Infineon

Download Tool Chain

FlashTool

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Revision: 2.1

never stop thinking

Infineon technologies

FlashTool Overview

- **FlashTool is part of the download tool-chain which also includes the MakePrg and HexToFls programs.**
- **Modular design for easy maintanance and future enhancements.**
- **Support for 8 independent channels.**
- **Updates are possible without touching existing modules.**
- **Using CFI flash interface to support new flash types without tool updates.**
- **Support 'Secure download' to platforms that support security in the ROM bootcode.**
- **Support for automatic flash/eeprom download or update in production line or in the lab.**
- **Automatic generation of set-up file.**
- **Support for Flash File System (FFS).**
- **Generic interface to Automated Test/Production Equipment (ATE).**

FlashTool
The modules

The main program (FlashTool_X_X.exe) selects and load the function modules:

- **Application module.**
- **User interface (MMI) module.**
- **PlatformDriver module.**

These modules are released as DLL's, and are updated without affecting previously released modules.

FlashTool
Application module

- **This module is “The program”, as it control all actions.**
- **No platform specific information's are located in this module.**
- **This module can be used with any platform.**
- **This module can control 8 channels independently.**

FlashTool
User interface module

- **Handles all user interaction.**
- **Can be used by keyboard only.**
- **Support 8 independent channels.**

FlashTool
PlatformDriver module

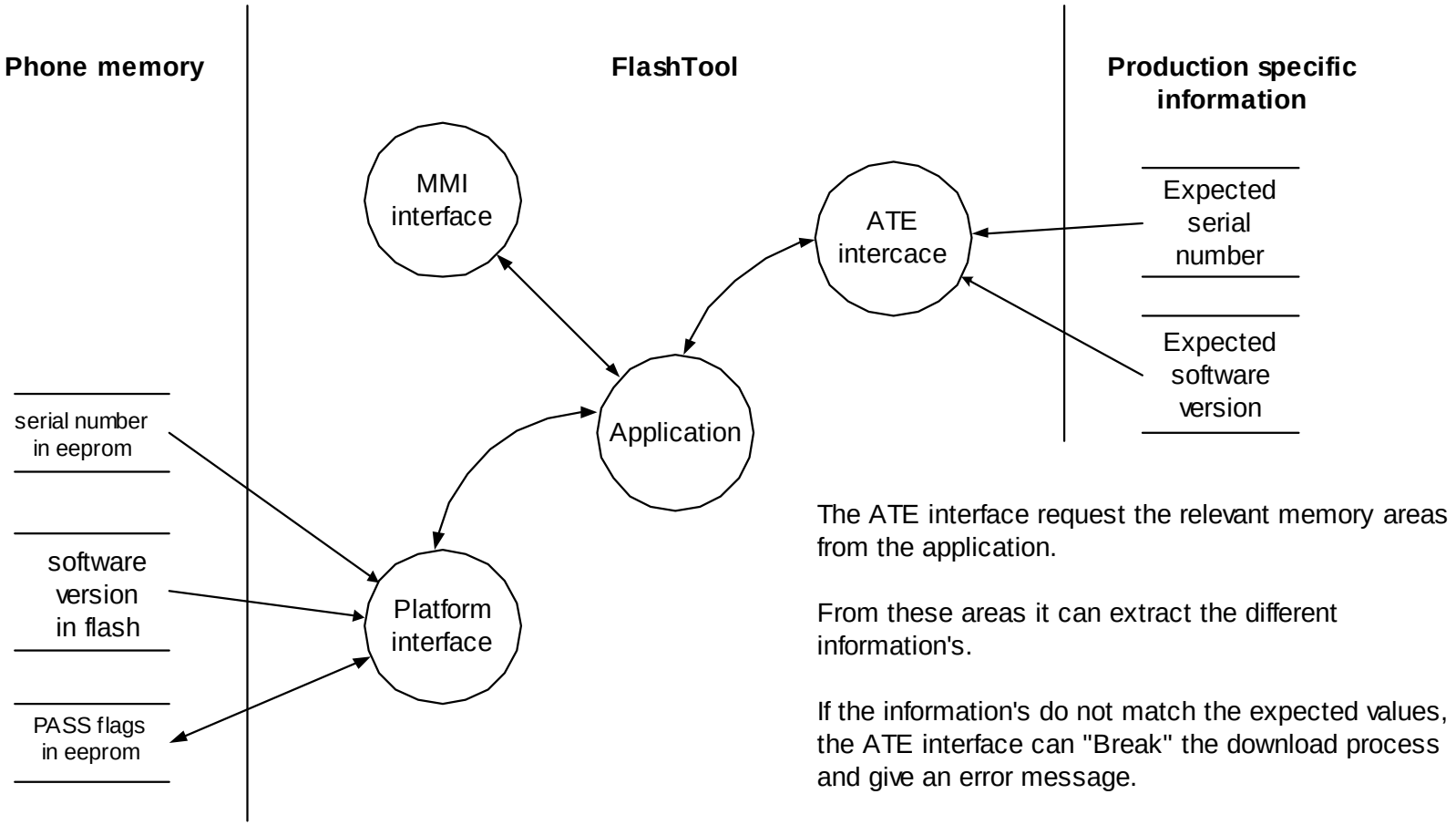
- **Handles communication to the target.**
- **Handles the boot sequence automatically.**
- **The target boot programs are embedded into this module.**
- **Generic module for all platforms.**
- **Handles 8 channels independently.**
- **Communication is done via Windows API functions to support the largest possible number of COM ports. Including USB-COM ports.**
- **Support for USB download on targets that support USB.**

FlashTool
ATE interface module

- **This type of module is optional, and is not needed for desktop download.**
- **Serves as a generic interface to ATE equipment.**
- **Have “read” access to the phone flash memory.**
- **Have “read, modify, write” access to the phone eeprom memory.**
- **Can “break” the download process, and give an error message.**
- **Is called for every stage during the download process.**

NOTE: Using Secure Download may place restrictions on the areas that can be accessed by the ATE DLL.

FlashTool
ATE interface example



The ATE interface request the relevant memory areas from the application.

From these areas it can extract the different information's.

If the information's do not match the expected values, the ATE interface can "Break" the download process and give an error message.

Otherwise the download will proceed as usual.

FlashTool
Selection of release to be used

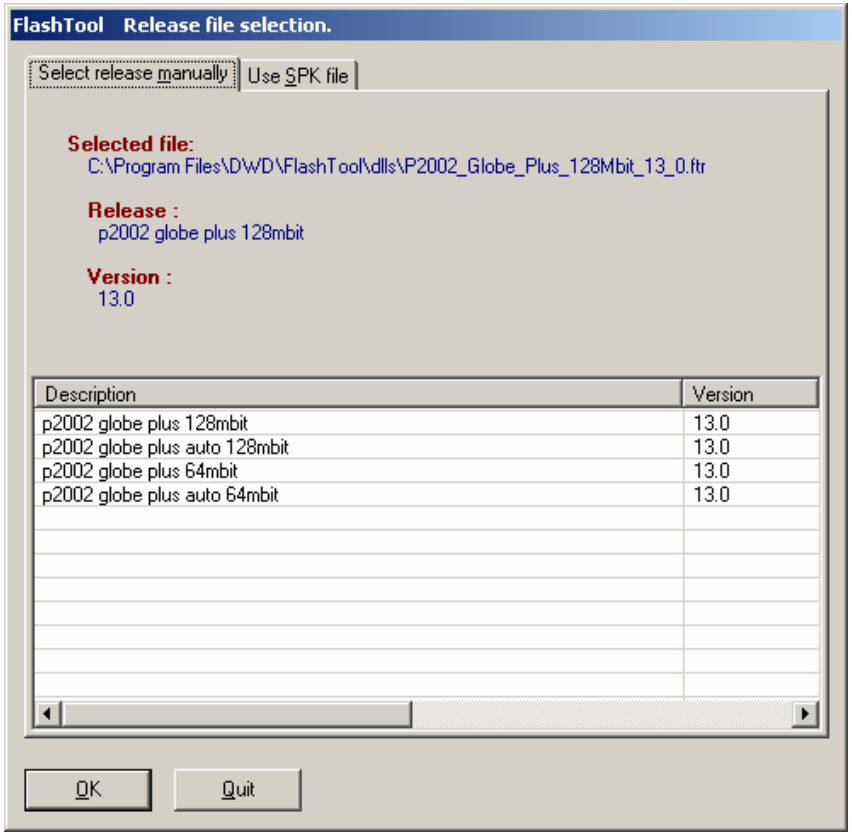
Which DLLs to load is determined by the FTR file(s) included in the releases.

The FTR file can be selected by:

- **Manual mode: Select the FTR file from a list of available files.**
- **SPK mode: Select an Software PacK (SPK) file which contains all the set-up.**

FTR = FlashTool release

FlashTool
Manuel FTR select mode



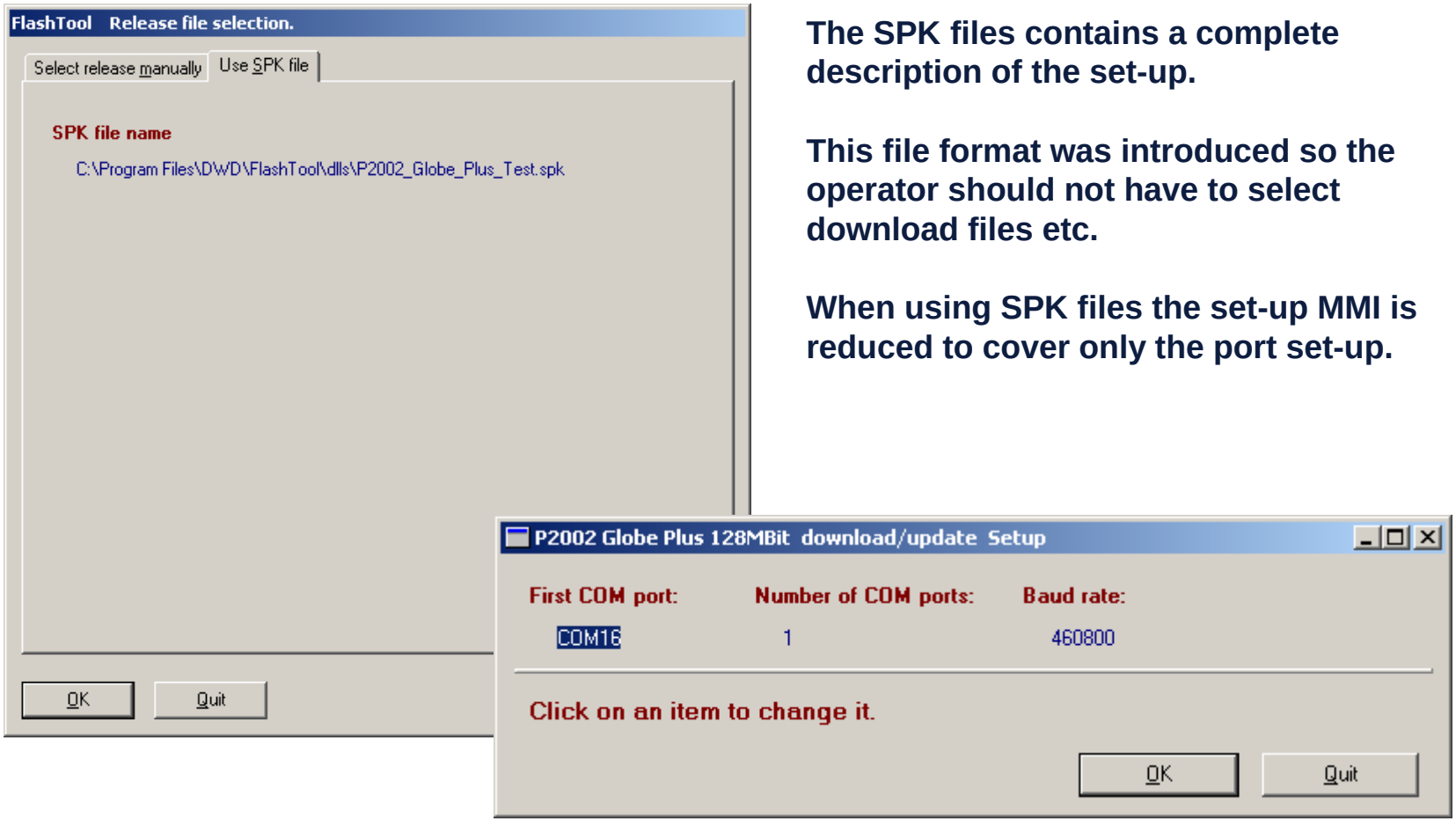
The Application, MMI and PlatformDriver to be used are defined by the FTR (FlashTool Release) file included in the release.

The version defined by the FTR file is the official FlashTool release version.

The version numbers of the DLL, EXE and other files in the release, should only be used when referring to a single specific file.

In this example there are 4 FTR files located in the DLLS folder.

FlashTool
Using SPK files



The SPK files contains a complete description of the set-up.

This file format was introduced so the operator should not have to select download files etc.

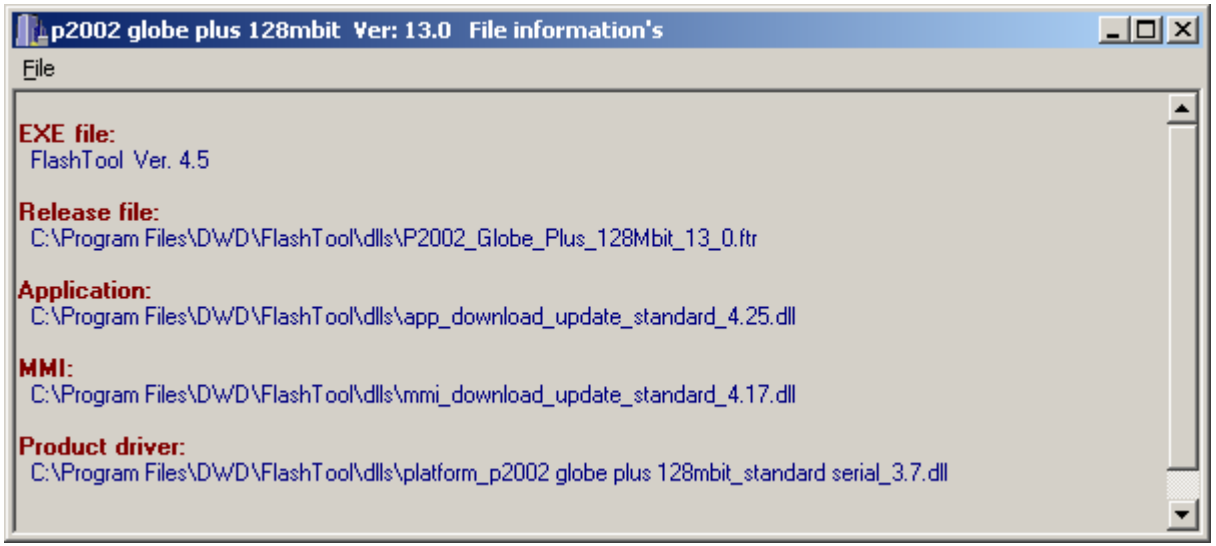
When using SPK files the set-up MMI is reduced to cover only the port set-up.

FlashTool
Using SPK files (example)

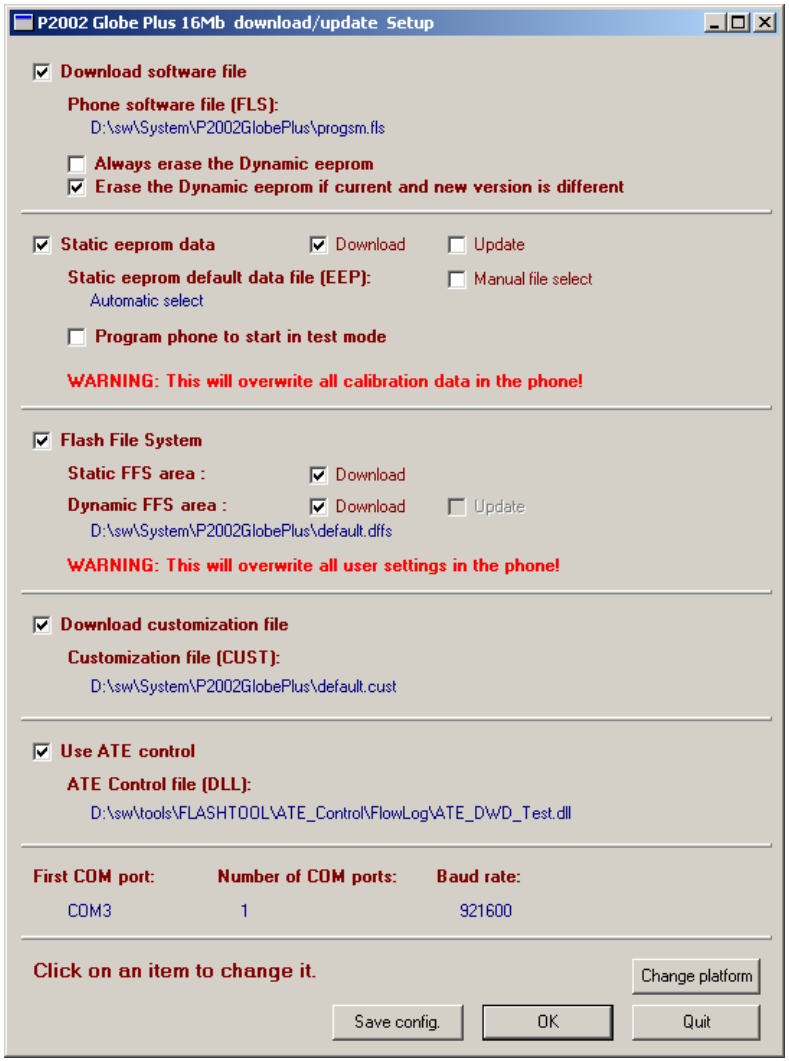
```
[System]
FTR = %ProgramFiles%\DWD\FlashTool\dlls\P2002_Globe_Plus_128Mbit_13_0.ftr
FTR_Mode = Strict

[Files]
FLS  = D:\sw\System\P2002GlobePlus\progsm.fls
EEP  = D:\sw\System\P2002GlobePlus\progsm.eep
;DEP  =
;CUST =
;CFG  =
;ATE  =
ProjectPrefix = P2002GP
CfgFilePath = D:\sw\System\P2002GlobePlus\

[Flags]
PhoneStartMode = Normal
DynEepErase = Always

[Eeprom]
0016 eep_static.production_parms.in_line.result      32767
0022 eep_static.production_parms.calib.result        4095
002e eep_static.production_parms.mmi.result          17407
```

FlashTool
View of selected files

- **The used files can be seen on the File information's screen.**
- **This screen is usually open behind the FlashTool set-up or download screen.**



FlashTool
Download file selection and port setup



Select the target software. (FLS), and handling method of the dynamic eeprom.

Eeprom download (EEP) and update (DEP/CFG) files can be selected automatically from information's in the target software and in the platform eeprom.

Select FFS (DFFS) file to download.

Select customization (CUST) file to download.

Select ATE control interface. (If needed)

Click “Change platform” to return to the release selection screen.

Click “Save config” to create or update a configuration file.

FlashTool
Set-up files

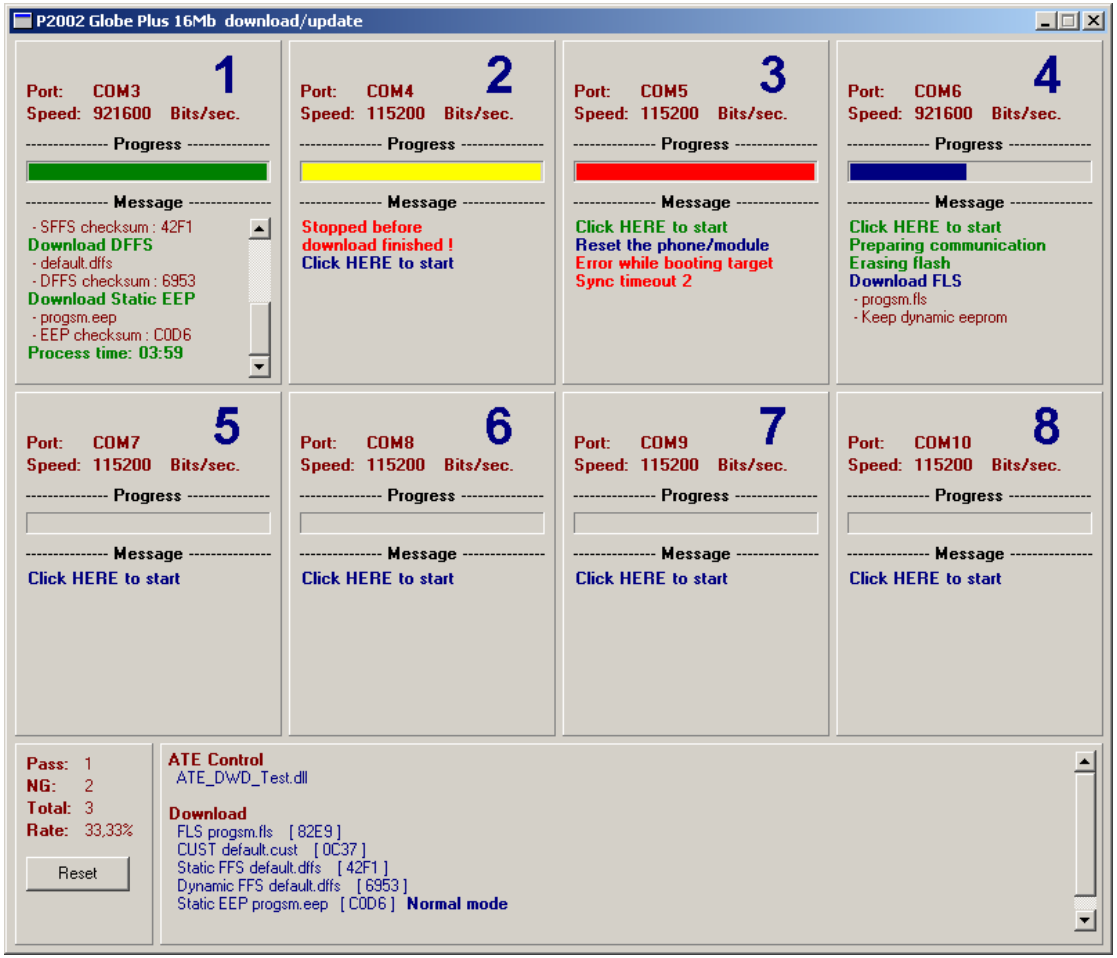
- **FlashTool configuration (FTC) files can be saved from the Application set-up screen.**
- **Double-click on a FTC file or drop one on the FlashTool icon, to start the program with a saved configuration.**
- **FlashTool start directly in the download screen.**
- **Exit from the download screen to enter the application set-up screen, from where a new or modified set-up file can be saved.**

- **When FlashTool is started with a configuration file, this filename is the only one shown during download.**

FlashTool
Download file types

- **FLS files contains the target software.**
- **EEP files contains the default values for the static eeprom.**
- **DEP files contains single values to be update in the static eeprom without affecting any other values.**
- **CFG files contains the layout of the static eeprom.**
- **DFFS files contains the default data for the static and dynamic part of the FFS system.**
- **CUST files can be used to place any kind of data in a specified part of the flash. It can for example be used to hold animation images.**

FlashTool
The download screen (Manual mode)



Ch1: The download was successful.

Ch2: The download was stopped manually before it was finished.

Ch3: Error during download.

Ch4: Download is proceeding.

FlashTool
Manual vs. automatic download

Manual download start.

- This method can be used with any target.
- The operator must start the download by clicking on the screen.

Automatic download start.

- This method can only be used with target interfaces that can generate a ‘Phone detect’ signal.
- Furthermore, the target must have a way to reset itself when power-up or when a external signal is applied.
- Download is started when a target is connected to the cable or when the production fixture is closed.

FlashTool
The channels are independent

- **The download process on one channel is 100% independent from the processes on other channels.**
- **The eeprom update process can handle phones with different eeprom configurations at the same time. But the downloaded software and the new configuration will be the same.**
- **NOTE: When using some COM port interfaces the download time will be increased when downloading in parallel.**