Package 'mori'

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Title Shared Memory for R Objects

Version 0.1.0

Description Share R objects across processes on the same machine via a single copy in 'POSIX' shared memory (Linux, macOS) or a 'Win32' file mapping (Windows). Every process reads from the same physical pages through the R Alternative Representation ('ALTREP') framework, giving lazy, zero-copy access. Shared objects serialize compactly as their shared memory name rather than their full contents.

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URL https://shikokuchuo.net/mori/, https://github.com/shikokuchuo/mori

BugReports https://github.com/shikokuchuo/mori/issues

Depends R (>= 4.3)

Suggests lobstr, mirai, testthat (>= 3.0.0)

Config/testthat/edition 3

Encoding UTF-8

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RoxygenNote 7.3.3

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Repository CRAN

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mori-package *mori: Shared Memory for R Objects*

Description

Share R objects via shared memory with `share()`, access them in other processes with `map_shared()`, using R's ALTREP framework for zero-copy memory-mapped access. Shared objects serialize compactly via ALTREP serialization hooks. Shared memory is automatically freed when the R object is garbage collected.

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See Also

Useful links:

- https://shikokuchuo.net/mori/
- https://github.com/shikokuchuo/mori
- Report bugs at https://github.com/shikokuchuo/mori/issues

is_shared *Test if an Object is Shared*

Description

Returns `TRUE` if `x` is an ALTREP object backed by shared memory (created by `share()` or `map_shared()`), `FALSE` otherwise.

Usage

```
is_shared(x)
```

Arguments

`x`	an R object.

Value

`TRUE` or `FALSE`.

Examples

```
x <- share(rnorm(100))
is_shared(x)
is_shared(rnorm(100))
```

`map_shared` *Open Shared Memory by Name*

Description

Open a shared memory region identified by a name string and return an ALTREP-backed R object that reads directly from shared memory.

Usage

```
map_shared(name)
```

Arguments

`name`	a character string name identifying the shared memory region, as returned by `shared_name()`.

Value

The R object stored in the shared memory region, or `NULL` if `name` is not a valid shared memory name (wrong type, length, `NA`, or missing the `mori` prefix). If `name` is well-formed but the region is absent or corrupted, an error is raised.

See Also

`share()` to create a shared object, `shared_name()` to extract the name.

Examples

```
x <- share(1:100)
nm <- shared_name(x)
y <- map_shared(nm)
sum(y)
```

share *Create a Shared Object*

Description

Write an R object into shared memory and return a version that other processes on the same machine can map without copying.

Usage

```
share(x)
```

Arguments

x	an R object.

Details

Attributes are stored alongside the data in the shared memory region and restored on the consumer side. Character vectors use a packed layout and elements are materialised lazily on access. When serialised (e.g. by `serialize()` or across a `mirai()` call), a shared object is represented compactly by its SHM name (~30 bytes) rather than by its contents.

The shared memory region is managed automatically. It stays alive as long as the returned object (or any element extracted from it) is referenced in R, and is freed by the garbage collector when no references remain.

`share()` is idempotent: calling it on an object that is already backed by shared memory returns the input unchanged without allocating a new region.

Important: always assign the result of `share()` to a variable. The shared memory is kept alive by the R object reference — if the result is used as a temporary (not assigned), the garbage collector may free the shared memory before a consumer process has mapped it.

Value

For atomic vectors (including character vectors and those with attributes such as names, dim, class, or levels) and lists or data frames whose elements are such vectors, an ALTREP-backed object that reads directly from shared memory. For any other object (environments, closures, language objects, `NULL`), the input is returned unchanged with no shared memory region created.

See Also

`map_shared()` to open a shared region by name, `shared_name()` to extract the SHM name.

Examples

```
x <- share(rnorm(100))
sum(x)
```

shared_name *Extract Shared Memory Name*

Description

Extract the SHM region name from a shared object. This name can be passed to `map_shared()` to open the same region in another process.

Usage

```
shared_name(x)
```

Arguments

x	a shared object as returned by `share()` or `map_shared()`.

Value

A character string identifying the shared memory region, or the empty string `""` if `x` is not a shared object.

See Also

`map_shared()` to open a shared region by name.

Examples

```
x <- share(rnorm(100))
shared_name(x)
```

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