

# Package ‘beachmat.hdf5’

April 26, 2024

**Version** 1.1.0

**Date** 2023-08-07

**Title** beachmat bindings for HDF5-backed matrices

**Description** Extends beachmat to support initialization of tatami matrices from HDF5-backed arrays. This allows C++ code in downstream packages to directly call the HDF5 C/C++ library to access array data, without the need for block processing via DelayedArray. Some utilities are also provided for direct creation of an in-memory tatami matrix from a HDF5 file.

**Encoding** UTF-8

**Imports** methods, beachmat, HDF5Array, DelayedArray, Rcpp

**Suggests** testthat, BiocStyle, knitr, rmarkdown, rhdf5, Matrix

**LinkingTo** Rcpp, beachmat, Rhdf5lib

**biocViews** DataRepresentation, DataImport, Infrastructure

**License** GPL-3

**NeedsCompilation** yes

**VignetteBuilder** knitr

**SystemRequirements** C++17, GNU make

**RoxygenNote** 7.2.3

**git\_url** <https://git.bioconductor.org/packages/beachmat.hdf5>

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initializeCpp	<i>Initialize HDF5-backed matrices.</i>
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### Description

Initialize C++ representations of HDF5-backed matrices based on their **HDF5Array** representations.

### Usage

```
## S4 method for signature 'H5SparseMatrixSeed'
initializeCpp(x, ..., memorize = FALSE)

## S4 method for signature 'HDF5ArraySeed'
initializeCpp(x, ..., memorize = FALSE)
```

### Arguments

x	A <b>HDF5Array</b> seed object.
...	Further arguments, ignored.
memorize	Logical scalar specifying whether to load the matrix data in x into memory, if it has not already been loaded. See <a href="#">checkMemoryCache</a> for details.

### Value

An external pointer that can be used in any **tatami**-compatible function.

### Author(s)

Aaron Lun

### Examples

```
library(HDF5Array)
y <- matrix(runif(1000), ncol=20, nrow=50)
z <- as(y, "HDF5Array")
ptr <- initializeCpp(z)
```

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loadIntoMemory	<i>Load a HDF5 matrix into memory</i>
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### Description

Load a HDF5-backed matrix into memory as an external pointer to a **tatami**-compatible representation. This differs from the (default) behavior of `initializeCpp`, which only loads slices of the matrix on request.

### Usage

```
loadIntoMemory(x, force.integer = FALSE)
```

### Arguments

<code>x</code>	A <b>HDF5Array</b> -derived matrix or seed object.
<code>force.integer</code>	Whether to force floating-point values to be integers to reduce memory consumption.

### Value

An external pointer that can be used in **tatami**-based functions.

### Author(s)

Aaron Lun

### Examples

```
library(HDF5Array)
y <- matrix(runif(1000), ncol=20, nrow=50)
z <- as(y, "HDF5Array")
ptr <- loadIntoMemory(z)
```

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