
yadm

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1	Requirements	3
2	Quick start	5
2.1	CHANGES	6
2.1.1	1.4.2 (2017-04-09)	6
2.1.2	1.4.0 (2017-04-05)	6
2.1.3	1.3.1 (2017-02-21)	6
2.1.4	1.3.0 (2017-02-19)	6
2.1.5	1.2.1 (2017-01-19)	6
2.1.6	1.2.0 (2016-12-27)	6
2.1.7	1.1.4 (2016-08-20)	7
2.1.8	1.1.3 (2016-07-23)	7
2.1.9	1.1 (2016-04-26)	7
2.1.10	1.0 (2015-11-14)	7
3	API documentation	9
3.1	API	9
3.1.1	Database	9
3.1.2	Documents	11
3.1.3	Serializers and deserializers	13
3.1.4	Queryset	14
3.1.5	Bulk queries	15
3.1.6	Mongo Aggregation Framework	16
3.1.7	Join	16
3.1.8	Fields	16
3.1.8.1	Base fields	17
3.1.8.2	Simple fields	19
3.1.8.3	Datetime field	19
3.1.8.4	Decimal field	20
3.1.8.5	Embedded documents fields	20
3.1.8.6	Reference field	21
3.1.8.7	Containers fields	21
3.1.8.8	List fields	22
3.1.8.9	Set field	24
3.1.8.10	Map field	25
3.1.8.11	Geo fields	26

It's small and simple ODM for use with MongoDB.

CHAPTER 1

Requirements

YAMD support MongoDB version 3.x only. MongoDB 2.x is not supported.

Minimal version of python is 3.4.

CHAPTER 2

Quick start

```
import pymongo
from yadm import Database, Document, fields

# Create model
class BlogPost(Document):
    __collection__ = 'blog_posts'

    title = fields.StringField()
    body = fields.StringField()

# Create post
post = BlogPost()
post.title = 'Small post'
post.body = 'Bla-bla-bla...'

# Connect to database
client = pymongo.MongoClient("localhost", 27017)
db = Database(client, 'test')

# Insert post to database
db.insert(post)

# Query posts
qs = db.get_queryset(BlogPost).find({'title': {'$regex': '^s.*'}})
assert qs.count() > 0

for post in qs:
    assert post.title.startswith('s')

# Query one post
post = db.get_queryset(BlogPost).find_one({'title': 'Small post'})

# Change post
```

```
post.title = 'Bla-bla-bla title'

# Save changed post
db.save(post)
```

CHANGES

1.4.2 (2017-04-09)

- Additional arguments (like `write_concern`) for write operations;
- `create_fake` save the documents with write concern “majority” by default.

1.4.0 (2017-04-05)

- Drop pymongo 2 support;
- Additional options for databases and collections;
- Add `Database.get_document`;
- Add `TypedEmbeddedDocumentField`;
- **reload argument of `Database.update_one`** `<yadm.database.Database.update_one>` must be keyword (may be backward incompatible).

1.3.1 (2017-02-21)

- Change raw data for `Money`;

1.3.0 (2017-02-19)

- **Add currency support to `Money`:**
 - Totally rewrite `Money` type. Now it is not subclass of `Decimal`;
 - Add `storage` for `currencies`: `yadm.fields.money.currency.DEFAULT_CURRENCY_STORAGE`;

1.2.1 (2017-01-19)

- Add `QuerySet.find_in` for `$in` queries with specified order;

1.2.0 (2016-12-27)

- Drop MongoDB 2.X support;
- Objects for update and remove results;
- Use `Faker` instead `fake-factory`;

1.1.4 (2016-08-20)

- Add some features to **py:module:'Bulk <yadm.bulk>'**:
 - `Bulk.update_one(document, **kw)`: method for add update one document in bulk;
 - `Bulk.find(query).update(**kw)`: update many documents by query;
 - `Bulk.find(query).upsert().update(**kw)`: upsert document;
 - `Bulk.find(query).remove(**kw)`: remove documents;

1.1.3 (2016-07-23)

- Add `QuerySet.ids` method for get only documents id's from queryset;
- Add `Money.total_cents` method and `Money.total_cents` classmethod;

1.1 (2016-04-26)

- Add cacheing on queryset level and use it for `ReferenceField`;
- Add mongo aggregation framework support;
- Add **exc** argument to `QuerySet.find_one` for raise specified exception if not found;
- Add **multi** argument to `QuerySet.remove`;
- Deprecate `QuerySet.find_one`
- Refactoring.

1.0 (2015-11-14)

- Change document structure. No more bad `BaseDocument.__data__` attribute:
 - `BaseDocument.__raw__`: raw data from mongo;
 - `BaseDocument.__cache__`: cached objects, casted with fields;
 - `BaseDocument.__changed__`: changed objects.
- Changes api for custom fields:
 - Not more need create field descriptors for every field;
 - `prepare_value` called only for setattr;
 - `to_mongo` called only for save objects to mongo;
 - `from_mongo` called only for load values from `BaseDocument.__raw__`;
 - Remove `Field.default` attribute. Use `Field.get_default` method;
 - Add `get_if_not_loaded` and `get_if_attribute_not_set` method;
 - By default raise `NotLoadedError` if field not loaded from projection;
- Changes in `ReferenceField`:
 - Raise `BrokenReference` if link is bloken;
 - Raise `NotBindingToDatabase` if document not saved to database;

- *smart_null* keyword for *Field*;
- Fields in document must be instances (not classes!);
- Remove *ArrayContainer* and *ArrayContainerField*;
- Remove old *MapIntKeysField* and *MapObjectIdKeysField*. Use new *MapCustomKeysField*;
- Add *Database.update_one* method for run simple update query with specified document;
- Add *QuerySet.distinct*;
- *serialize.from_mongo* now accept *not_loaded* sequence with filed names who must mark as not loaded, *parent* and *name*;
- *serialize.to_mongo* do not call *FieldDescriptor.__set__*;
- Fakers! Subsystem for generate test objects;
- Tests now use *pytest*;
- And more, and more...

API

API documentation

Database

This module for provide work with MongoDB database.

```
import pymongo
from yadm.database import Database

from mydocs import Doc

client = pymongo.MongoClient("localhost", 27017)
db = Database(self.client, 'test')

doc = Doc()
db.insert(doc)

doc.arg = 13
db.save(doc)

qs = db.get_queryset(Doc).find({'arg': {'$gt': 10}})
for doc in qs:
    print(doc)
```

class `yadm.database.Database` (*client*, *name*)
Main object who provide work with database.

Parameters

- **client** (*pymongo.Client*) – database connection
- **name** (*str*) – database name

aggregate (*document_class*, *, *pipeline=None*, ***collection_params*)

Return aggregator for use aggregation framework.

Parameters

- **document_class** – *yadm.documents.Document*
- **pipeline** (*list*) – initial pipeline
- ****collection_params** – params for *get_collection*

bulk (*document_class*, *, *ordered=False*, *raise_on_errors=True*, ***collection_params*)

Return Bulk.

Parameters

- **document_class** (*MetaDocument*) – class of documents fo bulk
- **ordered** (*bool*) – create ordered bulk (default *False*)
- **raise_on_errors** (*bool*) – raise *BulkWriteError* exception if write errors (default *True*)
- ****collection_params** – params for *get_collection*

Context manager:

with db.bulk(Doc) as bulk: bulk.insert(doc_1) bulk.insert(doc_2)

get_document (*document_class*, *_id*, *, *exc=None*, *read_preference=PrimaryPreferred(tag_sets=None, max_staleness=-1)*, ***collection_params*)

Get document for it *_id*.

Parameters

- **document_class** – *yadm.documents.Document*
- **_id** – document's *_id*
- **exc** (*Exception*) – raise given exception if not found
- ****collection_params** – params for *get_collection*

Default *ReadPreference* is *PrimaryPreferred*.

get_queryset (*document_class*, *, *cache=None*, ***collection_params*)

Return queryset for document class.

Parameters

- **document_class** – *yadm.documents.Document*
- **cache** – cache for share with other querysets
- ****collection_params** – params for *get_collection*

This create instance of *yadm.queryset.QuerySet* with presetted document's collection information.

insert (*document*, ***collection_params*)

Insert document to database.

Parameters **document** (*Document*) – document instance for insert to database

It's bind new document to database set *_id*. :param ****collection_params**: params for *get_collection*

reload (*document*, *new_instance=False*, *read_preference=PrimaryPreferred(tag_sets=None, max_staleness=-1)*, ***collection_params*)

Reload document.

Parameters

- **document** (`Document`) – instance for reload
- **new_instance** (`bool`) – if `True` return new instance of document, else change data in given document (default: `False`)
- ****collection_params** – params for `get_collection`

remove (`document`, ****collection_params**)

Remove document from database.

Parameters

- **document** (`Document`) – instance for remove from database
- ****collection_params** – params for `get_collection`

save (`document`, `full=False`, `upsert=False`, ****collection_params**)

Save document to database.

Parameters

- **document** (`Document`) – document instance for save
- **full** (`bool`) – fully resave document (default: `False`)
- **upsert** (`bool`) – see documentation for MongoDB's `update` (default: `False`)
- ****collection_params** – params for `get_collection`

If document has no `_id` `insert` new document.

update_one (`document`, `*`, `reload=True`, `set=None`, `unset=None`, `inc=None`, `push=None`, `pull=None`, ****collection_params**)

Update one document.

Parameters

- **document** (`Document`) – document instance for update
- **reload** (`bool`) – if `True`, reload document
- ****collection_params** – params for `get_collection`

Documents

Basic documents classes for build models.

```
class User(Document):
    __collection__ = 'users'

    first_name = fields.StringField()
    last_name = fields.StringField()
    age = fields.IntegerField()
```

All fields placed in `yadm.fields` package.

class `yadm.documents.MetaDocument` (`cls`, `name`, `bases`, `cls_dict`)
Metaclass for documents.

class `yadm.documents.BaseDocument` (****kwargs**)
Base class for all documents.

__raw__
Dict with raw data from mongo

__cache__
Dict with cached objects, casted with fields

__changed__
Dict with changed objects

__data__
Deprecated! For backward compatibility only!

Old way to storing data in documents. Now equal to `__raw__`.

__debug_print__()
Print debug information.

__fake__ (*values, faker, depth*)
Fake data customizer.

class `yadm.documents.Document` (***kwargs*)
Class for build first level documents.

__collection__
Name of MongoDB collection

__id
Mongo object id (`bson.ObjectId`)

id
Alias for `__id` for simply use

__db__
Internal attribute contain instance of `yadm.database.Database` for realize `yadm.fields.references.ReferenceField`. It bind in `yadm.database.Database` or `yadm.queryset.QuerySet`.

__qs__
Documents gets from this queryset

class `yadm.documents.DocumentItemMixin`
Mixin for custom all fields values, such as `EmbeddedDocument`, `yadm.fields.containers.Container`.

__parent__
Parent object.

```
assert doc.embedded_doc.__parent__ is doc
assert doc.list[13].__parent__ is doc.list
```

__name__

```
assert doc.list.__name__ == 'list'
assert doc.list[13].__name__ == 13
```

__db__
Database object.

```
assert doc.f.l[0].__db__ is doc.__db__
```


__document__

Root document.

```
assert doc.f.l[0].__document__ is doc
```

__field_name__

Dotted field name for MongoDB operations, like as \$set, \$push and other...

```
assert doc.f.l[0].__field_name__ == 'f.l.0'
```

__get_value__(document)

Get value from document with path to self.

__path__

Path to root generator.

```
assert list(doc.f.l[0].__path__) == [doc.f.l[0], doc.f.l, doc.f]
```

__path_names__

Path to root generator.

```
assert list(doc.f.l[0].__path__) == [0, 'l', 'f']
```

__qs__

Queryset object.

__weakref__

list of weak references to the object (if defined)

```
class yadm.documents.EmbeddedDocument (**kwargs)
```

Class for build embedded documents.

Serializers and deserializers

Functions for serialize and deserialize data.

```
yadm.serialize.from_mongo (document_class, data, not_loaded=(), parent=None, name=None)
```

Deserialize MongoDB data to document.

Parameters

- **document_class** – document class
- **data** (*dict*) – data from MongoDB
- **not_loaded** (*list*) – fields, who marked as not loaded
- **parent** – parent for new document
- **name** (*str*) – name for new document

```
yadm.serialize.to_mongo (document, exclude=(), include=None)
```

Serialize document to MongoDB data.

Parameters

- **document** (*BaseDocument*) – document for serializing
- **exclude** (*list*) – exclude fields
- **include** (*list*) – include only fields (all by default)

Queryset

class yadm.queryset.**BaseQuerySet** (*db, document_class, *, cache=None, criteria=None, projection=None, sort=None, slice=None, collection_params=None*)

Query builder.

Parameters

- **db** –
- **document_class** –
- **cache** –
- **criteria** (*dict*) –
- **projection** (*dict*) –
- **sort** (*list*) –
- **slice** (*slice*) –
- **collection_params** (*dict*) –

cache

Queryset cache object.

copy (**, cache=None, criteria=None, projection=None, sort=None, slice=None, collection_params=None*)

Copy queryset with new parameters.

Only keywords arguments is allowed. Parameters simply replaced with given arguments.

Parameters

- **cache** –
- **criteria** (*dict*) –
- **projection** (*dict*) –
- **sort** (*list*) –
- **slice** (*slice*) –
- **collection_params** (*dict*) –

Returns new yadm.queryset.QuerySet object

fields (**fields*)

Get only setted fields.

Update projection with fields.

Parameters **fields** (*str*) –

Returns new yadm.queryset.QuerySet

```
qs('field', 'field2')
```

fields_all ()

Clear projection.

find (*criteria=None, projection=None*)

Return queryset copy with new criteria and projection.

Parameters

- **criteria** (*dict*) – update queryset’s criteria
- **projection** (*dict*) – update queryset’s projection

Returns new `yadm.queryset.QuerySet`

```
qs({'field': {'$gt': 3}}, {'field': True})
```

read_preference (*read_preference*)

Setup readPreference.

Return new QuerySet instance.

Deprecated since 1.4.0. Use *collection_params* argument in *copy*.

sort (**sort*)

Return queryset with sorting.

Parameters **sort** (*tuples*) – tuples with two items: (*field_name*, *sort_order_as_int*).

```
qs.sort(('field_1', 1), ('field_2', -1))
```

class `yadm.queryset.NotFoundBehavior`

An enumeration.

Bulk queries

class `yadm.bulk.Bulk` (*db*, *document_class*, *ordered*, *raise_on_errors*, *collection_params*)

Bulk object.

Parameters

- **db** (*Database*) – Database instance
- **document_class** (*MetaDocument*) – document class for collection
- **ordered** (*bool*) – create ordered bulk (default *False*)
- **raise_on_errors** (*bool*) – raise `BulkWriteError` exception if write errors (default *True*)

Context manager example:

```
with db.bulk(Doc, ordered=True) as bulk: bulk.insert(doc_1) bulk.insert(doc_2)
    bulk.update_one(doc_3, inc={'incr_key': 1}) bulk.find({'key': 'value'}).update(set={'key':
    'new_value'}) bulk.find({'key': 'new_value'}).remove()
```

error

True for executed errors.

execute ()

Execute the bulk query.

Returns `BulkResult` instance

find (*query*)

Start “find” query in bulk.

Parameters **query** (*dict*) –

Returns `BulkQuery` instance

insert (*document*)

Add insert document to bulk.

Parameters **document** (*Document*) – document for insert

Warning: This unlike *Database.insert*! Currently, it is not bind objects to database and set id.

result

A BulkResult instance or rise RuntimeError if not executed.

update_one (*document*, *, *set=None*, *unset=None*, *inc=None*, *push=None*, *pull=None*)

Add update one document to bulk.

class *yadm.bulk.BulkResult* (*bulk*, *raw*)

Object who provide result of *Bulk.execute()*.

n_inserted

Provide *nInserted* from raw result.

n_modified

Provide *nModified* from raw result.

n_removed

Provide *nRemoved* from raw result.

n_upserted

Provide *nUpserted* from raw result.

write_errors

Provide *writeErrors* from raw result.

Mongo Aggregation Framework

Mongo Aggregation Framework helper.

```
cur = db.aggregate(Doc).match({'i': {'$gt': 13}}).project(a='$i').limit(8)
```

Join

class *yadm.join.Join* (*qs*)

Helper for build client-side joins.

```
# Doc.ref is instance of ReferenceField
qs = db(Doc).find({'k': 1}) # queryset filter
join = qs.join('ref') # create join query in this place
for doc in join:
    print(doc.ref) # do not create query to database
```

get_queryset (*field_name*)

Return queryset for joined objects.

join (**field_names*)

Do manual join.

Fields

This package contain all fields.

Base fields

Base classes for build database fields.

class `yadm.fields.base.NotLoadedError`

Raise if value marked as not loaded.

```
doc = db(Doc).fields('a').find_one()
try:
    doc.b
except NotLoadedError:
    print("raised!")
```

class `yadm.fields.base.FieldDescriptor(name, field)`

Base descriptor for fields.

name

Name of field

field

Field instance for this descriptor

__delete__ (*instance*)

Mark document's key as not set.

__get__ (*instance, owner*)

Get python value from document.

1.Lookup in `__changed__`;

2.Lookup in `__cache__`;

3.Lookup in `__raw__`:

- if `AttributeNotSet` – call `Field.get_if_attribute_not_set`;

- if `NotLoaded` – call `Field.get_if_not_loaded`;

- call `Field.from_mongo`;

- set `__name__` and `__parent__`

- save to `__cache__`

4.Call `Field.get_default`;

5.If `AttributeNotSet` – call `Field.get_if_attribute_not_set`;

6.Return value.

__set__ (*instance, value*)

Set value to document.

1.Call `Field.prepare_value` for cast value;

2.Save in `Document.__changed__`;

3.Call `Field.set_parent_changed`.

class `yadm.fields.base.Field` (*smart_null=False*)

Base field for all database fields.

Parameters `smart_null` (*bool*) – If it *True*, access to not exists fields return *None* instead *AttributeError* exception. You will not be able to distinguish null value from not exist. Use with care.

descriptor_class

Class of descriptor for work with field

document_class

Class of document. Set in `contribute_to_class()`.

name

Name of field in document. Set in `contribute_to_class()`.

contribute_to_class (*document_class*, *name*)

Add field for *document_class*.

Parameters `document_class` (*MetaDocument*) – document class for add

copy ()

Return copy of field.

descriptor_class

alias of *FieldDescriptor*

from_mongo (*document*, *value*)

Convert mongo value to python value.

Parameters

- **document** (*BaseDocument*) – document
- **value** – mongo value

Returns python value

get_default (*document*)

Return default value.

get_fake (*document*, *faker*, *deep*)

Return fake data for testing.

get_if_attribute_not_set (*document*)

Call if key not exist in document.

get_if_not_loaded (*document*)

Call if field data marked as not loaded.

prepare_value (*document*, *value*)

The method is called when value is assigned for the attribute.

Parameters

- **document** (*BaseDocument*) – document
- **value** – raw value

Returns prepared value

It must be accept *value* argument and return processed (e.g. casted) analog. Also it is called once for the default value.

to_mongo (*document*, *value*)

Convert python value to mongo value.

Parameters

- **document** (`BaseDocument`) – document
- **value** – python value

Returns mongo value

Simple fields

Fields for basic data types.

```
class yadm.fields.simple.BooleanField(default=<class 'yadm.markers.AttributeNotSet'>, *,
                                     choices=None, **kwargs)
```

Field for boolean values.

type
alias of bool

```
class yadm.fields.simple.FloatField(default=<class 'yadm.markers.AttributeNotSet'>, *,
                                     choices=None, **kwargs)
```

Field for float.

type
alias of float

```
class yadm.fields.simple.IntegerField(default=<class 'yadm.markers.AttributeNotSet'>, *,
                                       choices=None, **kwargs)
```

Field for integer.

type
alias of int

```
class yadm.fields.simple.ObjectIdField(default_gen=False)
Field for ObjectId.
```

Parameters **default_gen** (*bool*) – generate default value if not set

type
alias of ObjectId

```
class yadm.fields.simple.SimpleField(default=<class 'yadm.markers.AttributeNotSet'>, *,
                                       choices=None, **kwargs)
```

Base field for simple types.

Parameters

- **default** – default value
- **choices** (*set*) – set of possible values

```
class yadm.fields.simple.StringField(default=<class 'yadm.markers.AttributeNotSet'>, *,
                                       choices=None, **kwargs)
```

Field for string.

type
alias of str

Datetime field

```
class yadm.fields.datetime.DatetimeField(*, auto_now=False, **kwargs)
Field for time stamp.
```

Parameters **auto_now** (*bool*) – datetime.now as default (default: False)

Decimal field

Field for decimal numbers

This code save to MongoDB document:

```
class yadm.fields.decimal.DecimalField(*, context=None, **kwargs)
    Field for work with decimal.Decimal.
```

Parameters

- **context** (*decimal.Context*) – context for decimal operations (default: run `decimal.getcontext()` when need)
- **default** (*decimal.Decimal*) –

TODO: context in copy()

context

Context.

Returns `decimal.Context` for values

prepare_value(document, value)

Cast value to `decimal.Decimal`.

Embedded documents fields

Work with embedded documents.

```
class EDoc(EmbeddedDocument):
    i = fields.IntegerField()

class Doc(Document):
    __collection__ = 'docs'
    edoc = EmbeddedDocumentField(EDoc)

doc = Doc()
doc.edoc = EDoc()
doc.edoc.i = 13
db.insert(doc)
```

```
class yadm.fields.embedded.EmbeddedDocumentField(embedded_document_class, *,
    auto_create=True, **kwargs)
```

Field for embedded objects.

Parameters

- **embedded_document_class** (*EmbeddedDocument*) – class for embedded document
- **auto_create** (*bool*) – automatic creation embedded document from access

copy()

Return copy of field.

get_if_attribute_not_set(document)

Call if key not exist in document.

If `auto_create` is `True`, create and return new embedded document. Else `AttributeError` is raised.


```
class yadm.fields.embedded.TypedEmbeddedDocumentField(type_field=None, types=None,  
                                                    **kwargs)
```

Field for embedded document with variable types.

Parameters

- **type_field** (*str*) – name of field in embedded document for select type
- **types** (*dict*) – map of type names to embedded document classes

Reference field

Work with references.

```
class RDoc(Document):
    i = fields.IntegerField

class Doc(Document):
    rdoc = fields.ReferenceField(RDoc)

rdoc = RDoc()
rdoc.i = 13
db.insert(rdoc)

doc = Doc()
doc.rdoc = rdoc
db.insert(doc)

doc = db.get_queryset(Doc).find_one(doc.id) # reload doc
assert doc.rdoc.id == rdoc.id
assert doc.rdoc.i == 13
```

```
exception yadm.fields.reference.BrokenReference
```

Raise if referenced document is not found.

```
exception yadm.fields.reference.NotBindingToDatabase
```

Raise if set ObjectId insted referenced document to new document, who not binded to database.

```
class yadm.fields.reference.ReferenceField(reference_document_class, **kwargs)
```

Field for work with references.

Parameters **reference_document_class** – class for refered documents

```
get_fake (document, faker, depth)
```

Try create referenced document.

Containers fields

Base classes for containers.

```
class yadm.fields.containers.Container(field, parent, value)
```

Base class for containers.

```
reload ()
```

Reload all object from database.

```
class yadm.fields.containers.ContainerField(item_field=None, *, auto_create=True,  
                                           **kwargs)
```

Base class for container fields.

container
alias of *Container*

from_mongo (*document*, *value*)

get_default (*document*)

get_default_value ()

prepare_item (*container*, *item*, *value*)

prepare_value (*document*, *value*)

to_mongo (*document*, *value*)

List fields

List of objects.

```
class Doc(Document):
    __collection__ = 'docs'
    integers = fields.ListField(fields.IntegerField)

doc = Doc()
doc.integers.append(1)
doc.integers.append(2)
assert doc.integers == [1, 2]

db.insert(doc)
doc = db.get_queryset(Doc).find_one(doc.id) # reload

doc.integers.append(3) # do not save
assert doc.integers == [1, 2, 3]
doc = db.get_queryset(Doc).find_one(doc.id) # reload
assert doc.integers == [1, 2]

doc.integers.remove(2) # do not save too
assert doc.integers == [1]
doc = db.get_queryset(Doc).find_one(doc.id) # reload
assert doc.integers == [1, 2]

doc.integers.push(3) # $push query
assert doc.integers == [1, 2, 3]
doc = db.get_queryset(Doc).find_one(doc.id) # reload
assert doc.integers == [1, 2, 3]

doc.integers.pull(2) # $pull query
assert doc.integers == [1, 3]
doc = db.get_queryset(Doc).find_one(doc.id) # reload
assert doc.integers == [1, 3]
```

class yadm.fields.list.**List** (*field*, *parent*, *value*)
Container for list.

append (*item*)
Append item to list.

Parameters *item* – item for append

This method does not save object!

insert (*index*, *item*)
Append item to list.

Parameters

- **index** (*int*) –
- **item** – item for insert

This method does not save object!

pull (*query*, *reload=True*)
Pull item from database.

Parameters

- **query** – query for *\$pull* on this field
- **reload** (*bool*) – automatically reload all values from database

See *\$pull* in MongoDB's *update*.

push (*item*, *reload=True*)
Push item directly to database.

Parameters

- **item** – item for *\$push*
- **reload** (*bool*) – automatically reload all values from database

See *\$push* in MongoDB's *update*.

remove (*item*)
Remove item from list.

Parameters **item** – item for remove

This method does not save object!

replace (*query*, *item*, *reload=True*)
Replace list elements.

Parameters

- **query** – query for *update*. Keys of this query is relative.
- **item** – embedded document or dict
- **reload** (*bool*) – automatically reload all values from database

update (*query*, *values*, *reload=True*)
Update fields in embedded documents.

Parameters

- **query** – query for *update*. Keys of this query is relative.
- **values** – dict of new values
- **reload** (*bool*) – automatically reload all values from database

class `yadm.fields.list.ListField` (*item_field=None*, *, *auto_create=True*, **kwargs)
Field for list values.

For example, document with list of integers:

```
class TestDoc(Document):
    __collection__ = 'testdoc'
    li = fields.ListField(fields.IntegerField())
```

containeralias of *List***Set field**

Field with sets.

Similar as *yadm.fields.list*.**class** *yadm.fields.set.Set* (*field, parent, value*)

Container for set.

add (*item*)

Append item to set.

Parameters *item* – item for add

This method does not save object!

add_to_set (*item, reload=True*)

Add item directly to database.

Parameters

- **item** – item for *\$addToSet*
- **reload** (*bool*) – automatically reload all values from database

See *\$addToSet* in MongoDB's *update*.**discard** (*item*)

Remove item from the set if it is present.

Parameters *item* – item for discard

This method does not save object!

pull (*query, reload=True*)

Pull item from database.

Parameters

- **query** – query for *\$pull* on this field
- **reload** (*bool*) – automatically reload all values from database

See *\$pull* in MongoDB's *update*.**remove** (*item*)

Remove item from set.

Parameters *item* – item for remove

This method does not save object!

class *yadm.fields.set.SetField* (*item_field=None, *, auto_create=True, **kwargs*)

Field for set values.

containeralias of *Set*

Map field

Map.

```
class Doc(Document):
    __collection__ = 'docs'
    map = fields.MapField(fields.IntegerField)

doc = Doc()
doc.map['a'] = 1
doc.map['b'] = 2
assert doc.map == {'a': 1, 'b': 2}

db.insert(doc)
doc = db.get_queryset(Doc).find_one(doc.id) # reload

doc.map['c'] = 3 # do not save
assert doc.map == {'a': 1, 'b': 2, 'c': 3}
doc = db.get_queryset(Doc).find_one(doc.id) # reload
assert doc.map == {'a': 1, 'b': 2}

del doc.map['b'] # do not save too
assert doc.map == {'a': 1}
doc = db.get_queryset(Doc).find_one(doc.id) # reload
assert doc.map == {'a': 1, 'b': 2}

doc.map.set('d', 3) # $set query
assert doc.map == {'a': 1, 'b': 2, 'c': 3}
doc = db.get_queryset(Doc).find_one(doc.id) # reload
assert doc.map == {'a': 1, 'b': 2, 'c': 3}

doc.map.unset('d', 3) # $unset query
assert doc.map == {'a': 1, 'b': 2}
doc = db.get_queryset(Doc).find_one(doc.id) # reload
assert doc.map == {'a': 1, 'b': 2}
```

class yadm.fields.map.**Map**(field, parent, value)
Map.

set (key, value, reload=True)
Set key directly in database.

Parameters

- **key** – key
- **value** – value for \$set

See \$set in MongoDB's *set*.

unset (key, reload=True)
Unset key directly in database.

Parameters **key** – key

See \$unset in MongoDB's *unset*.

class yadm.fields.map.**MapCustomKeysField**(item_field, key_factory, *, key_to_str=<class 'str'>, auto_create=True, **kwargs)

Field for maps with custom key type.

Parameters

- **item_field**(*field*) –
- **key_factory**(*func*) – function, who return thue key from raw string key
- **key_to_str**(*func*) –
- **auto_create**(*bool*) –

class `yadm.fields.map.MapField`(*item_field=None, *, auto_create=True, **kwargs*)
Field for maps.

container
alias of *Map*

Geo fields

Fields for geo data

See: <http://docs.mongodb.org/manual/applications/geospatial-indexes/>

GeoJSON: <http://geojson.org/geojson-spec.html>

class `yadm.fields.geo.Geo`
Base class for GeoJSON data.

class `yadm.fields.geo.GeoCoordinates`
Base class for GeoJSON data with coordinates.

class `yadm.fields.geo.GeoField`(*types=[<class 'yadm.fields.geo.Point'>, <class 'yadm.fields.geo.MultiPoint'>], **kwargs*)
Base field for GeoJSON objects.

class `yadm.fields.geo.GeoOneTypeField`(***kwargs*)
Base field for GeoJSON objects with one acceptable type.

class `yadm.fields.geo.MultiPoint`(*points*)
Class for GeoJSON MultiPoint objects.

See: <http://geojson.org/geojson-spec.html#id5>

class `yadm.fields.geo.MultiPointField`(***kwargs*)
Field for MultiPoint.

type
alias of *MultiPoint*

class `yadm.fields.geo.Point`(*longitude, latitude*)
Class for GeoJSON Point objects.

See: <http://geojson.org/geojson-spec.html#id2>

class `yadm.fields.geo.PointField`(***kwargs*)
Field for Point.

type
alias of *Point*

y

- yadm.aggregation, [16](#)
- yadm.bulk, [15](#)
- yadm.database, [9](#)
- yadm.documents, [11](#)
- yadm.fields, [16](#)
- yadm.fields.base, [17](#)
- yadm.fields.containers, [21](#)
- yadm.fields.datetime, [19](#)
- yadm.fields.decimal, [20](#)
- yadm.fields.embedded, [20](#)
- yadm.fields.geo, [26](#)
- yadm.fields.list, [22](#)
- yadm.fields.map, [25](#)
- yadm.fields.reference, [21](#)
- yadm.fields.set, [24](#)
- yadm.fields.simple, [19](#)
- yadm.join, [16](#)
- yadm.queryset, [14](#)
- yadm.serialize, [13](#)

Symbols

__cache__ (yadm.documents.BaseDocument attribute), 12
 __changed__ (yadm.documents.BaseDocument attribute), 12
 __collection__ (yadm.documents.Document attribute), 12
 __data__ (yadm.documents.BaseDocument attribute), 12
 __db__ (yadm.documents.Document attribute), 12
 __db__ (yadm.documents.DocumentItemMixin attribute), 12
 __debug_print__() (yadm.documents.BaseDocument method), 12
 __delete__() (yadm.fields.base.FieldDescriptor method), 17
 __document__ (yadm.documents.DocumentItemMixin attribute), 12
 __fake__() (yadm.documents.BaseDocument method), 12
 __field_name__ (yadm.documents.DocumentItemMixin attribute), 13
 __get__() (yadm.fields.base.FieldDescriptor method), 17
 __get_value__() (yadm.documents.DocumentItemMixin method), 13
 __name__ (yadm.documents.DocumentItemMixin attribute), 12
 __parent__ (yadm.documents.DocumentItemMixin attribute), 12
 __path__ (yadm.documents.DocumentItemMixin attribute), 13
 __path_names__ (yadm.documents.DocumentItemMixin attribute), 13
 __qs__ (yadm.documents.Document attribute), 12
 __qs__ (yadm.documents.DocumentItemMixin attribute), 13
 __raw__ (yadm.documents.BaseDocument attribute), 11
 __set__() (yadm.fields.base.FieldDescriptor method), 17
 __weakref__ (yadm.documents.DocumentItemMixin attribute), 13
 _id (yadm.documents.Document attribute), 12

A

add() (yadm.fields.set.Set method), 24
 add_to_set() (yadm.fields.set.Set method), 24
 aggregate() (yadm.database.Database method), 10
 append() (yadm.fields.list.List method), 22

B

BaseDocument (class in yadm.documents), 11
 BaseQuerySet (class in yadm.queryset), 14
 BooleanField (class in yadm.fields.simple), 19
 BrokenReference, 21
 Bulk (class in yadm.bulk), 15
 bulk() (yadm.database.Database method), 10
 BulkResult (class in yadm.bulk), 16

C

cache (yadm.queryset.BaseQuerySet attribute), 14
 Container (class in yadm.fields.containers), 21
 container (yadm.fields.containers.ContainerField attribute), 21
 container (yadm.fields.list.ListField attribute), 24
 container (yadm.fields.map.MapField attribute), 26
 container (yadm.fields.set.SetField attribute), 24
 ContainerField (class in yadm.fields.containers), 21
 context (yadm.fields.decimal.DecimalField attribute), 20
 contribute_to_class() (yadm.fields.base.Field method), 18
 copy() (yadm.fields.base.Field method), 18
 copy() (yadm.fields.embedded.EmbeddedDocumentField method), 20
 copy() (yadm.queryset.BaseQuerySet method), 14

D

Database (class in yadm.database), 9
 DatetimeField (class in yadm.fields.datetime), 19
 DecimalField (class in yadm.fields.decimal), 20
 descriptor_class (yadm.fields.base.Field attribute), 18
 discard() (yadm.fields.set.Set method), 24
 Document (class in yadm.documents), 12
 document_class (yadm.fields.base.Field attribute), 18

DocumentItemMixin (class in yadm.documents), 12

E

EmbeddedDocument (class in yadm.documents), 13

EmbeddedDocumentField (class in yadm.fields.embedded), 20

error (yadm.bulk.Bulk attribute), 15

execute() (yadm.bulk.Bulk method), 15

F

Field (class in yadm.fields.base), 17

field (yadm.fields.base.FieldDescriptor attribute), 17

FieldDescriptor (class in yadm.fields.base), 17

fields() (yadm.queryset.BaseQuerySet method), 14

fields_all() (yadm.queryset.BaseQuerySet method), 14

find() (yadm.bulk.Bulk method), 15

find() (yadm.queryset.BaseQuerySet method), 14

FloatField (class in yadm.fields.simple), 19

from_mongo() (in module yadm.serialize), 13

from_mongo() (yadm.fields.base.Field method), 18

from_mongo() (yadm.fields.containers.ContainerField method), 22

G

Geo (class in yadm.fields.geo), 26

GeoCoordinates (class in yadm.fields.geo), 26

GeoField (class in yadm.fields.geo), 26

GeoOneTypeField (class in yadm.fields.geo), 26

get_default() (yadm.fields.base.Field method), 18

get_default() (yadm.fields.containers.ContainerField method), 22

get_default_value() (yadm.fields.containers.ContainerField method), 22

get_document() (yadm.database.Database method), 10

get_fake() (yadm.fields.base.Field method), 18

get_fake() (yadm.fields.reference.ReferenceField method), 21

get_if_attribute_not_set() (yadm.fields.base.Field method), 18

get_if_attribute_not_set() (yadm.fields.embedded.EmbeddedDocumentField method), 20

get_if_not_loaded() (yadm.fields.base.Field method), 18

get_queryset() (yadm.database.Database method), 10

get_queryset() (yadm.join.Join method), 16

I

id (yadm.documents.Document attribute), 12

insert() (yadm.bulk.Bulk method), 15

insert() (yadm.database.Database method), 10

insert() (yadm.fields.list.List method), 22

IntegerField (class in yadm.fields.simple), 19

J

Join (class in yadm.join), 16

join() (yadm.join.Join method), 16

L

List (class in yadm.fields.list), 22

ListField (class in yadm.fields.list), 23

M

Map (class in yadm.fields.map), 25

MapCustomKeysField (class in yadm.fields.map), 25

MapField (class in yadm.fields.map), 26

MetaDocument (class in yadm.documents), 11

MultiPoint (class in yadm.fields.geo), 26

MultiPointField (class in yadm.fields.geo), 26

N

n_inserted (yadm.bulk.BulkResult attribute), 16

n_modified (yadm.bulk.BulkResult attribute), 16

n_removed (yadm.bulk.BulkResult attribute), 16

n_upserted (yadm.bulk.BulkResult attribute), 16

name (yadm.fields.base.Field attribute), 18

name (yadm.fields.base.FieldDescriptor attribute), 17

NotBindingToDatabase, 21

NotFoundBehavior (class in yadm.queryset), 15

NotLoadedError (class in yadm.fields.base), 17

O

ObjectIdField (class in yadm.fields.simple), 19

P

Point (class in yadm.fields.geo), 26

PointField (class in yadm.fields.geo), 26

prepare_item() (yadm.fields.containers.ContainerField method), 22

prepare_value() (yadm.fields.base.Field method), 18

prepare_value() (yadm.fields.containers.ContainerField method), 22

prepare_value() (yadm.fields.decimal.DecimalField method), 20

pull() (yadm.fields.list.List method), 23

pull() (yadm.fields.set.Set method), 24

push() (yadm.fields.list.List method), 23

R

read_preference() (yadm.queryset.BaseQuerySet method), 15

ReferenceField (class in yadm.fields.reference), 21

reload() (yadm.database.Database method), 10

reload() (yadm.fields.containers.Container method), 21

remove() (yadm.database.Database method), 11

remove() (yadm.fields.list.List method), 23

remove() (yadm.fields.set.Set method), 24

replace() (yadm.fields.list.List method), 23
 result (yadm.bulk.Bulk attribute), 16

S

save() (yadm.database.Database method), 11
 Set (class in yadm.fields.set), 24
 set() (yadm.fields.map.Map method), 25
 SetField (class in yadm.fields.set), 24
 SimpleField (class in yadm.fields.simple), 19
 sort() (yadm.queryset.BaseQuerySet method), 15
 StringField (class in yadm.fields.simple), 19

T

to_mongo() (in module yadm.serialize), 13
 to_mongo() (yadm.fields.base.Field method), 18
 to_mongo() (yadm.fields.containers.ContainerField method), 22
 type (yadm.fields.geo.MultiPointField attribute), 26
 type (yadm.fields.geo.PointField attribute), 26
 type (yadm.fields.simple.BooleanField attribute), 19
 type (yadm.fields.simple.FloatField attribute), 19
 type (yadm.fields.simple.IntegerField attribute), 19
 type (yadm.fields.simple.ObjectIdField attribute), 19
 type (yadm.fields.simple.StringField attribute), 19
 TypedEmbeddedDocumentField (class in yadm.fields.embedded), 20

U

unset() (yadm.fields.map.Map method), 25
 update() (yadm.fields.list.List method), 23
 update_one() (yadm.bulk.Bulk method), 16
 update_one() (yadm.database.Database method), 11

W

write_errors (yadm.bulk.BulkResult attribute), 16

Y

yadm.aggregation (module), 16
 yadm.bulk (module), 15
 yadm.database (module), 9
 yadm.documents (module), 11
 yadm.fields (module), 16
 yadm.fields.base (module), 17
 yadm.fields.containers (module), 21
 yadm.fields.datetime (module), 19
 yadm.fields.decimal (module), 20
 yadm.fields.embedded (module), 20
 yadm.fields.geo (module), 26
 yadm.fields.list (module), 22
 yadm.fields.map (module), 25
 yadm.fields.reference (module), 21
 yadm.fields.set (module), 24
 yadm.fields.simple (module), 19

yadm.join (module), 16
 yadm.queryset (module), 14
 yadm.serialize (module), 13