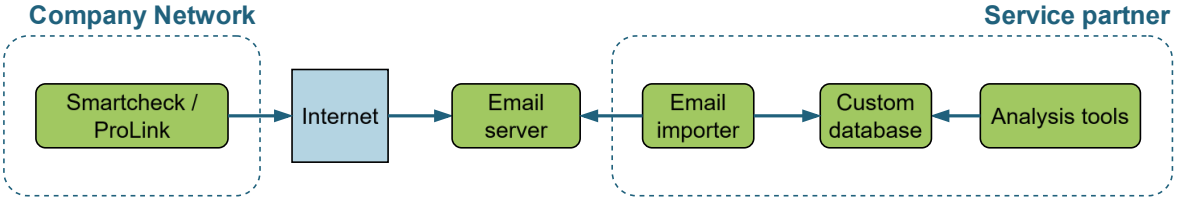


We provide an open-source tool suite on Github, which can convert the device configuration, trends, time signals and classification data to text. The source code can be used as a template or as a partial implementation to integrate the SmartCheck and ProLink data conversion in the user's own software, e.g. to store the data in a proprietary condition monitoring database.

5 Email

To overcome IT limitations in a highly restricted environment like a factory production, sending emails might be an easy way to transfer SmartCheck and ProLink data. The used email server can be either within or outside of the OT environment. The devices only need access to an internal email server (SMTP), which is then responsible to transmit the data to whichever endpoint needed, but still is under the control of the company IT department. On the other hand, the used email server could also be completely outside of the company, in the internet.

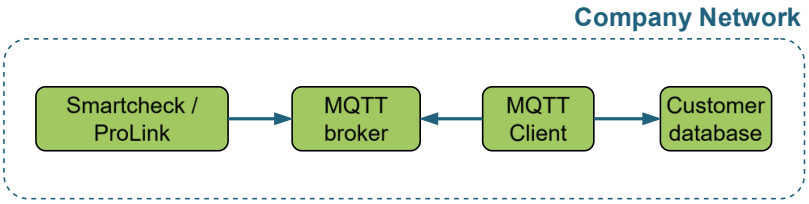


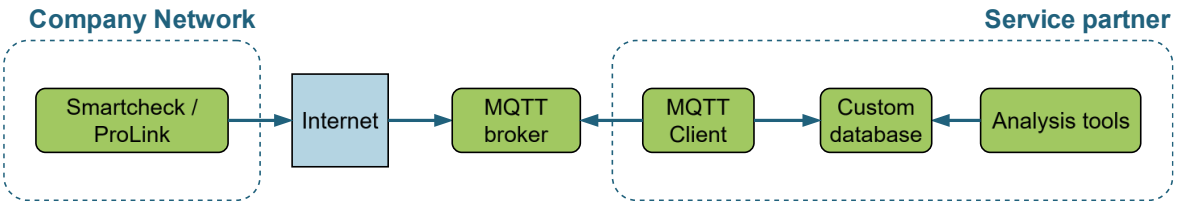


To work with the data contained in the email, the user can either use the email import in SmartUtilty or setup a proprietary solution to import the data into whichever data system is used. For this, the open-source tool suite on Github can be used.

6 MQTT

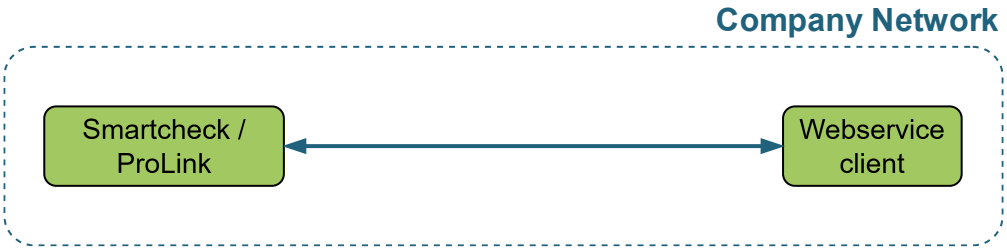
Another fully automated way to transfer data from the devices to an endpoint is the MQTT-connection, which is available since firmware version 3.4.0. Here the user can setup an MQTT broker endpoint, which can be in the local company network or on the internet. On the other side, the user has to implement a client which is subscribed to the MQTT broker, to receive and process the data from the devices. This client should use the open-source tool suite on Github to convert the data into whichever format is needed. The source code for these tools is available, so it can be modified to suit the needs of the user, or be used as a template to implement the client in whichever programming language needed.





7 Status webservice

With the status webservice, the user can access various information on the devices, including the value and state of all characteristic values and download time signals. The protocol is based on Soap and uses http or https. It exchanges XML messages, which are defined by a WSDL file (Web Service Description Language).



8 Field busses

Schaeffler SmartCheck and ProLink can connect via SLMP to other devices. Additionally, ProLink can do that for Ethernet/IP and PROFINET. These connections are usually used to connect to PLCs, and can not only get information from these connections, but also provide data to them, like KPI data and alarm status information. Exchanging other measurement data like time signals or classification data cannot be transferred via these types of connections.

9 SmartVisual

The SmartVisual software is not directly used for data exchange with the SmartCheck and ProLink devices. It shows the alarm state of measurement jobs in a map of the plant or machine park. To do this, it does communicate with the devices over network. We are mentioning it here for the sake of completeness.