
pybase64 Documentation

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CONTENTS:

1	Getting started	3
1.1	Installation	3
1.2	Usage	3
1.3	Benchmark	4
2	API Reference	5
2.1	Main API Reference	5
2.2	Helpers API Reference	5
2.3	Legacy API Reference	6
2.4	Information API Reference	6
3	Changelog	7
3.1	1.0.0	7
3.2	0.5.0	7
3.3	0.4.0	7
3.4	0.3.1	7
3.5	0.3.0	7
3.6	0.2.1	7
3.7	0.2.0	8
3.8	0.1.2	8
3.9	0.1.1	8
3.10	0.1.0	8
4	License	9
4.1	pybase64	9
4.2	libbase64	9
	Index	11

Fast Base64 implementation for Python.

GETTING STARTED

`pybase64` is a wrapper on `libbase64`.

It aims to provide a fast base64 implementation for base64 encoding/decoding.

1.1 Installation

```
pip install pybase64
```

1.2 Usage

`pybase64` uses the same API as Python `base64` “modern interface” (introduced in Python 2.4) for an easy integration.

To get the fastest decoding, it is recommended to use the `b64decode()` and `validate=True` when possible.

```
import pybase64

print(pybase64.b64encode(b'>>>foo???' , altchars='_:'))
# b'Pj4_Zm9vPz8:'
print(pybase64.b64decode(b'Pj4_Zm9vPz8:', altchars='_:', validate=True))
# b'>>>foo???'

# Standard encoding helpers
print(pybase64.standard_b64encode(b'>>>foo???' ))
# b'Pj4+Zm9vPz8/'
print(pybase64.standard_b64decode(b'Pj4+Zm9vPz8/'))
# b'>>>foo???'

# URL safe encoding helpers
print(pybase64.urlsafe_b64encode(b'>>>foo???' ))
# b'Pj4-Zm9vPz8_'
print(pybase64.urlsafe_b64decode(b'Pj4-Zm9vPz8_'))
# b'>>>foo???'
```

Check [API Reference](#) for more details.

A command-line tool is also provided. It has `encode`, `decode` and `benchmark` subcommands.

```
usage: pybase64 [-h] [-V] {benchmark,encode,decode} ...

pybase64 command-line tool.

positional arguments:
  {benchmark,encode,decode}
                        tool help
  benchmark             -h for usage
  encode                -h for usage
  decode               -h for usage

optional arguments:
  -h, --help            show this help message and exit
  -V, --version         show program's version number and exit
```

1.3 Benchmark

Running Python 3.7.2, Apple LLVM version 10.0.0 (clang-1000.11.45.5), Mac OS X 10.14.2 on an Intel Core i7-4870HQ @ 2.50GHz

```
pybase64 0.5.0 (C extension active - AVX2)
bench: altchars=None, validate=False
pybase64.__pybase64.encodebytes: 1734.776 MB/s (13,271,472 bytes -> 17,928,129 bytes)
pybase64.__pybase64.b64encode: 4039.539 MB/s (13,271,472 bytes -> 17,695,296 bytes)
pybase64.__pybase64.b64decode: 1854.423 MB/s (17,695,296 bytes -> 13,271,472 bytes)
base64.encodebytes: 78.352 MB/s (13,271,472 bytes -> 17,928,129 bytes)
base64.b64encode: 539.840 MB/s (13,271,472 bytes -> 17,695,296 bytes)
base64.b64decode: 287.826 MB/s (17,695,296 bytes -> 13,271,472 bytes)
bench: altchars=None, validate=True
pybase64.__pybase64.b64encode: 4156.607 MB/s (13,271,472 bytes -> 17,695,296 bytes)
pybase64.__pybase64.b64decode: 4107.997 MB/s (17,695,296 bytes -> 13,271,472 bytes)
base64.b64encode: 559.342 MB/s (13,271,472 bytes -> 17,695,296 bytes)
base64.b64decode: 143.674 MB/s (17,695,296 bytes -> 13,271,472 bytes)
bench: altchars=b'-'_, validate=False
pybase64.__pybase64.b64encode: 2786.776 MB/s (13,271,472 bytes -> 17,695,296 bytes)
pybase64.__pybase64.b64decode: 1124.136 MB/s (17,695,296 bytes -> 13,271,472 bytes)
base64.b64encode: 322.427 MB/s (13,271,472 bytes -> 17,695,296 bytes)
base64.b64decode: 205.195 MB/s (17,695,296 bytes -> 13,271,472 bytes)
bench: altchars=b'-'_, validate=True
pybase64.__pybase64.b64encode: 2806.271 MB/s (13,271,472 bytes -> 17,695,296 bytes)
pybase64.__pybase64.b64decode: 2740.456 MB/s (17,695,296 bytes -> 13,271,472 bytes)
base64.b64encode: 314.709 MB/s (13,271,472 bytes -> 17,695,296 bytes)
base64.b64decode: 121.803 MB/s (17,695,296 bytes -> 13,271,472 bytes)
```


API REFERENCE

2.1 Main API Reference

`pybase64.b64encode(s, altchars=None)`

Encode bytes using the standard Base64 alphabet.

Argument `s` is a `bytes-like object` to encode.

Optional `altchars` must be a byte string of length 2 which specifies an alternative alphabet for the '+' and '/' characters. This allows an application to e.g. generate url or filesystem safe Base64 strings.

The result is returned as a `bytes` object.

`pybase64.b64decode(s, altchars=None, validate=False)`

Decode bytes encoded with the standard Base64 alphabet.

Argument `s` is a `bytes-like object` or ASCII string to decode.

Optional `altchars` must be a `bytes-like object` or ASCII string of length 2 which specifies the alternative alphabet used instead of the '+' and '/' characters.

If `validate` is `False` (the default), characters that are neither in the normal base-64 alphabet nor the alternative alphabet are discarded prior to the padding check. If `validate` is `True`, these non-alphabet characters in the input result in a `binascii.Error`.

The result is returned as a `bytes` object.

A `binascii.Error` is raised if `s` is incorrectly padded.

2.2 Helpers API Reference

`pybase64.standard_b64encode(s)`

Encode bytes using the standard Base64 alphabet.

Argument `s` is a `bytes-like object` to encode.

The result is returned as a `bytes` object.

`pybase64.standard_b64decode(s)`

Decode bytes encoded with the standard Base64 alphabet.

Argument `s` is a `bytes-like object` or ASCII string to decode.

The result is returned as a `bytes` object.

A `binascii.Error` is raised if the input is incorrectly padded.

Characters that are not in the standard alphabet are discarded prior to the padding check.

`pybase64.urlsafe_b64encode(s)`

Encode bytes using the URL- and filesystem-safe Base64 alphabet.

Argument `s` is a `bytes-like object` to encode.

The result is returned as a `bytes` object.

The alphabet uses `-` instead of `+` and `_` instead of `/`.

`pybase64.urlsafe_b64decode(s)`

Decode bytes using the URL- and filesystem-safe Base64 alphabet.

Argument `s` is a `bytes-like object` or ASCII string to decode.

The result is returned as a `bytes` object.

A `binascii.Error` is raised if the input is incorrectly padded.

Characters that are not in the URL-safe base-64 alphabet, and are not a plus `+` or slash `/`, are discarded prior to the padding check.

The alphabet uses `-` instead of `+` and `_` instead of `/`.

2.3 Legacy API Reference

`pybase64.encodebytes(s)`

Encode bytes into a bytes object with newlines (`b' '`) inserted after every 76 bytes of output, and ensuring that there is a trailing newline, as per [RFC 2045](#) (MIME).

Argument `s` is a `bytes-like object` to encode.

The result is returned as a `bytes` object.

2.4 Information API Reference

`pybase64.get_version()`

Returns pybase64 version as a `str` object.

The result reports if the C extension is used or not. e.g. *1.0.0 (C extension active - AVX2)*

`pybase64.get_license_text()`

Returns pybase64 license information as a `str` object.

The result includes libbase64 license information as well.

CHANGELOG

3.1 1.0.0

- Drop python 3.4 support
- Drop python 2.7 support

3.2 0.5.0

- Publish python 3.7 wheels
- Drop python 3.3 support

3.3 0.4.0

- Speed-up decoding when `validate==False`

3.4 0.3.1

- Fix deployment issues

3.5 0.3.0

- Add `encodebytes` function

3.6 0.2.1

- Fixed invalid results on Windows

3.7 0.2.0

- Added documentation
- Added subcommands to the main script:
 - help
 - version
 - encode
 - decode
 - benchmark

3.8 0.1.2

- Updated base64 native library

3.9 0.1.1

- Fixed deployment issues

3.10 0.1.0

- First public release

LICENSE

4.1 pybase64

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4.2 libbase64

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INDEX

B

`b64decode()` (*in module pybase64*), 5

`b64encode()` (*in module pybase64*), 5

E

`encodebytes()` (*in module pybase64*), 6

G

`get_license_text()` (*in module pybase64*), 6

`get_version()` (*in module pybase64*), 6

R

RFC

RFC 2045, 6

S

`standard_b64decode()` (*in module pybase64*), 5

`standard_b64encode()` (*in module pybase64*), 5

U

`urlsafe_b64decode()` (*in module pybase64*), 6

`urlsafe_b64encode()` (*in module pybase64*), 6