mbtest Documentation

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CONTENTS:

Opinionated Python wrapper & utils for the Mountebank over the wire test double tool.

Includes pytest fixture and PyHamcrest matchers.

CHAPTER

ONE

GUIDE

(Work in progress)

1.1 Use with Docker

If you want to use your own mountebank service instance (Docker, for example) you have **no need to use npm** requirements.

```
docker run -p 2525:2525 -p IMPOSTER_PORT:IMPOSTER_PORT -d bbyars/mountebank
```

You can do like this in your [conftest.py]:

```
import pytest
from mbtest.server import MountebankServer

@pytest.fixture(scope="session")
def mock_server():
    return MountebankServer(port=2525, host="localhost")
```

Don't forget to open docker ports for mountebank (default 2525) and for each of its imposters.

```
from mbtest.imposters import Imposter, Predicate, Response, Stub

imposter = Imposter(
    Stub(
        Predicate(path="/test") & Predicate(query={}) & Predicate(method="GET"),
        Response(body="sausages")
    ),
    record_requests=True,
    port=IMPOSTER_PORT)

with mock_server(imposter) as ms:
    response = requests.get(f"{imposter.url}/test")
    # Check your request
    assert_that(imposter, had_request().with_path("/test").and_method("GET"))
```

If you don't specify a port for the Imposter it will be allocated randomly.

1.2 Extra

You can combine your Predicates with &(and), |(or).

1.3 TODO

- Basics
  - Server options
    - Executing
    - Existing server, e.g. docker
  - Running locally, against existing server (e.g. docker)
- Stubs, predicates, responses
  - And and or
  - Options
  - Injection
- Stubbing vs. Mocking
  - Assertions and matchers
- Proxies
  - Record/Playback
- SMTP

CHAPTER

TWO

API REFERENCE

2.1 The *mbtest.server* module

mbtest.server.**mock_server**(*request*, *executable=PosixPath('node_modules/.bin/mb')*, *port=2525*, *timeout=5*, *debug=True*, *allow_injection=True*, *local_only=True*, *data_dir='.mbdb'*)

Pytest fixture, making available a mock server, running one or more imposters, one for each domain being mocked.

Use in a pytest conftest.py fixture as follows:

```
@pytest.fixture(scope="session")
def mock_server(request):
    return server.mock_server(request)
```

Test will look like:

```
def test_an_imposter(mock_server):
    imposter = Imposter(Stub(Predicate(path='/test'),
                             Response(body='sausages')),
                        record_requests=True)

    with mock_server(imposter) as s:
        r = requests.get(f"{imposter.url}/test")

        assert_that(r, is_response().with_status_code(200).and_body("sausages"))
        assert_that(s, had_request(path='/test', method="GET"))
```

Parameters

- **request** (FixtureRequest) – Request for a fixture from a test or fixture function.
- **executable** (Union[str, Path]) – Alternate location for the Mountebank executable.
- **port** (int) – Server port.
- **timeout** (int) – specifies how long to wait for the Mountebank server to start.
- **debug** (bool) – Start the server in debug mode, which records all requests. This needs to be *True* for the *mbtest.matchers.had_request()* matcher to work.
- **allow_injection** (bool) – Allow JavaScript injection. If *True*, *local_only* should also be *True*,as per Mountebank security.
- **local_only** (bool) – Accept request only from localhost.

- **data_dir** (Optional[str]) – Persist all operations to disk, in this directory.

Return type
ExecutingMountebankServer

Returns
Mock server.

class mbtest.server.**MountebankServer**(*port*, *scheme='http'*, *host='localhost'*, *imposters_path='imposters'*)

Allow addition of imposters to an already running Mountebank mock server.

Test will look like:

```
def test_an_imposter(mock_server):
    mb = MountebankServer(1234)
    imposter = Imposter(Stub(Predicate(path='/test'),
                             Response(body='sausages')),
                        record_requests=True)

    with mb(imposter):
        r = requests.get(f"{imposter.url}/test")

        assert_that(r, is_response().with_status_code(200).and_body("sausages"))
        assert_that(imposter, had_request(path='/test', method="GET"))
```

Imposters will be torn down when the *with* block is exited.

Parameters

- **port** (int) – Server port.
- **scheme** (str) – Server scheme, if not *http*.
- **host** (str) – Server host, if not *localhost*.
- **imposters_path** (str) – Imposters path, if not *imposters*.

add_imposters(*definition*)

Add imposters to Mountebank server.

Parameters
definition (Union[*Imposter*, Iterable[*Imposter*]]) – One or more Imposters.

Return type
None

add_impostor(*definition*)

Add single imposter to Mountebank server.

Parameters
definition – One or more Imposters.

delete_imposters()

Delete all impostors from server.

Return type
None

delete_impostor(*imposter*)

Delete impostor from server.

get_actual_requests()

Return type
Sequence[*Request*]

property server_url: furl

query_all_imposters()

Yield all imposters running on the server, including those defined elsewhere.

Return type
Sequence[*Imposter*]

import_running_imposters()

Replaces all running imposters with those defined on the server

Return type
None

get_running_imposters()

Returns all imposters that the instance is aware of

Return type
Sequence[*Imposter*]

class mbtest.server.**ExecutingMountebankServer**(*executable=PosixPath('node_modules/.bin/mb')*, *port=2525*, *timeout=5*, *debug=True*, *allow_injection=True*, *local_only=True*, *data_dir='.mbdb'*)

A Mountebank mock server, running one or more imposters, one for each domain being mocked.

Test will look like:

```
def test_an_imposter(mock_server):
    mb = ExecutingMountebankServer()
    imposter = Imposter(Stub(Predicate(path='/test'),
                             Response(body='sausages')),
                        record_requests=True)

    with mb(imposter) as s:
        r = requests.get(f"{imposter.url}/test")

        assert_that(r, is_response().with_status_code(200).and_body("sausages"))
        assert_that(s, had_request(path='/test', method="GET"))

    mb.close()
```

The mountebank server will be started when this class is instantiated, and needs to be closed if it's not to be left running. Consider using the *mock_server()* pytest fixture, which will take care of this for you.

Parameters

- **executable** (Union[str, Path]) – Optional, alternate location for the Mountebank executable.
- **port** (int) – Server port.
- **timeout** (int) – How long to wait for the Mountebank server to start.

- **debug** (bool) – Start the server in debug mode, which records all requests. This needs to be *True* for the *mbtest.matchers.had_request()* matcher to work.
- **allow_injection** (bool) – Allow JavaScript injection. If *True*, *local_only* should also be *True*,as per Mountebank security.
- **local_only** (bool) – Accept request only from localhost.
- **data_dir** (Optional[str]) – Persist all operations to disk, in this directory.

running: Set[int] = {}

start_lock = <unlocked _thread.lock object>

close()

Return type
None

exception mbtest.server.**MountebankException**

Exception using Mountebank server.

exception mbtest.server.**MountebankPortInUseException**

Mountebank server failed to start - port already in use.

exception mbtest.server.**MountebankTimeoutError**

Mountebank server failed to start in time.

2.2 The *mbtest.imposters.imposters* module

class mbtest.imposters.imposters.**Imposter**(*stubs*, *port=None*, *protocol=Protocol.HTTP*, *name=None*, *default_response=None*, *record_requests=True*, *mutual_auth=False*, *key=None*, *cert=None*)

Represents a Mountebank imposter. Think of an imposter as a mock website, running a protocol, on a specific port. Required behaviors are specified using stubs.

Parameters

- **stubs** (Union[*Stub*, Iterable[*Stub*]]) – One or more Stubs.
- **port** (Optional[int]) – Port.
- **protocol** (*Protocol*) – Protocol to run on.
- **name** (Optional[str]) – Imposter name - useful for interactive exploration of imposters on http://localhost:2525/imposters
- **default_response** (Optional[*HttpResponse*]) – The default response to send if no predicate matches.
- **record_requests** (bool) – Record requests made against this imposter, so they can be asserted against later.
- **mutual_auth** (bool) – Server will request a client certificate.
- **key** (Optional[str]) – SSL server certificate.
- **cert** (Optional[str]) – SSL server certificate.

class Protocol(*value*)

Imposter Protocol.

HTTP = 'http'

HTTPS = 'https'

SMTP = 'smtp'

TCP = 'tcp'

property url: furl

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
Imposter

Returns
Converted object.

get_actual_requests()

Return type
Sequence[*Request*]

attach(*host*, *port*, *server_url*)

Attach imposter to a running MB server.

Return type
None

property attached: bool

Imposter is attached to a running MB server.

property configuration_url: furl

query_all_stubs()

Return all stubs running on the impostor, including those defined elsewhere.

Return type
List[*Stub*]

playback()

Return type
List[*Stub*]

add_stubs(*definition*, *index=None*)

Add one or more stubs to a running impostor.

Return type
None

add_stub(*definition*, *index=None*)

Add a stub to a running impostor. Returns index of new stub.

Return type
int

delete_stub(*index*)

Remove a stub from a running impostor.

Return type
Stub

update_stub(*index*, *definition*)

Change a stub in an existing imposter. Returns index of changed stub.

Return type
int

class mbtest.imposters.imposters.**Request**

static from_json(*json*)

Return type
Request

class mbtest.imposters.imposters.**HttpRequest**(*method*, *path*, *query*, *headers*, *body*, ***kwargs*)

static from_json(*json*)

Return type
HttpRequest

class mbtest.imposters.imposters.**Address**(*address*, *name*)

property address

Alias for field number 0

property name

Alias for field number 1

class mbtest.imposters.imposters.**SentEmail**(*from_*, *to*, *cc*, *bcc*, *subject*, *text*, ***kwargs*)

static from_json(*json*)

Return type
SentEmail

mbtest.imposters.imposters.**smtp_imposter**(*name='smtp'*, *record_requests=True*)

Canned SMTP server imposter.

Return type
Imposter

2.3 The *mbtest.imposters.stubs* module

class mbtest.imposters.stubs.**Stub**(*predicates=None*, *responses=None*)

Represents a Mountebank stub. Think of a stub as a behavior, triggered by a matching predicate.

Parameters

- **predicates** (Union[*BasePredicate*, Iterable[*BasePredicate*], None]) – Trigger this stub if one of these predicates matches the request
- **responses** (Union[*BaseResponse*, Iterable[*BaseResponse*], None]) – Use these response behaviors (in order)

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
Stub

Returns
Converted object.

class mbtest.imposters.stubs.**AddStub**(*stub=None*, *index=None*)

Represents a *Mountebank add stub request <http://www.mbtest.org/docs/api/overview#add-stub>*. To add new stub to an existing imposter.

Parameters

- **index** (Optional[int]) – The index in imposter stubs array. If you leave off the index field, the stub will be added to the end of the existing stubs array.
- **stub** (Optional[*Stub*]) – The stub that will be added to the existing stubs array

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

static from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
AddStub

Returns
Converted object.

2.4 The *mbtest.imposters.predicates* module

class mbtest.imposters.predicates.**BasePredicate**

classmethod from_structure(*structure*)
Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
BasePredicate

Returns
Converted object.

class mbtest.imposters.predicates.**LogicallyCombinablePredicate**

class mbtest.imposters.predicates.**Predicate**(*path=None*, *method=None*, *query=None*, *body=None*, *headers=None*, *xpath=None*, *jsonpath=None*, *operator=Operator.EQUALS*, *case_sensitive=True*)
Represents a Mountebank predicate. A predicate can be thought of as a trigger, which may or may not match a request.

Parameters
- **path** (Union[str, furl, None]) – URL path.
- **method** (Union[*Method*, str, None]) – HTTP method.
- **query** (Optional[Mapping[str, Union[str, int, bool]]]) – Query arguments, keys and values.
- **body** (Union[str, Any, None]) – Body text. Can be a string, or a JSON serialisable data structure.
- **headers** (Optional[Mapping[str, str]]) – Headers, keys and values.
- **xpath** (Optional[str]) – xpath query
- **jsonpath** (Optional[str]) – jsonpath query
- **operator** (Union[*Operator*, str]) –
- **case_sensitive** (bool) –

exception InvalidPredicateOperator

class Method(*value*)
Predicate HTTP method.

DELETE = 'DELETE'

GET = 'GET'

HEAD = 'HEAD'

POST = 'POST'

PUT = 'PUT'

PATCH = 'PATCH'

class Operator(*value*)

Predicate operator.

EQUALS = 'equals'

DEEP_EQUALS = 'deepEquals'

CONTAINS = 'contains'

STARTS_WITH = 'startsWith'

ENDS_WITH = 'endsWith'

MATCHES = 'matches'

EXISTS = 'exists'

classmethod has_value(*name*)

Return type
bool

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
Predicate

Returns
Converted object.

fields_from_structure(*inner*)

fields_as_structure()

class mbtest.imposters.predicates.**AndPredicate**(*left*, *right*)

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
AndPredicate

Returns
Converted object.

class mbtest.imposters.predicates.**OrPredicate**(*left*, *right*)

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
OrPredicate

Returns
Converted object.

class mbtest.imposters.predicates.**NotPredicate**(*inverted*)

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
NotPredicate

Returns
Converted object.

class mbtest.imposters.predicates.**TcpPredicate**(*data*)

Represents a Mountebank TCP predicate. A predicate can be thought of as a trigger, which may or may not match a request.

Parameters
data (str) – Data to match the request.

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
TcpPredicate

Returns
Converted object.

class mbtest.imposters.predicates.**InjectionPredicate**(*inject*)

Represents a Mountebank injection predicate. A predicate can be thought of as a trigger, which may or may not match a request.

Injection requires Mountebank version 2.0 or higher.

Parameters
inject (str) – JavaScript function to inject.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
InjectionPredicate

Returns
Converted object.

2.5 The *mbtest.imposters.responses* module

class mbtest.imposters.responses.**BaseResponse**

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
BaseResponse

Returns
Converted object.

class mbtest.imposters.responses.**HttpResponse**(*body=''*, *status_code=200*, *headers=None*, *mode=None*)

Represents a Mountebank HTTP response.

Parameters

- **body** (Union[str, Any]) – Body text for response. Can be a string, or a JSON serialisable data structure.
- **status_code** (Union[int, str]) – HTTP status code
- **headers** (Optional[Mapping[str, str]]) – Response HTTP headers
- **mode** (Optional[*Mode*]) – Mode - text or binary

property **body**: str

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod **from_structure**(*inner*)

Converted from a JSON serializable structure.

Parameters
structure – JSON structure to be converted.

Return type
HttpResponse

Returns
Converted object.

class mbtest.imposters.responses.**Response**(*body=''*, *status_code=200*, *wait=None*, *repeat=None*, *headers=None*, *mode=None*, *copy=None*, *decorate=None*, *lookup=None*, *shell_transform=None*, ***, *http_response=None*)

Represents a Mountebank 'is' response behavior.

Parameters

- **body** (Union[str, Any]) – Body text for response. Can be a string, or a JSON serialisable data structure.
- **status_code** (Union[int, str]) – HTTP status code
- **wait** (Union[int, str, None]) – Add latency, in ms.
- **repeat** (Optional[int]) – Repeat this many times before moving on to next response.
- **headers** (Optional[Mapping[str, str]]) – Response HTTP headers
- **mode** (Optional[*Mode*]) – Mode - text or binary
- **copy** (Optional[*Copy*]) – Copy behavior
- **decorate** (Optional[str]) – Decorate behavior.
- **lookup** (Optional[*Lookup*]) – Lookup behavior
- **shell_transform** (Union[str, Iterable[str], None]) – shellTransform behavior

- **http_response** (Optional[*HttpResponse*]) – HTTP Response Fields - use this **or** the body, status_code, headers and mode fields, not both.

class **Mode**(*value*)

An enumeration.

TEXT = 'text'

BINARY = 'binary'

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod **from_structure**(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
Response

Returns
Converted object.

property **body**

property **status_code**

property **headers**

property **mode**

class mbtest.imposters.responses.**TcpResponse**(*data*)

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod **from_structure**(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
TcpResponse

Returns
Converted object.

class mbtest.imposters.responses.**FaultResponse**(*fault*)

Represents a Mountebank fault response.

Parameters
fault (*Fault*) – The fault to simulate.

class **Fault**(*value*)

An enumeration.

CONNECTION_RESET_BY_PEER = 'CONNECTION_RESET_BY_PEER'

RANDOM_DATA_THEN_CLOSE = 'RANDOM_DATA_THEN_CLOSE'

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod **from_structure**(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
FaultResponse

Returns
Converted object.

class mbtest.imposters.responses.**Proxy**(*to*, *wait=None*, *inject_headers=None*, *mode=Mode.ONCE*, *predicate_generators=None*, *decorate=None*)

Represents a Mountebank proxy.

Parameters
to (Union[furl, str]) – The origin server, to which the request should proxy.

class **Mode**(*value*)

Defines the replay behavior of the proxy.

ONCE = 'proxyOnce'

ALWAYS = 'proxyAlways'

TRANSPARENT = 'proxyTransparent'

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
Proxy

Returns
Converted object.

class mbtest.imposters.responses.**PredicateGenerator**(*path=False*, *query=False*, *operator=Operator.EQUALS*, *case_sensitive=True*)

Represents a Mountebank predicate generator.

Parameters
path (bool) – Include the path in the generated predicate.

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
PredicateGenerator

Returns
Converted object.

class mbtest.imposters.responses.**InjectionResponse**(*inject*)

Represents a Mountebank injection response.

Injection requires Mountebank version 2.0 or higher.

Parameters
inject (str) – JavaScript function to inject .

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
InjectionResponse

Returns
Converted object.

2.6 The *mbtest.imposters.behaviors.copy* module

class mbtest.imposters.behaviors.copy.**Copy**(*from_*, *into*, *using*)

Represents a copy behavior.

Parameters

- **from** – The name of the request field to copy from, or, if the request field is an object, then an object specifying the path to the request field.
- **into** (str) – The token to replace in the response with the selected request value.
- **using** (*Using*) – The configuration needed to select values from the response.

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
Copy

Returns
Converted object.

2.7 The *mbtest.imposters.behaviors.lookup* module

class mbtest.imposters.behaviors.lookup.**Lookup**(*key*, *datasource_path*, *datasource_key_column*, *into*)

Represents a lookup behavior.

Parameters

- **key** (*Key*) – How to select the key from the request.
- **datasource_path** (Union[str, Path]) – The path to the data source.
- **datasource_key_column** (str) – The header of the column to match against the key.
- **into** (str) – The token to replace in the response with the selected request value.

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
Lookup

Returns
Converted object.

class mbtest.imposters.behaviors.lookup.**Key**(*from_*, *using*, *index=0*)

The information on how to select the key from the request.

Parameters

- **from** – The name of the request field to copy from, or, if the request field is an object, then an object specifying the path to the request field.
- **using** (*Using*) – The configuration needed to select values from the response
- **index** (int) – Index of the iten from the result array to be selected.

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
Key

Returns
Converted object.

2.8 The *mbtest.imposters.behaviors.using* module

class mbtest.imposters.behaviors.using.**Using**(*method*, *selector*)

How to select values from the response.

Parameters

- **method** (*Method*) – The method used to select the value(s) from the request.
- **selector** (str) – The selector used to select the value(s) from the request.

class Method(*value*)

An enumeration.

REGEX = 'regex'

XPATH = 'xpath'

JSONPATH = 'jsonpath'

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
Using

Returns
Converted object.

class mbtest.imposters.behaviors.using.**UsingRegex**(*selector*, *ignore_case=False*, *multiline=False*)

Select values from the response using a regular expression.

Parameters

- **selector** (str) – The selector used to select the value(s) from the request.
- **ignore_case** (bool) – Uses a case-insensitive regular expression
- **multiline** (bool) – Uses a multiline regular expression

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
UsingRegex

Returns
Converted object.

class mbtest.imposters.behaviors.using.**UsingXpath**(*selector*, *ns=None*)

Select values from the response using an xpath expression.

Parameters

- **selector** (str) – The selector used to select the value(s) from the request.

- **ns** (Optional[Mapping[str, str]]) – The ns object maps namespace aliases to URLs

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
UsingXpath

Returns
Converted object.

class mbtest.imposters.behaviors.using.**UsingJsonpath**(*selector*)

Select values from the response using a jsonpath expression.

Parameters
selector (str) – The selector used to select the value(s) from the request.

classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure – JSON structure to be converted.

Return type
UsingJsonpath

Returns
Converted object.

2.9 The *mbtest.matchers* module

mbtest.matchers.**had_request**(*method=<IsAnything(ANYTHING)>*, *path=<IsAnything(ANYTHING)>*, *query=<IsAnything(ANYTHING)>*, *headers=<IsAnything(ANYTHING)>*, *body=<IsAnything(ANYTHING)>*, *times=<IsAnything(ANYTHING)>*)

Mountebank server has recorded call matching.

Build criteria with *with_* and *and_* methods:

assert_that(server, had_request().with_path("/test").and_method("GET"))

Available attributes as per parameters.

Parameters

- **method** (Union[str, Matcher[str]]) – Request's method matched...
- **path** (Union[furl, str, Matcher[Union[furl, str]]]) – Request's path matched...

- **query** (Union[Mapping[str, str], Matcher[Mapping[str, str]]]) – Request's query matched…
- **headers** (Union[Mapping[str, str], Matcher[Mapping[str, str]]]) – Request's headers matched…
- **body** (Union[str, Matcher[str]]) – Request's body matched…
- **times** (Union[int, Matcher[int]]) – Request's number of times called matched matched…

Return type
Matcher[Union[*Imposter*, *MountebankServer*]]

class mbtest.matchers.**HadRequest**(*method=<IsAnything(ANYTHING)>*, *path=<IsAnything(ANYTHING)>*, *query=<IsAnything(ANYTHING)>*, *headers=<IsAnything(ANYTHING)>*, *body=<IsAnything(ANYTHING)>*, *times=<IsAnything(ANYTHING)>*)

Mountebank server has recorded call matching

Parameters

- **method** (Union[str, Matcher[str]]) – Request's method matched…
- **path** (Union[furl, str, Matcher[Union[furl, str]]]) – Request's path matched…
- **query** (Union[Mapping[str, str], Matcher[Mapping[str, str]]]) – Request's query matched…
- **headers** (Union[Mapping[str, str], Matcher[Mapping[str, str]]]) – Request's headers matched…
- **body** (Union[str, Matcher[str]]) – Request's body matched…
- **times** (Union[int, Matcher[int]]) – Request's number of times called matched matched…

describe_to(*description*)

Generates a description of the object.

The description may be part of a description of a larger object of which this is just a component, so it should be worded appropriately.

Parameters
description (Description) – The description to be built or appended to.

Return type
None

static append_matcher_description(*field_matcher*, *field_name*, *description*)

Return type
None

describe_mismatch(*actual*, *description*)

Generates a description of why the matcher has not accepted the item.

The description will be part of a larger description of why a matching failed, so it should be concise.

This method assumes that `matches(item)` is `False`, but will not check this.

Parameters

- **item** – The item that the Matcher has rejected.

- **mismatch_description** – The description to be built or appended to.

Return type
None

with_method(*method*)

and_method(*method*)

with_path(*path*)

and_path(*path*)

with_query(*query*)

and_query(*query*)

with_headers(*headers*)

and_headers(*headers*)

with_body(*body*)

and_body(*body*)

with_times(*times*)

and_times(*times*)

mbtest.matchers.**email_sent**(*to=<IsAnything(ANYTHING)>*, *subject=<IsAnything(ANYTHING)>*, *body_text=<IsAnything(ANYTHING)>*)

Mountebank SMTP server was asked to sent email matching:

Parameters

- **to** (Union[str, Matcher[str]]) – Email's to field matched…
- **subject** (Union[str, Matcher[str]]) – Email's subject field matched…
- **body_text** (Union[str, Matcher[str]]) – Email's body matched…

Return type
Matcher[Union[*Imposter*, *MountebankServer*]]

class mbtest.matchers.**EmailSent**(*to=<IsAnything(ANYTHING)>*, *subject=<IsAnything(ANYTHING)>*, *body_text=<IsAnything(ANYTHING)>*)

Mountebank SMTP server was asked to sent email matching:

Parameters

- **to** (Union[str, Matcher[str]]) – Email's to field matched…
- **subject** (Union[str, Matcher[str]]) – Email's subject field matched…
- **body_text** (Union[str, Matcher[str]]) – Email's body matched…

describe_to(*description*)

Generates a description of the object.

The description may be part of a description of a larger object of which this is just a component, so it should be worded appropriately.

Parameters
description (Description) – The description to be built or appended to.

Return type
None

describe_mismatch(*actual*, *description*)

Generates a description of why the matcher has not accepted the item.

The description will be part of a larger description of why a matching failed, so it should be concise.

This method assumes that `matches(item)` is `False`, but will not check this.

Parameters

- **item** – The item that the Matcher has rejected.
- **mismatch_description** – The description to be built or appended to.

Return type
None

static get_sent_email(*actual*)

Return type
Sequence[*SentEmail*]

get_matching_emails(*sent_email*)

Return type
Sequence[*SentEmail*]

2.10 The *mbtest.imposters.base* module

class mbtest.imposters.base.**JsonSerializable**

Object capable of being converted to a JSON serializable structure (using *as_structure()*) or from such a structure ((using *from_structure()*).

abstract as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

abstract classmethod from_structure(*structure*)

Converted from a JSON serializable structure.

Parameters
structure (Any) – JSON structure to be converted.

Return type
JsonSerializable

Returns
Converted object.

static add_if_true(*dictionary*, *key*, *value*)

Return type
None

set_if_in_dict(*dictionary*, *key*, *name*)

Return type
None

class mbtest.imposters.base.**Injecting**(*inject*)

as_structure()

Converted to a JSON serializable structure.

Return type
Any

Returns
Structure suitable for JSON serialisation.

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INSTALLATION

Install from Pypi as usual, using pip , tox, or `setup.py`.

Also requires Mountebank to have been installed:

```
$ npm install mountebank@2.6 --production
```

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USAGE

A basic example:

```
import requests
from hamcrest import assert_that
from brunns.matchers.response import is_response
from mbtest.matchers import had_request
from mbtest.imposters import Imposter, Predicate, Response, Stub

def test_request_to_mock_server(mock_server):
    # Set up mock server with required behavior
    imposter = Imposter(Stub(Predicate(path="/test"),
                             Response(body="sausages")))

    with mock_server(imposter):
        # Make request to mock server - exercise code under test here
        response = requests.get(f"{imposter.url}/test")

        assert_that("We got the expected response",
                    response, is_response().with_status_code(200).and_body("sausages"))
        assert_that("The mock server recorded the request",
                    imposter, had_request().with_path("/test").and_method("GET"))
```

Needs a pytest fixture, most easily defined in conftest.py:

```
import pytest
from mbtest import server

@pytest.fixture(scope="session")
def mock_server(request):
    return server.mock_server(request)
```

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