Package ‘zoltr’

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Title  Interface to the ‘Zoltar’ Forecast Repository API

Version  0.5.1

Description  ‘Zoltar’ <https://www.zoltardata.com/> is a website that provides a repository of model forecast results in a standardized format and a central location. It supports storing, retrieving, comparing, and analyzing time series forecasts for prediction challenges of interest to the modeling community. This package provides functions for working with the ‘Zoltar’ API, including connecting and authenticating, getting information about projects, models, and forecasts, deleting and uploading forecast data, and downloading scores.


BugReports  https://github.com/reichlab/zoltr/issues

License  GPL-3

Encoding  UTF-8

LazyData  true

Suggests  testthat, knitr, rmarkdown

Imports  httr, jsonlite, readr, mockery, webmockr, base64url, dplyr, MMWRweek, utils, rlang, magrittr

RoxygenNote  7.1.0

VignetteBuilder  knitr

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Repository  CRAN

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### create_model

**Description**

Creates the model in the passed project using the passed list. Fails if a model with the passed name already exists.

**Usage**

```r
create_model(zoltar_connection, project_url, model_config)
```
create_project

Arguments

zoltar_connection
A ‘ZoltarConnection’ object as returned by new_connection

project_url
url of a project in zoltar_connection’s projects. this is the project the new model will be created in

model_config

Value

model_url of the newly-created model

Examples

## Not run:
new_model_url <- create_model(conn, "https://www.zoltardata.com/project/9/",
       jsonlite::read_json("example-model-config.json"))

## End(Not run)

create_project Create a project

Description

Creates the project using the passed project configuration list. Fails if a project with the passed name already exists.

Usage

create_project(zoltar_connection, project_config)

Arguments

zoltar_connection
A ‘ZoltarConnection’ object as returned by new_connection

project_config
A ‘list’ containing a Zoltar project configuration. note that this list validated by the server and not here. An example: cdc-project.json Full documentation at https://docs.zoltardata.com/.

Value

project_url of the newly-created project
## delete_model

Delete a model

### Description

Deletes the model with the passed ID. This is permanent and cannot be undone.

### Usage

```r
delete_model(zoltar_connection, model_url)
```

#### Arguments

- `zoltar_connection`: A ‘ZoltarConnection’ object as returned by `new_connection`
- `model_url`: URL of a model in zoltar_connection’s models

### Value

None

### Examples

```r
## Not run:
delete_model(conn, "http://example.com/api/model/1")
## End(Not run)
```

## delete_forecast

Delete a forecast

### Description

Deletes the forecast with the passed URL. This is permanent and cannot be undone.

### Usage

```r
delete_forecast(zoltar_connection, forecast_url)
```

#### Arguments

- `zoltar_connection`: A ‘ZoltarConnection’ object as returned by `new_connection`
- `forecast_url`: URL of a forecast in zoltar_connection’s forecasts

### Value

None

### Examples

```r
## Not run:
delete_forecast(conn, "http://example.com/api/forecast/1/")
## End(Not run)
```
delete_project

Arguments

zoltar_connection
   A 'ZoltarConnection' object as returned by new_connection

model_url
   URL of a model in zoltar_connection’s models

Value

None

Examples

## Not run:
delete_model(conn, "http://www.zoltardata.com/api/model/1/")

## End(Not run)

---------------------------------------------------------------------

delete_project  Delete a project

Description

Deletes the project with the passed URL. This is permanent and cannot be undone.

Usage

delete_project(zoltar_connection, project_url)

Arguments

zoltar_connection
   A 'ZoltarConnection' object as returned by new_connection

project_url
   URL of a project in zoltar_connection’s projects

Value

None

Examples

## Not run:
delete_project(conn, "https://www.zoltardata.com/project/9/")

## End(Not run)
**download_forecast**  
*Gets a forecast’s data*

**Description**

Gets a forecast’s data

**Usage**

```r
download_forecast(zoltar_connection, forecast_url)
```

**Arguments**

- `zoltar_connection`  
  A ‘ZoltarConnection’ object as returned by `new_connection`

- `forecast_url`  
  URL of a forecast in zoltar_connection’s forecasts

**Value**

Forecast data as a ‘list’ in the Zoltar standard format. meta information is ignored. Full documentation at [https://docs.zoltardata.com/](https://docs.zoltardata.com/).

**Examples**

```r
## Not run:
forecast_data <- download_forecast(conn, "http://example.com/api/forecast/1/")
## End(Not run)
```

**forecasts**  
*Get a model’s forecasts*

**Description**

Get a model’s forecasts

**Usage**

```r
forecasts(zoltar_connection, model_url)
```

**Arguments**

- `zoltar_connection`  
  A ‘ZoltarConnection’ object as returned by `new_connection`

- `model_url`  
  URL of a model in zoltar_connection’s models
**forecast_data_from_cdc_csv_file**

*Loads and converts a CDC CSV file to Zoltar's native 'list' format*

**Value**

A ‘data.frame’ of forecast information for the passed model

**Examples**

```r
## Not run:
the_forecasts <- forecasts(conn, "http://www.zoltardata.com/api/model/1/")

## End(Not run)
```

**Description**

Loads and converts a CDC CSV file to Zoltar’s native ‘list’ format

**Usage**

```r
forecast_data_from_cdc_csv_file(season_start_year, cdc_csv_file)
```

**Arguments**

- `season_start_year`
  
  An integer specifying the "season" that cdc_csv_file is in. Used to convert EWs to YYYY_MM_DD_DATE_FORMAT. zoBtr uses week 30 as the season breakpoint, e.g. the "2016/2017 season" starts with

- `cdc_csv_file`
  
  A CDC CSV file

**Value**

cdc_csv_file’s data as Zoltar’s native ‘list’ format, but only the "predictions” item, and not "meta"

**Examples**

```r
## Not run:
forecast_data <- forecast_data_from_cdc_csv_file(2016, "my_forecast.cdc.csv")

## End(Not run)
```
forecast_data_from_cdc_data_frame

‘forecast_data_from_cdc_csv_file()’ helper

Description

‘forecast_data_from_cdc_csv_file()’ helper

Usage

forecast_data_from_cdc_data_frame(season_start_year, cdc_data_frame)

Arguments

season_start_year

as passed to ‘forecast_data_from_cdc_csv_file()’

cdc_data_frame ""

Value

same as ‘forecast_data_from_cdc_csv_file()’

---

forecast_info

Gets a forecast's information

Description

Gets a forecast’s information

Usage

forecast_info(zoltar_connection, forecast_url)

Arguments

zoltar_connection

A ‘ZoltarConnection’ object as returned by new_connection

forecast_url

URL of a forecast in zoltar_connection’s forecasts

Value

A ‘list’ of forecast information for the passed forecast_url
get_resource

Examples

```r
## Not run:
the_forecast_info <- forecast_info(conn, "http://example.com/api/forecast/1/"
## End(Not run)
```

get_resource  Get JSON for a resource (URL). Authenticates if necessary

Description

Get JSON for a resource (URL). Authenticates if necessary

Usage

```r
get_resource(zoltar_connection, url)
```

Arguments

- `zoltar_connection`  A 'ZoltarConnection' object as returned by `new_connection`
- `url`  A string of the resource’s URL

Value

A 'list' that contains JSON information for the passed URL

models  Get a project’s models

Description

Get a project’s models

Usage

```r
models(zoltar_connection, project_url)
```

Arguments

- `zoltar_connection`  A ‘ZoltarConnection’ object as returned by `new_connection`
- `project_url`  URL of a project in zoltar_connection’s projects
model_info

Value

A ‘data.frame’ of model contents for all models in the passed project

Examples

```r
## Not run:
the_models <- models(conn, "https://www.zoltardata.com/project/9/")

## End(Not run)
```

---

**model_info**

Get information about a model

Description

Get information about a model

Usage

`model_info(zoltar_connection, model_url)`

Arguments

- **zoltar_connection**: A `ZoltarConnection` object as returned by `new_connection`
- **model_url**: URL of a model in zoltar_connection’s models

Value

A ‘list’ of model information for the passed model_url

Examples

```r
## Not run:
the_model_info <- model_info(conn, "http://www.zoltardata.com/api/model/1/")

## End(Not run)
```
new_connection

Get a connection to a Zoltar host

Description

Returns a new connection object, which is the starting point for working with the Zoltar API. Once you have the connection you can call `zoltar_authenticate` on it, and then call `projects` to get a list of Project objects to start working with.

Usage

```r
new_connection(host = "https://zoltardata.com")
```

Arguments

- **host**: The Zoltar site to connect to. Does *not* include a trailing slash (`/`). Defaults to `https://zoltardata.com`.

Details

A note on URLs: We require a trailing slash (`/`) on all URLs. The only exception is the host arg passed to this function. This convention matches Django REST framework one, which is what Zoltar is written in.

Value

A ‘ZoltarConnection’ object

Examples

```r
## Not run:
conn <- new_connection()

## End(Not run)
```

projects

Get information about all projects

Description

Get information about all projects

Usage

```r
projects(zoltar_connection)
```
project_info

Arguments

   zoltar_connection

   A ‘ZoltarConnection’ object as returned by new_connection

Value

   A ‘data.frame’ of all projects’ contents

Examples

## Not run:
   the_projects <- projects(conn)

## End(Not run)

project_info

   Get information about a project

Description

   Get information about a project

Usage

   project_info(zoltar_connection, project_url)

Arguments

   zoltar_connection

   A ‘ZoltarConnection’ object as returned by new_connection

   project_url

   URL of a project in zoltar_connection’s projects

Value

   A ‘list’ of project information for the passed project_url

Examples

## Not run:
   the_project_info <- project_info(conn, "https://www.zoltardata.com/project/9/")

## End(Not run)
scores

*Get a project’s scores*

**Description**

Get a project’s scores

**Usage**

```
scores(zoltar_connection, project_url)
```

**Arguments**

- `zoltar_connection`
  
  A ‘ZoltarConnection’ object as returned by `new_connection`
  
- `project_url`
  
  URL of a project in zoltar_connection’s projects

**Value**

A ‘data.frame’ of score data for all models in the passed project URL

**Examples**

```r
## Not run:
the_scores <- scores(conn, "https://www.zoltardata.com/project/9/")
## End(Not run)
```

targets

*Get a project’s targets*

**Description**

Get a project’s targets

**Usage**

```
targets(zoltar_connection, project_url)
```

**Arguments**

- `zoltar_connection`
  
  A ‘ZoltarConnection’ object as returned by `new_connection`
  
- `project_url`
  
  URL of a project in zoltar_connection’s projects
target_info

Description

Get information about a target

Usage

target_info(zoltar_connection, target_url)

Arguments

zoltar_connection

A `ZoltarConnection` object as returned by `new_connection`

target_url

URL of a target in zoltar_connection’s targets

Value

A ‘list’ of target information for the passed target_url

Examples

```r
## Not run:
the_target_info <- target_info(conn, "https://www.zoltardata.com/target/3/")
## End(Not run)
```
**timezeros**  
*Get a project’s timezeros*

**Description**
Get a project’s timezeros

**Usage**
```
timezeros(zoltar_connection, project_url)
```

**Arguments**
- `zoltar_connection`
  A ‘ZoltarConnection’ object as returned by `new_connection`
- `project_url`
  URL of a project in zoltar_connection’s projects

**Value**
A ‘data.frame’ of timezero contents for the passed project

**Examples**
```
## Not run:
the_timezeros <- timezeros(conn, "https://www.zoltardata.com/project/9/")
## End(Not run)
```

---

**timezero_info**  
*Get information about a timezero*

**Description**
Get information about a timezero

**Usage**
```
timezero_info(zoltar_connection, timezero_url)
```

**Arguments**
- `zoltar_connection`
  A ‘ZoltarConnection’ object as returned by `new_connection`
- `timezero_url`
  URL of a timezero in zoltar_connection’s timezeros
Value

A ‘list’ of timezero information for the passed timezero_url

Examples

```r
## Not run:
the_timezero_info <- timezero_info(conn, "https://www.zoltardata.com/timezero/3/")

## End(Not run)
```

---

truth

*Get a project’s truth*

Description

Get a project’s truth

Usage

```r
truth(zoltar_connection, project_url)
```

Arguments

- `zoltar_connection` A `ZoltarConnection` object as returned by `new_connection`
- `project_url` URL of a project in zoltar_connection’s projects

Value

A ‘data.frame’ of truth data for the passed project URL

Examples

```r
## Not run:
the_truth <- truth(conn, "https://www.zoltardata.com/project/9/")

## End(Not run)
```
unit_info

Get information about a unit

Description
Get information about a unit

Usage
unit_info(zoltar_connection, unit_url)

Arguments
zoltar_connection
A ‘ZoltarConnection’ object as returned by new_connection

unit_url
URL of a unit in zoltar_connection’s zoltar_units

Value
A ‘list’ of unit information for the passed unit_url

Examples
## Not run:
the_unit_info <- unit_info(conn, "https://www.zoltardata.com/unit/3/"

## End(Not run)

upload_forecast
Upload a forecast

Description
This function submits forecast data to the server for uploading. Returns an UploadFileJob object that can be used to up, which depends on the number of current uploads in the queue. Zoltar tracks these via ‘UploadFileJob’ objects.

Usage
upload_forecast(
  zoltar_connection,
  model_url,
  timezero_date,
  forecast_data,
  notes = ""
)
Arguments

zoltar_connection
A ‘ZoltarConnection’ object as returned by new_connection

model_url
URL of a model in zoltar_connection’s projects

timezero_date
The date of the project timezero you are uploading for. It is a string in format YYYYMMDD

forecast_data
Forecast data as a ‘list’ in the Zoltar standard format

notes
Optional user notes for the new forecast

Value

An UploadFileJob URL for the upload

Examples

## Not run:
forecast_data <- jsonlite::read_json("docs-predictions.json")
upload_file_job_url <- upload_forecast(conn, "http://www.zoltardata.com/api/model/1/",
"2017-01-17", forecast_data, "a mid-January forecast")

## End(Not run)

upload_info

Get an upload’s information

Description

Gets an upload’s information that can be used to track the upload’s progress. (Uploads are processed in a queue,

Usage

upload_info(zoltar_connection, upload_file_job_url)

Arguments

zoltar_connection
A ‘ZoltarConnection’ object as returned by new_connection

upload_file_job_url
URL of a job in zoltar_connection that was uploaded via upload_forecast

Value

A ‘list’ of upload information for the passed upload_file_job_url. It has these names: id, url, status, user, created_at, updated_at, failure_message, filename, input_json, output_json
upload_info_forecast_url

Examples

```r
## Not run:
the_upload_info <- upload_info(conn, "http://example.com/api/uploadfilejob/2/"

## End(Not run)
```

upload_info_forecast_url

Get a new forecast upload’s url

Description

A helper function that returns the URL of a newly-uploaded forecast from upload_info.

Usage

```r
upload_info_forecast_url(zoltar_connection, the_upload_info)
```

Arguments

- `zoltar_connection`
  - A `ZoltarConnection` object as returned by `new_connection`
- `the_upload_info`
  - A `list` object as returned by `upload_info`

Value

A URL of the new forecast

Examples

```r
## Not run:
new_forecast_url <- upload_info_forecast_url(conn, "http://example.com/api/uploadfilejob/2/"

## End(Not run)
```
zoltar_authenticate  

Log in to a Zoltar host

Description

Returns a new ‘ZoltarConnection’ object, which is the starting point for working with the Zoltar API. Once you have the connection you can call zoltar_authenticate() on it, and call projects() to get a list of objects to start working with.

Usage

zoltar_authenticate(zoltar_connection, username, password)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>zoltar_connection</td>
<td>A ‘ZoltarConnection’ object as returned by new_connection.</td>
</tr>
<tr>
<td>username</td>
<td>Username for the account to use on the connection’s host</td>
</tr>
<tr>
<td>password</td>
<td>Password &quot;&quot;</td>
</tr>
</tbody>
</table>

Value

None

Examples

```r
## Not run:
zoltar_authenticate(conn, "USERNAME", "PASSWORD")
## End(Not run)
```

zoltar_units  

Get a project’s zoltar_units

Description

Get a project’s zoltar_units

Usage

zoltar_units(zoltar_connection, project_url)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>zoltar_connection</td>
<td>A ‘ZoltarConnection’ object as returned by new_connection</td>
</tr>
<tr>
<td>project_url</td>
<td>URL of a project in zoltar_connection’s projects</td>
</tr>
</tbody>
</table>
zoltar_units

Value

A ‘data.frame’ of unit contents for the passed project

Examples

## Not run:
the_units <- zoltar_units(conn, "https://www.zoltardata.com/project/9/")

## End(Not run)
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