

KNITRO[®] 10.2

Fast. Powerful. Reliable.



The most advanced solver for nonlinear optimization

- | Efficient & robust solution on large scale problems
- | Four interior-point/active-set algorithms for NLP
- | Three MINLP algorithms for discrete optimization
- | Complementarity constraints for equilibrium problems
- | Parallel multi-start method for global optimization
- | Many extra features based on customer feedbacks
- | Easy to use and well documented

Think one step ahead... and let Artelys Knitro be your competitive advantage!

The optimization techniques used by Artelys Knitro offer the leading combination of computational efficiency and robustness. Artelys Knitro is the only nonlinear solver with four different algorithms, allowing it to solve a large range of complex nonlinear problems.

Key features

- Efficient and robust solution on large scale problems
- Two interior-point/barrier and two active-set/SQP algorithms
- Three algorithms for mixed-integer nonlinear optimization
- Heuristics, cutting planes, branching rules for MINLP
- Special routine to handle complementary constraints
- Parallel multistart feature for global optimization
- Ability to run multiple algorithms concurrently
- Automatic and parallel tuning of option settings
- Automatic computation of approximate first-order and second-order derivatives
- Smart initialization strategies and fast infeasibility detection

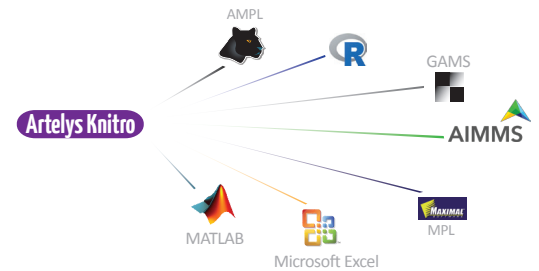
New Artelys Knitro 10.2 features

- New algorithm for **solving nonlinear least-squares faster**
- General improvements and new user options for Artelys Knitro mixed-integer algorithms (MINLP)
- Significant performance **improvements on problems with equilibrium constraints** (MPECs)
- New «linesearch» options (backtracking or cubic interpolation)
- New “honorbounds” option to specify for each variable whether or not Artelys Knitro can violate its bounds during the optimization
- «knitromatlab_fsolve» or «knitromatlab_lsqrnonlin» (Matlab interface) now accept Artelys Knitro options file

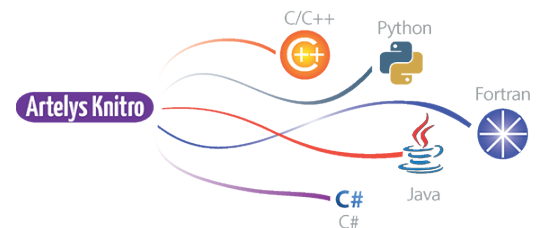
Problem classes solved by Artelys Knitro

- General nonlinear problems (NLP), including non-convex
- Systems of nonlinear equations
- Linear problems (LP)
- Quadratic problems (QP/QCQP), both convex and non-convex
- Least squares problems / regression, both linear and nonlinear
- Mathematical programs with complementarity constraints (MPCC/MPEC)
- Mixed-integer nonlinear problems (MIP/MINLP)
- Derivative-free optimization problems (DFO)

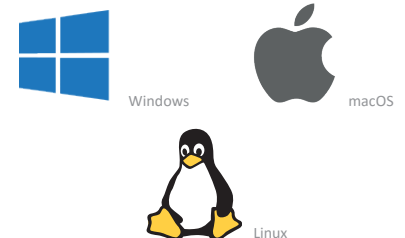
MODELING SYSTEMS



PROGRAMMING INTERFACES



OPERATING SYSTEMS



Online Artelys Knitro documentation
www.artelys.com/tools/knitro_doc

Try Artelys Knitro for free
www.artelys.com/en/optimization-tools/knitro

Artelys Knitro was created by Ziena Optimization and is now developed by Artelys, which also distributes and supports the software worldwide.

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