Package 'geoflow'

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Title Orchestrate Geospatial (Meta)Data Management Workflows and Manage FAIR Services

Description An engine to facilitate the orchestration and execution of metadata-driven data management workflows, in compliance with 'FAIR' (Findable, Accessible, Interoperable and Reusable) data management principles. By means of a pivot metadata model, relying on the 'DublinCore' standard (<https://dublincore.org/>), a unique source of metadata can be used to operate multiple and inter-connected data management actions. Users can also customise their own workflows by creating specific actions but the library comes with a set of native actions targeting common geographic information and data management, in particular actions oriented to the publication on the web of metadata and data resources to provide standard discovery and access services. At first, default actions of the library were meant to focus on providing turn-key actions for geospatial (meta)data: 1) by creating manage geospatial (meta)data complying with 'ISO/TC211' (<https://committee.iso.org/home/tc211>) and 'OGC' (<https://www.ogc.org/standards/>) geographic information standards (eg 19115/19119/19110/19139) and related best practices (eg. 'INSPIRE'); and 2) by facilitating extraction, reading and publishing of standard geospatial (meta)data within widely used software that compound a Spatial Data Infrastructure ('SDI'), including spatial databases (eg. 'PostGIS'), metadata catalogues (eg. 'GeoNetwork', 'CSW' servers), data servers (eg. 'GeoServer'). The library was then extended to actions for other domains: 1) biodiversity (meta)data standard management including handling of 'EML' metadata, and their management with 'DataOne' servers, 2) in situ sensors, remote sensing and model outputs (meta)data standard management by handling part of 'CF' conventions, 'NetCDF' data format and 'OPeNDAP' access protocol, and their management with 'Thredds' servers, 3) generic / domain agnostic (meta)data standard managers ('DublinCore', 'DataCite'), to facilitate the publication of data within (meta)data repositories such as 'Zenodo' (<https://zenodo.org>) or DataVerse (<https://dataverse.org/>). The execution of several actions will then allow to cross-reference (meta)data resources in each action performed, offering a way to bind resources

between each other (eg. reference 'Zenodo' 'DOI' in 'GeoNetwork'/'GeoServer' metadata, or vice versa reference 'GeoNetwork'/'GeoServer' links in 'Zenodo' or 'EML' metadata). The use of
standardized configuration files ('JSON' or 'YAML' formats) allow fully reproducible workflows to facilitate the work of data and information managers.

Maintainer Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Depends R (>= 3.3)

Imports R6, methods, dotenv, benchmarkme, httr, mime, jsonlite, yaml, XML, xml2, rdflib, curl, whisker, digest, dplyr, readr, arrow, zip, png, uuid, sf, sfarrow, lwgeom, smoothr, terra, geometa (>= 0.9), geosapi (>= 0.8), geonapi (>= 0.8-1), geonode4R (>= 0.1-2), ows4R (>= 0.5)

Suggests testthat, readxl, gsheet, googledrive, DBI, rapiclient, RMariaDB, RPostgres, RPostgreSQL, RSQLite, ncdf4, thredds, EML, emld, datapack, dataone, rgbif, ocs4R (>= 0.3), zen4R (>= 0.10.4), atom4R (>= 0.3-4), d4storagehub4R (>= 0.4-5), rmarkdown, dataverse, blastula, waldo

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URL https://github.com/r-geoflow/geoflow

BugReports https://github.com/r-geoflow/geoflow/issues

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Contents

`add_config_logger` *add_config_logger*

Description

`add_config_logger` enables a logger (managed with the internal class geoflowLogger).

Usage

```
add_config_logger(config)
```

Arguments

`config`	object of class list

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`bbox_to_sf` *bbox_to_sf*

Description

Creates a **sf** object out of a bounding box

Usage

```
bbox_to_sf(xmin, ymin, xmax, ymax, crs = 4326)
```

Arguments

`xmin`	xmin
`ymin`	ymin
`xmax`	xmax
`ymax`	ymax
`crs`	Defaut is 4326

Value

an object of class `sf`

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

`build_hierarchical_list` *build_hierarchical_list*

Description

build_hierarchical_list

Usage

```
build_hierarchical_list(parent, relationships)
```

Arguments

`parent`	parent
`relationships`	relationships

Value

a hierarchical list

check_packages *check_packages*

Description

check_packages checks availability of a list of R packages in R. This function is essentially used internally by **geoflow** in assocation to geoflow_software and geoflow_action that would need specific packages to be imported in R.

Usage

```
check_packages(pkgs)
```

Arguments

pkgs	a vector of package names

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

closeWorkflow *closeWorkflow*

Description

closeWorkflow allows to close a workflow

Usage

```
closeWorkflow(config)
```

Arguments

config	a configuration object as read by closeWorkflow

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`create_geoflow_data_from_dbi` *create_geoflow_data_from_dbi*

Description

create_geoflow_data_from_dbi

Usage

```
create_geoflow_data_from_dbi(dbi, schema, table)
```

Arguments

`dbi`	a dbi connection
`schema`	schema
`table`	table

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`create_object_identification_id` *create_object_identification_id*

Description

create_object_identification_id

Usage

```
create_object_identification_id(prefix, str)
```

Arguments

`prefix`	a character string
`str`	a character string

Value

a digested character string

debugWorkflow *debugWorkflow*

Description

debugWorkflow allows to initiate a workflow job for developers to work / debug on workflow actions.

Usage

```
debugWorkflow(file, dir, entityIndex, copyData, runSoftwareActions, runLocalActions)
```

Arguments

file	configuration file
dir	directory where to debug/execute the workflow
entityIndex	index of the entity within the list of loaded entities. Default is 1
copyData	whether data should be downloaded/copied to job data directory. Default is TRUE.
runSoftwareActions	whether software actions should be run. Default is TRUE.
runLocalActions	whether entity data local actions (if any) should be run. Default is TRUE

Value

a named list including the workflow config, the selected entity, the eventual options associated to the entity, and the output entity dir path of the selected entity.

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

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describeOGCRelation *describeOGCRelation*

Description

describeOGCRelation

Usage

```
describeOGCRelation(entity, data_object, service, download, format,
                    handle_category, handle_ogc_service_description, handle_format)
```

Arguments

entity	the entity considered
data_object	data object
service	service acronym
download	whether the relation should be a download one or not
format	format
handle_category	append the relation category
handle_ogc_service_description	append the OGC service description
handle_format	append the download format

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

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enrich_text_from_entity

enrich_text_from_entity

Description

enrich_text_from_entity will attempt to enrich an entity text property from other entity metadata, depending on text variables handled by a pattern in the form

- If the entity property is a text, only the name of the property name is required.

- If the entity property is a list, then 2 subcases can be distinguished:

If it is a named list (such as entity descriptions), the text variable will be compound by the entity property name and the element_property name, in the form

If it is a unnamed list (such as list of keywords, list of relations, etc), the text variable will handle four elements: property (entity property name to look at), a key value pair to use for search within the list, an element_property for which the value should be picked up to enrich the text. The variable willbe in the form

Usage

```
enrich_text_from_entity(str, entity)
```

Arguments

str	a text to be enriched
entity	an object of class geoflow_entity

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

executeWorkflow *executeWorkflow*

Description

executeWorkflow allows to execute a workflow

Usage

```
executeWorkflow(file, dir, queue,
                      on_initWorkflowJob, on_initWorkflow, on_closeWorkflow,
                      monitor, session)
```

Arguments

file	a JSON geoflow configuration file
dir	a directory where to execute the workflow
queue	an **ipc** queue to use geoflow in **geoflow-shiny**
on_initWorkflowJob	a function to trigger once initWorkflowJob is executed
on_initWorkflow	a function to trigger once initWorkflow is executed
on_closeWorkflow	a function to trigger once closeWorkflow is executed
monitor	a monitor function to increase progress bar
session	a **shiny** session object (optional) to run geoflow in a **shiny** context

Value

the path of the job directory

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

executeWorkflowJob *executeWorkflowJob*

Description

executeWorkflowJob allows to execute a workflow job

Usage

```
executeWorkflowJob(config, jobdir, queue, monitor)
```

Arguments

config	a configuration object as read by initWorkflow
jobdir	the Job directory. Optional, by default inherited with the configuration.
queue	an **ipc** queue to use geoflow in **geoflow-shiny**
monitor	a monitor function to increase progress bar

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

extract_cell_components
extract_cell_components

Description

extract_cell_components extracts the components of a cell when using tabular data content handlers (for entity and contact).

Usage

```
extract_cell_components(str)
```

Arguments

str	a string as object of class character

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`extract_kvp` *extract_kvp*

Description

`extract_kvp` parses a string into a key value pair represented by a `geoflow_kvp` object.

Usage

```
extract_kvp(str)
```

Arguments

`str`	a string as object of class `character`

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`extract_kvps` *extract_kvps*

Description

`extract_kvp` parses a string into a key value pair represented by a `geoflow_kvp` object.

Usage

```
extract_kvps(strs, collapse)
```

Arguments

`strs`	a string as object of class `character`
`collapse`	collapse by. Default is `NULL`

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`fetch_layer_styles_from_dbi` *fetch_layer_styles_from_dbi*

Description

fetch_layer_styles_from_dbi

Usage

```
fetch_layer_styles_from_dbi(entity, dbi, schema, table)
```

Arguments

`entity`	a geoflow_entity to be used and enriched
`dbi`	a dbi connection
`schema`	schema
`table`	table

Value

the entity, enriched with layer styles

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`filter_sf_by_cqlfilter` *filter_sf_by_cqlfilter*

Description

`filter_sf_by_cqlfilter` filters an object of class `sf` using a CQL syntax. This function is minimalistic and only basic CQL filters are supported.

Usage

```
filter_sf_by_cqlfilter(sfdata, cqlfilter)
```

Arguments

`sfdata`	object of class `sf`
`cqlfilter`	object of class `character` representing a CQL filter

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`geoflow` *Tools to Orchestrate and Run (Meta)Data Management Workflows*

Description

Provides an engine to manage Spatial Data Infrastructures (SDI) and to orchestrate, run and automate geospatial (meta)data workflows in compliance with international standards (ISO, OGC, INSPIRE) with a range of actions such as data upload in spatial databases, publication in GeoServer and metadata publication in GeoNetwork. It includes actions to manage domain-specific resources usch ecological metadata (EML) and its publication on tools such as Metacat. It also allows to publish data on cloud data infrastructures such as Zenodo or Dataverse. Through a pivot metadata model, geoflow allows to manage a unique source dataset metadata while offering a way to target various repositories for their publication. The execution of several actions will allow to cross-share (meta)data resources in each action performed, offering a way to bind resources between each other (eg. reference Zenodo DOIS in Geonetwork/Geoserver metadata, reference Geonetwork/Geoserver links in Zenodo or EML metadata). The use of standardized configuration files allows fully reproducible workflows, in compliance with FAIR (Findable, Accessible, Interoperable, Reusable) principles.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

See Also

Useful links:

- https://github.com/r-geoflow/geoflow
- Report bugs at https://github.com/r-geoflow/geoflow/issues

`geoflowLogger` *geoflowLogger*

Description

geoflowLogger

geoflowLogger

Format

R6Class object.

Value

Object of R6Class for modelling a simple logger

Public fields

verbose verbose

debug debug

Methods

Public methods:

- geoflowLogger$separator()
- geoflowLogger$INFO()
- geoflowLogger$WARN()
- geoflowLogger$ERROR()
- geoflowLogger$DEBUG()
- geoflowLogger$new()
- geoflowLogger$clone()

Method separator(): Util to separate chunks of logs of different natures

Usage:

```
geoflowLogger$separator(char)
```

Arguments:

char A character to be used, eg '='

Method INFO(): Prints an INFO logger message

Usage:

```
geoflowLogger$INFO(txt, ...)
```

Arguments:

txt logger message

... values to be passed into txt. See sprintf

Method WARN(): Prints an WARN logger message

Usage:

```
geoflowLogger$WARN(txt, ...)
```

Arguments:

txt logger message

... values to be passed into txt. See sprintf

Method ERROR(): Prints an ERROR logger message

Usage:

```
geoflowLogger$ERROR(txt, ...)
```

Arguments:

`txt` logger message

`...` values to be passed into txt. See sprintf

Method `DEBUG()`**:** Prints an DEBUG logger message

Usage:

```
geoflowLogger$DEBUG(txt, ...)
```

Arguments:

`txt` logger message

`...` values to be passed into txt. See sprintf

Method `new()`**:** Initializes an object of class geoflowLogger

Usage:

```
geoflowLogger$new(verbose = TRUE, debug = FALSE)
```

Arguments:

`verbose` `TRUE` if the logger is enabled, `FALSE` otherwise. Default is `TRUE`

`debug` `TRUE` if the debugger is enabled, `FALSE` otherwise. Default is `FALSE`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflowLogger$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Note

Logger class used internally by geoflow

`geoflow_action` *Geoflow action class*

Description

This class models an action to be executed by geoflow

Format

`R6Class` object.

Details

geoflow_action

Value

Object of `R6Class` for modelling an action

Super class

geoflow::geoflowLogger -> geoflow_action

Public fields

id action ID

enabled enabled

funders funders

authors authors

maintainer maintainer

scope action scope

types types of action

def the action definition

target the action target

target_dir the action target directory

packages list of packages required to perform the action

pid_generator a name referencing the PID generator (if existing)

pid_types types of PIDs to generate

generic_uploader whether the action is a generic uploader or not.

fun a function for the action

script a script for the action

options action options

available_options a list of available options for the actions

status status

notes notes

Methods

Public methods:

- geoflow_action$new()
- geoflow_action$fromYAML()
- geoflow_action$checkPackages()
- geoflow_action$run()
- geoflow_action$getOption()
- geoflow_action$isPIDGenerator()
- geoflow_action$exportPIDs()
- geoflow_action$isGenericUploader()
- geoflow_action$clone()

Method new(): Initialize a geoflow_action

Usage:

```
geoflow_action$new(
  yaml = NULL,
  id = NULL,
  enabled = TRUE,
  funders = list(),
  authors = list(),
  maintainer = NULL,
  scope = "global",
  types = list(),
  def = "",
  target = NA,
  target_dir = NA,
  packages = list(),
  pid_generator = NULL,
  pid_types = list(),
  generic_uploader = FALSE,
  fun = NULL,
  script = NULL,
  options = list(),
  available_options = list(),
  status = "stable",
  notes = ""
)
```

Arguments:

`yaml` a yaml file

`id` action id

`enabled` enabled

`funders` funders

`authors` authors

`maintainer` maintainer

`scope` action scope "global" or "local"

`types` action types

`def` action definition

`target` the action target, e.g. "entity"

`target_dir` the action target directory

`packages` list of packages required to perform the action

`pid_generator` a name referencing the PID generator (if existing)

`pid_types` types of PIDs to generate by the action

`generic_uploader` whether the action is a generic uploader or not.

`fun` action function

`script` action script

`options` action options

`available_options` available options for the action

`status` status of the action (experimental, stable, deprecated, superseded)

`notes` notes

Method `fromYAML()`**:** Reads action properties from YAML file

Usage:

```
geoflow_action$fromYAML(file)
```

Arguments:

`file` file

Method `checkPackages()`**:** Check that all packages required for the action are available, if yes, import them in the R session, and return a `data.frame` giving the packages names and version. If one or more packages are unavailable, an error is thrown and user informed of the missing packages.

Usage:

```
geoflow_action$checkPackages()
```

Method `run()`**:** Runs the action

Usage:

```
geoflow_action$run(entity, config)
```

Arguments:

`entity` entity

`config` config

Method `getOption()`**:** Get action option value

Usage:

```
geoflow_action$getOption(option)
```

Arguments:

`option` option id

Returns: the option value, either specified through a workflow, or the default value

Method `isPIDGenerator()`**:** Indicates if the action is PID generator

Usage:

```
geoflow_action$isPIDGenerator()
```

Returns: `TRUE` if the action is a PID generator, `FALSE` otherwise

Method `exportPIDs()`**:** Exports PIDs for the action. This function will export the PIDs in several ways. First, a simple CSV file including the list of PIDs for each entity, and associated status (eg. draft/release) for the given PID resource. In addition, for each metadata entities file, an equivalent metadata table will be produced as CSV to handle entities enriched with the PID (added in the "Identifier" column), ready for use as workflow entities input. In addition, a new configuration file will be produced with name "<pid_generator>_geoflow_config_for_publication.json" turned as ready for publishing resources with PIDs (eg. publishing deposits in Zenodo).

Usage:

```
geoflow_action$exportPIDs(config, entities)
```

Arguments:

`config` a **geoflow** configuration

`entities` one or more objects of class geoflow_entity

Method `isGenericUploader()`**:** Indicates if the action is a generic uploader

Usage:

```
geoflow_action$isGenericUploader()
```

Returns: `TRUE` if the action is a generic uploader, `FALSE` otherwise

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_action$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  action <- geoflow_action$new(
    id = "some-id",
    scope = "global",
    types = list("some purpose1", "some purpose2"),
    target = "entity",
    target_dir = "data",
    def = "some definition",
    packages = list(),
    pid_generator = NULL,
    generic_uploader = FALSE,
    fun = function(action, entity, config){},
    available_options = list(
      option_name = list(def = "option description", default = FALSE)
    ),
    options = list(option_name = TRUE)
 )

## End(Not run)
```

---

geoflow_contact *Geoflow contact class*

Description

This class models a contact to be executed by geoflow

Format

R6Class object.

Details

geoflow_contact

Value

Object of R6Class for modelling a contact

Public fields

`id` contact identifier

`firstName` contact first name

`lastName` contact lastname

`organizationName` contact organization

`positionName` contact position

`role` contact role

`voice` contact phone number

`facsimile` contact facsimile

`email` contact email

`websiteUrl` contact website URL

`websiteName` contact website name

`postalAddress` contact postal address

`postalCode` contact postal code

`city` contact city

`country` contact country

`identifiers` contact identifiers

Methods

Public methods:

- `geoflow_contact$new()`
- `geoflow_contact$setShinyEditorMode()`
- `geoflow_contact$getShinyEditorMode()`
- `geoflow_contact$getAllowedKeyValuesFor()`
- `geoflow_contact$setIdentifier()`
- `geoflow_contact$setId()`
- `geoflow_contact$setFirstName()`
- `geoflow_contact$setLastName()`
- `geoflow_contact$setOrganizationName()`

- geoflow_contact$setPositionName()
- geoflow_contact$setRole()
- geoflow_contact$setVoice()
- geoflow_contact$setFacsimile()
- geoflow_contact$setEmail()
- geoflow_contact$setWebsiteUrl()
- geoflow_contact$setWebsiteName()
- geoflow_contact$setPostalAddress()
- geoflow_contact$setPostalCode()
- geoflow_contact$setCity()
- geoflow_contact$setCountry()
- geoflow_contact$asDataFrame()
- geoflow_contact$clone()

Method `new()`**:** Initializes a geoflow_contact object

Usage:

```
geoflow_contact$new()
```

Method `setShinyEditorMode()`**:** Set mode for geoflow-shiny

Usage:

```
geoflow_contact$setShinyEditorMode(mode = c("creation", "edition"))
```

Arguments:

`mode` mode

Method `getShinyEditorMode()`**:** Get mode for geoflow-shiny

Usage:

```
geoflow_contact$getShinyEditorMode()
```

Returns: the shiny editor mode

Method `getAllowedKeyValuesFor()`**:** Retrieves keys allowed for a given tabular field name. eg. "Identifier"

Usage:

```
geoflow_contact$getAllowedKeyValuesFor(field)
```

Arguments:

`field` field name

Returns: the list of valid keys for the field considered

Method `setIdentifier()`**:** Sets an identifier by means of key

Usage:

```
geoflow_contact$setIdentifier(key = "id", id)
```

Arguments:

`key` an identifier key. Default is "id"

`id` the identifier

Method `setId()`: Sets an "id" identifier

Usage:

```
geoflow_contact$setId(id)
```

Arguments:

`id` the identifier

Method `setFirstName()`: Sets contact first name

Usage:

```
geoflow_contact$setFirstName(firstName)
```

Arguments:

`firstName` contact first name

Method `setLastName()`: Sets contact last name

Usage:

```
geoflow_contact$setLastName(lastName)
```

Arguments:

`lastName` contact last name

Method `setOrganizationName()`: Sets contact organization name

Usage:

```
geoflow_contact$setOrganizationName(organizationName)
```

Arguments:

`organizationName` contact organization name

Method `setPositionName()`: Sets contact position name

Usage:

```
geoflow_contact$setPositionName(positionName)
```

Arguments:

`positionName` contact position name

Method `setRole()`: Sets contact role

Usage:

```
geoflow_contact$setRole(role)
```

Arguments:

`role` the contact role

Method `setVoice()`: Sets contact voice (phone number)

Usage:

```
geoflow_contact$setVoice(voice)
```

Arguments:

`voice` contact voice (phone number)

Method `setFacsimile()`: Sets contact facsimile

Usage:

```
geoflow_contact$setFacsimile(facsimile)
```

Arguments:

`facsimile` contact facsimile

Method `setEmail()`: Sets contact email

Usage:

```
geoflow_contact$setEmail(email)
```

Arguments:

`email` contact email

Method `setWebsiteUrl()`: Sets contact website URL

Usage:

```
geoflow_contact$setWebsiteUrl(websiteUrl)
```

Arguments:

`websiteUrl` contact website URL

Method `setWebsiteName()`: Sets contact website name

Usage:

```
geoflow_contact$setWebsiteName(websiteName)
```

Arguments:

`websiteName` contact website name

Method `setPostalAddress()`: Sets the contact postal address

Usage:

```
geoflow_contact$setPostalAddress(postalAddress)
```

Arguments:

`postalAddress` contact postal address

Method `setPostalCode()`: Sets the contact postal code

Usage:

```
geoflow_contact$setPostalCode(postalCode)
```

Arguments:

`postalCode` contact postalCode

Method `setCity()`: Sets the contact city

Usage:

```
geoflow_contact$setCity(city)
```

Arguments:

`city` contact city

Method `setCountry()`**:** Sets the contact country

Usage:

```
geoflow_contact$setCountry(country)
```

Arguments:

`country` contact country

Method `asDataFrame()`**:** Methods to export the geoflow_contact as `data.frame` using key-based syntax.

Usage:

```
geoflow_contact$asDataFrame(line_separator = NULL)
```

Arguments:

`line_separator` a line separator. By default, the default line separator will be used.

Returns: an object of class `data.frame` giving the entities using key-based syntax

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_contact$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  contact <- geoflow_contact$new()
  contact$setId("john.doe@nowhere.org")
  contact$setFirstName("John")
  contact$setLastName("Doe")
  contact$setOrganizationName("Nowhere")
  contact$setPositionName("Wizard")
  contact$setRole("Manager")
  contact$setVoice("+9999000000000")
  contact$setFacsimile("+9999000000001")
  contact$setEmail("john.doe@nowhere.org")
  contact$setWebsiteUrl("www.nowhere.org")
  contact$setWebsiteName("Nowhere Inc.")
  contact$setPostalAddress("Nowhere street")
  contact$setPostalCode("Nowhere code")
  contact$setCity("Nowhere city")
  contact$setCountry("Nowhere country")

## End(Not run)
```

`geoflow_data` *Geoflow data class*

Description

This class models a data object

Format

`R6Class` object.

Details

geoflow_data

Value

Object of `R6Class` for modelling a data object

Public fields

`dir` an object of class `character` giving a data directory

`data` list of object of class geoflow_data in case we point to a data directory

`restricted` indicates whether the data is under restricted access or not

`access` accessor key for accessing sources. Default is 'default'

`source` source

`sourceFid` sourceFid

`sourceSql` sourceSql

`sourceType` source type

`sourceZip` create a zip for the sources (DEPRECATED with #344)

`sourceZipOnly` create a zip only for the sources, remove source files (DEPRECATED with #344)

`sql` sql

`upload` upload

`uploadSource` upload source name

`uploadType` upload type

`cqlfilter` CQL filter for filtering data

`workspaces` workspaces

`store` store

`layername` layer name

`layertitle` layer title

`layerdesc` layer description

`layeruri` layer URI layeruri layer URI

`styles` styles

`styleUpload` upload styles

`dimensions` dimensions

`cloud_path` a relative path in a cloud storage (e.g., OCS)

`spatialRepresentationType` spatial representation type eg. "vector", "grid"

`ogc_dimensions` OGC dimensions

`features` features

`parameters` parameters

`geometryField` geometry field

`geometryType` geometry type

`featureType` feature type name

`featureTypeObj` feature type object

`attributes` attributes

`variables` variables

`coverages` coverages

`envelopeCompositionType` envelope composition type (for coverages)

`selectedResolution` selected resolution (for coverages)

`selectedResolutionIndex` selected resolution index (for coverages)

`bands` list of bands

`actions` local actions

`run` whether to run local actions

Methods

Public methods:

- `geoflow_data$new()`
- `geoflow_data$getDir()`
- `geoflow_data$getData()`
- `geoflow_data$getAllowedSourceValues()`
- `geoflow_data$setAccess()`
- `geoflow_data$getAllowedSourceTypes()`
- `geoflow_data$setSourceType()`
- `geoflow_data$getAllowedGeomPossibleNames()`
- `geoflow_data$getAllowedXPossibleNames()`
- `geoflow_data$getAllowedYPossibleNames()`
- `geoflow_data$addSource()`
- `geoflow_data$setSource()`
- `geoflow_data$setSourceFid()`
- `geoflow_data$setSourceSql()`

- geoflow_data$setSourceZip()
- geoflow_data$setSourceZipOnly()
- geoflow_data$setUploadSource()
- geoflow_data$getAllowedUploadTypes()
- geoflow_data$setUploadType()
- geoflow_data$setUpload()
- geoflow_data$setStyleUpload()
- geoflow_data$setSql()
- geoflow_data$setCqlFilter()
- geoflow_data$setWorkspace()
- geoflow_data$setStore()
- geoflow_data$setDatastore()
- geoflow_data$setLayername()
- geoflow_data$setLayertitle()
- geoflow_data$setLayerdesc()
- geoflow_data$setLayeruri()
- geoflow_data$addStyle()
- geoflow_data$addDimension()
- geoflow_data$setCloudPath()
- geoflow_data$getAllowedSpatialRepresentationTypes()
- geoflow_data$setSpatialRepresentationType()
- geoflow_data$setOgcDimensions()
- geoflow_data$setFeatures()
- geoflow_data$setParameter()
- geoflow_data$setGeometryField()
- geoflow_data$setGeometryType()
- geoflow_data$setFeatureType()
- geoflow_data$setFeatureTypeObj()
- geoflow_data$setAttributes()
- geoflow_data$setVariables()
- geoflow_data$setCoverages()
- geoflow_data$getAllowedEnvelopeCompositionTypes()
- geoflow_data$setEnvelopeCompositionType()
- geoflow_data$setSelectedResolution()
- geoflow_data$setSelectedResolutionIndex()
- geoflow_data$setBand()
- geoflow_data$addAction()
- geoflow_data$checkSoftwareProperties()
- geoflow_data$clone()

Method `new()`**:** Initializes an object of class geoflow_data

Usage:

```
geoflow_data$new(str = NULL, config = NULL)
```

Arguments:

`str` character string to initialize from, using key-based syntax

`config` a geoflow config, if available and needed

Method `getDir()`**:** Get data directory where datasets are scanned to build `geoflow_data` objects

Usage:

```
geoflow_data$getDir()
```

Returns: an object of class `character`

Method `getData()`**:** Get a lis tof `geoflow_data` objects built from a directory

Usage:

```
geoflow_data$getData()
```

Returns: a list of objects of class `geoflow_data`

Method `getAllowedSourceValues()`**:** Get allowed source values

Usage:

```
geoflow_data$getAllowedSourceValues()
```

Returns: a vector of class `character`

Method `setAccess()`**:** Set accessor id. See `list_data_accessors()` for available accessors

Usage:

```
geoflow_data$setAccess(access)
```

Arguments:

`access` a data data accessor id

Method `getAllowedSourceTypes()`**:** Get allowed source types

Usage:

```
geoflow_data$getAllowedSourceTypes()
```

Returns: a vector of class `character`

Method `setSourceType()`**:** Set the source type. The source type is a simplification of the data mime type and is used to identify the type of source set for the data object. By default it is assumed to be "other" (undefined). The source types currently allowed in geoflow can be listed with `$getAllowedSourcedTypes()`.

Usage:

```
geoflow_data$setSourceType(sourceType)
```

Arguments:

`sourceType` source type

Method `getAllowedGeomPossibleNames()`**:** Get allowed Geometry possible names for coercing data to **sf** objects

Usage:

```
geoflow_data$getAllowedGeomPossibleNames()
```

Arguments:

`list` of geom possible names

Method `getAllowedXPossibleNames()`**:** Get allowed X possible names for coercing data to **sf** objects

Usage:

```
geoflow_data$getAllowedXPossibleNames()
```

Arguments:

`list` of X possible names

Method `getAllowedYPossibleNames()`**:** Get allowed Y possible names for coercing data to **sf** objects

Usage:

```
geoflow_data$getAllowedYPossibleNames()
```

Arguments:

`list` of Y possible names

Method `addSource()`**:** Add source, object of class `"character"` (single source)

Usage:

```
geoflow_data$addSource(source)
```

Arguments:

`source` source

Method `setSource()`**:** Set source, object of class `"character"` (single source), or `list`. For spatial source, a single source will be used, while for sources of type 'other' (eg PDF files), multiple sources can be specified

Usage:

```
geoflow_data$setSource(source)
```

Arguments:

`source` source

Method `setSourceFid()`**:** Set source FID, object of class `"character"` (single source FID), or `list`.

Usage:

```
geoflow_data$setSourceFid(sourceFid)
```

Arguments:

`sourceFid` sourceFid

Method `setSourceSql()`**:** This is a convenience method for users that want to specify directly a SQL source. This method is called internally when a source SQL file has been set using `setSource`

Usage:

```
geoflow_data$setSourceSql(sourceSql)
```

Arguments:

`sourceSql` a source SQL query

Method `setSourceZip()`**:** Sets whether a zipped version of the data file(s) should be created from source files. Default is `FALSE`

Usage:

```
geoflow_data$setSourceZip(sourceZip)
```

Arguments:

`sourceZip` zip sources, object of class `logical`

Method `setSourceZipOnly()`**:** Sets whether a zipped version of the data file(s) only should be created from source files. Default is `FALSE`

Usage:

```
geoflow_data$setSourceZipOnly(sourceZipOnly)
```

Arguments:

`sourceZipOnly` zip sources only, object of class `logical`

Method `setUploadSource()`**:** Set the source to upload in output software, alternative to the source. If leave empty, the source will be used as uploadSource. A typical use case is when we want to get a CSV source to import in a database, and use the dbtable (or view/query) as upload source for publication in software like geoserver.

Usage:

```
geoflow_data$setUploadSource(uploadSource)
```

Arguments:

`uploadSource` upload source

Method `getAllowedUploadTypes()`**:** Get allowed upload types

Usage:

```
geoflow_data$getAllowedUploadTypes()
```

Returns: the list of allowed upload types

Method `setUploadType()`**:** The upload type is a simplification of the data mime type and is used to identify the type of data uploaded. By default it is assumed to be "other" (undefined). The upload types currently allowed in geoflow can be listed with `$getAllowedUploadTypes()`.

Usage:

```
geoflow_data$setUploadType(uploadType)
```

Arguments:

`uploadType` upload type

Method `setUpload()`**:** Set whether the source data should be uploaded to the sofware output declared in the geoflow configuration or not. By default it is assumed that upload should be performed (upload `TRUE`).

Usage:

```
geoflow_data$setUpload(upload)
```

Arguments:

`upload` upload

Method `setStyleUpload()`**:** Set whether styles in source data should be uploaded, by default `TRUE`

Usage:

```
geoflow_data$setStyleUpload(styleUpload)
```

Arguments:

`styleUpload` style upload

Method `setSql()`**:** Sets SQL for publication purpose.

Usage:

```
geoflow_data$setSql(sql)
```

Arguments:

`sql` sql

Method `setCqlFilter()`**:** Sets a CQL filter. In case of spatial data, once the data is read by geoflow (during initialization phase), the CQL filter will be applied to the data.

Usage:

```
geoflow_data$setCqlFilter(cqlfilter)
```

Arguments:

`cqlfilter` CQL filter

Method `setWorkspace()`**:** Sets a workspace name, object of class `character`. A workspace must target a valid software type, object of class `character`, to be declared as first argument of this function, assuming the corresponding software is declared in the geoflow configuration.

Usage:

```
geoflow_data$setWorkspace(software_type, workspace)
```

Arguments:

`software_type` sotware type where the workspace is identifier

`workspace` workspace name

Method `setStore()`**:** Sets a data/coverage store name, object of class `character`. Used as target data/coverage store name for GeoServer action.

Usage:

```
geoflow_data$setStore(store)
```

Arguments:

`store` store

Method `setDatastore()`**:** Sets a datastore name, object of class `character`. Used as target datastore name for GeoServer action. DEPRECATED, use `setStore`

Usage:

```
geoflow_data$setDatastore(datastore)
```

Arguments:

`datastore` datastore

Method `setLayername()`**:** Sets a layername, object of class `character`. Used as target layer name for Geoserver action.

Usage:

```
geoflow_data$setLayername(layername)
```

Arguments:

`layername` layername

Method `setLayertitle()`**:** Sets a layer title, object of class `character`. If available, used as target layer title in SDI-related action.

Usage:

```
geoflow_data$setLayertitle(layertitle)
```

Arguments:

`layertitle` layertitle

Method `setLayerdesc()`**:** Sets a layer description, object of class `character`. If available, used as target layer description/abstract in SDI-related actions.

Usage:

```
geoflow_data$setLayerdesc(layerdesc)
```

Arguments:

`layerdesc` layerdesc

Method `setLayeruri()`**:** Sets a layer URI, object of class `character`. If available, used as annotating URI for layer metadata (eg. in ISO 19115 action).

Usage:

```
geoflow_data$setLayeruri(layeruri)
```

Arguments:

`layeruri` layeruri

Method `addStyle()`**:** Adds a style name, object of class `character`. Used as layer style name(s) for GeoServer action.

Usage:

```
geoflow_data$addStyle(style)
```

Arguments:

`style` style

Method `addDimension()`**:** Adds a dimension

Usage:

```
geoflow_data$addDimension(name, dimension)
```

Arguments:

`name` dimension name

`dimension` object of class geoflow_dimension

Method `setCloudPath()`: Set cloud path

Usage:

```
geoflow_data$setCloudPath(cloud_path)
```

Arguments:

`cloud_path` cloud path

Method `getAllowedSpatialRepresentationTypes()`: Get allowed spatial representation types, typically "vector" and "grid"

Usage:

```
geoflow_data$getAllowedSpatialRepresentationTypes()
```

Returns: an object of class `character`

Method `setSpatialRepresentationType()`: Set spatial representation type for the data considered

Usage:

```
geoflow_data$setSpatialRepresentationType(spatialRepresentationType)
```

Arguments:

`spatialRepresentationType` spatial representation type

Method `setOgcDimensions()`: Set OGC dimensions

Usage:

```
geoflow_data$setOgcDimensions(name, values)
```

Arguments:

`name` dimension name

`values` dimension values

Method `setFeatures()`: Set data features

Usage:

```
geoflow_data$setFeatures(features)
```

Arguments:

`features` features

Method `setParameter()`: Set virtual parameter definition for setting virtual SQL view parametized layers in Geoserver, when `uploadType` is set to `dbquery`.The arguments here follow the definition of virtual parameters in GeoServer, ie a name (alias), the corresponding field name in the DBMS, a regular expression for validation of parameter values (required to prevent SQL injection risks), and a default value.

Usage:

```
geoflow_data$setParameter(name, fieldname, regexp, defaultvalue)
```

Arguments:

`name` name

`fieldname` fieldname

`regexp` regexp

`defaultvalue` default value

Method `setGeometryField()`: Sets the name of the geometry field in the target GeoServer SQL view parametrized layer

Usage:

```
geoflow_data$setGeometryField(geometryField)
```

Arguments:

`geometryField` geometry field

Method `setGeometryType()`: Sets the name of the geometry field in the target GeoServer SQL view parametrized layer

Usage:

```
geoflow_data$setGeometryType(geometryType)
```

Arguments:

`geometryType` geometry type

Method `setFeatureType()`: Sets a feature type (ID) to link data with a dictionnary

Usage:

```
geoflow_data$setFeatureType(featureType)
```

Arguments:

`featureType` feature type name

Method `setFeatureTypeObj()`: Sets a feature type object

Usage:

```
geoflow_data$setFeatureTypeObj(featureTypeObj)
```

Arguments:

`featureTypeObj` feature type object of class `geoflow_featuretype`

Method `setAttributes()`: Set attributes, as simple way to describe attributes without binding to a proper geoflow_dictionary.

Usage:

```
geoflow_data$setAttributes(attributes)
```

Arguments:

`attributes` attributes

Method `setVariables()`: Set variables, as simple way to describe variables without binding to a proper geoflow_dictionary.

Usage:

```
geoflow_data$setVariables(variables)
```

Arguments:

`variables` variables

Method `setCoverages()`: Set coverages

Usage:

```
geoflow_data$setCoverages(coverages)
```

Arguments:

`coverages` coverages

Method `getAllowedEnvelopeCompositionTypes()`: Get allowed envelope composition types

Usage:

```
geoflow_data$getAllowedEnvelopeCompositionTypes()
```

Returns: an object of class `character`

Method `setEnvelopeCompositionType()`: Set envelope composition type

Usage:

```
geoflow_data$setEnvelopeCompositionType(envelopeCompositionType)
```

Arguments:

`envelopeCompositionType` envelope composition type, either 'UNION' or 'INTERSECTION'

Method `setSelectedResolution()`: Set selected resolution

Usage:

```
geoflow_data$setSelectedResolution(selectedResolution)
```

Arguments:

`selectedResolution` selected resolution

Method `setSelectedResolutionIndex()`: Set selected resolution index

Usage:

```
geoflow_data$setSelectedResolutionIndex(selectedResolutionIndex)
```

Arguments:

`selectedResolutionIndex` selected resolution index

Method `setBand()`: Set band

Usage:

```
geoflow_data$setBand(name, index)
```

Arguments:

`name` band name

`index` band index

Method `addAction()`: Adds a local action

Usage:

```
geoflow_data$addAction(action)
```

Arguments:

`action` object of class geoflow_action

Method `checkSoftwareProperties()`: A function triggered when loading a data object to check eventual software dependent properties, to make sure the corresponding software are declared in the config.

Usage:

```
geoflow_data$checkSoftwareProperties(config)
```

Arguments:

`config` geoflow config object

Method `clone()`: The objects of this class are cloneable with this method.

Usage:

```
geoflow_data$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

`geoflow_data_accessor` *Geoflow data accessor class*

Description

This class models a data accessor to be used by geoflow

Format

`R6Class` object.

Details

geoflow_data_accessor

Value

Object of `R6Class` for modelling a data accessor

Super class

`geoflow::geoflowLogger` -> `geoflow_data_accessor`

Public fields

`id` accessor ID

`software_type` accessor software type

`definition` accessor definition

`packages` list of packages required for the accessor

`download` a download function handler

`list` a function handler to list resources in case of a data directory

Methods

Public methods:

- `geoflow_data_accessor$new()`
- `geoflow_data_accessor$setId()`
- `geoflow_data_accessor$setSoftwareType()`
- `geoflow_data_accessor$setPackages()`
- `geoflow_data_accessor$setDefinition()`
- `geoflow_data_accessor$setDownload()`
- `geoflow_data_accessor$setList()`
- `geoflow_data_accessor$checkPackages()`
- `geoflow_data_accessor$clone()`

Method `new()`**:** Initializes the data ccessor

Usage:

```
geoflow_data_accessor$new(
  id = NULL,
  software_type = NULL,
  definition,
  packages = list(),
  download,
  list = NULL
)
```

Arguments:

`id` accessor ID

`software_type` accessor software type

`definition` accessor definition

`packages` list of packages required for the accessor

`download` download function handler

`list` list function handler

Method `setId()`**:** Sets accessor ID

Usage:

```
geoflow_data_accessor$setId(id)
```

Arguments:

`id` accessor ID to set

Method `setSoftwareType()`**:** Sets software type

Usage:

```
geoflow_data_accessor$setSoftwareType(software_type)
```

Arguments:

`software_type` software type

Method `setPackages()`**:** Sets list of packages required for the accessor

Usage:

```
geoflow_data_accessor$setPackages(packages)
```

Arguments:

`packages` a vecto of package names

Method `setDefinition()`**:** Sets accessor definition

Usage:

```
geoflow_data_accessor$setDefinition(definition)
```

Arguments:

`definition` accessor definition

Method `setDownload()`**:** Set download handler (a function with arguments `resource`, `file`, `path`, `unzip` (TRUE/FALSE) and optional `software`)

Usage:

```
geoflow_data_accessor$setDownload(download)
```

Arguments:

`download` an object of class `function`

Method `setList()`**:** Set list handler (a function with no arguments)

Usage:

```
geoflow_data_accessor$setList(list)
```

Arguments:

`list` an object of class `function`

Method `checkPackages()`**:** Check that all packages required for the software are available, if yes, import them in the R session, and return a `data.frame` giving the packages names and version. If one or more packages are unavailable, an error is thrown and user informed of the missing packages.

Usage:

```
geoflow_data_accessor$checkPackages()
```

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_data_accessor$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  access <- geoflow_data_accessor$new(
   id = "some-id",
   software_type = "some-software",
   definition = "definition",
   packages = list(),
   download = function(resource, file, path, software, unzip){},
   list = function(resource, software){}
 )

## End(Not run)
```

---

geoflow_date *Geoflow date class*

Description

This class models an date

Format

R6Class object.

Details

geoflow_date

Value

Object of R6Class for modelling an date

Public fields

`key` date key. Default is "creation"

`value` date value. Default is generated with `Sys.time()`

Methods

Public methods:

- geoflow_date$new()
- geoflow_date$setKey()
- geoflow_date$setValue()
- geoflow_date$clone()

Method `new()`**:** Initializes a geoflow_date

Usage:

```
geoflow_date$new()
```

Method `setKey()`**:** Sets the date key

Usage:

```
geoflow_date$setKey(key)
```

Arguments:

`key` date key

Method `setValue()`**:** Sets the date value. The method will check validity of date value.

Usage:

```
geoflow_date$setValue(value)
```

Arguments:

`value` date value

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_date$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  date <- geoflow_date$new()
  date$setKey("creation")
  date$setValue(Sys.time())

## End(Not run)
```

`geoflow_dictionary` *Geoflow dictionary class*

Description

This class models a dictionary to be executed by geoflow

Format

`R6Class` object.

Details

geoflow_dictionary

Value

Object of `R6Class` for modelling a dictionary

Public fields

`source` dictionary source, object of class `data.frame`

`featuretypes` list of objects of class `geoflow_featuretype`

`registers` list of objects of class `geoflow_register`

Methods

Public methods:

- `geoflow_dictionary$new()`
- `geoflow_dictionary$setSource()`
- `geoflow_dictionary$getFeatureTypes()`
- `geoflow_dictionary$getFeatureTypeById()`
- `geoflow_dictionary$addFeatureType()`
- `geoflow_dictionary$getRegisters()`
- `geoflow_dictionary$getRegisterById()`
- `geoflow_dictionary$addRegister()`
- `geoflow_dictionary$clone()`

Method `new()`**:** Initializes a geoflow_dictionary object

Usage:

```
geoflow_dictionary$new()
```

Method `setSource()`**:** Sets dictionnary source

Usage:

```
geoflow_dictionary$setSource(source)
```

Arguments:

`source` object of class `data.frame`

Method `getFeatureTypes()`**:** Get the list of geoflow_featuretype defined in the dictionary

Usage:

```
geoflow_dictionary$getFeatureTypes()
```

Returns: a `list` of `geoflow_featuretype`

Method `getFeatureTypeById()`**:** Get an object of class geoflow_featuretype given an ID

Usage:

```
geoflow_dictionary$getFeatureTypeById(id)
```

Arguments:

`id` id

Returns: an object of class geoflow_featuretype, otherwise `NULL`

Method `addFeatureType()`**:** Adds a feature type to the dictionnary

Usage:

```
geoflow_dictionary$addFeatureType(ft)
```

Arguments:

`ft` object of class geoflow_featuretype

Method `getRegisters()`**:** Get the list of registers associated with the dictionnary

Usage:

```
geoflow_dictionary$getRegisters()
```

Returns: a list of geoflow_register objects

Method `getRegisterById()`**:** Get register by ID

Usage:

```
geoflow_dictionary$getRegisterById(id)
```

Arguments:

`id` id

Returns: an object of class geoflow_register, otherwise `NULL`

Method `addRegister()`**:** Adds a register to the dictionnary

Usage:

```
geoflow_dictionary$addRegister(register)
```

Arguments:

`register` object of class geoflow_register

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_dictionary$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

`geoflow_dimension` *Geoflow dimension class*

Description

This class models a dimension

Format

`R6Class` object.

Details

geoflow_dimension

Value

Object of `R6Class` for modelling a dimension

Public fields

`longName` dimension longName

`resolution` dimension resolution

`size` dimension size

`values` dimension values

`minValue` dimension min value

`maxValue` dimension max value

Methods

Public methods:

- `geoflow_dimension$new()`
- `geoflow_dimension$setLongName()`
- `geoflow_dimension$setResolution()`
- `geoflow_dimension$setSize()`
- `geoflow_dimension$setValues()`
- `geoflow_dimension$setMinValue()`
- `geoflow_dimension$setMaxValue()`
- `geoflow_dimension$clone()`

Method `new()`**:** Initializes the geoflow_dimension

Usage:

```
geoflow_dimension$new()
```

Method `setLongName()`**:** Sets the dimension long name

Usage:

```
geoflow_dimension$setLongName(longName)
```

Arguments:

`longName` dimension long name

Method `setResolution()`**:** Sets the resolution

Usage:

```
geoflow_dimension$setResolution(uom, value)
```

Arguments:

`uom` unit of measure

`value` resolution value

Method `setSize()`**:** Sets the dimension size

Usage:

```
geoflow_dimension$setSize(size)
```

Arguments:

`size` dimension size

Method `setValues()`**:** Sets dimension values

Usage:

```
geoflow_dimension$setValues(values)
```

Arguments:

`values` dimension values

Method `setMinValue()`**:** Sets dimension min value

Usage:

```
geoflow_dimension$setMinValue(minValue)
```

Arguments:

`minValue` min value

Method `setMaxValue()`**:** Sets dimension max value

Usage:

```
geoflow_dimension$setMaxValue(maxValue)
```

Arguments:

`maxValue` max value

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_dimension$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
 dimension <- geoflow_dimension$new()
 dimension$setLongName("longname")
 dimension$setResolution(uom="s",value=1)
 dimension$setSize(10)
 dimension$setValues(c(1,2,3))
 dimension$setMinValue(1)
 dimension$setMaxValue(3)

## End(Not run)
```

---

geoflow_entity *Geoflow entity class*

Description

This class models a entity object

Format

R6Class object.

Details

geoflow_entity

Value

Object of R6Class for modelling a entity object

Public fields

`identifiers` entity identifiers

`dates` entity dates

`language` entity language

`types` entity types

`titles` entity titles

`descriptions` entity descriptions

`subjects` entity subjects

`formats` entity formats

`contacts` entity contacts

`relations` entity relations

`rights` entity rights

`spatial_extent` spatial extent

`spatial_bbox` spatial bounding box

`geo_bbox` geographic bounding box (in EPSG:4326 / WGS 84)

`srid` entity srid

`temporal_extent` entity temporal extent

`provenance` entity provenance

`data` entity data

`status` entity status

`resources` entity resources

`locales` entity locales

Methods

Public methods:

- `geoflow_entity$new()`
- `geoflow_entity$setShinyEditorMode()`
- `geoflow_entity$getShinyEditorMode()`
- `geoflow_entity$getAllowedKeyValuesFor()`
- `geoflow_entity$addLocalesFromValues()`
- `geoflow_entity$setIdentifier()`
- `geoflow_entity$addDate()`
- `geoflow_entity$setLanguage()`
- `geoflow_entity$writeDataResource()`
- `geoflow_entity$setType()`
- `geoflow_entity$setTitle()`
- `geoflow_entity$setDescription()`
- `geoflow_entity$addSubject()`
- `geoflow_entity$addFormat()`
- `geoflow_entity$addContact()`
- `geoflow_entity$addRelation()`
- `geoflow_entity$addRight()`
- `geoflow_entity$setSpatialExtent()`
- `geoflow_entity$setSpatialBbox()`
- `geoflow_entity$setGeographicBbox()`
- `geoflow_entity$setSrid()`
- `geoflow_entity$setTemporalExtent()`
- `geoflow_entity$setProvenance()`
- `geoflow_entity$setData()`

- geoflow_entity$addData()
- geoflow_entity$getEntityJobDirname()
- geoflow_entity$getEntityJobDirPath()
- geoflow_entity$prepareEntityJobDir()
- geoflow_entity$copyDataToJobDir()
- geoflow_entity$copyStylesToJobDir()
- geoflow_entity$enrichWithDatatypes()
- geoflow_entity$enrichWithData()
- geoflow_entity$enrichSpatialCoverageFromDB()
- geoflow_entity$enrichWithFeatures()
- geoflow_entity$enrichWithCoverages()
- geoflow_entity$prepareFeaturesToUpload()
- geoflow_entity$enrichWithIdentifiers()
- geoflow_entity$enrichWithRelations()
- geoflow_entity$enrichWithSubjects()
- geoflow_entity$enrichWithVocabularies()
- geoflow_entity$enrichWithFormats()
- geoflow_entity$enrichWithMetadata()
- geoflow_entity$getContacts()
- geoflow_entity$getSubjects()
- geoflow_entity$getRelations()
- geoflow_entity$setStatus()
- geoflow_entity$getJobResource()
- geoflow_entity$getJobDataResource()
- geoflow_entity$getJobMetadataResource()
- geoflow_entity$addResource()
- geoflow_entity$asDataFrame()
- geoflow_entity$clone()

Method `new()`**:** Initializes an object of class geoflow_entity

Usage:

```
geoflow_entity$new()
```

Method `setShinyEditorMode()`**:** Set mode for geoflow-shiny

Usage:

```
geoflow_entity$setShinyEditorMode(mode = c("creation", "edition"))
```

Arguments:

`mode` mode

Method `getShinyEditorMode()`**:** Get mode for geoflow-shiny

Usage:

```
geoflow_entity$getShinyEditorMode()
```

Returns: the shiny editor mode

Method `getAllowedKeyValuesFor()`: Retrieves keys allowed for a given tabular field name. eg. "Identifier"

Usage:

```
geoflow_entity$getAllowedKeyValuesFor(field)
```

Arguments:

`field` field name

Returns: the list of valid keys for the field considered

Method `addLocalesFromValues()`: Adds locales to entity from kvp values

Usage:

```
geoflow_entity$addLocalesFromValues(values)
```

Arguments:

`values` values

Method `setIdentifier()`: Set an identifier given a key. Default key is "id", but others can be specified, eg "doi".

Usage:

```
geoflow_entity$setIdentifier(key = "id", id)
```

Arguments:

`key` identifier key. Default is "id"

`id` identifier value

Method `addDate()`: Adds a date

Usage:

```
geoflow_entity$addDate(dateType, date)
```

Arguments:

`dateType` date type, object of class `character`

`date` date, object of class `Date` or `POSIXt`

Method `setLanguage()`: Set the language used for the entity description (metadata). Default is "eng".

Usage:

```
geoflow_entity$setLanguage(language)
```

Arguments:

`language` language

Method `writeDataResource()`: writes a data resource. Deprecrated Note: TODO to review in line with 'writeWorkflowJobDataResource

Usage:

```
geoflow_entity$writeDataResource(obj = NULL, resourcename, type = "shp")
```

Arguments:

`obj` object

`resourcename` resource name

`type` type of resosource

Method `setType()`: Set the type of description. By default a generic type (key = "generic") is defined to "dataset", and will be used as default type for actions that perform metadata production / publication.

Usage:

```
geoflow_entity$setType(key = "generic", type)
```

Arguments:

`key` type key. Default is "generic"

`type` type value

Method `setTitle()`: Sets title

Usage:

```
geoflow_entity$setTitle(key = "title", title)
```

Arguments:

`key` title key. Default is "title"

`title` title value

Method `setDescription()`: Sets description

Usage:

```
geoflow_entity$setDescription(key, description)
```

Arguments:

`key` description key. Default is "abstract"

`description` description value

Method `addSubject()`: Adds a subject

Usage:

```
geoflow_entity$addSubject(subject)
```

Arguments:

`subject` object of class geoflow_subject

Method `addFormat()`: Adds a format

Usage:

```
geoflow_entity$addFormat(format)
```

Arguments:

`format` object of class geoflow_format

Method `addContact()`: Adds a contact

Usage:

```
geoflow_entity$addContact(contact)
```

Arguments:

`contact` object of class geoflow_contact

Method `addRelation()`**:** Adds a relation

Usage:

```
geoflow_entity$addRelation(relation)
```

Arguments:

`relation` object of class geoflow_relation

Method `addRight()`**:** Adds a right

Usage:

```
geoflow_entity$addRight(right)
```

Arguments:

`right` object of class geoflow_right

Method `setSpatialExtent()`**:** Set spatial extent. Various ways can be used to set the spatial extent 1) with a WKT string, 2) with a bbox, object of class `matrix`, or 3) specifying a data object (from **sf**). The `crs` (coordinate reference system) should be specified with the crs SRID (number). The spatial extent is not necessarily a bounding box but can be one or more geometries.

Usage:

```
geoflow_entity$setSpatialExtent(wkt = NULL, bbox = NULL, data = NULL, crs = NA)
```

Arguments:

`wkt` a WKT string

`bbox` a bbox

`data` an object of class **sf**

`crs` crs

Method `setSpatialBbox()`**:** Set spatial bbox. Various ways can be used to set the spatial extent 1) with a WKT string, 2) with a bbox, object of class `matrix`, or 3) specifying a data object (from **sf**). The `crs` (coordinate reference system) should be specified with the crs SRID (number).

Usage:

```
geoflow_entity$setSpatialBbox(wkt = NULL, bbox = NULL, data = NULL, crs = NA)
```

Arguments:

`wkt` a WKT string

`bbox` a bbox

`data` an object of class **sf**

`crs` crs

Method `setGeographicBbox()`**:** Set geographic bbox (in EPGS:4326 / WGS 84), by converting (if needed) the spatial bbox

Usage:

```
geoflow_entity$setGeographicBbox()
```

Method `setSrid()`**:** Sets entity SRID

Usage:

```
geoflow_entity$setSrid(srid)
```

Arguments:

`srid` srid

Method `setTemporalExtent()`**:** Sets temporal extent. The temporal extent can be a year, date instant or interval

Usage:

```
geoflow_entity$setTemporalExtent(str)
```

Arguments:

`str` object of class `numeric` (case of year) or `character`

Method `setProvenance()`**:** Sets entity provenance

Usage:

```
geoflow_entity$setProvenance(provenance)
```

Arguments:

`provenance` object of class geoflow_provenance

Method `setData()`**:** Sets entity data object

Usage:

```
geoflow_entity$setData(data)
```

Arguments:

`data` object of class geoflow_data

Method `addData()`**:** Adds entity data object

Usage:

```
geoflow_entity$addData(data)
```

Arguments:

`data` object of class geoflow_data

Method `getEntityJobDirname()`**:** Gets entity job directory name. In case entity is identified with a DOI, the '/' (slash) will be replaced by '_' (underscore) to make sure directory is created.

Usage:

```
geoflow_entity$getEntityJobDirname()
```

Returns: get the name of entity job directory that will be created for the entity

Method `getEntityJobDirPath()`**:** Gets entity job directory path. In the job directory, all entities subdirs will be created within a 'entities' directory.

Usage:

```
geoflow_entity$getEntityJobDirPath(config, jobdir = NULL)
```

Arguments:

`config` geoflow configuration object

`jobdir` relative path of the job directory

Returns: the entity job directory path

Method `prepareEntityJobDir()`**:** Function called internally by **geoflow** that creates the entity directory and relevant sub-directories. The default sub-directories will include 'data' and 'metadata'. Other sub-directories may be created depnding on the actions enabled in the workflow (and if their target directory is different from 'data'/'metadata').

Usage:

```
geoflow_entity$prepareEntityJobDir(config, jobdir = NULL)
```

Arguments:

`config` geoflow config object

`jobdir` relative path of the job directory

Method `copyDataToJobDir()`**:** This function will look at data object(s) associated to the entity (previously set with `setData` or added with `addData`), and will try to (download)/copy the data source to the geoflow job directory.

Usage:

```
geoflow_entity$copyDataToJobDir(config, jobdir = NULL)
```

Arguments:

`config` geoflow config object

`jobdir` relative path of the job directory

Method `copyStylesToJobDir()`**:** This function checks for the availability of layer styles (set as entity resource) that would have been added with DBI handlers from a special DB 'layer_styles' table

Usage:

```
geoflow_entity$copyStylesToJobDir(config)
```

Arguments:

`config` geoflow config object

Method `enrichWithDatatypes()`**:** Function that will scan zip data files and resolve data objects sourceType and uploadType

Usage:

```
geoflow_entity$enrichWithDatatypes(config, jobdir = NULL)
```

Arguments:

`config` geoflow config object

`jobdir` relative path of the job directory

Method `enrichWithData()`**:** This function will enrich the entity data objects with data features (vector data) or coverages (grid data). This method will overwrite spatial metadata such as the bounding box (unless global option `skipDynamicBbox` is enabled). Note that the user spatial extent is not overwriten since it may contain finer geometries than a bounding box.

Usage:

```
geoflow_entity$enrichWithData(config, jobdir = NULL)
```

Arguments:

`config` geoflow config object

`jobdir` relative path of the job directory

Method `enrichSpatialCoverageFromDB()`**:** This function computes spatial coverage from DB (table, view or query) without having to deal with a full data download. It is triggered when the global option `skipDataDownload` is enabled.

Usage:

```
geoflow_entity$enrichSpatialCoverageFromDB(config)
```

Arguments:

`config` geoflow config object

Method `enrichWithFeatures()`**:** This function will enrich the entity data objects with data features (vector data). This method will overwrite spatial metadata such as the bounding box (unless global option `skipDynamicBbox` is enabled). Note that the user spatial extent is not overwriten since it may contain finer geometries than a bounding box.

Usage:

```
geoflow_entity$enrichWithFeatures(config, jobdir = NULL)
```

Arguments:

`config` geoflow config object

`jobdir` relative path of the job directory

Method `enrichWithCoverages()`**:** This function will enrich the entity data objects with data coverages (grid data). This method will overwrite spatial metadata such as the bounding box (unless global option `skipDynamicBbox` is enabled). Note that the user spatial extent is not overwriten since it may contain finer geometries than a bounding box.

Usage:

```
geoflow_entity$enrichWithCoverages(config, jobdir = NULL)
```

Arguments:

`config` geoflow config object

`jobdir` relative path of the job directory

Method `prepareFeaturesToUpload()`**:** This function will 1) check (in case of upload is requested) if the type of source and upload are both different on files formats(eg. csv,shp,gpkg) and 2) process automatically to conversion from source to upload type.

Usage:

```
geoflow_entity$prepareFeaturesToUpload(config)
```

Arguments:

`config` geoflow config object

Method `enrichWithIdentifiers()`**:** Function that will enrich entity with identifiers needed across multiple actions

Usage:

```
geoflow_entity$enrichWithIdentifiers(config)
```

Arguments:

`config` geoflow config object

Method `enrichWithRelations()`: This function that will enrich the entity with relations. At now this is essentially related to adding relations if a Geoserver (geosapi) publishing action is enabled. Relations added will depend on the `enrich_with_relation_*` options set in a) the geosapi action, ie. 1) add WMS auto-generated thumbnail (if option `enrich_with_relation_wms_thumbnail` is `TRUE`) 2) add WMS base URL relation (if option `enrich_with_relation_wms` is `TRUE`) 3) for vector spatial representation type: - add WFS base URL relation (if option `enrich_with_relation_wfs` is `TRUE`) - add WFS auto-generated links as convenience for data download links (if option `enrich_with_relation_wfs_download_links` is `TRUE`) 4) for grid spatial representation type: - add WCS base URL relation (if option `enrich_with_relation_wcs` is `TRUE`) b) in the geonapi action (for adding a CSW metadata URL) b) in the ows4R action (for adding a CSW metadata URL)

Usage:

```
geoflow_entity$enrichWithRelations(config)
```

Arguments:

`config` geoflow config object

Method `enrichWithSubjects()`: Enrichs the entity with subjects. If no subject specify in Subjects, automatically add keyword from dictionary to 'theme' category

Usage:

```
geoflow_entity$enrichWithSubjects(config, exclusions = c())
```

Arguments:

`config` geoflow config object

`exclusions` exclusions

Method `enrichWithVocabularies()`: Enrichs the entity with vocabularies

Usage:

```
geoflow_entity$enrichWithVocabularies(config)
```

Arguments:

`config` geoflow config object

Method `enrichWithFormats()`: Enrichs the entity with formats

Usage:

```
geoflow_entity$enrichWithFormats(config)
```

Arguments:

`config` geoflow config object

Method `enrichWithMetadata()`: Enrichs the entity properties with entity metadata from other properties.

Usage:

```
geoflow_entity$enrichWithMetadata(config)
```

Arguments:

`config` geoflow config object

Method `getContacts()`: Get the entity contacts

Usage:

```
geoflow_entity$getContacts(pretty = FALSE)
```

Arguments:

`pretty` to prettify the output as `data.frame`

Returns: a list of `geoflow_contact` or a `data.frame`

Method `getSubjects()`**:** Get the entity subjects

Usage:

```
geoflow_entity$getSubjects(pretty = FALSE, keywords = FALSE)
```

Arguments:

`pretty` to prettify the output as `data.frame`

`keywords` to add keywords to the output or not. Default is `FALSE`

Returns: a list of `geoflow_subject` or a `data.frame`

Method `getRelations()`**:** Get the entity relations

Usage:

```
geoflow_entity$getRelations(pretty = FALSE)
```

Arguments:

`pretty` to prettify the output as `data.frame`

Returns: a list of `geoflow_relation` or a `data.frame`

Method `setStatus()`**:** Set a simple status either "draft" or "published". This method is required to deal with systems that manage DOIs, such as Zenodo (with **zen4R**) or Dataverse (with **atom4R**) publishing actions (Used internally by **geoflow**).

Usage:

```
geoflow_entity$setStatus(system, status)
```

Arguments:

`system` a system name eg. "zenodo", "dataverse"

`status` a status for entity resource "draft" or "published"

Method `getJobResource()`**:** Get an entity job resource path

Usage:

```
geoflow_entity$getJobResource(config, resourceType, filename)
```

Arguments:

`config` a geoflow config object

`resourceType` type of resource, matching a sub-directory within the entity job directory

`filename` filename

Returns: the file path of the job resource

Method `getJobDataResource()`**:** Get an entity job data resource path

Usage:

```
geoflow_entity$getJobDataResource(config, filename)
```

Arguments:

`config` a geoflow config object

`filename` filename

Returns: the file path of the job data resource

Method `getJobMetadataResource()`**:** Get an entity job metadata resource path

Usage:

```
geoflow_entity$getJobMetadataResource(config, filename)
```

Arguments:

`config` a geoflow config object

`filename` filename

Returns: the file path of the job metadata resource

Method `addResource()`**:** Adds a resource to the entity

Usage:

```
geoflow_entity$addResource(id, resource)
```

Arguments:

`id` id of the resource

`resource` resource

Method `asDataFrame()`**:** Methods to export the geoflow_entity as `data.frame` using key-based syntax.

Usage:

```
geoflow_entity$asDataFrame(line_separator = NULL)
```

Arguments:

`line_separator` a line separator. By default, the default line separator will be used.

Returns: an object of class `data.frame` giving the entities using key-based syntax

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_entity$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

`geoflow_featuremember` *Geoflow feature type class*

Description

This class models a feature type to be executed by geoflow

Format

`R6Class` object.

Details

geoflow_featuremember

Value

Object of `R6Class` for modelling a dictionary feature type member

Public fields

`id` feature member ID

`type` feature member type

`code` feature member code

`name` feature member name

`def` feature member definition

`defSource` feature member definition source

`minOccurs` feature member minOccurs

`maxOccurs` feature member maxOccurs

`uom` feature member unit of measure (uom)

`registerId` feature member register ID

`registerScript` feature member register script

Methods

Public methods:

- `geoflow_featuremember$new()`
- `geoflow_featuremember$asDataFrame()`
- `geoflow_featuremember$clone()`

Method `new()`**:** Initializes a geoflow_featuremember

Usage:

```
geoflow_featuremember$new(
  type = "attribute",
  code = NULL,
  name = NULL,
  def = NULL,
  defSource = NULL,
  minOccurs = NULL,
  maxOccurs = NULL,
  uom = NULL,
  registerId = NULL,
  registerScript = NULL
)
```

Arguments:

`type` type

`code` code

`name` name

`def` definition

`defSource` definition source. Default is `NULL`

`minOccurs` minOccurs. Default is `NULL`

`maxOccurs` maxOccurs. Default is `NULL`

`uom` unit of measure. Default is `NULL`

`registerId` ID of the register associated to the feature type. Default is `NULL`

`registerScript` source script providing the register functions. Default is `NULL`

Method `asDataFrame()`**:** Converts as data.frame

Usage:

```
geoflow_featuremember$asDataFrame()
```

Returns: an object of class data.frame

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_featuremember$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

`geoflow_featuretype` *Geoflow feature type class*

Description

This class models a feature type to be executed by geoflow

Format

`R6Class` object.

Details

geoflow_featuretype

Value

Object of `R6Class` for modelling a dictionary feature type

Public fields

`id` feature type ID

`members` feature type members

Methods

Public methods:

- `geoflow_featuretype$new()`
- `geoflow_featuretype$addMember()`
- `geoflow_featuretype$getMembers()`
- `geoflow_featuretype$getMemberById()`
- `geoflow_featuretype$asDataFrame()`
- `geoflow_featuretype$clone()`

Method `new()`**:** Initializes a geoflow_featuretype

Usage:

```
geoflow_featuretype$new(id = NULL)
```

Arguments:

`id` id

Method `addMember()`**:** Adds a member

Usage:

```
geoflow_featuretype$addMember(fm)
```

Arguments:

`fm` object of class geoflow_featuremember

Method `getMembers()`**:** Get members

Usage:

```
geoflow_featuretype$getMembers()
```

Returns: the list of members, as objects of class geoflow_featuremember

Method `getMemberById()`**:** Get member by ID

Usage:

```
geoflow_featuretype$getMemberById(id)
```

Arguments:

`id` id

Returns: an object of class geoflow_featuremember, `NULL` otherwise

Method `asDataFrame()`**:** Converts to data frame

Usage:

```
geoflow_featuretype$asDataFrame()
```

Returns: an object of class data.frame

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_featuretype$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

`geoflow_format` *Geoflow format class*

Description

This class models a format

Format

`R6Class` object.

Details

geoflow_format

Value

Object of R6Class for modelling a format

Public fields

`key` format key

`name` key name

`uri` key URI

`description` key description

Methods

Public methods:

- `geoflow_format$new()`
- `geoflow_format$setKey()`
- `geoflow_format$setName()`
- `geoflow_format$setUri()`
- `geoflow_format$setDescription()`
- `geoflow_format$clone()`

Method `new()`**:** Initializes a geoflow_format

Usage:

```
geoflow_format$new(str = NULL)
```

Arguments:

`str` character string to initialize object using key-based syntax

Method `setKey()`**:** Sets format key

Usage:

```
geoflow_format$setKey(key)
```

Arguments:

`key` key

Method `setName()`**:** Sets format name

Usage:

```
geoflow_format$setName(name)
```

Arguments:

`name` name

Method `setUri()`**:** Sets format URI

Usage:

```
geoflow_format$setUri(uri)
```

Arguments:

`uri` URI

Method `setDescription()`**:** Sets format description

Usage:

```
geoflow_format$setDescription(description)
```

Arguments:

`description` description

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_format$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  format <- geoflow_format$new()
  format$setKey("distribution")
  format$setName("text/csv")
  format$setUri("https://www.iana.org/assignments/media-types/text/csv")
  format$setDescription("CSV format")

## End(Not run)
```

`geoflow_handler` *Geoflow handler class*

Description

This class models a content handler. An handler is a method to handle some content (eg entity or contact). It is mainly driven by a function that takes as argument the `handler` considered (as self accessible object), a `source` which identifiers the source to be handled, that can be of a different type (eg a URL, a file path) depending on the handler, and a `config` object, as the overall configuration created by geoflow `initWorkflow` function.

Format

`R6Class` object.

Details

geoflow_handler

Value

Object of R6Class for modelling a handler

Public fields

`id` handler id

`type` handler type (entity,contact,dictionary)

`funders` funders

`authors` authors

`maintainer` maintainer

`def` handler definition

`packages` handler packages

`fun` handler function

`script` handler script

`options` options

`available_options` available options

`status` status

`notes` notes

Methods

Public methods:

- `geoflow_handler$new()`
- `geoflow_handler$fromYAML()`
- `geoflow_handler$checkPackages()`
- `geoflow_handler$getOption()`
- `geoflow_handler$clone()`

Method `new()`**:** Initializes a geoflow_handler

Usage:

```
geoflow_handler$new(
  yaml = NULL,
  id = NULL,
  type = c("entity", "contact", "dictionary"),
  funders = list(),
  authors = list(),
  maintainer = NULL,
  def = "",
  packages = list(),
  fun = NULL,
  script = NULL,
  options = list(),
  available_options = list(),
```

```
  status = "stable",
  notes = ""
)
```

Arguments:

`yaml` a YAML file

`id` id

`type` type

`funders` funders

`authors` authors

`maintainer` maintainer

`def` def

`packages` list of packages required for the handler

`fun` the handler `function` having 2 arguments `config` and `source`

`script` a handler script

`options` action options

`available_options` available options for the action

`status` status (experimental/stable/deprecated/superseded)

`notes` notes

Method `fromYAML()`**:** Reads handler properties from YAML file

Usage:

```
geoflow_handler$fromYAML(file)
```

Arguments:

`file` file

Method `checkPackages()`**:** Check that all packages required for the handler are available, if yes, import them in the R session, and return a `data.frame` giving the packages names and version. If one or more packages are unavailable, an error is thrown and user informed of the missing packages.

Usage:

```
geoflow_handler$checkPackages()
```

Method `getOption()`**:** Get handler option value

Usage:

```
geoflow_handler$getOption(option)
```

Arguments:

`option` option id

Returns: the option value, either specified through a workflow, or the default value

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_handler$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Note

This class is essentially called internally by geoflow to register default handlers for entities and contacts.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  handler <- geoflow_handler$new(
   id = "some-id",
   def = "some definition",
   packages = list(),
   fun = function(handler, source, config){},
   available_options = list()
 )

## End(Not run)
```

---

geoflow_keyword *Geoflow keyword class*

Description

This class models a keyword

Format

R6Class object.

Details

geoflow_keyword

Value

Object of R6Class for modelling a keyword

Public fields

`name` keyword

`uri` keyword uri

Methods

Public methods:

- geoflow_keyword$new()
- geoflow_keyword$setName()
- geoflow_keyword$setUri()
- geoflow_keyword$clone()

Method `new()`**:** Initializes a geoflow_keyword

Usage:

```
geoflow_keyword$new(name = NULL, uri = NULL)
```

Arguments:

`name` keyword name

`uri` keyword URI

Method `setName()`**:** Sets keyword

Usage:

```
geoflow_keyword$setName(name)
```

Arguments:

`name` keyword name

Method `setUri()`**:** Sets keyword URI

Usage:

```
geoflow_keyword$setUri(uri)
```

Arguments:

`uri` keyword URI

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_keyword$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  kwd <- geoflow_keyword$new()
  kwd$setName("keyword")
  kwd$setUri("http://somelink/keyword")

## End(Not run)
```

`geoflow_kvp` *Geoflow kvp (Key Values pair) class*

Description

This class models an kvp (Key Values pair)

Format

`R6Class` object.

Details

geoflow_kvp

Value

Object of `R6Class` for modelling an kvp (Key Values pair)

Public fields

`key` the KVP key

`values` the KVP values

`locale` a locale definition for the KVP

Methods

Public methods:

- `geoflow_kvp$new()`
- `geoflow_kvp$setKey()`
- `geoflow_kvp$setValues()`
- `geoflow_kvp$setLocale()`
- `geoflow_kvp$clone()`

Method `new()`**:** Initializes a Key-Value pair (KVP)

Usage:

```
geoflow_kvp$new(key = NULL, values = NULL, locale = NULL)
```

Arguments:

`key` key

`values` values

`locale` locale

Method `setKey()`**:** Set KVP key

Usage:

```
geoflow_kvp$setKey(key)
```

Arguments:

`key` the key

Method `setValues()`**:** Set KVP values

Usage:

```
geoflow_kvp$setValues(values)
```

Arguments:

`values` the values

Method `setLocale()`**:** Set KVP locale

Usage:

```
geoflow_kvp$setLocale(locale)
```

Arguments:

`locale` locale

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_kvp$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

`geoflow_process` *Geoflow process class*

Description

This class models an process

Format

`R6Class` object.

Details

geoflow_process

Value

Object of `R6Class` for modelling an process

Public fields

`rationale` process rationale

`description` process description

`processors` object of class `list`

Methods

Public methods:

- `geoflow_process$new()`
- `geoflow_process$setRationale()`
- `geoflow_process$setDescription()`
- `geoflow_process$addProcessor()`
- `geoflow_process$clone()`

Method `new()`**:** Initializes the geoflow_process

Usage:

```
geoflow_process$new()
```

Method `setRationale()`**:** Set process rationale

Usage:

```
geoflow_process$setRationale(rationale)
```

Arguments:

`rationale` the process rationale

Method `setDescription()`**:** Set process description

Usage:

```
geoflow_process$setDescription(description)
```

Arguments:

`description` Set the process description

Method `addProcessor()`**:** Adds processor

Usage:

```
geoflow_process$addProcessor(processor)
```

Arguments:

`processor`, object of class geoflow_contact

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_process$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  process <- geoflow_process$new()
  process$setRationale("rationale")
  process$setDescription("description")
  processor <- geoflow_contact$new()
  process$addProcessor(processor)

## End(Not run)
```

---

geoflow_profile *Geoflow profile class*

Description

This class models an profile

Format

R6Class object.

Details

geoflow_profile

Value

Object of R6Class for modelling an profile

Public fields

`id` profile id

`name` profile name

`project` profile project

`organization` profile organization

`logos` profile logo(s)

`mode` mode of execution (Default is "raw")

`options` global config options

Methods

Public methods:

- geoflow_profile$new()
- geoflow_profile$setId()
- geoflow_profile$setName()
- geoflow_profile$setProject()
- geoflow_profile$setOrganization()
- geoflow_profile$addLogo()
- geoflow_profile$setMode()
- geoflow_profile$setOption()
- geoflow_profile$clone()

Method `new()`**:** Initializes an object of class geoflow_profile

Usage:

```
geoflow_profile$new()
```

Method `setId()`**:** Sets profile ID

Usage:

```
geoflow_profile$setId(id)
```

Arguments:

`id` id

Method `setName()`**:** Sets profile name

Usage:

```
geoflow_profile$setName(name)
```

Arguments:

`name` name

Method `setProject()`**:** Sets profile project

Usage:

```
geoflow_profile$setProject(project)
```

Arguments:

`project` project

Method `setOrganization()`**:** Sets profile organization

Usage:

```
geoflow_profile$setOrganization(organization)
```

Arguments:

`organization` organization

Method `addLogo()`**:** Adds a profile organization

Usage:

```
geoflow_profile$addLogo(logo)
```

Arguments:

`logo` logo

Method `setMode()`**:** Sets profile mode

Usage:

```
geoflow_profile$setMode(mode)
```

Arguments:

`mode` profile mode

Method `setOption()`**:** Set global config option

Usage:

```
geoflow_profile$setOption(name, value)
```

Arguments:

`name` option name

`value` option value

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_profile$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  profile <- geoflow_profile$new()
  profile$setId("workflow1")
  profile$setName("Workflow 1")
  profile$setProject("My project")
  profile$setOrganization("My organization")
  provfile$addLogo("https://via.placeholder.com/300x150.png/09f/fff?text=geoflow")

## End(Not run)
```

`geoflow_provenance` *Geoflow provenance class*

Description

This class models an provenance

Format

`R6Class` object.

Details

geoflow_provenance

Value

Object of `R6Class` for modelling an provenance

Public fields

`statement` provenance statement

`processes` list of processes, as objects of class geoflow_process

Methods

Public methods:

- `geoflow_provenance$new()`
- `geoflow_provenance$setStatement()`
- `geoflow_provenance$addProcess()`
- `geoflow_provenance$clone()`

Method `new()`**:** Initializes a geoflow_provenance

Usage:

```
geoflow_provenance$new(str = NULL)
```

Arguments:

`str` character string to initialize a provenance using key-based syntax

Method `setStatement()`**:** Set process statement

Usage:

```
geoflow_provenance$setStatement(statement)
```

Arguments:

`statement` process statement

Method `addProcess()`**:** Adds process

Usage:

```
geoflow_provenance$addProcess(process)
```

Arguments:

`process`, object of class geoflow_process

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_provenance$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  provenance <- geoflow_provenance$new()
  provenance$setStatement("statement")
  process1 <- geoflow_process$new()
  process1$setRationale("task 1")
  process1$setDescription("Performs task 1")
  provenance$addProcess(process1)
  process2 <- geoflow_process$new()
  process2$setRationale("task 2")
  process2$setDescription("Performs task 2")
  provenance$addProcess(process2)

## End(Not run)
```

---

geoflow_register *Geoflow register class*

Description

This class models a register to be used by geoflow

Format

`R6Class` object.

Details

geoflow_register

Value

Object of R6Class for modelling a register

Public fields

`id` register id

`def` register def

`fun` register function

`data` register data

Methods

Public methods:

- `geoflow_register$new()`
- `geoflow_register$fetch()`
- `geoflow_register$check()`
- `geoflow_register$clone()`

Method `new()`**:** Initializes an object of class geoflow_register

Usage:

```
geoflow_register$new(id, def, fun)
```

Arguments:

`id` id

`def` def

`fun` fun

Method `fetch()`**:** Fetchs the register data using the register function

Usage:

```
geoflow_register$fetch(config = NULL)
```

Arguments:

`config` a geoflow config object

Method `check()`**:** Checks the register data structure. The structure of the `data.frame` returned by the register function should be of 4 columns including "code", "uri", "label", "definition". In case the data structure is not valid, the function throws an error.

Usage:

```
geoflow_register$check(data)
```

Arguments:

`data` a register data structure

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_register$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  register <- geoflow_register$new(
   id = "some-id",
   def = "definition",
   fun = function(){}
  )

## End(Not run)
```

`geoflow_relation` *Geoflow relation class*

Description

This class models an relation

Format

`R6Class` object.

Details

geoflow_relation

Value

Object of `R6Class` for modelling an relation

Public fields

`key` relation key

`link` relation link

`mimeType` relation mime

`name` relation name

`description` relation name

`prov` provenance,

Methods

Public methods:

- geoflow_relation$new()
- geoflow_relation$setKey()
- geoflow_relation$setLink()
- geoflow_relation$setMimeType()
- geoflow_relation$setName()
- geoflow_relation$setDescription()
- geoflow_relation$setProv()
- geoflow_relation$clone()

Method `new()`**:** Initializes an object of class geoflow_relation

Usage:

```
geoflow_relation$new(str = NULL)
```

Arguments:

`str` character string to initialize from using key-based syntax

Method `setKey()`**:** Set key

Usage:

```
geoflow_relation$setKey(key)
```

Arguments:

`key` key

Method `setLink()`**:** Set link

Usage:

```
geoflow_relation$setLink(link)
```

Arguments:

`link` link

Method `setMimeType()`**:** Set mime type

Usage:

```
geoflow_relation$setMimeType(mimeType)
```

Arguments:

`mimeType` mime type

Method `setName()`**:** Set name

Usage:

```
geoflow_relation$setName(name)
```

Arguments:

`name` name

Method `setDescription()`**:** Set description

Usage:

```
geoflow_relation$setDescription(description)
```

Arguments:

`description` description

Method `setProv()`**:** Set provenance

Usage:

```
geoflow_relation$setProv(prov = c("user", "geoflow"))
```

Arguments:

`prov` provenance

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_relation$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  relation <- geoflow_relation$new()
  relation$setProv("user")
  relation$setKey("wms")
  relation$setLink("http://somelink/wms")
  relation$setMimeType("application/xml")
  relation$setName("layername")
  relation$setDescription("layer description")

## End(Not run)
```

---

geoflow_right *Geoflow right class*

Description

This class models an right

Format

`R6Class` object.

Details

geoflow_right

Value

Object of R6Class for modelling an right

Public fields

`key` right key

`values` right values

Methods

Public methods:

- `geoflow_right$new()`
- `geoflow_right$setKey()`
- `geoflow_right$setValues()`
- `geoflow_right$clone()`

Method `new()`**:** Initializes an object of class geoflow_right

Usage:

```
geoflow_right$new(str = NULL, kvp = NULL)
```

Arguments:

`str` character string to initialize from using key-based syntax

`kvp` an object of class geoflow_kvp

Method `setKey()`**:** Sets key

Usage:

```
geoflow_right$setKey(key)
```

Arguments:

`key` key

Method `setValues()`**:** Sets values

Usage:

```
geoflow_right$setValues(values)
```

Arguments:

`values` values

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_right$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  right <- geoflow_right$new()
  right$setKey("use")
  right$setValues("No restrictions")

## End(Not run)
```

---

geoflow_skos_vocabulary

Geoflow SKOS vocabulary class

Description

This class models a SKOS vocabulary

Format

R6Class object.

Details

geoflow_skos_vocabulary

Value

Object of R6Class for modelling a SKOS vocabulary

Super class

geoflow::geoflow_vocabulary -> geoflow_skos_vocabulary

Public fields

rdf rdf

rdf_data rdf_data

endpoint endpoint

Methods

Public methods:

- geoflow_skos_vocabulary$new()
- geoflow_skos_vocabulary$query()
- geoflow_skos_vocabulary$query_full_dataset()
- geoflow_skos_vocabulary$ping()
- geoflow_skos_vocabulary$list_collections()
- geoflow_skos_vocabulary$get_concepts_hierarchy()
- geoflow_skos_vocabulary$list_concepts()
- geoflow_skos_vocabulary$query_from_uri()
- geoflow_skos_vocabulary$query_from_term()
- geoflow_skos_vocabulary$clone()

Method `new()`**:** Initializes a vocabulary

Usage:

```
geoflow_skos_vocabulary$new(id, def, uri, endpoint = NULL, file = NULL)
```

Arguments:

`id` id

`def` def

`uri` uri

`endpoint` A Sparql endpoint

`file` a RDF file

Method `query()`**:** query

Usage:

```
geoflow_skos_vocabulary$query(str, graphUri = NULL, mimetype = "text/csv")
```

Arguments:

`str` str

`graphUri` graphUri

`mimetype` mimetype

Returns: the response of the SPARQL query

Method `query_full_dataset()`**:** Queries full dataset

Usage:

```
geoflow_skos_vocabulary$query_full_dataset()
```

Returns: an object of class tibble

Method `ping()`**:** Ping query

Usage:

```
geoflow_skos_vocabulary$ping()
```

Method `list_collections()`**:** list_collections

Usage:

```
geoflow_skos_vocabulary$list_collections(
  mimetype = "text/csv",
  count_sub_collections = TRUE,
  count_concepts = TRUE
)
```

Arguments:

`mimetype` mimetype

`count_sub_collections` count_sub_collections. Default is TRUE

`count_concepts` count_concepts. Default is TRUE

Returns: the response of the SPARQL query

Method `get_concepts_hierarchy()`**:** list_concepts

Usage:

```
geoflow_skos_vocabulary$get_concepts_hierarchy(
  lang = "en",
  method = c("SPARQL", "R"),
  out_format = c("tibble", "list")
)
```

Arguments:

`lang` lang

`method` method used to build the hierarchy, either "SPARQL" or "R"

`out_format` output format (tibble or list). Default is "tibble"

Returns: the response of the SPARQL query

Method `list_concepts()`**:** list_concepts

Usage:

```
geoflow_skos_vocabulary$list_concepts(lang = "en", mimetype = "text/csv")
```

Arguments:

`lang` lang

`mimetype` mimetype

Returns: the response of the SPARQL query

Method `query_from_uri()`**:** query_from_uri

Usage:

```
geoflow_skos_vocabulary$query_from_uri(
  uri,
  graphUri = NULL,
  mimetype = "text/csv"
)
```

Arguments:

`uri` uri

`graphUri` graphUri

`mimetype` mimetype

Returns: an object of class tibble

Method `query_from_term()`**:** query_from_term

Usage:

```
geoflow_skos_vocabulary$query_from_term(
  term,
  graphUri = NULL,
  mimetype = "text/csv"
)
```

Arguments:

`term` term

`graphUri` graphUri

`mimetype` mimetype

Returns: an object of class tibble

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_skos_vocabulary$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

`geoflow_software` *Geoflow software class*

Description

This class models a software to be used by geoflow

Format

`R6Class` object.

Details

geoflow_software

Value

Object of `R6Class` for modelling a software

Super class

`geoflow::geoflowLogger` -> `geoflow_software`

Public fields

`id` software id

`type` software I/O type ("input" or "output")

`software_type` type of software

`definition` definition

`packages` list of packages required for the software functioning

`handler` software handler function

`arguments` software arguments

`parameters` software parameters

`attributes` software attributes

`properties` software properties

`actions` actions associated with the software

Methods

Public methods:

- `geoflow_software$new()`
- `geoflow_software$setId()`
- `geoflow_software$setType()`
- `geoflow_software$setSoftwareType()`
- `geoflow_software$setPackages()`
- `geoflow_software$setDefinition()`
- `geoflow_software$setAttributes()`
- `geoflow_software$setProperties()`
- `geoflow_software$setArguments()`
- `geoflow_software$setParameters()`
- `geoflow_software$setActions()`
- `geoflow_software$setHandler()`
- `geoflow_software$checkPackages()`
- `geoflow_software$getHandlerInstance()`
- `geoflow_software$clone()`

Method `new()`**:** Initializes a software

Usage:

```
geoflow_software$new(
  id = NULL,
  type = NULL,
  software_type,
  packages = list(),
  definition,
  handler,
  arguments,
  attributes = list(),
  actions = list()
)
```

Arguments:

`id` id

`type` type "input" or "output"

`software_type` software type

`packages` list of packages required for the software functioning

`definition` software definition

`handler` software handler `function`

`arguments` software handler arguments

`attributes` software attributes

`actions` software actions

Method `setId()`**:** Sets software ID

Usage:

```
geoflow_software$setId(id)
```

Arguments:

`id` id

Method `setType()`**:** Set type. Either "input" or "output"

Usage:

```
geoflow_software$setType(type)
```

Arguments:

`type` software I/O type

Method `setSoftwareType()`**:** Set software type

Usage:

```
geoflow_software$setSoftwareType(software_type)
```

Arguments:

`software_type` software type

Method `setPackages()`**:** Set software required packages

Usage:

```
geoflow_software$setPackages(packages)
```

Arguments:

`packages` list of package names

Method `setDefinition()`**:** Set software definition

Usage:

```
geoflow_software$setDefinition(definition)
```

Arguments:

`definition` software definition

Method `setAttributes()`**:** Set attributes. Function to call when creating an instance of `geoflow_software`

Usage:

```
geoflow_software$setAttributes(attributes)
```

Arguments:

`attributes` named list of attributes

Method `setProperties()`**:** Set properties. Function to call to pass argument values for a given `geoflow_software`

Usage:

```
geoflow_software$setProperties(props)
```

Arguments:

`props` named list of properties

Method `setArguments()`**:** Set software arguments. Function to call when creating an instance of `geoflow_software`

Usage:

```
geoflow_software$setArguments(arguments)
```

Arguments:

`arguments` list of software arguments

Method `setParameters()`**:** Set parameters. Function to call to pass argument values for a given `geoflow_software`

Usage:

```
geoflow_software$setParameters(params)
```

Arguments:

`params` named list of parameters

Method `setActions()`**:** Set software actions

Usage:

```
geoflow_software$setActions(actions)
```

Arguments:

`actions` a list of `geoflow_action`

Method `setHandler()`**:** Set the software handler function

Usage:

```
geoflow_software$setHandler(handler)
```

Arguments:

`handler` object of class `function`

Method `checkPackages()`**:** Check that all packages required for the software are available, if yes, import them in the R session, and return a `data.frame` giving the packages names and version. If one or more packages are unavailable, an error is thrown and user informed of the missing packages.

Usage:

```
geoflow_software$checkPackages()
```

Method `getHandlerInstance()`**:** Get the software handler instance

Usage:

```
geoflow_software$getHandlerInstance()
```

Returns: an object instance of the software handler

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_software$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  software<- geoflow_software$new(
   id = "some-id",
   type = "output",
   software_type = "software",
   definition = "definition",
   packages = list(),
   handler = function(){},
   arguments = list(
     url = list(def = "the software url")
   ),
   attributes = list(
     workspace = list(def = "a workspace name in the software")
   )
 )

## End(Not run)
```

`geoflow_subject` *Geoflow subject class*

Description

This class models a subject

Format

`R6Class` object.

Details

geoflow_subject

Value

Object of R6Class for modelling a subject

Public fields

`key` subject key

`name` subject name

`uri` subject URI

`dates` subject date(s)

`keywords` subject keywords

Methods

Public methods:

- `geoflow_subject$new()`
- `geoflow_subject$setKey()`
- `geoflow_subject$setName()`
- `geoflow_subject$setUri()`
- `geoflow_subject$setDate()`
- `geoflow_subject$addKeyword()`
- `geoflow_subject$getKeywords()`
- `geoflow_subject$clone()`

Method `new()`**:** Initializes an object of class geoflow_subject

Usage:

```
geoflow_subject$new(str = NULL, kvp = NULL)
```

Arguments:

`str` a character string to initialize from, using key-based syntax

`kvp` an object of class geoflow_kvp

Method `setKey()`**:** Sets subject key

Usage:

```
geoflow_subject$setKey(key)
```

Arguments:

`key` key

Method `setName()`**:** Sets subject name

Usage:

```
geoflow_subject$setName(name)
```

Arguments:

`name` name

Method `setUri()`**:** Sets subject URI

Usage:

```
geoflow_subject$setUri(uri)
```

Arguments:

`uri` uri

Method `setDate()`**:** Sets date

Usage:

```
geoflow_subject$setDate(dateType, date)
```

Arguments:

`dateType` type of date

`date` date

Method `addKeyword()`**:** Adds a keyword

Usage:

```
geoflow_subject$addKeyword(keyword, uri = NULL)
```

Arguments:

`keyword` keyword

`uri` keyword URI. Default is `NULL`

Method `getKeywords()`**:** Get keywords associated with the subject

Usage:

```
geoflow_subject$getKeywords(pretty = FALSE)
```

Arguments:

`pretty` whether the output has to prettyfied as `data.frame`

Returns: the list of keywords as `list` of `geoflow_keyword` objects or `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_subject$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

Author(s)

Emmanuel Blondel <emmanuel.blondel1@gmail.com>

Examples

```
## Not run:
  subject <- geoflow_subject$new()
  subject$setKey("theme")
  subject$setName("General")
  subject$setUri("http://somelink/general")
  subject$addKeyword("keyword1", "http://somelink/keyword1")
  subject$addKeyword("keyword2", "http://somelink/keyword2")
  subject$addKeyword("keyword3", "http://somelink/keyword3")

## End(Not run)
```

`geoflow_validator` *geoflow_validator*

Description

geoflow_validator

geoflow_validator

Public fields

`source` object of class `data.frame` handling metadata objects to validate

Methods

Public methods:

- `geoflow_validator$new()`
- `geoflow_validator$validate_structure()`
- `geoflow_validator$validate_content()`
- `geoflow_validator$clone()`

Method `new()`**:** Initializes a table validator for a given metadata model

Usage:

```
geoflow_validator$new(model, valid_columns, source)
```

Arguments:

`model` the data model name, eg. "entity", "contact"

`valid_columns` a vector of valid columns for the data model

`source` an object of class `data.frame` handling the contacts

Method `validate_structure()`**:** Validates a source table against a data model structure

Usage:

```
geoflow_validator$validate_structure()
```

Returns: `TRUE` if valid, `FALSE` otherwise.

Method `validate_content()`**:** Validates a source table using syntactic and content validation rules

Usage:

```
geoflow_validator$validate_content(raw = FALSE)
```

Arguments:

`raw` indicates whether to return a `list` of `geoflow_validator_cell` objects or a `data.frame`

`debug` debug validation

Returns: a `list` of `geoflow_validator_cell` objects, or `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

`geoflow_validator_cell` *geoflow_validator_cell*

Description

geoflow_validator_cell

geoflow_validator_cell

Public fields

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

Methods

Public methods:

- `geoflow_validator_cell$new()`
- `geoflow_validator_cell$isNaAuthorized()`
- `geoflow_validator_cell$isKeySynthaxUser()`
- `geoflow_validator_cell$isKeyRequired()`
- `geoflow_validator_cell$getValidKeys()`
- `geoflow_validator_cell$isErrorIfInvalidKey()`
- `geoflow_validator_cell$getDefaultKey()`
- `geoflow_validator_cell$isExcludeHttpKeys()`
- `geoflow_validator_cell$isMultiple()`
- `geoflow_validator_cell$validate()`

- geoflow_validator_cell$clone()

Method `new()`**:** Initializes a geoflow_validator_cell

Usage:

```
geoflow_validator_cell$new(
  na_authorized,
  use_key_syntax,
  key_required,
  valid_keys,
  default_key,
  error_if_invalid_key,
  exclude_http_keys,
  multiple,
  i,
  j,
  str
)
```

Arguments:

`na_authorized` if validator cell authorizes NAs or empty strings. Default is `FALSE`

`use_key_syntax` if validator cell uses key-based syntax. Default is `TRUE`

`key_required` if validator cell has a key required. Default is `TRUE`

`valid_keys` valid keys for the validator cell. Default is an empty list

`default_key` default_key to use if key is omitted. Default is `NULL`

`error_if_invalid_key` raise an error if key is invalid. Default is `TRUE`

`exclude_http_keys` if 'http' keys have to be excluded from validation checks. Default is `TRUE`

`multiple` if cell may contain multiple values. Deprecated

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` character string to validate

Method `isNaAuthorized()`**:** Indicates if the validator cell authorizes NAs and empty strings

Usage:

```
geoflow_validator_cell$isNaAuthorized()
```

Returns: `TRUE` if authorizes NAs and empty strings, `FALSE` otherwise

Method `isKeySynthaxUser()`**:** Indicates if the validator cell makes use of key-based syntax

Usage:

```
geoflow_validator_cell$isKeySynthaxUser()
```

Returns: `TRUE` if using key-based syntax, `FALSE` otherwise

Method `isKeyRequired()`**:** Indicates if a key is required for the validator cell

Usage:

```
geoflow_validator_cell$isKeyRequired()
```

Returns: `TRUE` if requires a key, `FALSE` otherwise

Method `getValidKeys()`**:** Gives the list of valid keys for the validator cell

Usage:

```
geoflow_validator_cell$getValidKeys()
```

Returns: the list of valid keys

Method `isErrorIfInvalidKey()`**:** Indicates if a report error will be given in case of invalid key

Usage:

```
geoflow_validator_cell$isErrorIfInvalidKey()
```

Returns: `TRUE` if a report error will be given in case of invalid key, `FALSE` otherwise

Method `getDefaultKey()`**:** Gets the default key

Usage:

```
geoflow_validator_cell$getDefaultKey()
```

Returns: the default key

Method `isExcludeHttpKeys()`**:** Indicates if 'http' keys are excluded from the validation

Usage:

```
geoflow_validator_cell$isExcludeHttpKeys()
```

Returns: `TRUE` if 'http' keys are excluded from the validation, `FALSE` otherwise

Method `isMultiple()`**:** indicates if multiple key-based components can be used within a same cell

Usage:

```
geoflow_validator_cell$isMultiple()
```

Returns: `TRUE` if supporting multiple key-based components by cell, `FALSE` otherwise

Method `validate()`**:** Proceeds with syntactic validation for the cell considered

Usage:

```
geoflow_validator_cell$validate()
```

Returns: an object of class `data.frame` including possible errors/warnings

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_cell$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_contacts

geoflow_validator_contacts

Description

geoflow_validator_contacts

geoflow_validator_contacts

Super class

`geoflow::geoflow_validator` -> `geoflow_validator_contacts`

Methods

Public methods:

- `geoflow_validator_contacts$new()`
- `geoflow_validator_contacts$clone()`

Method `new()`**:** Initializes a contacts table validator

Usage:

```
geoflow_validator_contacts$new(source)
```

Arguments:

`source` an object of class `data.frame` handling the contacts

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_contacts$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_contact_Identifier

geoflow_validator_contact_Identifier

Description

geoflow_validator_contact_Identifier

geoflow_validator_contact_Identifier

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_contact_Identifier`

Methods

Public methods:

- geoflow_validator_contact_Identifier$new()
- geoflow_validator_contact_Identifier$validate()
- geoflow_validator_contact_Identifier$clone()

Method `new()`**:** Initializes a contact 'Identifier' cell

Usage:

```
geoflow_validator_contact_Identifier$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `validate()`**:** Validates a contact identifier. Proceeds with syntactic validation and content (ORCID) validation.

Usage:

```
geoflow_validator_contact_Identifier$validate()
```

Returns: an validation report, as object of class `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_contact_Identifier$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

`geoflow_validator_entities`

geoflow_validator_entities

Description

geoflow_validator_entities

geoflow_validator_entities

Super class

`geoflow::geoflow_validator` -> `geoflow_validator_entities`

Methods

Public methods:

- geoflow_validator_entities$new()
- geoflow_validator_entities$clone()

Method `new()`**:** Initializes an entities table validator

Usage:

```
geoflow_validator_entities$new(source)
```

Arguments:

`source` an object of class `data.frame` handling the entities

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entities$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

`geoflow_validator_entity_Creator`
geoflow_validator_entity_Creator

Description

geoflow_validator_entity_Creator

geoflow_validator_entity_Creator

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Creator`

Methods

Public methods:

- geoflow_validator_entity_Creator$new()
- geoflow_validator_entity_Creator$clone()

Method `new()`**:** Initializes an entity 'Creator' cell

Usage:

```
geoflow_validator_entity_Creator$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Creator$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

`geoflow_validator_entity_Data` *geoflow_validator_entity_Data*

Description

geoflow_validator_entity_Data

geoflow_validator_entity_Data

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Data`

Methods

Public methods:

- `geoflow_validator_entity_Data$new()`
- `geoflow_validator_entity_Data$clone()`

Method `new()`**:** Initializes an entity 'Data' cell

Usage:

```
geoflow_validator_entity_Data$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Data$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Date *geoflow_validator_entity_Date*

Description

geoflow_validator_entity_Date

geoflow_validator_entity_Date

Super class

geoflow::geoflow_validator_cell -> geoflow_validator_entity_Date

Methods

Public methods:

- geoflow_validator_entity_Date$new()
- geoflow_validator_entity_Date$validate()
- geoflow_validator_entity_Date$clone()

Method `new()`**:** Initializes an entity 'Date' cell

Usage:

```
geoflow_validator_entity_Date$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `validate()`**:** Validates a date. Proceeds with syntactic validation and content validation.

Usage:

```
geoflow_validator_entity_Date$validate()
```

Returns: an validation report, as object of class `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Date$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Description
geoflow_validator_entity_Description

Description

geoflow_validator_entity_Description

geoflow_validator_entity_Description

Super class

geoflow::geoflow_validator_cell -> geoflow_validator_entity_Description

Methods

Public methods:

- geoflow_validator_entity_Description$new()
- geoflow_validator_entity_Description$clone()

Method `new()`**:** Initializes an entity 'Description' cell

Usage:

```
geoflow_validator_entity_Description$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Description$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Format *geoflow_validator_entity_Format*

Description

geoflow_validator_entity_Format

geoflow_validator_entity_Format

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Format`

Methods

Public methods:

- `geoflow_validator_entity_Format$new()`
- `geoflow_validator_entity_Format$clone()`

Method `new()`**:** Initializes an entity 'Format' cell

Usage:

```
geoflow_validator_entity_Format$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Format$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Identifier
geoflow_validator_entity_Identifier

Description

geoflow_validator_entity_Identifier

geoflow_validator_entity_Identifier

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Identifier`

Methods

Public methods:

- `geoflow_validator_entity_Identifier$new()`
- `geoflow_validator_entity_Identifier$validate()`
- `geoflow_validator_entity_Identifier$clone()`

Method `new()`**:** Initializes an entity 'Identifier' cell

Usage:

```
geoflow_validator_entity_Identifier$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `validate()`**:** Validates an entity identifier. Proceeds with syntactic validation and content validation for DOIs and UUIDs.

Usage:

```
geoflow_validator_entity_Identifier$validate()
```

Returns: an validation report, as object of class `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Identifier$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Language
geoflow_validator_entity_Language

Description

geoflow_validator_entity_Language

geoflow_validator_entity_Language

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Language`

Methods

Public methods:

- `geoflow_validator_entity_Language$new()`
- `geoflow_validator_entity_Language$validate()`
- `geoflow_validator_entity_Language$clone()`

Method `new()`**:** Initializes an entity 'Language' cell

Usage:

```
geoflow_validator_entity_Language$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `validate()`**:** Validates a language. Proceeds with syntactic validation and language validation.

Usage:

```
geoflow_validator_entity_Language$validate()
```

Returns: an validation report, as object of class `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Language$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Provenance
geoflow_validator_entity_Provenance

Description

geoflow_validator_entity_Provenance

geoflow_validator_entity_Provenance

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Provenance`

Methods

Public methods:

- `geoflow_validator_entity_Provenance$new()`
- `geoflow_validator_entity_Provenance$validate()`
- `geoflow_validator_entity_Provenance$clone()`

Method `new()`**:** Initializes an entity 'Provenance' cell

Usage:

```
geoflow_validator_entity_Provenance$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `validate()`**:** Validates a Provenance. Proceeds with syntactic validation and content validation.

Usage:

```
geoflow_validator_entity_Provenance$validate()
```

Returns: an validation report, as object of class `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Provenance$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Relation
geoflow_validator_entity_Relation

Description

geoflow_validator_entity_Relation

geoflow_validator_entity_Relation

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Relation`

Methods

Public methods:

- `geoflow_validator_entity_Relation$new()`
- `geoflow_validator_entity_Relation$clone()`

Method `new()`**:** Initializes an entity 'Relation' cell

Usage:

```
geoflow_validator_entity_Relation$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Relation$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Rights
geoflow_validator_entity_Rights

Description

geoflow_validator_entity_Rights

geoflow_validator_entity_Rights

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Rights`

Methods

Public methods:

- `geoflow_validator_entity_Rights$new()`
- `geoflow_validator_entity_Rights$clone()`

Method `new()`**:** Initializes an entity 'Rights' cell

Usage:

```
geoflow_validator_entity_Rights$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Rights$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_SpatialCoverage
geoflow_validator_entity_SpatialCoverage

Description

geoflow_validator_entity_SpatialCoverage

geoflow_validator_entity_SpatialCoverage

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_SpatialCoverage`

Methods

Public methods:

- `geoflow_validator_entity_SpatialCoverage$new()`
- `geoflow_validator_entity_SpatialCoverage$validate()`
- `geoflow_validator_entity_SpatialCoverage$clone()`

Method `new()`**:** Initializes an entity 'SpatialCoverage' cell

Usage:

```
geoflow_validator_entity_SpatialCoverage$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `validate()`**:** Validates a spatial coverage. Proceeds with syntactic validation and spatial coverage validation (including EWKT, WKT and SRID).

Usage:

```
geoflow_validator_entity_SpatialCoverage$validate()
```

Returns: an validation report, as object of class `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_SpatialCoverage$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Subject
geoflow_validator_entity_Subject

Description

geoflow_validator_entity_Subject

geoflow_validator_entity_Subject

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Subject`

Methods

Public methods:

- `geoflow_validator_entity_Subject$new()`
- `geoflow_validator_entity_Subject$validate()`
- `geoflow_validator_entity_Subject$clone()`

Method `new()`**:** Initializes an entity 'Subject' cell

Usage:

```
geoflow_validator_entity_Subject$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `validate()`**:** Validates a Subject. Proceeds with syntactic validation and content validation.

Usage:

```
geoflow_validator_entity_Subject$validate()
```

Returns: an validation report, as object of class `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Subject$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_TemporalCoverage
geoflow_validator_entity_TemporalCoverage

Description

geoflow_validator_entity_TemporalCoverage

geoflow_validator_entity_TemporalCoverage

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_TemporalCoverage`

Methods

Public methods:

- `geoflow_validator_entity_TemporalCoverage$new()`
- `geoflow_validator_entity_TemporalCoverage$validate()`
- `geoflow_validator_entity_TemporalCoverage$clone()`

Method `new()`**:** Initializes an entity 'TemporalCoverage' cell

Usage:

```
geoflow_validator_entity_TemporalCoverage$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `validate()`**:** Validates temporal coverage. Proceeds with syntactic validation and temporal coverage validation.

Usage:

```
geoflow_validator_entity_TemporalCoverage$validate()
```

Returns: an validation report, as object of class `data.frame`

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_TemporalCoverage$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Title
geoflow_validator_entity_Title

Description

geoflow_validator_entity_Title

geoflow_validator_entity_Title

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Title`

Methods

Public methods:

- `geoflow_validator_entity_Title$new()`
- `geoflow_validator_entity_Title$clone()`

Method `new()`**:** Initializes an entity 'Title' cell

Usage:

```
geoflow_validator_entity_Title$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Title$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

geoflow_validator_entity_Type *geoflow_validator_entity_Type*

Description

geoflow_validator_entity_Type

geoflow_validator_entity_Type

Super class

`geoflow::geoflow_validator_cell` -> `geoflow_validator_entity_Type`

Methods

Public methods:

- `geoflow_validator_entity_Type$new()`
- `geoflow_validator_entity_Type$clone()`

Method `new()`**:** Initializes an entity 'Type' cell

Usage:

```
geoflow_validator_entity_Type$new(i, j, str)
```

Arguments:

`i` row index (internal index to be used for graphical **geoflow** validation handlers)

`j` col index (internal index to be used for graphical **geoflow** validation handlers)

`str` string to validate

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_validator_entity_Type$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

`geoflow_vocabulary` *Geoflow vocabulary class*

Description

This class models a vocabulary

Format

`R6Class` object.

Details

geoflow_vocabulary

Value

Object of `R6Class` for modelling a vocabulary

Public fields

`id` id

`def` def

`uri` uri

`software_type` software_type

`software` software

`connection` connection

Methods

Public methods:

- `geoflow_vocabulary$new()`
- `geoflow_vocabulary$setSoftware()`
- `geoflow_vocabulary$clone()`

Method `new()`**:** Initializes a vocabulary

Usage:

```
geoflow_vocabulary$new(id, def, uri, software_type, connection = "unknown")
```

Arguments:

`id` id

`def` def

`uri` uri

`software_type` software type

`connection` connection

Method `setSoftware()`**:** Set software

Usage:

```
geoflow_vocabulary$setSoftware(software)
```

Arguments:

`software` software

Method `clone()`**:** The objects of this class are cloneable with this method.

Usage:

```
geoflow_vocabulary$clone(deep = FALSE)
```

Arguments:

`deep` Whether to make a deep clone.

`getDBTableColumnComment` *getDBTableColumnComment*

Description

getDBTableColumnComment

Usage

```
getDBTableColumnComment(dbi, schema, table, column_index)
```

Arguments

`dbi`	a dbi connection
`schema`	schema
`table`	table
`column_index`	table column index

Value

the table comment

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

getDBTableComment *getDBTableComment*

Description

getDBTableComment

Usage

```
getDBTableComment(dbi, schema, table)
```

Arguments

dbi	a dbi connection
schema	schema
table	table

Value

the table comment

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

get_absolute_path *get_absolute_path*

Description

get_absolute_path allows to get the absolute path of a resource given a base directory

Usage

```
get_absolute_path(path, base, mustWork, expand_tilde)
```

Arguments

path	a path in character string
base	a base direcotry
mustWork	must work?
expand_tilde	expand tilde?

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

get_config_resource_path *get_config_resource_path*

Description

get_config_resource_path

Usage

```
get_config_resource_path(config, path)
```

Arguments

config	a **geoflow** config
path	a resource path to resolve vs. the config root dir

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

get_contact_handler *get_contact_handler*

Description

`get_contact_handler` allows to get a contact handler

Usage

```
get_contact_handler(id)
```

Arguments

id	A contact handler identifier

Value

an object of class geoflow_handler

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

get_dictionary_handler *get_dictionary_handler*

Description

`get_dictionary_handler` allows to get a dictionary handler

Usage

```
get_dictionary_handler(id)
```

Arguments

`id`	A dictionary handler identifier

Value

an object of class geoflow_handler

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

get_entity_handler *get_entity_handler*

Description

`get_entity_handler` allows to get an entity handler

Usage

```
get_entity_handler(id)
```

Arguments

`id`	An entity handler identifier

Value

an object of class geoflow_handler

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

get_epsg_code *get_epsg_code*

Description

get_epsg_code is a consolidated method to get EPSG code (srid) from a CRS

Usage

```
get_epsg_code(x)
```

Arguments

x	an object of class 'sf'

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

get_line_separator *get_line_separator*

Description

get_line_separator get the line separator used by geoflow when extracting cell components for tabular data content handling. Default is set to an underscore followed by a line break.

Usage

```
get_line_separator()
```

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

get_locales_from *get_locales_from*

Description

Get locales from a property values set

Usage

```
get_locales_from(values)
```

Arguments

values	values

get_union_bbox *get_union_bbox*

Description

`get_union_bbox` will build a unified bounding box from a list of `geoflow_data` objects

Usage

```
get_union_bbox(data_objects)
```

Arguments

data_objects	list of `geoflow_data` objects

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

initWorkflow *initWorkflow*

Description

initWorkflow allows to init a workflow

Usage

```
initWorkflow(file, dir, jobDirPath, handleMetadata, session)
```

Arguments

file	a JSON or YAML configuration file
dir	a directory where to execute the workflow.
jobDirPath	a directory set-up for the job. Default is NULL means it will be created during initialization of the workflow, otherwise the path provided will be used.
handleMetadata	Default is TRUE. Metadata contacts/entities/dictionary will be handled. If set to FALSE, they will not be handled. This is used for example in geoflow Shiny app where we want to initialize config without handling metadata to inherit software connections and test dynamically the metadata validity.
session	a **shiny** session object (optional) to run geoflow in a **shiny** context

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

initWorkflowJob *initWorkflowJob*

Description

initWorkflowJob allows to init a workflow job

Usage

```
initWorkflowJob(dir)
```

Arguments

dir	a directory where to initialize/execute the workflow

Value

the job directory path

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`is_absolute_path` *is_absolute_path*

Description

`is_absolute_path` evaluate if a `${{path}}` expression is an absolute path, the function will return a boolean argument.

Usage

```
is_absolute_path(path)
```

Arguments

`path`	a path in character string

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`list_actions` *list_actions*

Description

`list_actions` lists the actions supported by geoflow.

Usage

```
list_actions(raw)
```

Arguments

`raw`	Default value is `FALSE`, meaning the actions will be listed as `data.frame`. The output If `TRUE` the raw list of geoflow_action is returned.

Value

an object of class `data.frame` (or `list` of geoflow_action if raw = FALSE)

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

list_action_options *list_action_options*

Description

list_action_options lists the options available for a given action supported by geoflow.

Usage

```
list_action_options(id, raw)
```

Arguments

id	An action identifier
raw	if raw list should be returned

Value

an object of class data.frame (or list if raw is TRUE) listing the available action options.

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

list_contact_handlers *list_contact_handlers*

Description

list_contact_handlers lists the contact handlers supported by geoflow.

Usage

```
list_contact_handlers(raw)
```

Arguments

raw	Default value is FALSE), meaning the handlers will be listed as data.frame. The output If TRUE the raw list of geoflow_handler is returned.

Value

an object of class data.frame (or list of geoflow_handler if raw = FALSE)

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

list_contact_handler_options *list_contact_handler_options*

Description

`list_contact_handler_options` lists the options available for a given contact handler supported by geoflow.

Usage

```
list_contact_handler_options(id, raw)
```

Arguments

`id`	An contact handler identifier
`raw`	if raw list should be returned

Value

an object of class `data.frame` (or `list` if raw is TRUE) listing the available handler options.

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

list_data_accessors *list_data_accessors*

Description

`list_data_accessors` lists the data accessors supported by geoflow.

Usage

```
list_data_accessors(raw)
```

Arguments

`raw`	Default value is `FALSE`, meaning the data accessors will be listed as `data.frame`. The output If `TRUE` the raw list of geoflow_data_accessor is returned.

Value

an object of class `data.frame` (or `list` of geoflow_data_accessor if raw = FALSE)

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`list_dictionary_handlers`
list_dictionary_handlers

Description

`list_dictionary_handlers` lists the dictionary handlers supported by geoflow.

Usage

```
list_dictionary_handlers(raw)
```

Arguments

`raw`	Default value is `FALSE`, meaning the handlers will be listed as `data.frame`. The output If `TRUE` the raw list of geoflow_handler is returned.

Value

an object of class `data.frame` (or `list` of geoflow_handler if raw = FALSE)

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`list_dictionary_handler_options`
list_dictionary_handler_options

Description

`list_dictionary_handler_options` lists the options available for a given dictionary handler supported by geoflow.

Usage

```
list_dictionary_handler_options(id, raw)
```

Arguments

`id`	An dictionary handler identifier
`raw`	if raw list should be returned

Value

an object of class `data.frame` (or `list` if raw is TRUE) listing the available handler options.

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`list_entity_handlers` *list_entity_handlers*

Description

`list_entity_handlers` lists the entity handlers supported by geoflow.

Usage

```
list_entity_handlers(raw)
```

Arguments

`raw`	Default value is `FALSE`, meaning the handlers will be listed as `data.frame`. The output If `TRUE` the raw list of geoflow_handler is returned.

Value

an object of class `data.frame` (or `list` of geoflow_handler if raw = FALSE)

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`list_entity_handler_options` *list_entity_handler_options*

Description

`list_entity_handler_options` lists the options available for a given entity handler supported by geoflow.

Usage

```
list_entity_handler_options(id, raw)
```

Arguments

id	An entity handler identifier
raw	if raw list should be returned

Value

an object of class data.frame (or list if raw is TRUE) listing the available handler options.

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

---

list_registers *list_registers*

Description

list_registers lists the registers supported by geoflow.

Usage

```
list_registers(raw)
```

Arguments

raw	Default value is FALSE, meaning the registers will be listed as data.frame. The output If TRUE the raw list of geoflow_register is returned.

Value

an object of class data.frame (or list of geoflow_register if raw = FALSE)

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`list_software` *list_software*

Description

`list_software` lists the software supported by geoflow.

Usage

```
list_software(raw)
```

Arguments

`raw`	Default value is `FALSE`, meaning the software will be listed as `data.frame`. The output If `TRUE` the raw list of geoflow_software is returned.

Value

an object of class `data.frame` (or `list` of geoflow_software if raw = FALSE)

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`list_software_parameters` *list_software_parameters*

Description

`list_software_parameters` lists the parameters of a given software supported by geoflow.

Usage

```
list_software_parameters(software_type, raw)
```

Arguments

`software_type`	A software type
`raw`	if raw list should be returned

Value

an object of class `data.frame` (or `list` if raw is TRUE) listing the software parameters

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

list_software_properties *list_software_properties*

Description

`list_software_properties` lists the properties of a given software supported by geoflow.

Usage

```
list_software_properties(software_type, raw)
```

Arguments

`software_type`	A software type
`raw`	if raw list should be returned

Value

an object of class `data.frame` listing the software properties

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

list_vocabularies *list_vocabularies*

Description

`list_vocabularies` lists the vocabularies supported by geoflow.

Usage

```
list_vocabularies(raw)
```

Arguments

`raw`	Default value is `FALSE`, meaning the vocabularies will be listed as `data.frame`. The output If `TRUE` the raw list of geoflow_vocabulary is returned.

Value

an object of class `data.frame` (or `list` of geoflow_vocabulary if raw = FALSE)

`loadMetadataHandler` *loadMetadataHandler*

Description

`loadMetadataHandler` allows to load a metadata handler

Usage

```
loadMetadataHandler(config, element, type)
```

Arguments

`config`	a geoflow configuration (as list). Only used to write logs, can be NULL.
`element`	a geoflow configuration metadata list element
`type`	either 'contacts', 'entities' or 'dictionnary'

Value

an object of class geoflow_handler

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`load_workflow_environment` *load_workflow_environment*

Description

`load_workflow_environment` loads a workflow environment by evaluating variable expressions in the form `${{variable}}`. If no variable expression pattern is identified in the string, the function will return the original string.

Usage

```
load_workflow_environment(config, session)
```

Arguments

`config`	object of class list
`session`	a **shiny** session object (optional) to run geoflow in a **shiny** context.

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

posix_to_str *posix_to_str*

Description

posix_to_str converts a POSIX object to ISO string

Usage

```
posix_to_str(posix)
```

Arguments

posix	a POSIX object

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

---

precompute_relationships *precompute_relationships*

Description

precompute_relationships

Usage

```
precompute_relationships(data, parent_key, child_key, child_label)
```

Arguments

data	data
parent_key	parent_key
child_key	child_key
child_label	child_label

Value

a list of relationships

read_contacts *read_contacts*

Description

`read_contacts` allows to read contacts

Usage

```
read_contacts(id, source, config)
```

Arguments

`id`	a contact handler identifier
`source`	source
`config`	a geoflow config (output of initWorkflow). Default is `NULL`

Value

a list of object of class geoflow_contact

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

read_dictionary *read_dictionary*

Description

`read_dictionary` allows to read a dictionary

Usage

```
read_dictionary(id, source, config)
```

Arguments

`id`	a dictionary handler identifier
`source`	source
`config`	a geoflow config (output of initWorkflow). Default is `NULL`

Value

an object of class geoflow_dictionary

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`read_entities` *read_entities*

Description

`read_entities` allows to read entities

Usage

```
read_entities(id, source, config)
```

Arguments

`id`	an entity handler identifier
`source`	source
`config`	a geoflow config (output of initWorkflow). Default is `NULL`

Value

a list of object of class geoflow_entity

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

`register_actions` *register_actions*

Description

`register_actions` registers default geoflow actions

Usage

```
register_actions()
```

Note

Function called on load by geoflow

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

register_contact_handlers *register_contact_handlers*

Description

`register_contact_handlers` registers the default contact handlers for geoflow

Usage

```
register_contact_handlers()
```

Note

Internal function called on load by geoflow

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

register_data_accessors *register_data_accessors*

Description

`register_data_accessors` registers default geoflow data accessors

Usage

```
register_data_accessors()
```

Note

Function called on load by geoflow

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

register_dictionary_handlers
register_dictionary_handlers

Description

`register_dictionary_handlers` registers the default dictionary handlers for geoflow

Usage

```
register_dictionary_handlers()
```

Note

Internal function called on load by geoflow

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

register_entity_handlers
register_entity_handlers

Description

`register_entity_handlers` registers the default entity handlers for geoflow

Usage

```
register_entity_handlers()
```

Note

Internal function called on load by geoflow

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

register_registers *register_registers*

Description

`register_registers` registers default geoflow registers

Usage

```
register_registers()
```

Note

Function called on load by geoflow

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

register_software *register_software*

Description

`register_software` registers default geoflow software

Usage

```
register_software()
```

Note

Function called on load by geoflow

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

register_vocabularies *register_vocabularies*

Description

register_vocabularies registers default geoflow vocabularies

Usage

```
register_vocabularies()
```

Note

Function called on load by geoflow

sanitize_date *sanitize_date*

Description

sanitize_date sanitizes a date in geoflow

Usage

```
sanitize_date(date)
```

Arguments

date	an object o class character

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

sanitize_str *sanitize_str*

Description

sanitize_str sanitizes a string definition in geoflow

Usage

```
sanitize_str(str)
```

Arguments

str	a string as object of class character

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

set_i18n *set_i18n*

Description

Set default locales to a property values set

Usage

```
set_i18n(term_key, default, expr, ...)
```

Arguments

term_key	term key
default	default
expr	expr
...	named values to be passed to expr

set_line_separator *set_line_separator*

Description

set_line_separator set the line separator to be used by geoflow when extracting cell components for tabular data content handling.

Usage

```
set_line_separator(x)
```

Arguments

x	a string as object of class character representing the line separator.

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

set_locales_to *set_locales_to*

Description

Set locales to a property values set

Usage

```
set_locales_to(values,locales)
```

Arguments

values	values
locales	locales

str_to_posix *str_to_posix*

Description

`str_to_posix` parses a string into a `POSIX` object

Usage

```
str_to_posix(str)
```

Arguments

`str`	a string as object of class `character`

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

unload_workflow_environment *unload_workflow_environment*

Description

`unload_workflow_environment` unloads a workflow environment, in the case environment was provided by means of a dotenv file, and loaded using **dotenv** by **geoflow**. The function will recover the session environment variables values (useful in case an environment variable was overwriten for the workflow execution).

Usage

```
unload_workflow_environment(config)
```

Arguments

`config`	object of class list

Author(s)

Emmanuel Blondel, <emmanuel.blondel1@gmail.com>

writeWorkflowJobDataResource
writeWorkflowJobDataResource

Description

writeWorkflowJobDataResource allows to transform datasource into different formats

Usage

```
writeWorkflowJobDataResource(entity, config, obj,
                                    useFeatures, resourcename, useUploadSource,
                                  createIndexes, overwrite, append, chunk.size,
                                    type)
```

Arguments

entity	a entity object as read by geoflow_entity
config	a configuration object as read by initWorkflow
obj	a sf file
useFeatures	a boolean condition to define if features must be attach to obj file
resourcename	name of data input
useUploadSource	a boolean condition to define if resourcename is same as uploadSource information
createIndexes	a boolean condition for possibility to create indexes for each column
overwrite	a boolean condition for writing to DB. Default is TRUE
append	a boolean condition for appending to DB existing table. Default is FALSE
chunk.size	an object of class integer giving the size of chunks to apply for DB upload. Default is equal to 0L, meaning DB upload will be done without chunking.
type	format to convert into. Formats supported: shp, csv, gpkg, parquet, dbtable

Author(s)

Alexandre Bennici, <bennicialexandre@gmail.com>

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