

F3S – Failsafe Flash Filesystem

Installation Guide

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About This Document

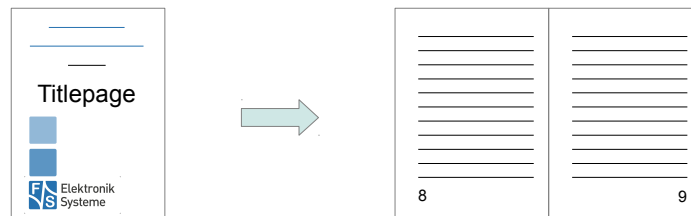
This document describes how to install the F3S Failsafe Flash Filesystem. The F3S is available for all boards from F&S under Windows Embedded CE.

Remark

The version number on the title page of this document is the version of the document. It is not related to the version number of any software release. The latest version of this document can always be found at <http://www.fs-net.de>.

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Typographical Conventions

We use different fonts and highlighting to emphasize the context of special terms:

File names

Menu entries

Board input/output

Program code

PC input/output

Listings

Generic input/output

Variables

History

Date	V	Platform	A,M,R	Chapter	Description	Au
2015-01-13	1.0	All	A	*	New Version	MA

V Version
A,M,R Added, Modified, Removed
Au Author





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1 Description

The Failsafe Flash Filesystem is a filesystem that is especially designed to be robust against (abrupt) electrical power outages. Data modifications of a file will be written in several, definable transactions, where each change only will be committed completely. Unfinished operations will be revoked. It's designed for NAND-Flash-Memories particularly.

In contrary to other file systems it is able to guaranty a reliability in transaction on file-level. The user has the option to define the point of validation of modified data. In easiest case by closing the file-handle. In this way important data can be stored permanently and safely.

- Modifying file contents can be accepted only in completed operations (state-transition).
- During Modification transitions can also be accomplished by using explicit calls within the application (FlushFileBuffers()).



2 Enabling F3S

The Failsafe Flash Filesystem is included in the default kernel-image by default. But to be able to use it, a valid serial number must be set in the bootloader. An individual serial will be provided after arrangement. Following sections will explain in detail how F3S can be enabled.

2.1 Installation

Having the newest eboot installed enables a command to enter the serial number: F. After stepping into bootloader and executing this command it will ask for the serial (12 characters), which is not case sensitive.

```
:> F
Enter new serial number for F3S (12 chars):XXXXXXXXXXXX
```

Listing 1: Enter F3S Serialnumber

```
:> I
NetDCU8 boot options valid : YES
Start Download after reboot : no
Download kernel to : FLASH
Kernel load/store compression : OFF
Size of area for OS image : 18 MB
Size of FFSDISK : 46 MB
Format of FFSDISK : F3S
F3S serial number : XXXXXXXXXXXXXXX
Launch image after reboot : yes
Output debug messages at serial port : yes
Bootloader Network setting valid : YES
-MAC Address : 0:5:51:56:A0:34
-Use DHCP to get IP address: YES
WindowsCE MAC address valid : yes
-WindowsCE MAC Address : 0:5:51:0:0:1

CPU mode : ASYNC
:>
```

Listing 2: Display Bootloader Settings



Now the partitioning may be adapted. This mechanism has not changed in principle, but it will be possible now to choose the filesystem being used for FFSDISK and a possibly needed SECOND partition.

```
:> P
-----PARTITION CONFIGURATION-----
Current settings:
Total : 64 MB
OS-Image: 18 MB
FFSDISK : 46 MB, Part type: F3S
SECOND : 0 MB, Part type: F3S
Enter maximal size for OS-Image [18]: 16
Enter maximal size for FFSDISK [48]:
Format FFSDISK as FA(T) or (F)3S [F]: F
Format 2nd partition as (E)XTENDED or (F)3S [F]: F
New settings:
Total : 64 MB
OS-Image: 16 MB
FFSDISK : 48 MB, Part type: F3S
SECOND : 0 MB, Part type: F3S
```

Listing 3: Partitiion configuration

After formatting the flash has finished, the newest kernel can be downloaded to NetDCU. Depending on the partitioning settings made above, F3S will be loaded automatically. To make sure that F3S will be used, check for the corresponding announcement in serial debug output.

```
Samsung: 512MBit (64MB)
F3S_FSD: Checking serial number...
F3S_FSD: Failsafe Flash File System - V2.2
Samsung: 512MBit (64MB)
F3S_FSD: Volume successfully mounted at \FFSDISK
(size=47 MB)!
Enabling usage of the Failsafe Flash Filesystem is finished!
```

Listing 4: Sample Serial debug output



3 Appendix

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Important Notice

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