

Package ‘medrxivr’

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Title Access and Search MedRxiv and BioRxiv Preprint Data

Version 0.1.4

Depends R (>= 4.1.0)

Description An increasingly important source of health-related bibliographic content are preprints - preliminary versions of research articles that have yet to undergo peer review. The two preprint repositories most relevant to health-related sciences are medRxiv <<https://www.medrxiv.org/>> and bioRxiv, both of which are operated by the Cold Spring Harbor Laboratory. 'medrxivr' provides programmatic access to the 'Cold Spring Harbour Laboratory (CSHL)' API <<https://api.biorxiv.org/>>, allowing users to easily download medRxiv and bioRxiv preprint metadata (e.g. title, abstract, publication date, author list, etc) into R. 'medrxivr' also provides functions to search the downloaded preprint records using regular expressions and Boolean logic, as well as helper functions that allow users to export their search results to a .BIB file for easy import to a reference manager and to download the full-text PDFs of preprints matching their search criteria.

License GPL-2

Encoding UTF-8

Language en-US

URL <https://docs.ropensci.org/medrxivr/>,
<https://github.com/ropensci/medrxivr>

BugReports <https://github.com/ropensci/medrxivr/issues>

Imports methods, dplyr, curl, jsonlite, httr, stringr, rlang, bib2df, tibble, progress, lubridate, purrr, data.table

Suggests testthat (>= 2.1.0), knitr, rmarkdown, covr, kableExtra, spelling

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| | |
|----------------|---|
| mx_api_content | <i>Access medRxiv/bioRxiv data via the Cold Spring Harbour Laboratory API</i> |
|----------------|---|

Description

Provides programmatic access to all preprints available through the Cold Spring Harbour Laboratory API, which serves both the medRxiv and bioRxiv preprint repositories.

Usage

```
mx_api_content(  
  from_date = "2013-01-01",  
  to_date = as.character(Sys.Date()),  
  clean = TRUE,  
  server = "medrxiv",  
  include_info = FALSE  
)
```

Arguments

| | |
|--------------|---|
| from_date | Earliest date of interest, written as "YYYY-MM-DD". Defaults to 1st Jan 2013 ("2013-01-01"), ~6 months prior to earliest preprint registration date. |
| to_date | Latest date of interest, written as "YYYY-MM-DD". Defaults to current date. |
| clean | Logical, defaulting to TRUE, indicating whether to clean the data returned by the API. If TRUE, variables containing absolute paths to the preprints web-page ("link_page") and PDF ("link_pdf") are generated from the "server", "DOI", and "version" variables returned by the API. The "category", "authors" and "author_corresponding" variables are converted to title case. Finally, the "type" and "server" variables are dropped. |
| server | Specify the server you wish to use: "medrxiv" (default) or "biorxiv" |
| include_info | Logical, indicating whether to include variables containing information returned by the API (e.g. API status, cursor number, total count of papers, etc). Default is FALSE. |

Value

Dataframe with 1 record per row

See Also

Other data-source: [mx_api_doi\(\)](#), [mx_snapshot\(\)](#)

Examples

```
if (interactive()) {
  mx_data <- mx_api_content(
    from_date = "2020-01-01",
    to_date = "2020-01-07"
  )
}
```

| | |
|------------|--|
| mx_api_doi | <i>Access data on a single medRxiv/bioRxiv record via the Cold Spring Harbour Laboratory API</i> |
|------------|--|

Description

Provides programmatic access to data on a single preprint identified by a unique Digital Object Identifier (DOI).

Usage

```
mx_api_doi(doi, server = "medrxiv", clean = TRUE)
```

Arguments

| | |
|--------|---|
| doi | Digital object identifier of the preprint you wish to retrieve data on. |
| server | Specify the server you wish to use: "medrxiv" (default) or "biorxiv" |
| clean | Logical, defaulting to TRUE, indicating whether to clean the data returned by the API. If TRUE, variables containing absolute paths to the preprints web-page ("link_page") and PDF ("link_pdf") are generated from the "server", "DOI", and "version" variables returned by the API. The "category", "authors" and "author_corresponding" variables are converted to title case. Finally, the "type" and "server" variables are dropped. |

Value

Dataframe containing details on the preprint identified by the DOI.

See Also

Other data-source: [mx_api_content\(\)](#), [mx_snapshot\(\)](#)

Examples

```
if (interactive()) {
  mx_data <- mx_api_doi("10.1101/2020.02.25.20021568")
}
```

mx_caps

Search term wrapper that allows for different capitalization of term

Description

Inspired by the varying capitalization of "NCOV" during the corona virus pandemic (e.g. ncov, nCoV, NCOV, nCOV), this function allows for all possible configurations of lower- and upper-case letters in your search term.

Usage

```
mx_caps(x)
```

Arguments

| | |
|---|-----------------------------|
| x | Search term to be formatted |
|---|-----------------------------|

Value

The input string is return, but with each non-space character repeated in lower- and upper-case, and enclosed in square brackets. For example, `mx_caps("ncov")` returns "[Nn][Cc][Oo][Vv]"

See Also

Other helper: [mx_crosscheck\(\)](#), [mx_download\(\)](#), [mx_export\(\)](#)

`mx_crosscheck`*Check how up-to-date the maintained medRxiv snapshot is*

Description

Provides information on how up-to-date the maintained medRxiv snapshot provided by `mx_snapshot()` is by checking whether there have been any records added to, or updated in, the medRxiv repository since the last snapshot was taken.

Usage

```
mx_crosscheck()
```

See Also

Other helper: [mx_caps\(\)](#), [mx_download\(\)](#), [mx_export\(\)](#)

Examples

```
if (interactive()) {  
  mx_crosscheck()  
}
```

`mx_download`*Download PDF's of preprints returned by a search*

Description

Download PDF's of all the papers in your search results

Usage

```
mx_download(  
  mx_results,  
  directory,  
  create = TRUE,  
  name = c("ID", "DOI"),  
  print_update = 10  
)
```

Arguments

| | |
|---------------------------|--|
| <code>mx_results</code> | Vector containing the links to the medRxiv PDFs |
| <code>directory</code> | The location you want to download the PDF's to |
| <code>create</code> | TRUE or FALSE. If TRUE, creates the directory if it doesn't exist |
| <code>name</code> | How to name the downloaded PDF. By default, both the ID number of the record and the DOI are used. |
| <code>print_update</code> | How frequently to print an update |

See Also

Other helper: [mx_caps\(\)](#), [mx_crosscheck\(\)](#), [mx_export\(\)](#)

Examples

```
if (interactive()) {  
  mx_results <- mx_search(mx_snapshot(), query = "10.1101/2020.02.25.20021568")  
  mx_download(mx_results, directory = tempdir())  
}
```

mx_export

Export references for preprints returning by a search to a .bib file

Description

Export references for preprints returning by a search to a .bib file

Usage

```
mx_export(data, file = "medrxiv_export.bib")
```

Arguments

| | |
|------|--|
| data | Dataframe returned by mx_search() or mx_api_* () functions |
| file | File location to save to. Must have the .bib file extension |

Value

Exports a formatted .BIB file, for import into a reference manager

See Also

Other helper: [mx_caps\(\)](#), [mx_crosscheck\(\)](#), [mx_download\(\)](#)

Examples

```
if (interactive()) {  
  mx_results <- mx_search(mx_snapshot(), query = "brain")  
  mx_export(mx_results, tempfile(fileext = ".bib"))  
}
```

| | |
|-------------|--|
| mx_reporter | <i>Search and print output for individual search items</i> |
|-------------|--|

Description

Search and print output for individual search items

Usage

```
mx_reporter(mx_data, num_results, query, fields, deduplicate, NOT)
```

Arguments

| | |
|-------------|--|
| mx_data | The mx_dataset filtered for the date limits |
| num_results | The number of results returned by the overall search |
| query | Character string, vector or list |
| fields | Fields of the database to search - default is Title, Abstract, Authors, Category, and DOI. |
| deduplicate | Logical. Only return the most recent version of a record. Default is TRUE. |
| NOT | Vector of regular expressions to exclude from the search. Default is "". |

See Also

Other main: [mx_search\(\)](#), [print_full_results\(\)](#), [run_search\(\)](#)

| | |
|-----------|-----------------------------|
| mx_search | <i>Search preprint data</i> |
|-----------|-----------------------------|

Description

Search preprint data

Usage

```
mx_search(
  data = NULL,
  query = NULL,
  fields = c("title", "abstract", "authors", "category", "doi"),
  from_date = NULL,
  to_date = NULL,
  auto_caps = FALSE,
  NOT = "",
  deduplicate = TRUE,
  report = FALSE
)
```

Arguments

| | |
|-------------|--|
| data | The preprint dataset that is to be searched, created either using <code>mx_api_content()</code> or <code>mx_snapshot()</code> |
| query | Character string, vector or list |
| fields | Fields of the database to search - default is Title, Abstract, Authors, Category, and DOI. |
| from_date | Defines earliest date of interest. Written in the format "YYYY-MM-DD". Note, records published on the date specified will also be returned. |
| to_date | Defines latest date of interest. Written in the format "YYYY-MM-DD". Note, records published on the date specified will also be returned. |
| auto_caps | As the search is case sensitive, this logical specifies whether the search should automatically allow for differing capitalisation of search terms. For example, when TRUE, a search for "dementia" would find both "dementia" but also "Dementia". Note, that if your term is multi-word (e.g. "systematic review"), only the first word is automatically capitalised (e.g your search will find both "systematic review" and "Systematic review" but won't find "Systematic Review". Note that this option will format terms in the query and NOT arguments (if applicable). |
| NOT | Vector of regular expressions to exclude from the search. Default is "". |
| deduplicate | Logical. Only return the most recent version of a record. Default is TRUE. |
| report | Logical. Run <code>mx_reporter</code> . Default is FALSE. |

See Also

Other main: `mx_reporter()`, `print_full_results()`, `run_search()`

Examples

```
if (interactive()) {
  # Using the static snapshot
  mx_results <- mx_search(data = mx_snapshot(), query = "dementia")
}
```

mx_snapshot

Access a static snapshot of the medRxiv repository

Description

[Available for medRxiv only] This function allows users to import a maintained static snapshot of the medRxiv repository, instead of downloading a copy from the API, which can become unavailable during peak usage times. The function reads a manifest-driven snapshot artifact from the package's GitHub release assets by default.

Usage

```
mx_snapshot(
  commit = "main",
  from_date = NULL,
  to_date = NULL,
  manifest_url = default_snapshot_manifest_url(),
  cache = TRUE
)
```

Arguments

| | |
|--------------|---|
| commit | Deprecated. Only the default value "main" is supported. Use 'manifest_url' to read a specific snapshot manifest. |
| from_date | Optional earliest date of interest ("YYYY-MM-DD" or Date). If supplied, records with 'date' earlier than this are excluded. |
| to_date | Optional latest date of interest ("YYYY-MM-DD" or Date). If supplied, records with 'date' later than this are excluded. |
| manifest_url | URL for a JSON snapshot manifest. Defaults to option 'medrxivr.snapshot_manifest', or the package's latest GitHub release manifest if that option is unset. |
| cache | Logical. If TRUE, downloaded manifest snapshot files are cached between sessions. Defaults to TRUE. |

Value

A formatted dataframe containing the data from the snapshot artifact, with reconstructed 'link_page' and 'link_pdf' columns.

See Also

Other data-source: [mx_api_content\(\)](#), [mx_api_doi\(\)](#)

print_full_results *Search for terms in the dataset*

Description

Search for terms in the dataset

Usage

```
print_full_results(num_results, deduplicate)
```

Arguments

| | |
|-------------|--|
| num_results | number of searched terms returned |
| deduplicate | Logical. Only return the most recent version of a record. Default is TRUE. |

See Also

Other main: [mx_reporter\(\)](#), [mx_search\(\)](#), [run_search\(\)](#)

| | |
|------------|--|
| run_search | <i>Search for terms in the dataset</i> |
|------------|--|

Description

Search for terms in the dataset

Usage

```
run_search(mx_data, query, fields, deduplicate, NOT = "")
```

Arguments

| | |
|-------------|--|
| mx_data | The mx_dataset filtered for the date limits |
| query | Character string, vector or list |
| fields | Fields of the database to search - default is Title, Abstract, Authors, Category, and DOI. |
| deduplicate | Logical. Only return the most recent version of a record. Default is TRUE. |
| NOT | Vector of regular expressions to exclude from the search. Default is NULL. |

See Also

Other main: [mx_reporter\(\)](#), [mx_search\(\)](#), [print_full_results\(\)](#)

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