
aioredis Documentation

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asyncio ([PEP 3156](#)) Redis client library.

The library is intended to provide simple and clear interface to Redis based on *asyncio*.

FEATURES

<i>hiredis</i> parser	Yes
Pure-python parser	Yes
Low-level & High-level APIs	Yes
Connections Pool	Yes
Pipelining support	Yes
Pub/Sub support	Yes
Sentinel support	Yes
Redis Cluster support	WIP
Trollius (python 2.7)	No
Tested CPython versions	3.5.3, 3.6, 3.7 ¹
Tested PyPy3 versions	pypy3.5-7.0 pypy3.6-7.1.1
Tested for Redis server	2.6, 2.8, 3.0, 3.2, 4.0 5.0
Support for dev Redis server	through low-level API

¹ For Python 3.3, 3.4 support use aioredis v0.3.

INSTALLATION

The easiest way to install aioredis is by using the package on PyPi:

```
pip install aioredis
```


REQUIREMENTS

- Python 3.5.3+
- *hiredis*

BENCHMARKS

Benchmarks can be found here: <https://github.com/popravich/python-redis-benchmark>

CONTRIBUTE

- Issue Tracker: <https://github.com/aio-lib/aio-redis/issues>
- Google Group: <https://groups.google.com/forum/#!forum/aio-lib>
- Gitter: <https://gitter.im/aio-lib/Lobby>
- Source Code: <https://github.com/aio-lib/aio-redis>
- Contributor's guide: *Contributing*

Feel free to file an issue or make pull request if you find any bugs or have some suggestions for library improvement.

CHAPTER
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LICENSE

The aioredis is offered under [MIT license](#).

CONTENTS

7.1 Getting started

7.1.1 Installation

```
$ pip install aioredis
```

This will install aioredis along with its dependencies:

- hiredis protocol parser;
- async-timeout — used in Sentinel client.

Without dependencies

In some cases¹ you might need to install *aioredis* without *hiredis*, it is achievable with the following command:

```
$ pip install --no-deps aioredis async-timeout
```

Installing latest version from Git

```
$ pip install git+https://github.com/aio-libs/aioredis@master#egg=aioredis
```

7.1.2 Connecting

get source code

```
import asyncio
import aioredis

async def main():
    redis = await aioredis.create_redis_pool('redis://localhost')
    await redis.set('my-key', 'value')
    value = await redis.get('my-key', encoding='utf-8')
    print(value)
```

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¹ Celery hiredis issues (#197, #317)

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```
redis.close()
await redis.wait_closed()

asyncio.run(main())
```

`aioredis.create_redis_pool()` creates a Redis client backed by a pool of connections. The only required argument is the address of Redis server. Redis server address can be either host and port tuple (ex: `('localhost', 6379)`), or a string which will be parsed into TCP or UNIX socket address (ex: `'unix:///var/run/redis.sock'`, `'//var/run/redis.sock'`, `redis://redis-host-or-ip:6379/1`).

Closing the client. Calling `redis.close()` and then `redis.wait_closed()` is strongly encouraged as this will methods will shutdown all open connections and cleanup resources.

See the [commands reference](#) for the full list of supported commands.

Connecting to specific DB

There are several ways you can specify database index to select on connection:

1. explicitly pass db index as db argument:

```
redis = await aioredis.create_redis_pool(
    'redis://localhost', db=1)
```

2. pass db index in URI as path component:

```
redis = await aioredis.create_redis_pool(
    'redis://localhost/2')
```

Note: DB index specified in URI will take precedence over db keyword argument.

3. call `select()` method:

```
redis = await aioredis.create_redis_pool(
    'redis://localhost/')
await redis.select(3)
```

Connecting to password-protected Redis instance

The password can be specified either in keyword argument or in address URI:

```
redis = await aioredis.create_redis_pool(
    'redis://localhost', password='sEcRet')

redis = await aioredis.create_redis_pool(
    'redis://:sEcRet@localhost/')

redis = await aioredis.create_redis_pool(
    'redis://localhost/?password=sEcRet')
```

Note: Password specified in URI will take precedence over password keyword.

Also specifying both password as authentication component and query parameter in URI is forbidden.

```
# This will cause assertion error
await aioredis.create_redis_pool(
    'redis://:sEcRet@localhost/?password=SeCreT')
```

7.1.3 Result messages decoding

By default *aioredis* will return `bytes` for most Redis commands that return string replies. Redis error replies are known to be valid UTF-8 strings so error messages are decoded automatically.

If you know that data in Redis is valid string you can tell *aioredis* to decode result by passing keyword-only argument `encoding` in a command call:

get source code

```
import asyncio
import aioredis

async def main():
    redis = await aioredis.create_redis_pool('redis://localhost')
    await redis.set('key', 'string-value')
    bin_value = await redis.get('key')
    assert bin_value == b'string-value'

    str_value = await redis.get('key', encoding='utf-8')
    assert str_value == 'string-value'

    redis.close()
    await redis.wait_closed()

asyncio.run(main())
```

aioredis can decode messages for all Redis data types like lists, hashes, sorted sets, etc:

get source code

```
import asyncio
import aioredis

async def main():
    redis = await aioredis.create_redis_pool('redis://localhost')

    await redis.hmset_dict('hash',
                           key1='value1',
                           key2='value2',
                           key3=123)

    result = await redis.hgetall('hash', encoding='utf-8')
    assert result == {
        'key1': 'value1',
        'key2': 'value2',
        'key3': '123', # note that Redis returns int as string
    }
```

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```

    redis.close()
    await redis.wait_closed()

asyncio.run(main())

```

7.1.4 Multi/Exec transactions

get source code

```

import asyncio
import aioredis

async def main():
    redis = await aioredis.create_redis_pool('redis://localhost')

    tr = redis.multi_exec()
    tr.set('key1', 'value1')
    tr.set('key2', 'value2')
    ok1, ok2 = await tr.execute()
    assert ok1
    assert ok2

asyncio.run(main())

```

`multi_exec()` method creates and returns new *MultiExec* object which is used for buffering commands and then executing them inside MULTI/EXEC block.

Warning: It is very important not to await buffered command (ie `tr.set('foo', '123')`) as it will block forever.

The following code will block forever:

```

tr = redis.multi_exec()
await tr.incr('foo')    # that's all. we've stuck!

```

7.1.5 Pub/Sub mode

aioredis provides support for Redis Publish/Subscribe messaging.

To start listening for messages you must call either `subscribe()` or `psubscribe()` method. Both methods return list of *Channel* objects representing subscribed channels.

Right after that the channel will receive and store messages (the *Channel* object is basically a wrapper around `asyncio.Queue`). To read messages from channel you need to use `get()` or `get_json()` coroutines.

Example subscribing and reading channels:

get source code

```

import asyncio
import aioredis

```

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```

async def main():
    redis = await aioredis.create_redis_pool('redis://localhost')

    ch1, ch2 = await redis.subscribe('channel:1', 'channel:2')
    assert isinstance(ch1, aioredis.Channel)
    assert isinstance(ch2, aioredis.Channel)

    async def reader(channel):
        async for message in channel.iter():
            print("Got message:", message)
    asyncio.get_running_loop().create_task(reader(ch1))
    asyncio.get_running_loop().create_task(reader(ch2))

    await redis.publish('channel:1', 'Hello')
    await redis.publish('channel:2', 'World')

    redis.close()
    await redis.wait_closed()

asyncio.run(main())

```

Subscribing and reading patterns:

get source code

```

import asyncio
import aioredis

async def main():
    redis = await aioredis.create_redis_pool('redis://localhost')

    ch, = await redis.psubscribe('channel:*')
    assert isinstance(ch, aioredis.Channel)

    async def reader(channel):
        async for ch, message in channel.iter():
            print("Got message in channel:", ch, ":", message)
    asyncio.get_running_loop().create_task(reader(ch))

    await redis.publish('channel:1', 'Hello')
    await redis.publish('channel:2', 'World')

    redis.close()
    await redis.wait_closed()

asyncio.run(main())

```

7.1.6 Sentinel client

get source code

```

import asyncio
import aioredis

```

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```
async def main():
    sentinel = await aioredis.create_sentinel(
        ['redis://localhost:26379', 'redis://sentinel2:26379'])
    redis = sentinel.master_for('mymaster')

    ok = await redis.set('key', 'value')
    assert ok
    val = await redis.get('key', encoding='utf-8')
    assert val == 'value'

asyncio.run(main())
```

Sentinel client requires a list of Redis Sentinel addresses to connect to and start discovering services.

Calling `master_for()` or `slave_for()` methods will return Redis clients connected to specified services monitored by Sentinel.

Sentinel client will detect failover and reconnect Redis clients automatically.

See detailed reference [here](#)

7.2 aioredis — API Reference

7.2.1 Connection

Redis Connection is the core function of the library. Connection instances can be used as is or through *pool* or *high-level API*.

Connection usage is as simple as:

```
import asyncio
import aioredis

async def connect_uri():
    conn = await aioredis.create_connection(
        'redis://localhost/0')
    val = await conn.execute('GET', 'my-key')

async def connect_tcp():
    conn = await aioredis.create_connection(
        ('localhost', 6379))
    val = await conn.execute('GET', 'my-key')

async def connect_unixsocket():
    conn = await aioredis.create_connection(
        '/path/to/redis/socket')
    # or uri 'unix:///path/to/redis/socket?db=1'
    val = await conn.execute('GET', 'my-key')

asyncio.get_event_loop().run_until_complete(connect_tcp())
asyncio.get_event_loop().run_until_complete(connect_unixsocket())
```

coroutine `aioredis.create_connection` (*address*, *, *db=0*, *password=None*, *ssl=None*, *encoding=None*, *parser=None*, *loop=None*, *timeout=None*, *connection_cls=None*)

Creates Redis connection.

Changed in version v0.3.1: `timeout` argument added.

Changed in version v1.0: `parser` argument added.

Parameters

- **address** (*tuple* or *str*) – An address where to connect. Can be one of the following:
 - a Redis URI — `"redis://host:6379/0?encoding=utf-8"; "redis://:password@host:6379/0?encoding=utf-8";`
 - a (host, port) tuple — `('localhost', 6379);`
 - or a unix domain socket path string — `"/path/to/redis.sock".`
- **db** (*int*) – Redis database index to switch to when connected.
- **password** (*str* or *None*) – Password to use if redis server instance requires authorization.
- **ssl** (*ssl.SSLContext* or *True* or *None*) – SSL context that is passed through to `asyncio.BaseEventLoop.create_connection()`.
- **encoding** (*str* or *None*) – Codec to use for response decoding.
- **parser** (*callable* or *None*) – Protocol parser class. Can be used to set custom protocol reader; expected same interface as `hiredis.Reader`.
- **loop** (*EventLoop*) – An optional *event loop* instance (uses `asyncio.get_event_loop()` if not specified).
- **timeout** (*float greater than 0* or *None*) – Max time to open a connection, otherwise raise `asyncio.TimeoutError` exception. *None* by default
- **connection_cls** (*abc.AbcConnection* or *None*) – Custom connection class. *None* by default.

Returns `RedisConnection` instance.

class `aioredis.RedisConnection`

Bases: `abc.AbcConnection`

Redis connection interface.

address

Redis server address; either IP-port tuple or unix socket str (*read-only*). IP is either IPv4 or IPv6 depending on resolved host part in initial address.

New in version v0.2.8.

db

Current database index (*read-only*).

encoding

Current codec for response decoding (*read-only*).

closed

Set to `True` if connection is closed (*read-only*).

in_transaction

Set to `True` when `MULTI` command was issued (*read-only*).

pubsub_channels

Read-only dict with subscribed channels. Keys are bytes, values are [Channel](#) instances.

pubsub_patterns

Read-only dict with subscribed patterns. Keys are bytes, values are [Channel](#) instances.

in_pubsub

Indicates that connection is in PUB/SUB mode. Provides the number of subscribed channels. *Read-only*.

execute (*command*, **args*, *encoding*=*_NOTSET*)

Execute Redis command.

The method is **not a coroutine** itself but instead it writes to underlying transport and returns a [asyncio.Future](#) waiting for result.

Parameters

- **command** (*str*, *bytes*, *bytearray*) – Command to execute
- **encoding** (*str* or *None*) – Keyword-only argument for overriding response decoding. By default will use connection-wide encoding. May be set to *None* to skip response decoding.

Raises

- **TypeError** – When any of arguments is *None* or can not be encoded as bytes.
- [aioredis.ReplyError](#) – For redis error replies.
- [aioredis.ProtocolError](#) – When response can not be decoded and/or connection is broken.

Returns Returns bytes or int reply (or str if encoding was set)

execute_pubsub (*command*, **channels_or_patterns*)

Method to execute Pub/Sub commands. The method is not a coroutine itself but returns a [asyncio.gather\(\)](#) coroutine. Method also accept [aioredis.Channel](#) instances as command arguments:

```
>>> ch1 = Channel('A', is_pattern=False, loop=loop)
>>> await conn.execute_pubsub('subscribe', ch1)
[[b'subscribe', b'A', 1]]
```

Changed in version v0.3: The method accept [Channel](#) instances.

Parameters

- **command** (*str*, *bytes*, *bytearray*) – One of the following Pub/Sub commands: `subscribe`, `unsubscribe`, `psubscribe`, `punsubscribe`.
- ***channels_or_patterns** – Channels or patterns to subscribe connection to or unsubscribe from. At least one channel/pattern is required.

Returns

Returns a list of subscribe/unsubscribe messages, ex:

```
>>> await conn.execute_pubsub('subscribe', 'A', 'B')
[[b'subscribe', b'A', 1], [b'subscribe', b'B', 2]]
```

close()

Closes connection.

Mark connection as closed and schedule cleanup procedure.

All pending commands will be canceled with [ConnectionForcedCloseError](#).

wait_closed()

Coroutine waiting for connection to get closed.

select(db)

Changes current db index to new one.

Parameters **db** (*int*) – New redis database index.

Raises

- **TypeError** – When db parameter is not int.
- **ValueError** – When db parameter is less than 0.

Return True Always returns True or raises exception.

auth(password)

Send AUTH command.

Parameters **password** (*str*) – Plain-text password

Return bool True if redis replied with 'OK'.

7.2.2 Connections Pool

The library provides connections pool. The basic usage is as follows:

```
import aioredis

async def sample_pool():
    pool = await aioredis.create_pool('redis://localhost')
    val = await pool.execute('get', 'my-key')
```

aioredis.create_pool(*address*, *, *db*=0, *password*=None, *ssl*=None, *encoding*=None, *minsize*=1, *maxsize*=10, *parser*=None, *loop*=None, *create_connection_timeout*=None, *pool_cls*=None, *connection_cls*=None)

A *coroutine* that instantiates a pool of *RedisConnection*.

Changed in version v0.2.7: minsize default value changed from 10 to 1.

Changed in version v0.2.8: Disallow arbitrary ConnectionsPool maxsize.

Deprecated since version v0.2.9: *commands_factory* argument is deprecated and will be removed in v1.0.

Changed in version v0.3.2: *create_connection_timeout* argument added.

New in version v1.0: *parser*, *pool_cls* and *connection_cls* arguments added.

Parameters

- **address** (*tuple* or *str*) – An address where to connect. Can be one of the following:
 - a Redis URI — "redis://host:6379/0?encoding=utf-8";
 - a (host, port) tuple — ('localhost', 6379);
 - or a unix domain socket path string — "/path/to/redis.sock".
- **db** (*int*) – Redis database index to switch to when connected.
- **password** (*str* or None) – Password to use if redis server instance requires authorization.

- **ssl** (`ssl.SSLContext` or `True` or `None`) – SSL context that is passed through to `asyncio.BaseEventLoop.create_connection()`.
- **encoding** (`str` or `None`) – Codec to use for response decoding.
- **minsize** (`int`) – Minimum number of free connection to create in pool. 1 by default.
- **maxsize** (`int`) – Maximum number of connection to keep in pool. 10 by default. Must be greater than 0. `None` is disallowed.
- **parser** (`callable` or `None`) – Protocol parser class. Can be used to set custom protocol reader; expected same interface as `hiredis.Reader`.
- **loop** (`EventLoop`) – An optional *event loop* instance (uses `asyncio.get_event_loop()` if not specified).
- **create_connection_timeout** (*float greater than 0* or `None`) – Max time to open a connection, otherwise raise an `asyncio.TimeoutError`. `None` by default.
- **pool_cls** (`aioredis.abc.AbcPool`) – Can be used to instantiate custom pool class. This argument **must be** a subclass of `AbcPool`.
- **connection_cls** (`aioredis.abc.AbcConnection`) – Can be used to make pool instantiate custom connection classes. This argument **must be** a subclass of `AbcConnection`.

Returns `ConnectionsPool` instance.

class `aioredis.ConnectionsPool`

Bases: `abc.AbcPool`

Redis connections pool.

minsize

A minimum size of the pool (*read-only*).

maxsize

A maximum size of the pool (*read-only*).

size

Current pool size — number of free and used connections (*read-only*).

freeseize

Current number of free connections (*read-only*).

db

Currently selected db index (*read-only*).

encoding

Current codec for response decoding (*read-only*).

closed

True if pool is closed.

New in version v0.2.8.

execute (*command*, **args*, ***kwargs*)

Execute Redis command in a free connection and return `asyncio.Future` waiting for result.

This method tries to pick a free connection from pool and send command through it at once (keeping pipelining feature provided by `aioredis.RedisConnection.execute()`). If no connection is found — returns coroutine waiting for free connection to execute command.

New in version v1.0.

execute_pubsub (*command*, **channels*)

Execute Redis (p)subscribe/(p)unsubscribe command.

`ConnectionsPool` picks separate free connection for pub/sub and uses it until pool is closed or connection is disconnected (unsubscribing from all channels/pattern will leave connection locked for pub/sub use).

There is no auto-reconnect for Pub/Sub connection as this will hide from user messages loss.

Has similar to `execute()` behavior, ie: tries to pick free connection from pool and switch it to pub/sub mode; or fallback to coroutine waiting for free connection and repeating operation.

New in version v1.0.

get_connection (*command*, *args*=())

Gets free connection from pool returning tuple of (connection, address).

If no free connection is found – None is returned in place of connection.

Return type tuple(`RedisConnection` or None, str)

New in version v1.0.

coroutine clear ()

Closes and removes all free connections in the pool.

coroutine select (*db*)

Changes db index for all free connections in the pool.

Parameters *db* (*int*) – New database index.

coroutine acquire (*command*=None, *args*=())

Acquires a connection from *free pool*. Creates new connection if needed.

Parameters

- **command** – reserved for future.
- **args** – reserved for future.

Raises `aioredis.PoolClosedError` – if pool is already closed

release (*conn*)

Returns used connection back into pool.

When returned connection has db index that differs from one in pool the connection will be dropped. When queue of free connections is full the connection will be dropped.

Note: This method is **not a coroutine**.

Parameters *conn* (`aioredis.RedisConnection`) – A `RedisConnection` instance.

close ()

Close all free and in-progress connections and mark pool as closed.

New in version v0.2.8.

coroutine wait_closed ()

Wait until pool gets closed (when all connections are closed).

New in version v0.2.8.

7.2.3 Exceptions

exception `aioredis.RedisError`

Bases `Exception`

Base exception class for aioredis exceptions.

exception `aioredis.ProtocolError`

Bases `RedisError`

Raised when protocol error occurs. When this type of exception is raised connection must be considered broken and must be closed.

exception `aioredis.ReplyError`

Bases `RedisError`

Raised for Redis *error replies*.

exception `aioredis.MaxClientsError`

Bases `ReplyError`

Raised when maximum number of clients has been reached (Redis server configured value).

exception `aioredis.AuthError`

Bases `ReplyError`

Raised when authentication errors occur.

exception `aioredis.ConnectionClosedError`

Bases `RedisError`

Raised if connection to server was lost/closed.

exception `aioredis.ConnectionForcedCloseError`

Bases `ConnectionClosedError`

Raised if connection was closed with `RedisConnection.close()` method.

exception `aioredis.PipelineError`

Bases `RedisError`

Raised from `pipeline()` if any pipelined command raised error.

exception `aioredis.MultiExecError`

Bases `PipelineError`

Same as `PipelineError` but raised when executing `multi_exec` block.

exception `aioredis.WatchVariableError`

Bases `MultiExecError`

Raised if watched variable changed (EXEC returns None). Subclass of `MultiExecError`.

exception `aioredis.ChannelClosedError`

Bases `RedisError`

Raised from `aioredis.Channel.get()` when Pub/Sub channel is unsubscribed and messages queue is empty.

exception `aioredis.PoolClosedError`

Bases `RedisError`

Raised from `aioredis.ConnectionsPool.acquire()` when pool is already closed.

exception `aioredis.ReadOnlyError`

Bases `RedisError`

Raised from slave when read-only mode is enabled.

exception `aioredis.MasterNotFoundError`

Bases `RedisError`

Raised by Sentinel client if it can not find requested master.

exception `aioredis.SlaveNotFoundError`

Bases `RedisError`

Raised by Sentinel client if it can not find requested slave.

exception `aioredis.MasterReplyError`

Bases `RedisError`

Raised if establishing connection to master failed with `RedisError`, for instance because of required or wrong authentication.

exception `aioredis.SlaveReplyError`

Bases `RedisError`

Raised if establishing connection to slave failed with `RedisError`, for instance because of required or wrong authentication.

Exceptions Hierarchy

```
Exception
  RedisError
    ProtocolError
    ReplyError
      MaxClientsError
      AuthError
    PipelineError
      MultiExecError
        WatchVariableError
    ChannelClosedError
    ConnectionClosedError
      ConnectionForcedCloseError
    PoolClosedError
    ReadOnlyError
    MasterNotFoundError
    SlaveNotFoundError
    MasterReplyError
    SlaveReplyError
```

7.2.4 Pub/Sub Channel object

Channel object is a wrapper around queue for storing received pub/sub messages.

class `aioredis.Channel` (*name*, *is_pattern*, *loop=None*)

Bases: `abc.AbcChannel`

Object representing Pub/Sub messages queue. It's basically a wrapper around `asyncio.Queue`.

name

Holds encoded channel/pattern name.

is_pattern

Set to True for pattern channels.

is_active

Set to True if there are messages in queue and connection is still subscribed to this channel.

coroutine `get` (*, *encoding=None*, *decoder=None*)

Coroutine that waits for and returns a message.

Return value is message received or `None` signifying that channel has been unsubscribed and no more messages will be received.

Parameters

- **encoding** (*str*) – If not `None` used to decode resulting bytes message.
- **decoder** (*callable*) – If specified used to decode message, ex. `json.loads()`

Raises `aioredis.ChannelClosedError` – If channel is unsubscribed and has no more messages.

get_json (*, *encoding="utf-8"*)

Shortcut to `get(encoding="utf-8", decoder=json.loads)`

coroutine `wait_message` ()

Waits for message to become available in channel or channel is closed (unsubscribed).

Main idea is to use it in loops:

```
>>> ch = redis.channels['channel:1']
>>> while await ch.wait_message():
...     msg = await ch.get()
```

Return type `bool`

coroutine `async-for iter` (*, *encoding=None*, *decoder=None*)

Same as `get()` method but it is a native coroutine.

Usage example:

```
>>> async for msg in ch.iter():
...     print(msg)
```

New in version 0.2.5: Available for Python 3.5 only

7.2.5 Commands Interface

The library provides high-level API implementing simple interface to Redis commands.

The usage is as simple as:

```
import aioredis

# Create Redis client bound to single non-reconnecting connection.
async def single_connection():
    redis = await aioredis.create_redis(
        'redis://localhost')
    val = await redis.get('my-key')

# Create Redis client bound to connections pool.
async def pool_of_connections():
    redis = await aioredis.create_redis_pool(
        'redis://localhost')
    val = await redis.get('my-key')

# we can also use pub/sub as underlying pool
# has several free connections:
ch1, ch2 = await redis.subscribe('chan:1', 'chan:2')
# publish using free connection
await redis.publish('chan:1', 'Hello')
await ch1.get()
```

For commands reference — see *commands mixins reference*.

coroutine `aioredis.create_redis` (*address*, *, *db*=0, *password*=None, *ssl*=None, *encoding*=None, *commands_factory*=Redis, *parser*=None, *timeout*=None, *connection_cls*=None, *loop*=None)

This **coroutine** creates high-level Redis interface instance bound to single Redis connection (without auto-reconnect).

New in version v1.0: *parser*, *timeout* and *connection_cls* arguments added.

See also *RedisConnection* for parameters description.

Parameters

- **address** (*tuple* or *str*) – An address where to connect. Can be a (host, port) tuple, unix domain socket path string or a Redis URI string.
- **db** (*int*) – Redis database index to switch to when connected.
- **password** (*str* or *bytes* or *None*) – Password to use if Redis server instance requires authorization.
- **ssl** (*ssl.SSLContext* or *True* or *None*) – SSL context that is passed through to `asyncio.BaseEventLoop.create_connection()`.
- **encoding** (*str* or *None*) – Codec to use for response decoding.
- **commands_factory** (*callable*) – A factory accepting single parameter – object implementing *AbcConnection* and returning an instance providing high-level interface to Redis. *Redis* by default.
- **parser** (*callable* or *None*) – Protocol parser class. Can be used to set custom protocol reader; expected same interface as `hiredis.Reader`.

- **timeout** (*float greater than 0 or None*) – Max time to open a connection, otherwise raise `asyncio.TimeoutError` exception. None by default
- **connection_cls** (`aioredis.abc.AbcConnection`) – Can be used to instantiate custom connection class. This argument **must be** a subclass of `AbcConnection`.
- **loop** (`EventLoop`) – An optional *event loop* instance (uses `asyncio.get_event_loop()` if not specified).

Returns Redis client (result of `commands_factory` call), `Redis` by default.

coroutine `aioredis.create_redis_pool` (`address`, `*`, `db=0`, `password=None`, `ssl=None`, `encoding=None`, `commands_factory=Redis`, `minsize=1`, `maxsize=10`, `parser=None`, `timeout=None`, `pool_cls=None`, `connection_cls=None`, `loop=None`)

This `coroutine` create high-level Redis client instance bound to connections pool (this allows auto-reconnect and simple pub/sub use).

See also `ConnectionsPool` for parameters description.

Changed in version v1.0: `parser`, `timeout`, `pool_cls` and `connection_cls` arguments added.

Parameters

- **address** (*tuple or str*) – An address where to connect. Can be a (host, port) tuple, unix domain socket path string or a Redis URI string.
- **db** (*int*) – Redis database index to switch to when connected.
- **password** (*str or bytes or None*) – Password to use if Redis server instance requires authorization.
- **ssl** (`ssl.SSLContext` or `True` or `None`) – SSL context that is passed through to `asyncio.BaseEventLoop.create_connection()`.
- **encoding** (*str or None*) – Codec to use for response decoding.
- **commands_factory** (*callable*) – A factory accepting single parameter – object implementing `AbcConnection` interface and returning an instance providing high-level interface to Redis. `Redis` by default.
- **minsize** (*int*) – Minimum number of connections to initialize and keep in pool. Default is 1.
- **maxsize** (*int*) – Maximum number of connections that can be created in pool. Default is 10.
- **parser** (*callable or None*) – Protocol parser class. Can be used to set custom protocol reader; expected same interface as `hiredis.Reader`.
- **timeout** (*float greater than 0 or None*) – Max time to open a connection, otherwise raise `asyncio.TimeoutError` exception. None by default
- **pool_cls** (`aioredis.abc.AbcPool`) – Can be used to instantiate custom pool class. This argument **must be** a subclass of `AbcPool`.
- **connection_cls** (`aioredis.abc.AbcConnection`) – Can be used to make pool instantiate custom connection classes. This argument **must be** a subclass of `AbcConnection`.
- **loop** (`EventLoop`) – An optional *event loop* instance (uses `asyncio.get_event_loop()` if not specified).

Returns Redis client (result of `commands_factory` call), `Redis` by default.

7.3 aioredis.Redis — Commands Mixins Reference

This section contains reference for mixins implementing Redis commands.

Descriptions are taken from docstrings so may not contain proper markup.

class `aioredis.Redis` (*pool_or_conn*)

High-level Redis interface.

Gathers in one place Redis commands implemented in mixins.

For commands details see: <http://redis.io/commands/#connection>

Parameters `pool_or_conn` (*AbcConnection*) – Can be either *RedisConnection* or *ConnectionsPool*.

property `address`

Redis connection address (if applicable).

auth (*password*)

Authenticate to server.

This method wraps call to `aioredis.RedisConnection.auth()`

close ()

Close client connections.

property `closed`

True if connection is closed.

property `connection`

Either `aioredis.RedisConnection`, or `aioredis.ConnectionsPool` instance.

property `db`

Currently selected db index.

echo (*message*, *, *encoding*=<object object>)

Echo the given string.

property `encoding`

Current set codec or None.

property `in_transaction`

Set to True when MULTI command was issued.

ping (*message*=<object object>, *, *encoding*=<object object>)

Ping the server.

Accept optional echo message.

quit ()

Close the connection.

select (*db*)

Change the selected database.

7.3.1 Generic commands

class `aioredis.commands.GenericCommandsMixin`

Generic commands mixin.

For commands details see: <http://redis.io/commands/#generic>

delete (*key*, **keys*)

Delete a key.

dump (*key*)

Dump a key.

exists (*key*, **keys*)

Check if key(s) exists.

Changed in version v0.2.9: Accept multiple keys; **return** type **changed** from bool to int.

expire (*key*, *timeout*)

Set a timeout on key.

if timeout is float it will be multiplied by 1000 coerced to int and passed to *pexpire* method.

Otherwise raises `TypeError` if timeout argument is not int.

expireat (*key*, *timestamp*)

Set expire timestamp on a key.

if timeout is float it will be multiplied by 1000 coerced to int and passed to *pexpireat* method.

Otherwise raises `TypeError` if timestamp argument is not int.

isscan (*, *match=None*, *count=None*)

Incrementally iterate the keys space using async for.

Usage example:

```
>>> async for key in redis.iscan(match='something*'):
...     print('Matched:', key)
```

keys (*pattern*, *, *encoding=<object object>*)

Returns all keys matching pattern.

migrate (*host*, *port*, *key*, *dest_db*, *timeout*, *, *copy=False*, *replace=False*)

Atomically transfer a key from a Redis instance to another one.

migrate_keys (*host*, *port*, *keys*, *dest_db*, *timeout*, *, *copy=False*, *replace=False*)

Atomically transfer keys from one Redis instance to another one.

Keys argument must be list/tuple of keys to migrate.

move (*key*, *db*)

Move key from currently selected database to specified destination.

Raises

- **TypeError** – if db is not int
- **ValueError** – if db is less than 0

object_encoding (*key*)

Returns the kind of internal representation used in order to store the value associated with a key (OBJECT ENCODING).

object_idletime (*key*)

Returns the number of seconds since the object is not requested by read or write operations (OBJECT IDLETIME).

object_refcount (*key*)

Returns the number of references of the value associated with the specified key (OBJECT REFCOUNT).

persist (*key*)

Remove the existing timeout on key.

pexpire (*key, timeout*)

Set a milliseconds timeout on key.

Raises **TypeError** – if timeout is not int

pexpireat (*key, timestamp*)

Set expire timestamp on key, timestamp in milliseconds.

Raises **TypeError** – if timeout is not int

pttl (*key*)

Returns time-to-live for a key, in milliseconds.

Special return values (starting with Redis 2.8):

- command returns -2 if the key does not exist.
- command returns -1 if the key exists but has no associated expire.

randomkey (**, encoding=<object object>*)

Return a random key from the currently selected database.

rename (*key, newkey*)

Renames key to newkey.

Raises **ValueError** – if key == newkey

renamenx (*key, newkey*)

Renames key to newkey only if newkey does not exist.

Raises **ValueError** – if key == newkey

restore (*key, ttl, value*)

Creates a key associated with a value that is obtained via DUMP.

scan (*cursor=0, match=None, count=None*)

Incrementally iterate the keys space.

Usage example:

```
>>> match = 'something*'
>>> cur = b'0'
>>> while cur:
...     cur, keys = await redis.scan(cur, match=match)
...     for key in keys:
...         print('Matched:', key)
```

sort (*key, *get_patterns, by=None, offset=None, count=None, asc=None, alpha=False, store=None*)

Sort the elements in a list, set or sorted set.

touch (*key, *keys*)

Alters the last access time of a key(s).

Returns the number of keys that were touched.

ttl (*key*)

Returns time-to-live for a key, in seconds.

Special return values (starting with Redis 2.8): * command returns -2 if the key does not exist. * command returns -1 if the key exists but has no associated expire.

type (*key*)

Returns the string representation of the value's type stored at key.

unlink (*key*, **keys*)

Delete a key asynchronously in another thread.

wait (*numslaves*, *timeout*)

Wait for the synchronous replication of all the write commands sent in the context of the current connection.

7.3.2 Geo commands

New in version v0.3.0.

class aioredis.commands.GeoCommandsMixin

Geo commands mixin.

For commands details see: <http://redis.io/commands#geo>

geoadd (*key*, *longitude*, *latitude*, *member*, **args*, ***kwargs*)

Add one or more geospatial items in the geospatial index represented using a sorted set.

Return type `int`

geodist (*key*, *member1*, *member2*, *unit='m'*)

Returns the distance between two members of a geospatial index.

Return type `list[float or None]`

geohash (*key*, *member*, **members*, ***kwargs*)

Returns members of a geospatial index as standard geohash strings.

Return type `list[str or bytes or None]`

geopos (*key*, *member*, **members*, ***kwargs*)

Returns longitude and latitude of members of a geospatial index.

Return type `list[GeoPoint or None]`

georadius (*key*, *longitude*, *latitude*, *radius*, *unit='m'*, ***, *with_dist=False*, *with_hash=False*, *with_coord=False*, *count=None*, *sort=None*, *encoding=<object object>*)

Query a sorted set representing a geospatial index to fetch members matching a given maximum distance from a point.

Return value follows Redis convention:

- if none of WITH* flags are set – list of strings returned:

```
>>> await redis.georadius('Sicily', 15, 37, 200, 'km')
[b"Palermo", b"Catania"]
```

- if any flag (or all) is set – list of named tuples returned:

```
>>> await redis.georadius('Sicily', 15, 37, 200, 'km',
...                        with_dist=True)
[GeoMember(name=b"Palermo", dist=190.4424, hash=None, coord=None),
 GeoMember(name=b"Catania", dist=56.4413, hash=None, coord=None)]
```

Raises

- **TypeError** – radius is not float or int

- **TypeError** – count is not int
- **ValueError** – if unit not equal m, km, mi or ft
- **ValueError** – if sort not equal ASC or DESC

Return type `list[str]` or `list[GeoMember]`

georadiusbymember (*key*, *member*, *radius*, *unit*='m', *, *with_dist*=False, *with_hash*=False, *with_coord*=False, *count*=None, *sort*=None, *encoding*=<object object>)

Query a sorted set representing a geospatial index to fetch members matching a given maximum distance from a member.

Return value follows Redis convention:

- if none of WITH* flags are set – list of strings returned:

```
>>> await redis.georadiusbymember('Sicily', 'Palermo', 200, 'km')
[b"Palermo", b"Catania"]
```

- if any flag (or all) is set – list of named tuples returned:

```
>>> await redis.georadiusbymember('Sicily', 'Palermo', 200, 'km',
...                               with_dist=True)
[GeoMember(name=b"Palermo", dist=190.4424, hash=None, coord=None),
 GeoMember(name=b"Catania", dist=56.4413, hash=None, coord=None)]
```

Raises

- **TypeError** – radius is not float or int
- **TypeError** – count is not int
- **ValueError** – if unit not equal m, km, mi or ft
- **ValueError** – if sort not equal ASC or DESC

Return type `list[str]` or `list[GeoMember]`

Geo commands result wrappers

class aioredis.commands.**GeoPoint** (*longitude*, *latitude*)

Bases: `tuple`

Named tuple representing result returned by GEOPOS and GEORADIUS commands.

Parameters

- **longitude** (*float*) – longitude value.
- **latitude** (*float*) – latitude value.

class aioredis.commands.**GeoMember** (*member*, *dist*, *hash*, *coord*)

Bases: `tuple`

Named tuple representing result returned by GEORADIUS and GEORADIUSBYMEMBER commands.

Parameters

- **member** (*str* or *bytes*) – Value of geo sorted set item;
- **dist** (*None* or *float*) – Distance in units passed to call. None if *with_dist* was not set in *georadius()* call.

- **hash** (*None* or *int*) – Geo-hash represented as number. *None* if `with_hash` was not in `georadius()` call.
- **coord** (*None* or *GeoPoint*) – Coordinate of geospatial index member. *None* if `with_coord` was not set in `georadius()` call.

7.3.3 Strings commands

class `aioredis.commands.StringCommandsMixin`
String commands mixin.

For commands details see: <http://redis.io/commands/#string>

append (*key*, *value*)
Append a value to key.

bitcount (*key*, *start=None*, *end=None*)
Count set bits in a string.

Raises **TypeError** – if only start or end specified.

bitop_and (*dest*, *key*, **keys*)
Perform bitwise AND operations between strings.

bitop_not (*dest*, *key*)
Perform bitwise NOT operations between strings.

bitop_or (*dest*, *key*, **keys*)
Perform bitwise OR operations between strings.

bitop_xor (*dest*, *key*, **keys*)
Perform bitwise XOR operations between strings.

bitpos (*key*, *bit*, *start=None*, *end=None*)
Find first bit set or clear in a string.

Raises **ValueError** – if bit is not 0 or 1

decr (*key*)
Decrement the integer value of a key by one.

decrby (*key*, *decrement*)
Decrement the integer value of a key by the given number.

Raises **TypeError** – if decrement is not int

get (*key*, ***, *encoding=<object object>*)
Get the value of a key.

getbit (*key*, *offset*)
Returns the bit value at offset in the string value stored at key.

Raises

- **TypeError** – if offset is not int
- **ValueError** – if offset is less than 0

getrange (*key*, *start*, *end*, ***, *encoding=<object object>*)
Get a substring of the string stored at a key.

Raises **TypeError** – if start or end is not int

getset (*key, value, *, encoding=<object object>*)
Set the string value of a key and return its old value.

incr (*key*)
Increment the integer value of a key by one.

incrby (*key, increment*)
Increment the integer value of a key by the given amount.
Raises **TypeError** – if increment is not int

incrbyfloat (*key, increment*)
Increment the float value of a key by the given amount.
Raises **TypeError** – if increment is not int

mget (*key, *keys, encoding=<object object>*)
Get the values of all the given keys.

mset (**args*)
Set multiple keys to multiple values or unpack dict to keys & values.
Raises

- **TypeError** – if len of args is not even number
- **TypeError** – if len of args equals 1 and it is not a dict

msetnx (*key, value, *pairs*)
Set multiple keys to multiple values, only if none of the keys exist.
Raises **TypeError** – if len of pairs is not even number

psetex (*key, milliseconds, value*)
Set the value and expiration in milliseconds of a key.
Raises **TypeError** – if milliseconds is not int

set (*key, value, *, expire=0, pexpire=0, exist=None*)
Set the string value of a key.
Raises **TypeError** – if expire or pexpire is not int

setbit (*key, offset, value*)
Sets or clears the bit at offset in the string value stored at key.
Raises

- **TypeError** – if offset is not int
- **ValueError** – if offset is less than 0 or value is not 0 or 1

setex (*key, seconds, value*)
Set the value and expiration of a key.
If seconds is float it will be multiplied by 1000 coerced to int and passed to *psetex* method.
Raises **TypeError** – if seconds is neither int nor float

setnx (*key, value*)
Set the value of a key, only if the key does not exist.

setrange (*key, offset, value*)
Overwrite part of a string at key starting at the specified offset.
Raises

- **TypeError** – if offset is not int
- **ValueError** – if offset less than 0

strlen (*key*)

Get the length of the value stored in a key.

7.3.4 Hash commands

class aioredis.commands.HashCommandsMixin

Hash commands mixin.

For commands details see: <http://redis.io/commands#hash>

hdel (*key, field, *fields*)

Delete one or more hash fields.

hexists (*key, field*)

Determine if hash field exists.

hget (*key, field, *, encoding=<object object>*)

Get the value of a hash field.

hgetall (*key, *, encoding=<object object>*)

Get all the fields and values in a hash.

hincrby (*key, field, increment=1*)

Increment the integer value of a hash field by the given number.

hincrbyfloat (*key, field, increment=1.0*)

Increment the float value of a hash field by the given number.

hkeys (*key, *, encoding=<object object>*)

Get all the fields in a hash.

hlen (*key*)

Get the number of fields in a hash.

hmget (*key, field, *fields, encoding=<object object>*)

Get the values of all the given fields.

hmset (*key, field, value, *pairs*)

Set multiple hash fields to multiple values.

hmset_dict (*key, *args, **kwargs*)

Set multiple hash fields to multiple values.

dict can be passed as first positional argument:

```
>>> await redis.hmset_dict(  
...     'key', {'field1': 'value1', 'field2': 'value2'})
```

or keyword arguments can be used:

```
>>> await redis.hmset_dict(  
...     'key', field1='value1', field2='value2')
```

or dict argument can be mixed with kwargs:

```
>>> await redis.hmset_dict(  
...     'key', {'field1': 'value1'}, field2='value2')
```

Note: dict and kwargs not get mixed into single dictionary, if both specified and both have same key(s) – kwargs will win:

```
>>> await redis.hmset_dict('key', {'foo': 'bar'}, foo='baz')
>>> await redis.hget('key', 'foo', encoding='utf-8')
'baz'
```

hscan (*key, cursor=0, match=None, count=None*)
Incrementally iterate hash fields and associated values.

hset (*key, field, value*)
Set the string value of a hash field.

hsetnx (*key, field, value*)
Set the value of a hash field, only if the field does not exist.

hstrlen (*key, field*)
Get the length of the value of a hash field.

hvals (*key, *, encoding=<object object>*)
Get all the values in a hash.

ihscan (*key, *, match=None, count=None*)
Incrementally iterate sorted set items using async for.

Usage example:

```
>>> async for name, val in redis.ihscan(key, match='something*'):
...     print('Matched:', name, '->', val)
```

7.3.5 List commands

class aioredis.commands.**ListCommandsMixin**
List commands mixin.

For commands details see: <http://redis.io/commands#list>

blpop (*key, *keys, timeout=0, encoding=<object object>*)
Remove and get the first element in a list, or block until one is available.

Raises

- **TypeError** – if timeout is not int
- **ValueError** – if timeout is less than 0

brpop (*key, *keys, timeout=0, encoding=<object object>*)
Remove and get the last element in a list, or block until one is available.

Raises

- **TypeError** – if timeout is not int
- **ValueError** – if timeout is less than 0

brpoplpush (*sourcekey, destkey, timeout=0, encoding=<object object>*)
Remove and get the last element in a list, or block until one is available.

Raises

- **TypeError** – if timeout is not int
- **ValueError** – if timeout is less than 0

lindex (*key, index, *, encoding=<object object>*)

Get an element from a list by its index.

Raises **TypeError** – if index is not int

linsert (*key, pivot, value, before=False*)

Inserts value in the list stored at key either before or after the reference value pivot.

llen (*key*)

Returns the length of the list stored at key.

lpop (*key, *, encoding=<object object>*)

Removes and returns the first element of the list stored at key.

lpush (*key, value, *values*)

Insert all the specified values at the head of the list stored at key.

lpushx (*key, value*)

Inserts value at the head of the list stored at key, only if key already exists and holds a list.

lrange (*key, start, stop, *, encoding=<object object>*)

Returns the specified elements of the list stored at key.

Raises **TypeError** – if start or stop is not int

lrem (*key, count, value*)

Removes the first count occurrences of elements equal to value from the list stored at key.

Raises **TypeError** – if count is not int

lset (*key, index, value*)

Sets the list element at index to value.

Raises **TypeError** – if index is not int

ltrim (*key, start, stop*)

Trim an existing list so that it will contain only the specified range of elements specified.

Raises **TypeError** – if start or stop is not int

rpop (*key, *, encoding=<object object>*)

Removes and returns the last element of the list stored at key.

rpoplpush (*sourcekey, destkey, *, encoding=<object object>*)

Atomically returns and removes the last element (tail) of the list stored at source, and pushes the element at the first element (head) of the list stored at destination.

rpush (*key, value, *values*)

Insert all the specified values at the tail of the list stored at key.

rpushx (*key, value*)

Inserts value at the tail of the list stored at key, only if key already exists and holds a list.

7.3.6 Set commands

class aioredis.commands.SetCommandsMixin

Set commands mixin.

For commands details see: <http://redis.io/commands#set>

isscan (*key*, *, *match=None*, *count=None*)

Incrementally iterate set elements using async for.

Usage example:

```
>>> async for val in redis.isscan(key, match='something*'):
...     print('Matched:', val)
```

sadd (*key*, *member*, **members*)

Add one or more members to a set.

scard (*key*)

Get the number of members in a set.

sdiff (*key*, **keys*)

Subtract multiple sets.

sdiffstore (*destkey*, *key*, **keys*)

Subtract multiple sets and store the resulting set in a key.

sinter (*key*, **keys*)

Intersect multiple sets.

sinterstore (*destkey*, *key*, **keys*)

Intersect multiple sets and store the resulting set in a key.

sismember (*key*, *member*)

Determine if a given value is a member of a set.

smembers (*key*, *, *encoding=<object object>*)

Get all the members in a set.

smove (*sourcekey*, *destkey*, *member*)

Move a member from one set to another.

spop (*key*, *count=None*, *, *encoding=<object object>*)

Remove and return one or multiple random members from a set.

srandmember (*key*, *count=None*, *, *encoding=<object object>*)

Get one or multiple random members from a set.

srem (*key*, *member*, **members*)

Remove one or more members from a set.

sscan (*key*, *cursor=0*, *match=None*, *count=None*)

Incrementally iterate Set elements.

sunion (*key*, **keys*)

Add multiple sets.

sunionstore (*destkey*, *key*, **keys*)

Add multiple sets and store the resulting set in a key.

7.3.7 Sorted Set commands

class aioredis.commands.SortedSetCommandsMixin

Sorted Sets commands mixin.

For commands details see: http://redis.io/commands/#sorted_set

bzpopmax (*key*, **keys*, *timeout=0*, *encoding=<object object>*)

Remove and get an element with the highest score in the sorted set, or block until one is available.

Raises

- **TypeError** – if timeout is not int
- **ValueError** – if timeout is less than 0

bzpopmin (*key*, **keys*, *timeout=0*, *encoding=<object object>*)

Remove and get an element with the lowest score in the sorted set, or block until one is available.

Raises

- **TypeError** – if timeout is not int
- **ValueError** – if timeout is less than 0

izscan (*key*, *, *match=None*, *count=None*)

Incrementally iterate sorted set items using async for.

Usage example:

```
>>> async for val, score in redis.izscan(key, match='something*'):
...     print('Matched:', val, ':', score)
```

zadd (*key*, *score*, *member*, **pairs*, *exist=None*, *changed=False*, *incr=False*)

Add one or more members to a sorted set or update its score.

Raises

- **TypeError** – score not int or float
- **TypeError** – length of pairs is not even number

zcard (*key*)

Get the number of members in a sorted set.

zcount (*key*, *min=-inf*, *max=inf*, *, *exclude=None*)

Count the members in a sorted set with scores within the given values.

Raises

- **TypeError** – min or max is not float or int
- **ValueError** – if min greater than max

zincrby (*key*, *increment*, *member*)

Increment the score of a member in a sorted set.

Raises **TypeError** – increment is not float or int

zinterstore (*destkey*, *key*, **keys*, *with_weights=False*, *aggregate=None*)

Intersect multiple sorted sets and store result in a new key.

Parameters with_weights (*bool*) – when set to true each key must be a tuple in form of (key, weight)

zlexcount (*key*, *min=b'-'*, *max=b'+'*, *include_min=True*, *include_max=True*)

Count the number of members in a sorted set between a given lexicographical range.

Raises

- **TypeError** – if min is not bytes
- **TypeError** – if max is not bytes

zpopmax (*key*, *count=None*, *, *encoding=<object object>*)

Removes and returns up to count members with the highest scores in the sorted set stored at key.

Raises **TypeError** – if count is not int

zpopmin (*key*, *count=None*, *, *encoding=<object object>*)

Removes and returns up to count members with the lowest scores in the sorted set stored at key.

Raises **TypeError** – if count is not int

zrange (*key*, *start=0*, *stop=-1*, *withscores=False*, *encoding=<object object>*)

Return a range of members in a sorted set, by index.

Raises

- **TypeError** – if start is not int
- **TypeError** – if stop is not int

zrangebylex (*key*, *min=b'-'*, *max=b'+'*, *include_min=True*, *include_max=True*, *offset=None*, *count=None*, *encoding=<object object>*)

Return a range of members in a sorted set, by lexicographical range.

Raises

- **TypeError** – if min is not bytes
- **TypeError** – if max is not bytes
- **TypeError** – if both offset and count are not specified
- **TypeError** – if offset is not bytes
- **TypeError** – if count is not bytes

zrangebyscore (*key*, *min=-inf*, *max=inf*, *withscores=False*, *offset=None*, *count=None*, *, *exclude=None*, *encoding=<object object>*)

Return a range of members in a sorted set, by score.

Raises

- **TypeError** – if min or max is not float or int
- **TypeError** – if both offset and count are not specified
- **TypeError** – if offset is not int
- **TypeError** – if count is not int

zrank (*key*, *member*)

Determine the index of a member in a sorted set.

zrem (*key*, *member*, **members*)

Remove one or more members from a sorted set.

zremrangebylex (*key*, *min=b'-'*, *max=b'+'*, *include_min=True*, *include_max=True*)

Remove all members in a sorted set between the given lexicographical range.

Raises

- **TypeError** – if min is not bytes
- **TypeError** – if max is not bytes

zremrangebyrank (*key*, *start*, *stop*)

Remove all members in a sorted set within the given indexes.

Raises

- **TypeError** – if start is not int
- **TypeError** – if stop is not int

zremrangebyscore (*key*, *min*=-inf, *max*=inf, *, *exclude*=None)

Remove all members in a sorted set within the given scores.

Raises **TypeError** – if min or max is not int or float

zrevrange (*key*, *start*, *stop*, *withscores*=False, *encoding*=<object object>)

Return a range of members in a sorted set, by index, with scores ordered from high to low.

Raises **TypeError** – if start or stop is not int

zrevrangebylex (*key*, *min*=b'-', *max*=b'+', *include_min*=True, *include_max*=True, *offset*=None, *count*=None, *encoding*=<object object>)

Return a range of members in a sorted set, by lexicographical range from high to low.

Raises

- **TypeError** – if min is not bytes
- **TypeError** – if max is not bytes
- **TypeError** – if both offset and count are not specified
- **TypeError** – if offset is not bytes
- **TypeError** – if count is not bytes

zrevrangebyscore (*key*, *max*=inf, *min*=-inf, *, *exclude*=None, *withscores*=False, *offset*=None, *count*=None, *encoding*=<object object>)

Return a range of members in a sorted set, by score, with scores ordered from high to low.

Raises

- **TypeError** – if min or max is not float or int
- **TypeError** – if both offset and count are not specified
- **TypeError** – if offset is not int
- **TypeError** – if count is not int

zrevrank (*key*, *member*)

Determine the index of a member in a sorted set, with scores ordered from high to low.

zscan (*key*, *cursor*=0, *match*=None, *count*=None)

Incrementally iterate sorted sets elements and associated scores.

zscore (*key*, *member*)

Get the score associated with the given member in a sorted set.

zunionstore (*destkey*, *key*, **keys*, *with_weights*=False, *aggregate*=None)

Add multiple sorted sets and store result in a new key.

7.3.8 Server commands

class aioredis.commands.ServerCommandsMixin

Server commands mixin.

For commands details see: <http://redis.io/commands/#server>

bgrewriteaof ()

Asynchronously rewrite the append-only file.

bgsave ()

Asynchronously save the dataset to disk.

client_getname (*encoding=<object object>*)
Get the current connection name.

client_kill ()
Kill the connection of a client.

Warning: Not Implemented

client_list ()
Get the list of client connections.

Returns list of ClientInfo named tuples.

client_pause (*timeout*)
Stop processing commands from clients for *timeout* milliseconds.

Raises

- **TypeError** – if timeout is not int
- **ValueError** – if timeout is less than 0

client_setname (*name*)
Set the current connection name.

command ()
Get array of Redis commands.

command_count ()
Get total number of Redis commands.

command_getkeys (*command, *args, encoding='utf-8'*)
Extract keys given a full Redis command.

command_info (*command, *commands*)
Get array of specific Redis command details.

config_get (*parameter='*'*)
Get the value of a configuration parameter(s).

If called without argument will return all parameters.

Raises **TypeError** – if parameter is not string

config_resetstat ()
Reset the stats returned by INFO.

config_rewrite ()
Rewrite the configuration file with the in memory configuration.

config_set (*parameter, value*)
Set a configuration parameter to the given value.

dbsize ()
Return the number of keys in the selected database.

debug_object (*key*)
Get debugging information about a key.

debug_segfault (*key*)
Make the server crash.

debug_sleep (*timeout*)

Suspend connection for timeout seconds.

flushall (*async_op=False*)

Remove all keys from all databases.

Parameters **async_op** – lets the entire dataset to be freed asynchronously. Defaults to False

flushdb (*async_op=False*)

Remove all keys from the current database.

Parameters **async_op** – lets a single database to be freed asynchronously. Defaults to False

info (*section='default'*)

Get information and statistics about the server.

If called without argument will return default set of sections. For available sections, see <http://redis.io/commands/INFO>

Raises **ValueError** – if section is invalid

lastsave ()

Get the UNIX time stamp of the last successful save to disk.

monitor ()

Listen for all requests received by the server in real time.

Warning: Will not be implemented for now.

role ()

Return the role of the server instance.

Returns named tuples describing role of the instance. For fields information see <http://redis.io/commands/role#output-format>

save ()

Synchronously save the dataset to disk.

shutdown (*save=None*)

Synchronously save the dataset to disk and then shut down the server.

slaveof (*host, port=None*)

Make the server a slave of another instance, or promote it as master.

Calling `slaveof (None)` will send `SLAVEOF NO ONE`.

Changed in version v0.2.6: `slaveof ()` form deprecated in favour of explicit `slaveof (None)`.

slowlog_get (*length=None*)

Returns the Redis slow queries log.

slowlog_len ()

Returns length of Redis slow queries log.

slowlog_reset ()

Resets Redis slow queries log.

sync ()

Redis-server internal command used for replication.

time ()

Return current server time.

7.3.9 HyperLogLog commands

class aioredis.commands.HyperLogLogCommandsMixin
HyperLogLog commands mixin.

For commands details see: <http://redis.io/commands#hyperloglog>

pfadd (*key*, *value*, **values*)

Adds the specified elements to the specified HyperLogLog.

pfcount (*key*, **keys*)

Return the approximated cardinality of the set(s) observed by the HyperLogLog at key(s).

pfmerge (*destkey*, *sourcekey*, **sourcekeys*)

Merge N different HyperLogLogs into a single one.

7.3.10 Transaction commands

class aioredis.commands.TransactionsCommandsMixin
Transaction commands mixin.

For commands details see: <http://redis.io/commands/#transactions>

Transactions HOWTO:

```
>>> tr = redis.multi_exec()
>>> result_future1 = tr.incr('foo')
>>> result_future2 = tr.incr('bar')
>>> try:
...     result = await tr.execute()
... except MultiExecError:
...     pass      # check what happened
>>> result1 = await result_future1
>>> result2 = await result_future2
>>> assert result == [result1, result2]
```

multi_exec ()

Returns MULTI/EXEC pipeline wrapper.

Usage:

```
>>> tr = redis.multi_exec()
>>> fut1 = tr.incr('foo')    # NO `await` as it will block forever!
>>> fut2 = tr.incr('bar')
>>> result = await tr.execute()
>>> result
[1, 1]
>>> await asyncio.gather(fut1, fut2)
[1, 1]
```

pipeline ()

Returns *Pipeline* object to execute bulk of commands.

It is provided for convenience. Commands can be pipelined without it.

Example:

```
>>> pipe = redis.pipeline()
>>> fut1 = pipe.incr('foo') # NO `await` as it will block forever!
>>> fut2 = pipe.incr('bar')
>>> result = await pipe.execute()
>>> result
[1, 1]
>>> await asyncio.gather(fut1, fut2)
[1, 1]
>>> #
>>> # The same can be done without pipeline:
>>> #
>>> fut1 = redis.incr('foo') # the 'INCR foo' command already sent
>>> fut2 = redis.incr('bar')
>>> await asyncio.gather(fut1, fut2)
[2, 2]
```

unwatch()

Forget about all watched keys.

watch(key, *keys)

Watch the given keys to determine execution of the MULTI/EXEC block.

class aioredis.commands.**Pipeline**(connection, commands_factory=lambda conn: conn, *, loop=None)

Commands pipeline.

Buffers commands for execution in bulk.

This class implements `__getattr__` method allowing to call methods on instance created with `commands_factory`.

Parameters

- **connection** (aioredis.RedisConnection) – Redis connection
- **commands_factory** (callable) – Commands factory to get methods from.
- **loop** (EventLoop) – An optional event loop instance (uses `asyncio.get_event_loop()` if not specified).

coroutine **execute** (*, return_exceptions=False)

Executes all buffered commands and returns result.

Any exception that is raised by any command is caught and raised later when processing results.

If `return_exceptions` is set to `True` then all collected errors are returned in resulting list otherwise single `aioredis.PipelineError` exception is raised (containing all collected errors).

Parameters **return_exceptions** (bool) – Raise or return exceptions.

Raises `aioredis.PipelineError` – Raised when any command caused error.

class aioredis.commands.**MultiExec**(connection, commands_factory=lambda conn: conn, *, loop=None)

Bases: `Pipeline`.

Multi/Exec pipeline wrapper.

See `Pipeline` for parameters description.

coroutine **execute** (*, return_exceptions=False)

Executes all buffered commands and returns result.

see `Pipeline.execute()` for details.

Parameters **return_exceptions** (*bool*) – Raise or return exceptions.

Raises

- ***aioredis.MultiExecError*** – Raised instead of *aioredis.PipelineError*
- ***aioredis.WatchVariableError*** – If watched variable is changed

7.3.11 Scripting commands

class `aioredis.commands.ScriptingCommandsMixin`
Set commands mixin.

For commands details see: <http://redis.io/commands#scripting>

eval (*script*, *keys=[]*, *args=[]*)
Execute a Lua script server side.

evalsha (*digest*, *keys=[]*, *args=[]*)
Execute a Lua script server side by its SHA1 digest.

script_exists (*digest*, **digests*)
Check existence of scripts in the script cache.

script_flush ()
Remove all the scripts from the script cache.

script_kill ()
Kill the script currently in execution.

script_load (*script*)
Load the specified Lua script into the script cache.

7.3.12 Server commands

class `aioredis.commands.ServerCommandsMixin`
Server commands mixin.

For commands details see: <http://redis.io/commands/#server>

bgrewriteaof ()
Asynchronously rewrite the append-only file.

bgsave ()
Asynchronously save the dataset to disk.

client_getname (*encoding=<object object>*)
Get the current connection name.

client_kill ()
Kill the connection of a client.

Warning: Not Implemented

client_list ()
Get the list of client connections.
Returns list of ClientInfo named tuples.

client_pause (*timeout*)

Stop processing commands from clients for *timeout* milliseconds.

Raises

- **TypeError** – if timeout is not int
- **ValueError** – if timeout is less than 0

client_setname (*name*)

Set the current connection name.

command ()

Get array of Redis commands.

command_count ()

Get total number of Redis commands.

command_getkeys (*command*, **args*, *encoding*='utf-8')

Extract keys given a full Redis command.

command_info (*command*, **commands*)

Get array of specific Redis command details.

config_get (*parameter*='*')

Get the value of a configuration parameter(s).

If called without argument will return all parameters.

Raises **TypeError** – if parameter is not string

config_resetstat ()

Reset the stats returned by INFO.

config_rewrite ()

Rewrite the configuration file with the in memory configuration.

config_set (*parameter*, *value*)

Set a configuration parameter to the given value.

dbsize ()

Return the number of keys in the selected database.

debug_object (*key*)

Get debugging information about a key.

debug_segfault (*key*)

Make the server crash.

debug_sleep (*timeout*)

Suspend connection for timeout seconds.

flushall (*async_op*=False)

Remove all keys from all databases.

Parameters **async_op** – lets the entire dataset to be freed asynchronously. Defaults to False

flushdb (*async_op*=False)

Remove all keys from the current database.

Parameters **async_op** – lets a single database to be freed asynchronously. Defaults to False

info (*section*='default')

Get information and statistics about the server.

If called without argument will return default set of sections. For available sections, see <http://redis.io/commands/INFO>

Raises **ValueError** – if section is invalid

lastsave()

Get the UNIX time stamp of the last successful save to disk.

monitor()

Listen for all requests received by the server in real time.

<p>Warning: Will not be implemented for now.</p>

role()

Return the role of the server instance.

Returns named tuples describing role of the instance. For fields information see <http://redis.io/commands/role#output-format>

save()

Synchronously save the dataset to disk.

shutdown (*save=None*)

Synchronously save the dataset to disk and then shut down the server.

slaveof (*host, port=None*)

Make the server a slave of another instance, or promote it as master.

Calling `slaveof(None)` will send `SLAVEOF NO ONE`.

Changed in version v0.2.6: `slaveof()` form deprecated in favour of explicit `slaveof(None)`.

slowlog_get (*length=None*)

Returns the Redis slow queries log.

slowlog_len()

Returns length of Redis slow queries log.

slowlog_reset()

Resets Redis slow queries log.

sync()

Redis-server internal command used for replication.

time()

Return current server time.

7.3.13 Pub/Sub commands

Also see *aioredis.Channel*.

class `aioredis.commands.PubSubCommandsMixin`

Pub/Sub commands mixin.

For commands details see: <http://redis.io/commands/#pubsub>

property `channels`

Returns read-only channels dict.

See *pubsub_channels*

property in_pubsub

Indicates that connection is in PUB/SUB mode.

Provides the number of subscribed channels.

property patterns

Returns read-only patterns dict.

See [*pubsub_patterns*](#)

psubscribe (*pattern*, **patterns*)

Switch connection to Pub/Sub mode and subscribe to specified patterns.

Arguments can be instances of [*Channel*](#).

Returns `asyncio.gather()` coroutine which when done will return a list of subscribed [*Channel*](#) objects with `is_pattern` property set to `True`.

publish (*channel*, *message*)

Post a message to channel.

publish_json (*channel*, *obj*)

Post a JSON-encoded message to channel.

pubsub_channels (*pattern=None*)

Lists the currently active channels.

pubsub_numpat ()

Returns the number of subscriptions to patterns.

pubsub_numsub (**channels*)

Returns the number of subscribers for the specified channels.

punsubscribe (*pattern*, **patterns*)

Unsubscribe from specific patterns.

Arguments can be instances of [*Channel*](#).

subscribe (*channel*, **channels*)

Switch connection to Pub/Sub mode and subscribe to specified channels.

Arguments can be instances of [*Channel*](#).

Returns `asyncio.gather()` coroutine which when done will return a list of [*Channel*](#) objects.

unsubscribe (*channel*, **channels*)

Unsubscribe from specific channels.

Arguments can be instances of [*Channel*](#).

7.3.14 Cluster commands

Warning: Current release (1.3.0) of the library **does not support** [Redis Cluster](#) in a full manner. It provides only several API methods which may be changed in future.

7.3.15 Streams commands

class aioredis.commands.**StreamCommandsMixin**

Stream commands mixin

Streams are available in Redis since v5.0

xack (*stream, group_name, id, *ids*)

Acknowledge a message for a given consumer group

xadd (*stream, fields, message_id=b'*, max_len=None, exact_len=False*)

Add a message to a stream.

xclaim (*stream, group_name, consumer_name, min_idle_time, id, *ids*)

Claim a message for a given consumer

xdel (*stream, id*)

Removes the specified entries(IDs) from a stream

xgroup_create (*stream, group_name, latest_id='\$', mkstream=False*)

Create a consumer group

xgroup_delconsumer (*stream, group_name, consumer_name*)

Delete a specific consumer from a group

xgroup_destroy (*stream, group_name*)

Delete a consumer group

xgroup_setid (*stream, group_name, latest_id='\$'*)

Set the latest ID for a consumer group

xinfo (*stream*)

Retrieve information about the given stream.

An alias for `xinfo_stream()`

xinfo_consumers (*stream, group_name*)

Retrieve consumers of a consumer group

xinfo_groups (*stream*)

Retrieve the consumer groups for a stream

xinfo_help ()

Retrieve help regarding the XINFO sub-commands

xinfo_stream (*stream*)

Retrieve information about the given stream.

xlen (*stream*)

Returns the number of entries inside a stream

xpending (*stream, group_name, start=None, stop=None, count=None, consumer=None*)

Get information on pending messages for a stream

Returned data will vary depending on the presence (or not) of the start/stop/count parameters. For more details see: <https://redis.io/commands/xpending>

Raises `ValueError` – if the start/stop/count parameters are only partially specified

xrange (*stream, start='-', stop='+', count=None*)

Retrieve messages from a stream.

xread (*streams, timeout=0, count=None, latest_ids=None*)

Perform a blocking read on the given stream

Raises `ValueError` – if the length of streams and latest_ids do not match

xread_group (*group_name, consumer_name, streams, timeout=0, count=None, latest_ids=None, no_ack=False*)

Perform a blocking read on the given stream as part of a consumer group

Raises **ValueError** – if the length of streams and latest_ids do not match

xrevrange (*stream*, *start*='+', *stop*='-', *count*=None)

Retrieve messages from a stream in reverse order.

xtrim (*stream*, *max_len*, *exact_len*=False)

trims the stream to a given number of items, evicting older items

7.4 aioredis.abc — Interfaces Reference

This module defines several abstract classes that must be used when implementing custom connection managers or other features.

class aioredis.abc.AbcConnection

Bases: `abc.ABC`

Abstract connection interface.

abstract property address

Connection address.

abstract close ()

Perform connection(s) close and resources cleanup.

abstract property closed

Flag indicating if connection is closing or already closed.

abstract property db

Current selected DB index.

abstract property encoding

Current set connection codec.

abstract execute (*command*, **args*, ***kwargs*)

Execute redis command.

abstract execute_pubsub (*command*, **args*, ***kwargs*)

Execute Redis (p)subscribe/(p)unsubscribe commands.

abstract property in_pubsub

Returns number of subscribed channels.

Can be tested as bool indicating Pub/Sub mode state.

abstract property pubsub_channels

Read-only channels dict.

abstract property pubsub_patterns

Read-only patterns dict.

class aioredis.abc.AbcPool

Bases: `aioredis.abc.AbcConnection`

Abstract connections pool interface.

Inherited from `AbcConnection` so both have common interface for executing Redis commands.

abstract property address

Connection address or None.

abstract get_connection ()

Gets free connection from pool in a sync way.

If no connection available — returns None.

abstract release (*conn*)
Releases connection to pool.

Parameters *conn* (*AbcConnection*) – Owned connection to be released.

class aioredis.abc.AbcChannel

Bases: *abc.ABC*

Abstract Pub/Sub Channel interface.

abstract close (*exc=None*)
Marks Channel as closed, no more messages will be sent to it.

Called by RedisConnection when channel is unsubscribed or connection is closed.

abstract property is_active
Flag indicating that channel has unreceived messages and not marked as closed.

abstract property is_pattern
Boolean flag indicating if channel is pattern channel.

abstract property name
Encoded channel name or pattern.

abstract put_nowait (*data*)
Send data to channel.

Called by RedisConnection when new message received. For pattern subscriptions data will be a tuple of channel name and message itself.

7.5 aioredis.pubsub — Pub/Sub Tools Reference

Module provides a Pub/Sub listener interface implementing multi-producers, single-consumer queue pattern.

class aioredis.pubsub.Receiver (*loop=None, on_close=None*)

Multi-producers, single-consumer Pub/Sub queue.

Can be used in cases where a single consumer task must read messages from several different channels (where pattern subscriptions may not work well or channels can be added/removed dynamically).

Example use case:

```
>>> from aioredis.pubsub import Receiver
>>> from aioredis.abc import AbcChannel
>>> mpsc = Receiver(loop=loop)
>>> async def reader(mpsc):
...     async for channel, msg in mpsc.iter():
...         assert isinstance(channel, AbcChannel)
...         print("Got {!r} in channel {!r}".format(msg, channel))
>>> asyncio.ensure_future(reader(mpsc))
>>> await redis.subscribe(mpsc.channel('channel:1'),
...                       mpsc.channel('channel:3'))
...                       mpsc.channel('channel:5'))
>>> await redis.psubscribe(mpsc.pattern('hello'))
>>> # publishing 'Hello world' into 'hello-channel'
>>> # will print this message:
Got b'Hello world' in channel b'hello-channel'
>>> # when all is done:
```

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```
>>> await redis.unsubscribe('channel:1', 'channel:3', 'channel:5')
>>> await redis.punsubscribe('hello')
>>> mpsc.stop()
>>> # any message received after stop() will be ignored.
```

Warning: Currently subscriptions implementation has few issues that will be solved eventually, but until then developer must be aware of the following:

- Single `Receiver` instance can not be shared between two (or more) connections (or client instances) because any of them can close `_Sender`.
- Several `Receiver` instances can not subscribe to the same channel or pattern. This is a flaw in subscription mode implementation: subsequent subscriptions to some channel always return first-created `Channel` object.

channel (*name*)

Create a channel.

Returns `_Sender` object implementing `AbcChannel`.

property channels

Read-only channels dict.

check_stop (*channel*, *exc=None*)

TBD

property is_active

Returns True if listener has any active subscription.

iter (*, *encoding=None*, *decoder=None*)

Returns async iterator.

Usage example:

```
>>> async for ch, msg in mpsc.iter():
...     print(ch, msg)
```

pattern (*pattern*)

Create a pattern channel.

Returns `_Sender` object implementing `AbcChannel`.

property patterns

Read-only patterns dict.

stop ()

Stop receiving messages.

All new messages after this call will be ignored, so you must call `unsubscribe` before stopping this listener.

class `aioredis.pubsub._Sender` (*receiver*, *name*, *is_pattern*)

Write-Only Channel.

Does not allow direct `.get()` calls.

Bases: `aioredis.abc.AbcChannel`

Not to be used directly, returned by `Receiver.channel()` or `Receiver.pattern()` calls.

7.6 aioredis.sentinel — Sentinel Client Reference

This section contains reference for Redis Sentinel client.

Sample usage:

```
import aioredis

sentinel = await aioredis.create_sentinel(
    [('sentinel.host1', 26379), ('sentinel.host2', 26379)])

redis = sentinel.master_for('mymaster')
assert await redis.set('key', 'value')
assert await redis.get('key', encoding='utf-8') == 'value'

# redis client will reconnect/reconfigure automatically
# by sentinel client instance
```

7.6.1 RedisSentinel

coroutine `aioredis.sentinel.create_sentinel`(*sentinels*, *, *db=None*, *password=None*, *encoding=None*, *minsize=1*, *maxsize=10*, *ssl=None*, *parser=None*, *loop=None*)

Creates Redis Sentinel client.

Parameters

- **sentinels** (*list[tuple]*) – A list of Sentinel node addresses.
- **db** (*int*) – Redis database index to select for every master/slave connections.
- **password** (*str or bytes or None*) – Password to use if Redis server instance requires authorization.
- **encoding** (*str or None*) – Codec to use for response decoding.
- **minsize** (*int*) – Minimum number of connections (to master or slave) to initialize and keep in pool. Default is 1.
- **maxsize** (*int*) – Maximum number of connections (to master or slave) that can be created in pool. Default is 10.
- **ssl** (*ssl.SSLContext or True or None*) – SSL context that is passed through to `asyncio.BaseEventLoop.create_connection()`.
- **parser** (*callable or None*) – Protocol parser class. Can be used to set custom protocol reader; expected same interface as `hiredis.Reader`.
- **loop** (*EventLoop*) – An optional *event loop* instance (uses `asyncio.get_event_loop()` if not specified).

Return type *RedisSentinel*

class `aioredis.sentinel.RedisSentinel`

Redis Sentinel client.

The class provides interface to Redis Sentinel commands as well as few methods to acquire managed Redis clients, see below.

closed

True if client is closed.

master_for (*name*)

Get *Redis* client to named master. The client is instantiated with special connections pool which is controlled by *SentinelPool*. **This method is not a coroutine.**

Parameters *name* (*str*) – Service name.

Return type *aioredis.Redis*

slave_for (*name*)

Get *Redis* client to named slave. The client is instantiated with special connections pool which is controlled by *SentinelPool*. **This method is not a coroutine.**

Parameters *name* (*str*) – Service name.

Return type *aioredis.Redis*

execute (*command*, **args*, ***kwargs*)

Execute Sentinel command. Every command is prefixed with SENTINEL automatically.

Return type *asyncio.Future*

coroutine ping ()

Send PING to Sentinel instance. Currently the ping command will be sent to first sentinel in pool, this may change in future.

master (*name*)

Returns a dictionary containing the specified master's state. Please refer to Redis documentation for more info on returned data.

Return type *asyncio.Future*

master_address (*name*)

Returns a (*host*, *port*) pair for the given service name.

Return type *asyncio.Future*

masters ()

Returns a list of dictionaries containing all masters' states.

Return type *asyncio.Future*

slaves (*name*)

Returns a list of slaves for the given service name.

Return type *asyncio.Future*

sentinels (*name*)

Returns a list of Sentinels for the given service name.

Return type *asyncio.Future*

monitor (*name*, *ip*, *port*, *quorum*)

Add a new master to be monitored by this Sentinel.

Parameters

- **name** (*str*) – Service name.
- **ip** (*str*) – New node's IP address.
- **port** (*int*) – Node's TCP port.
- **quorum** (*int*) – Sentinel quorum.

remove (*name*)

Remove a master from Sentinel's monitoring.

Parameters `name (str)` – Service name

set (`name, option, value`)

Set Sentinel monitoring parameter for a given master. Please refer to Redis documentation for more info on options.

Parameters

- **name** (`str`) – Master’s name.
- **option** (`str`) – Monitoring option name.
- **value** (`str`) – Monitoring option value.

failover (`name`)

Force a failover of a named master.

Parameters `name (str)` – Master’s name.

check_quorum (`name`)

Check if the current Sentinel configuration is able to reach the quorum needed to failover a master, and the majority needed to authorize the failover.

Parameters `name (str)` – Master’s name.

close ()

Close all opened connections.

coroutine wait_closed ()

Wait until all connections are closed.

7.6.2 SentinelPool

Warning: This API has not yet stabilized and may change in future releases.

```
coroutine aioredis.sentinel.create_sentinel_pool(sentinels, *, db=None, password=None, encoding=None,
                                                    minsize=1, maxsize=10, ssl=None,
                                                    parser=None, loop=None)
```

Creates Sentinel connections pool.

class aioredis.sentinel.SentinelPool

Sentinel connections pool.

This pool manages both sentinel connections and Redis master/slave connections.

closed

True if pool and all connections are closed.

master_for (`name`)

Returns a managed connections pool for requested service name.

Parameters `name (str)` – Service name.

Return type ManagedPool

slave_for (`name`)

Returns a managed connections pool for requested service name.

Parameters `name (str)` – Service name.

Return type `ManagedPool`

execute (*command*, **args*, ***kwargs*)
Execute Sentinel command.

coroutine discover (*timeout=0.2*)
Discover Sentinels and all monitored services within given timeout.
This will reset internal state of this pool.

coroutine discover_master (*service*, *timeout*)
Perform named master discovery.

Parameters

- **service** (*str*) – Service name.
- **timeout** (*float*) – Operation timeout

Return type `aioredis.RedisConnection`

coroutine discover_slave (*service*, *timeout*)
Perform slave discovery.

Parameters

- **service** (*str*) – Service name.
- **timeout** (*float*) – Operation timeout

Return type `aioredis.RedisConnection`

close ()
Close all controlled connections (both to sentinel and redis).
coroutine wait_closed ()
Wait until pool gets closed.

7.7 Examples of aioredis usage

Below is a list of examples from [aioredis/examples](#) (see for more).

Every example is a correct python program that can be executed.

7.7.1 Commands example

get source code

```
import asyncio
import aioredis

async def main():
    # Redis client bound to single connection (no auto reconnection).
    redis = await aioredis.create_redis(
        'redis://localhost')
    await redis.set('my-key', 'value')
    val = await redis.get('my-key')
    print(val)
```

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```

    # gracefully closing underlying connection
    redis.close()
    await redis.wait_closed()

async def redis_pool():
    # Redis client bound to pool of connections (auto-reconnecting).
    redis = await aioredis.create_redis_pool(
        'redis://localhost')
    await redis.set('my-key', 'value')
    val = await redis.get('my-key')
    print(val)

    # gracefully closing underlying connection
    redis.close()
    await redis.wait_closed()

if __name__ == '__main__':
    asyncio.run(main())
    asyncio.run(redis_pool())

```

7.7.2 Transaction example

[get source code](#)

```

import asyncio
import aioredis

async def main():
    redis = await aioredis.create_redis(
        'redis://localhost')
    await redis.delete('foo', 'bar')
    tr = redis.multi_exec()
    fut1 = tr.incr('foo')
    fut2 = tr.incr('bar')
    res = await tr.execute()
    res2 = await asyncio.gather(fut1, fut2)
    print(res)
    assert res == res2

    redis.close()
    await redis.wait_closed()

if __name__ == '__main__':
    asyncio.run(main())

```

7.7.3 Pub/Sub example

[get source code](#)

```
import asyncio
import aioredis

async def reader(ch):
    while (await ch.wait_message()):
        msg = await ch.get_json()
        print("Got Message:", msg)

async def main():
    pub = await aioredis.create_redis(
        'redis://localhost')
    sub = await aioredis.create_redis(
        'redis://localhost')
    res = await sub.subscribe('chan:1')
    chl = res[0]

    tsk = asyncio.ensure_future(reader(chl))

    res = await pub.publish_json('chan:1', ["Hello", "world"])
    assert res == 1

    await sub.unsubscribe('chan:1')
    await tsk
    sub.close()
    pub.close()

if __name__ == '__main__':
    asyncio.run(main())
```

7.7.4 Scan command example

get source code

```
import asyncio
import aioredis

async def main():
    """Scan command example."""
    redis = await aioredis.create_redis(
        'redis://localhost')

    await redis.mset('key:1', 'value1', 'key:2', 'value2')
    cur = b'0' # set initial cursor to 0
    while cur:
        cur, keys = await redis.scan(cur, match='key:*')
        print("Iteration results:", keys)

    redis.close()
    await redis.wait_closed()

if __name__ == '__main__':
```

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```
import os
if 'redis_version:2.6' not in os.environ.get('REDIS_VERSION', ''):
    asyncio.run(main())
```

7.7.5 Sentinel client

get source code

```
import asyncio
import aioredis

async def main():
    sentinel_client = await aioredis.create_sentinel(
        [('localhost', 26379)])

    master_redis = sentinel_client.master_for('mymaster')
    info = await master_redis.role()
    print("Master role:", info)
    assert info.role == 'master'

    sentinel_client.close()
    await sentinel_client.wait_closed()

if __name__ == '__main__':
    asyncio.run(main())
```

7.7.6 Low-level connection usage example

get source code

```
import asyncio
import aioredis

async def main():
    conn = await aioredis.create_connection(
        'redis://localhost', encoding='utf-8')

    ok = await conn.execute('set', 'my-key', 'some value')
    assert ok == 'OK', ok

    str_value = await conn.execute('get', 'my-key')
    raw_value = await conn.execute('get', 'my-key', encoding=None)
    assert str_value == 'some value'
    assert raw_value == b'some value'

    print('str value:', str_value)
    print('raw value:', raw_value)

    # optionally close connection
    conn.close()
```

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```
    await conn.wait_closed()

if __name__ == '__main__':
    asyncio.run(main())
```

7.7.7 Connections pool example

get source code

```
import asyncio
import aioredis

async def main():
    pool = await aioredis.create_pool(
        'redis://localhost',
        minsize=5, maxsize=10)
    with await pool as conn:      # low-level redis connection
        await conn.execute('set', 'my-key', 'value')
        val = await conn.execute('get', 'my-key')
    print('raw value:', val)
    pool.close()
    await pool.wait_closed()     # closing all open connections

if __name__ == '__main__':
    asyncio.run(main())
```

7.8 Contributing

To start contributing you must read all the following.

First you must fork/clone repo from [github](#):

```
$ git clone git@github.com:aio-libs/aioredis.git
```

Next, you should install all python dependencies, it is as easy as running single command:

```
$ make devel
```

this command will install:

- sphinx for building documentation;
- pytest for running tests;
- flake8 for code linting;
- and few other packages.

Make sure you have provided a towncrier note. Just add short description running following commands:

```
$ echo "Short description" > CHANGES/filename.type
```

This will create new file in `CHANGES` directory. Filename should consist of the ticket ID or other unique identifier. Five default types are:

- `.feature` - signifying new feature
- `.bugfix` - signifying a bug fix
- `.doc` - documentation improvement
- `.removal` - deprecation or removal of public API
- `.misc` - a ticket has been closed, but not in interest of users

You can check if everything is correct by typing:

```
$ towncrier --draft
```

To produce the news file:

```
$ towncrier
```

7.8.1 Code style

Code **must** be pep8 compliant.

You can check it with following command:

```
$ make flake
```

7.8.2 Running tests

You can run tests in any of the following ways:

```
# will run tests in a verbose mode
$ make test
# or
$ pytest

# or with particular Redis server
$ pytest --redis-server=/usr/local/bin/redis-server tests/errors_test.py

# will run tests with coverage report
$ make cov
# or
$ pytest --cov
```

SSL tests

Running SSL tests requires following additional programs to be installed:

- `openssl` – to generate test key and certificate;
- `socat` – to make SSL proxy;

To install these on Ubuntu and generate test key & certificate run:

```
$ sudo apt-get install socat openssl
$ make certificate
```

Different Redis server versions

To run tests against different redises use `--redis-server` command line option:

```
$ pytest --redis-server=/path/to/custom/redis-server
```

UVLoop

To run tests with *uvloop*:

```
$ pip install uvloop
$ pytest --uvloop
```

Note: Until Python 3.5.2 EventLoop has no `create_future` method so aioredis won't benefit from uvloop's futures.

7.8.3 Writing tests

aioredis uses *pytest* tool.

Tests are located under `/tests` directory.

Fixtures

There is a number of fixtures that can be used to write tests:

loop

Current event loop used for test. This is a function-scope fixture. Using this fixture will always create new event loop and set global one to None.

```
def test_with_loop(loop):
    @asyncio.coroutine
    def do_something():
        pass
    loop.run_until_complete(do_something())
```

unused_port()

Finds and returns free TCP port.

```
def test_bind(unused_port):
    port = unused_port()
    assert 1024 < port <= 65535
```

coroutine create_connection(*args, **kw)

Wrapper around *aioredis.create_connection()*. Only difference is that it registers connection to be closed after test case, so you should not be worried about unclosed connections.

coroutine create_redis (*args, **kw)
 Wrapper around `aioredis.create_redis()`.

coroutine create_pool (*args, **kw)
 Wrapper around `aioredis.create_pool()`.

redis
 Redis client instance.

pool
 RedisPool instance.

server
 Redis server instance info. Namedtuple with following properties:

- name** server instance name.
- port** Bind port.
- unixsocket** Bind unixsocket path.
- version** Redis server version tuple.

serverB
 Second predefined Redis server instance info.

start_server (name)
 Start Redis server instance. Redis instances are cached by name.

Returns server info tuple, see `server`.

Return type tuple

ssl_proxy (unsecure_port)
 Start SSL proxy.

Parameters **unsecure_port** (int) – Redis server instance port

Returns secure_port and ssl_context pair

Return type tuple

Helpers

`aioredis` have `_testutils` module with several helpers.

`_testutils.redis_version` (*version, reason)
 Marks test with minimum redis version to run.

Example:

```
@redis_version(3, 2, 0, reason="HSTRLEN new in redis 3.2.0")
def test_hstrlen(redis):
    pass
```

`_testutils.logs` (logger, level=None)

Example:

```
import pytest

@pytest.mark.run_loop
async def test_logs(create_connection, server):
```

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```

with _testutils.logs('aioredis', 'DEBUG') as cm:
    conn = await create_connection(server.tcp_address)
assert cm.output[0].startswith(
    'DEBUG:aioredis:Creating tcp connection')

```

`_testutils.assert_almost_equal` (*first, second, places=None, msg=None, delta=None*)

Adopted version of `unittest.TestCase.assertAlmostEqual()`.

7.9 Migrating from v0.3 to v1.0

API changes and backward incompatible changes:

- *aioredis.create_pool*
- *aioredis.create_reconnecting_redis*
- *aioredis.Redis*
- *Blocking operations and connection sharing*
- *Sorted set commands return values*
- *Hash hscan command now returns list of tuples*

7.9.1 aioredis.create_pool

`create_pool()` now returns *ConnectionsPool* instead of *RedisPool*.

This means that pool now operates with *RedisConnection* objects and not *Redis*.

v0.3	<pre> pool = await aioredis.create_pool((↪ 'localhost', 6379)) with await pool as redis: # calling methods of Redis class await redis.lpush('list-key', 'item1 ↪', 'item2') </pre>
v1.0	<pre> pool = await aioredis.create_pool((↪ 'localhost', 6379)) with await pool as conn: # calling conn.lpush will raise ↪ AttributeError exception await conn.execute('lpush', 'list-key ↪', 'item1', 'item2') </pre>

7.9.2 aioredis.create_reconnecting_redis

`create_reconnecting_redis()` has been dropped.

`create_redis_pool()` can be used instead of former function.

v0.3	<pre>redis = await aioredis.create_ ↪reconnecting_redis(('localhost', 6379)) await redis.lpush('list-key', 'item1', ↪'item2')</pre>
v1.0	<pre>redis = await aioredis.create_redis_pool(('localhost', 6379)) await redis.lpush('list-key', 'item1', ↪'item2')</pre>

`create_redis_pool` returns *Redis* initialized with `ConnectionsPool` which is responsible for reconnecting to server.

Also `create_reconnecting_redis` was patching the `RedisConnection` and breaking `closed` property (it was always `True`).

7.9.3 aioredis.Redis

Redis class now operates with objects implementing `aioredis.abc.AbcConnection` interface. *RedisConnection* and *ConnectionsPool* are both implementing `AbcConnection` so it is become possible to use same API when working with either single connection or connections pool.

v0.3	<pre> redis = await aioredis.create_redis((↪ 'localhost', 6379)) await redis.lpush('list-key', 'item1', ↪ 'item2') pool = await aioredis.create_pool((↪ 'localhost', 6379)) redis = await pool.acquire() # get_ ↪ Redis object await redis.lpush('list-key', 'item1', ↪ 'item2') </pre>
v1.0	<pre> redis = await aioredis.create_redis((↪ 'localhost', 6379)) await redis.lpush('list-key', 'item1', ↪ 'item2') redis = await aioredis.create_redis_ ↪ pool(('localhost', 6379)) await redis.lpush('list-key', 'item1', ↪ 'item2') </pre>

7.9.4 Blocking operations and connection sharing

Current implementation of `ConnectionsPool` by default **execute every command on random connection**. The *Pros* of this is that it allowed implementing `AbcConnection` interface and hide pool inside `Redis` class, and also keep pipelining feature (like `RedisConnection.execute`). The *Cons* of this is that **different tasks may use same connection and block it** with some long-running command.

We can call it **Shared Mode** — commands are sent to random connections in pool without need to lock [connection]:

```

redis = await aioredis.create_redis_pool(
    ('localhost', 6379),
    minsize=1,
    maxsize=1)

async def task():
    # Shared mode
    await redis.set('key', 'val')

asyncio.ensure_future(task())
asyncio.ensure_future(task())
# Both tasks will send commands through same connection
# without acquiring (locking) it first.

```

Blocking operations (like `blpop`, `brpop` or long-running LUA scripts) in **shared mode** mode will block connection and thus may lead to whole program malfunction.

This *blocking* issue can be easily solved by using exclusive connection for such operations:

```

redis = await aioredis.create_redis_pool(
    ('localhost', 6379),
    minsize=1,

```

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```

maxsize=1)

async def task():
    # Exclusive mode
    with await redis as r:
        await r.set('key', 'val')
    asyncio.ensure_future(task())
    asyncio.ensure_future(task())
    # Both tasks will first acquire connection.

```

We can call this **Exclusive Mode** — context manager is used to acquire (lock) exclusive connection from pool and send all commands through it.

Note: This technique is similar to v0.3 pool usage:

```

# in aioredis v0.3
pool = await aioredis.create_pool(('localhost', 6379))
with await pool as redis:
    # Redis is bound to exclusive connection
    redis.set('key', 'val')

```

7.9.5 Sorted set commands return values

Sorted set commands (like `zrange`, `zrevrange` and others) that accept `withscores` argument now **return list of tuples** instead of plain list.

v0.3	<pre> redis = await aioredis.create_redis((↪ 'localhost', 6379)) await redis.zadd('zset-key', 1, 'one', 2, ↪ 'two') res = await redis.zrange('zset-key', ↵ ↪ withscores=True) assert res == [b'one', 1, b'two', 2] # not an easy way to make a dict it = iter(res) assert dict(zip(it, it)) == {b'one': 1, b ↪ 'two': 2} </pre>
v1.0	<pre> redis = await aioredis.create_redis((↪ 'localhost', 6379)) await redis.zadd('zset-key', 1, 'one', 2, ↪ 'two') res = await redis.zrange('zset-key', ↵ ↪ withscores=True) assert res == [(b'one', 1), (b'two', 2)] # now its easier to make a dict of it assert dict(res) == {b'one': 1, b'two': ↵ ↪ 2} </pre>

7.9.6 Hash `hscan` command now returns list of tuples

`hscan` updated to return a list of tuples instead of plain mixed key/value list.

v0.3	<pre> redis = await aioredis.create_redis((↪ 'localhost', 6379)) await redis.hmset('hash', 'one', 1, 'two' ↪, 2) cur, data = await redis.hscan('hash') assert data == [b'one', b'1', b'two', b'2' ↪] # not an easy way to make a dict it = iter(data) assert dict(zip(it, it)) == {b'one': b'1' ↪, b'two': b'2'}</pre>
v1.0	<pre> redis = await aioredis.create_redis((↪ 'localhost', 6379)) await redis.hmset('hash', 'one', 1, 'two' ↪, 2) cur, data = await redis.hscan('hash') assert data == [(b'one', b'1'), (b'two', ↪ b'2')] # now its easier to make a dict of it assert dict(data) == {b'one': b'1': b'two' ↪: b'2'}</pre>

7.10 Releases

7.10.1 1.3.0 (2019-09-24)

Features

- Added `xdel` and `xtrim` method which missed in `commands/streams.py` & also added unit test code for them (see #438);
- Add `count` argument to `spop` command (see #485);
- Add support for `zpopmax` and `zpopmin` redis commands (see #550);
- Add `towncrier`: change notes are now stored in `CHANGES.txt` (see #576);
- Type hints for the library (see #584);
- A few additions to the sorted set commands:
 - the blocking pop commands: `BZPOPMAX` and `BZPOPMIN`
 - the `CH` and `INCR` options of the `ZADD` command
 (see #618);
- Added `no_ack` parameter to `xread_group` streams method in `commands/streams.py` (see #625);

Bugfixes

- Fix for sensitive logging (see #459);
- Fix slow memory leak in `wait_closed` implementation (see #498);
- Fix handling of instances where Redis returns null fields for a stream message (see #605);

Improved Documentation

- Rewrite “Getting started” documentation. (see #641);

Misc

- #585, #611, #612, #619, #620, #642;

7.10.2 1.2.0 (2018-10-24)

NEW:

- Implemented new Stream command support (see #299);
- Reduce `encode_command()` cost about 60% (see #397);

FIX:

- Fix pipeline commands buffering was causing multiple `sendto` syscalls (see #464 and #473);
- Python 3.7 compatibility fixes (see #426);
- Fix typos in documentation (see #400);
- Fix INFO command result parsing (see #405);
- Fix bug in `ConnectionsPool._drop_closed` method (see #461);

MISC:

- Update dependencies versions;
- Multiple tests improvements;

7.10.3 1.1.0 (2018-02-16)

NEW:

- Implement new commands: `wait`, `touch`, `swapdb`, `unlink` (see #376);
- Add `async_op` argument to `flushall` and `flushdb` commands (see #364, and #370);

FIX:

- **Important!** Fix Sentinel sentinel client with pool `minsize` greater than 1 (see #380);
- Fix `SentinelPool.discover_timeout` usage (see #379);
- Fix Receiver hang on disconnect (see #354, and #366);
- Fix an issue with `subscribe`/`psubscribe` with empty pool (see #351, and #355);
- Fix an issue when `StreamReader`’s `feed_data` is called before `set_parser` (see #347);

MISC:

- Update dependencies versions;
- Multiple test fixes;

7.10.4 1.0.0 (2017-11-17)

NEW:

- **Important!** Drop Python 3.3, 3.4 support; (see [#321](#), [#323](#) and [#326](#));
- **Important!** Connections pool has been refactored; now `create_redis` function will yield `Redis` instance instead of `RedisPool` (see [#129](#));
- **Important!** Change sorted set commands reply format: return list of tuples instead of plain list for commands accepting `withscores` argument (see [#334](#));
- **Important!** Change `hscan` command reply format: return list of tuples instead of mixed key-value list (see [#335](#));
- Implement Redis URI support as supported `address` argument value (see [#322](#));
- Dropped `create_reconnecting_redis`, `create_redis_pool` should be used instead;
- Implement custom `StreamReader` (see [#273](#));
- Implement Sentinel support (see [#181](#));
- Implement pure-python parser (see [#212](#));
- Add `migrate_keys` command (see [#187](#));
- Add `zrevrangebylex` command (see [#201](#));
- Add `command`, `command_count`, `command_getkeys` and `command_info` commands (see [#229](#));
- Add `ping` support in pubsub connection (see [#264](#));
- Add `exist` parameter to `zadd` command (see [#288](#));
- Add `MaxClientsError` and implement `ReplyError` specialization (see [#325](#));
- Add `encoding` parameter to sorted set commands (see [#289](#));

FIX:

- Fix `CancelledError` in `conn._reader_task` (see [#301](#));
- Fix pending commands cancellation with `CancelledError`, use explicit exception instead of calling `cancel()` method (see [#316](#));
- Correct error message on Sentinel discovery of master/slave with password (see [#327](#));
- Fix `bytearray` support as command argument (see [#329](#));
- Fix critical bug in patched `asyncio.Lock` (see [#256](#));
- Fix Multi/Exec transaction canceled error (see [#225](#));
- Add missing arguments to `create_redis` and `create_redis_pool`;
- Fix deprecation warning (see [#191](#));
- Make correct `__aiter__()` (see [#192](#));
- Backward compatibility fix for `with (yield from pool) as conn:` (see [#205](#));

- Fixed pubsub receiver stop() (see #211);

MISC:

- Multiple test fixes;
- Add PyPy3 to build matrix;
- Update dependencies versions;
- Add missing Python 3.6 classifier;

7.10.5 0.3.5 (2017-11-08)**FIX:**

- Fix for indistinguishable futures cancellation with `asyncio.CancelledError` (see #316), cherry-picked from master;

7.10.6 0.3.4 (2017-10-25)**FIX:**

- Fix time command result decoding when using connection-wide encoding setting (see #266);

7.10.7 0.3.3 (2017-06-30)**FIX:**

- Critical bug fixed in patched `asyncio.Lock` (see #256);

7.10.8 0.3.2 (2017-06-21)**NEW:**

- Added `zrevrangebylex` command (see #201), cherry-picked from master;
- Add connection timeout (see #221), cherry-picked from master;

FIX:

- Fixed pool close warning (see #239 and #236), cherry-picked from master;
- Fixed `asyncio.Lock` deadlock issue (see #231 and #241);

7.10.9 0.3.1 (2017-05-09)**FIX:**

- Fix pubsub Receiver missing iter() method (see #203);

7.10.10 0.3.0 (2017-01-11)

NEW:

- Pub/Sub connection commands accept `Channel` instances (see #168);
- Implement new Pub/Sub MPSC (multi-producers, single-consumer) `Queue` – `aioredis.pubsub.Receiver` (see #176);
- Add `aioredis.abc` module providing abstract base classes defining interface for basic lib components; (see #176);
- Implement Geo commands support (see #177 and #179);

FIX:

- Minor tests fixes;

MISC:

- Update examples and docs to use `async/await` syntax also keeping `yield` from examples for history (see #173);
- Reflow Travis CI configuration; add Python 3.6 section (see #170);
- Add AppVeyor integration to run tests on Windows (see #180);
- Update multiple development requirements;

7.10.11 0.2.9 (2016-10-24)

NEW:

- Allow multiple keys in `EXISTS` command (see #156 and #157);

FIX:

- Close `RedisPool` when connection to Redis failed (see #136);
- Add simple `INFO` command argument validation (see #140);
- Remove invalid uses of `next()`

MISC:

- Update `devel.rst` docs; update Pub/Sub Channel docs (cross-refs);
- Update `MANIFEST.in` to include docs, examples and tests in source bundle;

7.10.12 0.2.8 (2016-07-22)

NEW:

- Add `hmset_dict` command (see #130);
- Add `RedisConnection.address` property;
- `RedisPool` `minsize`/`maxsize` must not be `None`;
- Implement `close()/wait_closed()/closed` interface for pool (see #128);

FIX:

- Add test for `hstrlen`;

- Test fixes

MISC:

- Enable Redis 3.2.0 on Travis;
- Add spell checking when building docs (see [#132](#));
- Documentation updated;

7.10.13 0.2.7 (2016-05-27)

- `create_pool()` minsize default value changed to 1;
- Fixed cancellation of `wait_closed` (see [#118](#));
- Fixed `time()` conversion to float (see [#126](#));
- Fixed `hmset()` method to return bool instead of `b'OK'` (see [#126](#));
- Fixed multi/exec + watch issue (changed watch variable was causing `tr.execute()` to fail) (see [#121](#));
- Replace `asyncio.Future` uses with utility method (get ready to Python 3.5.2 `loop.create_future()`);
- Tests switched from unittest to pytest (see [#126](#));
- Documentation updates;

7.10.14 0.2.6 (2016-03-30)

- Fixed Multi/Exec transactions cancellation issue (see [#110](#) and [#114](#));
- Fixed Pub/Sub subscribe concurrency issue (see [#113](#) and [#115](#));
- Add SSL/TLS support (see [#116](#));
- `aioredis.ConnectionClosedError` raised in `execute_pubsub` as well (see [#108](#));
- `Redis.slaveof()` method signature changed: now to disable replication one should call `redis.slaveof(None)` instead of `redis.slaveof()`;
- More tests added;

7.10.15 0.2.5 (2016-03-02)

- Close all Pub/Sub channels on connection close (see [#88](#));
- Add `iter()` method to `aioredis.Channel` allowing to use it with `async for` (see [#89](#));
- Inline code samples in docs made runnable and downloadable (see [#92](#));
- Python 3.5 examples converted to use `async/await` syntax (see [#93](#));
- Fix Multi/Exec to honor encoding parameter (see [#94](#) and [#97](#));
- Add debug message in `create_connection` (see [#90](#));
- Replace `asyncio.async` calls with wrapper that respects `asyncio` version (see [#101](#));
- Use `NODELAY` option for TCP sockets (see [#105](#));

- New `aioredis.ConnectionClosedError` exception added. Raised if connection to Redis server is lost (see [#108](#) and [#109](#));
- Fix `RedisPool` to close and drop connection in subscribe mode on release;
- Fix `aioredis.util.decode` to recursively decode list responses;
- More examples added and docs updated;
- Add google groups link to README;
- Bump year in LICENSE and docs;

7.10.16 0.2.4 (2015-10-13)

- Python 3.5 `async` support:
 - New scan commands API (`iscan`, `izscan`, `ihscan`);
 - Pool made awaitable (allowing with `await pool: ...` and `async` with `pool.get()` as `conn: constructs`);
- Fixed dropping closed connections from free pool (see [#83](#));
- Docs updated;

7.10.17 0.2.3 (2015-08-14)

- Redis cluster support work in progress;
- Fixed pool issue causing pool growth over max size & `acquire` call hangs (see [#71](#));
- `info` server command result parsing implemented;
- Fixed behavior of util functions (see [#70](#));
- `hstrlen` command added;
- Few fixes in examples;
- Few fixes in documentation;

7.10.18 0.2.2 (2015-07-07)

- Decoding data with `encoding` parameter now takes into account list (array) replies (see [#68](#));
- `encoding` parameter added to following commands:
 - generic commands: `keys`, `randomkey`;
 - hash commands: `hgetall`, `hkeys`, `hmget`, `hvals`;
 - list commands: `blpop`, `brpop`, `brpoplpush`, `lindex`, `lpop`, `lrange`, `rpop`, `rpoplpush`;
 - set commands: `smembers`, `spop`, `srandmember`;
 - string commands: `getrange`, `getset`, `mget`;
- Backward incompatibility:
 - `ltrim` command now returns bool value instead of 'OK';
- Tests updated;

7.10.19 0.2.1 (2015-07-06)

- Logging added (aioredis.log module);
- Fixed issue with `wait_message` in pub/sub (see #66);

7.10.20 0.2.0 (2015-06-04)

- Pub/Sub support added;
- Fix in `zrevrangebyscore` command (see #62);
- Fixes/tests/docs;

7.10.21 0.1.5 (2014-12-09)

- AutoConnector added;
- `wait_closed` method added for clean connections shutdown;
- `zscore` command fixed;
- Test fixes;

7.10.22 0.1.4 (2014-09-22)

- Dropped following Redis methods – `Redis.multi()`, `Redis.exec()`, `Redis.discard()`;
- `Redis.multi_exec` hack'ish property removed;
- `Redis.multi_exec()` method added;
- High-level commands implemented:
 - generic commands (tests);
 - transactions commands (api stabilization).
- Backward incompatibilities:
 - Following sorted set commands' API changed:
`zcount`, `zrangebyscore`, `zremrangebyscore`, `zrevrangebyscore`;
 - set string command' API changed;

7.10.23 0.1.3 (2014-08-08)

- `RedisConnection.execute` refactored to support commands pipelining (see #33);
- Several fixes;
- WIP on transactions and commands interface;
- High-level commands implemented and tested:
 - hash commands;
 - hyperloglog commands;
 - set commands;

- scripting commands;
- string commands;
- list commands;

7.10.24 0.1.2 (2014-07-31)

- `create_connection`, `create_pool`, `create_redis` functions updated: `db` and `password` arguments made keyword-only (see #26);
- Fixed transaction handling (see #32);
- Response decoding (see #16);

7.10.25 0.1.1 (2014-07-07)

- Transactions support (in connection, high-level commands have some issues);
- Docs & tests updated.

7.10.26 0.1.0 (2014-06-24)

- Initial release;
- `RedisConnection` implemented;
- `RedisPool` implemented;
- Docs for `RedisConnection` & `RedisPool`;
- WIP on high-level API.

7.11 Glossary

asyncio Reference implementation of **PEP 3156**

See <https://pypi.python.org/pypi/asyncio>

error replies Redis server replies that start with - (minus) char. Usually starts with `-ERR`.

hiredis Python extension that wraps protocol parsing code in `hiredis`.

See <https://pypi.python.org/pypi/hiredis>

pytest A mature full-featured Python testing tool. See <http://pytest.org/latest/>

uvloop Is an ultra fast implementation of asyncio event loop on top of libuv. See <https://github.com/MagicStack/uvloop>

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