

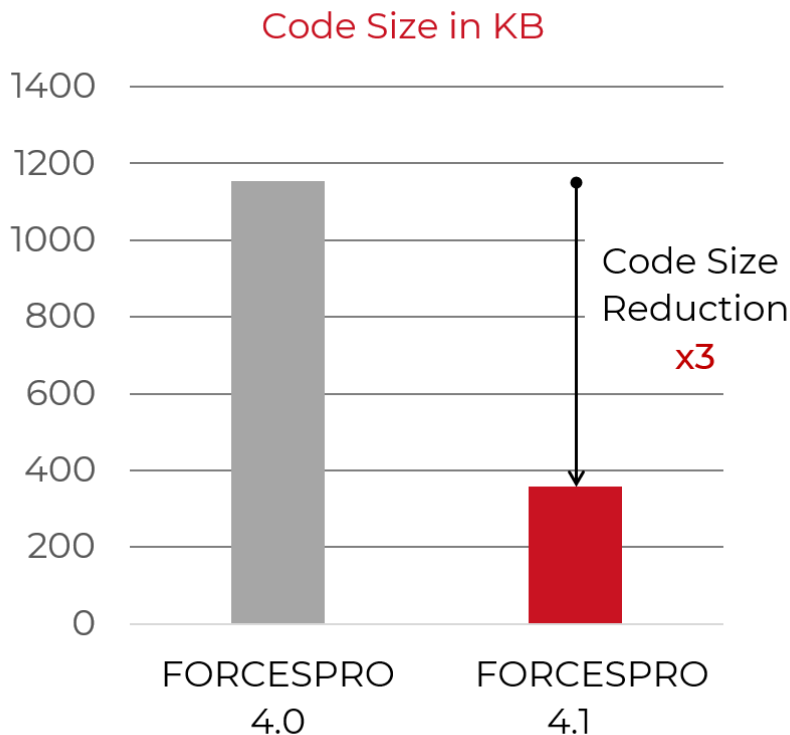
## FORCES PRO 4.1 Release

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# FORCESPRO

## New high-performance numerical integrators and platforms

- **New integrators:** FORCESPRO 4.1 features new high-performance numerical integrators for model discretization that can be used within the Nonlinear Programming (NLP) and the Mixed-Integer NLP solver. Nonlinear Model Predictive Control applications with continuous-time models benefit from this feature. The code size is significantly reduced such that even complex optimization problems can be solved on challenging embedded targets in real-time. The numerical integrators are available for the MATLAB client and explicit integration schemes, such as Runge-Kutta 4. For a quadcopter motion planning application, the code size has been reduced by a factor of three with a very fast computation time of 8 msec.



- **New hardware**: The list of supported hardware is continuously growing: FORCESPRO now comes with support for [dSpace AutoBox](#) and the [Speedgoat real-time platform](#) (from 2020b onwards). Generated solvers can be easily deployed on both embedded targets. Have a look at the [DOCU](#) to see the full list of supported hardware.



- **New examples**: The latest release is shipped with new examples that show hands-on applications of FORCESPRO. The [first example](#) deals with path tracking for ADAS. The complex task is solved using the Sequential Quadratic Programming (SQP) solver with a computation time of 1.4 msec. Another [example](#) demonstrates an interactive

motion planner with obstacle avoidance for autonomous driving.

- **Dump tool for Python:** The 4.1 release comes with advanced customer support. The dump tool allows you to send the formulation and actual data of an optimization problem easily to Embotech which facilitates debugging and testing. Besides support of MATLAB, the dump tool is now also available for Python.

A list of all **algorithmic improvements** can be found in the [Release Notes of FORCESPRO 4.1](#).

Existing users can **easily switch to the new version** by using our [auto-update function](#).

Alternatively, you can use the **new server** at: <https://forces-4-1-0.embotech.com/>

A list of settings for maintaining code options of previous FORCESPRO versions can be found in the [legacy list](#).

**Note:** Version 2.0.0 will go offline as of December 15, 2020.

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