
aio sonic

Release 0.9.0

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Really Fast Python asyncio HTTP 1.1 client, Support for http 2.0 is planned.

Current version is 0.9.0.

Repo is hosted at [Github](#).

FEATURES

- Keepalive and Smart Pool of Connections
- Multipart File Uploads
- Chunked responses handling
- Chunked requests
- Fully type annotated.
- Connection Timeouts
- Automatic Decompression
- Follow Redirects
- 100% test coverage.

REQUIREMENTS

- Python>=3.6

CHAPTER THREE

INSTALL

```
$ pip install aiosonic
```


GETTING STARTED

```
import asyncio
import aiohttp
import json

async def run():
    client = aiohttp.HttpClient()

    #####
    # Sample get request
    #####
    response = await client.get('https://www.google.com/')
    assert response.status_code == 200
    assert 'Google' in (await response.text())

    #####
    # Post data as multipart form
    #####
    url = "https://postman-echo.com/post"
    posted_data = {'foo': 'bar'}
    response = await client.post(url, data=posted_data)

    assert response.status_code == 200
    data = json.loads(await response.content())
    assert data['form'] == posted_data

    #####
    # Posted as json
    #####
    response = await client.post(url, json=posted_data)

    assert response.status_code == 200
    data = json.loads(await response.content())
    assert data['json'] == posted_data

    #####
    # Sample request + timeout
    #####
    from aiohttp.timeout import Timeouts
    timeouts = Timeouts(
        sock_read=10,
        sock_connect=3
    )
    response = await client.get('https://www.google.com/', timeouts=timeouts)
```

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```
assert response.status_code == 200
assert 'Google' in (await response.text())
await client.shutdown()

print('success')

if __name__ == '__main__':
    loop = asyncio.get_event_loop()
    loop.run_until_complete(run())
```

BENCHMARKS

Some benchmarking

```
» python tests/performance.py
doing tests...
{
  "aiosonic": "1000 requests in 110.03 ms",
  "aiosonic cyclic": "1000 requests in 332.10 ms",
  "aiohttp": "1000 requests in 427.31 ms",
  "requests": "1000 requests in 4915.04 ms",
  "httpx": "1000 requests in 638.04 ms"
}
aiosonic is 288.36% faster than aiohttp
aiosonic is 4367.04% faster than requests
aiosonic is 201.83% faster than aiosonic cyclic
aiosonic is 479.89% faster than httpx
```


CONTRIBUTING

1. Fork
2. create a branch *feature/your_feature*
3. commit - push - pull request

Thanks :)

INDICES AND TABLES

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

7.1 Examples

TODO: More examples

7.1.1 Download file

```
import asyncio
import aiohttp
import json

async def run():
    url = 'https://images.dog.ceo/breeds/leonberg/n02111129_2301.jpg'
    async with aiohttp.ClientSession() as client:

        res = await client.get(url)
        assert res.status_code == 200

        if res.chunked:
            # write in chunks
            with open('dog_image.jpg', 'wb') as _file:
                async for chunk in res.read_chunks():
                    _file.write(chunk)
        else:
            # or write all bytes, for chunked this also works
            with open('dog_image.jpg', 'wb') as _file:
                _file.write(await res.content())

if __name__ == '__main__':
    loop = asyncio.get_event_loop()
    loop.run_until_complete(run())
```

7.1.2 Concurrent Requests

```
import aiosonic
import asyncio

async def main():
    urls = [
        'https://www.facebook.com/',
        'https://www.google.com/',
        'https://twitch.tv/',
        'https://linkedin.com/',
    ]
    async with aiosonic.HTTPClient() as client:
        # asyncio.gather is the key for concurrent requests.
        responses = await asyncio.gather(*[client.get(url) for url in urls])

        # stream/chunked responses doesn't release the connection acquired
        # from the pool until the response has been read, so better to read
        # it.
        for response in responses:
            if response.chunked:
                await response.text()

        assert all([res.status_code in [200, 301] for res in responses])

asyncio.run(main())
```

7.1.3 Cookies handling

Adding `handle_cookies=True` to the client, it will save response cookies and send it again for new requests. This is useful to have same cookies workflow as in browsers, also for web scraping.

```
import aiosonic
import asyncio
from urllib.parse import urlencode

async def main():
    async with aiosonic.HTTPClient(handle_cookies=True) as client:
        cookies = {'foo1': 'bar1', 'foo2': 'bar2'}
        url = 'https://postman-echo.com/cookies/set'
        # server will respond those cookies
        response = await client.get(url, params=cookies, follow=True)
        # client keep cookies in "cookies_map"
        print(client.cookies_map['postman-echo.com'])
        print(await response.text())

asyncio.run(main())
```

7.2 Reference

TODO: get better this page

7.2.1 Client

```
class aiosonic.connectors.TCPConnector (pool_size:      int      = 25,      timeouts:
                                         aiosonic.timeout.Timeouts = None,      connec-
                                         tion_cls=None, pool_cls=None)
```

TCPConnector.

Holds the main logic for making connections to destination hosts.

Params:

- **pool_size:** size for pool of connections
- **timeouts:** global timeouts to use for connections with this connector. default: `aiosonic.timeout.Timeouts` instance with default args.
- **connection_cls:** connection class to be used. default: `aiosonic.connection.Connection`
- **pool_cls:** pool class to be used. default: `aiosonic.pools.SmartPool`

```
class aiosonic.HTTPClient (connector:      aiosonic.connectors.TCPConnector = None,      han-
                           dle_cookies=False, verify_ssl=True)
aiosonic.HTTPClient class.
```

This class holds the client creation that will be used for requests.

Params:

- **connector:** TCPConnector to be used if provided
- **handle_cookies:** Flag to indicate if keep response cookies in client and send them in next requests.
- **verify_ssl:** Flag to indicate if verify ssl certificates.

```
async aiosonic.HTTPClient.request (self, url: str, method: str = 'GET', headers: Union[Dict[str,
str], List[Tuple[str, str]], aiosonic.HttpHeaders] = None,
                                   params: Union[Dict[str, str], Sequence[Tuple[str, str]]]
                                   = None, data: Union[str, bytes, dict, tuple, AsyncItera-
                                   tor[bytes], Iterator[bytes]] = None, multipart: bool = False,
                                   verify: bool = True, ssl: ssl.SSLContext = None, timeouts:
                                   aiosonic.timeout.Timeouts = None, follow: bool = False,
                                   http2: bool = False) → aiosonic.HttpResponse
```

Do http request.

Params:

- **url**: url of request
- **method**: Http method of request
- **headers**: headers to add in request
- **params**: query params to add in request if not manually added
- **data**: Data to be sent, this param is ignored for get requests.
- **multipart**: Tell aiosonic if request is multipart
- **verify**: parameter to indicate whether to verify ssl
- **ssl**: this parameter allows to specify a custom ssl context
- **timeouts**: parameter to indicate timeouts for request
- **follow**: parameter to indicate whether to follow redirects
- **http2**: flag to indicate whether to use http2 (experimental)

```
async aiosonic.HTTPClient.get(self, url: str, headers: Union[Dict[str, str], List[Tuple[str, str]], aiosonic.HttpHeaders] = None, params: Union[Dict[str, str], Sequence[Tuple[str, str]]] = None, verify: bool = True, ssl: ssl.SSLContext = None, timeouts: aiosonic.timeout.Timeouts = None, follow: bool = False, http2: bool = False) → aiosonic.HttpResponse
```

Do get http request.

```
async aiosonic.HTTPClient.post(self, url: str, data: Union[str, bytes, dict, tuple, AsyncIterator[bytes], Iterator[bytes]] = None, headers: Union[Dict[str, str], List[Tuple[str, str]], aiosonic.HttpHeaders] = None, json: dict = None, params: Union[Dict[str, str], Sequence[Tuple[str, str]]] = None, json_serializer=<function dumps>, multipart: bool = False, verify: bool = True, ssl: ssl.SSLContext = None, timeouts: aiosonic.timeout.Timeouts = None, follow: bool = False, http2: bool = False) → aiosonic.HttpResponse
```

Do post http request.

async `aiosonic.HTTPClient.put` (*self*, *url*: str, *data*: Union[str, bytes, dict, tuple, AsyncIterator[bytes], Iterator[bytes]] = None, *headers*: Union[Dict[str, str], List[Tuple[str, str]], aiosonic.HttpHeaders] = None, *json*: dict = None, *params*: Union[Dict[str, str], Sequence[Tuple[str, str]]] = None, *json_serializer*=<function dumps>, *multipart*: bool = False, *verify*: bool = True, *ssl*: ssl.SSLContext = None, *timeouts*: aiosonic.timeout.Timeouts = None, *follow*: bool = False, *http2*: bool = False) → *aiosonic.HttpResponse*

Do put http request.

async `aiosonic.HTTPClient.patch` (*self*, *url*: str, *data*: Union[str, bytes, dict, tuple, AsyncIterator[bytes], Iterator[bytes]] = None, *headers*: Union[Dict[str, str], List[Tuple[str, str]], aiosonic.HttpHeaders] = None, *json*: dict = None, *params*: Union[Dict[str, str], Sequence[Tuple[str, str]]] = None, *json_serializer*=<function dumps>, *multipart*: bool = False, *verify*: bool = True, *ssl*: ssl.SSLContext = None, *timeouts*: aiosonic.timeout.Timeouts = None, *follow*: bool = False, *http2*: bool = False) → *aiosonic.HttpResponse*

Do patch http request.

async `aiosonic.HTTPClient.delete` (*self*, *url*: str, *data*: Union[str, bytes, dict, tuple, AsyncIterator[bytes], Iterator[bytes]] = b'', *headers*: Union[Dict[str, str], List[Tuple[str, str]], aiosonic.HttpHeaders] = None, *json*: dict = None, *params*: Union[Dict[str, str], Sequence[Tuple[str, str]]] = None, *json_serializer*=<function dumps>, *multipart*: bool = False, *verify*: bool = True, *ssl*: ssl.SSLContext = None, *timeouts*: aiosonic.timeout.Timeouts = None, *follow*: bool = False, *http2*: bool = False) → *aiosonic.HttpResponse*

Do delete http request.

async `aiosonic.HTTPClient.wait_requests` (*self*, *timeout*: int = 30)

Wait until all pending requests are done.

If timeout, returns false.

This is useful when doing safe shutdown of a process.

7.2.2 Classes

class `aiosonic.HttpHeaders` (*data=None, **kwargs*)
Http headers dict.

class `aiosonic.HttpResponse`
Custom HttpResponse class for handling responses.

Properties:

- **status_code** (int): response status code
- **headers** (`aiosonic.HttpHeaders`): headers in case insensitive dict
- **cookies** (`http.cookies.SimpleCookie`): instance of SimpleCookies if cookies present in response.
- **raw_headers** (List[Tuple[bytes, bytes]]): headers as raw format

async content () → bytes
Read response body.

async json (*json_decoder=<function loads>*) → dict
Read response body.

read_chunks () → AsyncIterator[bytes]
Read chunks from chunked response.

property status_code
Get status code.

async text () → str
Read response body.

class `aiosonic.timeout.Timeouts` (*sock_connect: Optional[float] = 5, sock_read: Optional[float] = 30, pool_acquire: Optional[float] = None, request_timeout: Optional[float] = 60*)
Timeouts class wrapper.

7.2.3 Pool Classes

class aiosonic.pools.**SmartPool** (*connector, pool_size, connection_cls*)

Pool which utilizes alive connections.

async acquire (*urlparsed: urllib.parse.ParseResult = None*)

Acquire connection.

async cleanup ()

Get all conn and close them, this method let this pool unusable.

is_all_free ()

Indicates if all pool is free.

release (*conn*)

Release connection.

class aiosonic.pools.**CyclicQueuePool** (*connector, pool_size, connection_cls*)

Cyclic queue pool of connections.

async acquire (*_urlparsed: urllib.parse.ParseResult = None*)

Acquire connection.

async cleanup ()

Get all conn and close them, this method let this pool unusable.

is_all_free ()

Indicates if all pool is free.

async release (*conn*)

Release connection.

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