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bug #67075: Heap Buffer Overflow in PSPP's ZIP Reader Functionality

Submitter: [Nez <xu_dawn>](#)

Submitted: Sat 03 May 2025 11:54:46 AM UTC

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Category: None

Status: None

Open/Closed: Open

Effort: 0.00

Severity: 5 - Average

Assigned to: None

Release: None

* Mandatory Fields

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(-) **Discussion**

Sat 03 May 2025 11:54:46 AM UTC, **original submission**:

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Nez
<xu_dawn>

Summary

Heap Buffer Overflow in PSPP's ZIP Reader Functionality

Environment

PSPP version: master in Git

Repository[commit:82fb509fb2fedd33e7ac0c46ca99e108bb3bdfbf]

OS: Ubuntu 20.04.6 LTS

Compiler: Clang-12.0.1

Steps to reproduce

```
# export CFLAGS="-g -O0 -fno-inline -fno-lto -fsanitize=address"
# export CXXFLAGS="-g -O0 -fno-inline -fno-lto -fsanitize=address"
# ./configure --prefix=$INSTALL_DIR --without-gui --disable-shared --without-perl-module
# make -j64 & make install
```

```
root@9c4de30a2a30:./pspp-output dir POC -O format=pdf
```

```
=====
==1376775==ERROR: AddressSanitizer: heap-buffer-overflow on address
0x621000013d90 at pc 0x00000043c8be bp 0x7fff8536b5c0 sp 0x7fff8536ad88
WRITE of size 6873 at 0x621000013d90 thread T0
    #0 0x43c8bd in fread (/new-test/fuzzdir/fuz-pspp-output_dir/pspp-
output+0x43c8bd)
    #1 0x6c7a49 in inflate_read /new-test/program/download/pspp-
2.0.1/src/libpspp/zip-reader.c:747:20
    #2 0x6c3bc4 in zip_member_read /new-test/program/download/pspp-
```

```

2.0.1/src/libpspp/zip-reader.c:238:20
#3 0x6c4271 in zip_member_read_all /new-test/program/download/pspp-
2.0.1/src/libpspp/zip-reader.c:277:9
#4 0x55aeed in spv_read_light_table /new-
test/program/download/pspp-2.0.1/src/output/spv/spv.c:358:17
#5 0x562a5e in pivot_table_open_light /new-
test/program/download/pspp-2.0.1/src/output/spv/spv.c:386:17
#6 0x561c92 in spv_read_table_item /new-test/program/download/pspp-
2.0.1/src/output/spv/spv.c:532:13
#7 0x561061 in spv_decode_container /new-
test/program/download/pspp-2.0.1/src/output/spv/spv.c:620:14
#8 0x55e500 in spv_decode_children /new-test/program/download/pspp-
2.0.1/src/output/spv/spv.c:684:19
#9 0x55e7c3 in spv_decode_children /new-test/program/download/pspp-
2.0.1/src/output/spv/spv.c:697:12
#10 0x55d53f in spv_heading_read /new-test/program/download/pspp-
2.0.1/src/output/spv/spv.c:791:5
#11 0x55cbf2 in spv_read /new-test/program/download/pspp-
2.0.1/src/output/spv/spv.c:867:9
#12 0x4d44e6 in read_and_filter_spv /new-
test/program/download/pspp-2.0.1/utilities/pspp-output.c:195:15
#13 0x4d2378 in run_directory /new-test/program/download/pspp-
2.0.1/utilities/pspp-output.c:204:30
#14 0x4d1329 in main /new-test/program/download/pspp-
2.0.1/utilities/pspp-output.c:856:3
#15 0x7f7fefeffd8f in __libc_start_call_main
csu/../sysdeps/nptl/libc_start_call_main.h:58:16
#16 0x7f7fefeffe3f in __libc_start_main csu/../csu/libc-
start.c:392:3
#17 0x4250b4 in _start (/new-test/fuzzdir/fuz-pspp-output_dir/pspp-
output+0x4250b4)

```

0x621000013d90 is located 0 bytes to the right of 4240-byte region
[0x621000012d00,0x621000013d90)

allocated by thread T0 here:

```

#0 0x4a00f2 in calloc (/new-test/fuzzdir/fuz-pspp-output_dir/pspp-
output+0x4a00f2)
#1 0x6c75e1 in inflate_init /new-test/program/download/pspp-
2.0.1/src/libpspp/zip-reader.c:686:26

```

SUMMARY: AddressSanitizer: heap-buffer-overflow (/new-test/fuzzdir/fuz-
pspp-output_dir/pspp-output+0x43c8bd) in fread

Shadow bytes around the buggy address:

```

0x0c427fffa760: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c427fffa770: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c427fffa780: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c427fffa790: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c427fffa7a0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
=>0x0c427fffa7b0: 00 00[fa]fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c427fffa7c0: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c427fffa7d0: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c427fffa7e0: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c427fffa7f0: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c427fffa800: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa

```

Shadow byte legend (one shadow byte represents 8 application bytes):

```

Addressable: 00
Partially addressable: 01 02 03 04 05 06 07
Heap left redzone: fa
Freed heap region: fd
Stack left redzone: f1
Stack mid redzone: f2
Stack right redzone: f3
Stack after return: f5
Stack use after scope: f8
Global redzone: f9
Global init order: f6
Poisoned by user: f7
Container overflow: fc
Array cookie: ac
Intra object redzone: bb
ASan internal: fe

```

```
Left alloca redzone:  ca
Right alloca redzone: cb
Shadow gap:          cc
==1376775==ABORTING
```

POC

<https://drive.google.com/file/d/1llTE7U8TEHz>

(-) Attached Files

(Note: upload size limit is set to 16384 kB, after insertion of the required escape characters.)

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