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Analysis of Destructive Malware (WhisperGate) targeting Ukraine



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Executive Summary

- 2022-01-15, MSTIC (Microsoft Threat Intelligence Center) identified and unveiled a cyberattack targeting Ukrainian organizations with “WhisperGate” overwrites Master Boot Record(MBR) and files.

An actor who conducted this attack tracked as **DEV-0586** and has not yet been attributed to existing groups

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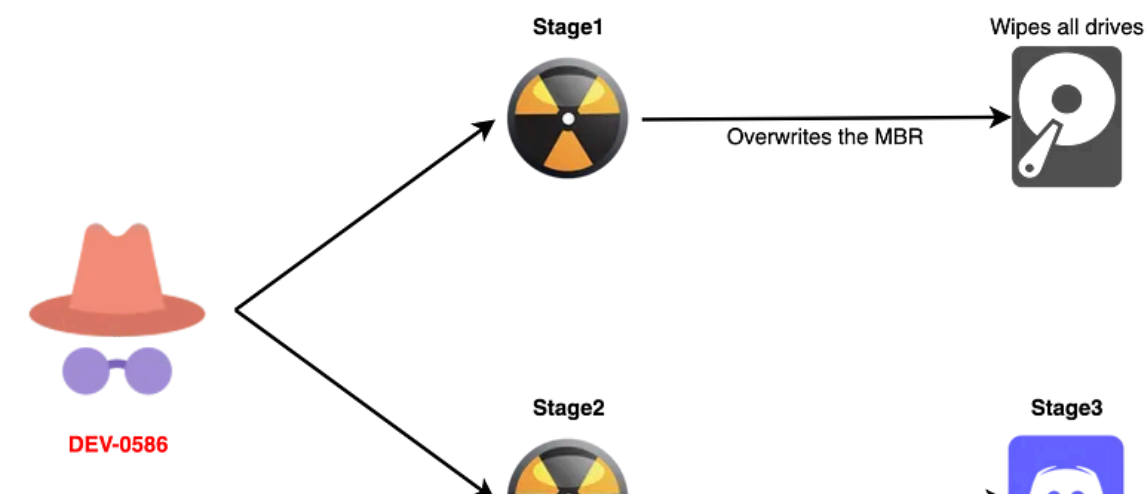
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Detailed Analysis

Stage1

- SHA256:
a196c6b8ffcb97ffb276d04f354696e2391311db3841ae16c8c9f56f36a38e92
- Creation Time: 2022-01-10 10:37:18
- First Submission: 2022-01-16 20:30:19
- File Type: Win32 EXE

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Write starts from LBA#1 of disk

- When disk access is successful, LBA is increased by 0xC7 (199) and written
- When disk access fails, increase the Drive Index and try to access the next disk

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- Creation Time: 2022-01-10 14:39:54
- First Submission: 2022-01-16 20:31:26
- File Type: Win32 EXE

Stage2 does not perform malicious actions for 20 seconds to bypass the AV (Anti Virus). To do this, run the following command twice.

Command: powershell -enc

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Stage3 (Tbopbh.jpg)

- SHA256 :
923eb77b3c9e11d6c56052318c119c1a22d11ab71675e6b95d05eeb73d1accd6

Tbopbh.jpg (Reversed)

- SHA256 :
9ef7dbd3da51332a78eff19146d21c82957821e464e8133e9594a07d716d892d

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Stage3 loads “78c855a088924e92a7f60d661c3d1845” resource inside and performs decoding by XOR operation.

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- AdvancedRun (GZIP Decompressed)
- Waqybg (Reversed and GZIP Decompressed)

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“stop WinDefend” /StartDirectory “” /RunAs 8 /Run

*Command: “C:\Users\Administrator\AppData\Local\Temp\AdvancedRun.exe”
/EXEFilename “C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe”
/WindowState 0 /CommandLine “rmdir ‘C:\ProgramData\Microsoft\Windows
Defender’ -Recurse” /StartDirectory “” /RunAs 8 /Run*

2. Waqybg: Overwrites target files

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```
.JAR .SCH .VBS .BAT .CMD .ASM .PAS .CPP .SXM .STD .SXD .ODP .WB2
.SLK .DIF .STC .SXC .ODS .3DM .MAX .3DS .STW .SXW .ODT .PEM .P12
.CSR .CRT .KEY .PFX .DER .OGG .JAVA .INC .INI .PPK .LOG .VDI .VMDK
.VHD .MDF .MYI .MYD .FRM .SAV .ODB .DBF .MDB .ACCDB .SQL .SQLITEDB
.SQLite3 .LDF .ARC .BAK .TAR .TGZ .RAR .ZIP .BACKUP .ISO .CONFIG
```

- Executes ping command and delete itself

```
cmd.exe /min /C ping 111.111.111.111 -n 5 -w 10 > Nul & Del /f/q \"%[Filepath]\"
```

Appendix

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- 923eb77b3c9e11d6c56052318c119c1a22d11ab71675e6b95d05eeb73d1accd6 (Stage3, Tbopbh.jpg)
- 9ef7dbd3da51332a78eff19146d21c82957821e464e8133e9594a07d716d892d (Stage3, *Reversed* Tbopbh.jpg)
- 35FEEFE6BD2B982CB1A5D4C1D094E8665C51752D0A6F7E3CAE546D770C280F3A (Decoded Resource “78c855a088924e92a7f60d661c3d1845”)
- 29AE7B30ED8394C509C561F6117EA671EC412DA50D435099756BBB257FADF10B(AdvancedRun.exe)

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