# vFlash

Flashing ECUs easily and quickly – over CAN, CAN FD, FlexRay, LIN or Ethernet

What is vFlash?

vFlash is a very easy-to-use tool for programming ECUs. It supports already more than 100 different flash specifications and is simply expandable via a plugin concept.

Overview of Advantages

> Flashing via CAN, CAN FD, LIN, FlexRay, Ethernet (DoIP, SoAd = AUTOSAR Socket Adaptor)
> Simple exchange of pre-configured flash projects in one package (.vflashpack)
> High transfer rate:
  Example: transfer of 1.000 kByte data in 36,6 s (27,3 kByte/s) in idealized reference ECU over CAN at 500 kBit/s with STmin = 0, BS = 0
> Support of numerous flash specifications (protocols and flash sequences) simply expandable via plugin concept with flash templates
> Direct "native" programming of data in Intel hex, Motorola-S and binary format

> Quick and uncomplicated creation of flash projects for different bootloader based on so-called "Flash Templates"
> Flash programming based on container formats like ODX-F and OEM-specific formats
> Documentation of flash actions in flash reports
> Tracing of CAN raw data for later analysis in case of an error
> Flashing of compressed and encrypted data
> Interactive flashing via the GUI as well as automated flashing over a programming interface (C API / C# API)
> Validation of the flash bootloader in the ECU in combination with CANoe.DiVa (via CAN, FlexRay, DoIP, LIN)
> Standalone flashing with the Intelligent Diagnostic Device VN8810 and the "vFlash Compact" edition
> Simultaneous flashing of several ECUs each on a separate communication channel with "vFlash Station"

Flashing an ECU with vFlash
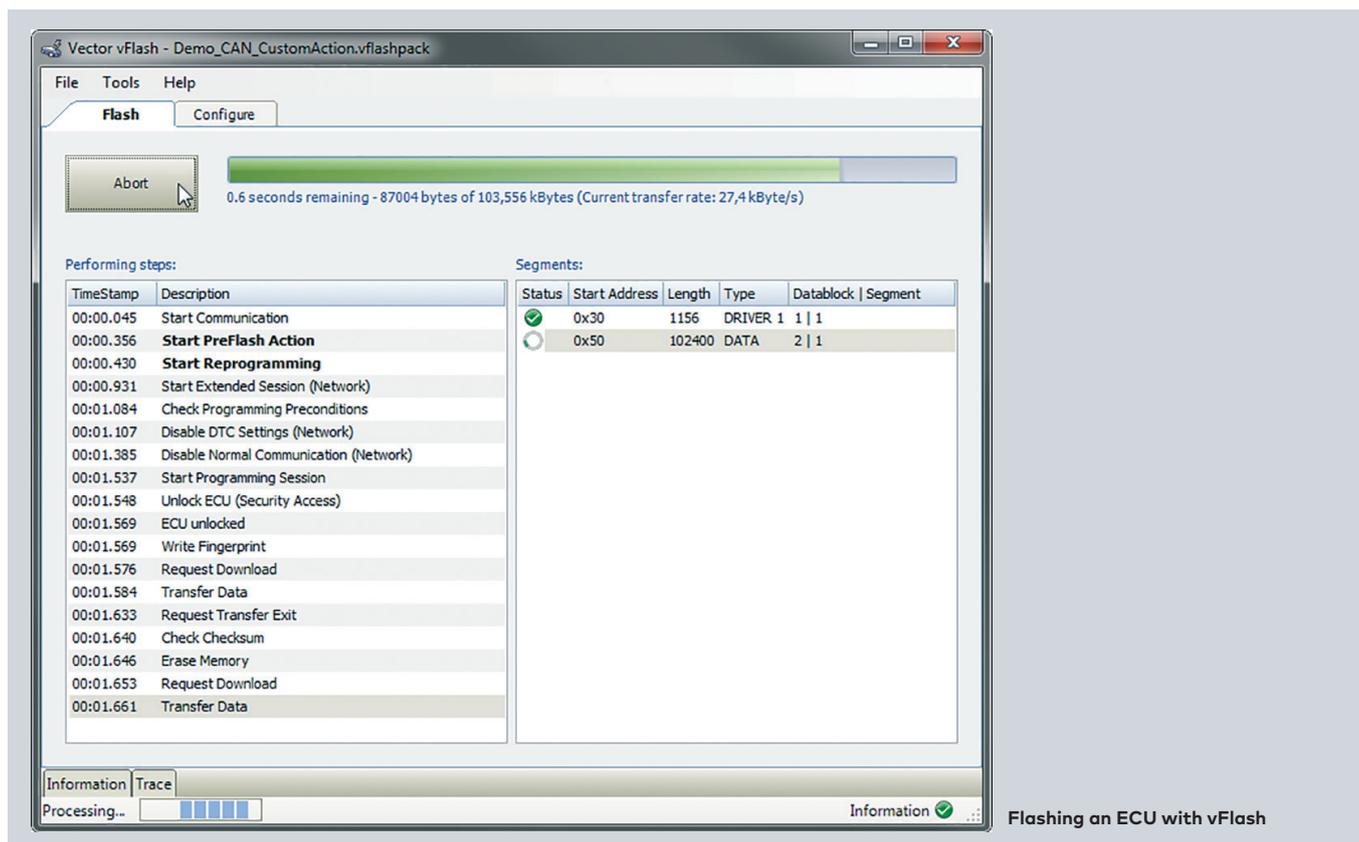
Highlights of Version 4

Advanced Security Features

> Support of OEM-specific security mechanisms.
> Optional authentication at the gateway and/or at the target ECU.
> Use of different security concepts based on symmetric or asymmetric cryptography (PKI- or challenge-response-based).

Parallel Flashing via LIN for E-Mobility Applications

> LIN ECUs already installed in battery stacks can be reprogrammed in parallel.
  Advantage: Reduction of programming time, e.g. for 32 ECUs from approx. 2550sec. to approx. 114sec

Enhancement for Custom Actions

> Custom Actions are tasks that are processed automatically before or after the flash sequence (customer scripts in C# using the vFlash diagnostic libraries).
> In addition to generating reports for quality assurance, printing labels and much more, values can now also be read from the ECU and passed on to the customer application via the Automation API.

Extensions for CANoe.DiVa Flash Tests

> Significant increase in speed when executing flash tests with CANoe.DiVa.

Manufacturer Support Further Extended

> vFlash already supports more than 120 different Flash Bootloaders (= specifications) from various vehicle manufacturers via Flash Templates, continuously, new ones are added.
> Existing vFlash templates are supplemented with new additional functions, like for example authentication with OEM-specific certificate infrastructure.

Application Areas

vFlash is designed for all users at automotive OEMs and suppliers whose tasks include (re-)programming of ECUs. vFlash allows users to flash ECUs in the laboratory, at programming stations, at a laboratory vehicle or in the vehicle very efficiently.

vFlash can be controlled via a graphical user interface or it can be simply integrated as a library in an existing environment. With the special edition "vFlash Station" you may simultaneously flash up to 8 ECUs each on a separate communication channel.

vFlash Bootloader Support

Vector offers prepared flash templates for a large number of different automotive OEMs and bootloaders.
Please contact us at: CANdela-Info@de.vector.com

Supported Hardware

> CAN FD/LIN: e.g. VN16xx, VN8950, VN7610, VN7572, VN8970, VN8972, VN7640
> CAN FD/FlexRay: e.g. VN7610, VN7572, VN8970, VN8972, VN7640
> Ethernet: e.g. VN5610A, VN5640, VN7640, VX0312
> VN8810 (as standalone flash device)
> VT System (starting with vFlash 3.0 and CANoe 8.5 SP2)

More information: www.vector.com/vflash

vFlash supports different bus systems when flashing a ECU