Package 'clpAPI'

February 19, 2015

Type Package

Title R Interface to C API of COIN-OR Clp

Version 1.2.6

Date 2013-10-26

Depends R (>= 2.6.0)

Imports methods

Description R Interface to C API of COIN-OR Clp, depends on COIN-OR Clp Version >= 1.12.0

SystemRequirements COIN-OR Clp (>= 1.12.0)

License GPL-3

LazyLoad yes

Collate generics.R clp_ptrClass.R clp.R clpAPI.R zzz.R

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NeedsCompilation yes

Repository CRAN

Date/Publication 2013-10-26 19:08:53

R topics documented:

clpAPI-package *R Interface to C API of COIN-OR Clp*

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)

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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, 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, 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.
`ub`	Upper bounds of the new columns.
`obj`	Objective coeficients 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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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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.
`rowst`	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.

Details

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

Value

NULL

Author(s)

Gabriel Gelius-Dietrich

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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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

Author(s)

Gabriel Gelius-Dietrich

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

```
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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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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

```
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)

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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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

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

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)

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

clpPtr-class *Class* "clpPtr"

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" containig 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)

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

See Also

initProbCLP

Examples

```
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

```
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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

`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)

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

```
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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

delRowsCLP *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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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dropNamesCLP *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)

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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dualCLP *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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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 stuctural variables as a numeric vector.

Author(s)

Gabriel Gelius-Dietrich

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

References

The COIN-OR Clp home page at `http://www.coin-or.org/projects/Clp.xml`

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

getColUpperCLP *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)
```

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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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)

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

`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)
```

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

getNumRowsCLP *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

```
getNumRowsCLP(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.

Author(s)

Gabriel Gelius-Dietrich

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References

The COIN-OR Clp home page at `http://www.coin-or.org/projects/Clp.xml`

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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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

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References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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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)
```

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)

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

```
getRowDualCLP(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.

Author(s)

Gabriel Gelius-Dietrich

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

```
getRowLowerCLP(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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

```
getRowPrimCLP(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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

```
getRowUpperCLP(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 `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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

getScaleFlagCLP *Retrieve the Scale Flag*

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?).

Author(s)

Gabriel Gelius-Dietrich

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

References

The COIN-OR Clp home page at `http://www.coin-or.org/projects/Clp.xml`

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

```
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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

```
getVecStartCLP(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 `getVecStart` which calls the COIN-OR Clp functions `Clp_numberColumns` and `Clp_getVectorStarts`.

Value

An integer vector containing the column starts in the constraint matrix.

Author(s)

Gabriel Gelius-Dietrich

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

Author(s)

Gabriel Gelius-Dietrich

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

```
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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

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

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.
`rlb`	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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

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

References

The COIN-OR Clp home page at `http://www.coin-or.org/projects/Clp.xml`

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

```
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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

saveModelCLP *Save model to file*

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

`scaleModelCLP` *Set/Unset the Scaling Flag (Method)*

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)
```

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

`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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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, lpdir)
```

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`.

Value

NULL

Author(s)

Gabriel Gelius-Dietrich

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

```
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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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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

```
solveInitialBarrierNoCrossCLP(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 solveInitialBarrierNoCross which calls the COIN-OR Clp function Clp_initialBarrierNoCrossSolve.

Value

A return code.

Author(s)

Gabriel Gelius-Dietrich

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

`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.

Author(s)

Gabriel Gelius-Dietrich

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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

```
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

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

References

The COIN-OR Clp home page at `http://www.coin-or.org/projects/Clp.xml`

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

---

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

versionCLP *Determine COIN-OR Clp Callable Library Version*

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

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

References

The COIN-OR Clp home page at http://www.coin-or.org/projects/Clp.xml

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