RADARE2 WORKSHOP

Writing a crack for ▮▮▮▮▮▮▮▮

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hack.lu 2015

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- French
- Freshly graduated
- I don't know Windows

Piracy is bad, m'kay.

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Time to write a compatibility enhancement hotfix!

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While knowing close to nothing about the Windows world.

```
[0x00535670]> ii~?
255
[0x00535670]> ii~Disk
[0x00535670]> ii~Drive
ordinal=024 plt=0x00702654 bind=NONE type=FUNC name=KERNEL32.dll_GetDriveTypeA
[0x00535670]> 
```

```
jvoisin@kaa 18:11 ~ cat .config/radare2/radare2rc
$winapi=!bash /home/jvoisin/.config/radare2/winapi.sh
jvoisin@kaa 18:11 ~ cat /home/jvoisin/.config/radare2/winapi.sh
curl https://source.winehq.org/WineAPI/${1}.html 2>/dev/null | grep DESCRIPTION -A 1 | tail -n '+2' | sed -e 's/<[^>]*>//g'
jvoisin@kaa 18:11 ~ r2 -
 -- WASTED
[0x00000000]> $winapi GetDriveTypeW
Returns the type of the disk drive specified. If root is NULL the root of the current directory is used.
[0x00000000]>
```

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[0x00000000]>
```

You've got this one in your .radare2rc in the VM

Your turn!

· Find where GetDriveTypeA is called

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· It's likely an analysis command, about xref to something
· There are two locations:
  · *0x4d65f6*
  · *0x5352ee*

· In what function do they belong?
· Still in analysis, function related, about information
· *afi 0x4d65f6*
· *afi 0x5352ee*

Your turn!

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- Which one is the relevant one? (check with *VV*)

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- 0x4d65f6 is called from two locations:
  - *0x004d6550*
  - *0x004ab1aa*
- Which one is the relevant one? (check with *VV*)
- 0x004d6550 is the cd-check routine!

1. Reopen the binary in write mode with *oo+*
2. Hardcode a return value for fcn.0x004d6550
3. Play the game without the CD!

```
[0x00535670]> oo+
File Empires.exe reopened in read-write mode
[0x00535670]> s 0x4d6550
[0x004d6550]> "wa mov eax, 1 ; ret 4"
Written 8 bytes (mov eax, 1 ; ret 4) = wx b801000000c20400
[0x004d6550]>
```

- Having no CD reader sucks,
- Age of Empire is cool,
- So is radare2.

Radare2 is nice.

You should use it.

- Github repo
- Official website
- The r2 blog
- The r2 book
- Twitter