Unpacking Vmprotect packer

muha2xmad.github.io/unpacking/Vmprotect/

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2 minute read

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Introduction

Unpacking a file which is packed using commercial `Vmprotect` packer.

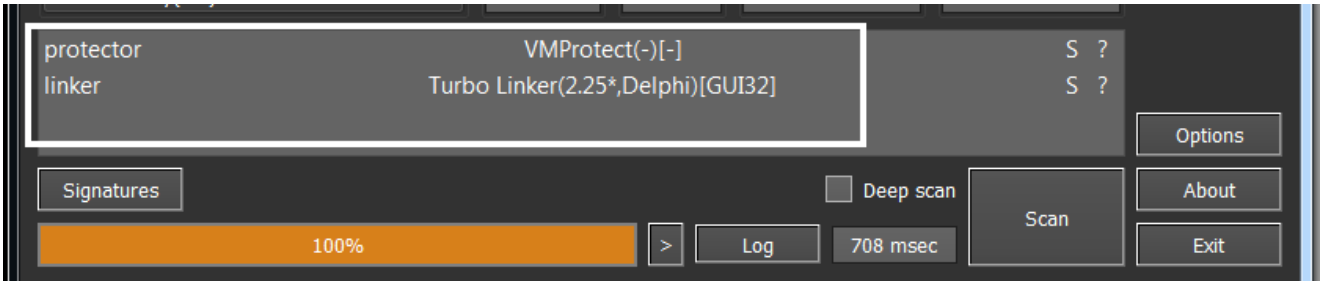
Download the sample: Here

MD5: A39B4F74B5108A2B9F1A33B2FEB22CC5

Static

DIE

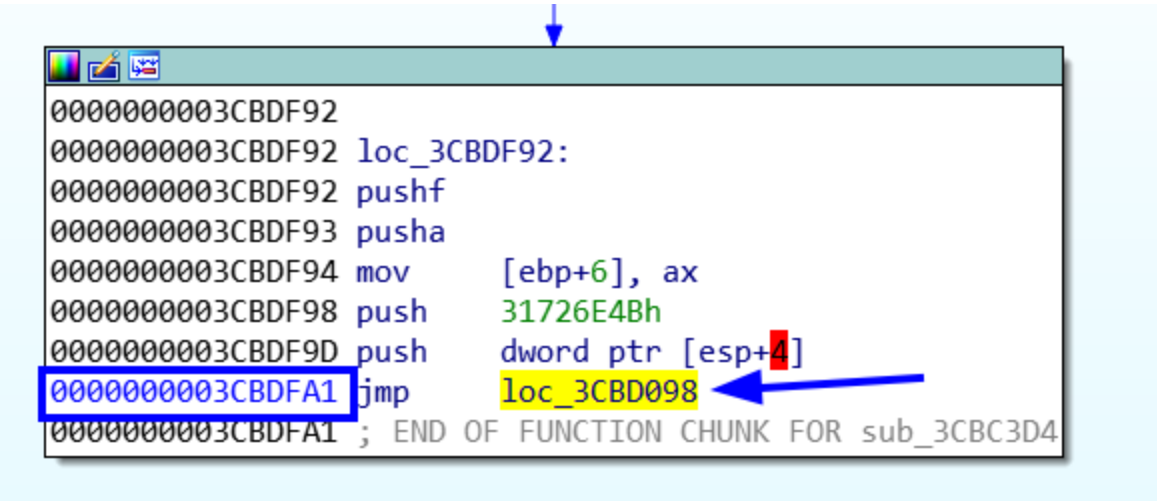
This sample is written in `Delphi` language and is packed through a commercial packer called `VmProtect` . And its `Entropy` is very high in section `Vmp1`



Figure(1):

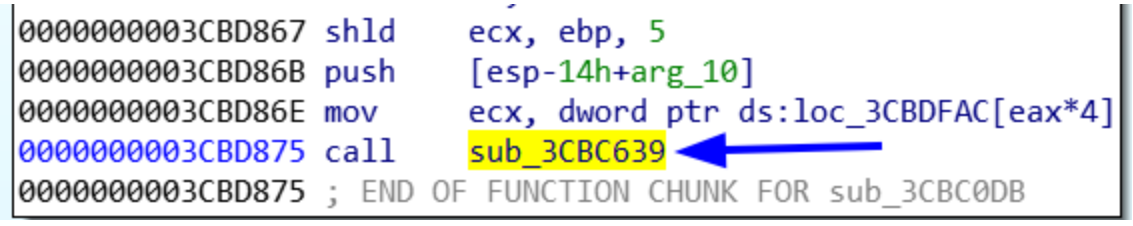
IDA

Open it in IDA. We will notice that there is so many jumps and calls which the packer uses to obfuscate the code. So if you **notice** that if you press on any jump in the funtion you still in the same function. But the last jump or call will go to another function. So to short efforts and time, we will go to the last call or jump of the function and keep doing that till we get to this one.



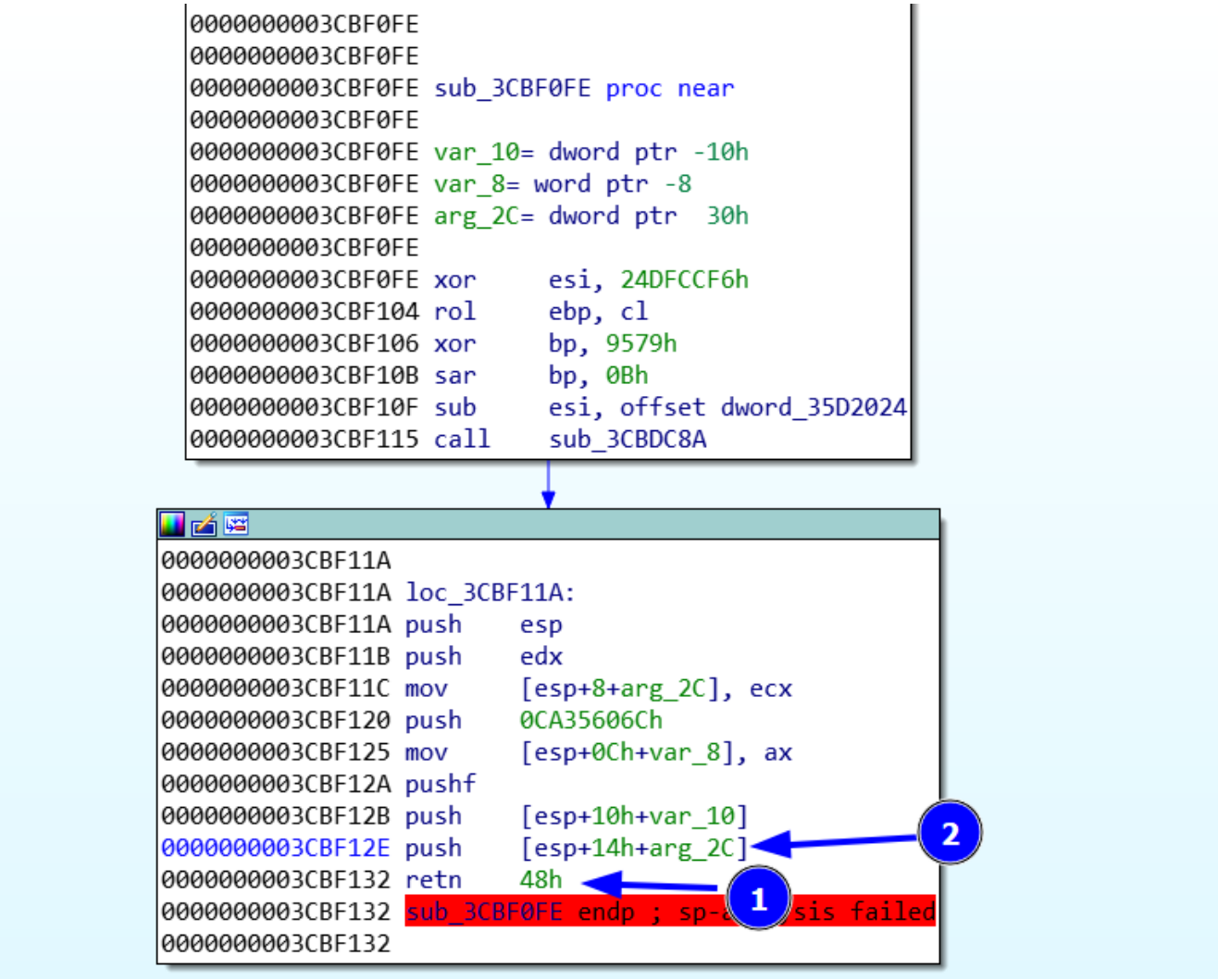
Figure(2):

We will reache to a function which has a loop if we press on the last jump of that function it will bring us to the same funtion. And after checking all the calls and jumps. this call is our way.



Figure(3):

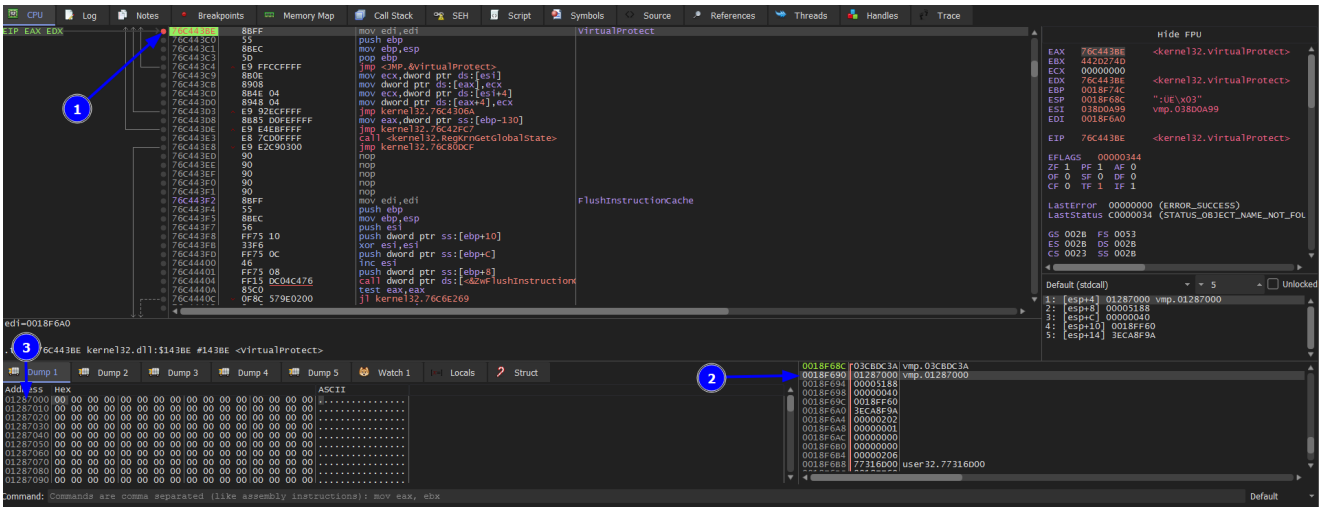
Till we find an interesting function. because its `retn 48` it will return the last instruction which is `push [esp+14h+arg_2C]` and we need its address `03CBF12E` beacause it will help us in debugging.



Figure(4):

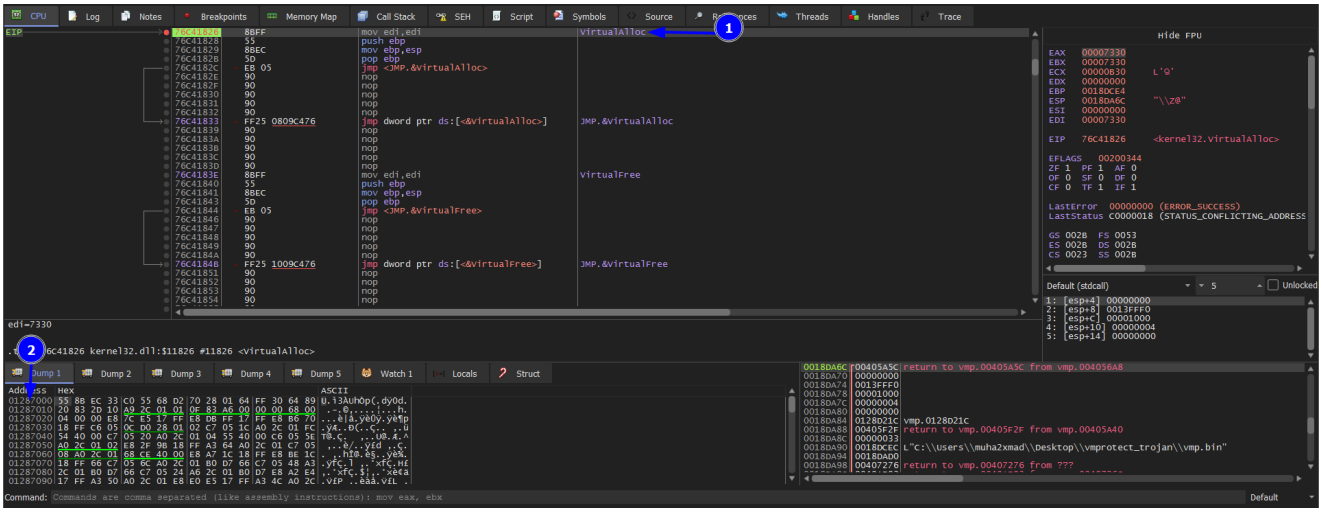
Unpacking process

We set breakpoints on `03CBF12E` , `VirtualAlloc` ,and `VirtualProtect` . Then we hit `run` to see us in `03CBF12E` and we `Follow in disassembler` of its `value` . We did that we might see a call to a register in this section. But we won't find any then we unset this breakpoint `03CBF12E` . And see `Strings` references you will see a few strings. Then press `run` to hit `VirtualProtect` breakpoint and keep pressing `run` . **Till** we see this address `01287000` then we dump it.



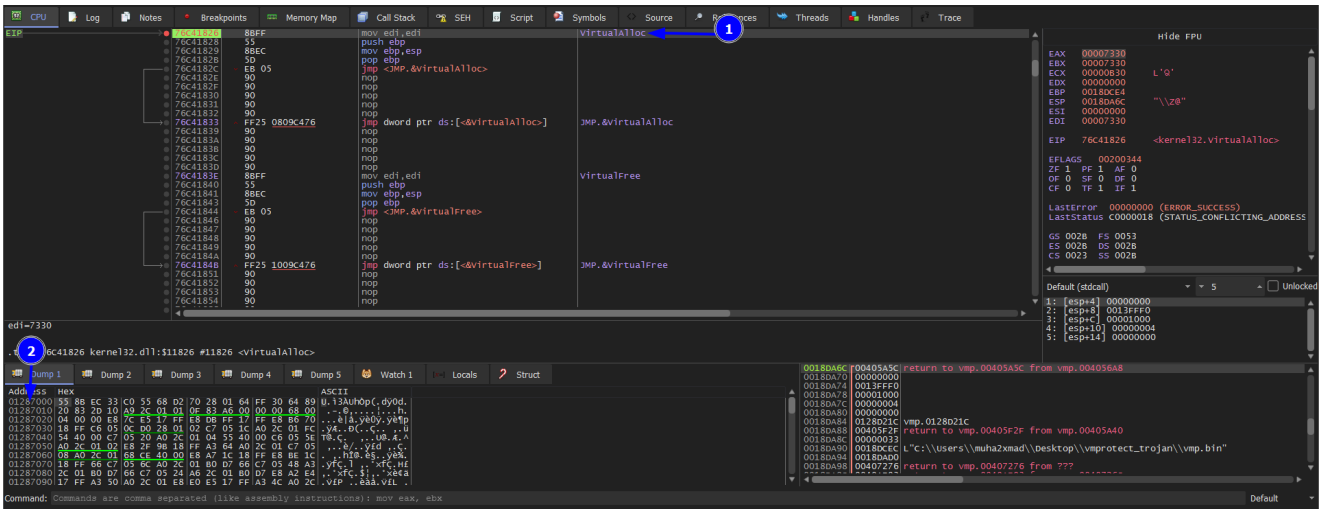
Figure(5):

Why that address? Because we need to find the `OEP` which is `push ebp` which we will find it after this address `01287000` which will be later `0128C074`. After that we keep pressing `run` to hit `VirtualAlloc` breakpoint.



Figure(6):

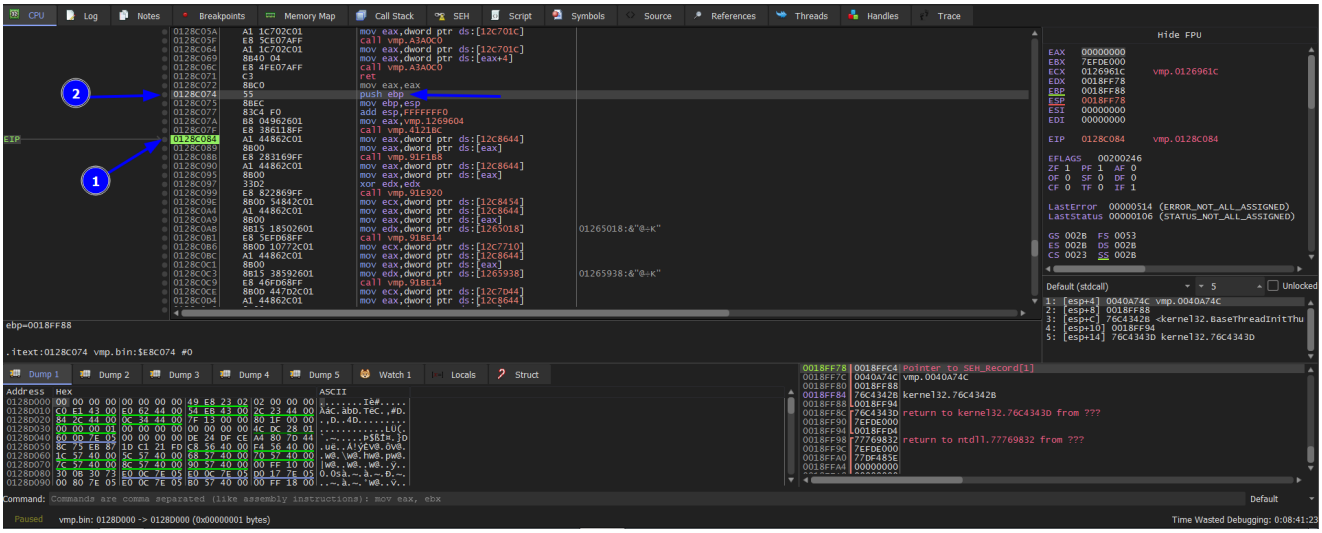
The last part is the what you need to focus on. As we said we will find the `OEP` above this address `01287000` which we will be searching for this instruction `push ebp`. Then press `execute till return` after that press `run to user code` while doing that keep you eyes on the `Memory address` because the `OEP` is in the range of `01287000`. After trying the previous and hitting `VirtualAlloc` 4 times, we found the `push ebp` our `OEP`.



Figure(6):

Unmaping

A friend told me to short effort and time do it automatically using `scylla`. After that the unpacked file is big `56.7MB`



Figure(7):

Article quote

> ولو لم يحاصرك جيشُ الظلام لما كنت نجمًا يُرى أو قمر

REF

1- https://www.youtube.com/watch?v=aoa89Khfgr0&ab_channel=GuidedHacking