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Several bugs found by fuzzing #179



New issue

⊙ Closed linhlhq opened this issue on Jan 2, 2020 · 7 comments

Assignees bug fuzzing Labels ф 0.10

linhlhq commented on Jan 2, 2020 After fuzzing libredwg, I found the following bugs on the latest commit on master. Command: ./dwg2svg2 \$PoC 1.heap-buffer-overflow in read_pages_map ../../src/decode_r2007.c:1007 $POC: https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Crep:40.000239\%2Csig:06\%2Csrc:007083\%2Cop:havoc\%2Csrc:007083\%2Cop:havoc\%2Csrc:007083\%2Cop:havoc\%2Csrc:007083\%2Cop:havoc\%2Csrc:007083\%2Cop:havoc\%2Csrc:007083\%2Cop:havoc\%2Csrc:007083\%2Cop:havoc\%2Csrc:007083\%2Cop:havoc\%2Csrc:007083\%2Cop:havoc\%2Csrc:007083\%2Csrc:007080\%2Csrc:007080\%2Csrc:007080\%2Csrc:007080\%2Csrc:007080\%2Csrc:007080\%2Csrc:0070807080\%2Csrc:007080\%2Csrc:007080\%2Csrc:0070807080\%2Csrc:$ ASAN says: ==4335==ERROR: AddressSanitizer: heap-buffer-overflow on address 0x611000000258 at pc 0x55f9e1e04e05 bp 0x7ffc92f94a40 sp 0x7ffc92f94a30 READ of size 8 at 0x611000000258 thread T0 #0 0x55f9e1e04e04 in read_pages_map ../../src/decode_r2007.c:1007 #1 0x55f9e1e04e04 in read_r2007_meta_data ../../src/decode_r2007.c:1774 #2 0x55f9e1dd66d7 in decode_R2007 ../../src/decode.c:2973 #3 0x55f9e1dd66d7 in dwg_decode ../../src/decode.c:241 #4 0x55f9e177b466 in dwg_read_file ../../src/dwg.c:210 #5 0x55f9e1776d4b in test_SVG/examples/dwg2svg2.c:116 #6 0x55f9e1776d4b in main ../../examples/dwg2svg2.c:501 #7 0x7f595f806b96 in __libc_start_main (/lib/x86_64-linux-gnu/libc.so.6+0x21b96) #8 0x55f9e17779a9 in start (/home/user/linhlhq/libredwg/asan build/examples/dwg2svg2+0x2d59a9) 0x61100000025c is located 0 bytes to the right of 220-byte region [0x611000000180,0x61100000025c) #0 0x7f5960052d38 in __interceptor_calloc (/usr/lib/x86_64-linux-gnu/libasan.so.4+0xded38) #1 0x55f9e1de73be in read_system_page ../../src/decode_r2007.c:635 SUMMARY: AddressSanitizer: heap-buffer-overflow ../../src/decode r2007.c:1007 in read pages map 0x0c227fff8020: 00 00 00 00 00 fa Addressable: 00
Partially addressable: 01 02 03 04 05 06 07 Heap left redzone: Freed heap region: Stack left redzone: Stack mid redzone: Stack right redzone: Stack after return: Stack use after scope: Global redzone: Global init order: Poisoned by user: Container overflow: Array cookie: Intra object redzone: ASan internal: Left alloca redzone: Right alloca redzone: ==4335==ABORTING

linhlhq commented on Jan 2, 2020 Author 2.heap-buffer-overflow in bit search sentinel ../../src/bits.c:1844 POC: https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000361%2Csiq:06%2Csrc:001213%2B008342%2Cop:splice%2Crep:4 ASAN savs: READ of size 1 at 0x7f8f1c662900 thread T0 #0 0x556621519ff4 in bit_search_sentinel ../../src/bits.c:1844 #1 0x556621ae0a78 in decode_R13_R2000 ../../src/decode.c:1437 #2 0x556621b0cd42 in dwg_decode ../../src/decode.c:239 #3 0x5566214b2466 in dwg_read_file ../../src/dwg.c:210 #4 0x5566214add4b in test_SVG ../../examples/dwg2svg2.c:116 #5 0x5566214add4b in main ../../examples/dwg2svg2.c:501 #6 0x7f8f1ae29b96 in __libc_start_main (/lib/x86_64-linux-gnu/libc.so.6+0x21b96) #7 0x5566214ae9a9 in _start (/home/user/linh1hq/libredwg/asan_build/examples/dwg2svg2+0x2d59a9) 0x7f8f1c662900 is located 0 bytes to the right of 401664-byte region [0x7f8f1c600800,0x7f8f1c662900) allocated by thread T0 here: #0 0x7f8f1b675d38 in __interceptor_calloc (/usr/lib/x86_64-linux-gnu/libasan.so.4+0xded38) #1 0x5566214b234c in dat_read_file ../../src/dwg.c:73 #2 0x5566214b234c in dwg_read_file ../../src/dwg.c:203

```
Shadow byte legend (one shadow byte represents 8 application bytes):
 Addressable:
               00
 Partially addressable: 01 02 03 04 05 06 07
 Heap left redzone:
Freed heap region:
Stack left redzone:
                 f1
 Stack mid redzone:
Stack right redzone:
 Stack after return:
Stack use after scope:
                 f5
f8
 Global redzone:
 Global init order:
 Poisoned by user:
 Container overflow:
 Array cookie:
 Intra object redzone:
                 hh
 ASan internal:
                 fe
 Left alloca redzone:
 Right alloca redzone:
                 cb
==4471==ABORTING
```

```
linhlhq commented on Jan 2, 2020
                                                                                                                                                     Author
3.heap-buffer-overflow in bfr_read ../../src/decode.c:1548
POC: https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000328%2Csig:06%2Csrc:007279%2Cop:havoc%2Crep:8
   =4589==ERROR: AddressSanitizer: heap-buffer-overflow on address 0x61b0000014f4 at pc 0x7fe367220733 bp 0x7fff95bb63e0 sp 0x7fff95bb5b88
 READ of size 96 at 0x61h0000014f4 thread TO
     #0 0x7fe367220732 (/usr/lib/x86_64-linux-gnu/libasan.so.4+0x79732)
     #1 0x559f5ee1a6a9 in memcpy /usr/include/x86_64-linux-gnu/bits/string_fortified.h:34 #2 0x559f5ee1a6a9 in bfr_read ../../src/decode.c:1548
     #3 0x559f5ee1a6a9 in read R2004 section info ../../src/decode.c:2062
     #4 0x559f5f3e2392 in decode_R2004 ../../src/decode.c:2910
     #5 0x559f5f3eac7d in dwg decode ../../src/decode.c:245
     #6 0x559f5ed90466 in dwg_read_file ./../src/dwg.c:210
#7 0x559f5ed8bd4b in test_SVG ./../examples/dwg2svg2.c:116
     #8 0x559f5ed8bd4b in main ../../examples/dwg2svg2.c:501
     #9 0x7fe366a39b96 in __libc_start_main (/lib/x86_64-linux-gnu/libc.so.6+0x21b96)
     #10 0x559f5ed8c9a9 in _start (/home/user/linhlhq/libredwg/asan_build/examples/dwg2svg2+0x2d59a9)
  0x61b0000014f4 is located 0 bytes to the right of 1652-byte region [0x61b000000e80,0x61b0000014f4)
  allocated by thread T0 here:
     #0 0x7fe367285d38 in __interceptor_calloc (/usr/lib/x86_64-linux-gnu/libasan.so.4+0x559f5ee1a1e7 in read_R2004_section_info ../../src/decode.c:2007
     #2 0x2ddf1 (<unknown module>)
  SUMMARY: AddressSanitizer: heap-buffer-overflow (/usr/lib/x86_64-linux-gnu/libasan.so.4+0x79732)
  Shadow bytes around the buggy address:
   Addressable:
                      00
   Partially addressable: 01 02 03 04 05 06 07 Heap left redzone: fa
   Freed heap region:
   Stack left redzone:
                        f1
   Stack mid redzone:
   Stack right redzone:
                        f3
   Stack after return:
                        f8
   Stack use after scope:
   Global redzone:
Global init order:
   Poisoned by user:
                        f7
   Container overflow:
   Arrav cookie:
   Intra object redzone:
   ASan internal:
   Left alloca redzone:
   Right alloca redzone:
                        cb
  ==4589==ARORTING
```

linhlhq commented on Jan 2, 2020 (Author)

```
0x00008fff7000-0x02008fff7000
   0x02008fff7000-0x10007fff8000
  0x561598094000-0x561598fd9000 /home/user/linhlhq/libredwg/asan_build/examples/dwg2svg2
  0x7feefb0c4000-0x7feefb0c8000
   0x7feefb0c8000-0x7feefb0cf000 /lib/x86 64-linux-gnu/librt-2.27.so
   0x7feefb0cf000-0x7feefb2ce000 /lib/x86_64-linux-gnu/librt-2.27.so
  0x7reetp0ctroe0-ex7reetp2cteoor _110/x8o_pa-11nux_gnu/librt-2.27.so

0x7feetp2ce00-ex7feetp2cf000 /lib/x8o_64-linux_gnu/librt-2.27.so

0x7feetp2cf000-ex7feetp2d0000 /lib/x8o_64-linux-gnu/librt-2.27.so

0x7feetp2d0000-ex7feetp2d0000 /lib/x8o_64-linux-gnu/libdl-2.27.so

0x7feetp3d000-ex7feetp4d2000 /lib/x8o_64-linux-gnu/libdl-2.27.so

0x7feetp4d2000-ex7feefb4d3000 /lib/x8o_64-linux-gnu/libdl-2.27.so
  0x7feefb4d3000-0x7feefb4d4000 /lib/x86_64-linux-gnu/libd1-2.27.so
0x7feefb4d4000-0x7feefb6bb000 /lib/x86_64-linux-gnu/libc-2.27.so
  0x7feefb6bb000-0x7feefb8bb000 /lib/x86_64-linux-gnu/libc-2.27.so
0x7feefb8bb000-0x7feefb8bf000 /lib/x86_64-linux-gnu/libc-2.27.so
0x7feefb8bf000-0x7feefb8cf000 /lib/x86_64-linux-gnu/libc-2.27.so
  0x7feefb8c1000-0x7feefb8c5000
0x7feefb8c5000-0x7feefba62000 /lib/x86_64-linux-gnu/libm-2.27.so
   0x7feefba62000-0x7feefbc61000 /lib/x86_64-linux-gnu/libm-2.27.so
  0x7feefbc61000-0x7feefbc62000 /lib/x86_64-linux-gnu/libm-2.27.so
0x7feefbc62000-0x7feefbc63000 /lib/x86_64-linux-gnu/libm-2.27.so
0x7feefbc63000-0x7feefbd3000 /usr/lib/x86_64-linux-gnu/libasan.so.4.0.0
   0x7feefbdb3000-0x7feefbfb3000 \ /usr/lib/x86\_64-linux-gnu/libasan.so.4.0.0 \ 0x7feefbfb3000-0x7feefbfb6000 \ /usr/lib/x86\_64-linux-gnu/libasan.so.4.0.0 \ 
   0x7feefbfb6000-0x7feefbfb9000 /usr/lib/x86_64-linux-gnu/libasan.so.4.0.0
   0x7feefbfb9000-0x7feefcc1e000
   0x7feefcc1e000-0x7feefcc45000 /lib/x86 64-linux-gnu/ld-2.27.so
  0x7feefccaa000-0x7feefce38000
0x7feefce38000-0x7feefce45000
   0x7feefce45000-0x7feefce46000 /lib/x86_64-linux-gnu/ld-2.27.so
  0x7feefce46000-0x7feefce47000 /lib/x86 64-linux-gnu/ld-2.27.so
   0x7feefce47000-0x7feefce48000
   0x7ffe47737000-0x7ffe47758000 [stack]
   0x7ffe477e4000-0x7ffe477e7000 [vvar]
   0x7ffe477e7000-0x7ffe477e9000 [vdso]
  0xfffffffff600000-0xfffffffff601000 [vsyscall]
==4839==AddressSanitizer CHECK failed: ../../../src/libsanitizer/sanitizer common/sanitizer common.cc:118 "((0 && "unable to mmap")) != (0)" (0x0, 0x0)
     #0 0x7feefbd4cc02 (/usr/lib/x86_64-linux-gnu/libasan.so.4+0xe9c02)
#1 0x7feefbd6b595 in _sanitizer::CheckFailed(char const*, int, char const*, unsigned long long, unsigned long long) (/usr/lib/x86_64-linux-gnu/libasan.so.4+0x108595)
     #2 0x7feefbd56492 (/usr/lib/x86_64-linux-gnu/libasan.so.4+0xf3492)
#3 0x7feefbd628a5 (/usr/lib/x86_64-linux-gnu/libasan.so.4+0xff8a5)
    #4 0x7feefbc8f8f1 (/usr/lib/x86_64-linux-gnu/libasan.so.4+0x2c8f1)
#5 0x7feefbc8a04b (/usr/lib/x86_64-linux-gnu/libasan.so.4+0x2704b)
     #6 0x7feefbd41d00 in __interceptor_calloc (/usr/lib/x86_64-linux-gnu/libasan.so.4+0xded00) #7 0x5615989dad4d in read_sections_map ../../src/decode_r2007.c:917
    #8 0x5615989ecaee in read_r2007_meta_data ../../src/decode_r2007.c:1800
#9 0x5615989c86d7 in decode_R2007 ../../src/decode.c:2973
     #10 0x5615989c86d7 in dwg_decode ../../src/decode.c:241
     #11 0x56159836d466 in dwg_read_file ../../src/dwg.c:210
     #12 0x561598368d4b in test_SVG ../../examples/dwg2svg2.c:116
     #13 0x56159836840b in main ./../examples/dwg2svg2.c:561
#14 0x7feefb4f5b96 in __libc_start_main (/lib/x86_64-linux-gnu/libc.so.6+0x21b96)
     #15 0x5615983699a9 in _start (/home/user/linhlhq/libredwg/asan_build/examples/dwg2svg2+0x2d59a9)
```

```
linhlhq commented on Jan 2, 2020
                                                                                                                                                                                                  Author
5.heap-buffer-overflow in copy compressed bytes ../../src/decode r2007.c:233
POC: https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000426%2Csiq:06%2Csrc:009599%2Cop:havoc%2Crep:8
ASAN savs:
   ==4975==ERROR: AddressSanitizer: heap-buffer-overflow on address 0x629000009e7c at pc 0x564f138ce00b bp 0x7ffcab4ef510 sp 0x7ffcab4ef500
  READ of size 8 at 0x629000009e7c thread T0
#0 0x564f138ce00a in memcpy /usr/include/x86_64-linux-gnu/bits/string_fortified.h:34
      ## 0x564f138cc00a in memcpy /Usr/lnc1ude/x8b_04-11nux-gnu/pits/string_rortiri
#1 0x564f138cc00a in copy_compressed_bytes ../../src/decode_r2007.c:233
#2 0x564f138cc00a in decompress_r2007 ../../src/decode_r2007.c:519
#3 0x564f138dd2c7 in read_data_page ../../src/decode_r2007.c:584
#4 0x564f138dd2c7 in read_data_section ../../src/decode_r2007.c:588
#5 0x564f138e1c04 in read_2007_section_handles ../../src/decode_r2007.c:1584
       #6 0x564f138e1c04 in read_r2007_meta_data ../../src/decode_r2007.c:1811
       #7 0x564f138bd6d7 in decode_R2007 ../../src/decode.c:2973
#8 0x564f138bd6d7 in dwg_decode ../../src/decode.c:241
#9 0x564f13262466 in dwg_read_file ../../src/dwg.c:210
       #10 0x564f1325dd4b in test_SVG ../../examples/dwg2svg2.c:116 #11 0x564f1325dd4b in main ../../examples/dwg2svg2.c:501
       #12 0x7f78102e7b96 in _libc_start_main (/lib/x86_64-linux-gnu/libc.so.6+0x2lb96)
#13 0x564f1325e9a9 in _start (/home/user/linhlhq/libredwg/asan_build/examples/dwg2svg2+0x2d59a9)
   0x629000009e7c is located 2 bytes to the right of 19578-byte region [0x629000005200,0x629000009e7a)
   allocated by thread T0 here:
       #0 0x7f7810b33d38 in __interceptor_calloc (/usr/lib/x86_64-linux-gnu/libasan.so.4+0xded38)
       #1 0x564f138d3d31 in decode_rs ..../src/decode_r2007.c:580 
#2 0x564f138d3d31 in read_data_page ../../src/decode_r2007.c:689 
#3 0x564f138d3d31 in read_data_section ../../src/decode_r2007.c:758
   SUMMARY: AddressSanitizer: heap-buffer-overflow /usr/include/x86_64-linux-gnu/bits/string_fortified.h:34 in memcpy
  Shadow byte legend (one shadow byte represents 8 application bytes):
     Addressable:
     Partially addressable: 01 02 03 04 05 06 07
```

```
Stack right redzone: f3
Stack after return: f5
Stack use after scope: f8
Global rit 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
==4975==ABORTING
```

```
linhlhq commented on Jan 2, 2020
                                                                                                                                                                                                                                      Author
7. NULL\ pointer\ dereference\ in\ dwg\_dynapi\_entity\_value\ /home/user/linhlhq/libredwg/asan\_build/src/gen-dynapi.pl: 1395
POC: https://qithub.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000026%2Csiq:06%2Csrc:000000%2Cop:flip1%2Cpos:132007
ASAN savs:
   ==5356==ERROR: AddressSanitizer: SEGV on unknown address 0x000000000010 (pc 0x7f0447efc57e bp 0x7ffe6ac888f0 sp 0x7ffe6ac88058 T0)
   ==5356==The signal is caused by a READ memory access.
   ==5356==Hint: address points to the zero page.
        #0 0x7f0447efc57d (/lib/x86_64-linux-gnu/libc.so.6+0xbb57d)
#1 0x7f04486496ce (/usr/lib/x86_64-linux-gnu/libasan.so.4+0x796ce)
        #2 0x56329a7c1785 in memcpy /usr/include/x86_64-linux-gnu/bits/string_fortified.h:34
       #3 0x56329a7c1785 in dwg_dynapi_entity_value /home/user/linhlhq/libredwg/asan_build/src/gen-dynapi.pl:1395 #4 0x563299fbaf1f in output_BLOCK_HEADER ../../examples/dwg2svg2.c:335
        #5 0x563299fba078 in output_SVG .././examples/dwg2svg2.c:395
#6 0x563299fba078 in test_SVG ../../examples/dwg2svg2.c:118
       #7 0x563299fba078 in main .../examples/dwg2svg2.c:501
#8 0x7f0447e62b96 in __libc_start_main (/lib/x86_64-linux-gnu/libc.so.6+0x21b96)
#9 0x563299fba9a9 in _start (/home/user/linhlhq/libredwg/asan_build/examples/dwg2svg2+0x2d59a9)
   AddressSanitizer can not provide additional info.
   SUMMARY: AddressSanitizer: SEGV (/lib/x86_64-linux-gnu/libc.so.6+0xbb57d)
   ==5356==ABORTING
```

Inhlhq changed the title Sever Several bugs found by fuzzing on Jan 2, 2020

```
rurban commented on Jan 3, 2020 • edited ▼ (Contributor)

Thanks, but dwg2svg2 is not even installed. cannot you just fuzz the official dwg2SVG instead?

Which master exactly? I'm assuming tag 0.9.3.2564. I'm constantly fixing fuzzing bugs right now, just > 300 in the last 2 days.

A rurban self-assigned this on Jan 3, 2020

Turban added the bug label on Jan 3, 2020

Turban added a commit that referenced this issue on Jan 3, 2020

A dwg2svg2: fail on NULL _hdr ··· 757b87f
```

 $\[\[\] \mathcal{J} \]$ rurban added a commit that referenced this issue on Jan 3, 2020

Fix NULL ptr deref in get_next_owned_entity ...
540e1e4

