GUROBI
OPTIMIZATION

# Gurobi Optimizer — The State-of-the-Art Mathematical Programming Solver

Today's business challenges are far more complex and require better decisions in less time. That's why you need the Gurobi Optimizer for your LP, QP, QCP, and MIP (MILP, MIQP, and MIQCP) problems.

Gurobi is a state-of-the-art optimization tool designed from the ground up to exploit modern architectures and multi-core processors, using the most advanced implementations of the latest optimization algorithms so you can solve your models faster and more reliably.

In addition, Gurobi goes beyond best-in-class performance to provide a broad range of interfaces, access to industry-standard modeling languages, flexible licensing together with transparent pricing, and outstanding, easy-to-reach support from optimization experts.

## The Best Performing Solvers Available

Gurobi was founded by three of the world's leading computational optimization experts. We started from a clean-slate, with the goal of building the best available solver. Benchmarks consistently show that we've achieved our goal: Gurobi finds both feasible and proven optimal solutions faster than competing solvers, with the performance gap growing as model size and difficulty increase.

## Use Familiar Programming or Modeling Languages

To maximize your productivity, we support a full range of interfaces:

- OO interfaces for C++, Java, .NET and Python
- Matrix-oriented interfaces for C, MATLAB® and R
- Links to standard modeling languages including AIMMS, AMPL, GAMS, and MPL
- Links to Excel through Frontline Solvers

All of our object- and matrix-oriented interfaces are implemented as lightweight, modern APIs. The result: they are faster and use less memory than competing alternatives.

## Straightforward Licensing and Pricing

Unlike licenses for other optimization solvers, our licenses may be used for both development and deployment and have no restrictions on the number of applications supported per license. The net result: no "gotcha" moments when you want to deploy a solution and are forced to buy additional, expensive licenses.

## Outstanding Support You Can Actually Reach

We know there is nothing more frustrating than the time and effort wasted being passed around an organization while trying to get connected to someone who can actually assist you with your question.

At Gurobi, we treat support as a core part of our offering. We provide our customers direct access to PhD-level optimization experts with years of experience working with commercial models. With Gurobi, you get answers when you need them, not in days or weeks.

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## Quickly Turn Models into Full-Featured Applications

Our interactive interface is built on our Python object-oriented API. One significant advantage relative to competitor interactive interfaces is the ability to use this interface not just as an easily-accessible environment for running and testing models, but also as a development environment that can be used to build complex models and then transition these models to full applications.

Python also offers a full range of pre-built libraries to support full application development, including exceptional data access capabilities.

## We Help Make Switching Easier

You'll have access to step-by-step migration instructions for common scenarios. And, we are available live to help you complete the migration.

In addition, we have deliberately kept the look and feel of our interfaces intuitive and consistent with standard designs, as well as including support for both MPS and LP file formats, all of which help you get up and running as quickly as possible.

## Broad Support for All Common Problem Types

The Gurobi Optimizer provides advanced implementations of the latest algorithms including:

LP algorithms
Simplex, parallel barrier with crossover, concurrent, and sifting

QP algorithms
Simplex and parallel barrier

QCP algorithm
Parallel barrier (SOCP)

MIP algorithms
Deterministic parallel, non-traditional search, heuristics, solution improvement, cutting planes, and symmetry breaking

The Gurobi MIP and barrier optimizers include innovative shared-memory parallel algorithms that make use of all available cores and sockets. These algorithms are implemented to execute deterministically so that two runs on the same model produce identical results.

The Gurobi Mixed-Integer Programming solver (MILP and MIQP) utilizes an advanced pioneering branch-and-cut algorithm. The simplex and barrier solvers for LP and QP quickly and robustly solve models with millions of variables and constraints.

Consistent with our goal of not just offering the features you need, but also producing the best available implementations, our new QCP and MIQCP solvers both provide more than twice the performance of the leading competitor.

## Pricing and Licensing

Gurobi offers a wide range of licensing options at competitive prices:

- Single machine or network licenses
- OEM licenses for embedding inside applications
- Free academic licenses
- Free trial licenses
- Hourly computing via Gurobi Cloud

In addition:

- Licenses can be used for any number of applications and for any combination of development and deployment
- Our price list is published on the Gurobi web site
- Multi-core parallelism is included at no extra charge

## Dedicated to Your Success

Gurobi is focused on providing superior optimization software with innovative licensing and exceptional customer support. Gurobi's internationally recognized team is dedicated to advancing the state-of-the-art in optimization technology. The highly motivated Gurobi team is made up of PhDs in optimization who provide direct assistance when technical questions arise.

## Experience It for Yourself

We provide access to a free trial version that you can download instantly and install in minutes. It has all the features of our full commercial version, the only difference being a limit on the size of the models that can be solved. We are also happy to talk live to set you up with a no-size limit evaluation copy.

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