Package ‘clpAPI’

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Author Mayo Roettger [cre],
  Gabriel Gelius-Dietrich [aut],
  C. Jonathan Fritzemeier [ctb]
Maintainer Mayo Roettger <mayo.roettger@hhu.de>
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Description

A low level interface to COIN-OR Clp (COIN Linear Program code).

Details

The package clpAPI provides access to the callable library of COIN-OR Clp from within R.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

Examples

# load package
library(clpAPI)

# preparing the model
lp <- initProbCLP()

nrows <- 5
ncols <- 8

# objective function
obj <- c(1, 0, 0, 0, 2, 0, 0, -1)

# upper and lower bounds of the rows
rlower <- c(2.5, -1000, 4, 1.8, 3)
rupper <- c(1000, 2.1, 4, 5, 15)

# upper and lower bounds of the columns
clower <- c(2.5, 0, 0, 0.5, 0, 0, 0)
cupper <- c(1000, 4.1, 1, 1, 4, 1000, 1000, 4.3)

# constraint matrix
ia <- c(0, 4, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 4)
ja <- c(0, 2, 4, 6, 8, 10, 11, 12, 14)
ar <- c(3.0, 5.6, 1.0, 2.0, 1.1, 1.0, -2.0, 2.8,
-1.0, 1.0, 1.0, -1.2, -1.0, 1.9)

# direction of optimization
setObjDirCLP(lp, 1)

# load problem data
loadProblemCLP(lp, ncols, nrows, ia, ja, ar,
clower, cupper, obj, rlower, rupper)

# solve lp problem
solveInitialCLP(lp)

# retrieve the results
getSolStatusCLP(lp)
getObjValCLP(lp)
getColPrimCLP(lp)

# remove problem object
delProbCLP(lp)

---

**addColsCLP  Add Columns**

**Description**

Low level interface function to the COIN-OR Clp function Clp_addColumns. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```
addColsCLP(lp, ncols, lb, ub, obj, colst, rows, val)
```

**Arguments**

- `lp` An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- `ncols` Number of columns to add.
- `lb` Lower bounds of the new columns.
addRowsCLP

**ub** Upper bounds of the new columns.

**obj** Objective coefficients of the new columns.

**colst** Vector containing the starting indices of new rows (Arguments rows and val must be in column major order). The first element of colst must be 0, the last element must be length(val)+1.

**rows** Row indices of the non zero elements in the new columns.

**val** Numerical values of the new non zero elements.

**Details**

Interface to the C function addRows which calls the COIN-OR Clp function Clp_addRows.

**Value**

NULL

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>

Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

---

**addRowsCLP**

*Add Rows*

**Description**

Low level interface function to the COIN-OR Clp function Clp_addRows. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

addRowsCLP(lp, nrows, lb, ub, rowst, cols, val)

**Arguments**

- **lp** An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.
- **nrows** Number of rows to add.
- **lb** Lower bounds of the new rows.
- **ub** Upper bounds of the new rows.
chgColLowerCLP

chgColLowerCLP

Set/Change Column Lower Bounds

Description

Low level interface function to the COIN-OR Clp function Clp_chgColumnLower. Consult the COIN-OR Clp documentation for more detailed information.

Usage

chgColLowerCLP(lp, lb)

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

lb Numeric vector containing the lower bounds of the columns of the model.

Details

Interface to the C function chgColLower which calls the COIN-OR Clp function Clp_chgColumnLower.

Value

NULL

Details

Interface to the C function addRows which calls the COIN-OR Clp function Clp_addRows.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>

Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

chgColLowerCLP  Vector containing the starting indices of new rows (Arguments cols and val must be in row major order). The first element of rowst must be 0, the last element must be length(val)+1.
cols Column indices of the non zero elements in the new rows.
val Numerical values of the new non zero elements.
chgColUpperCLP

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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**chgColUpperCLP**

*Set/Change Column Upper Bounds*

---

**Description**

Low level interface function to the COIN-OR Clp function `Clp_chgColumnUpper`. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
chgColUpperCLP(lp, ub)
```

**Arguments**

- `lp` An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- `ub` Numeric vector containing the upper bounds of the columns of the model.

**Details**

Interface to the C function `chgColUpper` which calls the COIN-OR Clp function `Clp_chgColumnUpper`.

**Value**

NULL

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)
chgObjCoefsCLP

Set/Change Objective Coefficients

Description

Low level interface function to the COIN-OR Clp function Clp_chgObjCoefficients. Consult the COIN-OR Clp documentation for more detailed information.

Usage

chgObjCoefsCLP(lp, objCoef)

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.
objCoef Numeric vector containing the objective coefficients of the model.

Details

Interface to the C function chgObjCoefs which calls the COIN-OR Clp function Clp_chgObjCoefficients.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp
### chgRowLowerCLP

**Set/Change Row Lower Bounds**

**Description**

Low level interface function to the COIN-OR Clp function `Clp_chgRowLower`. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
chgRowLowerCLP(lp, rlb)
```

**Arguments**

- **lp** An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- **rlb** Numeric vector containing the lower bounds of the rows of the model.

**Details**

Interface to the C function `chgColLower` which calls the COIN-OR Clp function `Clp_chgRowLower`.

**Value**

NULL

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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### chgRowUpperCLP

**Set/Change Row Upper Bounds**

**Description**

Low level interface function to the COIN-OR Clp function `Clp_chgRowUpper`. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
chgRowUpperCLP(lp, rub)
```

**Details**

Interface to the C function `chgColUpper` which calls the COIN-OR Clp function `Clp_chgRowUpper`.
Arguments

lp      An object of class "clpPtr" as returned by initProbCLP. This is basically a
          pointer to a COIN-OR Clp problem object.
rub     Numeric vector containing the upper bounds of the rows of the model.

Details

Interface to the C function chgRowUpper which calls the COIN-OR Clp function Clp_chgRowUpper.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

Description

Structure of the class "clpPtr". Objects of that class are used to hold pointers to C structures used
by COIN-OR Clp.

Objects from the Class

Objects can be created by calls of the form
test <-initProbCLP().

Slots

clpPtrType: Object of class "character" giving the pointer type.
clpPointer: Object of class "externalptr" containing the pointer to a C structure.
Methods

**isCLPpointer** signature(object = "clpPtr"): returns TRUE if clpPointer(object) is a pointer to a COIN-OR Clp problem object, otherwise FALSE.

**isNullpointerCLP** signature(object = "clpPtr"): returns TRUE if clpPointer(object) is a NULL pointer, otherwise FALSE.

**clpPointer** signature(object = "clpPtr"): gets the clpPointer slot.

**clpPtrType** signature(object = "clpPtr"): gets the clpPtrType slot.

**clpPtrType<-** signature(object = "clpPtr"): sets the clpPtrType slot.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

See Also

*initProbCLP*

Examples

```r
showClass("clpPtr")
```

---

**copyNamesCLP**  
*Copy Column and Row Names in the Model*

Description

Low level interface function to the COIN-OR Clp function Clp_copyNames. Consult the COIN-OR Clp documentation for more detailed information.

Usage

```r
copyNamesCLP(lp, cnames, rnames)
```

Arguments

- **lp**  
  An object of class "clpPtr" as returned by *initProbCLP*. This is basically a pointer to a COIN-OR Clp problem object.

- **cnames**  
  Character vector, containing the column names, must not be longer than the number of columns in the model.

- **rnames**  
  Character vector, containing the row names, must not be longer than the number of rows in the model.
Details

Interface to the C function copyNames which calls the COIN-OR Clp function Clp_copyNames.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

---

**delColsCLP**  
*Delete Columns in the Model*

### Description

Low level interface function to the COIN-OR Clp function Clp_deleteColumns. Consult the COIN-OR Clp documentation for more detailed information.

### Usage

```
delColsCLP(lp, num, j)
```

### Arguments

- **lp**
  - An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- **num**
  - Number of columns to delete.
- **j**
  - Integer vector, containing the indices of columns to delete (the first column has index 0).

### Details

Interface to the C function delCols which calls the COIN-OR Clp function Clp_deleteColumns.

### Value

NULL

### Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>
References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

---

**delProbCLP**

*Delete Problem Object*

**Description**

Low level interface function to the COIN-OR Clp function Clp_deleteModel. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
delProbCLP(lp)
```

**Arguments**

- `lp` An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.

**Details**

Interface to the C function delProb which calls the COIN-OR Clp function Clp_deleteModel.

**Value**

NULL

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>

Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at https://projects.coin-or.org/Clp
Delete Rows in the Model

Description

Low level interface function to the COIN-OR Clp function Clp_deleteRows. Consult the COIN-OR Clp documentation for more detailed information.

Usage

delRowsCLP(lp, num, i)

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.
num Number of rows to delete.
i Integer vector, containing the indices of rows to delete (the first row has index 0).

Details

Interface to the C function delRows which calls the COIN-OR Clp function Clp_deleteRows.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp
Drop Names in the Model

Description

Low level interface function to the COIN-OR Clp function Clp_dropNames. Consult the COIN-OR Clp documentation for more detailed information.

Usage

dropNamesCLP(lp)

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function dropNames which calls the COIN-OR Clp function Clp_dropNames.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

Solve LP Problem with the Dual Simplex Method

Description

Low level interface function to the COIN-OR Clp function Clp_dual. Consult the COIN-OR Clp documentation for more detailed information.

Usage

dualCLP(lp, ifValP = 0)
Arguments

lp       An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.
ifValP   An integer value.

Details

Interface to the C function dual which calls the COIN-OR Clp function Clp_dual.

Value

A return code.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getColDualCLP Retrieve all Column Dual Values

Description

Low level interface function to the COIN-OR Clp function Clp_dualColumnSolution. Consult the COIN-OR Clp documentation for more detailed information.

Usage

getColDualCLP(lp)

Arguments

lp       An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getColDual which calls the COIN-OR Clp functions Clp_numberColumns and Clp_dualColumnSolution.

Value

Returns all dual values of the structural variables as a numeric vector.
Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

---

**getColLowerCLP**

*Retrieve Column Lower Bound*

**Description**
Low level interface function to the COIN-OR Clp function Clp_columnLower. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

getColLowerCLP(lp)

**Arguments**
lp
An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

**Details**
Interface to the C function getColLower which calls the COIN-OR Clp functions Clp_numberColumns and Clp_columnLower.

**Value**
The lower bounds of the models columns (the corresponding structural variables) are returned.

**Author(s)**
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**
The COIN-OR Clp home page at https://projects.coin-or.org/Clp
getColPrimCLP  Retrieve all Column Primal Values

Description

Low level interface function to the COIN-OR Clp function Clp_primalColumnSolution. Consult the COIN-OR Clp documentation for more detailed information.

Usage

getColPrimCLP(lp)

Arguments

lp  An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getColPrim which calls the COIN-OR Clp functions Clp_numberColumns and Clp_primalColumnSolution.

Value

Returns all primal values of the stuctural variables as a numeric vector.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getcUpperCLP  Retrieve Column Upper Bounds

Description

Low level interface function to the COIN-OR Clp function Clp_columnUpper. Consult the COIN-OR Clp documentation for more detailed information.

Usage

getColUpperCLP(lp)
getHitMaximumIterationsCLP

Arguments
lp

An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function getColLower which calls the COIN-OR Clp functions Clp_numberColumns and Clp_columnUpper.

Value
The upper bounds of the models columns (the corresponding structural variables) are returned.

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getHitMaximumIterationsCLP
Returns True if Hit Maximum Iterations (or Time)

Description
Low level interface function to the COIN-OR Clp function Clp_hitMaximumIterations. Consult the COIN-OR Clp documentation for more detailed information.

Usage
getHitMaximumIterationsCLP(lp)

Arguments
lp

An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function getHitMaximumIterations which calls the COIN-OR Clp function Clp_hitMaximumIterations.

Value
True if hit maximum iterations (or time)
getIndCLP

Author(s)
C. Jonathan Fritzemeier <clausjonathan.fritzemeier@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getIndCLP
Retrieve Row Indices of the Non Zero Elements in the Constraint Matrix

Description
Low level interface function to the COIN-OR Clp function Clp_getIndices. Consult the COIN-OR Clp documentation for more detailed information.

Usage
getIndCLP(lp)

Arguments
lp
An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function getInd which calls the COIN-OR Clp functions Clp_numberColumns and Clp_getIndices.

Value
An integer vector containing the row Indices of the non zero elements in the constraint matrix.

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp
getLogLevelCLP

Retrieve the Log Level Flag

Description

Low level interface function to the COIN-OR Clp function Clp_logLevel. Consult the COIN-OR Clp documentation for more detailed information.

Usage

getLogLevelCLP(lp)

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getLogLevel which calls the COIN-OR Clp function Clp_logLevel.

Value

Returns the log level flag: 0: nothing, 1: just final, 2: just factorizations, 3: as 2 plus a bit more, 4: verbose.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getMaximumIterationsCLP

Returns Maximum Number of Iterations

Description

Low level interface function to the COIN-OR Clp function maximumIterations. Consult the COIN-OR Clp documentation for more detailed information.
getMaximumSecondsCLP

Usage
getMaximumSecondsCLP(lp)

Arguments
lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function getMaximumSeconds which calls the COIN-OR Clp function Clp_maximumSeconds.

Value
Maximum Time in Seconds (from when Set called)

Author(s)
C. Jonathan Fritzemeier <clausjonathan.fritzemeier@uni-duesseldor.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

description
Low level interface function to the COIN-OR Clp function Clp_maximumSeconds. Consult the COIN-OR Clp documentation for more detailed information.

Usage
getMaximumSecondsCLP(lp)

Arguments
lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function getMaximumSeconds which calls the COIN-OR Clp function Clp_maximumSeconds.
getNnzCLP

Value
Maximum time in seconds (from when set called)

Author(s)
C. Jonathan Fritzemeier <clausjonathan.fritzemeier@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getNnzCLP
Retrieve the Non Zero Elements of the Constraint Matrix in Column Major Order.

Description
Low level interface function to the COIN-OR Clp function Clp_getElements. Consult the COIN-OR Clp documentation for more detailed information.

Usage
getNnzCLP(lp)

Arguments
lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function getNnz which calls the COIN-OR Clp functions Clp_getNumElements and Clp_getElements.

Value
A numeric vector containing the non zero elements of the constraint matrix in column major order.

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp
getNumColsCLP

Retrieve the Current Number of Columns in the Model

Description

Low level interface function to the COIN-OR Clp function Clp_numberColumns. Consult the COIN-OR Clp documentation for more detailed information.

Usage

getNumColsCLP(lp)

Arguments

lp

An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getNumCols which calls the COIN-OR Clp function Clp_numberColumns.

Value

The current number of columns in the model.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getNumNnzCLP

Retrieve the Current Number of Non Zero Elements in the Model

Description

Low level interface function to the COIN-OR Clp function Clp_getNumElements. Consult the COIN-OR Clp documentation for more detailed information.

Usage

getNumNnzCLP(lp)
getNumRowsCLP

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getNumNnz which calls the COIN-OR Clp function Clp_getNumElements.

Value

Returns the current number of non zero elements in the model.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

genumRowsCLP Retrieve the Current Number of Rows in the Model

Description

Low level interface function to the COIN-OR Clp function Clp_numberRows. Consult the COIN-OR Clp documentation for more detailed information.

Usage

genumRowsCLP(lp)

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getNumRows which calls the COIN-OR Clp function Clp_numberRows.

Value

The current number of rows in the model.
getObjCoefsCLP

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getObjCoefsCLP Retrieve Objective Coefficients

Description
Low level interface function to the COIN-OR Clp function Clp_objective. Consult the COIN-OR Clp documentation for more detailed information.

Usage
getObjCoefsCLP(lp)

Arguments
lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function getObjCoefs which calls the COIN-OR Clp functions Clp_numberColumns and Clp_objective.

Value
A numeric vector containing the objective coefficients.

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp
getObjDirCLP

Retrieve Optimization Direction Flag

Description
Low level interface function to the COIN-OR Clp function `Clp_optimizationDirection`. Consult the COIN-OR Clp documentation for more detailed information.

Usage
```
getObjDirCLP(lp)
```

Arguments
- **lp**
  An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function `getObjDir` which calls the COIN-OR Clp function `Clp_optimizationDirection`.

Value
Returns the optimization direction flag: 1: minimize, -1: maximize, 0: ignore.

Author(s)
- Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
- Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getObjValCLP

Retrieve the Value of the Objective Function After Optimization

Description
Low level interface function to the COIN-OR Clp function `Clp_objectiveValue`. Consult the COIN-OR Clp documentation for more detailed information.

Usage
```
getObjValCLP(lp)
```
getRowDualCLP

Arguments

lp  An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getObjVal which calls the COIN-OR Clp function Clp_objectiveValue.

Value

Returns the value of the objective function after optimization.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getRowDualCLP  Retrieve all Row Dual Values

Description

Low level interface function to the COIN-OR Clp function Clp_dualRowSolution. Consult the COIN-OR Clp documentation for more detailed information.

Usage

ggetRowDualCLP(lp)

Arguments

lp  An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getRowDual which calls the COIN-OR Clp functions Clp_numberRows and Clp_dualRowSolution.

Value

Returns all dual values of the auxiliary variables as a numeric vector.
getRowLowerCLP

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getRowLowerCLP Retrieve Row Lower Bound

Description

Low level interface function to the COIN-OR Clp function Clp_rowLower. Consult the COIN-OR Clp documentation for more detailed information.

Usage
ggetRowLowerCLP(lp)

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getRowLower which calls the COIN-OR Clp functions Clp_numberRows and Clp_rowLower.

Value

The lower bounds of the models rows are returned.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp
getRowPrimCLP  
Retrieve all Row Primal Values

Description

Low level interface function to the COIN-OR Clp function Clp_primalRowSolution. Consult the COIN-OR Clp documentation for more detailed information.

Usage

ggetRowPrimCLP(lp)

Arguments

lp  
An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function getRowPrim which calls the COIN-OR Clp functions Clp_numberRows and Clp_primalRowSolution.

Value

Returns all primal values of the auxiliary variables as a numeric vector.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getRowUpperCLP  
Retrieve Row Upper Bound

Description

Low level interface function to the COIN-OR Clp function Clp_rowUpper. Consult the COIN-OR Clp documentation for more detailed information.

Usage

ggetRowUpperCLP(lp)
**getScaleFlagCLP**

**Arguments**

- lp: An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

**Details**

Interface to the C function getRowUpper which calls the COIN-OR Clp functions Clp_numberRows and Clp_rowUpper.

**Value**

The upper bounds of the models rows are returned.

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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**Description**

Low level interface function to the COIN-OR Clp function Clp_scalingFlag. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```
getScaleFlagCLP(lp)
```

**Arguments**

- lp: An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

**Details**

Interface to the C function getScaleFlag which calls the COIN-OR Clp function Clp_scalingFlag.

**Value**

Returns the scaling flag: 0: off, 1: equilibrium, 2: geometric, 3: auto, 4: dynamic (later - maybe not implemented in CLP?).
getSolStatusCLP

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

getSolStatusCLP Retrieve the Solution Status

Description
Low level interface function to the COIN-OR Clp function Clp_status. Consult the COIN-OR Clp documentation for more detailed information.

Usage
getSolStatusCLP(lp)

Arguments
lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function getSolStatus which calls the COIN-OR Clp function Clp_status.

Value
The solution status: 0: optimal, 1: primal infeasible, 2: dual infeasible, 3: stopped on iterations etc, 4: stopped due to errors.

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp
**getVecLenCLP**  
*Retrieve the Number of Non Zero Elements per Column*

**Description**

Low level interface function to the COIN-OR Clp function `Clp_getVectorLengths`. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
getVecLenCLP(lp)
```

**Arguments**

- `lp`  
  An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.

**Details**

Interface to the C function `getVecLen` which calls the COIN-OR Clp functions `Clp_numberColumns` and `Clp_getVectorLengths`.

**Value**

An integer vector containing the number of non zero elements per column.

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

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**getVecStartCLP**  
*Retrieve Column Starts in Constraint Matrix*

**Description**

Low level interface function to the COIN-OR Clp function `Clp_getVectorStarts`. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
getVecStartCLP(lp)
```

**Details**

Interface to the C function `getVecLen` which calls the COIN-OR Clp functions `Clp_numberColumns` and `Clp_getVectorLengths`.

**Value**

An integer vector containing the number of non zero elements per column.

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at https://projects.coin-or.org/Clp
idiotCLP

Solve LP Problem with the idiot Code

Description

Low level interface function to the COIN-OR Clp function Clp_idiot. Consult the COIN-OR Clp documentation for more detailed information.

Usage

idiotCLP(lp, thd = 0)

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

thd An integer value.

Details

Interface to the C function idiot which calls the COIN-OR Clp function Clp_idiot.

Value

NULL
**initProbCLP**

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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**initProbCLP**

*Create a COIN-OR Clp Problem Object*

**Description**

Low level interface function to the COIN-OR Clp function `Clp_newModel`. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
initProbCLP(ptrtype = "clp_prob")
```

**Arguments**

- `ptrtype`: A name for the pointer to a COIN-OR Clp problem object.

**Details**

Interface to the C function `initProb` which calls the COIN-OR Clp function `Clp_newModel`.

**Value**

An instance of class "clpPtr".

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)
lengthNamesCLP  
**Length of the Names in the Model**

**Description**

Low level interface function to the COIN-OR Clp function `Clp_lengthNames`. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

`lengthNamesCLP(lp)`

**Arguments**

- *lp*  
  An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.

**Details**

Interface to the C function `lengthNames` which calls the COIN-OR Clp function `Clp_lengthNames`.

**Value**

Number of characters of the longest name in the Model.

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>  
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

loadMatrixCLP  
**Load Constraint Matrix**

**Description**

Low level interface function to the COIN-OR Clp function `Clp_loadProblem`. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

`loadMatrixCLP(lp, ncols, nrows, ia, ja, ra)`
Arguments

lp  An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
ncols  Number of Columns.
nrows  Number of Rows.
ia  Row indices in the constraint matrix.
ja  Column starts in constraint matrix.
ra  Non zero elements of the constraint matrix.

Details

Interface to the C function `loadMatrix` which calls the COIN-OR Clp function `Clp_loadProblem`.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

loadProblemCLP  Load Problem Data

Description

Low level interface function to the COIN-OR Clp function `Clp_loadProblem`. Consult the COIN-OR Clp documentation for more detailed information.

Usage

```r
loadProblemCLP(lp, ncols, nrows, ia, ja, ra,
              lb = NULL, ub = NULL, obj_coef = NULL,
              rlb = NULL, rub = NULL)
```
modifyCoefficientCLP

**Arguments**

- **lp**: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- **ncols**: Number of Columns.
- **nrows**: Number of Rows.
- **ia**: Row indices in the constraint matrix.
- **ja**: Column starts in constraint matrix.
- **ra**: Non zero elements of the constraint matrix.
- **lb**: Column lower bounds.
- **ub**: Column upper bounds.
- **obj_coef**: Objective coefficients.
- **r1b**: Row lower bounds.
- **rub**: Row upper bounds.

**Details**

Interface to the C function `loadProblem` which calls the COIN-OR Clp function `Clp_loadProblem`.

**Value**

NULL

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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**modifyCoefficientCLP**  Change matrix coefficients

**Description**

Low level interface function to the COIN-OR Clp function `Clp_modifyCoefficient`. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
modifyCoefficientCLP(lp, i, j, el, keepZero = TRUE)
```
Arguments

- **lp**: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- **i**: Row index.
- **j**: Column index.
- **el**: Coefficient to set.
- **keepZero**: If set to TRUE, keep zeroes.

Details

Interface to the C function `modifyCoefficient` which calls the COIN-OR Clp function `Clp_modifyCoefficient`.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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**primalCLP**

_Solve LP Problem with the Primal Simplex Method_

Description

Low level interface function to the COIN-OR Clp function `Clp_primal`. Consult the COIN-OR Clp documentation for more detailed information.

Usage

```
primalCLP(lp, ifValP = 0)
```

Arguments

- **lp**: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- **ifValP**: An integer value.

Details

Interface to the C function `primal` which calls the COIN-OR Clp function `Clp_primal`. 
Value

A return code.

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

printModelCLP

Print the Model to STDOUT

Description
Low level interface function to the COIN-OR Clp function Clp_printModel. Consult the COIN-OR Clp documentation for more detailed information.

Usage
printModelCLP(lp, prefix = "CLPmodel")

Arguments
lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.
prefix A character string containing a name for the model.

Details
Interface to the C function printModel which calls the COIN-OR Clp function Clp_printModel.

Value
NULL

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp
probNameCLP

Set Problem Name

Description
Low level interface function to the COIN-OR Clp function Clp_problemName. Consult the COIN-OR Clp documentation for more detailed information.

Usage
probNameCLP(lp, pname)

Arguments
lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.
pname A single character string containing the problem name.

Details
Interface to the C function probName which calls the COIN-OR Clp function Clp_problemName.

Value
NULL

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

readMPSCLP

Read Problem in (Free) MPS Format

Description
Low level interface function to the COIN-OR Clp function Clp_readMps. Consult the COIN-OR Clp documentation for more detailed information.

Usage
readMPSCLP(lp, fname, keepNames = TRUE, ignoreErrors = FALSE)
Arguments

lp: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
fname: A filename.
keepNames: Boolean, keep variable names.
ignoreErrors: If set to TRUE, errors will be ignored.

Details

Interface to the C function `readMPS` which calls the COIN-OR Clp function `Clp_readMps`.

Value

Returns zero on success, otherwise non zero.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

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**resizeCLP**

**Resize a Model**

Description

Low level interface function to the COIN-OR Clp function `Clp_resize`. Consult the COIN-OR Clp documentation for more detailed information.

Usage

`resizeCLP(lp, nrows, ncols)`

Arguments

lp: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
nrows: Number of rows.
ncols: Number of columns.
Details

Interface to the C function `resize` which calls the COIN-OR Clp function `Clp_resize`.

The function `resize` can produce a larger model. If the current number of rows and columns is \( n \) and \( m \) respectively and you set `nrows` to \( i \) and `ncols` to \( j \), the new number of rows and columns will be \( i \) and \( j \). It is not possible to scale down the model. In order to delete rows or columns, use `delRowsCLP` or `delColsCLP`.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

See Also

`delRowsCLP` and `delColsCLP`.

---

**restoreModelCLP**

**Restore model from file**

Description

Low level interface function to the COIN-OR Clp function `Clp_restoreModel`. Consult the COIN-OR Clp documentation for more detailed information.

Usage

`restoreModelCLP(lp, fname)`

Arguments

- **lp**
  An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.

- **fname**
  A filename.

Details

Interface to the C function `restoreModel` which calls the COIN-OR Clp function `Clp_restoreModel`. 
**Value**

Returns zero on success, otherwise non zero.

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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**return_codeCLP**  
*Translates a COIN-OR Clp Return Code into a Human Readable String*

**Description**

Translates a COIN-OR Clp return code into a human readable string.

**Usage**

```plaintext
return_codeCLP(code)
```

**Arguments**

- **code**
  - Return code from COIN-OR Clp.

**Value**

A character string associated with the COIN-OR Clp return code.

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)
saveModelCLP

Description
Low level interface function to the COIN-OR Clp function Clp_saveModel. Consult the COIN-OR Clp documentation for more detailed information.

Usage
saveModelCLP(lp, fname)

Arguments
lp
An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.
fname
A filename.

Details
Interface to the C function saveModel which calls the COIN-OR Clp function Clp_saveModel.

Value
Returns zero on success, otherwise non zero.

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

scaleModelCLP

Description
Low level interface function to the COIN-OR Clp function Clp_scaling. Consult the COIN-OR Clp documentation for more detailed information.

Usage
scaleModelCLP(lp, mode)
setColNameCLP

**Arguments**

- **lp**
  An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.

- **mode**
  Scaling flag: 0: off, 1: equilibrium, 2: geometric, 3: auto, 4: dynamic (later - maybe not implemented in CLP?).

**Details**

Interface to the C function `scaleModel` which calls the COIN-OR Clp function `Clp_scaling`.

**Value**

NULL

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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**setColNameCLP**

*Set column name*

**Description**

Low level interface function to the COIN-OR Clp function `Clp_setColumnName`. Consult the COIN-OR Clp documentation for more detailed information. This function is only available, if you are using COIN-OR Clp version >= 1.17.2.

**Usage**

```r
setColNameCLP(lp, j, cname)
```

**Arguments**

- **lp**
  An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.

- **j**
  Column index.

- **cname**
  A single character string containing the column name.

**Details**

Interface to the C function `setColName` which calls the COIN-OR Clp function `Clp_setColumnName`.
setLogLevelCLP

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

setLogLevelCLP Set the Amount of Output to STDOUT

Description

Low level interface function to the COIN-OR Clp function Clp_setLogLevel. Consult the COIN-OR Clp documentation for more detailed information.

Usage

setLogLevelCLP(lp, amount)

Arguments

lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.
amount Log level flag: 0: nothing, 1: just final, 2: just factorizations, 3: as 2 plus a bit more, 4: verbose.

Details

Interface to the C function setLogLevel which calls the COIN-OR Clp function Clp_setLogLevel.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp
setMaximumIterationsCLP

*Set the Maximum Number of Iterations*

**Description**

Low level interface function to the COIN-OR Clp function Clp_setMaximumIterations. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
setMaximumIterationsCLP(lp, iterations)
```

**Arguments**

- `lp`: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- `iterations`: Number of iterations

**Details**

Interface to the C function `setMaximumIterations` which calls the COIN-OR Clp function Clp_setMaximumIterations.

**Value**

NULL

**Author(s)**

C. Jonathan Fritzemeier <clausjonathan.fritzemeier@uni-duesseldorf.de>

Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)
### setMaximumSecondsCLP

**Set the Maximum Time in Seconds**

**Description**

Low level interface function to the COIN-OR Clp function Clp_setMaximumSeconds. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```c
setMaximumSecondsCLP(lp, seconds)
```

**Arguments**

- **lp**: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- **seconds**: Maximum duration in seconds

**Details**

Interface to the C function `setMaximumSeconds` which calls the COIN-OR Clp function Clp_setMaximumSeconds.

**Value**

NULL

**Author(s)**

C. Jonathan Fritzemeier <clausjonathan.fritzemeier@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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### setNumberIterationsCLP

**Set the Number of Iterations**

**Description**

Low level interface function to the COIN-OR Clp function Clp_setNumberIterations. Consult the COIN-OR Clp documentation for more detailed information.
Usage

```
setNumberIterationsCLP(lp, iterations)
```

Arguments

- `lp`: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- `iterations`: Number of iterations

Details

Interface to the C function `setNumberIterations` which calls the COIN-OR Clp function `Clp_setNumberIterations`.

Value

`NULL`

Author(s)

C. Jonathan Fritzemeier <clausjonathan.fritzemeier@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

---

**setObjDirCLP**

*Set/Change Optimization Direction Flag*

Description

Low level interface function to the COIN-OR Clp function `Clp_setOptimizationDirection`. Consult the COIN-OR Clp documentation for more detailed information.

Usage

```
setObjDirCLP(lp, lpdire)
```

Arguments

- `lp`: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.
- `lpdir`: Optimization direction flag: 1: minimize, -1: maximize, 0: ignore.

Details

Interface to the C function `setObjDir` which calls the COIN-OR Clp function `Clp_setOptimizationDirection`. 
setRowNameCLP

Value
NULL

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

Description
Low level interface function to the COIN-OR Clp function Clp_setRowName. Consult the COIN-OR Clp documentation for more detailed information. This function is only available, if you are using COIN-OR Clp version >= 1.17.2.

Usage
setRowNameCLP(lp, i, rname)

Arguments
lp An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.
i Row index.
rname A single character string containing the row name.

Details
Interface to the C function setRowName which calls the COIN-OR Clp function Clp_setRowName.

Value
NULL

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp
solveInitialBarrierCLP

*Solve LP Problem with the Initial Barrier Method*

**Description**

Low level interface function to the COIN-OR Clp function Clp_initialBarrierSolve. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
solveInitialBarrierCLP(lp)
```

**Arguments**

- **lp**
  
  An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.

**Details**

Interface to the C function `solveInitialBarrier` which calls the COIN-OR Clp function Clp_initialBarrierSolve.

**Value**

A return code.

**Author(s)**

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>

Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

**References**

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)

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solveInitialBarrierNoCrossCLP

*Solve LP Problem with the Initial Barrier Method (no Crossover)*

**Description**

Low level interface function to the COIN-OR Clp function Clp_initialBarrierNoCrossSolve. Consult the COIN-OR Clp documentation for more detailed information.

**Usage**

```r
solveInitialBarrierNoCrossCLP(lp)
```
solveInitialCLP

Arguments

lp  An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function solveInitialBarrierNoCross which calls the COIN-OR Clp function Clp_initialBarrierNoCrossSolve.

Value

A return code.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

solveInitialCLP  Solve LP Problem with a General Solve Algorithm

Description

Low level interface function to the COIN-OR Clp function Clp_initialSolve. Consult the COIN-OR Clp documentation for more detailed information.

Usage

solveInitialCLP(lp)

Arguments

lp  An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function solveInitial which calls the COIN-OR Clp function Clp_initialSolve.

Value

A return code.
solveInitialDualCLP

Solve LP Problem with the Initial Dual Simplex Method

Description

Low level interface function to the COIN-OR Clp function Clp_initialDualSolve. Consult the COIN-OR Clp documentation for more detailed information.

Usage

```r
solveInitialDualCLP(lp)
```

Arguments

- `lp`: An object of class "clpPtr" as returned by `initProbCLP`. This is basically a pointer to a COIN-OR Clp problem object.

Details

Interface to the C function `solveInitialDual` which calls the COIN-OR Clp function `Clp_initialDualSolve`.

Value

A return code.

Author(s)

- Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
- Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at [https://projects.coin-or.org/Clp](https://projects.coin-or.org/Clp)
solveInitialPrimalCLP  Solve LP Problem with the Initial Primal Simplex Method

Description
Low level interface function to the COIN-OR Clp function Clp_initialPrimalSolve. Consult the COIN-OR Clp documentation for more detailed information.

Usage
solveInitialPrimalCLP(lp)

Arguments
lp  An object of class "clpPtr" as returned by initProbCLP. This is basically a pointer to a COIN-OR Clp problem object.

Details
Interface to the C function solveInitialPrimal which calls the COIN-OR Clp function Clp_initialPrimalSolve.

Value
A return code.

Author(s)
Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References
The COIN-OR Clp home page at https://projects.coin-or.org/Clp

status_codeCLP  Translates a COIN-OR Clp Status Value into a Human Readable String

Description
Translates a COIN-OR Clp status value into a human readable string.

Usage
status_codeCLP(code)
Arguments

code  Status code from COIN-OR Clp.

Value

A character string associated with the COIN-OR Clp status code.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp

Determining the COIN-OR Clp Callable Library Version

versionCLP

Description

Low level interface function to the COIN-OR Clp constant CLP_VERSION. Consult the COIN-OR Clp documentation for more detailed information.

Usage

versionCLP()

Details

Interface to the C function version which returns the COIN-OR Clp version number.

Value

Returns a single character value containing the COIN-OR Clp version number.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp
writeMPSCLP

Write an MPS Format file to the given filename

Description

Low level interface function to the COIN-OR Clp function Clp_writeMps. Consult the COIN-OR Clp documentation for more detailed information. This function is only available, if you are using COIN-OR Clp version >= 1.17.2.

Usage

writeMPSCLP(lp, fname, formatType = 0, numberAcross = 1, objSense = 1)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lp</td>
<td>An object of class &quot;clpPtr&quot; as returned by initProbCLP. This is basically a</td>
</tr>
<tr>
<td></td>
<td>pointer to a COIN-OR Clp problem object.</td>
</tr>
<tr>
<td>fname</td>
<td>A filename.</td>
</tr>
<tr>
<td>formatType</td>
<td>Integer value: 0 = normal, 1 = extra or 2 = hex.</td>
</tr>
<tr>
<td>numberAcross</td>
<td>Number across is 1 or 2.</td>
</tr>
<tr>
<td>objSense</td>
<td>Use objSense = -1 to flip the objective function around.</td>
</tr>
</tbody>
</table>

Details

Interface to the C function writeMps which calls the COIN-OR Clp function Clp_writeMps.

Value

Returns zero on success, otherwise non zero.

Author(s)

Gabriel Gelius-Dietrich <geliudie@uni-duesseldorf.de>
Maintainer: Mayo Roettger <mayo.roettger@hhu.de>

References

The COIN-OR Clp home page at https://projects.coin-or.org/Clp
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