Package 'archive'

October 22, 2021

Title Multi-Format Archive and Compression Support

Description Bindings to 'libarchive' <http://www.libarchive.org> the
Multi-format archive and compression library. Offers R connections and direct
extraction for many archive formats including 'tar', 'ZIP', '7-zip', 'RAR',
'CAB' and compression formats including 'gzip', 'bzip2', 'compress', 'lzma'
and 'xz'.

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Depends R (>= 3.1.0)

Imports cli, glue, tibble, rlang

Suggests testthat,
covr

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Encoding UTF-8

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cpp11

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SystemRequirements C++11, libarchive: libarchive-dev (deb), libarchive-devel (rpm), libarchive
(homebrew), libarchive_dev (csw)

URL <https://archive.r-lib.org/>, <https://github.com/r-lib/archive>

ByteCompile true

BugReports <https://github.com/r-lib/archive/issues>

R topics documented:

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archive   *Construct a new archive*

Description

This function retrieves metadata about files in an archive, it can be passed to archive_read() or archive_write to create a connection to read or write a specific file from the archive.

Usage

```
archive(file, options = character())
```

Arguments

file	File path to the archive.
options	character() default: character(0) Options to pass to the filter or format. The list of available options are documented in options can have one of the following forms:

- option=value The option/value pair will be provided to every module. Modules that do not accept an option with this name will ignore it.
- option The option will be provided to every module with a value of "1".
- !option The option will be provided to every module with a NULL value.
- module:option=value, module:option, module:!option As above, but the corresponding option and value will be provided only to modules whose name matches module. See read options for available read options See write options for available write options

Value

@return A tibble with details about files in the archive.

See Also

archive_read(), archive_write() to read and write archive files using R connections, archive_extract(), archive_write_files(), archive_write_dir() to add or extract files from an archive.

Examples

```
a <- archive(system.file(package = "archive", "extdata", "data.zip"))
a
```

archive_extract	*Extract contents of an archive to a directory*

Description

Extract contents of an archive to a directory

Usage

```
archive_extract(
  archive,
  dir = ".",
  files = NULL,
  options = character(),
  strip_components = 0L
)
```

Arguments

archive   character(1) The archive filename or an archive object.

dir   character(1) Directory location to extract archive contents, will be created if
             it does not exist.

files   character() || integer() || NULL One or more files within the archive, spec-
             ified either by filename or by position.

options   character() default: character(0) Options to pass to the filter or format. The
             list of available options are documented in options can have one of the following
             forms:

- option=value The option/value pair will be provided to every module. Modules that do not accept an option with this name will ignore it.
- option The option will be provided to every module with a value of "1".
- !option The option will be provided to every module with a NULL value.
- module:option=value, module:option, module:!option As above, but the corresponding option and value will be provided only to modules whose name matches module. See read options for available read options See write options for available write options

strip_components
             Remove the specified number of leading path elements. Pathnames with fewer
             elements will be silently skipped.

Details

If files is NULL (the default) all files will be extracted.

Value

The filenames extracted (invisibly).

Examples

```
a <- system.file(package = "archive", "extdata", "data.zip")
d <- tempfile()

# When called with default arguments extracts all files in the archive.
archive_extract(a, d)
list.files(d)
unlink(d)

# Can also specify one or more files to extract
d <- tempfile()
archive_extract(a, d, c("iris.csv", "airquality.csv"))
list.files(d)
unlink(d)
```

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archive_read   *Create a readable connection to a file in an archive.*

Description

Create a readable connection to a file in an archive.

Usage

```
archive_read(
  archive,
  file = 1L,
  mode = "r",
  format = NULL,
  filter = NULL,
  options = character()
)
```

Arguments

archive   character(1) The archive filename or an archive object.

file   character(1) || integer(1) The filename within the archive, specified either
                by filename or by position.

mode   character(1) A description of how to open the connection (if it should be
                opened initially). See section 'Modes' in base::connections() for possible
                values.

format   character(1) default: NULL The archive format, one of '7zip', 'cab', 'cpio',
                'iso9660', 'lha', 'mtree', 'shar', 'rar', 'raw', 'tar', 'xar', 'zip', 'warc'.

filter   character(1) default: NULL The archive filter, one of 'none', 'gzip', 'bzip2',
                'compress', 'lzma', 'xz', 'uuencode', 'lzip', 'lrzip', 'lzop', 'grzip', 'lz4', 'zstd'.

options   character() default: character(0) Options to pass to the filter or format. The
                list of available options are documented in options can have one of the following
                forms:

                    • option=value The option/value pair will be provided to every module.
                      Modules that do not accept an option with this name will ignore it.
```

- option The option will be provided to every module with a value of "1".
- !option The option will be provided to every module with a NULL value.
- module:option=value, module:option, module:!option As above, but the corresponding option and value will be provided only to modules whose name matches module. See read options for available read options See write options for available write options

## Value

An 'archive_read' connection to the file within the archive to be read.

## Examples

```
a <- system.file(package = "archive", "extdata", "data.zip")
# Show files in archive
a

# By default reads the first file in the archive.
read.csv(archive_read(a), nrows = 3)

# Can also specify a filename directly
read.csv(archive_read(a, "mtcars.csv"), nrows = 3)

# Or by position
read.csv(archive_read(a, 3), nrows = 3)

# Explicitly specify the format and filter if automatic detection fails.
read.csv(archive_read(a, format = "zip"), nrows = 3)
```

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archive_write   *Create a writable connection to a file in an archive.*

Description

Create a writable connection to a file in an archive.

Usage

```
archive_write(
  archive,
  file,
  mode = "w",
  format = NULL,
  filter = NULL,
  options = character()
)
```

Arguments

archive   character(1) The archive filename or an archive object.

file   character(1) || integer(1) The filename within the archive, specified either by filename or by position.

mode	character(1) A description of how to open the connection (if it should be opened initially). See section 'Modes' in base::connections() for possible values.
format	character(1) default: NULL The archive format, one of '7zip', 'cab', 'cpio', 'iso9660', 'lha', 'mtree', 'shar', 'rar', 'raw', 'tar', 'xar', 'zip', 'warc'.
filter	character(1) default: NULL The archive filter, one of 'none', 'gzip', 'bzip2', 'compress', 'lzma', 'xz', 'uuencode', 'lzip', 'lrzip', 'lzop', 'grzip', 'lz4', 'zstd'.
options	character() default: character(0) Options to pass to the filter or format. The list of available options are documented in options can have one of the following forms:

- option=value The option/value pair will be provided to every module. Modules that do not accept an option with this name will ignore it.
- option The option will be provided to every module with a value of "1".
- !option The option will be provided to every module with a NULL value.
- module:option=value, module:option, module:!option As above, but the corresponding option and value will be provided only to modules whose name matches module. See read options for available read options See write options for available write options

Details

If format and filter are NULL, they will be set automatically based on the file extension given in file when writing and automatically detected using Robust automatic format detection when reading.

For traditional zip archives archive_write() creates a connection which writes the data to the specified file directly. For other archive formats the file size must be known when the archive is created, so the data is first written to a scratch file on disk and then added to the archive. This scratch file is automatically removed when writing is complete.

Value

An 'archive_write' connection to the file within the archive to be written.

Examples

```
# Archive format and filters can be set automatically from the file extensions.
f1 <- tempfile(fileext = ".tar.gz")

write.csv(mtcars, archive_write(f1, "mtcars.csv"))
archive(f1)
unlink(f1)


# They can also be specified explicitly
f2 <- tempfile()
write.csv(mtcars, archive_write(f2, "mtcars.csv", format = "tar", filter = "bzip2"))
archive(f2)
unlink(f2)


# You can also pass additional options to control things like compression level
f3 <- tempfile(fileext = ".tar.gz")
write.csv(mtcars, archive_write(f3, "mtcars.csv", options = "compression-level=2"))
archive(f3)
unlink(f3)
```

archive_write_dir   *Add files to a new archive*

Description

archive_write_files() adds one or more files to a new archive. archive_write_dir() adds all the file(s) in a directory to a new archive.

Usage

```
archive_write_dir(
  archive,
  dir,
  format = NULL,
  filter = NULL,
  options = character(),
  ...,
  recursive = TRUE,
  full.names = FALSE
)

archive_write_files(
  archive,
  files,
  format = NULL,
  filter = NULL,
  options = character()
)
```

Arguments

archive	character(1) The archive filename or an archive object.
dir	character(1) The directory of files to add.
format	character(1) default: NULL The archive format, one of '7zip', 'cab', 'cpio', 'iso9660', 'lha', 'mtree', 'shar', 'rar', 'raw', 'tar', 'xar', 'zip', 'warc'.
filter	character(1) default: NULL The archive filter, one of 'none', 'gzip', 'bzip2', 'compress', 'lzma', 'xz', 'uuencode', 'lzip', 'lrzip', 'lzop', 'grzip', 'lz4', 'zstd'.
options	character() default: character(0) Options to pass to the filter or format. The list of available options are documented in options can have one of the following forms:

- option=value The option/value pair will be provided to every module. Modules that do not accept an option with this name will ignore it.
- option The option will be provided to every module with a value of "1".
- !option The option will be provided to every module with a NULL value.
- module:option=value, module:option, module:!option As above, but the corresponding option and value will be provided only to modules whose name matches module. See read options for available read options See write options for available write options

...	additional parameters passed to base::dir.

recursive	logical. Should the listing recurse into directories?
full.names	a logical value. If TRUE, the directory path is prepended to the file names to give a relative file path. If FALSE, the file names (rather than paths) are returned.
files	character() One or more files to add to the archive.

Value

An 'archive' object representing the new archive (invisibly).

An 'archive' object representing the new archive (invisibly).

Examples

```
if (archive:::libarchive_version() > "3.2.0") {
# write some files to a directory
d <- tempfile()
dir.create(d)
old <- setwd(d)

write.csv(iris, file.path(d, "iris.csv"))
write.csv(mtcars, file.path(d, "mtcars.csv"))
write.csv(airquality, file.path(d, "airquality.csv"))

# Add some to a new archive
a <- archive_write_files("data.tar.gz", c("iris.csv", "mtcars.csv"))
setwd(old)
a

# Add all files in a directory
a <- archive_write_dir("data.zip", d)
a

unlink("data.zip")
}
```

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file_read	*Construct a connections for (possibly compressed) files.*

Description

They are functionally equivalent to calling archive_read or archive_write using format = "raw", archive = file.

Usage

```
file_read(file, mode = "r", filter = NULL, options = character())

file_write(file, mode = "w", filter = NULL, options = character())
```

Arguments

`file`	`character(1) || integer(1)` The filename within the archive, specified either by filename or by position.
`mode`	`character(1)` A description of how to open the connection (if it should be opened initially). See section 'Modes' in `base::connections()` for possible values.
`filter`	`character(1)` default: `NULL` The archive filter, one of 'none', 'gzip', 'bzip2', 'compress', 'lzma', 'xz', 'uuencode', 'lzip', 'lrzip', 'lzop', 'grzip', 'lz4', 'zstd'.
`options`	`character()` default: `character(0)` Options to pass to the filter or format. The list of available options are documented in options can have one of the following forms:

- `option=value` The option/value pair will be provided to every module. Modules that do not accept an option with this name will ignore it.
- `option` The option will be provided to every module with a value of "1".
- `!option` The option will be provided to every module with a NULL value.
- `module:option=value`, `module:option`, `module:!option` As above, but the corresponding option and value will be provided only to modules whose name matches module. See read options for available read options See write options for available write options

Details

`file_write()` returns an writable output connection, `file_read()` returns a readable input connection.

Value

An 'archive_read' connection (for `file_read()`) or an 'archive_write' connection (for `file_write()`) to the file.

Examples

```
if (archive:::libarchive_version() > "3.2.0") {
# Write bzip2, base 64 encoded data and use high compression
write.csv(mtcars,
  file_write("mtcars.bz2",
    filter = c("uuencode", "bzip2"),
    options = "compression-level=9"
  )
)

# Read it back
read.csv(file_read("mtcars.bz2"), row.names = 1, nrows = 3)
unlink("mtcars.bz2")
}
```

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