Package 'dataspice'

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Version 1.1.0

Title Create Lightweight Schema.org Descriptions of Data

Description The goal of 'dataspice' is to make it easier for researchers to create basic, lightweight, and concise metadata files for their datasets. These basic files can then be used to make useful information available during analysis, create a helpful dataset ``README'' webpage, and produce more complex metadata formats to aid dataset discovery. Metadata fields are based on the 'Schema.org' and 'Ecological Metadata Language' standards.

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URL https://github.com/ropensci/dataspice

BugReports https://github.com/ropensci/dataspice/issues

Encoding UTF-8

Language en-US

ByteCompile true

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Imports purrr, EML, fs, jsonlite, whisker, readr, stringr, tools, tibble, shiny, rhandsontable, dplyr, tidyr, ggplot2, magrittr

Suggests testthat, kableExtra, knitr, rmarkdown, servr, listviewer, maps

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R topics documented:

as_jsonld *Convert a list object to JSON-LD*

Description

Convert a list object to JSON-LD

Usage

```
as_jsonld(
  x,
  context = "http://schema.org",
  pretty = TRUE,
  auto_unbox = TRUE,
  ...
)
```

Arguments

x	the object to be encoded.
context	JSON-LD context; "http://schema.org".
pretty	Whether or not to prettify output. See toJSON.
auto_unbox	Whether or not to automatically unbox output. See toJSON.
...	Other arguments to be passed to toJSON.

build_site *Build a dataspice site*

Description

Build a dataspice site

Usage

```
build_site(
  path = "data/metadata/dataspice.json",
  template_path = system.file("template.html5", package = "dataspice"),
  out_path = "docs/index.html"
)
```

Arguments

path	(character) Path to a JSON+LD file with dataspice metadata
template_path	(character) Optional. Path to a template for whisker.render
out_path	(character) Optional. Path to write the site's index.html to. Defaults to docs/index.html.

Value

Nothing. Creates/overwrites `docs/index.html`

Examples

```
## Not run:
# Create JSON+LD from a set of metadata templates
json <- write_json(biblio, access, attributes, creators)
build_site(json)

## End(Not run)
```

`create_spice` *Put metadata templates within a* `metadata` *subdirectory*

Description

Put metadata templates within a `metadata` subdirectory

Usage

```
create_spice(dir = "data")
```

Arguments

`dir`	Directory containing data, within which a `metadata` subdirectory will be created. Defaults to `data`.

Examples

```
## Not run:
create_spice()

# Create templates from the data in a folder other than `data`
create_spice("my_data")

## End(Not run)
```

crosswalk *Crosswalk a term*

Description

Crosswalk a term

Usage

```
crosswalk(doc, term)
```

Arguments

doc	(list) A dataspice document as a list
term	(character) The term to crosswalk.

Value

(list) The result of the crosswalk. May be an empty list on failure.

crosswalk_creator *Crosswalk a Schema.org/creator*

Description

Crosswalk a Schema.org/creator

Usage

```
crosswalk_creator(creator)
```

Arguments

creator	(list) A creator

crosswalk_datetime *Convert a date(time) of unknown format into EML*

Description

A quick and dirty crosswalk of an unknown date(time) input to EML that really only works for ISO8601 input. All other formats will fail and be returned as-is as a `calendarDate`. From there the user will need to do a conversion themselves.

Usage

```
crosswalk_datetime(input)
```

Arguments

`input`	(character) Some unknown date(time) input

Value

(list) A `list` with members `calendarDate` and `time`. `time` will be `NULL` if parsing fails or if the time string inside `input` isn't ISO8601

crosswalk_distribution *Crosswalk a Schema.org/distribution*

Description

Crosswalk a Schema.org/distribution

Usage

```
crosswalk_distribution(distribution)
```

Arguments

`distribution`	(list) A distribution

crosswalk_Organization *Crosswalk a Schema.org/Organization*

Description

Crosswalk a Schema.org/Organization

Usage

```
crosswalk_Organization(creator)
```

Arguments

creator	(list) A creator

crosswalk_Person *Crosswalk functions for* as_eml *Crosswalk a Schema.org/Person*

Description

Crosswalk functions for as_eml Crosswalk a Schema.org/Person

Usage

```
crosswalk_Person(creator)
```

Arguments

creator	(list) A creator

crosswalk_variables *Crosswalk* dataspice *variables to EML*

Description

See set_attributes for more information on what must be filled out after this is run in order to get a valid EML attributeList.

Usage

```
crosswalk_variables(spice)
```

Arguments

spice	(list) Your dataspice metadata

Value

(data.frame) A partial EML attributes table

Examples

```
## Not run:
# Load an example dataspice JSON that comes installed with the package
spice <- system.file(
  "examples", "annual-escapement.json",
  package = "dataspice")

# Convert it to EML (notice the warning)
eml_doc <- suppressWarnings({spice_to_eml(spice)})
attributes <- crosswalk_variables(spice)

# Now fill in the attributes data.frame. See `EML::set_attributes`.

# And last, set the attributes on our EML document
eml_doc$dataset$dataTable[[1]]$attributeList <-
  EML::set_attributes(attributes)

## End(Not run)
```

---

edit_access *Shiny apps for editing dataspice metadata tables*

Description

Launch Shiny app for editing individual dataspice metadata tables. Use edit_*() where * is one of the four dataspice metadata tables attributes**,** biblio**,** access **or** creators.

Usage

```
edit_access(metadata_dir = file.path("data", "metadata"))
```

Arguments

metadata_dir	the directory containing the dataspice metadata .csv files. Defaults to data/metadata/ directory in **current project root**.

Examples

```
## Not run:
edit_attributes()
edit_biblio()
edit_access()
edit_creators()

# Specifying a different dataspice metadata directory
edit_attributes(metadata_dir = "analysis/data/metadata/"))

## End(Not run)
```

`edit_attributes` *Shiny apps for editing dataspice metadata tables*

Description

Launch Shiny app for editing individual `dataspice` metadata tables. Use edit_*() where `*` is one of the four `dataspice` metadata tables `attributes`, `biblio`, `access` **or** `creators`.

Usage

```
edit_attributes(metadata_dir = "data/metadata")
```

Arguments

`metadata_dir`	the directory containing the `dataspice` metadata `.csv` files. Defaults to data/metadata/ directory in **current project root**.

Examples

```
## Not run:
edit_attributes()
edit_biblio()
edit_access()
edit_creators()

# Specifying a different dataspice metadata directory
edit_attributes(metadata_dir = "analysis/data/metadata/"))

## End(Not run)
```

edit_biblio *Shiny apps for editing dataspice metadata tables*

Description

Launch Shiny app for editing individual dataspice metadata tables. Use edit_*() where * is one of the four dataspice metadata tables attributes, biblio, access **or** creators.

Usage

```
edit_biblio(metadata_dir = file.path("data", "metadata"))
```

Arguments

metadata_dir	the directory containing the dataspice metadata .csv files. Defaults to data/metadata/ directory in **current project root**.

Examples

```
## Not run:
edit_attributes()
edit_biblio()
edit_access()
edit_creators()

# Specifying a different dataspice metadata directory
edit_attributes(metadata_dir = "analysis/data/metadata/"))

## End(Not run)
```

edit_creators *Shiny apps for editing dataspice metadata tables*

Description

Launch Shiny app for editing individual dataspice metadata tables. Use edit_*() where * is one of the four dataspice metadata tables attributes, biblio, access **or** creators.

Usage

```
edit_creators(metadata_dir = file.path("data", "metadata"))
```

Arguments

metadata_dir	the directory containing the dataspice metadata .csv files. Defaults to data/metadata/ directory in **current project root**.

Examples

```
## Not run:
edit_attributes()
edit_biblio()
edit_access()
edit_creators()

# Specifying a different dataspice metadata directory
edit_attributes(metadata_dir = "analysis/data/metadata/"))

## End(Not run)
```

`eml_to_spice` *Create dataspice metadata tables from EML*

Description

Create dataspice metadata tables from EML

Usage

```
eml_to_spice(eml, path = NULL)
```

Arguments

`eml`	(emld) An EML object
`path`	(character) Folder path for saving the tables to disk

Value

A list with names `attributes`, `access`, `biblio`, and `creators`. Optionally, if `path` is specified, saves the four tables as `CSV` files.

Examples

```
## Not run:
# First, load up an example EML record
library(EML)

eml_path <- system.file(
 file.path("example-dataset", "broodTable_metadata.xml"),
 package = "dataspice")
eml <- read_eml(eml_path)


# Generate the four dataspice tables
my_spice <- eml_to_spice(eml)

# Or save them as a file
```

```
# Generate the four dataspice tables
eml_to_spice(eml, ".")

## End(Not run)
```

`es_access` *Get access from EML*

Description

Return EML access in the dataspice access.csv format.

Usage

```
es_access(eml, path = NULL)
```

Arguments

`eml`	(emld) an EML object
`path`	(character) folder path for saving the table to disk

`es_attributes` *Get attributes from EML*

Description

Return EML attributes in the dataspice attributes.csv format.

Usage

```
es_attributes(eml, path = NULL)
```

Arguments

`eml`	(emld) an EML object
`path`	(character) folder path for saving the table to disk

es_biblio *Get biblio from EML*

Description

Return EML biblio in the dataspice biblio.csv format.

Usage

```
es_biblio(eml, path = NULL)
```

Arguments

eml	(emld) an EML object
path	(character) folder path for saving the table to disk

es_creators *Get creators from EML*

Description

Return EML creators in the dataspice creators.csv format.

Usage

```
es_creators(eml, path = NULL)
```

Arguments

eml	(emld) an EML object
path	(character) folder path for saving the table to disk

jsonld_to_mustache *Convert JSONLD to a list suitable for Mustache templating*

Description

Convert JSONLD to a list suitable for Mustache templating

Usage

```
jsonld_to_mustache(path)
```

Arguments

path	(character) Path to file on disk to convert

Value

(list) Mustache-appropriate list

parse_GeoShape_box *Parse spatialCoveragegeobox section for use in a Leaflet map*

Description

Parse spatialCoveragegeobox section for use in a Leaflet map

Usage

```
parse_GeoShape_box(box)
```

Arguments

box	(list) spatialCoveragegeobox section of the JSONLD

Value

(list) Template-specific variables for Leaflet

parse_spatialCoverage *Parse spatialCoverage section for use in a Leaflet map*

Description

Parse spatialCoverage section for use in a Leaflet map

Usage

```
parse_spatialCoverage(spatialCoverage)
```

Arguments

spatialCoverage	(list) spatialCoverage section of the JSONLD

Value

(list) Template-specific variables for Leaflet

prep_access *Prepare access*

Description

Extract `fileNames` from data file(s) and add them to `access.csv`. The helper `validate_file_paths` can be used to create vectors of valid file paths that can be checked and then passed as `data_path` argument to `prep_access`.

Usage

```
prep_access(data_path = "data", access_path = "data/metadata/access.csv", ...)
```

Arguments

data_path	character vector of either: 1. path(s) to the data file(s). 2. single path to directory containing data file(s). Currently only tabular `.csv` and `.tsv` or `.rds` files are supported.
access_path	path to the `access.csv` file. Defaults to `data/metadata/access.csv`.
...	parameters passed to `list.files()`. For example, use `recursive = TRUE` to list files in a folder recursively or use `pattern` to filter files for patterns.

Value

Updates `access.csv` and writes to `access_path`.

Examples

```
## Not run:
# First create the metadata tempaltes
create_spice()

# Then begin filling them in from your data files
prep_access()

## End(Not run)
```

`prep_attributes` *Prepare attributes*

Description

Extract `variableNames` from data file(s) and add them to `attributes.csv`. The helper `validate_file_paths` can be used to create vectors of valid file paths that can be checked and then passed as `data_path` argument to `prep_attributes`.

Usage

```
prep_attributes(
  data_path = "data",
  attributes_path = "data/metadata/attributes.csv",
  ...
)
```

Arguments

`data_path`	character vector of either: 1. path(s) to the data file(s). 2. single path to directory containing data file(s). Currently only tabular `.csv` and `.tsv` files are supported. Alternatively attributes returned using `names()` can be extracted from r object, stored as `.rds` files.
`attributes_path`	path to the attributes.csv`` file. Defaults to data/metadata/attributes.csv‘.
`...`	parameters passed to `list.files()`. For example, use `recursive = TRUE` to list files in a folder recursively or use `pattern` to filter files for patterns.

Value

`prep_attributes()` updates the `attributes.csv` and writes to `attributes_path`.

Examples

```
## Not run:
create_spice()
# extract attributes from all `csv`, `tsv`, `rds` files in the data folder
# (non recursive)
prep_attributes()
# recursive
prep_attributes(recursive = TRUE)
# extract attributes from a single file using file path
data_path <- system.file("example-dataset","BroodTables.csv",
                         package = "dataspice")
prep_attributes(data_path)
# extract attributes from a single file by file path pattern matching
data_path <- system.file("example-dataset", package = "dataspice")
prep_attributes(data_path, pattern = "StockInfo")
# extract from a folder using folder path
data_path <- system.file("example-dataset", package = "dataspice")
prep_attributes(data_path)

## End(Not run)
```

---

serve_site *Serve site*

Description

Serve site

Usage

```
serve_site(path = "docs")
```

Arguments

path	(character) Optional. Directory to serve. Defaults to docs.

Value

Nothing.

Examples

```
## Not run:
# Build your site
json <- write_json(biblio, access, attributes, creators)
build_site(json)

# Serve it
serve_site()

## End(Not run)
```

spice_to_eml *Convert* dataspice *metadata to EML*

Description

Performs an (imperfect) conversion of dataspice metadata to EML. It's very likely you will get validation errors and need to fix them afterwards but spice_to_eml is a good way to a richer metadata schema (EML) when you're already using dataspice but need a richer metadata schema.

Usage

```
spice_to_eml(spice = file.path("data", "metadata", "dataspice.json"))
```

Arguments

spice	(list) Your dataspice metadata. Uses data/metadata/dataspice.json by default.

Value

(emld) The crosswalked emld object

Examples

```
# Load an example dataspice JSON that comes installed with the package
spice <- system.file(
  "examples", "annual-escapement.json",
  package = "dataspice"
)

# And crosswalk it to EML
spice_to_eml(spice)

# We can also create dataspice metadata from scratch and crosswalk it to EML
myspice <- list(
  name = "My example spice",
  creator = "Me",
  contact = "Me"
)
spice_to_eml(myspice)
```

validate_access *Validate access.csv*

Description

Validate access.csv

Usage

```
validate_access(access)
```

Arguments

access	(data.frame) A data.frame read in from access.csv

Value

Nothing. Side-effect: Can stop execution if validation fails.

validate_attributes *Validate attributes.csv*

Description

Validate attributes.csv

Usage

```
validate_attributes(attributes)
```

Arguments

attributes	(data.frame) A data.frame read in from attributes.csv

Value

Nothing. Side-effect: Can stop execution if validation fails.

validate_biblio *Validate biblio.csv*

Description

Validate biblio.csv

Usage

```
validate_biblio(biblio)
```

Arguments

biblio	(data.frame) A data.frame read in from biblio.csv

Value

Nothing. Side-effect: Can stop execution if validation fails.

validate_creators *Validate creators.csv*

Description

Validate creators.csv

Usage

```
validate_creators(creators)
```

Arguments

creators	(data.frame) A data.frame read in from creators.csv

Value

Nothing. Side-effect: Can stop execution if validation fails.

validate_file_paths *Validate file paths*

Description

Helper function to return a set of file paths for use in other functions

Usage

```
validate_file_paths(data_path = "data", ...)
```

Arguments

data_path	character vector of either: 1. path(s) to the data file(s). 2. single path to directory containing data file(s). Currently only tabular `.csv` and `.tsv` files are supported. Alternatively attributes returned using `names()` can be extracted from r object, stored as `.rds` files.
...	parameters passed to `list.files()`. For example, use `recursive = TRUE` to list files in a folder recursively or use `pattern` to filter files for patterns.

Value

One or more data file paths

Examples

```
## Not run:
# Assuming some data files in "./data"
my_files <- validate_file_paths()

# If your data files are in `another_folder`
my_files <- validate_file_paths("another_folder")

## End(Not run)
```

write_jsonld *Write a list out as object to JSON-LD*

Description

Write a list out as object to JSON-LD

Usage

```
write_jsonld(
  x,
  path,
  context = "http://schema.org",
  pretty = TRUE,
  auto_unbox = TRUE,
  ...
)
```

Arguments

x	an object to be serialized to JSON
path	file on disk
context	JSON-LD context; "http://schema.org"
pretty	adds indentation whitespace to JSON output. Can be TRUE/FALSE or a number specifying the number of spaces to indent. See prettify
auto_unbox	automatically unbox all atomic vectors of length 1. It is usually safer to avoid this and instead use the unbox function to unbox individual elements. An exception is that objects of class AsIs (i.e. wrapped in I()) are not automatically unboxed. This is a way to mark single values as length-1 arrays.
...	additional conversion arguments, see also toJSON or fromJSON

---

write_spice *Write spice*

Description

Write out your metadata as a dataspice JSON-LD document

Usage

```
write_spice(path = "data/metadata", ...)
```

Arguments

path	location of metadata files
...	additional arguments to jsonlite::toJSON()

Value

A JSON-LD file at the path specified

Examples

```
## Not run:
# First create your metadata templates
create_spice()

# Then fill in the template files however you like

# Then write out your dataspice file
write_spice()

## End(Not run)
```

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