1-64-asm-hello-world

https://aslrfellow.github.io/

```
; NASM Hello World for x86 and x86_64 Intel Mac OS X (get yourself an updated nasm with brew)
; https://gist.github.com/FiloSottile/7125822
; nasm -f macho64 64in.asm && ld -macosx_version_min 10.7.0 -lSystem -o 64in 64in.o && ./64in

global start

section .text

start:

    mov     rax, 0x2000004 ; write
    mov     rdi, 1 ; stdout
    mov     rsi, msg
    mov     rdx, msg.len
    syscall

    mov     rax, 0x2000001 ; exit
    mov     rdi, 0
    syscall

section .data

msg:    db      "Hello, world!", 10
.len:   equ     $ - msg
```

```
rm 64in*

cat <<EOF > 64in.asm

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EOF

nasm -f macho64 64in.asm && ld -macosx_version_min 10.7.0 -lSystem -o 64in
64in.o && ./64in
ndisasm -b 64 64in > 64inout.asm
```
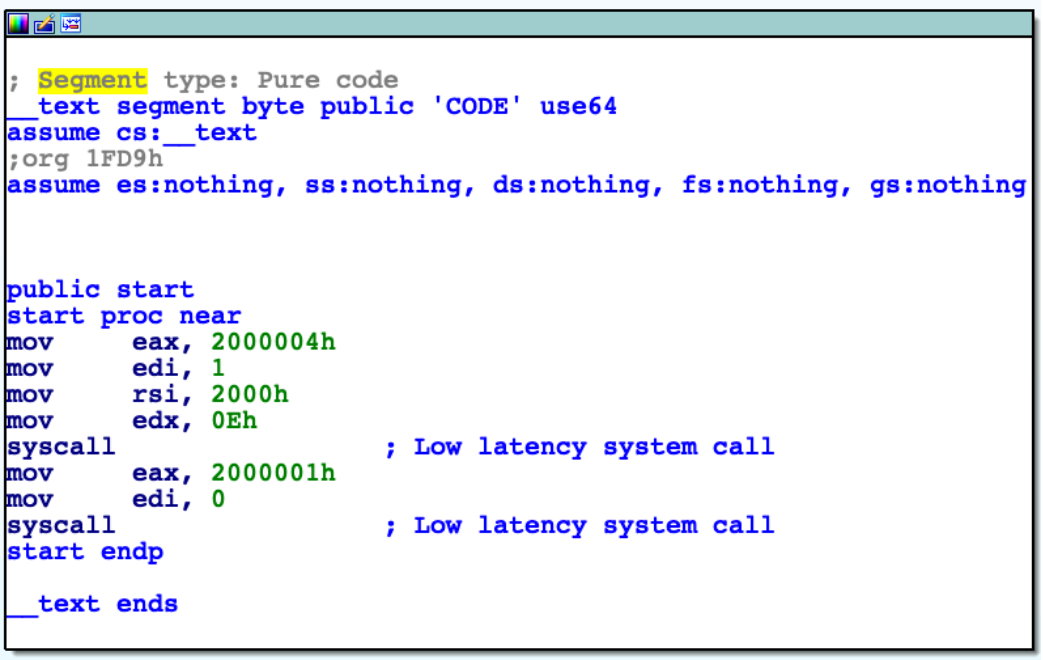
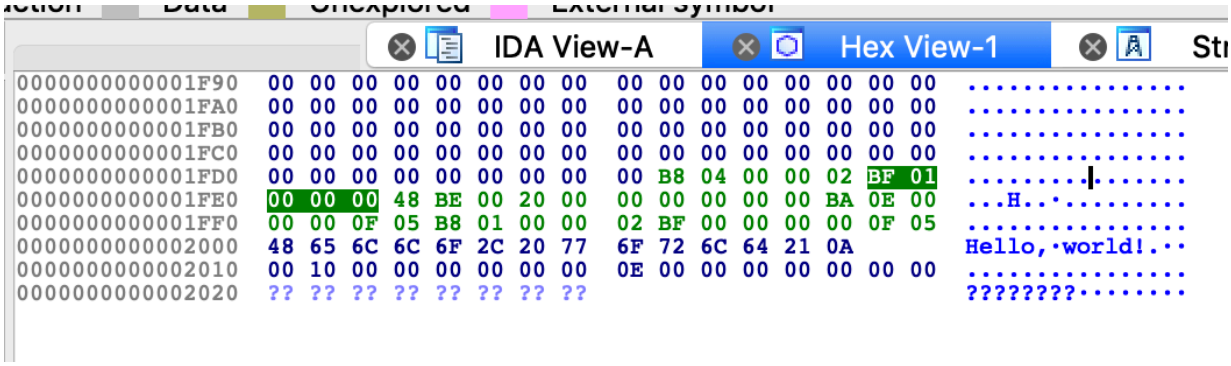
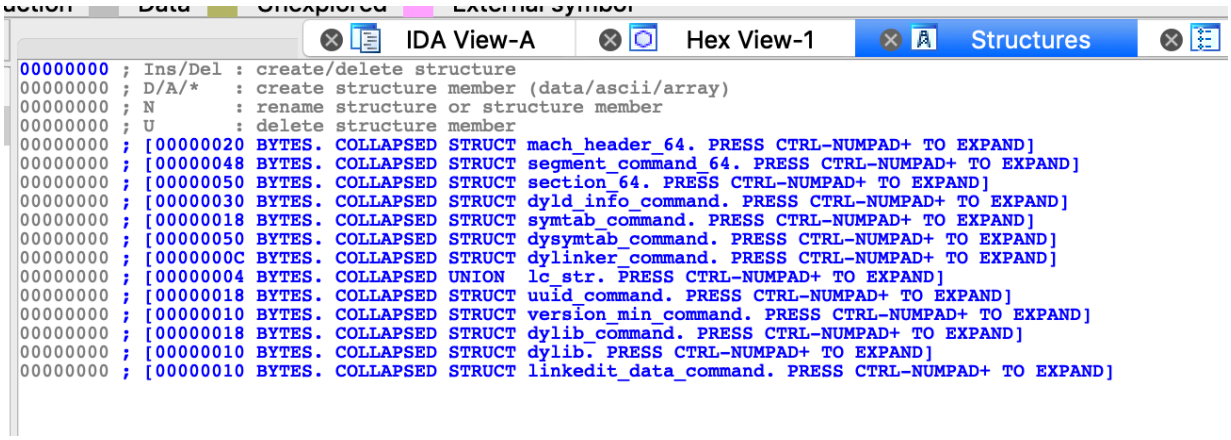
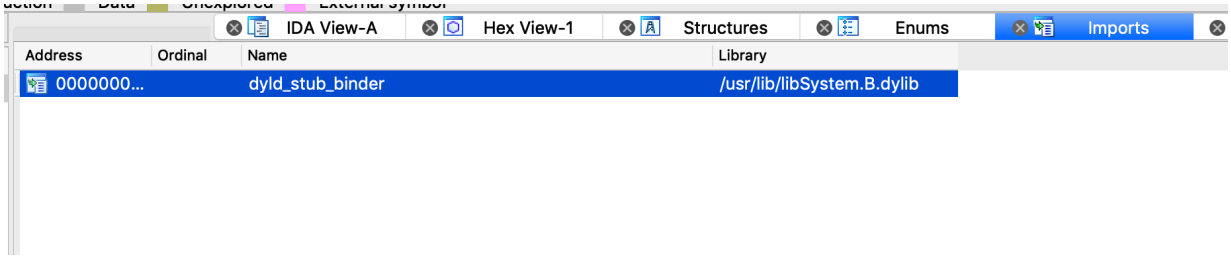

https://www.rapidtables.com/convert/number/hex-to-decimal.html
http://courses.ics.hawaii.edu/ReviewICS312/morea/ControlStructures/reading-dissassemble.html

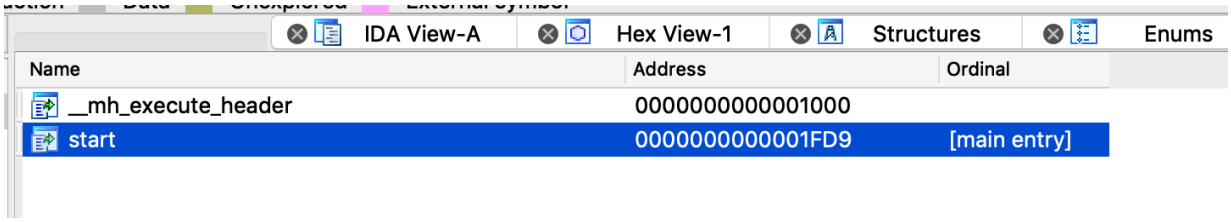


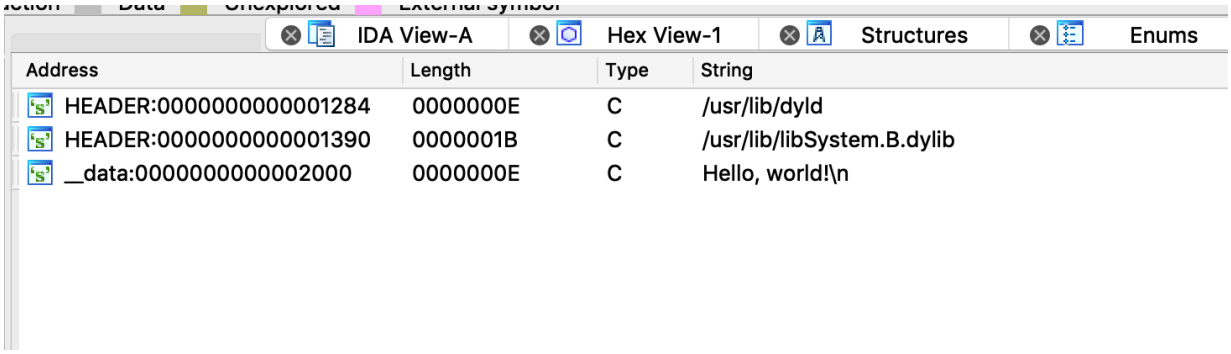
```
; Segment type: Pure code
__text segment byte public 'CODE' use64
assume cs:__text
;org 1FD9h
assume es:nothing, ss:nothing, ds:nothing, fs:nothing, gs:nothing



public start
start proc near
mov     eax, 2000004h
mov     edi, 1
mov     rsi, 2000h
mov     edx, 0Eh
syscall                 ; Low latency system call
mov     eax, 2000001h
mov     edi, 0
syscall                 ; Low latency system call
start endp

__text ends
```

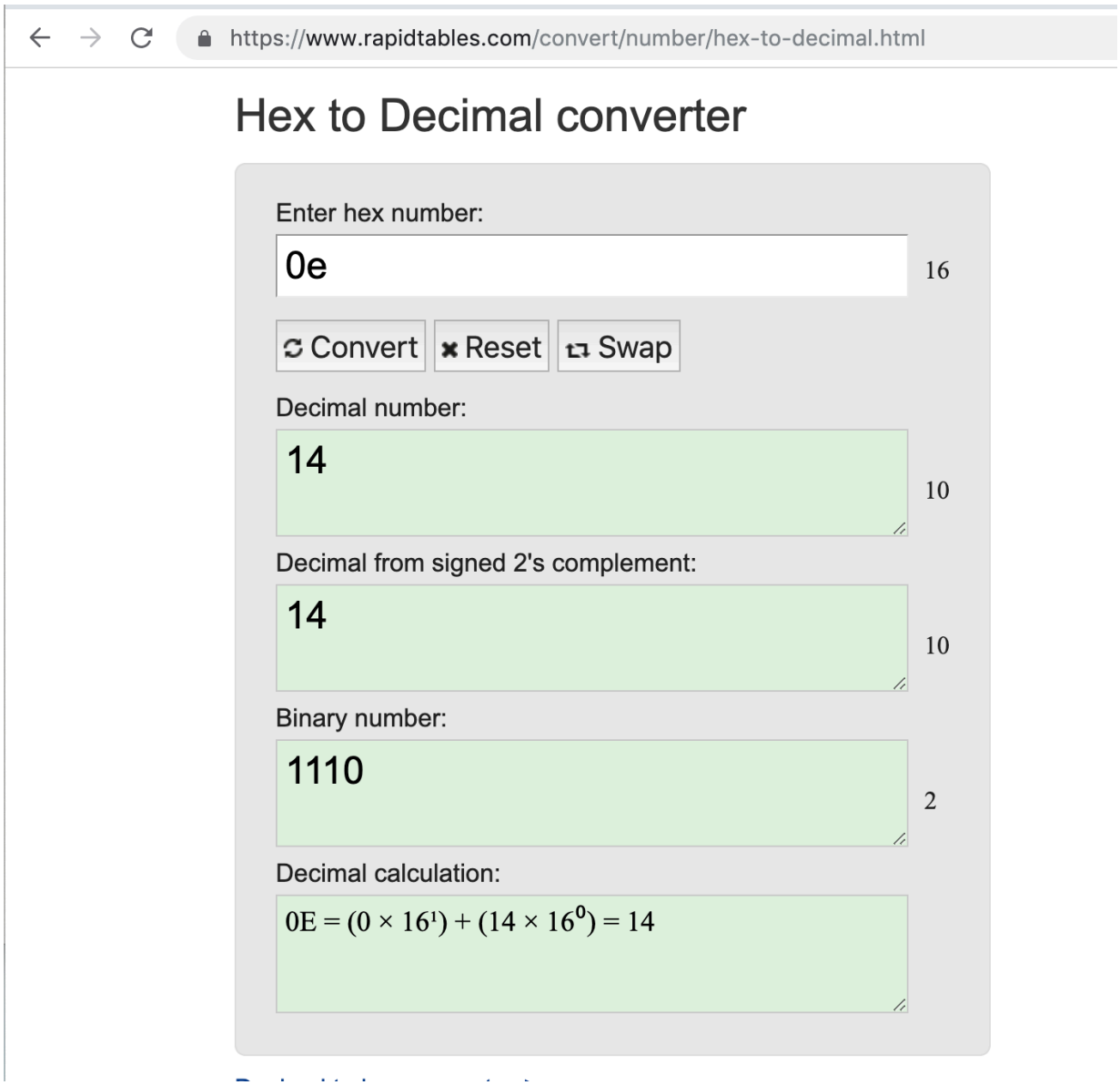

IDA View-A
Hex View-1
0000000000001F90 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ....
0000000000001FA0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ....
0000000000001FB0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ....
0000000000001FC0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ....
0000000000001FD0 00 00 00 00 00 00 00 00 00 B8 04 00 00 02 BF 01 ....
0000000000001FE0 00 00 00 48 BE 00 20 00 00 00 00 00 00 BA 0E 00 ...H..·.........
0000000000001FF0 00 00 0F 05 B8 01 00 00 02 BF 00 00 00 00 0F 05 ....
0000000000002000 48 65 6C 6C 6F 2C 20 77 6F 72 6C 64 21 0A Hello,·world!.··
0000000000002010 00 10 00 00 00 00 00 00 0E 00 00 00 00 00 00 00 ....
0000000000002020 ?? ?? ?? ?? ?? ?? ?? ?? ????????


IDA View-A
Hex View-1
Structures
00000000 ; Ins/Del : create/delete structure
00000000 ; D/A/* : create structure member (data/ascii/array)
00000000 ; N : rename structure or structure member
00000000 ; U : delete structure member
00000000 ; [00000020 BYTES. COLLAPSED STRUCT mach_header_64. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000048 BYTES. COLLAPSED STRUCT segment_command_64. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000050 BYTES. COLLAPSED STRUCT section_64. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000030 BYTES. COLLAPSED STRUCT dyld_info_command. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000018 BYTES. COLLAPSED STRUCT symtab_command. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000050 BYTES. COLLAPSED STRUCT dysymtab_command. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [0000000C BYTES. COLLAPSED STRUCT dylinker_command. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000004 BYTES. COLLAPSED UNION lc_str. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000018 BYTES. COLLAPSED STRUCT uuid_command. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000010 BYTES. COLLAPSED STRUCT version_min_command. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000018 BYTES. COLLAPSED STRUCT dylib_command. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000010 BYTES. COLLAPSED STRUCT dylib. PRESS CTRL-NUMPAD+ TO EXPAND]
00000000 ; [00000010 BYTES. COLLAPSED STRUCT linkedit_data_command. PRESS CTRL-NUMPAD+ TO EXPAND]


IDA View-A
Hex View-1
Structures
Enums
Imports
Address
Ordinal
Name
Library
0000000...
dyld_stub_binder
/usr/lib/libSystem.B.dylib


IDA View-A
Hex View-1
Structures
Enums
Name
Address
Ordinal
__mh_execute_header
0000000000001000
start
0000000000001FD9
[main entry]


IDA View-A
Hex View-1
Structures
Enums
Address
Length
Type
String
HEADER:0000000000001284
0000000E
C
/usr/lib/dyld
HEADER:0000000000001390
0000001B
C
/usr/lib/libSystem.B.dylib
__data:0000000000002000
0000000E
C
Hello, world!\n


https://www.rapidtables.com/convert/number/hex-to-decimal.html
Hex to Decimal converter
Enter hex number:
0e
16
Convert
Reset
Swap
Decimal number:
14
10
Decimal from signed 2's complement:
14
10
Binary number:
1110
2
Decimal calculation:
0E = (0 × 16¹) + (14 × 16⁰) = 14