

Package ‘lazysf’

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Title Delayed Read for 'GDAL' Vector Data Sources

Version 0.2.0

Description Lazy read for drawings. A 'dplyr' back end for data sources supported by 'GDAL' vector drivers, that allows working with local or remote sources as if they are in-memory data frames. Basic features works with any drawing format ('GDAL vector data source') supported by the 'sf' package.

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Encoding UTF-8

RoxygenNote 7.3.2

Imports sf (>= 0.7-0), methods, DBI, tibble, dbplyr, magrittr, dplyr

URL <https://github.com/hypertidy/lazysf>,
<https://hypertidy.github.io/lazysf/>

BugReports <https://github.com/hypertidy/lazysf/issues>

Suggests knitr, rmarkdown

VignetteBuilder knitr

Collate 'SFSQLConnection.R' 'SFSQLDriver.R' 'SFSQLResult.R'
'connect.R' 'lazysf-package.R' 'lazysf.R' 'utils-pipe.R'
'zzz.R'

NeedsCompilation no

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dbConnect, SFSQLError-method
dbConnect

Description

dbConnect for drawings that may be read by package sf

Usage

```
## S4 method for signature 'SFSQLError'
dbConnect(drv, DSN = "", readonly = TRUE, ...)
```

Arguments

drv	SFSQLError created by SFSQLError()
DSN	data source name, may be a file, or folder path, database connection string, or URL
readonly	open in readonly mode (TRUE is the only option)
...	ignored

Details

The 'OGRSQL' available is documented with GDAL: https://gdal.org/user/ogr_sql_dialect.html

Examples

```
afile <- system.file("gpkg/nc.gpkg", package = "sf", mustWork = TRUE)
db <- dbConnect(SFSQLError(), afile)
dbSendQuery(db, 'SELECT * FROM "nc.gpkg"')
```

lazysf	<i>Delayed (lazy) read for GDAL vector</i>
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Description

A lazy data frame for GDAL drawings ('vector data sources'). lazysf is DBI compatible and designed to work with dplyr. It should work with any data source (file, url, connection string) readable by the sf package function sf_read.

Usage

```
lazysf(x, layer, ...)

## S3 method for class 'character'
lazysf(x, layer, ..., query = NA)

## S3 method for class 'SFSQLConnection'
lazysf(x, layer, ..., query = NA)
```

Arguments

x	the data source name (file path, url, or database connection string) • analogous to <code>sf::read_sf()</code> 'dsn')
layer	layer name (varies by driver, may be a file name without extension); in case layer is missing, <code>st_read</code> will read the first layer of dsn, give a warning and (unless <code>quiet = TRUE</code>) print a message when there are multiple layers, or give an error if there are no layers in dsn. If dsn is a database connection, then layer can be a table name or a database identifier (see Id). It is also possible to omit layer and rather use the query argument.
...	ignored
query	SQL query to pass in directly

Details

Lazy means that the usual behaviour of reading the entirety of a data source into memory is avoided. Printing the output results in a preview query being run and displayed (the top few rows of data).

The output of `lazysf()` is a `'tbl_SFSQLConnection'` that extends `tbl_dbi` and may be used with functions and workflows in the normal DBI way, see [SFSQL\(\)](#) for the lazysf DBI support.

The kind of query that may be run will depend on the type of format, see the list on the GDAL vector drivers page. For some details see the [GDALSf vignette](#).

When dplyr is attached the lazy data frame can be used with the usual verbs (filter, select, distinct, mutate, transmute, arrange, left_join, pull, collect etc.). To see the result as a SQL query rather than a data frame preview use `dplyr::show_query()`.

To obtain an in memory data frame use an explicit `collect()` or `st_as_sf()`. A call to `collect()` is triggered by `st_as_sf()` and will add the sf class to the output. A result may not contain a geometry column, and so cannot be converted to an sf data frame. Using `collect()` on its own returns an unclassed data.frame and may include a classed sfc geometry column.

As well as `collect()` it's also possible to use `tibble::as_tibble()` or `as.data.frame()` or `pull()` which all force computation and retrieve the result.

Value

a `'tbl_SFSQLConnection'`, extending `'tbl_lazy'` (something that works with dplyr verbs, and only shows a preview until you commit the result via [collect\(\)](#)) see Details

Examples

```
# online sources can work
geojson <- file.path("https://raw.githubusercontent.com/SymbolixAU",
                    "geojsonsf/master/inst/examples/geo_melbourne.geojson")

lazysf(geojson)

## normal file stuff
## (Geopackage is an actual database so with SELECT we must be explicit re geom-column)
f <- system.file("gpkg/nc.gpkg", package = "sf", mustWork = TRUE)
lazysf(f)
lazysf(f, query = "SELECT AREA, FIPS, geom FROM \"nc.gpkg\" WHERE AREA < 0.1")
lazysf(f, layer = "nc.gpkg") %>% dplyr::select(AREA, FIPS, geom) %>% dplyr::filter(AREA < 0.1)

## the famous ESRI Shapefile (not an actual database)
## so if we SELECT we must be explicit
shp <- lazysf(system.file("shape/nc.shp", package = "sf", mustWork = TRUE))
library(dplyr)
shp %>%
  filter(NAME %LIKE% 'A%') %>%
  mutate(abc = 1.3) %>%
  select(abc, NAME, `_ogr_geometry_`) %>%
  arrange(desc(NAME)) #>% show_query()

## a multi-layer file
system.file("extdata/multi.gpkg", package = "lazysf", mustWork = TRUE)
```

SFSQL

SFSQL

Description

SFSQL driver, use to `DBI::dbConnect()` to a data source readable by sf

Usage

```
SFSQL()
```

See Also

```
lazysf dbConnect
```

Examples

```
SFSQL()
```

st_as_sf*Force computation of a GDAL query*

Description

Convert lazysf to an in memory data frame or sf object

Usage

```
## S3 method for class 'tbl_SFSQLConnection'  
st_as_sf(x, ...)  
  
collect(x, ...)
```

Arguments

x	output of <code>lazysf()</code>
...	passed to <code>collect()</code>

Format

An object of class function of length 1.

Details

`collect()` retrieves data into a local table, preserving grouping and ordering.

`st_as_sf()` retrieves data into a local sf data frame (will succeed only if there is a geometry column of class sfc)

Value

a data frame from `collect()`, sf data frame from `st_as_sf()` (only if it contains an sfc geometry column)

See Also

`lazysf`

Examples

```
f <- system.file("gpkg/nc.gpkg", package = "sf", mustWork = TRUE)  
lsf <- lazysf(f) %>% dplyr::select(AREA, FIPS, geom) %>% dplyr::filter(AREA < 0.1)  
st_as_sf(lsf)
```

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