Expert

How to flash microSD card

In Wiser for KNX (W4K)

Application note

Generation 2

LSS100100

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CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

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- Do not rely solely on software messages and reports to determine if the system is functioning correctly or meeting all applicable standards and requirements.
- Consider the implications of unanticipated transmission delays or failures of communications links.

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Attention - the information provided must be complied with, otherwise program or data errors may occur.

Note - You will find additional information here to make your work easier.

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1 Introduction

This application note describes procedure of restoring firmware image of W4K either to update/backup it or in case of microSD card failure.

A reference is available in the appendix chapter of this document. Please refer to it whenever necessary.

1.1 Competencies

This document is intended for readers who have been trained on W4K or spaceLYnk products and have at least intermediate computer skills. Administrator rights for PC will be required as 3rd party software will be installed.

1.2 System prerequisites

Software	Version	Download
Wiser for KNX	2.3.0	http://www.schneider-electric.com
USB Image Tool	1.75	http://www.alexpage.de/usb-image-tool/download/

Table 1: Used software.

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2 What to install?

In this chapter there is explained what tool to install to your computer, what this tool requires and where to get it for successful flash of microSD card.

2.1 Installing USB Image Tool to you computer

USB Image Tool is small freeware utility to create image files of flash drives, restore images of flash drives, create compressed image file format, reveal devices information, and manage your image files.

Download USB Image Tool here: https://www.alexpage.de/usb-image-tool/download/

Unzip USB Image Tool to the folder in your PC. No further installation needed.

USB Image Tool requires the .NET Framework 4.0 and Windows XP or higher. The usbit32.dll included in the archive must be in the same directory as the EXE file. The command line utility doesn't require the .NET Framework nor the usbit32.dll.

You can download .NET Framework here: https://www.microsoft.com/en-us/download/details.aspx?id=17851

3 Configuration

In this chapter you can read where to find a version of a device, which processor they have and about preparation and creating new microSD card. There is also something about making a backup or copy of existing microSD card.

3.1 W4K's hardware versions

There are two versions of W4K's hardware. Hardware version can be found on the sticker of W4K's cabinet.

Figure 1: HW version marking.

Older version for all hardware versions with IMX28 processor: HW versions 1.x.

New version with IMX6 processor: HW version 2.x and version HW 3.x It can be also easily recognized due to the reset button on the front side.

Figure 2: W4K HW 2.x with front reset button.

3.2 Preparing microSD card

We strongly recommend using only branded quality microSD cards of same or bigger size as the card originally used in W4K. Failure of microSD card cause W4K will stop work and will not be accessible.

Remove micro SD card from W4K device. If it is already mounted into the cabinet, micro SD card can be reached by simply opening top part of W4K cover (from HW version 1.3).

Never remove micro SD card while W4K is ON and power supply is present.

Always discharge any possible static electricity charge which may be present at your body. Flash card are extremely sensitive to overvoltage and may be damaged or even destroyed when exposed by such conditions.

You can use dedicated securely Earthed points. If you are on the building site, heating and water installations are grounded/earthed and therefore can be used as makeshift grounding points.

Figure 3: W4K without top cover with microSD card ready to be removed.

Note that when you will insert the flash card into PC, Windows will automatically ask for card format as it will not recognize Linux based files, choose NO.

There are 2 types of W4K case. The first is with removing top part as it's on the left in figure 4. The second is with removable bottom as on the right in figure 4. How to replace spaceLYnk you can see here: https://youtu.be/jwyTh1LFX_s

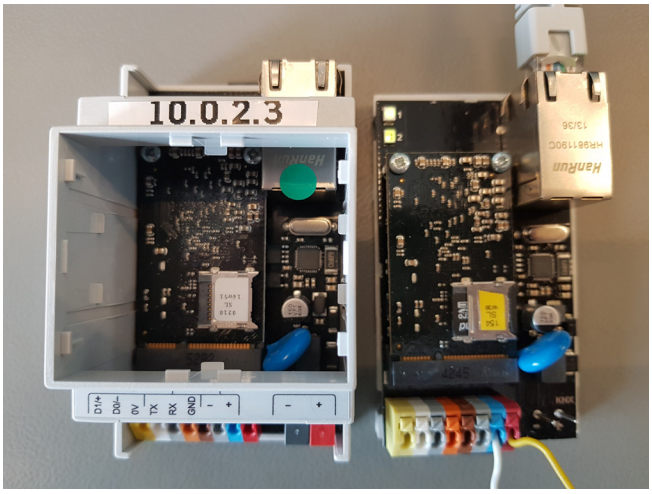

Figure 4: Cases of W4K.

3.2.1 Creating new microSD card with W4K's firmware

Download copy of recovery image to your computer. It is attached to this Application Note.

There are two versions recovery matching versions of hardware see chapter 3.1 W4K's hardware versions for details. Both versions are attached to this application note.

Recovery file name for old hardware: W4K_HW1_xx_recovery.img.gz

Recovery file name for new hardware: W4K_HW2_xx_3_xx_recovery.img.gz

Open USB Image tool, click Reset. Format your microSD card (with software "*Create or format hard disk partitions*" - on Windows OS, right click on partition and choose *Format*). Select propriate version of recovery image, unzip it and *Restore* it to your card.

Note that when you will insert the flash card into PC, Windows will automatically ask for card format as it will not recognize Linux based files, choose NO. All data will be erased/overwritten.

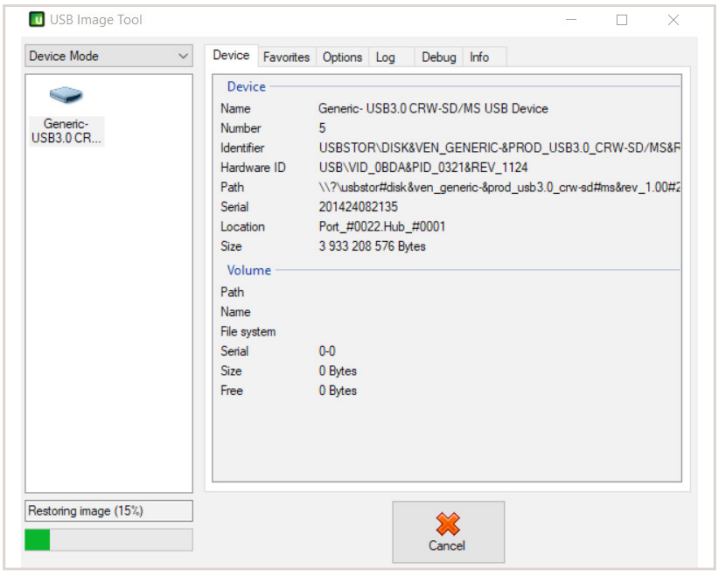

Figure 5: Restoring firmware image in USB Image Tool.

Insert card to your W4K, power it up and open supported web browser.

Connect to your W4K using default IP address 192.168.0.10. Clear browser cache.

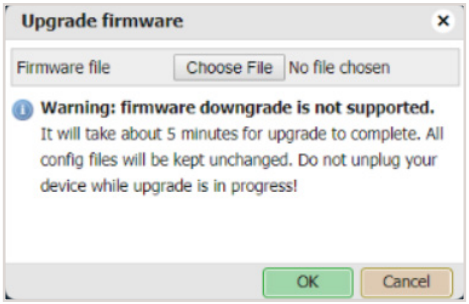

Figure 6: Initial message during firmware restoration.

Select desired version of firmware downloaded from:

https://www.schneider-electric.com/en/download/range/62143-Wiser%20for%20KNX/?docTypeGroup=3541958-Software%2FFirmware

After approximately 5 minutes you will be able to access your W4K in default settings.

We recommend using up to date version of firmware (you can find it here named Wiser_for_KNX_Firmware_v.2.3.0_HW_2_X_X_HW_3_X_X (zip): https://www.schneider-electric.com/en/product/LSS100100/wiser-for-knx-logic-controller/#search) with exception if you are restoring W4K in already existing installation. You can keep version already used to secure compatibility of all features.

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3.2.2 Making a backup/copy of existing microSD card

In case you use the native microSD from the device, make sure you have done a backup of your configuration and project.

If you have another working flash card, you can insert it into the PC where USB Image Tool is installed, run the program as administrator, choose the disk drive and BACKUP the flash image. It will take full size of the flash card's capacity on your local PC's storage. Select folder destination and image name convenient for you.

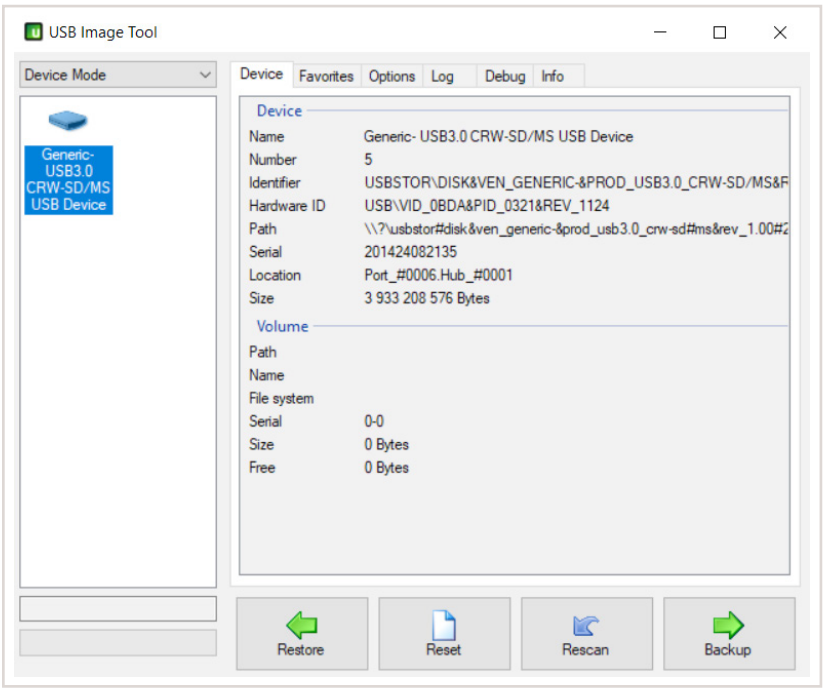

Figure 7: USB Image Tool environment.

Insert empty microSD card of same or bigger size of the card originally used in W4K. Select backup file location and press RESTORE.

If you use card bigger than original one you will lose access to all excessive space. If card size differ from existing card, which is possible even if you use same size card of different type or manufacturer you will get error message.

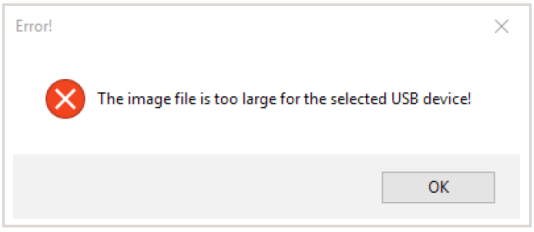

Figure 8: Error message.

You can solve this by go to USB Image Tool Option tab and select "Truncate oversize images in device mode".

Option "Show completion message after operation" is also useful and recommended to be activated.

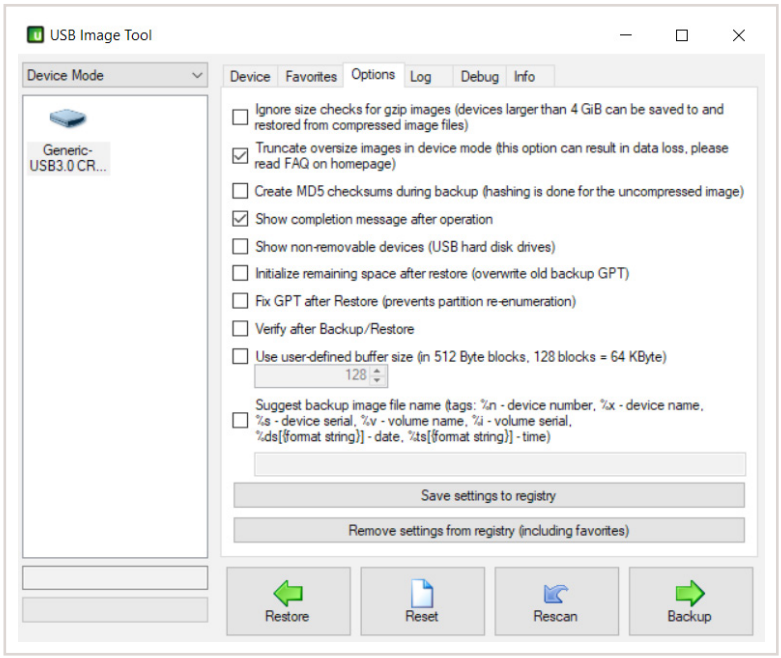

Figure 9: USB Image Tool Options tab.

Successfully restored micro SD card then can be inserted into the W4K. It is highly recommended to upgrade W4K software to latest version with exception of W4K's already deployed in live installations.

4 Appendix

In this chapter you can find useful links for tools, firmware and other things which can help to successfuly go through this application note.

4.1 Reference

Document title	Reference
USB Image Tool	http://www.alexpage.de/usb-image-tool/
W4K manual	http://download.schneider-electric.com/files?p_enDocType=User+guide&p_File_Name=AR1740_EdI_User_Wiser_for_KNX_EN.pdf&p_Doc_Ref=AR1740_EdI_EN
W4K firmware (always check proper version for your hardware)	https://www.schneider-electric.com/en/download/range/62143-Wiser%20for%20KNX/?docTypeGroup=3541958-Software%2FFirmware

Table 2: Reference.

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