

Package ‘ROI.plugin.symphony’

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Title ROI Plug-in SYMPHONY

Description Enhances the R Optimization Infrastructure ('ROI') package by registering the 'SYMPHONY' open-source solver from the COIN-OR suite. It allows for solving mixed integer linear programming (MILP) problems as well as all variants/combinations of LP, IP.

Imports methods, ROI (>= 0.2-5), Rsymphony, slam

License GPL-3

SystemRequirements SYMPHONY (>= 5.6.16) libraries and headers

URL <http://R-Forge.R-project.org/projects/roi>

NeedsCompilation no

Author Stefan Theussl [aut, cre]

Maintainer Stefan Theussl <Stefan.Theussl@R-Project.org>

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Example-1	<i>Linear Problem 1</i>
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Description

$$\text{maximize } 2x_1 + 4x_2 + 3x_3$$

subject to :

$$3x_1 + 4x_2 + 2x_3 \leq 60$$

$$2x_1 + x_2 + 2x_3 \leq 40$$

$$x_1 + 3x_2 + 2x_3 \leq 80$$

$$x_1, x_2, x_3 \geq 0$$

Examples

```
require("ROI")
mat <- matrix(c(3, 4, 2,
               2, 1, 2,
               1, 3, 2), nrow=3, byrow=TRUE)
x <- OP(objective = c(2, 4, 3),
        constraints = L_constraint(L = mat,
                                  dir = c("<=", "<=", "<="),
                                  rhs = c(60, 40, 80)),
        maximum = TRUE)

opt <- ROI_solve(x, solver = "symphony")
opt
## Optimal solution found.
## The objective value is: 7.666667e+01
solution(opt)
## [1] 0.000000 6.666667 16.666667
```

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