

# Package ‘alabaster.bumpy’

December 8, 2023

**Title** Save and Load BumpyMatrices to/from file

**Version** 1.2.0

**Date** 2023-02-28

**Description** Save BumpyMatrix objects into file artifacts, and load them back into memory. This is a more portable alternative to serialization of such objects into RDS files. Each artifact is associated with metadata for further interpretation; downstream applications can enrich this metadata with context-specific properties.

**License** MIT + file LICENSE

**Depends** BumpyMatrix, alabaster.base

**Imports** methods, Matrix, BiocGenerics, S4Vectors, IRanges

**Suggests** BiocStyle, rmarkdown, knitr, testthat, jsonlite

**VignetteBuilder** knitr

**RoxygenNote** 7.2.3

**biocViews** DataImport, DataRepresentation

**git\_url** <https://git.bioconductor.org/packages/alabaster.bumpy>

**git\_branch** RELEASE\_3\_18

**git\_last\_commit** 6e7d873

**git\_last\_commit\_date** 2023-10-24

**Repository** Bioconductor 3.18

**Date/Publication** 2023-12-08

**Author** Aaron Lun [cre, aut]

**Maintainer** Aaron Lun <[infinite.monkeys.with.keyboards@gmail.com](mailto:infinite.monkeys.with.keyboards@gmail.com)>

## R topics documented:

|   |   |
|---|---|
| loadBumpyDataFrameMatrix . . . . .                | 2 |
| stageObject,BumpyDataFrameMatrix-method . . . . . | 3 |
| useBumpyHDF5 . . . . .                            | 3 |

|              |          |
|--------------|----------|
| <b>Index</b> | <b>5</b> |
|--------------|----------|

---

`loadBumpyDataFrameMatrix`*Load a BumpyDataFrameMatrix object*

---

### Description

Load a [BumpyDataFrameMatrix](#) object based on its metadata.

### Usage

```
loadBumpyDataFrameMatrix(assay.info, project)
```

### Arguments

|                         |  |
|-------------------------|--|
| <code>assay.info</code> | Named list of metadata for the <a href="#">BumpyDataFrameMatrix</a> , generated by the corresponding <a href="#">stageObject</a> method.                               |
| <code>project</code>    | Any argument accepted by the acquisition functions, see <a href="#">?acquireFile</a> . By default, this should be a string containing the path to a staging directory. |

### Value

A [BumpyDataFrameMatrix](#) object.

### Author(s)

Aaron Lun

### Examples

```
# Mocking up a BumpyMatrix.
library(BumpyMatrix)
library(S4Vectors)
df <- DataFrame(x=runif(100), y=runif(100))
f <- factor(sample(letters[1:20], nrow(df), replace=TRUE), letters[1:20])
out <- S4Vectors::split(df, f)
mat <- BumpyMatrix(out, c(5, 4))

# Staging it:
tmp <- tempfile()
dir.create(tmp)
meta <- stageObject(mat, tmp, "BUMPY")

# Loading it:
loadBumpyDataFrameMatrix(meta, tmp)
```

---

stageObject,BumpyDataFrameMatrix-method  
*Stage BumpyDataFrameMatrix objects*

---

**Description**

Staging method for [BumpyDataFrameMatrix](#) objects. See [?stageObject](#) for more details.

**Usage**

```
## S4 method for signature 'BumpyDataFrameMatrix'
stageObject(x, dir, path, child = FALSE)
```

**Arguments**

|       |  |
|-------|--|
| x     | A <a href="#">BumpyDataFrameMatrix</a> object.   |
| dir   | String containing the path to the staging directory.   |
| path  | String containing a prefix of the relative path inside dir where x is to be saved. The actual path used to save x may include additional components, see <a href="#">Details</a> . |
| child | Logical scalar indicating whether x is a child of a larger object.   |

**Value**

A named list of metadata, to be used by [.writeMetadata](#).

**Author(s)**

Aaron Lun

**See Also**

[useBumpyHDF5](#), to control whether the concatenated data frame is saved as a CSV or HDF5 file.

---

|              |                                      |
|--------------|--------------------------------------|
| useBumpyHDF5 | <i>Save BumpyMatrix data to HDF5</i> |
|--------------|--------------------------------------|

---

**Description**

Use HDF5 for the underlying data frame, i.e., obtained after [unlisting](#) the [BumpyMatrix](#). This is less intuitive than a CSV but preserves the precision of floating-point numbers.

**Usage**

```
useBumpyHDF5(use)
```

**Arguments**

`use` Logical scalar indicating whether to save in HDF5.

**Value**

If `use` is missing, a logical scalar is returned indicating whether data should be saved in HDF5.

If `use` is provided, it is used to set the corresponding flag globally. The previous value of the flag is returned invisibly.

**Examples**

```
useBumpyHDF5()  
  
old <- useBumpyHDF5(FALSE)  
useBumpyHDF5()  
  
# Setting it back.  
useBumpyHDF5(old)
```

# Index

`.writeMetadata`, 3  
`acquireFile`, 2  
`BumpyDataFrameMatrix`, 2, 3  
`BumpyMatrix`, 3  
`loadBumpyDataFrameMatrix`, 2  
`stageObject`, 2, 3  
`stageObject`, `BumpyDataFrameMatrix`-method,  
3  
`unlist`, 3  
`useBumpyHDF5`, 3, 3