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Warning: Starting 3.0 django-app-helper only supports Django 2.2+ and django CMS 3.7+. If you need support for older (unsupported) versions, use django-app-helper 2.
django-app-helper is a set of commands and helper methods to make developing and testing reusable Django applications easier.

Being born in the django CMS ecosystem, it provides a lot of utility functions to develop, run and test django CMS applications.

It’s a modified version of django CMS’s own develop.py script, modified to handle generic application development process.

It supports both tests written using Django TestCase and pytest ones (see pytest support).

### 1.1 Supported versions

- Python: 3.6, 3.7, 3.8
- Django: 2.2 - 3.1
- django CMS: 3.7, 3.8

Newer versions might work but are not tested yet.

### 1.2 Common options

- `--cms`: Loads configuration to properly run a django CMS-based application;
- `--extra-settings`: Path to a helper file to set extra settings; see Project settings with Django App Helper for details;
Usage

The command **must** be executed in the main plugin directory (i.e. in the same directory as the `setup.py` file) as it needs to import files relative to the current directory.

The basic command structure is:

```
django-app-helper <application> <command> [options ...]
```

where `<application>` is the django application name and `<command>` is one of the available commands. Options vary for each command.

### 2.1 Base test class

A base test class is available to provide helpers and methods that implements repetitive tasks during development or compatibility shims (especially for django CMS).
Bootstrapping

To bootstrap a project using `django-app-helper` you may want to have a look at `cookiecutter-djangopackage-helper`, a cookiecutter template for `django-app-helper`.

To use it follows usage
By using the integrated runned in the settings file you’ll be able to run the commands without invoking django-app-helper: see Integrated runner for reference.
ASGI / Channels are supported by installing the project with `django-app-helper[async]`.

With Daphne / Channels installed you can run `django-app-helper server --use-daphne|--use-channels` to run the project on ASGI.

See ASGI / Channels support

Pure ASGI support is available only for Django 3.0+. 
Installation

Installing from pip:

```
pip install django-app-helper
```

Installing from source:

```
pip install git+https://github.com/nephila/django-app-helper#egg=django-app-helper
```

6.1 Requirements

- django CMS optional; required only to work with `--cms` option
- docopt
- tox
- dj-database-url
CHAPTER 7

Documentation is available on readthedocs.
django-app-helper was written by Iacopo Spalletti with help from other contributors.

8.1 Thanks

The general logic and part of the code of the whole application is heavily taken from django CMS’s own develop.py so all the contributors deserve a huge thanks for their work.

8.1.1 How to use Django App Helper

We’ll assume that you have an application for django CMS that you’re working on. Once you have django CMS installed, it’ll be available using django-app-helper command. cd into the root directory of your application (that is, the outer directory containing its setup.py). You need to be here to run the django-app-helper command.

Running Django App Helper command

Try it:

django-app-helper <myapp> test --cms  # change <myapp> to your application’s actual name

It’ll spawn its virtual project and run your tests in it. You should see some output along these lines (there may well be some other output before it gets to this stage):

Creating test database for alias 'default'...
F
======================================================================
FAIL: test_bad_maths (djangocms_maths.tests.SmokeTest)

(continues on next page)
Traceback (most recent call last):
  File "./djangocms_maths/tests.py", line 6, in test_bad_maths
    self.assertEqual(1 + 1, 3)
AssertionError: 2 != 3

Ran 1 test in 0.000s
FAILED (failures=1)

All commands take a form similar to the one you’ve just run, sharing the basic command structure:

```
django-app-helper <application> <command> [options ...]
```

where `<application>` is the Django application name and `<command>` is one of the available commands. Options vary for each command.

**But I haven’t written any tests yet!**

It helps if you actually have some tests of course - if you don’t, simply create a `tests.py` file in your application (not in this directory, but in the package directory, alongside its models and views and so on):

```
from django.test import TestCase

class SmokeTest(TestCase):
    
    def test_bad_maths(self):
        self.assertEqual(1 + 1, 3)
```

**The --cms option**

You’ll need the `--cms` option most of the time. It sets up the virtual project appropriately for django CMS, providing the required configuration (see `--cms option` for details).

**Other commands**

Try a couple of the other commands; they’re mostly self-explanatory:

```
django-app-helper <myapp> shell --cms  # start a Django shell for the virtual project

django-app-helper <myapp> check --cms  # runs the Django check command

django-app-helper <myapp> cms_check   # runs the django CMS check command
```

Note that the last of these doesn’t require the `--cms` option, because of course that is implied anyway by `cms_check`.

**Integrated runner**

In some contexts running commands by using the complete syntax can be clunky or unfeasible. Django App Helper contains function that allows to run the commands with a much shorter syntax:
python helper.py

to run tests

Or:

python helper.py server

to invoke a server.

See Integrated runner for details.

**Sphinx integration**

When documenting a project using Sphinx autodoc, you mostly need a proper project setup, because the imports in your application’s modules will trigger Django setup code anyway.

Using the *Naked setup* it’s easy to let helper setup an environment for you:

- setup the *Naked setup*
- add the following code to sphinx `conf.py`:

  ```python
  sys.path.insert(0, os.path.abspath('..'))
  import app_helper
  app_helper.setup()
  ```

---

**8.1.2 Django App Helper reference**

**Commands**

Commands take the general form:

```
django-app-helper <application> <command> [options ...]
```

where `<application>` is the Django application name and `<command>` is a Django supported command, or one of the django-app-helper commands detailed below. Options vary for each command.

**Note:** while all examples here use the `django-app-helper` CLI, a more idiomatic way to run commands is by using Integrated runner.

**Common options**

- `--extra-settings=path`: loads the extra settings from the provided file instead of the default `helper.py`
- `cms`: loads django CMS specific options (see `--cms option` for details)

---

**8.1. Thanks**
Django commands

Django App Helper supports any Django command available according to the project setup; the general syntax is:

```
django-app-helper <application> <command> [options] [--extra-settings=</path/to/settings.py>] [--cms]
```

Example: `django-app-helper some_application shell --cms`

Arguments

- `<command>` is any available Django command
- `[options]` is any option/argument accepted by the above command

**test**

```
```

Example: `django-app-helper some_application test --cms`

Runs the application’s test suite in Django App Helper’s virtual environment.

Arguments

- `<test-label>`: a space-separated list of tests to run; test labels depend on the runner test suite building protocol, please, refer to the runner documentation to know the test label format;

Options

- `--runner`: custom test runner to use in dotted path notation;
- `--runner-options=<option1>,<option2>`: comma separated list of command line options for the test runner: e.g. `--runner-options="--with-coverage,--cover-package=my_package"
- `--failfast`: whether to stop at first test failure;
- `--migrate`: use migrations (default);
- `--persistent`: use persistent storage for media and static; by default storage is created in `data` directory in the root of the application; if a different directory is needed, use `--persistent-path` to provide the path;
- `--persistent-path`: persistent storage path, instead of `data`
- `--no-migrate`: skip migrations;
- `--xvfb`: whether to configure `xvfb` (for frontend tests);
- `--native` use the native Django command: the use of this option is **incompatible** with the options above.
Test structure

Currently two different tests layouts are supported:

- tests outside the application module:

```python
setup.py
tests
    __init__.py
test_module1.py
    ...
```

- tests inside the application:

```python
setup.py
application
tests
    __init__.py
test_module1.py
    ...
```

Depending on the used test runner you may need to setup your tests accordingly.

The default runner is the Django one, but it’s possible to specify your own custom runner with the `--runner` option.

**cms_check**

```
django-app-helper <application> cms_check [--extra-settings=</path/to/settings.py>] [-migrate]
```

Runs the django CMS `cms_check` command.

**Example:** `django-app-helper some_application cms_check`

**update and compile locales**

```
django-app-helper <application> makemessages [--extra-settings=</path/to/settings.py> --] [--cms] [--locale=locale]
django-app-helper <application> compilemessages [--extra-settings=</path/to/settings.py>] [--cms]
```

**Examples:**

```
django-app-helper some_application makemessages --cms
django-app-helper some_application compilemessages --cms
```

These two commands compiles and update the locale messages.

**Options**

- `--locale=locale`: `makemessages` allows a single option to choose the locale to update. If not provided `en` is used.

8.1. Thanks
Django App Helper Documentation, Release 3.0.1

makemigrations

```
```

Updates the application migrations (south migrations or Django migrations according to the current installed Django version). For South, it automatically handles `initial` and `auto` options.

**Options**

- `--merge`: Enable fixing of migration conflicts
- `--empty`: It generates an empty migration for customisations
- `--dry-run`: Does not create migrations file

**Arguments**

- `<extra-applications>`: Spaces separated list of applications to migrate

squashmigrations

```
django-app-helper <application> squashmigrations <migration-name>
```

Runs the `squashmigrations` command. It operates on the current application.

**Arguments**

- `<migration-name>`: Squash migrations until this migration

pyflakes

```
django-app-helper <application> pyflakes [--extra-settings=<path/to/settings.py>] [--cms]
```

Performs static analysis using pyflakes, with the same configuration as django CMS.

This requires pyflakes<2.1 only installed with django-app-helper[pyflakes].

authors

```
django-app-helper <application> authors [--extra-settings=<path/to/settings.py>] [--cms]
```

Generates an authors list from the git log, in a form suitable for the `AUTHORS` file.
server

```
```

Starts a runserver instance.

- `--port=<port>`: port to bind the server on;
- `--bind=<bind>`: address to bind the server on;
- `--extra-settings=<path/to/settings.py>`: path to extra settings file;
- `--cms`: enable django CMS settings;
- `--migrate`: run migrations on server start (default);
- `--no-migrate`: do not run migrations on server start;
- `--persistent | --persistent-path=<path>`: persist generated media directory; optionally you can provide a fixed path;
- `--verbose=<level>`: verbosity level;
- `--use-daphne`: use daphne server;
- `--use-channels`: use channels server;

### 8.1.3 Project settings with Django App Helper

#### Extra settings

Django App Helper provide a basic set of settings, you’ll probably need to provide your own.

Extra settings can be provided by creating a `helper.py` file in the application root directory and providing the settings as a dictionary named `HELPER_SETTINGS`:

```python
HELPER_SETTINGS={
    'INSTALLED_APPS': [
        'any_django_app',
    ],
    'ANY_SETTING': False,
    ...
}
```

An alternative, and possibly clearer form is:

```python
HELPER_SETTINGS=dict(
    INSTALLED_APPS=[
        'any_django_app',
    ],
    ANY_SETTING=False,
    ...
)
```

By default any setting option provided in `helper.py` will override the default ones.
Special settings

The following settings will not override the defaults ones, but they are appended to the defaults to make easier to customise the configuration:

- `INSTALLED_APPS`
- `TEMPLATE_CONTEXT_PROCESSORS`
- `TEMPLATE_LOADERS`
- `TEMPLATE_DIRS`
- `MIDDLEWARE_CLASSES`

Other extra setting:

- `TOP_INSTALLED_APPS`: items in this setting will be inserted on top of `INSTALLED_APPS` (e.g.: to control the templates and static files override from standard applications configured by django-app-helper).
- `TOP_MIDDLEWARE_CLASSES`: items in this setting will be inserted on top of `MIDDLEWARE_CLASSES`.

Django 1.8 support

All `TEMPLATES` settings from Django 1.6/1.7 are automatically translated to Django 1.8 `TEMPLATE` setting. To support both, just use the **old** names, and django-app-helper will take care of converting.

default settings

These are the applications, context processors and middlewares loaded by default

Applications:

```python
['django.contrib.contenttypes',
 'django.contrib.auth',
 'django.contrib.sessions',
 'django.contrib.sites',
 'django.contrib.staticfiles',
 'django.contrib.admin',
 'app_helper.test_data', # this provides basic templates and urlconf
 'django.contrib.messages',
]
```

Template context processors:

```python
['django.contrib.auth.context_processors.auth',
 'django.contrib.messages.context_processors.messages',
 'django.core.context_processors.i18n',
 'django.core.context_processors.csrf',
 'django.core.context_processors.debug',
 'django.core.context_processors.tz',
 'django.core.context_processors.request',
 'django.core.context_processors.media',
 'django.core.context_processors.static',
]
```

Note: On Django 1.8 these are translated to the new path `django.template.context_processors.*`

Middlewares:
When using the `--cms` option, INSTALLED_APPS, TEMPLATE_CONTEXT_PROCESSORS and MIDDLEWARE_CLASSES related to django CMS are added to the default settings so you won’t need to provide it yourself.

Applications:

```python
'djangocms_admin_style',
mptt',
'cms',
'menus',
'sekizai',
```

When django CMS 3.1+ is used, treebeard is configured instead of mptt.

Template context processors:

```python
'cms.context_processors.cms_settings',
'sekizai.context_processors.sekizai',
```

Middlewares:

```python
'cms.middleware.language.LanguageCookieMiddleware',
'cms.middleware.user.CurrentUserMiddleware',
'cms.middleware.toolbar.ToolbarMiddleware',
```

django-app-helper discovers automatically the South / Django migrations layout and configure the settings accordingly. As of the current version filer, djangocms_text_ckeditor, cmplugin_filer are supported.

### 8.1.4 Integrated runner

Django App Helper provide a runner to invoke the commands without requiring the django-app-helper file; this can be useful to invoke tests with coverage or to have a simpler syntax to remember.

Typically you’d setup the runner function in the extra settings file:

```python
HELPER_SETTINGS={
    'INSTALLED_APPS': [
        'any_django_app',
    ],
    'ANY_SETTING': False,
    ...
}
```
def run():
    from app_helper import runner
    runner.cms('my_app')
if __name__ == '__main__':
    run()

With the above code in place you can run any Django App Helper command as:

```
python helper.py <command>
```

And adding the `test_suite` argument to `setup.py`:

```
ssetup(
    ...
    test_suite='app_helper.run',
    ...
)
```

You can invoke the tests with:

```
python setup.py test
```

**Django environment**

If you don’t need django CMS, you can use a runner function with no CMS attached:

```
def run():
    from app_helper import runner
    runner.run('my_app')
if __name__ == '__main__':
    run()
```

*Warning:* The runner *must* be invoked from the `settings` file. The runner takes care of setting up the file in which is invoked as the `extra_settings` file.

**Naked setup**

Sometimes you just want to properly setup a Django environment without running any commands (e.g: when building Sphinx docs using autodoc). Naked setup allows to do so:

```
def setup():
    import sys
    from app_helper import runner
    runner.setup('my_app', sys.modules[__name__], use_cms=True)
if __name__ == 'cms_helper':
    setup()
```

The last lines allows to auto-load naked setup when runner file is imported. This is useful when running tests in a PyCharm environment. In case you customized the runner filename, replace "cms_helper" with the custom name.
Warning: The runner must be invoked from the settings file. The runner takes care of setting up the file in which is invoked as the extra_settings file.

8.1.5 Migrating from djangocms-helper to django-app-helper

This project used to be called djangocms-helper. It’s been renamed in version 2.0 to clarify that it’s not limited to django CMS apps.

Migration is straightforward as it does not require any change to the codebase:
- all imports from djangocms_helper namespace are still valid and they won’t be deprecated soon
- runner file name cms_helper.py is still valid and it won’t be deprecated soon

Migration path
- Replace djangocms-helper package name from any dependency declaration (setup.py, tox.ini, requirements.txt...)

That’s it!

Bugfixes and further development

Bugfixes to djangocms-helper 1.2.x will be released until reasonable under the old package name, while new features (including new Django / django CMS versions support will only be available in the django-app-helper package).

8.1.6 Base test mixins

The following mixins are available to provide helpers and methods that implements helpers and functions commonly used in tests. BaseTestCase, BaseTransactionTestCase are concrete classes implementing all the mixins and extending respectively django.tests.TestCase and django.tests.TransactionTestCase

class app_helper.base_test.RequestTestCaseMixin
    Provide methods to get complex request objects.
    Resulting request has more realistic attributes (i.e.: all the attributes found in a non-test request) than the plain django.test.RequestFactory.

    login_user_context (user, password=None)
    Context manager to make logged in requests.
    
    Usage:

    ```python
    with self.login_user_context("<username>", password="<password>"):
        request = self.request("/", lang="en")
        ... # this request has <username> as user
    ```

    Parameters
    - **user** – user username
    - **password** – user password (if omitted, username is used)

8.1. Thanks
**request** *(path, method='get', data=None, page=None, lang='', user=None, use_middlewares=False, secure=False, use_toolbar=False)*

Create a request for the given parameters.

Request will be enriched with:

- session
- cookies
- user (Anonymous if :param:user is None)
- django CMS toolbar (is set)
- current_page (if provided)

**Parameters**

- **path** *(str)* – request path
- **method** *(str)* – HTTP verb to use
- **data** *(dict)* – payload to pass to the underlying *django.test.RequestFactory* method
- **page** *(cms.models.Page)* – current page object
- **lang** *(str)* – request language
- **user** *(django.contrib.auth.models.AbstractUser)* – current user
- **use_middlewares** *(bool)* – pass the request through configured middlewares
- **secure** *(bool)* – create HTTPS request
- **use_toolbar** – add django CMS toolbar

**Returns** request

**class app_helper.base_test.CreateTestDataMixin**

Provide methods to automatically create users on test setup and shortcut to generate test data.

**classmethod _setup_users()**

Create standard users.

- **user**: superuser
- **user_staff**: staff user
- **user_normal**: plain django user

**classmethod _teardown_users()**

Delete existing users.

- **_admin_user_username** = 'admin'
  Username for auto-generated superuser
- **_admin_user_password** = 'admin'
  Password for auto-generated superuser
- **_admin_user_email** = 'admin@admin.com'
  Email for auto-generated superuser
- **_staff_user_username** = 'staff'
  Username for auto-generated staff user
_staff_user_password = 'staff'
    Password for auto-generated staff user

_staff_user_email = 'staff@admin.com'
    Email for auto-generated staff user

_user_user_username = 'normal'
    Username for auto-generated non-staff user

_user_user_password = 'normal'
    Password for auto-generated non-staff user

_user_user_email = 'user@admin.com'
    Email for auto-generated non-staff user

classmethod create_django_image()
    Create a django image file object suitable for FileField It also sets the following attributes:
    • self.image_name: the image base name
    • self.filename: the complete image path

    Returns (django file object, path to file image)

    It requires Pillow installed in the environment to work

create_django_image_object()
    Create a django image file object suitable for FileField It also sets the following attributes:
    • self.image_name: the image base name
    • self.filename: the complete image path

    Returns django file object

    It requires Pillow installed in the environment to work

classmethod create_filer_image(user, image_name)
    Create a filer image object suitable for FilerImageField It also sets the following attributes:
    • self.image_name: the image base name
    • self.filename: the complete image path
    • self.filer_image: the filer image object

    Parameters
    • user – image owner
    • image_name – image name

    Returns filer image object

    It requires Pillow and django-filer installed in the environment to work

create_filer_image_object()
    Create a filer image object suitable for FilerImageField It also sets the following attributes:
    • self.image_name: the image base name
    • self.filename: the complete image path
    • self.filer_image: the filer image object
Returns filer image object

It requires Pillow and django-filer installed in the environment to work

static create_image (mode='RGB', size=(800, 600))
Create a random image suitable for saving as DjangoFile :param mode: color mode :param size: tuple of width, height :return: image object

It requires Pillow installed in the environment to work

create_user (username, email, password, is_staff=False, is_superuser=False, base_cms_permissions=False, permissions=None)
Creates a user with the given properties

Parameters

• username – Username
• email – Email
• password – password
• is_staff – Staff status
• is_superuser – Superuser status
• base_cms_permissions – Base django CMS permissions
• permissions – Other permissions

Returns User instance

class app_helper.base_test.CMSPageRenderingMixin
Provide hooks to create sample pages in tests and helper methods to render pages and plugins.

classmethod _setup_cms ()
Setup data required by django CMS as class attributes.

• site_1: instance of the first Site
• languages: list of configured languages

_pages_data = ()
List of pages data for the different languages.

Each item of the list is a dictionary containing the attributes (as accepted by cms.api.
create_page()) of the page to be created.

The first language will be created with cms.api.create_page() the following languages using
cms.api.create_title().

Example: Single page created in en, fr, it languages:

```python
_pages_data = {
    'en': {'title': 'Page title', 'template': 'page.html', 'publish': True},
    'fr': {'title': 'Titre', 'publish': True},
    'it': {'title': 'Titolo pagina', 'publish': False}
}
```

static create_pages (source, languages)
Build pages according to the pages data provided by get_pages_data() and returns the list of the
draft version of each
**get_content_renderer** *(request)*
Returns a the plugin renderer. Only for django CMS 3.4+

**Parameters**
- **request** – request instance

**Returns**
ContentRenderer instance

**get_page_request** *(page, user, path=None, edit=False, lang='en', use_middlewares=False, secure=False)*
Deprecated, use **get_toolbar_request**()

**get_pages**()
Create pages using self._pages_data and self.languages

**Returns**
list of created pages

**get_pages_data**()
Construct a list of pages in the different languages available for the project. Default implementation is to return the _pages_data attribute

**Returns**
list of pages data

**get_plugin_context** *(page, lang, plugin, edit=False)*
Returns a context suitable for CMSPlugin.render_plugin / render_placeholder

**Parameters**
- **page** – Page object
- **lang** – Current language
- **plugin** – Plugin instance
- **edit** – Enable edit mode for rendering

**Returns**
PluginContext instance

**get_request** *(page, lang, user=None, path=None, use_middlewares=False, secure=False, use_toolbar=False)*
Create a GET request for the given page and language.

**Parameters**
- **page** – current page object
- **lang** – request language
- **user** – current user
- **path** – path (if different from the current page path)
- **use_middlewares** – pass the request through configured middlewares.
- **secure** – create HTTPS request
- **use_toolbar** – add django CMS toolbar

**Returns**
request

**get_toolbar_request** *(page, user, path=None, edit=False, lang='en', use_middlewares=False, secure=False)*
Create a GET request for the given page suitable for use the django CMS toolbar.

This method requires django CMS installed to work. It will raise an ImportError otherwise; not a big deal as this method makes sense only in a django CMS environment.

**Parameters**
- **page** – current page object

---

8.1. Thanks
post_request(page, lang, data, user=None, path=None, use_middlewares=False, secure=False, use_toolbar=False)

Create a POST request for the given page and language with CSRF disabled.

Parameters

- **page** – current page object
- **lang** – request language
- **data** – POST payload
- **user** – current user
- **path** – path (if different from the current page path)
- **use_middlewares** – pass the request through configured middlewares.
- **secure** – create HTTPS request

Returns request

render_plugin(page, lang, plugin, edit=False)

Renders a single plugin using CMSPlugin.render_plugin

Parameters

- **page** – Page object
- **lang** – Current language
- **plugin** – Plugin instance
- **edit** – Enable edit mode for rendering

Returns Rendered plugin

class app_helper.base_test.GenericHelpersMixin

captured_output()

Context manager that patches stdout / stderr with StringIO and return the instances.

Useful to test output.

Returns stdout, stderr wrappers

reload_model(obj)

Reload models instance from database.

Contrary to refresh_from_db returns a completely new instance, instead of updating the current one.

Parameters **obj** – model instance to reload
Returns the reloaded model instance

```python
static reload_urlconf(urlconf=None)
```

Reload django urlconf and any attached apphook.

```python
temp_dir()
```

Return the context manager of a temporary directory that is removed upon exit.

Usage:

```python
with self.temp_dir() as temp_path:
    test_file = os.path.join(temp_path, "afile")
    ... # do something with test_file
    ... # test_file and containing directory is removed
```

class app_helper.base_test.BaseNoDataTestCaseMixin

Provide helper methods to setup and interact with Django testing framework.

Does not create in setUpClass(), but provides all the methods to tap into automatic data generation.

Implements:

- CreateTestDataMixin
- CMSPageRenderingMixin
- GenericHelpersMixin

class app_helper.base_test.BaseTestCaseMixin

Provide helper methods to setup and interact with Django testing framework.

Like BaseNoDataTestCaseMixin but create sample data in setUpClass() according to CreateTestDataMixin and CMSPageRenderingMixin configuration

Implements:

- CreateTestDataMixin
- CMSPageRenderingMixin
- GenericHelpersMixin

class app_helper.base_test.BaseTestCase

Base class that implements BaseTestCaseMixin and django.tests.TestCase

class app_helper.base_test.BaseTransactionTestCase

Base class that implements BaseTestCaseMixin and django.tests.TransactionTestCase

8.1.7 ASGI / Channels support

django-app-helper comes with minimal channels / ASGI support.

Default configuration provides a sample asgi application already enabled in ASGI_APPLICATION setting.

This means that if you install channels or daphne in your rest environment ./helper.py server can run a channels / ASGI enabled instance.

Note: Pure ASGI support is available only for Django 3.0+.
Run with channels

To run with channels you must provide an `ASGI_APPLICATION` in the project `helper.py` pointing to your base channels application.

Optionally you can set `CHANNEL_LAYERS`.

Example:

```python
HELPER_SETTINGS = dict(
    ...
    # required
    ASGI_APPLICATION='tests.example_app.routing.application',
    # Optional
    CHANNEL_LAYERS={
    # 'default': {
    #     'BACKEND': 'channels_redis.core.RedisChannelLayer',
    #     'CONFIG': {
    #         'hosts': [{'localhost', 6379}],
    #     },
    # },
    # },
    ...
)
```

The run the `server` command with the `--use-channels` option set:

```bash
$ python helper.py server --use-channels
```

Run with daphne

To run with daphne you can provide a custom `ASGI_APPLICATION` in the project `helper.py` if you actually have one or more ASGI application configure beyond django. The default `ASGI_APPLICATION` will run the django runserver command.

Example:

```python
HELPER_SETTINGS = dict(
    ...
    ASGI_APPLICATION='my_project.asgi:application',
    ...
)
```

The run the `server` command with the `--use-daphne` option set:

```bash
$ python helper.py server --use-daphne
```

8.1.8 pytest support

While django-app-helper was born with Django `TestCase` in mind, it can be used with pytest with some configuration together with pytest-django.
django-app-helper runner

You can run pytest tests by using a custom runner (based on pytest-django documentation); to enable it, add the following to project helper.py file:

```python
HELPER_SETTINGS = {
    ...
    "TEST_RUNNER": "app_helper.pytest_runner.PytestTestRunner",
    ...
}
```

Using this approach you can mix pytest tests and Django TestCase ones, the runner will take care of discovering and running both.

Running tests

Invoke app_helper as usual:

```
$ python helper.py <app-name> test
```

pytest options

The runner support translates the following Django test runner options to pytest ones:

- verbosity == 0: --quiet
- verbosity == 2: --verbose
- verbosity == 3: -vv
- failfast: --exitfirst
- keepdb: --reuse-db

All the other pytest and pytest plugins are supported either via PYTEST_ARGS environment variable or --runner-options cmdline argument.

Environment variable example:

```
PYTEST_ARGS='--s -k my_test' python helper.py test
```

argument variable example:

```
python helper.py test --runner-options="--k my_test"
```

In case arguments are passed via both channels they are merged together, with runner-options arguments having priority over environment variables in case of overlapping options.

standard pytest

Running tests

Invoke pytest as usual:
$ python -mpytest <args>

or:

$ pytest <args>

In this case you don’t need any special syntax to pass commands as the django-app-helper pytest runner is not executed and pytest is full in control.

**Using BaseTestCaseMixin**

While its `BaseTestCaseMixin` is built on Django `TestCase`, it can be used in pytest classes:

Fixtures, markers and decorators can be used as usual on test methods as in classic pytest classes.

```python
class TestTags(BaseTestCaseMixin):
    ...
    def test_foo(self):
        ...
```

### 8.1.9 Development & community

Django App Helper is an open-source project. You don’t need to be an expert developer to make a valuable contribution - all you need is a little knowledge, and a willingness to follow the contribution guidelines.

**Nephila**

Django App Helper was created by Iacopo Spalletti at Nephila and is released under a GNU GENERAL PUBLIC LICENSE.

Nephila is an active supporter of django CMS and its community. Django App Helper is intended to help make it easier for developers in the django CMS ecosystem to work effectively and create high quality applications.

Nephila maintains overall control of the Django App Helper repository.

**Standards & policies**

Django App Helper is a django CMS application, and shares much of django CMS’s standards and policies (when relevant). These include:

- guidelines and policies for contributing to the project
- a code of conduct for community activity

Please familiarise yourself with this documentation if you’d like to contribute to Django App Helper.

### 8.1.10 Contributing

Contributions are welcome, and they are greatly appreciated! Every little bit helps, and credit will always be given. You can contribute in many ways:
Types of Contributions

Report Bugs


If you are reporting a bug, please include:

- Your operating system name and version.
- Any details about your local setup that might be helpful in troubleshooting.
- Detailed steps to reproduce the bug.

Fix Bugs

Look through the GitHub issues for bugs. Anything tagged with “bug” is open to whoever wants to implement it.

Implement Features

Look through the GitHub issues for features. Anything tagged with “feature” is open to whoever wants to implement it.

Write Documentation

django-app-helper could always use more documentation, whether as part of the official django-app-helper docs, in docstrings, or even on the web in blog posts, articles, and such.

Submit Feedback

The best way to send feedback is to file an issue at https://github.com/nephila/django-app-helper/issues.

If you are proposing a feature:

- Explain in detail how it would work.
- Keep the scope as narrow as possible, to make it easier to implement.
- Remember that this is a volunteer-driven project, and that contributions are welcome :)

Get Started!

Ready to contribute? Here’s how to set up django-app-helper for local development.

1. Fork the django-app-helper repo on GitHub.

2. Clone your fork locally:

   $ git clone git@github.com:your_name_here/django-app-helper.git

3. Install your local copy into a virtualenv. Assuming you have virtualenvwrapper installed, this is how you set up your fork for local development:
$ mkvirtualenv django-app-helper
$ cd django-app-helper/
$ pip install -r requirements-test.txt
$ pip install -e .

4. Create a branch for local development:

$ git checkout -b name-of-your-bugfix-or-feature

Now you can make your changes locally.

5. When you’re done making changes, check that your changes pass flake8 and the tests, including testing other Python versions with tox:

$ tox

To get tox, pip install it into your virtualenv.

6. Commit your changes and push your branch to GitHub:

$ git add .
$ git commit -m "Your detailed description of your changes."
$ git push origin name-of-your-bugfix-or-feature

7. Submit a pull request through the GitHub website.

**Development tips**

This project allows you to use pre-commit to ensure an easy compliance to the project code styles.

If you want to use it, install it globally (for example with pip3 install --user precommit, but check installation instruction <https://pre-commit.com/#install>). When first cloning the project ensure you install the git hooks by running pre-commit install.

From now on every commit will be checked against our code style.

Check also the available tox environments with tox -l: the ones not marked with a python version number are tools to help you work on the project buy checking / formatting code style, running docs etc.

**Testing tips**

You can test your project using any specific combination of python, django and django cms.

For example tox -py37-django30-cms37 runs the tests on python 3.7, Django 3.0 and django CMS 3.7.

You can pass via tox all the options to the test runner by appending them after the tox environments after -- separator. Example:

```bash
tox -epy38-django30-cms37 -- -s app_helper.tests.test_commands.CommandTests.test_compilemessages
```

**Pull Request Guidelines**

Before you submit a pull request, check that it meets these guidelines:
1. Pull request must be named with the following naming scheme:

   `<type>/(<optional-task-type>-)<number>-description`

   See below for available types.

2. The pull request should include tests.

3. If the pull request adds functionality, the docs should be updated. Documentation must be added in `docs` directory, and must include usage information for the end user. In case of public API method, add extended docstrings with full parameters description and usage example.

4. Add a changes file in `changes` directory describing the contribution in one line. It will be added automatically to the history file upon release. File must be named as `<issue-number>.<type>` with type being:

   - `.feature`: For new features.
   - `.bugfix`: For bug fixes.
   - `.doc`: For documentation improvement.
   - `.removal`: For deprecation or removal of public API.
   - `.misc`: For general issues.

   Check towncrier documentation for more details.

5. The pull request should work for all python / django / django CMS versions declared in tox.ini. Check the CI and make sure that the tests pass for all supported versions.

Release a version

1. Update authors file
2. Merge develop on master branch
3. Bump release via task: `inv tag-release (major|minor|patch)`
4. Update changelog via towncrier: `towncrier --yes`
5. Commit changelog with `git commit --amend` to merge with bumpversion commit
6. Create tag `git tag <version>`
7. Push tag to github
8. Publish the release from the tags page
9. If pipeline succeeds, push master
10. Merge master back on develop
11. Bump development version via task: `inv tag-dev -l (major|minor|patch)`
12. Push develop

8.1.11 History

3.0.1 (2020-12-09)

Bugfixes

- Fix loading setting with pytest-django and django 3.1 (#202)

8.1. Thanks
3.0.0 (2020-11-14)

Features

- Add support for Django 3.1 / django CMS 3.8 (#196)
- Add Django 3.0 / django CMS 3.7.2 support (#142)
- Drop Python 2 / Django 1.11 (#148)
- Add support for Daphne / channels runserver (#198)
- Refactor BaseTestCaseMixin to more composable mixins (#107)
- Replace makefile with invoke (#143)
- Use pre-commit for code formatting (#149)
- Allow to pass arguments to pytest via runner-options argument (#159)
- Add support to pytest command (#167)
- Update dotfiles to latest version (#189)
- Reorganize tests outside main package (#191)
- Remove support for aldryn-boilerplates (#199)

Bugfixes

- Fix runner_options support (#92)
- Improve GA - Update contribution guide (#161)
- Allow extra arguments in PytestTestRunner.run_tests (#165)
- Update isort and linting configuration (#188)

Misc

- #152, #185

2.2.2 (2020-05-15)

Bugfixes

- Fix pytest args splitting (#155)
- Fix runserver autoreload with channels 2.4 (#157)

2.2.1 (2020-04-23)

- Fix packaging error
2.2.0 (2020-04-23)

Features

- Add Django 3.0 / django CMS 3.7.2 support (#142)
  - Replace makefile with invoke (#143)

2.1.1 (2020-02-04)

- Improved pytest compatibility

2.1.0 (2019-12-27)

- Reformat code with black and improve flake8 configuration
  - Add pytest-compatible runner

2.0.1 (2019-12-22)

- Add Django 3.0 preliminary support

2.0.0 (2019-10-13)

- Rename application to django-app-helper

1.2.5 (2019-08-16)

- Add django CMS 3.7
  - Add Django 2.2

1.2.4 (2019-08-08)

- Fix regression introduced by #116

1.2.3 (2019-08-05)

- Move pyflakes to extras_require
  - Fix error in get_request / post_request not preserving current_page

1.2.2 (2019-07-05)

- Improve request generation by adding a more generic request method

1.2.1 (2019-07-04)

- Fix error when creating users with non-writable email attribute

8.1. Thanks
1.2.0 (2019-03-22)

- Drop compatibility with Django <1.11, Python 3.4
- Add django CMS 3.6
- Add django 2.0, 2.1

1.1.1 (2019-07-03)

- Fix error when creating users with non-writable email attribute

1.1.0 (2018-02-20)

- Remove Django <1.8, Python 2.6, 3.3 from setup.py
- Add Django 1.11, Python 3.6
- Switch to new-style middlewares for Django 1.10+
- Create static methods to generate images
- Fix persistent option behavior with arbitrary commands
- Add minimal changes to allow third party application to run test on django 2.0
- Fix options for channels runserver
- Remove support for django-nose test runner

1.0.0 (2017-07-25)

- Add ApphookReloadMiddleware in server mode
- Add a default for FILE_UPLOAD_TEMP_DIR
- Add fix for django CMS 3.4.4 render_plugin

0.9.8 (2017-03-04)

- Fix compatibility with newer channels releases

0.9.7 (2016-12-03)

- Add support for django-sekizai 0.10
- Fix mock dependency in setup.py
- Fix issue with server command in Django 1.10
- Fix issue with urls.py in Django 1.10
- Fix issue in tests with django CMS 3.4
0.9.6 (2016-08-25)

• Add support for channels runserver.
• Add verbosity level to server command.
• Add support for Django 1.10.
• Add support for django CMS 3.4.

0.9.5 (2016-06-06)

• Fix issue with mocked session storage
• Add verbosity level to tests
• Fix user creation
• Add option to allow parametrizing auto-created user
• Fix extra_applications

0.9.4 (2016-01-20)

• Add Naked setup mode
• Add TEMPLATE_DIRS to special settings
• Add TEMPLATE_LOADERS to special settings
• Allow to specify a locale in makemessages

0.9.3 (2015-10-07)

• Add --no-migrate option to skip migrations
• Add secure argument to generate HTTPS requests
• Better request mocking
• Fix test on django CMS 3.2 (develop)
• Add support for Python 3.5
• Add --persistent option for persistent storage

0.9.2 (2015-09-14)

• Add support for apphooks and parent pages in BaseTestCase.create_pages
• If pages contains apphook, urlconf is reloaded automatically
• Improve documentation
• Add support for top-positioned MIDDLEWARE_CLASSES
• Code cleanup

8.1. Thanks
0.9.1 (2015-08-30)

• Better support for aldryn-boilerplates

0.9.0 (2015-08-20)

• Complete support for Django 1.8 / django CMS develop
• Support for aldryn-boilerplates settings
• Migrations are now enabled by default during tests
• Minor BaseTestCase refactoring
• Remove support for Django 1.5
• Fix treebeard support
• Minor fixes
• Adds login_user_context method to BaseTestCase

0.8.1 (2015-05-31)

• Add basic support for Django 1.8 / django CMS develop
• Code cleanups
• Smarter migration layout detection

0.8.0 (2015-03-22)

• Add –native option to use native test command instead of django-app-helper one
• Use django-discover-runner on Django 1.5 if present
• Better handling of runner options
• Add support for empty/dry-run arguments to makemigrations
• Add USE_CMS flag to settings when using django CMS configuration

0.7.0 (2015-01-22)

• Fix an error which prevents the runner to discover the settings
• django CMS is no more a dependency, install it manually to enable django CMS support

0.6.0 (2015-01-10)

• Add a runner to make cms_helper file itself a runner for django-app-helper
• Fix issues with mptt / treebeard and Django 1.7
• Fix some makemigrations / –migrate issues
• Make django-app-helper less django CMS dependent
0.5.0 (2015-01-01)

- Fixing bugs when using extra settings
- Add messages framework to default environment
- Add CSRF middleware / context_processor to default settings
- Add base helper class for test cases
- Complete Django 1.7 support
- Smarter detection of migration operations in Django 1.6-
- Add option to create migrations for external applications

0.4.0 (2014-09-18)

- Add support for command line test runner options;
- Add check command on Django 1.7+;
- Add cms check command (which triggers cms inclusion);
- Add squashmigration command Django 1.7+;
- Add support for makemigrations merge on Django 1.7+;
- Add helpers for custom user models;

0.3.1 (2014-08-25)

- Add staticfiles application;
- Add djangocms_admin_style if cms is enabled;

0.3.0 (2014-08-14)

- Add support for django nose test runner;
- Add default CMS template;

0.2.0 (2014-08-12)

- Add option to customize sample project settings;
- Add option to exclude django CMS from test project configurations;
- Add support for Django 1.7;

0.1.0 (2014-08-09)

- First public release.
Symbols

_\text{admin\_user\_email} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin attribute})

_\text{admin\_user\_password} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin attribute})

_\text{admin\_user\_username} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin attribute})

_\text{pages\_data} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CMSPageRenderingMixin attribute})

_\text{setup\_cms()} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CMSPageRenderingMixin class method})

_\text{setup\_users()} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin class method})

_\text{staff\_user\_email} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin attribute})

_\text{staff\_user\_password} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin attribute})

_\text{staff\_user\_username} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin attribute})

_\text{teardown\_users()} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin class method})

_\text{user\_user\_email} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin attribute})

_\text{user\_user\_password} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin attribute})

_\text{user\_user\_username} \quad (\text{app\textunderscore helper\textunderscore base\textunderscore test\textunderscore CreateTestDataMixin attribute})

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