# 4st Homework

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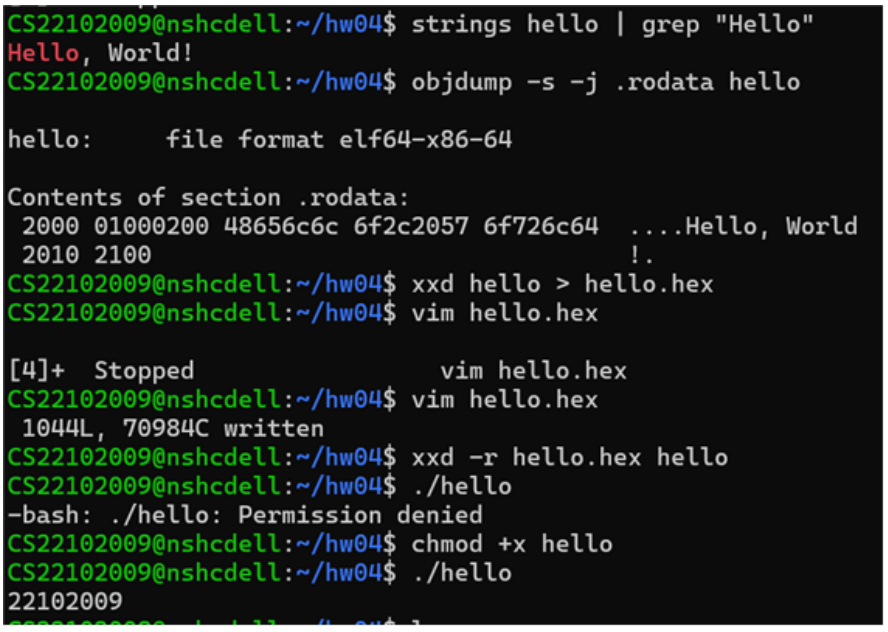
|---|---|
| 주제 | Decompile `hello` binary and change the string value to print your STUDENT ID |
| 날짜 | @2024년 10월 11일 |
| 유형 | 과제 |
| 2학기 학교 공부 | Computer System |

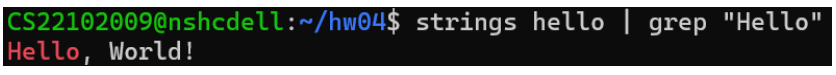



1. **Find the string in the binary file**

   First, we need to search for readable string(in this case Hello, World!) in the binary file.

   ```
   strings hello | grep "Hello”
   ```

   ⬆ This code helps locate the string that ness to be modified

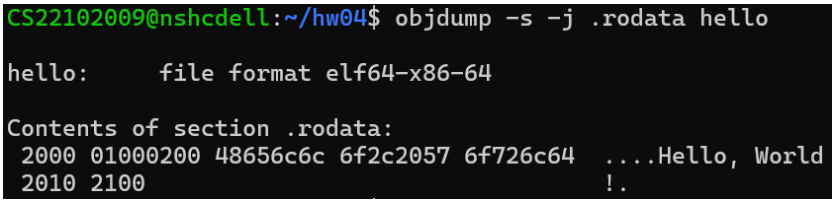
   
   

   In this case, it revealed the **Hello, World!** string in the binary file.

2. **Inspecting the `.rodata` segment**

```
objdump -s -j .rodata hello
```

I used the `objdump` command to examine the `.rodata` section of the binary. The `.rodata` segment stores read-only data, which includes the string we want to modify.(In this case Hello, World!)




I should find section starts with 2000 1000200.

3. **Dumping the binary to Hexadecimal**

```
xxd hello > hello.hex
```

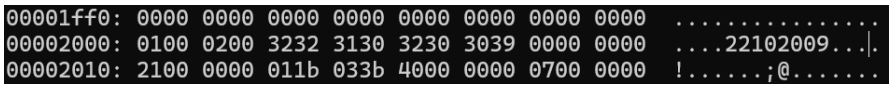
4. **Edit the file**

I used vim editor to edit file.

```
vim hello.hex
```

⬇️When we just open the file we can find Hello, World! code in this section.


⬇️ Change code like this to print my studentID: 22102009




save and close the file.

5. **Convert back to binary file**

```
xxd -r hello.hex hello
```

6. **Add Execution Permission**

   In my computer, it said it has no permission to execute file. So, I add execution permission.

7. **./hello and execute file**


   ⬆It prints out my student ID.