Package ‘zoltr’

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Title  Interface to the ‘Zoltar’ Forecast Repository API
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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.


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create_model .......................... Create a model

Description

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

Usage

create_model(zoltar_connection, project_url, model_config)
**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**

```r
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/](https://docs.zoltardata.com/).

**Value**

- `project_url` of the newly-created project

**Examples**

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

## End(Not run)
delete_model

Examples

```r
## Not run:
new_project_url <- create_project(conn, jsonlite::read_json("cdc-project.json"))

## 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_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)
```
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
download_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

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)
```

forecast_data_from_cdc_csv_file

`loads and converts a CDC CSV file to Zoltar's native 'list' format`

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`. zoltr 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

## 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

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

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
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

```r
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
class(new_connection) = c('ZoltarConnection', 'list')

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](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)
```
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
## 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

## 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**

```r
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**

```r
## 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**

```r
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

## Not run:
```r
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

```
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

## 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 = ""
)
upload_info

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

```r
## 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")
```
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**

```r
zoltar_authenticate(zoltar_connection, username, password)
```

**Arguments**

- `zoltar_connection`:
  - A ‘ZoltarConnection’ object as returned by `new_connection`.
- `username`:
  - Username for the account to use on the connection’s host
- `password`:
  - Password ""

**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**

```r
zoltar_units(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 unit contents for the passed project

Examples

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

## End(Not run)
```
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