

New issue

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## Several bugs found by fuzzing #179



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

Assignees



Labels

bug

fuzzing

Milestone

0.10

linhlhq commented on Jan 2, 2020

Hi,

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%2Ccop:havoc%2Crep:4](https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000239%2Csig:06%2Csrc:007083%2Ccop:havoc%2Crep:4)

ASAN says:

```
==4335==ERROR: AddressSanitizer: heap-buffer-overflow on address 0x61100000258 at pc 0x55f9e1e04e05 bp 0x7ffc92f94a40 sp 0x7ffc92f94a30
READ of size 8 at 0x61100000258 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 0x7f595f80b96 in __libc_start_main (/lib/x86_64-linux-gnu/libc.so.6+0x21b96)
#8 0x55f9e1779a9 in _start (/home/user/linhlhq/libredwg/asan_build/examples/dwg2svg2+0x2d59a9)
```

0x6110000025c is located 0 bytes to the right of 220-byte region [0x61100000180,0x6110000025c) allocated by thread T0 here:

```
#0 0x7f5960052d38 in __interceptor_malloc (/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

Shadow bytes around the buggy address:

```
0x0c227fff7f0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c227fff800: fa fa fa fa fa fa fa fa 00 00 00 00 00 00 00
0x0c227fff810: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c227fff820: 00 00 00 00 00 00 fa fa fa fa fa fa fa fa fa
0x0c227fff830: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
=>0x0c227fff840: 00 00 00 00 00 00 00 00 00 00 00 00[04]fa fa fa
0x0c227fff850: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c227fff860: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c227fff870: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c227fff880: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c227fff890: 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
```

==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%2Csig:06%2Csrc:001213%2B008342%2Ccop:splice%2Crep:4](https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000361%2Csig:06%2Csrc:001213%2B008342%2Ccop:splice%2Crep:4)

ASAN says:

```
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/linhlhq/libredwg/asan_build/examples/dwg2svg2+0x2d59a9)
```

0x7f8f1c662900 is located 0 bytes to the right of 401664-byte region [0x7f8f1c008000,0x7f8f1c662900) allocated by thread T0 here:

```
#0 0x7f8f1b675d38 in __interceptor_malloc (/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
```

```
0x0112038c4400: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0ff2638c44e0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0ff2638c44f0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0ff2638c4500: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0ff2638c4510: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
=>0x0ff2638c4520:[fa]fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0ff2638c4530: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0ff2638c4540: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0ff2638c4550: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0ff2638c4560: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0ff2638c4570: 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
==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%2Ccop:havoc%2Crep:8](https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000328%2Csig:06%2Csrc:007279%2Ccop:havoc%2Crep:8)

ASAN says:

```
==4589==ERROR: AddressSanitizer: heap-buffer-overflow on address 0x61b0000014f4 at pc 0x7fe367220733 bp 0x7fff95bb63e0 sp 0x7fff95bb5b88
READ of size 96 at 0x61b0000014f4 thread T0
#0 0x7fe367220732 in (/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 [0x61b000000e00,0x61b0000014f4)
allocated by thread T0 here:

```
#0 0x7fe367285d38 in __interceptor_malloc (/usr/lib/x86_64-linux-gnu/libasan.so.4+0xded38)
#1 0x559f5ee1a1e7 in read_R2004_section_info ../../src/decode.c:2007
#2 0x2dddf1 (<unknown module>)
```

SUMMARY: AddressSanitizer: heap-buffer-overflow (/usr/lib/x86\_64-linux-gnu/libasan.so.4+0x79732)

Shadow bytes around the buggy address:

```
0x0c367fff8240: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c367fff8250: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c367fff8260: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c367fff8270: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0c367fff8280: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
=>0x0c367fff8290: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00[04]fa
0x0c367fff82a0: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c367fff82b0: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c367fff82c0: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c367fff82d0: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c367fff82e0: fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa fa
0x0c367fff82f0: 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
==4589==ABORTING
```

linhlhq commented on Jan 2, 2020

Author

### 4.Crafted input will lead to Memory allocation failed in read\_sections\_map ../../src/decode\_r2007.c:917

POC: [https://github.com/linhlhq/research/blob/master/PoCs/libreDWG\\_0.9.3.2564/id:000271%2Csig:06%2Csrc:007728%2Ccop:havoc%2Crep:2](https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000271%2Csig:06%2Csrc:007728%2Ccop:havoc%2Crep:2)

ASAN says:



```
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
==4975==ABORTING
```

linhlhq commented on Jan 2, 2020

Author

#### 6.NULL pointer dereference in get\_next\_owned\_entity ../../src/dwg.c:935

POC: [https://github.com/linhlhq/research/blob/master/PoCs/libreDWG\\_0.9.3.2564/id:000113%2Csig:06%2Csrc:000000%2Ccop:flip2%2Cpos:398289](https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000113%2Csig:06%2Csrc:000000%2Ccop:flip2%2Cpos:398289)

ASAN says:

```
=====
==5183==ERROR: AddressSanitizer: SEGV on unknown address 0x0000000000b0 (pc 0x55c862f1795c bp 0x0c680000057d sp 0x7ffc02b51490 T0)
==5183==The signal is caused by a READ memory access.
==5183==Hint: address points to the zero page.
#0 0x55c862f1795b in get_next_owned_entity ../../src/dwg.c:935
#1 0x55c862f0814b in output_BLOCK_HEADER ../../examples/dwg2svg2.c:347
#2 0x55c862f07078 in output_SVG ../../examples/dwg2svg2.c:395
#3 0x55c862f07078 in test_SVG ../../examples/dwg2svg2.c:118
#4 0x55c862f07078 in main ../../examples/dwg2svg2.c:501
#5 0x7fd3ed723b96 in __libc_start_main (/lib/x86_64-linux-gnu/libc.so.6+0x21b96)
#6 0x55c862f079a9 in _start (/home/user/linhlhq/libredwg/asan_build/examples/dwg2svg2+0x2d59a9)

AddressSanitizer can not provide additional info.
SUMMARY: AddressSanitizer: SEGV ../../src/dwg.c:935 in get_next_owned_entity
==5183==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://github.com/linhlhq/research/blob/master/PoCs/libreDWG\\_0.9.3.2564/id:000026%2Csig:06%2Csrc:000000%2Ccop:flip1%2Cpos:132007](https://github.com/linhlhq/research/blob/master/PoCs/libreDWG_0.9.3.2564/id:000026%2Csig:06%2Csrc:000000%2Ccop:flip1%2Cpos:132007)

ASAN says:

```
=====
==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+0xb57d)
#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 0x563299fba078 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 0x7f0447e02b96 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+0xb57d)
==5356==ABORTING
```

  linhlhq 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.

 rurban self-assigned this on Jan 3, 2020


  rurban added the bug label on Jan 3, 2020

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

 dwg2svg2: fail on NULL \_hdr ...

757b87f


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


 Fix NULL ptr deref in get\_next\_owned\_entity ...

540e1e4


 protect r2007 decode compression length ...


c893d84

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


 protect r2007 section.num\_pages overflow ...


d5fe684

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


 fix read\_R2004\_section\_info out of range check ...

25228ca

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

 fix bit\_search\_sentinel out of range check ...


5c19f59


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


 add r2007 Page out of bounds check ...

fc8c16c

 **rurban** closed this as completed on Jan 3, 2020

 **rurban** added this to the **0.10** milestone on Jan 6, 2020

 **rurban** added the **fuzzing** label on Jan 16, 2020

 **rurban** added a commit that referenced this issue on Feb 2, 2020

 in\_json: fix heap-overflow on parser errmsg ...

932fdb2

 **DavidKorczynski** mentioned this issue on Feb 23, 2021

**libredwg: initial integration.** google/oss-fuzz#5226

 Merged

#### Assignees

 **rurban**

#### Labels

bug **fuzzing**

#### Projects

None yet

#### Milestone

0.10

#### Development

No branches or pull requests

#### 2 participants