Procedure for update of SW in DK-STM

banedanmark

		Verified		Address Banedanmark Carsten Niebuhrs Gade 43 DK-1577 Copenhagen V DENMARK	Planning Siemens A/S Borupvang 9 DK-2750 Ballerup
		Replaces			
		Approved by Banedanmark			
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1 Document introduction

1.1 Introduction

This technical note describes the tools and process for updating the software of the DK-STM when installed in a vehicle.

The person performing the update must be instructed in the use of tools, software and the process used for updating the software of the DK-STM.

1.2 Change Log

Version	Date	Author	Changed sections	Reason for change
01.00	2018-06-15	FAL		New document
01.10	2019-04-05	PJH		Updated because of release of R03.00.10, R03.00.11
01.20	2021-03-19	BBE	1.3 & 4	Updated reference and MD Checksums

1.3 References

Document incl. Titel, Unique Id and Version	Ref.	Reference ID
DK-STM Dokumenteret Slutafprøvning	/1/	AN656.00 Q4446 01.14
Programmeringsvejledning, STM-DK Subrack (Siemens Document)	/2/	G81002-E3135-F800-D

1.4 Abbreviations

Term	Explanation
DK-STM	STM dedicated for Danish Infrastructure
DA	Data Available (STM is in monitoring mode)
Service laptop	Laptop with DK-STM software package, televist and URLADER.
UNILINK box	Hardware box for connection to DK-STM subrack VE-card.
Library	A folder containing the files necessary for SW update. The library contains several folders.
URLADER	Software for unsealing, transfer data to DK-STM subrack and sealing.
Televist	Console for configuration and DK-STM log data.

2 Process for software update

The diagram shows the software update process to follow when updating the software of the DK-STM when installed in a vehicle.

Chapter 3 describes the process in detail.

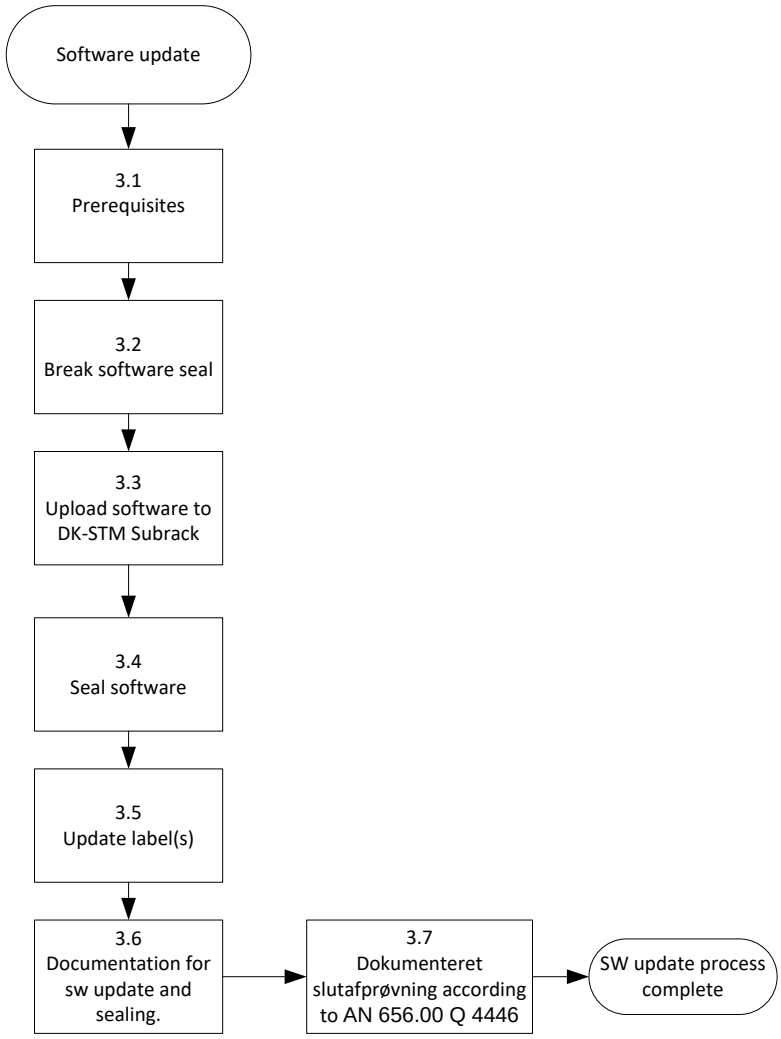


Figure 1 - SW update process diagram

3 Software update procedure

In this chapter each process will be explained in detail in order to describe and clarify what to do for each step in the SW update process as defined in chapter 2.

The tools and software are described in chapter 5.

When unsealing, sealing, or loading software from STM-DK_SW_R03.00.09 and later versions it is the PLUGIN_URLADER.bat which shall be started. By earlier versions it was/is the PLUGIN_URLADER.exe.

3.1 Prerequisites

- The service PC holds the SW-release package for SW already installed on the DK-STM. The library with the software package would be named DK-STM-DK_SW_xx.xx.xx or something similar.
    - xx.xx.xx corresponds to a SW release which could be 03.00.08.
    - The library contains several folders which are used for the update process
- Software versions and drivers on the service laptop are checked:
    - Urlader Plugin version: Date, Oct 10, 2014, V2.1 or newer.
    - Urlader Cpuloginbasis.dll is of date Jan 23 2013 or newer.
    - Televist.exed is of version 2.6.4.0, Feb 14, 2014 or newer.
    - Drivers for the UNILINK box are installed.
- Connect the UNILINK- box the service laptop and the DK-STM Subrack (VE5A)
    - **NB:** The DK-STM shall be powered off before connecting the UNILINK box to the DK-STM Subrack.

3.2 Break software seal

- Turn on the power of the DK-STM
- Determine the version of the installed software on the DK-STM via:
  - DK-STM DMI
  - or SW label on the DK-STM Subrack CPU-card
- For the installed SW release (e.g. 03.00.08) localize the folder with the name….. **SWV_FEG…** and start the executable **PLUIGIN_URLADER.exe**
  - On the service PC a shortcut may be provided to ensure that the correct SW package is used.
- The configuration and setup may be investigated under following tabs (The service laptop should be preconfigured).
  - "Configuration"
  - "Output request"
  - "General Configuration"
- When the URLADER GUI is started ensure that "System software" points at the folder with target software and that the URLADER is correctly configured.
  - The folder is usually named **SW1-P…..**
- In the URLADER GUI the "Unseal" is checked and the button "start process" is pushed.
  - The progress and status can be followed for progress and status.
  - When the unsealing is complete the DK-STM new software release can be uploaded to the DK-STM.
  - The result of the unsealing process is documented in a PDF-file that is generated by the URLADER.

NB: If the setup and the configuration of the service PC and the URLADER is not correct, the unsealing process cannot be completed and an error will happen and the result will be that the software cannot be unsealed.

See Figure 4 for example of URLADER for SW version 03.00.08.

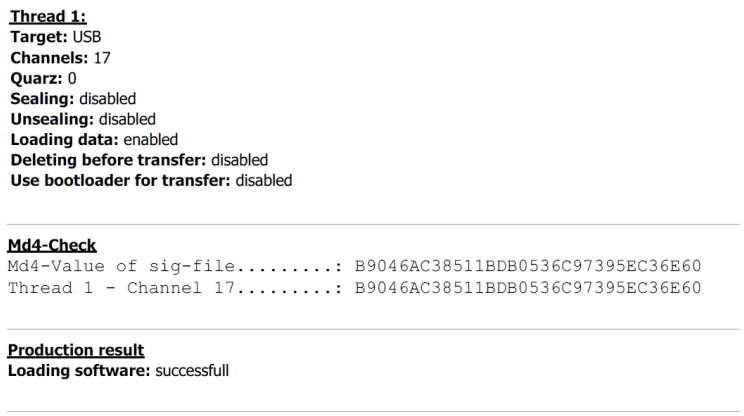
See Figure 5 for example of URLADER for SW version 03.00.09.

3.3 Upload software to the DK-STM Sub rack

- For the SW release to be installed (e.g. 03.00.09) localize the library containing the software package
- Start the bat-file named **PLUGIN_URLADER.bat**
- When the URLADER GUI is started ensure that “System software” points at the folder with target software and that the URLADER is correctly configured.
  - The folder is named **SW1-P_STMDK_R3_0_9**
- In the URLADER GUI the “Transfer data” is checked and the button “start process” is pushed.
  - The progress and status can be followed for progress and status.
  - When the upload is complete the DK-STM can be configured.
  - The result of the upload process is documented in a PDF-file that is generated by the URLADER. The PDF-file also contains a MD4 checksum value. It is advised to save this protocol for proof of correct SW update.
  - The PDF-files are usually saved in the folder named: **DK_STM_SW_R03.00.09_00/Reports/plugin-urlader_YYYYMMDD**.
  - The MD4-cheksum from the PDF-files shall be the same as the BAB-signature for the LAD-file for the 8MB CPU board as defined in the software release note. Table 1 holds the checksum to be verified for each SW release and this table can be used for comparison. See Figure 2 for data transfer report example.

See Figure 5 for example of URLADER for SW version 03.00.09.

NB: If the setup and the configuration of the service PC and the URLADER is not correct, the upload process cannot be completed and an error will happen and the result will be that the software cannot be uploaded.


Thread 1:
Target: USB
Channels: 17
Quarz: 0
Sealing: disabled
Unsealing: disabled
Loading data: enabled
Deleting before transfer: disabled
Use bootloader for transfer: disabled

Md4-Check
Md4-Value of sig-file.....: B9046AC38511BDB0536C97395EC36E60
Thread 1 - Channel 17.....: B9046AC38511BDB0536C97395EC36E60

Production result
Loading software: successfull

Figure 2 - Data transfer report example R03.00.08

3.4 Seal software

- For the SW release to be sealed (e.g. 03.00.09) localize the library containing the software package
- Start the bat-file named **PLUGIN_URLADER.bat**
- When the URLADER GUI is started ensure that “System software” points at the folder with target software and that the URLADER is correctly configured.
    - The folder is named **SW1-P_STMDK_R3_0_9**
- In the URLADER GUI the “Seal” is checked and the button “start process” is pushed.
    - The progress and status can be followed for progress and status.
    - The result of the upload process is documented in a PDF-file that is generated by the URLADER.
    - The PDF files are usually saved in the folder named **DK_STM_SW_R03.00.09_00/Reports/plugin-urlader_YYYYMMDD**.
    - See Figure 2 for report example.
- After successful sealing the UNILINK box are removed from the DK-STM sub rack.

If the URLADER was kept open from the upload process, then the 3 first points may be omitted.

See Figure 5 for example of URLADER for SW version 03.00.09.

NB: If the setup and the configuration of the service PC and the URLADER is not correct, the seal process cannot be completed, and an error will happen and the result will be that the software cannot be sealed.

Thread 1:
Target: USB
Channels: 17
Quarz: 0
Sealing: enabled
Unsealing: disabled
Loading data: disabled
Deleting before transfer: disabled
Use bootloader for transfer: disabled

Production result
Sealing board(s): successfull

Figure 3 - Sealing report example R03.00.08

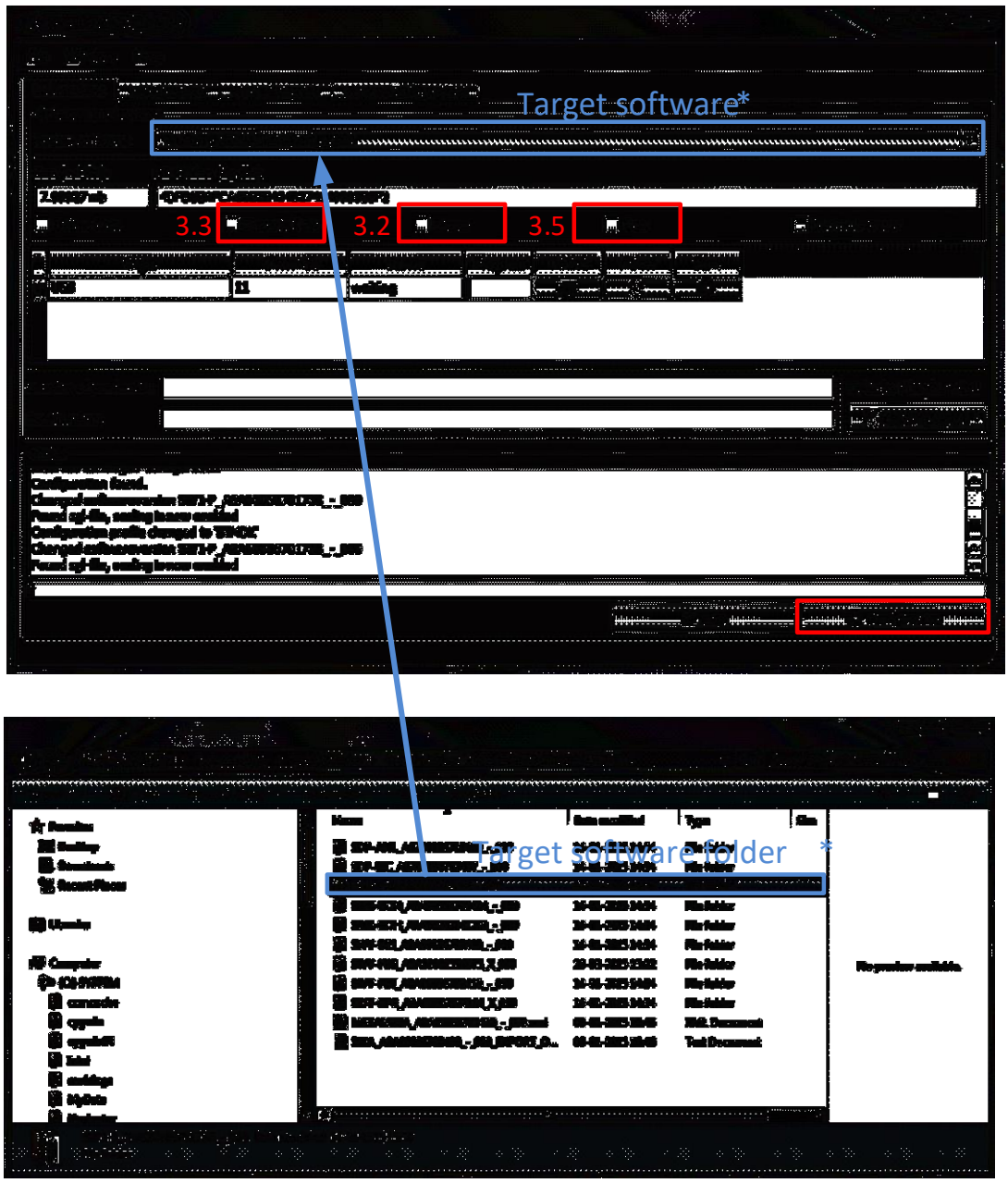


Figure 4 - URLADER R03.00.08

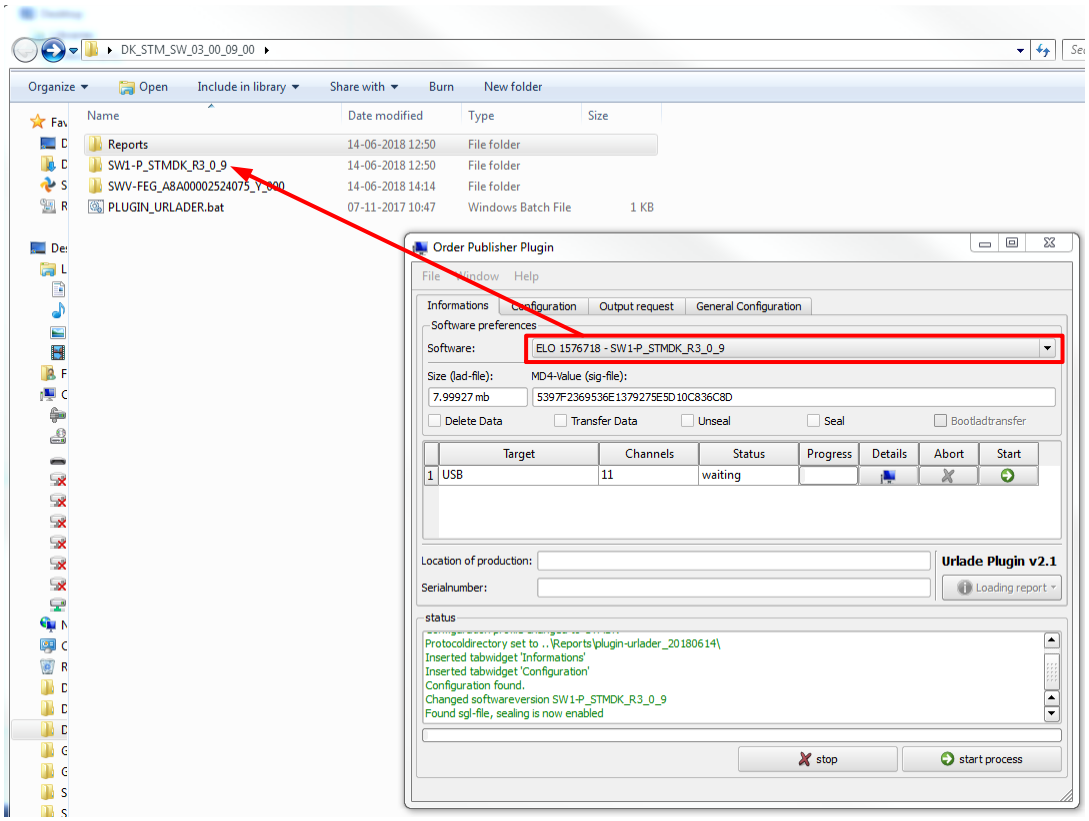


Figure 5 - URLADER R03.00.09

3.5 Update label(s)

- Replace the SW-label, with installed SW-version on the VE-card in the DK-STM sub rack.
- Until version D of the DK-STM sub rack labels are updated on the DK-STM sub rack and the DK-STM Cubicle after update of the DK-STM software.
    - From version D, the labels for the DK-STM cubicle and the DK-STM sub rack shall not be updated when updating the software.
    - A black marker is used to update the labels on the DK-STM sub rack and the DK-STM cubicle.

DK-STM Sub rack and DK-STM Cubicle version example:

SW R03.00.08 -> DK-STM sub rack and DK-STM cubicle version is C.
SW R03.00.09 -> DK-STM sub rack and DK-STM cubicle version is D.
SW R03.00.10 and later ->DK-STM sub rack and DK-STM cubicle version is D. (DK-STM cubicle and DK-STM sub rack version are no longer updated as a result of SW update.)

3.6 Documentation for software update and sealing

- The URLADER generates a protocol-file in PDF format when:
    - Unsealing.
    - Transferring data to DK-STM sub rack.
    - Sealing.
- It is recommended the save the protocols for data transfer and sealing for proof of correct update and sealing.

NB: The protocols are saved with date and year and a timestamp in the filename.

3.7 Dokumenteret slutafprøvning according to AN 656.00 Q4446

- After completion of software update process test according AN656.00 Q4446 are to be performed for each cabin:
    - DK-STM is put in DA-mode
    - A brake test is performed using a brake test balise.
    - It is recommended to check the SW version and baseline in the DK-STM DMI in the maintenance menu when the DK-STM shall be put in DA-mode.

Se AN656.00 Q4446 ref. /1/ chapter 1.5, 4.1, 7.1.1, 7.1.2, 7.2.1 and 7.2.2 for further information.

4 MD4 checksum

Table 1 - MD4 checksum

SW-Release	Product MD4-Checksum
R03.00.07	e07afa08ce57e59b3448680a49f5bc20
R03.00.08	b9046ac38511bdb0536c97395ec36e60
R03.00.09	5397f2369536e1379275e5d10c836c8d
R03.00.10	e5016e43754961ac7d7ada67ce4a34e3
R03.00.11	49554f58c4a6274e9f88bdcee4e11a27
R03.00.12	NA
R03.00.13	36cc994f3a5ee6e98136685c60983211

The table shall be updated when a new SW is released.

5 Tools and software

5.1 Hardware

- **Service laptop**
  - Service laptop with latest W-release packages and software tools defined in 5.2.

- **UNILINK box**
  - **Cables**
    - Cat 5E ethernet cable with RJ45 connectors.
    - USB A to USB B cable.

5.2 Software

- **PLUGIN_URLADER.exe**
  - Urlader Plugin, Date, Oct 10, 2014, V2.1 or newer
  - Cpluginbasis.dll, Jan 23 2013 or newer

- **Televist.exe**
  - Version 2.6.4.0, Feb 14, 2014 or newer

6 Siemens notes

Siemens uses an internal document when updating and installing software on the DK-STM sub rack at Siemens or when installed in a vehicle.
This internal document, ref. /2/, holds a protocol to be filled when installing the software on a new DK-STM sub rack or updating the software.

This technical note is based on the internal Siemens programming instruction ref. /2/.