

## How to Update K2Ee Firmware

### Introduction

This document describes how to update the K2Ee firmware on Windows and Linux PC's.

Your existing K2Ee may be eXecuting In Place (XIP) in FLASH or running from Internal Tightly Coupled Memory (ITCM) in RAM. K2Ee is shipped running code from ITCM and should always be run in that mode for optimum performance. It is possible for a K2Ee to run from FLASH, but the performance will be reduced.

### Update Procedure for Windows

#### Requirements

Windows 10 or newer PC

FarSite kflash2.exe utility. **Note** *Windows Defender Antivirus* can sometimes delete kflash2.exe, if this happens then the only option for now would be to exclude kflash2.exe or the folder in which it resides from *Windows Defender Antivirus* scanning.

Firmware update file e.g. FS\_K2EeI\_0xxx.hex (where xxx is the version number)

#### Assumptions

You have a K2Ee with driver already installed

#### Procedure

Identify what SDCI number is associated with the K2Ee you wish to update from Windows Device Manager or the FarSite fsinfo utility.

It is simplest to copy the kflash2.exe and FS\_K2EeI\_0xxx.hex files to the same folder.

Open the Command Prompt App and change to the folder where the files are located.

Enter kflash2 -nSDCI m -iFS\_K2EeI\_0xxx.hex, where m is the SDCI number of your device and xxx is the version number of the firmware:

```
C:\K2EeTest>KFlash2 -iFS_K2EeI_0208.hex
KFlash2 Version 1.0.0
Path: \\.\SDCI0\0
FarSync K2Ee KFlash2 Version 1.0.0
Copyright FarSite Communications Ltd. 2023
Block   Address          Version Status Attribute
0       0x60000000        0.2.0.0 used    r-x-
1       0x60100000        0.2.0.8 used    rwx
Do you wish to continue programming (Y/N)?
```

The program will report the current status of the flash.

If the K2Ee is running from FLASH you will see something like this:

```
C:\K2EeTest>KFlash2 -iFS_K2EeI_0208.hex

KFlash2 Version 1.0.0

Path: \\.\SDCI0\0

FarSync K2Ee KFlash2 Version 1.0.0
Copyright FarSite Communications Ltd. 2023

Block   Address          Version Status  Attribute
0       0x60000000          0.2.0.0 used    r-x-
1       0x60100000          . . . free    rwx

Do you wish to continue programming (Y/N)?
```

Block 0 is protected and cannot be erased.

K2Ee currently supports just the default FLASH XIP code in block 0 and ITCM code in block 1.

To replace the code in Block 1 with an updated version, enter Y:

```
Reading Hex file...
File                FS_K2EeI_0208.hex
Start Address       0x0000031D
Checksum            0x00E4056B
Maximum record length 16 bytes
FLASH minAddress     0x00000000
FLASH maxAddress     0x00019E63
FLASH used           106084 bytes

Erasing FLASH (block 1 @ 0x60100000)
Erase Success

Programming FLASH (block 1 @ 0x60100000)
FLASH flashAddress   0x60100000
FLASH flashEndAddress 0x6011FFFF
=====
=====

Verifying FLASH (block 1 @ 0x60100000)
FLASH flashAddress   0x60100000
FLASH flashEndAddress 0x6011FFFF
=====
=====

Verify Success

Do you wish to restart the device (Y/N)?
```

The flash will be erased, programmed and verified.

In order to activate the new code, the card must be restarted. To save the inconvenience of having to reboot the PC a Soft Reset may be issued from kflash2 by entering Y:

```
Restart Success
```

If you don't restart the card, it will continue running the previous firmware version until the host PC is restarted.

## Update Procedure for Linux

### Requirements

#### Linux PC

FarSite kflash2 utility.

Firmware update file e.g. FS\_K2Eel\_0xxx.hex (where xxx is the version number)

### Assumptions

You have a K2Ee with driver already installed

### Procedure

Identify what *sync* number is associated with the K2Ee, e.g. `more /proc/farsynck`:

```
test@Athos-Ubuntu:~$ more /proc/farsynck
FarSync KxEe Driver Version 5.0.1 - Patch Level 00 - Build -b000
1 Cards found
      sync0-sync1: (M5201003) FarSync K2Ee      IRQ0, 2 ports, State: Running
```

It is simplest to copy the kflash2 executable and FS\_K2Eel\_0xxx.hex files to the same folder.

Open the Terminal App and change to the folder where the files are located.

Enter `sudo ./kflash2 -nsyncn -iFS_K2Eel_0xxx`, where *n* is the sync number of your device:

```
test@Athos-Ubuntu:~/Documents/kflash2$ sudo ./kflash2 -nsync0
FarSync K2Ee Kflash2 Version 1.0.0
Copyright FarSite Communications Ltd. 2023
Built for version 5.0.3 of the FarSync K2Ee driver
Block   Address          Version Status  Attribute
0       0x60000000         0.2.0.0 used    r-x-
1       0x60100000         0.2.0.7 used    rwx
Do you wish to continue programming (Y/N)?
```

The program will report the current status of the flash.

If the K2Ee is running from FLASH you will see something like this:

```
test@Athos-Ubuntu:~/Documents/kflash2$ sudo ./kflash2 -nsync0
FarSync K2Ee Kflash2 Version 1.0.0
Copyright FarSite Communications Ltd. 2023
Built for version 5.0.3 of the FarSync K2Ee driver
Block   Address          Version Status  Attribute
0       0x60000000          0.2.0.0 used    r-x-
1       0x60100000          . . . free   rwx
Do you wish to continue programming (Y/N)?
```

Block 0 is protected and cannot be erased.

K2Ee currently supports just the default FLASH XIP code in block 0 and ITCM code in block 1.

To replace the code in Block 1 with an updated version, enter Y:

```
Reading Hex file...
File           FS_K2EeI_0208.hex
Start Address   0x0000031D
Checksum        0x00E4056B
Maximum record length 16 bytes
FLASH minAddress 0x00000000
FLASH maxAddress 0x00019E63
FLASH used      106084 bytes
Erasing FLASH (block 1 @ 0x60100000)
Erase Success

Programming FLASH (block 1 @ 0x60100000)
FLASH flashAddress 0x60100000
FLASH flashEndAddress 0x6011FFFF
=====
=====

Verifying FLASH (block 1 @ 0x60100000)
FLASH flashAddress 0x60100000
FLASH flashEndAddress 0x6011FFFF
=====
=====

Verify Success
Do you wish to restart the device (Y/N)?
```

The flash will be erased, programmed and verified.

In order to activate the new code, the card must be restarted. To save the inconvenience of having to reboot the PC a Soft Reset may be issued from kflash2 by entering Y:

```
Device Soft Reset Successfully
```

If you don't restart the card, it will continue running the previous firmware version until the host PC is restarted.

If you run e.g. *sudo dmesg -wT*, tracing will confirm whether the K2Ee is running from Flash or RAM after a soft reset and which version it is running:

```
[Mon Oct 9 13:54:58 2023] sync0-sync1: (M5201003) FarSync K2Ee , 2 ports
[Mon Oct 9 13:54:58 2023] KxEe device now attached to interface minor 0
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: FarSync K2Ee Product Version: 0.2.0.0
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: Built Dec 1 2022 16:21:23
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: Release Build
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: Power On Reset
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: Running from FLASH
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: Silicon Rev 1
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: ROM API Version 0x00010000
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: ROM API Copyright 2018 NXP
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: ROM API Flex SPI NOR Driver Version 0x00010500
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: FCCC Version = 0x03000000
```

```
[Mon Oct 9 13:56:19 2023] sync0-sync1: (M5201003) FarSync K2Ee , 2 ports
[Mon Oct 9 13:56:19 2023] KxEe device now attached to interface minor 0
[Mon Oct 9 13:56:19 2023] fst_usb_trace: FF: FarSync K2Ee Product Version: 0.2.0.8
[Mon Oct 9 13:56:19 2023] fst_usb_trace: FF: Built Oct 5 2023 16:43:54
[Mon Oct 9 13:56:19 2023] fst_usb_trace: FF: Release Build
[Mon Oct 9 13:56:19 2023] fst_usb_trace: FF: Power On Reset
[Mon Oct 9 13:56:19 2023] fst_usb_trace: FF: Running from RAM
[Mon Oct 9 13:56:19 2023] fst_usb_trace: FF: Silicon Rev 1
[Mon Oct 9 13:56:19 2023] fst_usb_trace: FF: ROM API Version 0x00010000
[Mon Oct 9 13:56:19 2023] fst_usb_trace: FF: ROM API Copyright 2018 NXP
[Mon Oct 9 13:56:19 2023] fst_usb_trace: FF: ROM API Flex SPI NOR Driver Version 0x00010500
[Mon Oct 9 13:54:58 2023] fst_usb_trace: FF: FCCC Version = 0x03000000
```