:mod:`gzip` --- Support for :program:`gzip` files

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 1); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 1); *backlink*

Unknown interpreted text role "program".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 4)

Unknown directive type "module".

```
.. module:: gzip
   :synopsis: Interfaces for gzip compression and decompression using file objects.
```

Source code: :source:`Lib/gzip.py`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 7); *backlink*

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This module provides a simple interface to compress and decompress files just like the GNU programs :program:`gzip` and :program:`gunzip` would.

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Unknown interpreted text role "program".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 11); *backlink*

Unknown interpreted text role "program".

The data compression is provided by the :mod:`zlib` module.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 14); *backlink*

Unknown interpreted text role "mod".

The :mod:`gzip` module provides the :class:`GzipFile` class, as well as the :func:`.open`, :func:`compress` and :func:`decompress` convenience functions. The :class:`GzipFile` class reads and writes :program:`gzip`-format files, automatically compressing or decompressing the data so that it looks like an ordinary :term:`file object`.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 16); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 16); *backlink*

Unknown interpreted text role "class".

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Note that additional file formats which can be decompressed by the :program:`gzip` and :program:`gunzip` programs, such as those produced by :program:`compress` and :program:`pack`, are not supported by this module.

The module defines the following items:

```
.. function:: open(filename, mode='rb', compresslevel=9, encoding=None, errors=None, newline=None)

   Open a gzip-compressed file in binary or text mode, returning a :term:`file
   object`.

   The *filename* argument can be an actual filename (a :class:`str` or
   :class:`bytes` object), or an existing file object to read from or write to.

   The *mode* argument can be any of ``'r'``, ``'rb'``, ``'a'``, ``'ab'``,
```

```
       ``'w'``, ``'wb'``, ``'x'`` or ``'xb'`` for binary mode, or ``'rt'``,
       ``'at'``, ``'wt'``, or ``'xt'`` for text mode. The default is ``'rb'``.

       The *compresslevel* argument is an integer from 0 to 9, as for the
       :class:`GzipFile` constructor.

       For binary mode, this function is equivalent to the :class:`GzipFile`
       constructor: ``GzipFile(filename, mode, compresslevel)``. In this case, the
       *encoding*, *errors* and *newline* arguments must not be provided.

       For text mode, a :class:`GzipFile` object is created, and wrapped in an
       :class:`io.TextIOWrapper` instance with the specified encoding, error
       handling behavior, and line ending(s).

       .. versionchanged:: 3.3
          Added support for *filename* being a file object, support for text mode,
          and the *encoding*, *errors* and *newline* arguments.

       .. versionchanged:: 3.4
          Added support for the ``'x'``, ``'xb'`` and ``'xt'`` modes.

       .. versionchanged:: 3.6
          Accepts a :term:`path-like object`.
```

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-`
`main\Doc\library\(cpython-main)(Doc)(library)gzip.rst`**, line 62)**

Unknown directive type "exception".

```
   .. exception:: BadGzipFile

      An exception raised for invalid gzip files.  It inherits :exc:`OSError`.
      :exc:`EOFError` and :exc:`zlib.error` can also be raised for invalid gzip
      files.

      .. versionadded:: 3.8
```

Constructor for the :class:`GzipFile` class, which simulates most of the methods of a :term:`file object`, with the exception of the :meth:`truncate` method. At least one of *fileobj* and *filename* must be given a non-trivial value.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-`
`main\Doc\library\(cpython-main)(Doc)(library)gzip.rst`**, line 72);** *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-`
`main\Doc\library\(cpython-main)(Doc)(library)gzip.rst`**, line 72);** *backlink*

Unknown interpreted text role "term".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-`
`main\Doc\library\(cpython-main)(Doc)(library)gzip.rst`**, line 72);** *backlink*

Unknown interpreted text role "meth".

The new class instance is based on *fileobj*, which can be a regular file, an :class:`io.BytesIO` object, or any other object which simulates a file. It defaults to None, in which case *filename* is opened to provide a file object.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-`
`main\Doc\library\(cpython-main)(Doc)(library)gzip.rst`**, line 77);** *backlink*

Unknown interpreted text role "class".

When *fileobj* is not None, the *filename* argument is only used to be included in the :program:`gzip` file header, which may include the original filename of the uncompressed file. It defaults to the filename of *fileobj*, if discernible; otherwise, it defaults to the empty string, and in this case the original filename is not included in the header.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-`
`main\Doc\library\(cpython-main)(Doc)(library)gzip.rst`**, line 82);** *backlink*

Unknown interpreted text role "program".

The *mode* argument can be any of `'r'`, `'rb'`, `'a'`, `'ab'`, `'w'`, `'wb'`, `'x'`, or `'xb'`, depending on whether the file will be read or written. The default is the mode of *fileobj* if discernible; otherwise, the default is `'rb'`. In future Python releases the mode of *fileobj* will not be used. It is better to always specify *mode* for writing.

Note that the file is always opened in binary mode. To open a compressed file in text mode, use :func:`.open` (or wrap your :class:`GzipFile` with an :class:`io.TextIOWrapper`).

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main) (Doc) (library)gzip.rst, line 94`); *backlink*
>
> Unknown interpreted text role "func".

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main) (Doc) (library)gzip.rst, line 94`); *backlink*
>
> Unknown interpreted text role "class".

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main) (Doc) (library)gzip.rst, line 94`); *backlink*
>
> Unknown interpreted text role "class".

The *compresslevel* argument is an integer from `0` to `9` controlling the level of compression; `1` is fastest and produces the least compression, and `9` is slowest and produces the most compression. `0` is no compression. The default is `9`.

The *mtime* argument is an optional numeric timestamp to be written to the last modification time field in the stream when compressing. It should only be provided in compression mode. If omitted or `None`, the current time is used. See the :attr:`mtime` attribute for more details.

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main) (Doc) (library)gzip.rst, line 103`); *backlink*
>
> Unknown interpreted text role "attr".

Calling a :class:`GzipFile` object's :meth:`close` method does not close *fileobj*, since you might wish to append more material after the compressed data. This also allows you to pass an :class:`io.BytesIO` object opened for writing as *fileobj*, and retrieve the resulting memory buffer using the :class:`io.BytesIO` object's :meth:`~io.BytesIO.getvalue` method.

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main) (Doc) (library)gzip.rst, line 108`); *backlink*
>
> Unknown interpreted text role "class".

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main) (Doc) (library)gzip.rst, line 108`); *backlink*
>
> Unknown interpreted text role "meth".

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main) (Doc) (library)gzip.rst, line 108`); *backlink*
>
> Unknown interpreted text role "class".

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main) (Doc) (library)gzip.rst, line 108`); *backlink*
>
> Unknown interpreted text role "class".

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main) (Doc) (library)gzip.rst, line 108`); *backlink*
>
> Unknown interpreted text role "meth".

:class:`GzipFile` supports the :class:`io.BufferedIOBase` interface, including iteration and the :keyword:`with` statement. Only the :meth:`truncate` method isn't implemented.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 114); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 114); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 114); *backlink*

Unknown interpreted text role "keyword".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 114); *backlink*

Unknown interpreted text role "meth".

:class:`GzipFile` also provides the following method and attribute:

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Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 120)

Unknown directive type "method".

```
.. method:: peek(n)

   Read *n* uncompressed bytes without advancing the file position.
   At most one single read on the compressed stream is done to satisfy
   the call.  The number of bytes returned may be more or less than
   requested.

   .. note:: While calling :meth:`peek` does not change the file position of
      the :class:`GzipFile`, it may change the position of the underlying
      file object (e.g. if the :class:`GzipFile` was constructed with the
      *fileobj* parameter).

   .. versionadded:: 3.2
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 134)

Unknown directive type "attribute".

```
.. attribute:: mtime

   When decompressing, the value of the last modification time field in
   the most recently read header may be read from this attribute, as an
   integer.  The initial value before reading any headers is ``None``.

   All :program:`gzip` compressed streams are required to contain this
   timestamp field.  Some programs, such as :program:`gunzip`\ , make use
   of the timestamp.  The format is the same as the return value of
   :func:`time.time` and the :attr:`~os.stat_result.st_mtime` attribute of
   the object returned by :func:`os.stat`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 146)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.1
   Support for the :keyword:`with` statement was added, along with the
   *mtime* constructor argument and :attr:`mtime` attribute.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 150)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.2
   Support for zero-padded and unseekable files was added.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 153)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.3
   The :meth:`io.BufferedIOBase.read1` method is now implemented.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 156)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.4
   Added support for the ``'x'`` and ``'xb'`` modes.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 159)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.5
   Added support for writing arbitrary
   :term:`bytes-like objects <bytes-like object>`.
   The :meth:`~io.BufferedIOBase.read` method now accepts an argument of
   ``None``.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 165)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.6
   Accepts a :term:`path-like object`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 168)

Unknown directive type "deprecated".

```
.. deprecated:: 3.9
   Opening :class:`GzipFile` for writing without specifying the *mode*
   argument is deprecated.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 173)

Unknown directive type "function".

```
.. function:: compress(data, compresslevel=9, *, mtime=None)

   Compress the *data*, returning a :class:`bytes` object containing
   the compressed data.  *compresslevel* and *mtime* have the same meaning as in
   the :class:`GzipFile` constructor above. When *mtime* is set to ``0``, this
   function is equivalent to :func:`zlib.compress` with *wbits* set to ``31``.
   The zlib function is faster.

   .. versionadded:: 3.2
   .. versionchanged:: 3.8
      Added the *mtime* parameter for reproducible output.
```

```
   .. versionchanged:: 3.11
      Speed is improved by compressing all data at once instead of in a
      streamed fashion. Calls with *mtime* set to ``0`` are delegated to
      :func:`zlib.compress` for better speed.
```

```
   .. function:: decompress(data)

      Decompress the *data*, returning a :class:`bytes` object containing the
      uncompressed data. This function is capable of decompressing multi-member
      gzip data (multiple gzip blocks concatenated together). When the data is
      certain to contain only one member the :func:`zlib.decompress` function with
      *wbits* set to 31 is faster.

      .. versionadded:: 3.2
      .. versionchanged:: 3.11
         Speed is improved by decompressing members at once in memory instead of in
         a streamed fashion.
```

Examples of usage

Example of how to read a compressed file:

```
import gzip
with gzip.open('/home/joe/file.txt.gz', 'rb') as f:
    file_content = f.read()
```

Example of how to create a compressed GZIP file:

```
import gzip
content = b"Lots of content here"
with gzip.open('/home/joe/file.txt.gz', 'wb') as f:
    f.write(content)
```

Example of how to GZIP compress an existing file:

```
import gzip
import shutil
with open('/home/joe/file.txt', 'rb') as f_in:
    with gzip.open('/home/joe/file.txt.gz', 'wb') as f_out:
        shutil.copyfileobj(f_in, f_out)
```

Example of how to GZIP compress a binary string:

```
import gzip
s_in = b"Lots of content here"
s_out = gzip.compress(s_in)
```

```
   .. seealso::

      Module :mod:`zlib`
         The basic data compression module needed to support the :program:`gzip` file
         format.
```

```
   .. program:: gzip
```

Command Line Interface

The :mod:`gzip` module provides a simple command line interface to compress or decompress files.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 246`); *backlink*

Unknown interpreted text role "mod".

Once executed the :mod:`gzip` module keeps the input file(s).

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 249`); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 251`)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.8

    Add a new command line interface with a usage.
    By default, when you will execute the CLI, the default compression level is 6.
```

Command line options

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 259`)

Unknown directive type "cmdoption".

```
.. cmdoption:: file

    If *file* is not specified, read from :attr:`sys.stdin`.
```

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 263`)

Unknown directive type "cmdoption".

```
.. cmdoption:: --fast

    Indicates the fastest compression method (less compression).
```

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 267`)

Unknown directive type "cmdoption".

```
.. cmdoption:: --best

    Indicates the slowest compression method (best compression).
```

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 271`)

Unknown directive type "cmdoption".

```
.. cmdoption:: -d, --decompress

    Decompress the given file.
```

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\(cpython-main)(Doc)(library)gzip.rst, line 275`)

Unknown directive type "cmdoption".

```
.. cmdoption:: -h, --help
```

Show the help message.