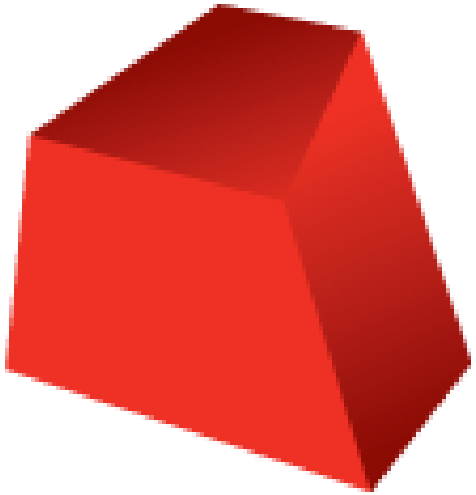


GUROBI

OPTIMIZATION

Gurobi Optimizer – Get the Software

Get the software

Gurobi Optimizer is the Gurobi optimization libraries. In addition to the software, the corresponding README file contains installation instructions. Here is the list of bug fixes for each release.

Current version		64-bit Windows	64-bit Linux	64-bit macOS	64-bit AIX
9.0.0	README	Gurobi-9.0.0-win64.msi	gurobi9.0.0_linux64.tar.gz	gurobi9.0.0_mac64.pkg	gurobi9.0.0_power64.tar.gz
md5 Checksum		17ccf7f0e1804f0a7bd5c5e70903c0b3	7878cc518522762d57ed160b3b29287a	7ff74c8f8c7265ff24c3f9c219c596e2	3a943980d36828fc8a7daa7a1b78cf28
Old versions					
8.1.1	README	Gurobi-8.1.1-win64.msi	gurobi8.1.1_linux64.tar.gz	gurobi8.1.1_mac64.pkg	gurobi8.1.1_power64.tar.gz
md5 Checksum		17dfc21f0ed64daaa4bdf7634eab705b	05cbb96072e393bd4ebb1d8b9526ce01	d05a73c0df6622851b4371dc1d292579	3d1a756695d52065eeefc15516d9aac6
8.0.1	README	Gurobi-8.0.1-win64.msi	gurobi8.0.1_linux64.tar.gz	gurobi8.0.1_mac64.pkg	gurobi8.0.1_power64.tar.gz
md5 Checksum		d9363f13daa63b79c0cdaa37ad92e8b6	cfc595ddf9482734bdc0268749093cc4	a02d04ef884e64e7091ef7a7439cfe68	877f94a02e602346ee767b9894df4030

License Detail

License ID 106290

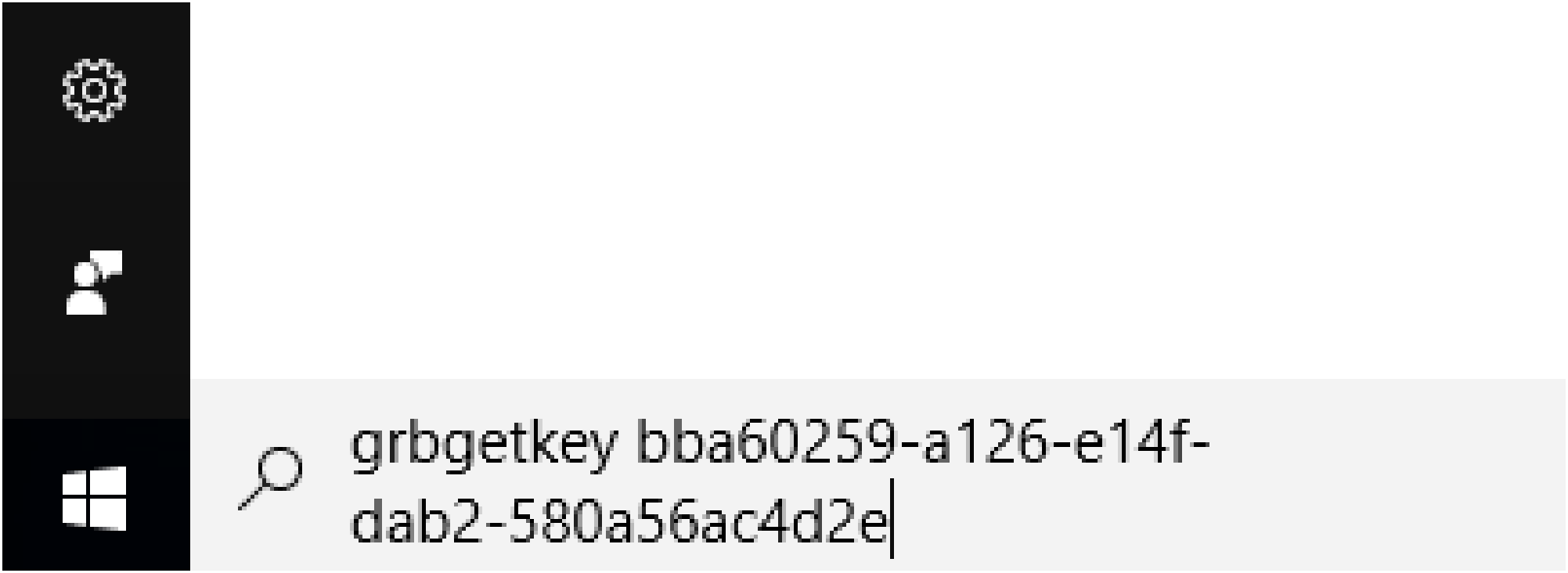
Information and installation instructions

License ID	106290
Date Issued	2015-10-28
Purpose	Trial
License Type	Free Trial
Key Type	TRIAL
Version	6
Distributed Limit	0
Expiration Date	2016-04-25
Host Name	
Host ID	

To install this license on a computer where Gurobi Optimizer is installed, copy and paste the following command to the Start/Run menu (Windows only) or a command/terminal prompt (any system):

```
grbgetkey 9f712a83-32db-0e10-8285-5630dfa56756
```

The `grbgetkey` command requires an active internet connection. If you get no response or an error message such as "Unable to contact key server", please click here for additional instructions.


grbgetkey bba60259-a126-e14f-
dab2-580a56ac4d2e

$c' x$

$-c'x$

$x + 2y + 3z \leq 4$

x

y

z

-1

Windows | macOS | Linux

Anaconda 2019.10 for Linux Installer

Python 3.7 version

Download

64-Bit (x86) Installer (506 MB)
64-Bit (Power8 and Power9) Installer (320 MB)

Python 2.7 version

Download

64-Bit (x86) Installer (477 MB)
64-Bit (Power8 and Power9) Installer (295 MB)

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32-Bit Graphical Installer (410 MB)

Python 2.7 version

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64-Bit Graphical Installer (413 MB)
32-Bit Graphical Installer (356 MB)

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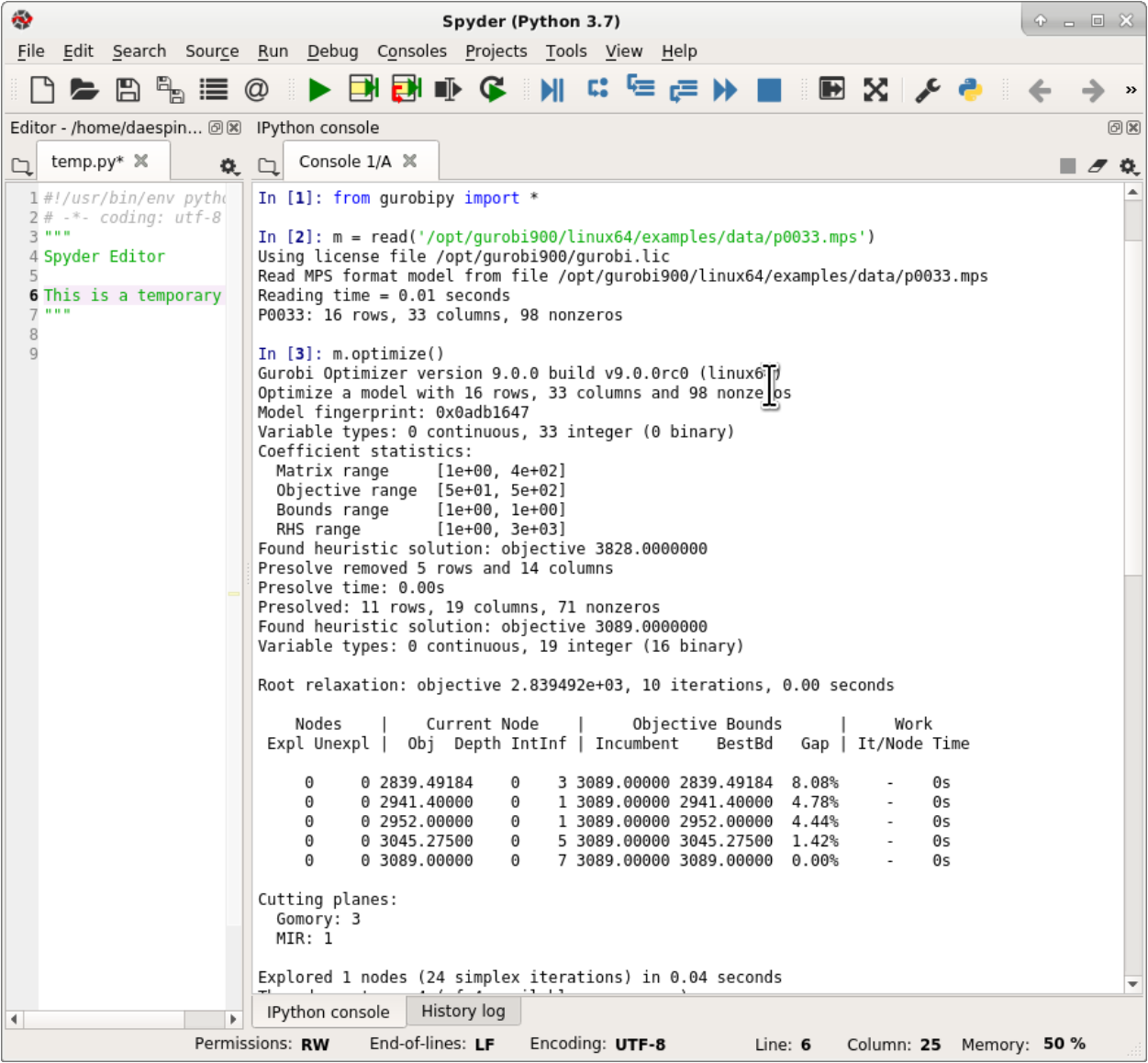

Spyder (Python 3.7)
File Edit Search Source Run Debug Consoles Projects Tools View Help
Editor - /home/daespin...
IPython console
temp.py*
Console 1/A
#!/usr/bin/env pythe
-*- coding: utf-8
"""
Spyder Editor
This is a temporary
"""
In [1]: from gurobipy import *
In [2]: m = read('/opt/gurobi900/linux64/examples/data/p0033.mps')
Using license file /opt/gurobi900/gurobi.lic
Read MPS format model from file /opt/gurobi900/linux64/examples/data/p0033.mps
Reading time = 0.01 seconds
P0033: 16 rows, 33 columns, 98 nonzeros
In [3]: m.optimize()
Gurobi Optimizer version 9.0.0 build v9.0.0rc0 (linux64)
Optimize a model with 16 rows, 33 columns and 98 nonzeros
Model fingerprint: 0x0adb1647
Variable types: 0 continuous, 33 integer (0 binary)
Coefficient statistics:
Matrix range [1e+00, 4e+02]
Objective range [5e+01, 5e+02]
Bounds range [1e+00, 1e+00]
RHS range [1e+00, 3e+03]
Found heuristic solution: objective 3828.0000000
Presolve removed 5 rows and 14 columns
Presolve time: 0.00s
Presolved: 11 rows, 19 columns, 71 nonzeros
Found heuristic solution: objective 3089.0000000
Variable types: 0 continuous, 19 integer (16 binary)
Root relaxation: objective 2.839492e+03, 10 iterations, 0.00 seconds
Nodes | Current Node | Objective Bounds | Work
Expl Unexpl | Obj Depth IntInf | Incumbent BestBd Gap | It/Node Time
0 0 2839.49184 0 3 3089.00000 2839.49184 8.08% - 0s
0 0 2941.40000 0 1 3089.00000 2941.40000 4.78% - 0s
0 0 2952.00000 0 1 3089.00000 2952.00000 4.44% - 0s
0 0 3045.27500 0 5 3089.00000 3045.27500 1.42% - 0s
0 0 3089.00000 0 7 3089.00000 3089.00000 0.00% - 0s
Cutting planes:
Gomory: 3
MIR: 1
Explored 1 nodes (24 simplex iterations) in 0.04 seconds
IPython console
History log
Permissions: RW
End-of-lines: LF
Encoding: UTF-8
Line: 6
Column: 25
Memory: 50 %

```
#!/usr/bin/env python3.7

# Copyright 2019, Gurobi Optimization, LLC

# This example formulates and solves the following simple MIP model
#  maximize
#        x +   y + 2 z
#  subject to
#        x + 2 y + 3 z <= 4
#        x +   y       >= 1
#        x, y, z binary

import gurobipy as gp
from gurobipy import GRB

try:

    # Create a new model
    m = gp.Model("mip1")

    # Create variables
    x = m.addVar(vtype=GRB.BINARY, name="x")
    y = m.addVar(vtype=GRB.BINARY, name="y")
    z = m.addVar(vtype=GRB.BINARY, name="z")

    # Set objective
    m.setObjective(x + y + 2 * z, GRB.MAXIMIZE)

    # Add constraint: x + 2 y + 3 z <= 4
    m.addConstr(x + 2 * y + 3 * z <= 4, "c0")

    # Add constraint: x + y >= 1
    m.addConstr(x + y >= 1, "c1")

    # Optimize model
    m.optimize()

    for v in m.getVars():
```

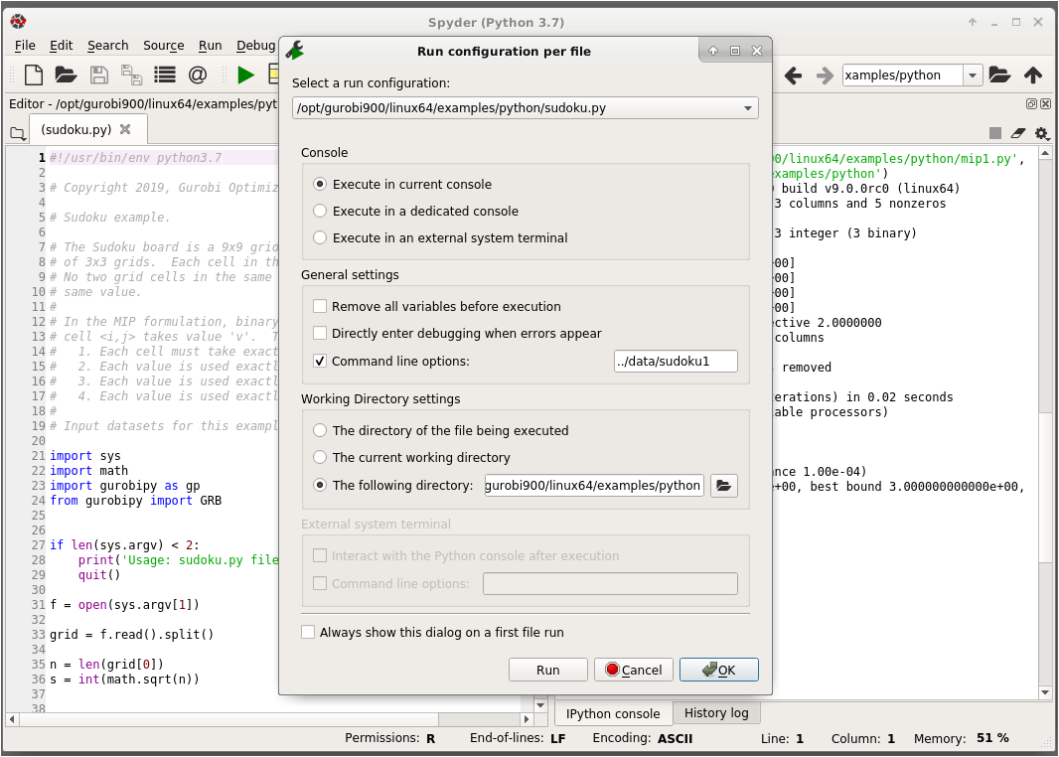
```
In [4]: runfile('/opt/gurobi900/linux64/examples/python/mip1.py',
wdir='/opt/gurobi900/linux64/examples/python')
Gurobi Optimizer version 9.0.0 build v9.0.0rc0 (linux64)
Optimize a model with 2 rows, 3 columns and 5 nonzeros
Model fingerprint: 0xb2adf8c4
Variable types: 0 continuous, 3 integer (3 binary)
Coefficient statistics:
  Matrix range     [1e+00, 3e+00]
  Objective range  [1e+00, 2e+00]
  Bounds range     [1e+00, 1e+00]
  RHS range        [1e+00, 4e+00]
Found heuristic solution: objective 2.0000000
Presolve removed 2 rows and 3 columns
Presolve time: 0.00s
Presolve: All rows and columns removed

Explored 0 nodes (0 simplex iterations) in 0.02 seconds
Thread count was 1 (of 4 available processors)

Solution count 2: 3

Optimal solution found (tolerance 1.00e-04)
Best objective 3.000000000000e+00, best bound 3.000000000000e+00,
gap 0.0000%
x 1
y 0
z 1
Obj: 3

In [5]:
```


Spyder (Python 3.7)
File Edit Search Source Run Debug
Run configuration per file
Select a run configuration:
/opt/gurobi900/linux64/examples/python/sudoku.py
Console
Execute in current console
Execute in a dedicated console
Execute in an external system terminal
General settings
Remove all variables before execution
Directly enter debugging when errors appear
Command line options:
../data/sudoku1
Working Directory settings
The directory of the file being executed
The current working directory
The following directory:
gurobi900/linux64/examples/python
External system terminal
Interact with the Python console after execution
Command line options:
Always show this dialog on a first file run
Run
Cancel
OK
Editor - /opt/gurobi900/linux64/examples/pyt
(sudoku.py)
#!/usr/bin/env python3.7
# Copyright 2019, Gurobi Optimiz
# Sudoku example.
# The Sudoku board is a 9x9 grid
# of 3x3 grids. Each cell in th
# No two grid cells in the same
# same value.
# In the MIP formulation, binary
# cell <i,j> takes value 'v'. T
# 1. Each cell must take exact
# 2. Each value is used exactl
# 3. Each value is used exactl
# 4. Each value is used exactl
# Input datasets for this exampl
import sys
import math
import gurobipy as gp
from gurobipy import GRB
if len(sys.argv) < 2:
print('Usage: sudoku.py file
quit()
f = open(sys.argv[1])
grid = f.read().split()
n = len(grid[0])
s = int(math.sqrt(n))
xamples/python
IPython console
History log
Permissions: R
End-of-lines: LF
Encoding: ASCII
Line: 1
Column: 1
Memory: 51 %

jupyter iPython Notebook Example (autosaved)

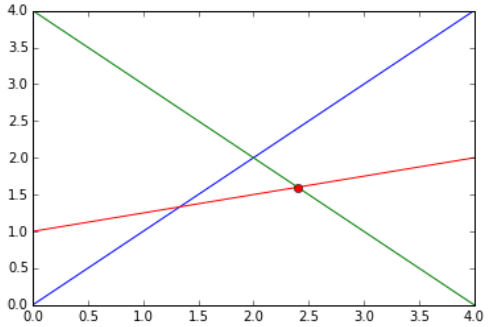
File Edit View Insert Cell Kernel Help Python 2

Code Cell Toolbar: None

In [45]:
```
from gurobipy import *
m = Model()
v0 = m.addVar()
v1 = m.addVar()
m.update()
m.addConstr(v0 - v1 <= 4) # Constraint 1
m.addConstr(v0 + v1 <= 4) # Constraint 2
m.addConstr(-0.25*v0 + v1 <= 1) # Constraint 3
m.setObjective(v1, GRB.MAXIMIZE) # Objective: maximize v1
m.params.outputflag = 0
m.optimize()
```

```
Plot the optimal solution...
```

In [46]:
```
import matplotlib.pyplot as pyplot
pyplot.plot([0,4], [0,4]) # Constraint 1
pyplot.plot([4,0], [0,4]) # Constraint 2
pyplot.plot([0,4], [1,2]) # Constraint 3
pyplot.plot([v0.x], [v1.x], 'ro') # Plot the optimal vertex
pyplot.show()
```



In [ ]: