**Part 1:**

feiyan@Feiyans-Air desktop % gcc hello.c -o hello

feiyan@Feiyans-Air desktop % ls -l hello

-rwxr-xr-x 1 feiyan staff 49472 Oct 14 17:39 hello

feiyan@Feiyans-Air desktop % size hello

\_\_TEXT \_\_DATA \_\_OBJC others dec hex

16384 16384 0 4295000064 4295032832 100010000

feiyan@Feiyans-Air desktop % ./hello

Hello World

So, the macOS doesn’t support glibc-static, so the -static option ends up throwing an error:



However, if I did ran gcc -static hello.c -o hello1 then we will see that the compiled hello1 executable file will have much larger text and data sizes than the hello executable file. hello1 is created without shared libraries and hello is created with shared libraries.

**Script Log:**

Script started on Wed Oct 14 17:48:12 2020

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004hggcc - hello.c -o hello[?2004l

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004h../hello[?2004l

Hello World

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004hlls -l hello[?2004l

-rwxr-xr-x 1 feiyan staff 49472 Oct 14 17:48 hello

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004hssize hello[?2004l

\_\_TEXT \_\_DATA \_\_OBJC others dec hex

16384 16384 0 4295000064 4295032832 100010000

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004h

**Part 2:**

feiyan@Feiyans-Air desktop % gcc hole1.c -o hole1

feiyan@Feiyans-Air desktop % gcc hole2.c -o hole2

feiyan@Feiyans-Air desktop % ./hole1

feiyan@Feiyans-Air desktop % ./hole2

feiyan@Feiyans-Air desktop % od -c file.hole

0000000 a b c d e f g h i j \0 \0 \0 \0 \0 \0

0000020 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0

\*

0040000 A B C D E F G H I J

0040012

feiyan@Feiyans-Air desktop % od -c file.nohole

0000000 a b c d e f g h i j a a a a a a

0000020 a a a a a a a a a a a a a a a a

\*

0040000 A B C D E F G H I J

0040012

feiyan@Feiyans-Air desktop % ls -ls file.hole file.nohole

40 -rw-r--r-- 1 feiyan staff 16394 Oct 14 19:23 file.hole

40 -rw-r--r-- 1 feiyan staff 16394 Oct 14 19:23 file.nohole

**Script Log:**

Script started on Wed Oct 14 19:22:37 2020

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004hf ggcc hole1.c -o hole1[?2004l

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004hggcc hole2.c -o hole2[?2004l

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004h../hole1[?2004l

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004h../hole2[?2004l

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004hood- -c file.hole[?2004l

0000000 a b c d e f g h i j \0 \0 \0 \0 \0 \0

0000020 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0

\*

0040000 A B C D E F G H I J

0040012

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004hood -c il fiile le.nohole[?2004l

0000000 a b c d e f g h i j a a a a a a

0000020 a a a a a a a a a a a a a a a a

\*

0040000 A B C D E F G H I J

0040012

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004hlls -ls file.hole file.nohole[?2004l

40 -rw-r--r-- 1 feiyan staff 16394 Oct 14 19:23 file.hole

40 -rw-r--r-- 1 feiyan staff 16394 Oct 14 19:23 file.nohole

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004h[?2004l

[1m[7m%[27m[1m[0m

]7;file://Feiyans-Air.attlocal.net/Users/feiyan/desktop

[0m[27m[24m[Jfeiyan@Feiyans-Air desktop % [K[?2004h