python 7zip library: **py7zr**

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Pure Python 7zip library - py7zr

- 7-zip support on Pure python
  - Full support of compression and encryption.
  - UNIX extensions for file permission as compatible with p7zip.
- High quality
  - CI/CD automation, coverage (>90%), type checks(mypy)
  - Documentations, file format specification for standardization.
- Utilize lzma, bz2 and zlib module on Python core library
  - limitation: lzma module does not support BCJ2, PPMd.
  - Addtional support of ZStandard(zstd), AES(cryptodome)

Usage

```
$ pip install py7zr
$ py7zr l sample.7z
```

```
import py7zr

with py7zr.SevenZipFile("sample.7z", "r") as szf:
    szf.list()
    szf.extractall(path="tmp")
```

py7zr design concept

- py7zr is a library to handle 7z archive format. So no algorithms implemented in py7zr, use core and external libraries.
- Purely with Python, no C extension.
- Minimum memory foot print and file descriptor.
- Similar API with standard library such as zipfile and tar.
- Callback API to notify progress to UI.
- Multi-threading support for large scale archive
- Coverage with unit tests and many test files to keep quality
- Open and Well-documented.

py7zr internals: modules

a) **archiveinfo**: classes to represent header structures
b) **py7zr**: provide compression/decompression public APIs
c) compressor: compression algorithms
d) cli: everything about command line interface.
e) **callbacks**: abstract class of callback API.
f) **exceptions**: exceptions definition..
g) properties: definitions of filter IDs and method IDs
h) helpers: timestamp, secret key, buffer and memIO interface
i) **win32compat**: hardlink, symlinks on Windows

Active community

- Community on github: https://github.com/miurahr/py7zr

- Contributors

    - @andrebrait, Kazuya Fujioka, Kyle Altendorf, @royopa, @Zoynels

    - Special thanks for PyLZMA maitainer, Joachim Bauch

      because py7zr started as a fork of pylzma/7zlib

Popular archiving formats

Name	Born	Compression Algorithm	Tools	Python
TAR	1979	None	GNU tar	tarfile
ZIP	1989	Deflate, (bzip2,LZMA,PPMd)	PKZIP, WinZip	zipfile
GZIP	1992	Deflate	GNU gzip, zlib	gzip
xz	1996	LZMA, LZMA2	XZ Utils, 7-zip	lzma
Bzip2	1996	RLE,BWT,MTF, huffman code, delta	Bzip2, 7-zip,	bz2
7zip	1999	LZMA, LZMA2, Bzip2, PPMd, Deflate (ZStandard)	7-Zip p7zip	py7zr pylzma

Modern compression algorythms

Name	Born	Algorithm and Strategy	Python
lzo	2005	Improved LZ77	python-lzo
quicklz	2006	Improved LZ77, speed	python-quicklz
brotli	2009	Improved LZ77, Hafmann encode, 2nd context model	python-brotli
lz4	2011	Improved LZ77, speed	python-lz4
snappy	2011	Improved LZ77, speed	python-snappy
Zstarndard	2015	Improved LZ77, speed、entropy encode	python-zstandard

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