
django-cron Documentation

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Introduction

Django-cron lets you run Django/Python code on a recurring basis providing basic plumbing to track and execute tasks. The 2 most common ways in which most people go about this is either writing custom python scripts or a management command per cron (leads to too many management commands!). Along with that some mechanism to track success, failure etc. is also usually necessary.

This app solves both issues to a reasonable extent. This is by no means a replacement for queues like Celery (<http://celeryproject.org/>) etc.

Installation

1. Install `django_cron` (ideally in your virtualenv!) using pip or simply getting a copy of the code and putting it in a directory in your codebase.
2. Add `django_cron` to your Django settings `INSTALLED_APPS`:

```
INSTALLED_APPS = [
    # ...
    "django_cron",
]
```

3. Run `python manage.py migrate django_cron`
4. Write a cron class somewhere in your code, that extends the `CronJobBase` class. This class will look something like this:

```
from django_cron import CronJobBase, Schedule

class MyCronJob(CronJobBase):
    RUN_EVERY_MINS = 120 # every 2 hours

    schedule = Schedule(run_every_mins=RUN_EVERY_MINS)
    code = 'my_app.my_cron_job' # a unique code

    def do(self):
        pass # do your thing here
```

5. Add a variable called `CRON_CLASSES` (similar to `MIDDLEWARE_CLASSES` etc.) that's a list of strings, each being a cron class. Eg.:

```
CRON_CLASSES = [
    "my_app.cron.MyCronJob",
    # ...
]
```

6. Now everytime you run the management command `python manage.py runcrons` all the crons will run if required. Depending on the application the management command can be called from the Unix crontab as often as required. Every 5 minutes usually works for most of my applications, for example:

```
> crontab -e
*/5 * * * * source /home/ubuntu/.bashrc && source /home/ubuntu/work/your-project/bin/activate &&
```

Management Commands:

1. run a specific cron with `python manage.py runcrons cron_class ...`, for example:

```
# only run "my_app.cron.MyCronJob"
$ python manage.py runcrons "my_app.cron.MyCronJob"

# run "my_app.cron.MyCronJob" and "my_app.cron.AnotherCronJob"
$ python manage.py runcrons "my_app.cron.MyCronJob" "my_app.cron.AnotherCronJob"
```

2. force run your crons with `python manage.py runcrons --force`, for example:

```
# run all crons, immediately, regardless of run time
$ python manage.py runcrons --force
```

3. run without any messages to the console `python manage.py runcrons --silent`, for example:

```
# run crons, if required, without message to console
$ python manage.py runcrons --silent
```

Configuration

CRON_CLASSES - list of cron classes

DJANGO_CRON_LOCK_BACKEND - path to lock class, default: `django_cron.backends.lock.cache.CacheLock`

DJANGO_CRON_LOCKFILE_PATH - path where to store files for FileLock, default: `/tmp`

DJANGO_CRON_LOCK_TIME - timeout value for CacheLock backend, default: `24 * 60 * 60 # 24 hours`

DJANGO_CRON_CACHE - cache name used in CacheLock backend, default: `default`

DJANGO_CRON_DELETE_LOGS_OLDER_THAN - integer, number of days after which log entries will be clear (optional - if not set no entries will be deleted)

For more details, see [Sample Cron Configurations](#) and [Locking backend](#)

Sample Cron Configurations

4.1 Retry after failure feature

You can run cron by passing `RETRY_AFTER_FAILURE_MINS` param.

This will re-runs not next time runcrons is run, but at least `RETRY_AFTER_FAILURE_MINS` after last failure:

```
class MyCronJob(CronJobBase):
    RUN_EVERY_MINS = 60 # every hours
    RETRY_AFTER_FAILURE_MINS = 5

    schedule = Schedule(run_every_mins=RUN_EVERY_MINS, retry_after_failure_mins=RETRY_AFTER_FAILURE_MINS)
```

4.2 Run at times feature

You can run cron by passing `RUN_EVERY_MINS` or `RUN_AT_TIMES` params.

This will run job every hour:

```
class MyCronJob(CronJobBase):
    RUN_EVERY_MINS = 60 # every hours

    schedule = Schedule(run_every_mins=RUN_EVERY_MINS)
```

This will run job at given hours:

```
class MyCronJob(CronJobBase):
    RUN_AT_TIMES = ['11:30', '14:00', '23:15']

    schedule = Schedule(run_at_times=RUN_AT_TIMES)
```

Hour format is HH:MM (24h clock). `django-cron` will interpret these times in the local timezone of your site, as specified by the `TIME_ZONE` setting.

You can also mix up both of these methods:

```
class MyCronJob(CronJobBase):
    RUN_EVERY_MINS = 120 # every 2 hours
    RUN_AT_TIMES = ['6:30']

    schedule = Schedule(run_every_mins=RUN_EVERY_MINS, run_at_times=RUN_AT_TIMES)
```

This will run job every 2h plus one run at 6:30.

4.3 Allowing parallels runs

By default parallels runs are not allowed (for security reasons). However if you want enable them just add:

```
ALLOW_PARALLEL_RUNS = True
```

in your CronJob class.

Note: Note this requires a caching framework to be installed, as per <https://docs.djangoproject.com/en/dev/topics/cache/>

If you wish to override which cache is used, put this in your settings file:

```
DJANGO_CRON_CACHE = 'cron_cache'
```

4.4 FailedRunsNotificationCronJob

This example cron check last cron jobs results. If they were unsuccessful 10 times in row, it sends email to user.

Install required dependencies: Django>=1.7.0, django-common>=0.5.1.

Add `django_cron.cron.FailedRunsNotificationCronJob` to your `CRON_CLASSES` in settings file.

To set up minimal number of failed runs set up `MIN_NUM_FAILURES` in your cron class (default = 10). For example:

```
class MyCronJob(CronJobBase):
    RUN_EVERY_MINS = 10
    MIN_NUM_FAILURES = 3

    schedule = Schedule(run_every_mins=RUN_EVERY_MINS)
    code = 'app.MyCronJob'

    def do(self):
        ... some action here ...
```

Emails are imported from `ADMINS` in settings file

To set up email prefix, you must add `FAILED_RUNS_CRONJOB_EMAIL_PREFIX` in your settings file (default is empty). For example:

```
FAILED_RUNS_CRONJOB_EMAIL_PREFIX = "[Server check]: "
```

`FailedRunsNotificationCronJob` checks every cron from `CRON_CLASSES`

Locking Backend

You can use one of two built-in locking backends by setting `DJANGO_CRON_LOCK_BACKEND` with one of:

- `django_cron.backends.lock.cache.CacheLock` (default)
- `django_cron.backends.lock.file.FileLock`

5.1 Cache Lock

This backend sets a cache variable to mark current job as “already running”, and delete it when lock is released.

5.2 File Lock

This backend creates a file to mark current job as “already running”, and delete it when lock is released.

5.3 Custom Lock

You can also write your custom backend as a subclass of `django_cron.backends.lock.base.DjangoCronJobLock` and defining `lock()` and `release()` methods.

Changelog

6.1 0.5.0

- Added support for Django 1.10
- Minimum Django version required is 1.8
- Use `parser.add_argument()` instead of `optparse.make_option()` in `runcrons` command

6.2 0.4.6

- Model import error fix for Django 1.9.X

6.3 0.4.5

- Added ability to check how many time left until next run.

6.4 0.4.4

- Remove `max_length` from `CronJobLog.message` field.

6.5 0.4.3

- Added `DJANGO_CRON_DELETE_LOGS_OLDER_THAN` setting to allow automated log clearing.

6.6 0.4.2

- Fix for #57 (ignoring Django timezone settings)

6.7 0.4.1

- Added `get_prev_success_cron` method to `Schedule` (Issue #26)
- Improvements to Admin interface (PR #42)

6.8 0.4.0

- Added support for Django 1.8
- Minimum Django version required is 1.7
- Dropped South in favor of Django migrations
- WARNING! When upgrading you might need to remove existing South migrations, read more: <https://docs.djangoproject.com/en/1.7/topics/migrations/#upgrading-from-south>

6.9 0.3.6

- Added Django 1.7 support
- Added python3 support

6.10 0.3.5

- Added locking backends
- Added tests

6.11 0.3.4

- Added `CRON_CACHE` settings parameter for cache select
- Handle database connection errors
- Upping requirement to Django 1.5+

6.12 0.3.3

- Python 3 compatibility.

6.13 0.3.2

- Added database connection close.
- Added better exceptions handler.

6.14 0.3.1

- Added `index_together` entries for faster queries on large cron log db tables.
- Upgraded requirement hence to Django 1.5 and South 0.8.1 since `index_together` is new to Django 1.5

6.15 0.3.0

- Added Django 1.4+ support. Updated requirements.

6.16 0.2.9

- Changed log level to `debug()` in `CronJobManager.run()` function.

6.17 0.2.8

- Bug fix
- Optimized queries. Used `latest()` instead of `order_by()`

6.18 0.2.7

- Bug fix.

6.19 0.2.6

- Added `end_time` to `list_display` in `CronJobLog` admin

6.20 0.2.5

- Added a helper function (`run_cron_with_cache_check`) in `runcrons.py`

6.21 0.2.4

- Capability to run specific crons using the `runcrons` management command. Useful when in the list of crons there are few slow ones and you might want to run some quicker ones via a separate `crontab` entry to make sure they are not blocked / slowed down.
- pep8 cleanup and reading from settings more carefully (`getattr`).

Indices and tables

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- `modindex`
- `search`