

Package ‘HCABrowser’

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Type Package

Title Browse the Human Cell Atlas data portal

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Description Search, browse, reference, and download resources from the Human Cell Atlas data portal. Development of this package is supported through funds from the Chan / Zuckerberg initiative.

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activate	<i>Activate files or bundles of HCABrowser Object</i>
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Description

Activate files or bundles of HCABrowser Object

Usage

```
## S4 method for signature 'HCABrowser'
activate(hca, what = c("bundles", "files"))
```

Arguments

hca	An HCABrowser object
what	Either "bundles" or "files". Determines whether bundles or files should be shown.

Value

An HCABrowser with the selected activation

fields	<i>List supported fields of an HCABrowser object</i>
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Description

List supported fields of an HCABrowser object

Usage

```
## S4 method for signature 'HCABrowser'
fields(hca)
```

Arguments

hca An HCABrowser object.

Value

A tibble indicating fields that can be queried upon.

Examples

```
hca <- HCABrowser()
fields(hca)
```

filter.HCABrowser	<i>Filter HCABrowser objects</i>
-------------------	----------------------------------

Description

Filter HCABrowser objects

Usage

```
## S3 method for class 'HCABrowser'
filter(.data, ..., .preserve)
```

Arguments

.data an HCABrowser object to perform a query on.
 ... further argument to be translated into a query to select from. These arguments can be passed in two ways, either as a single expression or as a series of expressions that are to be separated by commas.
 .preserve unused.

Value

a HCABrowser object containing the resulting query.

Examples

```
hca <- HCABrowser()
hca2 <- hca %>% filter(organ.text == "brain")
hca2
```

hca-api-methods

HCA API methods

Description

Methods to access the Human Cell Atlas's Data Coordination Platform (HCA DCP) by means of the platform's REST API.

Check the status of a checkout request

Usage

```
getBundlesCheckout(hca, ...)
deleteBundle(hca, ...)
getBundle(hca, ...)
putBundle(hca, ...)
postBundlesCheckout(hca, ...)
putCollection(hca, ...)
deleteCollection(hca, ...)
getCollection(hca, ...)
patchCollection(hca, ...)
getFile(hca, ...)
headFile(hca, ...)
putFile(hca, ...)
postSearch(hca, ...)
getSubscriptions(hca, ...)
putSubscription(hca, ...)
deleteSubscription(hca, ...)
getSubscription(hca, ...)

## S4 method for signature 'HCABrowser'
getBundlesCheckout(hca, checkout_job_id,
  replica = c("aws", "gcp", "azure"))

## S4 method for signature 'HCABrowser'
deleteBundle(hca, uuid, replica = c("aws", "gcp",
  "azure"), version = NULL, reason = NULL)

## S4 method for signature 'HCABrowser'
getBundle(hca, uuid, replica = c("aws", "gcp",
  "azure"), version = NULL, directurls = NULL, presignedurls = FALSE,
  token = NULL)

## S4 method for signature 'HCABrowser'
putBundle(hca, uuid, replica = c("aws", "gcp",
```

```
"azure"), version = NULL, creator_uid, files)

## S4 method for signature 'HCABrowser'
postBundlesCheckout(hca, uuid, replica = c("aws",
    "gcp", "azure"), destination = NULL, email = NULL)

## S4 method for signature 'HCABrowser'
putCollection(hca, uuid, replica = c("aws", "gcp",
    "azure"), version, contents, description, details, name)

## S4 method for signature 'HCABrowser'
deleteCollection(hca, uuid, replica = c("aws",
    "gcp", "azure"))

## S4 method for signature 'HCABrowser'
getCollection(hca, uuid, replica = c("aws", "gcp",
    "azure"), version = NULL)

## S4 method for signature 'HCABrowser'
patchCollection(hca, uuid, replica = c("aws",
    "gcp", "azure"), version, add_contents, description, details, name,
    remove_contents)

## S4 method for signature 'HCABrowser'
getFile(hca, uuid, replica = c("aws", "gcp",
    "azure"), token = NULL, version = NULL)

## S4 method for signature 'HCABrowser'
headFile(hca, uuid, replica = c("aws", "gcp",
    "azure"), version = NULL)

## S4 method for signature 'HCABrowser'
putFile(hca, uuid, creator_uid, source_url,
    version = NULL)

## S4 method for signature 'HCABrowser'
postSearch(hca, replica = c("aws", "gcp",
    "azure"), output_format = c("summary", "raw"), es_query = NULL,
    per_page = 100, search_after = NULL, json = NULL)

## S4 method for signature 'HCABrowser'
getSubscriptions(hca, replica = c("aws", "gcp",
    "azure"))

## S4 method for signature 'HCABrowser'
putSubscription(hca, replica = c("aws", "gcp",
    "azure"), attachments, callback_url, encoding, es_query, form_fields,
    hmac_key_id, hmac_secret_key, method, payload_form_field)

## S4 method for signature 'HCABrowser'
deleteSubscription(hca, uuid, replica = c("aws",
    "gcp", "azure"))
```

```
## S4 method for signature 'HCABrowser'
getSubscription(hca, uuid, replica = c("aws",
  "gcp", "azure"))
```

Arguments

hca	An HCABrowser object that is the subject of the request.
checkout_job_id	character(1). A RFC4122-compliant ID for the checkout job request.
replica	character(1). A replica to fetch form. Can either be set to "aws", "gcp", or "azure". DEFAULT is "aws".
uuid	character(1). A RFC4122-compliant ID for the bundle.
version	character(1). Timestamp of bundle creation in RFC3339.
reason	character(1). User-friendly reason for the bundle or timestamp- specific bundle deletion.
directurls	logical(1). Include direct-access URLs in the response. This is mutually exclusive with the presignedurls parameter. DEFAULT is NULL.
presignedurls	logical(1). Include presigned URLs in the response. This is mutually exclusive with the directurls parameter.
token	Token. Token to manage retries. End users constructing queries should not set this parameter. Use get_token() to generate.
creator_uid	character(1). User ID who is creating this bundle.
files	list. (ADD DESCRIPTION ON STRUCTURE OF THIS ARGUMENT)
destination	character(1). User-owned destination storage bucket.
email	character(1). An email address to send status updates to.
contents	list. A list of objects describing links to files, bundles, other collections, and metadata fragments that are part of the collection.
description	character(1). A long description of the collection, formatted in Markdown.
details	list. Supplementary JSON metadata for the collection. (ADD DESCRIPTION OF STRUCTURE)
name	character(1). A short name identifying the collection.
add_contents	list. List of items to remove from the collection. Items must match exactly to be removed. Items not found in the collection are ignored. (ADD DESCRIPTION OF LIST OBJECT)
remove_contents	list. List of items to remove from the collection. Items must match exactly to be removed. Items not found in the collection are ignored.
source_url	character(1). Cloud URL for source data.
output_format	character(1). Specifies the output format. Either "summary" or "raw". The default format, "summary", is a list of UUIDs for bundles that match the query. Set this parameter to "raw" to get the verbatim JSON metadata for bundles that match the query.
es_query	list. Elasticsearch query. (ADD DESCRIPTION OF STRUCTURE)
per_page	numeric(1). Max number of results to return per page.

search_after	character(1). **Search-After-Context** . An internal state pointer parameter for use with pagination. The API client should not need to set this parameter directly; it should instead directly fetch the URL given in the "Link" header.
json	character(1) of a json query to be executed.
attachments	list. The set of bundle metadata items to be included in the payload of a notification request to a subscriptionendpoint. Each property in this object represents an attachment to the notification payload. Each attachment will be a child property of the "attachments" property of the payload. The name of such a child property can be chosen freely provided it does not start with an underscore. For example, if the subscription is ““ "attachments": "taxon": "type": "jmespath", "expression": "files.biomaterial_json.biomaterials[.].content.biomaterial_core.ncbi_taxon_id[]" ““ the corresponding notification payload will contain the following entry ““ "attachments": "taxon": [9606, 9606] ““ If a general error occurs during the processing of attachments, the notification will be sent with ‘attachments‘ containing only the reserved ‘_errors‘ attachment containing a string describing the error. If an error occurs during the processing of a specific attachment, the notification will be sent with all successfully processed attachments and additionally the ‘_errors‘ attachment containing an object with one property for each failed attachment. For example, ““ "attachments": "taxon": [9606, 9606] "_errors" "biomaterial": "Some error occurred" ““ The value of the ‘attachments‘ property must be less than or equal to 128 KiB in size when serialized to JSON and encoded as UTF-8. If it is not, the notification will be sent with "attachments": "_errors": "Attachments too large (131073 bytes)"
callback_url	character(1). The subscriber’s URL. An HTTP request is made to the specified URL for every attempt to deliver a notification to the subscriber. If the HTTP response code is 2XX, the delivery attempt is considered successful and no more attempts will be made. Otherwise, more attempts will be made with an exponentially increasing delay between attempts, until an attempt is successful or the a maximum number of attempts is reached.
encoding	character(1). The MIME type describing the encoding of the request body. Either "application/json" or "multipart/form-data".
form_fields	list. A collection of static form fields to be supplied in the request body, alongside the actual notification payload.
hmac_key_id	character(1). An optional key ID to use with "hmac_secret_key".
hmac_secret_key	character(1). The key for signing requests to the subscriber’s URL. The signature will be constructed according to https://tools.ietf.org/html/draft-cavage-http-signatures and transmitted in the HTTP ‘Authorization‘ header.
method	The HTTP request method to use when delivering a notification to the subscriber.
payload_form_field	character(1). The name of the form field that will hold the notification payload when the request is made. If the default name of the payload field collides with that of a field in ‘form_fields‘, this property can be used to rename the payload and avoid the collision. This property is ignored unless ‘encoding‘ is ‘multipart/form-data‘.
...	Other arguments

Value

an HCABrowser object

Author(s)

Daniel Van Twisk

Examples

```
hca <- HCABrowser()  
#addmore
```

HCABrowser

The HCABrowser Class

Description

The HCABrowser Class

Usage

```
HCABrowser(url = "https://dss.data.humancellatlas.org/v1",  
           fields_path = system.file("extdata", "fields_and_values.json", package  
           = "HCABrowser"), per_page = 10)
```

Arguments

`url` character(1) the url of the Human Cell Atlas resource.
`fields_path` character(1) path to the fields json file.
`per_page` numeric(1) numbers of pages to view at a time.

Value

an HCABrowser object

Author(s)

Daniel Van Twisk

Examples

```
hca <- HCABrowser()  
hca
```

HCABrowser-class	<i>The HCABrowser Class</i>
------------------	-----------------------------

Description

The HCABrowser Class

Arguments

url	character(1) the url of the Human Cell Atlas resource.
fields_path	character(1) path to the fields json file.
per_page	numeric(1) numbers of pages to view at a time.

Author(s)

Daniel Van Twisk

nextResults	<i>Next Results</i>
-------------	---------------------

Description

Fetch the next set of bundles from a Human Cell Atlas Object

Usage

```
## S4 method for signature 'HCABrowser'  
nextResults(result)
```

Arguments

result	A HCABrowser object that has further bundles to display.
--------	--

Value

A Human Cell Atlas object that displays the next results

Author(s)

Daniel Van Twisk

Examples

```
hca <- HCABrowser()  
hca <- nextResults(hca)  
hca
```

per_page	<i>Set per_page argument of an HCABrowser object</i>
----------	--

Description

note that no more than 10 pages can be displayed at once

Usage

```
## S4 method for signature 'HCABrowser'
per_page(hca, n)
```

Arguments

hca	a HCABrowser object
n	the new per_page value

Value

a HCABrowser with updated per_page value

Examples

```
hca <- HCABrowser()
#hca <- per_page(hca, 5)
hca
```

pullBundles	<i>Obtain bundle fqids from a HCABrowser object</i>
-------------	---

Description

Obtain bundle fqids from a HCABrowser object

Usage

```
## S4 method for signature 'HCABrowser'
pullBundles(hca, n = hca@per_page)
```

Arguments

hca	A HCABrowser object
n	integer(1) number of bundle fqids to pull

Value

character(1) of bundle fqids

Examples

```
hca <- HCABrowser()
hca <- hca %>% pullBundles
```

pullFiles	<i>Obtain file uuids from a HCABrowser object</i>
-----------	---

Description

Obtain file uuids from a HCABrowser object

Usage

```
## S4 method for signature 'HCABrowser'  
pullFiles(hca, n = 10)
```

Arguments

hca	A HCABrowser object
n	integer(1) number of files to pull

Value

character(1) of

Examples

```
hca <- HCABrowser()  
#hca <- hca %>% pullFiles  
hca
```

resetEsQuery	<i>Reset the query of a HCABrowser object to the default query</i>
--------------	--

Description

Reset the query of a HCABrowser object to the default query

Usage

```
## S4 method for signature 'HCABrowser'  
resetEsQuery(hca)
```

Arguments

hca	A HCABrowser object
-----	---------------------

Value

A HCABrowser object with the search reset

Examples

```

hca <- HCABrowser()
hca <- hca %>% filter(organ.text == brain)
hca <- hca %>% filter(organ.text != brain)
hca <- hca %>% resetEsQuery
hca

```

results

Obtain search results from a HCABrowser Object

Description

Returns a tibble either showing bundles or files based on whichever is activated.

Usage

```

## S4 method for signature 'HCABrowser'
results(object, n = object@per_page,
  all = FALSE, .output_format = c("raw", "summary"))

```

Arguments

object A Human Cell Atlas object.
n numeric(1) number of elements to return.
all logical(1) whether to return all elements.
.output_format unused.

Value

a tibble

results,SearchResult-method

Get results of SearchResult object

Description

Get results of SearchResult object

Usage

```

## S4 method for signature 'SearchResult'
results(object)

```

Arguments

object A Searchresult to obtain the result slot value from

Value

tibble of the results of the HCABrowser query

select.HCABrowser *Select fields from a HCABrowser object*

Description

Select fields from a HCABrowser object

Usage

```
## S3 method for class 'HCABrowser'
select(.data, ..., .output_format = c("raw",
  "summary"))
```

Arguments

`.data` an HCABrowser object to perform a selection on

`...` further argument to be translated into an expression to select from. These arguments can be passed in two ways, either as a character vector or as a series of expressions that are the fields that are to be selected separated by commas.

`.output_format` unused.

Value

a HCABrowser object containing the results of the selection.

Examples

```
hca <- HCABrowser()
hca2 <- hca %>% select('paired_end')
hca2

hca3 <- hca %>% select(c('organ.text', 'paired_end'))
hca3
```

show,HCABrowser-method

Show HCABrowser object

Description

Show HCABrowser object

Usage

```
## S4 method for signature 'HCABrowser'
show(object)
```

Arguments

`object` An HCABrowser object to show

Value

outputs a text representation of the object

show, SearchResult-method
Show Search Result

Description

Show Search Result

Usage

```
## S4 method for signature 'SearchResult'
show(object)
```

Arguments

object a SearchResult object to show

Value

outputs a text representation of the object

showBundles *Obtain all bundles from an hca object using there bundle fqids*

Description

Obtain all bundles from an hca object using there bundle fqids

Usage

```
## S4 method for signature 'HCABrowser'
showBundles(hca, bundle_fqids)
```

Arguments

hca a HCABrowser object to search for bundles on.
bundle_fqids a character()

Value

A HCABrowser object displaying the selected bundles

Examples

```
hca <- HCABrowser()
hca_bundles <- hca %>% pullBundles
hca2 <- hca %>% showBundles(hca_bundles)
hca2
```

`undoEsQuery`*Undo previous filter queries on a HCABrowser object*

Description

Undo previous filter queries on a HCABrowser object

Usage

```
## S4 method for signature 'HCABrowser'  
undoEsQuery(hca, n = 1L)
```

Arguments

`hca` A HCABrowser object
`n` integer(1) the number of filter queries to undo

Value

A HCABrowser object with n fewer queries

Examples

```
hca <- HCABrowser()  
hca <- hca %>% filter(organ.text == brain)  
hca <- hca %>% filter(organ.text == heart)  
hca <- hca %>% filter(organ.text != brain)  
#hca <- hca %>% undoEsquery(n = 2)  
hca
```

`values,HCABrowser-method`*List all values for certain fields*

Description

List all values for certain fields

Usage

```
## S4 method for signature 'HCABrowser'  
values(x, fields = c(), ...)
```

Arguments

`x` An HCABrowser Object.
`fields` a character vector of fields to display available values for.
`...` Other arguments.

Value

a list of possible values for a filter

Examples

```
hca <- HCABrowser()
vals <- hca %>% values
vals
vals2 <- hca %>% values('organ.text')
vals2
```


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