Package 'BufferedMatrix'

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as.BufferedMatrix Check or Coerce object to BufferedMatrix			
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R topics documented:			
NeedsCompilation yes			
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ollate allGenerics.R BufferedMatrix.R as.BufferedMatrix.R createBufferedMatrix.R init.R			
<pre>URL https://github.com/bmbolstad/BufferedMatrix</pre>			
License LGPL (>= 2)			
escription A tabular style data object where most data is stored outside main memory. A buffer is used to speed up access to data.			
Depends R ($>= 2.6.0$), methods			
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hor Benjamin Milo Bolstad <bmb@bmbolstad.com></bmb@bmbolstad.com>			
Title A matrix data storage object held in temporary files			
Version 1.34.0			

Description

'as.BufferedMatrix' will coerce the supplied object into a BufferedMatrix. 'is.BufferedMatrix' checks whether the supplied argument is a BufferedMatrix.

Usage

```
as.BufferedMatrix(x, bufferrows=1, buffercols=1,directory=getwd()) is.BufferedMatrix(x)
```

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Arguments

x an R object

bufferrows number of rows to be buffered if the row buffer is activated

buffercols number of columns to be buffered

directory path to directory where temporary files should be stored

Details

 $These \ functions \ are \ useful \ for \ converting \ between \ R \ \texttt{matrix} \ objects \ and \ \texttt{BufferedMatrix} \ objects.$

Author(s)

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BufferedMatrix-class Class BufferedMatrix

Description

This is a class representation of a buffered matrix (of numeric data). In this case data is primarily stored outide main memory in temporary files.

Objects from the Class

and FALSE otherwise.

Objects can be created using the function createBufferedMatrix

Slots

```
rawBufferedMatrix: a pointer to an external structure used to access and store the matrix data. rownames: rownames for the matrix. colnames: colnames for the matrix.
```

Methods

```
ncol signature(object = "BufferedMatrix"): Returns the number of columns in the matrix
nrow signature(object = "BufferedMatrix"): Returns the number of rows in the matrix
dim signature(object = "BufferedMatrix"): Returns the dimensions of the matrix
buffer.dim signature(object = "BufferedMatrix"): Returns the number of columns and the
    number of rows to be stored in the buffer
set.buffer.dim signature(object = "BufferedMatrix"): Set the buffer size or resize it
[ signature(object = "BufferedMatrix"): matrix accessor
[<- signature(object = "BufferedMatrix"): matrix replacer
show signature(object = "BufferedMatrix"): prints basic information about the Buffered-
    Matrix out to screen
is.RowMode signature(object = "BufferedMatrix"): returns TRUE if the row buffer is active</pre>
```

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is.ColMode signature(object = "BufferedMatrix"): returns TRUE if the row buffer is inactive
 and FALSE otherwise.

- **RowMode** signature(object = "BufferedMatrix"): Activate the row buffer.
- **ColMode** signature(object = "BufferedMatrix"): Deactivate the row buffer
- duplicate signature(object = "BufferedMatrix"): Make a copy of the BufferedMatrix
- prefix signature(object = "BufferedMatrix"): return the initial part of the string used for temporary files
- directory signature(object = "BufferedMatrix"): return the location where temporary files
 are stored
- **filenames** signature(object = "BufferedMatrix"): return the fully pathed filenames for each column in the matrix
- ewApply signature(object = "BufferedMatrix"): apply a function elementwise
- exp signature(object = "BufferedMatrix"): Compute the exponential elementwise of the
 matrix
- sqrt signature(object = "BufferedMatrix"): Compute the square-root elementwise of the
 matrix
- pow signature(object = "BufferedMatrix"): Compute \$x^power\$ elementwise of the matrix
- log signature(object = "BufferedMatrix"): Compute logarithm elementwise of the matrix
- colMax signature(object = "BufferedMatrix"): Returns a vector containing maximums by
 column
- rowMax signature(object = "BufferedMatrix"): Returns a vector containing maximums by
 row
- colMeans signature(object = "BufferedMatrix"): Returns a vector containing means by column
- rowMeans signature(object = "BufferedMatrix"): Returns a vector containing means by
 row
- colMin signature(object = "BufferedMatrix"): Returns a vector containing minimums by
 column
- rowMin signature(object = "BufferedMatrix"): Returns a vector containing minimums by
 row
- colVars signature(object = "BufferedMatrix"): Returns a vector containing sample variances by column
- rowVars signature(object = "BufferedMatrix"): Returns a vector containing sample variances by row
- colSd signature(object = "BufferedMatrix"): Returns a vector containing sample standard
 deviations by column
- rowSd signature(object = "BufferedMatrix"): Returns a vector containing sample standard
 deviations by row
- colSums signature(object = "BufferedMatrix"): Returns a vector containing sum by column
- rowSums signature(object = "BufferedMatrix"): Returns a vector containing sum by row
- colMedians signature(object = "BufferedMatrix"): Returns a vector containing medians by column
- **rowMedians** signature(object = "BufferedMatrix"): Returns a vector containing medians by row. Best only used when the matrix is in RowMode (otherwise it is extremely slow)

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```
Max signature(object = "BufferedMatrix"): Returns the maximum of all elements in the matrix
```

Min signature(object = "BufferedMatrix"): Returns the minimum of all elements in the matrix

Var signature(object = "BufferedMatrix"): Returns the sample variance of all elements in the matrix

Sd signature(object = "BufferedMatrix"): Returns the sample standard deviations of all elements in the matrix

Sum signature(object = "BufferedMatrix"): Returns the sum of all elements in the matrix

mean signature(object = "BufferedMatrix"): Returns the mean of all elements in the matrix

colApply signature(object = "BufferedMatrix"): apply a function columnwise. Returns
either a vector or BufferedMatrix.

rowApply signature(object = "BufferedMatrix"): apply a function row-wise. Returns either a vector or BufferedMatrix.

as.matrix signature(object = "BufferedMatrix"): coerce BufferedMatrix into a regular R
matrix

subBufferedMatrix signature(object = "BufferedMatrix"): gets data from BufferedMatrix
and returns it in another BufferedMatrix

rownames signature(object = "BufferedMatrix") : access the row names

colnames signature(object = "BufferedMatrix") : access the column names

rownames<- signature(object = "BufferedMatrix") : replace the row names</pre>

colnames<- signature(object = "BufferedMatrix") : replace the column names</pre>

dimnames signature(object = "BufferedMatrix"): Access the row and column names

dimnames signature(object = "BufferedMatrix"): Replace the row and column names

ReadOnlyMode signature(object = "BufferedMatrix") : Toggles the Read Only mode on
 and off

memory.usage signature(object = "BufferedMatrix") : Give amount of RAM currently in
 use by BufferedMatrix object

disk.usage signature(object = "BufferedMatrix") : Give amount of disk space currently in
 use by BufferedMatrix object

as(matrix, BufferedMatrix): Coerce matrix to BufferedMatrix.

as(BufferedMatrix, matrix): Coerce the Buffered to matrix.

AddColumn: Add an additional column to the matrix. Will be all empty (set to 0)

MoveStorageDirectory: Move the temporary files used to store the matrix from one location to another

Author(s)

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createBufferedMatrix createBufferedMatrix

Description

Creates a Buffered Matrix object

Usage

createBufferedMatrix(rows, cols=0, bufferrows=1, buffercols=1,prefix="BM",directory=getwd())

Arguments

rows Number of rows in the matrix

cols Initial number of coulmns in the matrix

bufferrows number of rows to be buffered if the row buffer is activated

buffercols number of columns to be buffered

prefix String to be used as start of name for any temporary files directory path to directory where temporary files should be stored

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