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# **requests-cache Documentation**

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Requests-cache is a transparent persistent cache for [requests](#) (version  $\geq 1.1.0$ ) library.

Source code and issue tracking can be found at [GitHub](#).

**Contents:**



## 1.1 Installation

Install with `pip` or `easy_install`:

```
pip install --upgrade requests-cache
```

or download latest version from version control:

```
git clone git://github.com/reclosedev/requests-cache.git
cd requests-cache
python setup.py install
```

**Warning:** Version updates of `requests`, `urllib3` or `requests_cache` itself can break existing cache database (see <https://github.com/reclosedev/requests-cache/issues/56> ). So if your code relies on cache, or is expensive in terms of time and traffic, please be sure to use something like `virtualenv` and pin your requirements.

## 1.2 Usage

There is two ways of using `requests_cache`:

- Using `CachedSession` instead `requests.Session`
- Monkey patching `requests` to use `CachedSession` by default

Monkey-patching allows to add caching to existent program by adding just two lines:

Import `requests_cache` and call `install_cache()`

```
import requests
import requests_cache

requests_cache.install_cache()
```

And you can use `requests`, all responses will be cached transparently!

For example, following code will take only 1-2 seconds instead 10:

```
for i in range(10):
    requests.get('http://httpbin.org/delay/1')
```

Cache can be configured with some options, such as cache filename, backend (sqlite, mongodb, redis, memory), expiration time, etc. E.g. cache stored in sqlite database (default format) named `'test_cache.sqlite'` with expiration set to 300 seconds can be configured as:

```
requests_cache.install_cache('test_cache', backend='sqlite', expire_after=300)
```

### See also:

Full list of options can be found in `requests_cache.install_cache()` reference

Transparent caching is achieved by monkey-patching `requests` library. It is possible to uninstall this patch with `requests_cache.uninstall_cache()`.

Also, you can use `requests_cache.disabled()` context manager for temporary disabling caching:

```
with requests_cache.disabled():
    print(requests.get('http://httpbin.org/ip').text)
```

If Response is taken from cache, `from_cache` attribute will be `True`:

```
>>> import requests
>>> import requests_cache
>>> requests_cache.install_cache()
>>> requests_cache.clear()
>>> r = requests.get('http://httpbin.org/get')
>>> r.from_cache
False
>>> r = requests.get('http://httpbin.org/get')
>>> r.from_cache
True
```

It can be used, for example, for request throttling with help of `requests` hook system:

```
import time
import requests
import requests_cache

def make_throttle_hook(timeout=1.0):
    """
    Returns a response hook function which sleeps for `timeout` seconds if
    response is not cached
    """
    def hook(response, *args, **kwargs):
        if not getattr(response, 'from_cache', False):
            print('sleeping')
            time.sleep(timeout)
```

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```

        return response
    return hook

if __name__ == '__main__':
    requests_cache.install_cache('wait_test')
    requests_cache.clear()

    s = requests_cache.CachedSession()
    s.hooks = {'response': make_throttle_hook(0.1)}
    s.get('http://httpbin.org/delay/get')
    s.get('http://httpbin.org/delay/get')

```

**See also:**[example.py](#)


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**Note:** requests\_cache prefetches response content, be aware if your code uses streaming requests.

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## 1.3 Persistence

requests\_cache designed to support different backends for persistent storage. By default it uses sqlite database. Type of storage can be selected with backend argument of `install_cache()`.

List of available backends:

- 'sqlite' - sqlite database (**default**)
- 'memory' - not persistent, stores all data in Python dict in memory
- 'mongodb' - (**experimental**) MongoDB database (pymongo < 3.0 required)
- 'redis' - stores all data on a redis data store (redis required)

You can write your own and pass instance to `install_cache()` or `CachedSession` constructor. See [Cache backends](#) API documentation and sources.

## 1.4 Expiration

If you are using cache with `expire_after` parameter set, responses are removed from the storage only when the same request is made. Since the store sizes can get out of control pretty quickly with expired items you can remove them using `remove_expired_responses()` or `BaseCache.remove_old_entries(created_before)`.

```

expire_after = timedelta(hours=1)
requests_cache.install_cache(expire_after=expire_after)
...
requests_cache.remove_expired_responses()
# or
remove_old_entries.get_cache().remove_old_entries(datetime.utcnow() - expire_after)
# when used as session
session = CachedSession(..., expire_after=expire_after)
...
session.cache.remove_old_entries(datetime.utcnow() - expire_after)

```

For more information see [\*API reference\*](#).

This part of the documentation covers all the interfaces of *requests-cache*

## 2.1 Public api

### 2.1.1 requests\_cache.core

Core functions for configuring cache and monkey patching requests

```
class requests_cache.core.CachedSession (cache_name='cache',      backend=None,      ex-  
                                         pire_after=None,      allowable_codes=(200,  
                                         ),      allowable_methods=('GET',      ),  
                                         old_data_on_error=False, **backend_options)
```

Requests Sessions with caching support.

#### Parameters

- **cache\_name** – for `sqlite` backend: cache file will start with this prefix, e.g `cache.sqlite`  
for `mongodb`: it's used as database name  
for `redis`: it's used as the namespace. This means all keys are prefixed with `'cache_name:'`
- **backend** – cache backend name e.g `'sqlite'`, `'mongodb'`, `'redis'`, `'memory'`. (see [Persistence](#)). Or instance of backend implementation. Default value is `None`, which means use `'sqlite'` if available, otherwise fallback to `'memory'`.
- **expire\_after** (*float*) – `timedelta` or number of seconds after cache will be expired or `None` (default) to ignore expiration
- **allowable\_codes** (*tuple*) – limit caching only for response with this codes (default: 200)
- **allowable\_methods** (*tuple*) – cache only requests of this methods (default: `'GET'`)

- **backend\_options** – options for chosen backend. See corresponding *sqlite*, *mongo* and *redis* backends API documentation
- **include\_get\_headers** – If *True* headers will be part of cache key. E.g. after `get('some_link', headers={'Accept': 'application/json'})` `get('some_link', headers={'Accept': 'application/xml'})` is not from cache.
- **ignored\_parameters** – List of parameters to be excluded from the cache key. Useful when requesting the same resource through different credentials or access tokens, passed as parameters.
- **old\_data\_on\_error** – If *True* it will return expired cached response if update fails

**send** (*request*, *\*\*kwargs*)

Send a given PreparedRequest.

**Return type** requests.Response

**request** (*method*, *url*, *params=None*, *data=None*, *\*\*kwargs*)

Constructs a Request, prepares it and sends it. Returns Response object.

#### Parameters

- **method** – method for the new Request object.
- **url** – URL for the new Request object.
- **params** – (optional) Dictionary or bytes to be sent in the query string for the Request.
- **data** – (optional) Dictionary, list of tuples, bytes, or file-like object to send in the body of the Request.
- **json** – (optional) json to send in the body of the Request.
- **headers** – (optional) Dictionary of HTTP Headers to send with the Request.
- **cookies** – (optional) Dict or CookieJar object to send with the Request.
- **files** – (optional) Dictionary of 'filename': file-like-objects for multi-part encoding upload.
- **auth** – (optional) Auth tuple or callable to enable Basic/Digest/Custom HTTP Auth.
- **timeout** (*float or tuple*) – (optional) How long to wait for the server to send data before giving up, as a float, or a (connect timeout, read timeout) tuple.
- **allow\_redirects** (*bool*) – (optional) Set to True by default.
- **proxies** – (optional) Dictionary mapping protocol or protocol and hostname to the URL of the proxy.
- **stream** – (optional) whether to immediately download the response content. Defaults to *False*.
- **verify** – (optional) Either a boolean, in which case it controls whether we verify the server's TLS certificate, or a string, in which case it must be a path to a CA bundle to use. Defaults to *True*. When set to *False*, requests will accept any TLS certificate presented by the server, and will ignore hostname mismatches and/or expired certificates, which will make your application vulnerable to man-in-the-middle (MitM) attacks. Setting *verify* to *False* may be useful during local development or testing.
- **cert** – (optional) if String, path to ssl client cert file (.pem). If Tuple, ('cert', 'key') pair.

**Return type** requests.Response

**cache\_disabled()**

Context manager for temporary disabling cache

```
>>> s = CachedSession()
>>> with s.cache_disabled():
...     s.get('http://httpbin.org/ip')
```

**remove\_expired\_responses()**

Removes expired responses from storage

```
requests_cache.core.install_cache(cache_name='cache', backend=None, expire_after=None, allowable_codes=(200, ), allowable_methods=('GET', ), session_factory=<class 'requests_cache.core.CachedSession'>, **backend_options)
```

Installs cache for all Requests requests by monkey-patching Session

Parameters are the same as in *CachedSession*. Additional parameters:

**Parameters** *session\_factory* – Session factory. It must be class which inherits *CachedSession* (default)

```
requests_cache.core.configure(cache_name='cache', backend=None, expire_after=None, allowable_codes=(200, ), allowable_methods=('GET', ), session_factory=<class 'requests_cache.core.CachedSession'>, **backend_options)
```

Installs cache for all Requests requests by monkey-patching Session

Parameters are the same as in *CachedSession*. Additional parameters:

**Parameters** *session\_factory* – Session factory. It must be class which inherits *CachedSession* (default)

```
requests_cache.core.uninstall_cache()
```

Restores requests.Session and disables cache

```
requests_cache.core.disabled()
```

Context manager for temporary disabling globally installed cache

**Warning:** not thread-safe

```
>>> with requests_cache.disabled():
...     requests.get('http://httpbin.org/ip')
...     requests.get('http://httpbin.org/get')
```

```
requests_cache.core.enabled(*args, **kwargs)
```

Context manager for temporary installing global cache.

Accepts same arguments as *install\_cache()*

**Warning:** not thread-safe

```
>>> with requests_cache.enabled('cache_db'):
...     requests.get('http://httpbin.org/get')
```

```
requests_cache.core.get_cache()
```

Returns internal cache object from globally installed *CachedSession*

```
requests_cache.core.clear()
    Clears globally installed cache

requests_cache.core.remove_expired_responses()
    Removes expired responses from storage
```

---

## 2.2 Cache backends

### 2.2.1 requests\_cache.backends.base

Contains BaseCache class which can be used as in-memory cache backend or extended to support persistence.

```
class requests_cache.backends.base.BaseCache(*args, **kwargs)
    Base class for cache implementations, can be used as in-memory cache.
```

To extend it you can provide dictionary-like objects for *keys\_map* and *responses* or override public methods.

```
keys_map = None
    key -> key_in_responses mapping
```

```
responses = None
    key_in_cache -> response mapping
```

```
save_response(key, response)
    Save response to cache
```

#### Parameters

- **key** – key for this response
- **response** – response to save

---

**Note:** Response is reduced before saving (with *reduce\_response()*) to make it picklable

---

```
add_key_mapping(new_key, key_to_response)
    Adds mapping of new_key to key_to_response to make it possible to associate many keys with single response
```

#### Parameters

- **new\_key** – new key (e.g. url from redirect)
- **key\_to\_response** – key which can be found in *responses*

#### Returns

```
get_response_and_time(key, default=(None, None))
    Retrieves response and timestamp for key if it's stored in cache, otherwise returns default
```

#### Parameters

- **key** – key of resource
- **default** – return this if key not found in cache

**Returns** tuple (response, datetime)

---

**Note:** Response is restored after unpickling with `restore_response()`

---

**delete** (*key*)

Delete *key* from cache. Also deletes all responses from response history

**delete\_url** (*url*)

Delete response associated with *url* from cache. Also deletes all responses from response history. Works only for GET requests

**clear** ()

Clear cache

**remove\_old\_entries** (*created\_before*)

Deletes entries from cache with creation time older than *created\_before*

**has\_key** (*key*)

Returns *True* if cache has *key*, *False* otherwise

**has\_url** (*url*)

Returns *True* if cache has *url*, *False* otherwise. Works only for GET request urls

**reduce\_response** (*response*, *seen=None*)

Reduce response object to make it compatible with `pickle`

**restore\_response** (*response*, *seen=None*)

Restore response object after unpickling

## 2.2.2 requests\_cache.backends.sqlite

sqlite3 cache backend

**class** requests\_cache.backends.sqlite.DbCache (*location='cache', fast\_save=False, extension='.sqlite', \*\*options*)

sqlite cache backend.

Reading is fast, saving is a bit slower. It can store big amount of data with low memory usage.

### Parameters

- **location** – database filename prefix (default: 'cache')
- **fast\_save** – Speedup cache saving up to 50 times but with possibility of data loss. See [backends.DbDict](#) for more info
- **extension** – extension for filename (default: '.sqlite')

## 2.2.3 requests\_cache.backends.mongo

mongo cache backend

**class** requests\_cache.backends.mongo.MongoCache (*db\_name='requests-cache', \*\*options*)

mongo cache backend.

### Parameters

- **db\_name** – database name (default: 'requests-cache')
- **connection** – (optional) `pymongo.Connection`

## 2.2.4 requests\_cache.backends.redis

redis cache backend

```
class requests_cache.backends.redis.RedisCache(namespace='requests-cache',    **options)
```

redis cache backend.

### Parameters

- **namespace** – redis namespace (default: 'requests-cache')
  - **connection** – (optional) `redis.StrictRedis`
- 

## 2.3 Internal modules which can be used outside

### 2.3.1 requests\_cache.backends.dbdict

Dictionary-like objects for saving large data sets to *sqlite* database

```
class requests_cache.backends.storage.dbdict.DbDict(filename, table_name='data',  
                                                    fast_save=False, **options)
```

DbDict - a dictionary-like object for saving large datasets to *sqlite* database

It's possible to create multiply DbDict instances, which will be stored as separate tables in one database:

```
d1 = DbDict('test', 'table1')  
d2 = DbDict('test', 'table2')  
d3 = DbDict('test', 'table3')
```

all data will be stored in `test.sqlite` database into correspondent tables: `table1`, `table2` and `table3`

### Parameters

- **filename** – filename for database (without extension)
- **table\_name** – table name
- **fast\_save** – If it's True, then *sqlite* will be configured with “`PRAGMA synchronous = 0;`” to speedup cache saving, but be careful, it's dangerous. Tests showed that insertion order of records can be wrong with this option.

**can\_commit** = None

Transactions can be committed if this property is set to *True*

**commit** (*force=False*)

Commits pending transaction if *can\_commit* or *force* is *True*

**Parameters** **force** – force commit, ignore *can\_commit*

**bulk\_commit** ()

Context manager used to speedup insertion of big number of records

```
>>> d1 = DbDict('test')  
>>> with d1.bulk_commit():  
...     for i in range(1000):  
...         d1[i] = i * 2
```

**clear** () → None. Remove all items from D.



```
class requests_cache.backends.storage.dbdict.DbPickleDict (filename,
                                                         table_name='data',
                                                         fast_save=False, **options)
```

Same as *DbDict*, but pickles values before saving

#### Parameters

- **filename** – filename for database (without extension)
- **table\_name** – table name
- **fast\_save** – If it's True, then sqlite will be configured with “PRAGMA synchronous = 0;” to speedup cache saving, but be careful, it's dangerous. Tests showed that insertion order of records can be wrong with this option.

## 2.3.2 requests\_cache.backends.mongodict

Dictionary-like objects for saving large data sets to mongodb database

```
class requests_cache.backends.storage.mongodict.MongoDict (db_name,
                                                            collection_name='mongo_dict_data',
                                                            connection=None)
```

MongoDict - a dictionary-like interface for mongo database

#### Parameters

- **db\_name** – database name (be careful with production databases)
- **collection\_name** – collection name (default: mongo\_dict\_data)
- **connection** – pymongo.Connection instance. If it's None (default) new connection with default options will be created

**clear** () → None. Remove all items from D.

```
class requests_cache.backends.storage.mongodict.MongoPickleDict (db_name,
                                                                    collection_name='mongo_dict_data',
                                                                    connection=None)
```

Same as *MongoDict*, but pickles values before saving

#### Parameters

- **db\_name** – database name (be careful with production databases)
- **collection\_name** – collection name (default: mongo\_dict\_data)
- **connection** – pymongo.Connection instance. If it's None (default) new connection with default options will be created

## 2.3.3 requests\_cache.backends.redisdict

Dictionary-like objects for saving large data sets to redis key-store

```
class requests_cache.backends.storage.redisdict.RedisDict (namespace,
                                                            collection_name='redis_dict_data',
                                                            connection=None)
```

RedisDict - a dictionary-like interface for redis key-stores

The actual key name on the redis server will be namespace:collection\_name

In order to deal with how redis stores data/keys, everything, i.e. keys and data, must be pickled.

### Parameters

- **namespace** – namespace to use
- **collection\_name** – name of the hash map stored in redis (default: `redis_dict_data`)
- **connection** – `redis.StrictRedis` instance. If it's `None` (default), a new connection with default options will be created

**clear** () → `None`. Remove all items from D.

## CHAPTER 3

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