
pyemtmad Documentation

Release 0.1.0

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May 06, 2018

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pyemtmad is a wrapper for the EMT API available at <http://opendata.emtmadrid.es/Servicios-web>.

Released under GPLv2+ license.

Latest version: **0.1.0**

Contents:

1.1 Installation

pyemtmad can be installed directly from PyPI:

```
pip install Flask-WaffleConf
```

1.2 Usage

First, you need to obtain an ID and a key from the [EMT website](#). Once you have your credentials, simply instantiate a Wrapper as follows:

```
from pyemtmad import Wrapper

wrapper = Wrapper('MY_ID', 'MY_PASSWORD')
```

API endpoints are implemented in:

- *pyemtmad.api.bus module*
- *pyemtmad.api.geo module*
- *pyemtmad.api.parking module*

The functions can be accessed directly from the wrapper through the `bus`, `geo` and `parking` attributes of the object. For example:

```
from pyemtmad import Wrapper

wrapper = Wrapper('MY_ID', 'MY_PASSWORD')

# Bus API
b = wrapper.bus.get_calendar(MY_ARGS)
```

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```
# Geo API
g = wrapper.geo.get_arrive_stop(MY_ARGS)

# Parking API
p = wrapper.parking.detail_parking(MY_ARGS)
```

Check the *Module reference* for details on each method and their arguments.

2.1 pyemtmad.api package

2.1.1 pyemtmad.api.bus module

This file contains the endpoints for bus services.

See <http://opendata.emtmadrid.es/Servicios-web/BUS>

class `pyemtmad.api.bus.BusApi` (*wrapper*)
Bases: `object`

Metaclass that contains the API methods for the bus endpoints.

get_calendar (***kwargs*)
Obtain EMT calendar for a range of dates.

Parameters

- **start_day** (*int*) – Starting day of the month in format DD. The number is automatically padded if it only has one digit.
- **start_month** (*int*) – Starting month number in format MM. The number is automatically padded if it only has one digit.
- **start_year** (*int*) – Starting year number in format YYYY.
- **end_day** (*int*) – Ending day of the month in format DD. The number is automatically padded if it only has one digit.
- **end_month** (*int*) – Ending month number in format MM. The number is automatically padded if it only has one digit.
- **end_year** (*int*) – Ending year number in format YYYY.

Returns Status boolean and parsed response (list[CalendarItem]), or message string in case of error.

get_groups (***kwargs*)

Obtain line types and details.

Parameters **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[BusGroupItem]), or message string in case of error.

get_list_lines (***kwargs*)

Obtain lines with description and group.

Parameters

- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **lines** (*list[int] | int*) – Lines to query, may be empty to get all the lines.

Returns Status boolean and parsed response (list[ListLineInfo]), or message string in case of error.

get_nodes_lines (***kwargs*)

Obtain stop IDs, coordinates and line information.

Parameters **nodes** (*list[int] | int*) – nodes to query, may be empty to get all nodes.

Returns Status boolean and parsed response (list[NodeLinesItem]), or message string in case of error.

get_route_lines (***kwargs*)

Obtain itinerary for one or more lines in the given date.

Parameters

- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **lines** (*list[int] | int*) – Lines to query, may be empty to get all the lines.

Returns Status boolean and parsed response (list[RouteLinesItem]), or message string in case of error.

get_route_lines_route (***kwargs*)

Obtain itinerary for one or more lines in the given date.

Parameters

- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **lines** (*list[int] | int*) – Lines to query, may be empty to get all the lines.

Returns Status boolean and parsed response (list[RouteLinesItem]), or message string in case of error.

get_times_lines (**kwargs)

Obtain current line times for the given lines.

Parameters

- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **lines** (*list[int] | int*) – Lines to query, may be empty to get all the lines.

Returns Status boolean and parsed response (list[TimesLinesItem]), or message string in case of error.

get_timetable_lines (**kwargs)

Obtain information on lines for a travel.

Parameters

- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **lines** (*list[int] | int*) – Lines to query, may be empty to get all the lines.

Returns Status boolean and parsed response (list[TimetableLinesItem]), or message string in case of error.

2.1.2 pyemtmad.api.geo module

This file contains the endpoints for geo services.

See <http://opendata.emtmadrid.es/Servicios-web/GEO>

class pyemtmad.api.geo.**GeoApi** (*wrapper*)

Bases: object

Metaclass that contains the API methods for the geo endpoints.

get_arrive_stop (**kwargs)

Obtain bus arrival info in target stop.

Parameters

- **stop_number** (*int*) – Stop number to query.
- **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Arrival]), or message string in case of error.

get_groups (**kwargs)

Obtain line types and details.

Parameters **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[GeoGroupItem]), or message string in case of error.

get_info_line (**kwargs)

Obtain basic information on a bus line on a given date.

Parameters

- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **lines** (*list[int] | int*) – Lines to query, may be empty to get all the lines.
- **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Line]), or message string in case of error.

get_info_line_extended (**kwargs)

Obtain extended information on a bus line on a given date.

Parameters

- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **lines** (*list[int] | int*) – Lines to query, may be empty to get all the lines.
- **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Line]), or message string in case of error.

get_poi (**kwargs)

Obtain a list of POI in the given radius.

Parameters

- **latitude** (*double*) – Latitude in decimal degrees.
- **longitude** (*double*) – Longitude in decimal degrees.
- **types** (*list[int] | int*) – POI IDs (or empty list to get all).
- **radius** (*int*) – Radius (in meters) of the search.
- **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Poi]), or message string in case of error.

get_poi_types (**kwargs)

Obtain POI types.

Parameters **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[PoiType]), or message string in case of error.

get_route_lines_route (**kwargs)

Obtain itinerary for one or more lines in the given date.

Parameters

- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **lines** (*list[int] | int*) – Lines to query, may be empty to get all the lines.

Returns Status boolean and parsed response (list[RouteLinesItem]), or message string in case of error.

get_stops_from_stop (***kwargs*)

Obtain a list of stops within the given radius of the specified stop.

Parameters

- **stop_number** (*int*) – Number of the stop to query.
- **radius** (*int*) – Radius (in meters) of the search.
- **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Stop]), or message string in case of error.

get_stops_from_xy (***kwargs*)

Obtain a list of stops around the given point.

Parameters

- **latitude** (*double*) – Latitude in decimal degrees.
- **longitude** (*double*) – Longitude in decimal degrees.
- **radius** (*int*) – Radius (in meters) of the search.
- **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Stop]), or message string in case of error.

get_stops_line (***kwargs*)

Obtain information on the stops of the given lines.

Parameters

- **lines** (*list[int] | int*) – Lines to query, may be empty to get all the lines.
- **direction** (*str*) – Optional, either *forward* or *backward*.
- **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Stop]), or message string in case of error.

get_street (***kwargs*)

Obtain a list of nodes related to a location within a given radius.

Not sure of its use, but...

Parameters

- **street_name** (*str*) – Name of the street to search.
- **street_number** (*int*) – Street number to search.
- **radius** (*int*) – Radius (in meters) of the search.

- **stops** (*int*) – Number of the stop to search.
- **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Site]), or message string in case of error.

get_street_from_xy (***kwargs*)

Obtain a list of streets around the specified point.

Parameters

- **latitude** (*double*) – Latitude in decimal degrees.
- **longitude** (*double*) – Longitude in decimal degrees.
- **radius** (*int*) – Radius (in meters) of the search.
- **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Street]), or message string in case of error.

2.1.3 pyemtmad.api.parking module

This file contains the endpoints for parking services.

See <https://servicios.emtmadrid.es:8443/InfoParking/InfoParking.svc/json/help>

class pyemtmad.api.parking.**ParkingApi** (*wrapper*)

Bases: object

Metaclass that contains the API methods for the parking endpoints.

detail_parking (***kwargs*)

Obtain detailed info of a given parking.

Parameters

- **lang** (*str*) – Language code (*es* or *en*).
- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **hour** (*int*) – Hour of the day in format hh. The number is automatically padded if it only has one digit.
- **minute** (*int*) – Minute of the hour in format mm. The number is automatically padded if it only has one digit.
- **parking** (*int*) – ID of the parking to query.
- **family** (*str*) – Family code of the parking (3 chars).

Returns Status boolean and parsed response (list[ParkingDetails]), or message string in case of error.

detail_poi (***kwargs*)

Obtain detailed info of a given POI.

Parameters

- **family** (*str*) – Family code of the POI (3 chars).

- **lang** (*str*) – Language code (*es* or *en*).
- **id** (*int*) – Optional, ID of the POI to query. Passing value -1 will result in information from all POIs.

Returns Status boolean and parsed response (list[PoiDetails]), or message string in case of error.

icon_description (***kwargs*)

Obtain a list of elements that have an associated icon.

Parameters **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[IconDescription]), or message string in case of error.

info_parking_poi (***kwargs*)

Obtain generic information on POIs and parkings.

This returns a list of elements in a given radius from the coordinates.

Parameters

- **radius** (*int*) – Radius of the search (in meters).
- **latitude** (*double*) – Latitude in decimal degrees.
- **longitude** (*double*) – Longitude in decimal degrees.
- **lang** (*str*) – Language code (*es* or *en*).
- **day** (*int*) – Day of the month in format DD. The number is automatically padded if it only has one digit.
- **month** (*int*) – Month number in format MM. The number is automatically padded if it only has one digit.
- **year** (*int*) – Year number in format YYYY.
- **hour** (*int*) – Hour of the day in format hh. The number is automatically padded if it only has one digit.
- **minute** (*int*) – Minute of the hour in format mm. The number is automatically padded if it only has one digit.
- **poi_info** (*list[tuple]*) – List of tuples with the format (list[family], type, category) to query. Check the API documentation.
- **min_free** (*list[int]*) – Number of free spaces to check. Must have the same length of poi_info.
- **field_codes** (*list[tuple]*) – List of tuples with the format (list[codes], name). Check the API documentation.

Returns Status boolean and parsed response (list[InfoParkingPoi]), or message string in case of error.

list_features (***kwargs*)

Obtain a list of parkings.

Parameters **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[Parking]), or message string in case of error.

list_parking (***kwargs*)

Obtain a list of parkings.

Parameters **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[`Parking`]), or message string in case of error.

list_street_poi_parking (**kwargs)

Obtain a list of addresses and POIs.

This endpoint uses an address to perform the search

Parameters

- **lang** (*str*) – Language code (*es* or *en*).
- **address** (*str*) – Address in which to perform the search.

Returns Status boolean and parsed response (list[`ParkingPoi`]), or message string in case of error.

list_types_poi (**kwargs)

Obtain a list of families, types and categories of POI.

Parameters **lang** (*str*) – Language code (*es* or *en*).

Returns Status boolean and parsed response (list[`ParkingPoiType`]), or message string in case of error.

2.2 pyemtmad.types module

This file contains type definitions for the data returned by the API.

class `pyemtmad.types.Arrival` (**kwargs)

Bases: `object`

stop_id

int – Stop ID.

line_id

string – Line ID.

is_header

bool – Whether or not the stop is header of the line.

destination

string – Destination of the bus.

bus_id

int – Bus ID.

time_left

int – Seconds remaining until bus arrives. If this value is ≥ 999999 , then 20+ minutes remain.

distance

int – distance of the bus in meters.

longitude

double – Longitude of the bus in decimal degrees

latitude

double – Latitude of the bus in decimal degrees

position_type

string – Real or estimate position

_json

dict – Original API response.


```
class pyemtmad.types.BusGroupItem (**kwargs)
    Bases: object

    id
        int – Group ID.

    description
        string – Group description.

    _json
        dict – Original API response.

class pyemtmad.types.CalendarItem (**kwargs)
    Bases: object

    date
        string – Date in DD/MM/YYYY H:mm:ss format.

    day_type
        string – Day type. May be: - labour (LA) - friday (F) - saturday (SA) - festive (FE)

    strike
        boolean – Whether there is strike on this day or not.

    day_of_week
        string – Day of the week (in english) obtained from single character Spanish representation.

    week
        int – Week number.

    month
        int – Month number.

    trimester
        int – Trimester number.

    quarter
        int – Quarter number.

    semester
        int – Semester number.

    year
        int – Year number.

    _json
        dict – Original API response.

class pyemtmad.types.DayType (**kwargs)
    Bases: object

    day_type
        string – Day type. May be: - labour (LA) - friday (F) - saturday (SA) - festive (FE)

    dir_forward
        Direction – Forward line direction details.

    dir_backward
        Direction – Backward line direction details.

    _json
        dict – Original API response.
```

```
class pyemtmad.types.Direction(**kwargs)
    Bases: object

    start_time
        string – Starting time in HH:mm.

    end_time
        string – Ending time in HH:mm.

    minimum_frequency
        int – Minimum frequency of buses in minutes.

    maximum_frequency
        int – Maximum frequency of buses in minutes.

    frequency_description
        string – Human readable description of the frequency (in extended call).

    _json
        dict – Original API response.

class pyemtmad.types.GeoGroupItem(**kwargs)
    Bases: object

    id
        int – group ID.

    subgroup
        int – subgroup ID.

    start_date
        int – starting date timestamp.

    end_date
        int – ending date timestamp.

    description
        string – description text.

    _json
        dict – Original API response.

class pyemtmad.types.IconDescription(**kwargs)
    Bases: object

    classification
        str – Localized name of the group of the icon.

    classification_spanish
        str – Original name of the group of the icon.

    description
        str – Description of the referenced element.

    icon_name
        str – Name of the element.

    url_icon
        str – URL to the icon.

    _json
        dict – Original API response.
```

```
class pyemtmad.types.InfoParkingPoi (**kwargs)
    Bases: object

    id
        int – Parking or POI ID. They are identified with (family, id).

    name
        str – Parking or POI name.

    address
        str – Parking or POI address.

    type
        str – Parking or POI type.

    type_code
        str – Parking or POI type code.

    administrative_area
        str – Administrative area in which the parking or POI is located. This is usually ‘Madrid’.

    area_code
        int – Postal code of the parking or POI.

    category
        str – Parking or POI category name.

    category_code
        str – Parking or POI category code.

    country
        str – Country in which the parking or POI is located (‘Spain’).

    email
        str – Public email of the POI.

    family
        str – Family of the parking or POI.

    family_code
        str – Unique code of the family.

    fax
        str – Public fax of the POI.

    url_icon
        str – URL to the icon representing the parking or POI.

    state
        str – State in which the parking or POI is located.

    telephone
        str – Public telephone of the POI.

    town
        str – Town in which the parking or POI is located.

    latitude
        double – Latitude of the parking or POI in decimal degrees.

    longitude
        double – Longitude of the parking or POI in decimal degrees.
```

```
_json
    dict – Original API response.

class pyemtmad.types.Line (**kwargs)
    Bases: object

    id
        int – Line ID.

    label
        string – Line label.

    date
        string – Date in which information was updated (dd/mm/YYYY).

    header_a
        string – Name of the end of the line A.

    header_b
        string – Name of the end of the line B.

    incidents
        int – Number of incidents in the line.

    day_types
        list[DayType]

    _json
        dict – Original API response.

class pyemtmad.types.LineInfo (**kwargs)
    Bases: object

    day_type
        string – Day type. May be: - labour (LA) - friday (F) - saturday (SA) - festive (FE)

    line
        int – Line number.

    label
        string – Label of the line.

    header_a
        string – Name of the end of the line A.

    header_b
        string – Name of the end of the line B.

    direction
        string – Direction of the line.

    start_time
        string – Time in which the line starts service (HH:mm).

    end_time
        string – Time in which the line ends service (HH:mm).

    minimum_frequency
        int – minimum frequency of buses in minutes.

    maximum_frequency
        int – maximum frequency of buses in minutes.
```

```
_json
    dict – Original API response.

class pyemtmad.types.ListLineInfo (**kwargs)
    Bases: object

    group
        int – Group number.

    start_date
        string – Date in which line started service (DD/MM/YYYY).

    end_date
        string – Date in which line ended service (DD/MM/YYYY).

    line
        int – Line number.

    label
        string – Label of the line.

    header_a
        string – Name of the end of the line A.

    header_b
        string – Name of the end of the line B.

    _json
        dict – Original API response.

class pyemtmad.types.NodeLinesItem (**kwargs)
    Bases: object

    id
        int – Node ID.

    name
        string – Node name.

    lines
        list[tuple] – Line ID and direction.

    latitude
        double – Latitude of the node in decimal degrees.

    longitude
        double – Longitude of the node in decimal degrees.

    _json
        dict – Original API response.

class pyemtmad.types.Parking (**kwargs)
    Bases: object

    id
        int – Parking ID. Parkings are identified with (family, id).

    name
        str – Parking name.

    address
        str – Parking address.
```

type
str – Parking type.

administrative_area
str – Administrative area in which the parking is located. This is usually ‘Madrid’.

area_code
int – Postal code of the parking.

category
str – Parking category code.

country
str – Country in which the parking is located (‘Spain’).

family
str – Family of the parking.

family_code
str – Unique code of the family.

nickname
str – Nickname of the parking.

state
str – State in which the parking is located.

town
str – Town in which the parking is located.

latitude
double – Latitude of the parking in decimal degrees.

longitude
double – Longitude of the parking in decimal degrees.

_json
dict – Original API response.

class pyemtmad.types.**ParkingAccess** (***kwargs*)
Bases: object

name
str – Name of the access.

address
str – Address where the access is located.

code
str – ID code of the access.

url_icon
str – URL to the icon representing the access.

latitude
double – Latitude of the access in decimal degrees.

longitude
double – Longitude of the access in decimal degrees.

_json
dict – Original API response.

```
class pyemtmad.types.ParkingDetails (**kwargs)
    Bases: object

    id
        int – ID of the parking.

    name
        str – Name of the parking.

    schedule
        str – Time in which the parking is open.

    address
        str – Parking address.

    administrative_area
        str – Administrative area in which the parking is located. This is usually ‘Madrid’.

    area_code
        str – Postal code of the parking.

    category
        str – Name of the parking category.

    category_code
        str – Parking category code.

    type
        str – Parking type.

    type_code
        str – Parking type code.

    country
        str – Country in which the parking is located (‘Spain’).

    url_icon
        str – URL to the icon representing this feature, if any.

    nickname
        str – Nickname of the parking.

    state
        str – State in which the parking is located.

    town
        str – Town in which the parking is located.

    latitude
        double – Latitude of the parking in decimal degrees.

    longitude
        double – Longitude of the parking in decimal degrees.

    accesses
        list[ParkingAccess] – List of accesses to this parking.

    features
        list[ParkingFeature] – List of features of this parking.

    occupation
        list[ParkingOccupation] – List of occupation details.
```

rates
list[*ParkingRate*] – List of parking rates.

_json
dict – Original API response.

class pyemtmad.types.**ParkingFeature** (***kwargs*)

Bases: object

name
str – Name of the feature.

code
str – 3-char ID code of the feature.

content
str – Content of the feature, if any.

description
str – Description of the feature, if any.

field
str – Localized name of the group the feature belongs to.

field_spanish
str – Original name of the group the feature belongs to.

url_icon
str – URL to the icon representing this feature, if any.

_json
dict – Original API response.

class pyemtmad.types.**ParkingOccupation** (***kwargs*)

Bases: object

type
str – Type of slot.

code
str – 3-char ID code of the feature.

free
int – Number of free slots.

moment
str – Moment in which the data was updated.

renewal_index
double – Renewal index of the parking.

_json
dict – Original API response.

class pyemtmad.types.**ParkingPoi** (***kwargs*)

Bases: object

id
int – Parking ID. Parkings are identified with (family, id).

name
str – Parking name.

address

str – Parking address.

address_number

str – Street number of the POI (only for addresses).

type

str – Element type. Possible types are: - zone - poi - parking

administrative_area

str – Administrative area in which the parking is located. This is usually 'Madrid'.

area_code

int – Postal code of the parking.

category

str – Parking category code.

country

str – Country in which the parking is located ('Spain').

email

str – Email of the POI (if any).

family

str – Family of the parking.

family_code

str – Unique code of the family.

fax

str – Fax number of the POI (if any).

url_icon

str – URL to the icon representing this POI, if any.

nickname

str – Nickname of the parking.

state

str – State in which the parking is located.

telephone

str – Phone number.

town

str – Town in which the parking is located.

latitude

double – Latitude of the parking in decimal degrees.

longitude

double – Longitude of the parking in decimal degrees.

_json

dict – Original API response.

class pyemtmad.types.ParkingPoiType (**kwargs)

Bases: object

name

str – Name of the POI type.

code
str – Code of the POI type.

category
str – Name of the POI category.

category_code
str – Code of the POI category.

family
str – Name of the POI family.

family_code
str – Unique code of the family.

url_icon
str – URL to the icon representing this POI, if any.

_json
dict – Original API response.

class pyemtmad.types.**ParkingRate** (**kwargs)

Bases: object

description
str – Rate description.

start_minutes
int – Start minutes of the stay.

end_minutes
int – End minutes of the stay.

type
str – Type of rate (minutes, max, etc.)

rate
double – Amount to pay given the rate type

schedule_start
str – Starting time of the rate.

schedule_end
str – End time of the rate.

_json
dict – Original API response.

class pyemtmad.types.**Poi** (**kwargs)

Bases: object

id
int – POI ID.

poi_type
string – POI type.

name
string – POI name.

address
string – POI address.

street_number

int – Street number of the POI.

phone_number

string – Phone number of the POI (if any).

latitude

double – latitude in decimal degrees.

longitude

double – longitude in decimal degrees.

_json

dict – Original API response.

```
class pyemtmad.types.PoiDetails(**kwargs)
```

Bases: object

id

int – ID of the POI.

name

str – Localized name of the POI.

name_spanish

str – Original POI name.

description

str – Description of the POI.

schedule

str – Time in which the POI is open.

address

str – Parking address.

administrative_area

str – Administrative area in which the POI is located. This is usually ‘Madrid’.

area_code

str – Postal code of the POI.

category

str – Name of the POI category.

category_code

str – POI category code.

type

str – POI type.

type_code

str – POI type code.

country

str – Country in which the parking is located (‘Spain’).

email

str – Email of the POI, if any.

telephone

str – Public phone number of the POI, if any.

fax

str – Public fax of the POI, if any.

url_icon

str – URL to the icon representing this feature, if any.

state

str – State in which the parking is located.

town

str – Town in which the parking is located.

services_payment

str – Payment services.

web

str – Website of the POI, if any.

latitude

double – Latitude of the parking in decimal degrees.

longitude

double – Longitude of the parking in decimal degrees.

images

list[PoiImage] – List of images attached to this POI.

_json

dict – Original API response.

class pyemtmad.types.PoiImage (**kwargs)

Bases: object

description

str – Description of the image, if any.

url

str – URL to the image.

_json

dict – Original API response.

class pyemtmad.types.PoiType (**kwargs)

Bases: object

id

int – Type ID.

name

string – Type name.

_json

dict – Original API response.

class pyemtmad.types.RouteLinesItem (**kwargs)

Bases: object

id

int – Node ID.

line

int – Line to which the node belongs.

node_type

string – Node type. May be: - forward_stop (10) - forward_vertex (19) - backward_stop (20) - backward_vertex (29)

distance_orig

double – Distance to origin in meters.

distance_prev

double – Distance to previous stop in meters.

name

string – Name of the stop.

latitude

double – Latitude in decimal degrees.

longitude

double – Longitude in decimal degrees.

_json

dict – Original API response.

class pyemtmad.types.**Site** (**kwargs)

Bases: object

id

int – Site ID.

site_type

string – Site type. May be: - street - poi

name

string – Name of the site.

longitude

double – longitude of the site in decimal degrees.

latitude

double – latitude of the site in decimal degrees.

street_type

string – Type of the street (avenue, street, etc.).

number_type

string – Type of street numbering.

street_number

int – Street number.

zip_code

int – Street zip code.

poi_type

string – Type of POI.

poi_address

string – Address of the POI.

poi_street_number

int – Street number of the POI.

poi_direction

string – Direction of the POI.

poi_phone_number
string – Phone number of the POI.

_json
dict – Original API response.

class pyemtmd.types.**Stop** (**kwargs)

Bases: object

id
int – Stop ID.

name
string – Stop name.

address
string – Postal address of the stop.

longitude
double – Longitude of the stop in decimal degrees.

latitude
double – Latitude of the stop in decimal degrees.

lines
list[LineInfo] – Lines that stop here.

_json
dict – Original API response.

class pyemtmd.types.**Street** (**kwargs)

Bases: object

name
string – Name of the street.

street_type
string – Type of street.

street_number
int – Number of the street building.

latitude
double – Latitude in decimal degrees.

longitude
double – Longitude in decimal degrees.

_json
dict – Original API response.

class pyemtmd.types.**TimesLinesItem** (**kwargs)

Bases: object

start_date
string – Date in which line started service (DD/MM/YYYY).

end_date
string – Date in which line ended service (DD/MM/YYYY).

line
int – Line number.

day_type
string – Day type. May be: - labour (LA) - friday (F) - saturday (SA) - festive (FE)

first_forward
string – Date and time of first bus forward (A-B). (DD/MM/YYYY H:mm:ss)

first_backward
string – Date and time of first bus backward (B-A). (DD/MM/YYYY H:mm:ss)

last_forward
string – Date and time of last bus forward (A-B). (DD/MM/YYYY H:mm:ss)

last_backward
string – Date and time of last bus backward (B-A). (DD/MM/YYYY H:mm:ss)

_json
dict – Original API response.

class pyemtmad.types.**TimetableLinesItem** (**kwargs)
 Bases: object

date
string – Date for the timetable (DD/MM/YYYY).

day_type
string – Day type. May be: - labour (LA) - friday (F) - saturday (SA) - festive (FE)

line
int – Line number

direction
string

trip
int

start_time
string – Starting time (HH:mm:ss).

end_time
string – Ending time (HH:mm:ss).

_json
dict – Original API response.

2.3 pyemtmad.util module

This file contains some utility functions used in the API interface.

class pyemtmad.util.**ParkingAdapter** (pool_connections=10, pool_maxsize=10, max_retries=0, pool_block=False)

Bases: requests.adapters.HTTPAdapter

Custom HTTP adapter for parking API, as it uses TLSv1.

init_poolmanager (connections, maxsize, block=False)

Initializes a urllib3 PoolManager.

This method should not be called from user code, and is only exposed for use when subclassing the HTTPAdapter.

Parameters

- **connections** – The number of urllib3 connection pools to cache.
- **maxsize** – The maximum number of connections to save in the pool.
- **block** – Block when no free connections are available.
- **pool_kwargs** – Extra keyword arguments used to initialize the Pool Manager.

`pyemtmad.util.check_result(data, key=)`

Check the result of an API response.

Ideally, this should be done by checking that the value of the `resultCode` attribute is 0, but there are endpoints that simply do not follow this rule.

Parameters

- **data** (*dict*) – Response obtained from the API endpoint.
- **key** (*string*) – Key to check for existence in the dict.

Returns True if result was correct, False otherwise.

Return type bool

`pyemtmad.util.date_string(day, month, year)`

Build a date string using the provided day, month, year numbers.

Automatically adds a leading zero to `day` and `month` if they only have one digit.

Parameters

- **day** (*int*) – Day number.
- **month** (*int*) – Month number.
- **year** (*int*) – Year number.

Returns Date in the format *DD/MM/YYYY*.

Return type str

`pyemtmad.util.datetime_string(day, month, year, hour, minute)`

Build a date string using the provided day, month, year numbers.

Automatically adds a leading zero to `day` and `month` if they only have one digit.

Parameters

- **day** (*int*) – Day number.
- **month** (*int*) – Month number.
- **year** (*int*) – Year number.
- **hour** (*int*) – Hour of the day in 24h format.
- **minute** (*int*) – Minute of the hour.

Returns Date in the format *YYYY-MM-DDThh:mm:ss*.

Return type str

`pyemtmad.util.direction_code(direction)`

Obtain the integer code of a direction string.

Parameters **direction** (*str*) – *forward* or *backward*

Returns direction code

Return type int

`pyemtmad.util.ints_to_string(ints)`

Convert a list of integers to a | separated string.

Parameters `ints` (`list[int] | int`) – List of integer items to convert or single integer to convert.

Returns Formatted string

Return type `str`

`pyemtmad.util.language_code(code)`

Generate the `cultureInfo` language code for the API.

Available codes are *EN* (default) and *ES*.

Parameters `code` (`str`) – Two-character language code.

Returns Language code in the format accepted by the API.

Return type `str`

`pyemtmad.util.response_list(data, key)`

Obtain the relevant response data in a list.

If the response does not already contain the result in a list, a new one will be created to ease iteration in the parser methods.

Parameters

- **data** (`dict`) – API response.
- **key** (`str`) – Attribute of the response that contains the result values.

Returns List of response items (usually dict) or None if the key is not present.

2.4 pyemtmad.wrapper module

This file contains the API URL and endpoints for EMT.

See <http://opendata.emtmadrid.es/Servicios-web>

class `pyemtmad.wrapper.Wrapper` (`emt_id=""`, `emt_pass=""`)

Bases: `object`

Interface for the JSON API of the EMT services.

initialize (`emt_id`, `emt_pass`)

Manual initialization of the interface attributes.

This is useful when the interface must be declare but initialized later on with parsed configuration values.

Parameters

- **emt_id** (`str`) – ID given by the server upon registration
- **emt_pass** (`str`) – Token given by the server upon registration

request_openbus (`service`, `endpoint`, `**kwargs`)

Make a request to the given endpoint of the openbus server.

This returns the plain JSON (dict) response which can then be parsed using one of the implemented types.

Parameters

- **service** (`str`) – Service to fetch ('bus' or 'geo').

- **endpoint** (*str*) – Endpoint to send the request to. This string corresponds to the key in the `ENDPOINTS` dict.
- ****kwargs** – Request arguments.

Returns Obtained response (dict) or None if the endpoint was not found.

request_parking (*endpoint*, *url_args*={}, ***kwargs*)

Make a request to the given endpoint of the `parking` server.

This returns the plain JSON (dict) response which can then be parsed using one of the implemented types.

Parameters

- **endpoint** (*str*) – Endpoint to send the request to. This string corresponds to the key in the `ENDPOINTS` dict.
- **url_args** (*dict*) – Dictionary for URL string replacements.
- ****kwargs** – Request arguments.

Returns Obtained response (dict) or None if the endpoint was not found.

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