R documentation

of 'spatial_engine.Rd'

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spatial_engine *Wrapper functions for manipulation with non-raster objects*

Description

These wrappers return iniform properties or do consimilar manipulations for spatial objects of different types: simple features (package **sf**) and abstract class Spatial (package **sp**). Appropriate functionality (*"engine"*) of respective packages is used.

Usage

```
spatial_engine(obj, verbose = FALSE)

spatial_crs(obj, verbose = FALSE)
spatial_proj4(obj, verbose = FALSE)

spatial_crs(obj, verbose = FALSE) <- value
spatial_proj4(obj, verbose = FALSE) <- value

spatial_bbox(obj, verbose = FALSE)
spatial_bbox(obj, verbose = FALSE) <- value

spatial_data(obj, subset= ".+", drop = NA, verbose = FALSE)
spatial_data(obj, verbose = FALSE) <- value

spatial_geometry(obj, verbose = FALSE)
spatial_geometry(obj, verbose = FALSE) <- value

spatial_geotype(obj, verbose = FALSE)

spatial_transform(obj, crs, verbose = FALSE, ...)

spatial_coordinates(obj, verbose = FALSE)

spatial_fields(obj, verbose = FALSE)
```

```
spatial_area(obj, verbose = FALSE)

spatial_dim(obj, verbose = FALSE)

spatial_count(obj, verbose = FALSE)

spatial_filelist(obj, verbose = FALSE)

is_spatial(obj, verbose = FALSE)

is_spatial_points(obj, verbose = FALSE)
is_spatial_lines(obj, verbose = FALSE)
is_spatial_polygons(obj, verbose = FALSE)
```

Arguments

obj	Simple feature (package **sf**) or Spatial abstract class (package **sp**) for all functions, excepting `spatial_geometry<-`. Data frame for *Replace* function `spatial_geometry<-`.
crs	Projection EPSG code or projection PROJ.4 string.
subset	Pattern to field names (colnames) of attribute table (data frame) for subbsetting using `regular expressions`. By default, all fields are secected.
drop	Logical. Dropping column of data frame. If `TRUE`, then vector of data is returned. If `FALSE`, then structure of data is kept. Default is `NA`, which is interpreted as `TRUE` for single column and as `FALSE` for multiple columns.
value	Value for property assignment in *replacement* functions. Either numeric EPSG code or character PROJ.4 string for `spatial_crs<-` and `spatial_proj4<-`. Spatial object or geometry of spatial object for `spatial_geometry<-`.
verbose	Logical. Value `TRUE` provides information on console. Default is `FALSE`.
...	Further arguments passed to `sf::st_transform` or to `sp::spTransform`.

Value

`spatial_engine` returns package name (character string `"sf"` or `"sp"`), which functionality is used for manipulation with spatial object `obj`.

`spatial_crs` and `spatial_proj4` are synonyms, The *Extract* functions return projection string in the PROJ.4 notation; the *Replace* functions change projection property of the object.

`spatial_bbox` (*Extract* function) returns numeric vector of length 4 with names "xmin", "ymin", "xmax" and "ymax".

`spatial_bbox<-` (*Replace* function) assigns boundary bbox to the object; it is valid only for objects of Spatial abstract class (package **sp**).

`spatial_data` (*Extract* function) returns attribute table only, without geometry. Subsetting fields can be specified by argument `subset` using regular expressions. If `drop=TRUE` and selected single column then vector is returned instead of data frame.

`spatial_data<-` (*Replace* function) addes spatial data to the object geomerty. Source data (if presents) are droped.

`spatial_geometry` (*Extract* function) returns only geometry, which format is depended on class of `obj`.

`spatial_geometry<-` (*Replace* function) addes geometry to the object.

`spatial_transform` does a transformation of spatial coordinates to the new CRS and returns object of the same class as class of `obj`.

`spatial_geotype` returns type of spatial data: "POINTS", "LINESTRINGS", "POLYGON", "MULTIPOLYGON", ...

`spatial_coordinates` returns simpliefied matrix or list of coordinates of original object.

`spatial_filds` returns column names of spatial attributive table.

`spatial_area` is valid for polygonal geometry. It returns area of polygons.

`spatial_length` is valid for linear geometry. It returns length of lines.

`spatial_dim` gets dimension of spatial coordinates; it returns either `2L` (XY) or `3L` (XYZ).

`spatial_count` returns number of items of object geometry.

`spatial_filelist` returns list of files with file extensions, which are associated with certain GIS vector formats. The function's basis is `dir`.

`is_spatial` returns logical value does the object belong to the class of spatial data.

`is_spatial_points` returns logical value does the object have point geometry.

`is_spatial_lines` returns logical value does the object have (multi)linestring geometry.

`is_spatial_polygons` returns logical value does the object have (multi)polygonal geometry.

Author(s)

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References

Classes and methods in packages **sf** and **sp** help.

Examples

```
session_grid(NULL)
n <- 1e2
x <- runif(n,min=25,max=65)
y <- runif(n,min=55,max=65)
z <- runif(n,min=1,max=10)
da <- data.frame(x=x,y=y,z=z)
if (requireNamespace("sp")) {
   da.sp <- da
   sp::coordinates(da.sp) <- ~x+y
   sp::proj4string(da.sp) <- "+init=epsg:4326"
   print(spatial_bbox(da.sp))
   print(spatial_crs(da.sp))
}
if (requireNamespace("sf")) {
   da.sf <- sf::st_as_sf(da,coords=c("x","y"),crs=4326)
   print(spatial_bbox(da.sf))
   print(spatial_crs(da.sf))
}
```

Index