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New issue



`tarfile.StreamError: seeking backwards is not allowed` due to unskipped block with bad checksum #130577

Closed

Labels

3.10

3.11

3.12

3.13

3.14

3.15

3.9 (EOL)

release-blocker

stdlib

type-bug

type-security

philgzl opened on Feb 26, 2025 · edited by bedevere-app

Edits ...

Bug report

Bug description:

I am reading tar blocks from a stream. The stream can be resumed from an arbitrary position, therefore I am using `tarfile.open` with `ignore_zeros=True`. This works most of the time, but sometimes resuming causes a `tarfile.StreamError: seeking backwards is not allowed`. After inspection, it seems that this is caused by blocks passing the checksum test even though they are invalid. This causes wrong metadata to be parsed, which in turn causes the stream to crash.

Below is a minimal working example with a problematic block. This is a real block in my stream which is yielded from an archive created with `tarfile`. The archive is not corrupted, and when streaming from the beginning of the archive, everything works fine.

```
import io
import tarfile

buf = b'\xff\xff\xff\xff\x00\x00\x00\x00\xff\xff\xfe\xff\xff\xff\x00\x00\x01\x00\x01\x00\x00'
f = io.BytesIO(buf)

with tarfile.open(mode="r|", fileobj=f, ignore_zeros=True) as tar:
```

```
for member in tar:
    pass # tarfile.StreamError: seeking backwards is not allowed
```

The backward seeking is caused by bad metadata parsing when calling `tarfile.TarInfo.frombuf` internally on the block.

```
import tarfile

buf = b'\xff\xff\xff\xff\x00\x00\x00\x00\xff\xff\xff\xff\x00\x00\x01\x00\x01\x00\x00'
info = tarfile.TarInfo.frombuf(buf, encoding="utf-8", errors="surrogateescape")
print(info.size) # -4722366482873940180736
```



Tested with Python 3.12.8 and 3.13.2.

CPython versions tested on:

3.13

Operating systems tested on:

Linux

Linked PRs

- [gh-130577: tarfile now validates archives to ensure member offsets are non-negative #137027](#)
- [\[3.14\] gh-130577: tarfile now validates archives to ensure member offsets are non-negative \(GH-137027\) #137169](#)
- [\[3.13\] gh-130577: tarfile now validates archives to ensure member offsets are non-negative \(GH-137027\) #137170](#)
- [\[3.12\] gh-130577: tarfile now validates archives to ensure member offsets are non-negative \(GH-137027\) #137171](#)
- [\[3.11\] gh-130577: tarfile now validates archives to ensure member offsets are non-negative \(GH-137027\) #137172](#)
- [\[3.10\] gh-130577: tarfile now validates archives to ensure member offsets are non-negative \(GH-137027\) #137176](#)
- [\[3.9\] gh-130577: tarfile now validates archives to ensure member offsets are non-negative \(GH-137027\) #137177](#)
- [\[3.10\] gh-130577: tarfile now validates archives to ensure member offsets are non-negative \(GH-137027\) #137644](#)
- [\[3.9\] gh-130577: tarfile now validates archives to ensure member offsets are non-negative \(GH-137027\) #137645](#)

 philgzl added **type-bug** on Feb 26, 2025

 tomasr8 added this to  Tarfile issues on Feb 26, 2025

 tomasr8 added **stdlib** on Feb 26, 2025

 aeurielesn on Jul 22, 2025 · edited by aeurielesn Edits ▾ Contributor ...

After having a look at the GNU tar code, I can see [offsets must be non-negative numbers](#). I will put together a PR for this one.

 aeurielesn added a commit that references this issue on Jul 22, 2025


[pythongh-130577](#): tarfile now validates archives to ensure member offs. ... 235f9d4

 bedevere-app mentioned this on Jul 22, 2025

[gh-130577](#): tarfile now validates archives to ensure member offsets are non-negative #137027

 aeurielesn on Jul 22, 2025 Contributor ...

PR is up for review.

 ethanfurman added a commit that references this issue on Jul 28, 2025

[gh-130577](#): tarfile now validates archives to ensure member offsets ar. ... **Verified** 7040aa5

 miss-islington added 2 commits that reference this issue on Jul 28, 2025

[pythongh-130577](#): tarfile now validates archives to ensure member offs. ... 28d1302

[pythongh-130577](#): tarfile now validates archives to ensure member offs. ... fd29bcd

 bedevere-app mentioned this on Jul 28, 2025

[\[3.14\] gh-130577: tarfile now validates archives to ensure member offsets are non-negative \(GH-137027\) #137169](#)

 miss-islington added a commit that references this issue on Jul 28, 2025

[pythongh-130577](#): tarfile now validates archives to ensure member offs. ... 8f38105

 bedevere-app mentioned this on Jul 28, 2025

None yet

Development

No branches or pull requests

Participants

