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# **dp-tornado Documentation**

***Release 0.9.4.16***

**why2pac**

**Aug 21, 2017**



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MVC Web Application Framework with Tornado, Python 2 and 3



# CHAPTER 1

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## Environment Setup

---

Virtualenv:

```
$ pip install virtualenv
$ virtualenv ./venv
$ . ./venv/bin/activate
```

Install dp-tornado:

```
$ pip install dp-tornado
```





## CHAPTER 2

---

### Run

---

Startup:

```
$ dp4p init app_dir
$ dp4p run app_dir
```

or:

```
$ dp4p init --path app_dir --template=bbs
$ dp4p run --path app_dir --template=bbs
```

or:

```
$ mkdir app_dir
$ cd app_dir
$ dp4p init
$ dp4p run
```

with Docker:

```
$ docker pull why2pac/dp4p:latest-py34 # py27, py34, py35, pypy27
$ docker run --name "dp4p-example" -d -p 8080:52848 -v "$(pwd)/app_dir:/data/app"
↳ why2pac/dp4p:latest-py34
```



### MVC

**Warning:** This package is not documented yet.

#### `engine.model` — Model of MVC

**Warning:** This package is not documented yet.

The model directly manages the data, logic, and rules of the application. [<Wikipedia>](#)

Here is a *foo\_bar* model example:

```
from dp_tornado.engine.model import Model as dpModel

class FooBarModel(dpModel):
    def func1(self):
        """
        assert self.helper.foo.func1(10, 20) == None
        """
        return None

    def func2(self, a):
        """
        assert self.helper.foo.func2(10) == 10
        """
        return a

    def func3(self, a, b):
        """
```

```
assert self.helper.foo.func3(10, 20) == 30
"""
return a + b
```

### File/Class Invoke rules

- `/model/__init__.py`, **DO NOT IMPLEMENT ANY CODE IN THIS FILE**
- `/model/blog/__init__.py`, `BlogModel` > **model.blog**
- `/model/blog/admin/__init__.py`, `AdminModel` > **model.blog.admin**
- `/model/blog/post.py`, `PostModel` > **model.blog.post**
- `/model/blog/view.py`, `ViewModel` > **model.blog.view**
- `/model/foo_bar.py`, `FooBarModel` > **model.foo\_bar**

### Method Invoke rules

- `/model/foo.py`, `def func1(self)`: **model.foo.func1()**
- `/model/foo.py`, `def func2(self, a)`: **model.foo.func2(a)**
- `/model/foo.py`, `def func3(self, a, b)`: **model.foo.func3(a, b)**

```
class dp_tornado.engine.model.InValueModelConfig (driver=None,          database=None,
                                                    host=None,      user=None,      pass-
                                                    word=None,  port=None,  path=None,
                                                    pure=None)
```

Bases: `object`

```
class dp_tornado.engine.model.Model (category=None, path_prefix=None)
    Bases: dp_tornado.engine.engine.Engine, dp_tornado.engine.loader.Loader
```

**begin** (`dsn_or_conn`)

**static caching** (`*args`, `**kwargs`)

**static clear\_cached** (`method`, `*args`, `**kwargs`)

**close** (`proxy`)

**commit** (`proxy`, `return_connection=True`)

**execute** (`sql`, `bind=None`, `dsn_or_conn=None`)

**static renew\_cached** (`method`, `*args`, `**kwargs`)

**rollback** (`proxy`, `return_connection=True`)

**row** (`sql`, `bind=None`, `dsn_or_conn=None`, `*args`, `**kwargs`)

**rows** (`sql`, `bind=None`, `dsn_or_conn=None`, `*args`, `**kwargs`)

**static run\_alone** (`*args`, `**kwargs`)

**scalar** (`sql`, `bind=None`, `dsn_or_conn=None`)

```
class dp_tornado.engine.model.ModelProxy (connection, transaction)
```

Bases: `object`

**close** ()

```

commit (return_connection=True)

connection

execute (sql, bind=None, dsn_or_conn=None)

rollback (return_connection=True)

row (sql, bind=None, dsn_or_conn=None)

rows (sql, bind=None, dsn_or_conn=None)

scalar (sql, bind=None, dsn_or_conn=None)

transaction

```

```

class dp_tornado.engine.model.ModelSingleton
    Bases: dp_tornado.engine.engine.Engine, dp_tornado.engine.singleton.Singleton

    begin (dsn_or_conn, cache=False)

    close (proxy)

    commit (proxy, return_connection=True)

    engine (config_dsn, cache=False)

    engines

    execute (sql, bind=None, dsn_or_conn=None, cache=False)

    getconn (config_dsn, cache=False)

    rollback (proxy, return_connection=True)

    row (sql, bind=None, dsn_or_conn=None, cache=False, *args, **kwargs)

    rows (sql, bind=None, dsn_or_conn=None, cache=False, *args, **kwargs)

    scalar (sql, bind=None, dsn_or_conn=None, cache=False)

```

## engine.view — View of MVC

**Warning:** This package is not documented yet.

A view can be any output representation of information, such as a chart or a diagram. <Wikipedia>

Here is a view example:

```

from dp_tornado.engine.controller import Controller

class FooBarController(Controller):
    def get(self):
        self.render('index.html')

```

```

class dp_tornado.engine.view.Dummy
    Bases: object

class dp_tornado.engine.view.View
    Bases: dp_tornado.engine.singleton.Singleton

    static finish (controller, chunk=None)

```

```
static render (controller, template_name, kwargs=None)
static render_string (controller, template_name, kwargs=None, encode=True)
static write (controller, chunk)
```

## engine.controller — Controller of MVC

**Warning:** This package is not documented yet.

Controller Accepts input and converts it to commands for the model or view. <[Wikipedia](#)>

Here is a *foo\_bar* controller example:

```
from dp_tornado.engine.controller import Controller

class FooBarController(Controller):
    def get(self):
        self.finish('done')
```

### Directory/File and URL Mapping rules

- */controller/\_\_init\_\_.py*, *StarterController* > */*
- */controller/blog/\_\_init\_\_.py*, *BlogController* > */blog*
- */controller/blog/admin/\_\_init\_\_.py*, *AdminController* > */blog/admin*
- */controller/blog/post.py*, *PostController* > */blog/post*
- */controller/blog/view.py*, *ViewController* > */blog/view*
- */controller/foo\_bar.py*, *FooBarController* > */foo\_bar*

### Class/Method and URL Mapping rules

- */controller/foo.py*, *def get(self)*: **GET /foo**
- */controller/foo.py*, *def get(self, a)*: **GET /foo/{path}**
- */controller/foo.py*, *def get(self, a, b)*: **GET /foo/{path}/{path}**
- */controller/foo.py*, *def get(self, a, b=None)*: **GET /foo/{path}/{path}** and **GET /foo/{path}**
- */controller/foo.py*, *def post(self)*: **POST /foo**
- */controller/foo.py*, *def put(self)*: **PUT /foo**
- */controller/foo.py*, *def delete(self)*: **DELETE /foo**
- */controller/foo.py*, *def head(self)*: **HEAD /foo**
- */controller/foo.py*, *def patch(self)*: **PATCH /foo**

```
class dp_tornado.engine.controller.Controller(application, request, **kwargs)
    Bases: dp_tornado.engine.engine.Engine
    Base class for HTTP request.
```

```

cookie (name, value=None, **kwargs)
finish (chunk=None)
finish_with_error (status_code, message='An error has occurred')
get_argument (name, default=None, strip=True, cast=None, fmt=None, lrange=None, delimiter=None, value=None, **ext)
get_secure_cookie (name, value=None, max_age_days=31, min_version=None)
get_session_value (name, expire_in=None, sessionid=None)
get_session_value_ttl (name)
get_sessionid ()
get_user_agent (parsed=True, user_agent=None)
initialize (prefix, parent=None)
m17n_lang (lang=None)
prefixize (url)
redirect (url, prefixize=False, permanent=False, status=None, safe=False)
remote_ip
render (template_name, kwargs=None)
render_string (template_name, kwargs=None)
request
request_uri (*args, **kwargs)
static route (path)
secure_cookie (name, value=None, **kwargs)
session (name, value=None, expire_in=<dp_tornado.engine.controller.NoneValue object>)
set_header (name, value)
set_secure_cookie (name, value, expires_days=30, version=2, **kwargs)
set_session_value (name, value, expire_in=<dp_tornado.engine.controller.NoneValue object>)
set_sessionid (sessionid=None)
write (chunk)
class dp_tornado.engine.controller.NoneValue
    Bases: object

```

## INI

**Warning:** This package is not documented yet.

## Config

**Warning:** This package is not documented yet.

Here is a *foo\_bar* config example:

```
from dp_tornado.engine.config import Config

class FooBarConfig(Config):
    def index(self):
        self.conf.value_str = 'string'
        self.conf.value_int = 10
        self.conf.value_dict = {
            'foo': 100,
            'bar': {
                'baz': 200,
                'baf': 300
            }
        }

        self.conf.databases = {
            'drv_sqlite_name': {
                'driver': 'sqlite'
            },
            'drv_mysql_name': {
                'driver': 'mysql+cymysql',
                'database': '',
                'host': '127.0.0.1',
                'port': 3306,
                'user': 'root',
                'password': '',
                'pool_size': 1,
                'charset': 'utf8'
            }
        }

        self.conf.caches = {
            'drv_sqlite_name': {
                'driver': 'memory',
                'identifier': 'dp_test_sqlite'
            },
            'drv_redis_name': {
                'driver': 'redis',
                'host': '127.0.0.1',
                'port': 6379,
                'password': None,
                'maxconn': 256
            }
        }
    }
```

### File/Class Invoke rules

- `/config/__init__.py`, **DO NOT IMPLEMENT ANY CODE IN THIS FILE**



- `/config/blog/__init__.py`, `BlogConfig` > **config.blog**
- `/config/blog/admin/__init__.py`, `AdminConfig` > **config.blog.admin**
- `/config/blog/post.py`, `PostConfig` > **config.blog.post**
- `/config/blog/view.py`, `ViewConfig` > **config.blog.view**
- `/config/foo_bar.py`, `FooBarConfig` > **config.foo\_bar**

## Config Invoke rules

- `/config/foo_bar.py`, `self.conf.value_str`: **config.foo\_bar.value\_str == 'string'**
- `/config/foo_bar.py`, `self.conf.value_int`: **config.foo\_bar.value\_int == 10**
- `/config/foo_bar.py`, `self.conf.value_dict`: **config.foo\_bar.value\_dict.foo == 100**
- `/config/foo_bar.py`, `self.conf.value_dict`: **config.foo\_bar.value\_dict.bar.baz == 200**
- `/config/foo_bar.py`, `self.conf.value_dict`: **config.foo\_bar.value\_dict.bar.baf == 300**
- `/config/foo_bar.py`, `self.conf.databases`: **'foo\_bar/drv\_sqlite\_name'**
- `/config/foo_bar.py`, `self.conf.databases`: **'foo\_bar/drv\_mysql\_name'**
- `/config/foo_bar.py`, `self.conf.databases`: **'foo\_bar/drv\_sqlite\_name'**
- `/config/foo_bar.py`, `self.conf.databases`: **'foo\_bar/drv\_redis\_name'**

## Helper

Here is a `foo_bar` helper example:

```
from dp_tornado.engine.helper import Helper as dpHelper

class FooHelper(dpHelper):
    def func1(self):
        """
        assert self.helper.foo.func1(10, 20) == None
        """
        return None

    def func2(self, a):
        """
        assert self.helper.foo.func2(10) == 10
        """
        return a

    def func3(self, a, b):
        """
        assert self.helper.foo.func3(10, 20) == 30
        """
        return a + b
```

## File/Class Invoke rules

- `/helper/__init__.py`, **DO NOT IMPLEMENT ANY CODE IN THIS FILE**

- `/helper/blog/__init__.py`, `BlogHelper` > **helper.blog**
- `/helper/blog/admin/__init__.py`, `AdminHelper` > **helper.blog.admin**
- `/helper/blog/post.py`, `PostHelper` > **helper.blog.post**
- `/helper/blog/view.py`, `ViewHelper` > **helper.blog.view**
- `/helper/foo_bar.py`, `FooBarHelper` > **helper.foo\_bar**

## Method Invoke rules

- `/helper/foo.py`, `def func1(self)`: **helper.foo.func1()**
- `/helper/foo.py`, `def func2(self, a)`: **helper.foo.func2(a)**
- `/helper/foo.py`, `def func3(self, a, b)`: **helper.foo.func3(a, b)**

## helper.datetime — Manipulate datetime

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.datetime.DatetimeHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    convert (auto=None, datetime=None, timezone=None, timestamp=None, yyymmdd=None, yyymmd-
        dhhiiss=None, ms=False)

    from_datetime (datetime, timezone=None)

    from_timestamp (timestamp, timezone=None, ms=False)

    now (timezone=None)

    transform (anonymous)

    tuple (auto=None, datetime=None, timezone=None, timestamp=None, ms=False)
```

## helper.datetime.date — Manipulate date

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.datetime.date.DateHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    convert (auto=None, datetime=None, timezone=None, timestamp=None, yyymmdd=None, yyymmd-
        dhhiiss=None, ms=False)

    day (auto=None, datetime=None, timezone=None, timestamp=None, ms=False)

    from_datetime (datetime, timezone=None)

    from_timestamp (timestamp, timezone=None, ms=False)

    mmdd (auto=None, datetime=None, timezone=None, timestamp=None, ms=False, concat='')

    month (auto=None, datetime=None, timezone=None, timestamp=None, ms=False)
```

```

now (timezone=None)
tuple (auto=None, datetime=None, timezone=None, timestamp=None, ms=False)
weekday (auto=None, datetime=None, timezone=None, timestamp=None, ms=False, isoweek-
    day=True)
year (auto=None, datetime=None, timezone=None, timestamp=None, ms=False)
yyyymmdd (auto=None, datetime=None, timezone=None, timestamp=None, ms=False, concat='')

```

### helper.datetime.time — Manipulate time

**Warning:** This package is not documented yet.

```

class dp_tornado.helper.datetime.time.TimeHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    convert (auto=None, datetime=None, timezone=None, timestamp=None, yyyymmdd=None, yyyymmdd-
        dhhiiss=None, ms=False)

    hhii (auto=None, datetime=None, timezone=None, timestamp=None, ms=False, concat='')

    hhiiiss (auto=None, datetime=None, timezone=None, timestamp=None, ms=False, concat='')

    hour (auto=None, datetime=None, timezone=None, timestamp=None, ms=False)

    minute (auto=None, datetime=None, timezone=None, timestamp=None, ms=False)

    second (auto=None, datetime=None, timezone=None, timestamp=None, ms=False)

    tuple (auto=None, datetime=None, timezone=None, timestamp=None, ms=False)

```

### helper.datetime.timestamp — Manipulate timestamp

**Warning:** This package is not documented yet.

```

class dp_tornado.helper.datetime.timestamp.TimestampHelper (category=None,
    path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    convert (auto=None, datetime=None, timezone=None, timestamp=None, yyyymmdd=None, yyyymmdd-
        dhhiiss=None, ms=False)

    from_datetime (datetime, ms=False)

    mktime (year=1970, month=1, day=1, hour=0, minute=0, second=0, microsecond=0, ms=False)

    now (ms=False)

    to_datetime (*args, **kwargs)

    tomorrow (auto=None, timestamp=None, datetime=None, timezone=None, yyyymmdd=None, yyyymm-
        mddhhiiss=None, ms=False)

    yesterday (auto=None, timestamp=None, datetime=None, timezone=None, yyyymmdd=None, yyyymm-
        mddhhiiss=None, ms=False)

```

## helper.datetime.timezone — Manipulate timezone

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.datetime.timezone.TimezoneHelper (category=None,
                                                         path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    localize (datetime, timezone)
    normalize (datetime, timezone)
    tzinfo_from_datetime (datetime)
    tzinfo_from_zone (zone)
    zone_from_datetime (datetime)
    zone_from_tzinfo (zone)
```

## helper.io — IO

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.io.IOException (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

## helper.io.file — File

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.io.file.FileHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    compare (*files)
    remove (files_or_dirs=None, files=None, dirs=None)
    write (path, content, mode='w')
```

## helper.io.file.zip — ZIP

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.io.file.zip.ZipHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    archive (destfile, srcfiles, mode='w', compression=0, allowZip64=False)
    unarchive (srcfile, destpath, mode='r', compression=0, allowZip64=False)
```

**helper.io.path — Path**

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.io.path.PathHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    browse (path, fullpath=True, recursive=False, appendpath=None, conditions=None)

    cwd ()

    dirname (path)

    ext (path, dot='.')

    is_dir (path)

    is_file (path)

    join (path, *paths)

    makedirs (path, mode=None)

    split (path)
```

**helper.io.path.sys — SYS**

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.io.path.sys.SysHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    append (x)

    insert (i, x)
```

**helper.io.image — Image**

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.io.image.ImageHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    border (src, options=None, **o_kwargs)

    colorize (src, options=None, **o_kwargs)

    compare (i1, i2, error=0)

    crop (src, options=None, **o_kwargs)

    execute (src, fn, options=None, **kwargs)

    load (src, options=None, **kwargs)

    manipulate (src, options=None, **kwargs)
```

```
radius (src, options=None, **o_kwargs)
resize (src, options=None, **o_kwargs)
save (src, options=None, **o_kwargs)
size (src, options=None, **o_kwargs)
```

## helper.io.image.mode — Image Mode

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.io.image.mode.ModeHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    center
    fill
    modes
    resize
```

## helper.locale — Localization

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.locale.LocaleHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

## helper.locale.country — Country

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.locale.country.CountryHelper (category=None,
                                                         path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    available_countries
    south_korea
```

## helper.locale.korea — Korea

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.locale.korea.KoreaHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

```
readable_phone_number (number, separator='-')
validate_phone_number (number)
weekday (w, short=False, isoweekday=True)
```

## helper.misc — Miscellaneous functions

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.misc.MiscHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

## helper.misc.performance — Performance

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.misc.performance.PerformanceHelper (category=None,
                                                            path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    start (log_prefix='Time', enabled=True)
class dp_tornado.helper.misc.performance.PerformanceMeasurement (log_prefix,    en-
                                                                abled)
    Bases: object
    lap (log_suffix='Lap', with_print=True)
    stop (log_suffix='Stop', with_print=True)
```

## helper.misc.system — System

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.misc.system.SystemHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    py_version
```

## helper.misc.type — Type

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.misc.type.TypeHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    array
```

`bool`  
`dict`  
`float`  
`int`  
`long`  
`numeric`  
`string`

### `helper.misc.type.check` — Type Checking

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.misc.type.check.CheckHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    array (val)
    dict (val)
    numeric (val)
    string (val)
```

### `helper.numeric` — Manipulate numeric

```
class dp_tornado.helper.numeric.NumericHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    extract_numbers (string)
    from_xxx (x)
    int (a, raise_exception=True)
    long (a, raise_exception=True)
    number_format (value, tsep=',', dsep='.')
    to_xxx (x)
    xxx
```

### `helper.numeric.cast` — Type Cast

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.numeric.cast.CastHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    float (a, raise_exception=False)
```



```
int (a, raise_exception=False)
long (a, raise_exception=False)
```

### helper.numeric.math — Math

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.numeric.math.MathHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    ceil (x)
    floor (x)
    round (number, ndigits=None)
```

### helper.security — Security

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.security.SecurityHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

### helper.security.crypto — Crypto

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.security.crypto.CryptoHelper (category=None,
                                                       path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    decrypt (encrypted, key=None, raw=False, encode=True, pad=True)
    encrypt (plain, randomized=False, expire_in=0, key=None, raw=False, encode=True, pad=True)
```

### helper.security.crypto.file — Encryption or Decryption for File

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.security.crypto.file.FileHelper (category=None,
                                                         path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

## helper.security.web — Web

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.security.web.WebHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

## helper.security.web.csrf — CSRF Protection

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.security.web.csrf.CsrfHelper (category=None,
                                                       path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    generate_token (controller, token_length=32, token_expire_in=43200)
    verify_token (controller, key='csrf', value=None)
```

## helper.serialization — Serialization

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.serialization.SerializationHelper (category=None,
                                                           path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    deserialize (text, method='json', encoding='utf8', raise_exception=False)
        Alias of helper.string.serialization.deserialize
    serialize (obj, method='json', beautify=False, raise_exception=False)
        Alias of helper.string.serialization.serialize
```

## helper.serialization.json — JSON

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.serialization.json.JsonHelper (category=None,
                                                         path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    parse (text, encoding='utf8', raise_exception=False)
        Alias of helper.string.serialization.json.parse
    stringify (obj, beautify=False, raise_exception=False)
        Alias of helper.string.serialization.json.stringify
```

## helper.string — Manipulate string

**Warning:** This package is not documented yet.

```

class dp_tornado.helper.string.StringHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    ascii_letters
    ascii_lowercase
    ascii_uppercase
    digits
    printable
    punctuation
    whitespace

```

## helper.string.cast — Type Cast

**Warning:** This package is not documented yet.

```

class dp_tornado.helper.string.cast.CastHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    string (s, preserve_none=True)
    unicode (s, preserve_none=True)

```

## helper.string.check — Check

**Warning:** This package is not documented yet.

```

class dp_tornado.helper.string.check.CheckHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    alphabet (s, add=None)
    alphanumeric (s, add=None)
    alphanumericpunc (s, add=None)
    exist_repeated_text (s, criteria=3)
    numeric (s, add=None)

```

## helper.string.random — Random

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.string.random.RandomHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    numeric (length)
    string (length)
```

## helper.string.serialization — Serialization

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.string.serialization.SerializationHelper (category=None,
                                                                    path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    deserialize (text, method='json', encoding='utf8', raise_exception=False)
    serialize (obj, method='json', beautify=False, raise_exception=False)
```

## helper.string.serialization.json — JSON

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.string.serialization.json.JsonHelper (category=None,
                                                                path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    parse (text, encoding='utf8', raise_exception=False)
    stringify (obj, beautify=False, raise_exception=False)
```

## helper.validator — Validators

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.validator.ValidatorHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

### helper.validator.email — E-Mail Validator

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.validator.email.EmailHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    validate (e)
```

### helper.validator.form — Form Validator

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.validator.form.FormHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    validate (controller, fields, error_res='json')
```

### helper.validator.phone — Phone Validator

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.validator.phone.PhoneHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    validate (p, locale=None)
```

### helper.validator.url — URL Validator

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.validator.url.UrlHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    validate (url)
```

### helper.web — Web

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.WebHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

## helper.web.aws — AWS

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.aws.AwsHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

## helper.web.aws.dynamodb — AWS DynamoDB

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.aws.dynamodb.DynamodbHelper (category=None,
                                                           path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    client (access_key_id, secret_access_key, region_name)
    resource (access_key_id, secret_access_key, region_name)
```

## helper.web.aws.dynamodb.table — AWS DynamoDB Table

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.aws.dynamodb.table.TableHelper (category=None,
                                                             path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    create (access_key_id, secret_access_key, region_name, table_name, index_columns,
            read_capacity_units=1, write_capacity_units=1, wait_until_exists=True, **kwargs)
    describe (access_key_id, secret_access_key, region_name, table_name, wait_until_exists=True)
    get (access_key_id, secret_access_key, region_name, table_name, wait_until_exists=False)
    remove (access_key_id, secret_access_key, region_name, table_name, wait_until_not_exists=True)
    status (access_key_id, secret_access_key, region_name, table_name)
    wait_until (access_key_id, secret_access_key, region_name, table_name, exists, repeat=25, re-
                 peated=0, before_status=None)
```

## helper.web.aws.dynamodb.table.column — AWS DynamoDB Table - Column

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.aws.dynamodb.table.column.ColumnHelper (category=None,
                                                                       path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
```

**binary**  
**number**  
**string**

### helper.web.aws.dynamodb.table.indexing — AWS DynamoDB - Indexing

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.aws.dynamodb.table.indexing.IndexingHelper (category=None,
                                                                    path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    hash
    partition
    range
    sort
```

### helper.web.aws.dynamodb.item — AWS DynamoDB Item

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.aws.dynamodb.item.ItemHelper (category=None,
                                                            path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    get (access_key_id, secret_access_key, region_name, table_name, keys)
    put (access_key_id, secret_access_key, region_name, table_name, items, overwrite_by_pkeys=None)
    query (access_key_id, secret_access_key, region_name, table_name, count=False, **kwargs)
    remove (access_key_id, secret_access_key, region_name, table_name, keys, overwrite_by_pkeys=None)
    scan (access_key_id, secret_access_key, region_name, table_name, count=False, **kwargs)
```

### helper.web.aws.s3 — AWS S3

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.aws.s3.S3Helper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    browse (access_key_id, secret_access_key, region_name, bucket_name, prefix)
    copy (access_key_id, secret_access_key, region_name, src_bucket_name, src_key, dest_bucket_name,
          dest_key, copied_check=True)
    download (access_key_id, secret_access_key, region_name, bucket_name, src, dest, **kwargs)
```

```
exists (key, access_key_id, secret_access_key, region_name, bucket_name)

generate_presigned_post (access_key_id, secret_access_key, region_name, bucket_name,
                           key, success_action_redirect=None, content_length_range=None,
                           max_content_length=None, expires_in=6000, acl=None)

remove (access_key_id, secret_access_key, region_name, bucket_name, key=None, prefix=None,
         deleted_check=True)

upload (access_key_id, secret_access_key, region_name, bucket_name, src, dest, up-
         loaded_check=True, ExtraArgs=None)
```

### helper.web.email — E-Mail

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.email.EmailHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    send (*args, **kwargs)

    username_from_email (email)

    validate (e)
```

### helper.web.form — Form

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.form.FormHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    validate (controller, fields, error_res='json')
```

### helper.web.html — HTML

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.html.HtmlHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    escape (s, quote=False)

    strip_tags (text)

    strip_xss (s, whitelist=None)

    unescape (text)

    validate (s)
```



## helper.web.http — HTTP

**Warning:** This package is not documented yet.

```

class dp_tornado.helper.web.http.HttpHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    request (req_type, res_type, url, data=None, json=None, raise_exception=False, session=None,
            **kwargs)

    request_delete (res_type, url, raise_exception=False, session=None, **kwargs)

    request_get (res_type, url, data=None, raise_exception=False, session=None, **kwargs)

    request_head (res_type, url, raise_exception=False, session=None, **kwargs)

    request_options (res_type, url, raise_exception=False, session=None, **kwargs)

    request_patch (res_type, url, data=None, raise_exception=False, session=None, **kwargs)

    request_post (res_type, url, data=None, json=None, raise_exception=False, session=None,
                  **kwargs)

    request_put (res_type, url, data=None, raise_exception=False, session=None, **kwargs)

```

## helper.web.http.get — HTTP - Get

**Warning:** This package is not documented yet.

```

class dp_tornado.helper.web.http.get.GetHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    html (url, data=None, **kwargs)

    json (url, data=None, **kwargs)

    raw (url, data=None, **kwargs)

    text (url, data=None, **kwargs)

```

## helper.web.http.post — HTTP - Post

**Warning:** This package is not documented yet.

```

class dp_tornado.helper.web.http.post.PostHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    html (url, data=None, json=None, **kwargs)

    json (url, data=None, json=None, **kwargs)

    raw (url, data=None, json=None, **kwargs)

    text (url, data=None, json=None, **kwargs)

```

### helper.web.http.put — HTTP - Put

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.http.put.PutHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    html (url, data=None, **kwargs)
    json (url, data=None, **kwargs)
    raw (url, data=None, **kwargs)
    text (url, data=None, **kwargs)
```

### helper.web.http.delete — HTTP - Delete

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.http.delete.DeleteHelper (category=None,
                                                         path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    html (url, **kwargs)
    json (url, **kwargs)
    raw (url, **kwargs)
    text (url, **kwargs)
```

### helper.web.http.patch — HTTP - Patch

**Warning:** This package is not documented yet.

```
class dp_tornado.helper.web.http.patch.PatchHelper (category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper
    html (url, data=None, **kwargs)
    json (url, data=None, **kwargs)
    raw (url, data=None, **kwargs)
    text (url, data=None, **kwargs)
```

### helper.web.url — URL

**Warning:** This package is not documented yet.

```

class dp_tornado.helper.web.url.UrlHelper(category=None, path_prefix=None)
    Bases: dp_tornado.engine.helper.Helper

    build(url=None, query=None)

    decode(*args, **kwargs)

    encode(*args, **kwargs)

    join(*args)

    parse(e)

    quote(e, safe='', **kwargs)

    unquote(e, **kwargs)

    validate(e)

class dp_tornado.helper.web.url.UrlParse(request=None, scheme='', netloc='', path='',
                                         params=None, query=None, fragment='')
    Bases: object

    build()

```

## Scheduler

**Warning:** This package is not documented yet.

## Schema

Schema module provides auto-generate relational database model as object based.

### File/Class Invoke rules

- `/schema/__init__.py`, **DO NOT IMPLEMENT ANY CODE IN THIS FILE**
- `/schema/blog/__init__.py`, BlogSchema > **schema.blog**
- `/schema/blog/articles.py`, ArticlesSchema > **schema.blog.articles**
- `/schema/blog/comments.py`, CommentsSchema > **schema.blog.comments**

Table migration(create or alter) will be executed by invoking `.migrate()` method manually. For example, you can migrate comments table with invoking `schema.blog.comments.migrate()` method.

There are 2 types of schema. One is **\_\_dsn\_\_ specifier** and another one is **table describer**. `__init__.py` file of each directory must be **\_\_dsn\_\_ specifier**. and child `.py` files are must be **table describer**.

Here is a **\_\_dsn\_\_ specifier** example (`/schema/blog/__init__.py`):

```

from dp_tornado.engine.schema import Schema as dpSchema

class BlogSchema(dpSchema):
    __dsn__ = 'tests.model_test/drv_mysql_test'

```

and Here is a **table describer** example (/schema/blog/comments.py):

```
from dp_tornado.engine.schema import Table as dpTable
from dp_tornado.engine.schema import Schema as dpSchema
from dp_tornado.engine.schema import Attribute as dpAttribute

class CommentsSchema(dpSchema):
    __table_name__ = 'comments'

    __engine__ = 'InnoDB'
    __charset__ = 'utf8'

    comment_id = dpAttribute.field(dpAttribute.DataType.BIGINT, ai=True, pk=True,
↪nn=True, un=True, comment='Comment ID')
    article_id = dpAttribute.field(dpAttribute.DataType.BIGINT, nn=True, un=True,
↪comment='Parent Article ID')
    author = dpAttribute.field(dpAttribute.DataType.VARCHAR(32), nn=True, comment=
↪'Author')
    comment = dpAttribute.field(dpAttribute.DataType.VARCHAR(128), nn=True, comment=
↪'Comment')

    primary_key = dpAttribute.index(dpAttribute.IndexType.PRIMARY, 'comment_id')

    idx_articles_author_and_comment = dpAttribute.index(dpAttribute.IndexType.INDEX, (
↪'author', 'comment'))
    idx_articles_comment = dpAttribute.index(dpAttribute.IndexType.INDEX, 'comment')

    fk_comments_article_id = dpAttribute.foreign_key(('article_id', dpSchema.field().
↪blog.articles, 'article_id'))
```

## Cache

**Warning:** This package is not documented yet.

## M17n

**Warning:** This package is not documented yet.

## Vars

**Warning:** This package is not documented yet.

## Logging

**Warning:** This package is not documented yet.

## Testing

Testing module provides unittest by pre-defined testing syntax. You can define testing syntax as method *docstring*, ‘..test::’ indicates the beginning of testing syntaxes.

Run Test:

```
$ dp4p test --path=./example
```

Available syntax:

- **expect(criteria)**
- **expect(priority, rules)**
- **!expect(criteria)**
- **!expect(priority, rules)**

```
rules:
    controller:
        code, text, json, args(arguments separated by /), params(query string, form_
↪values)
        model, helper:
            int, long, bool, str, json, args (arguments by list), kwargs (arguments by_
↪dict)
```

```
from dp_tornado.engine.controller import Controller as dpController
from dp_tornado.engine.model import Model as dpModel
from dp_tornado.engine.helper import Helper as dpHelper

class FooController(dpController):
    def get(self):
        """
        .. test::
            expect(
                1,
                code=200,
                text='foo==bar',
                params={'foo': 'bar'})
        """
        foo = self.get_argument('foo')

        if foo == 'bar':
            return self.finish('foo==bar')

        self.finish('done')

    def post(self):
        """
        .. test::
            expect(code=400, params={'foo': 'bar'})
```

```
    """
    foo = self.get_argument('foo')

    if foo == 'bar':
        return self.finish_with_error(400)

    self.finish('done')

class FooController(dpController):
    def get(self):
        """
        Test with params and expect json value.

        .. test::
            expect(json="{ 'foo': 'bar' }", params={ 'foo': 'bar' })
        """
        foo = self.get_argument('foo')
        return self.finish({'foo': bar})

class FooController(dpController):
    def get(self):
        """
        Test with params and expect json value.

        .. test::
            expect(json={ 'foo': 'bar' }, params={ 'foo': 'bar' })
        """
        foo = self.get_argument('foo')
        return self.finish({'foo': bar})

class FooModel(dpModel):
    def foobar(self, foo):
        """
        Test with kwargs arguments.

        .. test::
            expect(int=100, kwargs={ 'foo': 'bar' })
        """
        if foo == 'bar':
            return int(100)

        return 0

class FooModel(dpModel):
    def foobar(self, foo):
        """
        Test with kwargs arguments.

        .. test::
            expect(long=100, kwargs={ 'foo': 'bar' })
            expect(long=0, kwargs={ 'foo': 'foo' })
            !expect(long=0, kwargs={ 'foo': 'bar' })
        """
        if foo == 'bar':
            if self.e.helper.misc.system.py_version <= 2:
                return long(100)
            else:
                return int(100)
```

```
    if self.e.helper.misc.system.py_version <= 2:
        return long(0)
    else:
        return int(0)

class FooHelper(dpHelper):
    def foobar(self, foo, bar):
        """
        Test with args arguments.

        .. test::
            expect(bool=True, args={'foo': 'bar'})
            !expect(bool=False, args={'foo': 'bar'})
        """
        foo = self.get_argument('foo')

        if foo == 'bar':
            return True

        return False
```

- `genindex`
- `modindex`
- `search`





### d

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