

Package ‘ROI.plugin.coinclp’

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Type Package

Title 'COIN-OR' 'Clp' Plugin for the 'R' Optimization Infrastructure

Version 0.1.0

Description Registers the 'COIN-OR' 'Clp' linear programming solver, through the 'coinclp' package, with the 'R' Optimization Infrastructure ('ROI'). Linear programs with continuous variables are then solved by `ROI_solve(op, solver = ``coinclp")`, keeping sparse constraint matrices sparse all the way to the solver, and returning dual values, reduced costs and row activities alongside the primal solution.

License EPL

URL <https://github.com/SamLovick/ROI.plugin.coinclp>

BugReports <https://github.com/SamLovick/ROI.plugin.coinclp/issues>

Encoding UTF-8

Depends R (≥ 4.0)

Imports coinclp ($\geq 0.1.0$), methods, ROI ($\geq 1.0-0$), slam, stats

Suggests Matrix, ROI.plugin.highs

NeedsCompilation no

Config/roxygen2/version 8.1.0

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ROI_plugin_solution_dual.coinclp_solution

Dual values and auxiliary quantities

Description

`solution(x, "dual")` returns the dual value of each constraint, the shadow price of its right hand side. `solution(x, "aux")` returns a list with the row activities as primal and the reduced costs of the variables as dual.

Usage

```
## S3 method for class 'coinclp_solution'
ROI_plugin_solution_dual(x)

## S3 method for class 'coinclp_solution'
ROI_plugin_solution_aux(x)
```

Arguments

`x` A solution returned by `ROI_solve` with `solver = "coinclp"`.

Details

Signs follow Clp's own convention for the direction that was solved, so a maximisation and the equivalent minimisation of the negated objective report duals of opposite sign.

Value

A numeric vector of dual values, or a list of auxiliary vectors.

Examples

```
library(ROI)
op <- OP(objective = c(143, 60),
        constraints = L_constraint(rbind(c(120, 210), c(110, 30), c(1, 1)),
                                rep("<=", 3), c(15000, 4000, 75)),
        maximum = TRUE)
result <- ROI_solve(op, solver = "coinclp")
solution(result, "dual")
solution(result, "aux")
```

solve_OP	<i>Solve a linear program with Clp</i>
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Description

The method **ROI** dispatches to when a linear program is solved with `solver = "coincplp"`. It is not called directly; use [ROI_solve](#).

Usage

```
solve_OP(x, control = list())
```

Arguments

x	An object of class "OP" holding a linear program.
control	A named list of solver controls, see ROI.plugin.coinclp for the ones recognised.

Value

An object of class "coincplp_solution", which [solution](#) unpacks.

Examples

```
library(ROI)
op <- OP(objective = c(143, 60),
         constraints = L_constraint(rbind(c(120, 210), c(110, 30), c(1, 1)),
                                   rep("<=", 3), c(15000, 4000, 75)),
         maximum = TRUE)
result <- ROI_solve(op, solver = "coincplp")
solution(result)
solution(result, "dual")
```

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