

8Base ransomware stays unseen for a year

 acronis.com/en-sg/cyber-protection-center/posts/8base-ransomware-stays-unseen-for-a-year/

Summary

- Comes to victims via SmokeLoader malware
- Sample is a PE32 file, written in C\C++
- Modified version of Phobos ransomware
- Encrypts users' files with AES-256-CBC cipher
- Writes IV and encrypted AES key to the end of encrypted files
- Data leak site shares similarities with the RansomHouse site

Introduction

8Base ransomware was first spotted in June 2023, with a massive number of targeted victims. It was later discovered that 8Base originated in March 2022 with the launch of an associated data leak site. 8Base also has a Twitter account, which was created in 2014. In the account's pinned post, the threat actors announced the publication of leaked data from the past year's operation, indicating that in addition to encrypting user files, the group has also exfiltrated data to its own servers.

 Pinned Tweet



Birdy @8BASEHOME · May 14

A lot of leaked data for the past year will be published soon. Enjoy.
[#cybersecurity](#) [#infosec](#) [#DataBreach](#)



1



3



2,422



To deliver 8Base ransomware to the victims' machines, threat actors used SmokeLoader, a botnet that is very popular for ransomware attacks. In addition to malware downloading capabilities, SmokeLoader also has a backdoor function that allows threat actors to exfiltrate victims' data.

Technical details

Overview

The 8Base ransomware sample is a PE32 file, written in C\C++. The compilation timestamp '2022-06-23' matches the start of gang operations. As was mentioned before, its activity was spotted only in June 2023, so this sample remained unseen until this moment.

The screenshot shows the main interface of Detect It Easy v3.07. The file being analyzed is `C:\Users\Flare\Desktop\mbx777.exe`. Key properties include:

- File type: PE32
- File size: 281.00 KiB
- Base address: 00400000
- Entry point: 004080ec
- Time date stamp: 2022-06-23 00:06:54
- Size of image: 0052b000
- Architecture: I386
- Type: GUI

The PE32 sections list shows the following entries:

Section Name	Type
Compiler: EP:Microsoft Visual C/C++ (2008-2010)[EXE32]	S ?
Compiler: Microsoft Visual C/C++ (2008)[libcmtd]	S ?
Linker: Microsoft Linker(9.0)[GUI32]	S ?

At the bottom, the scan options are set to: Recursive scan (checked), Deep scan (checked), Heuristic scan (unchecked), and Verbose (checked). The scan progress is at 100% and took 74 msec.

Execution

At the start of execution, 8Base decrypts some executable code, loads it to the 'eax' register, and calls it.

```
.text:004056D1 loc_4056D1:
.text:004056D1 sub     [esp+2D50h+Value], 1
.text:004056D6 jnz     short loc_405691
.text:004056D8 call    sub_404D60
.text:004056DD mov     eax, dword_90AEB4
.text:004056E2 mov     dword_90B110, eax
.text:004056E7 call   eax ; dword_90AEB4
.text:004056E9 mov     ecx, [esp+2D50h+var_C]
```

While the sample file doesn't have a lot of imports, during execution, it loads separated parts of import names and saves them to local variables for further use.

```

debug057:00B8806A mov     dword ptr [ebp-90h], 'nrek'
debug057:00B88074 mov     dword ptr [ebp-8Ch], '231e'
debug057:00B8807E mov     dword ptr [ebp-88h], 'lld.'
debug057:00B88088 and     dword ptr [ebp-84h], 0
debug057:00B8808F lea     eax, [ebp-90h]
debug057:00B88095 push    eax
debug057:00B88096 call   dword ptr [ebp-2Ch]
debug057:00B88099 mov     [ebp-3Ch], eax
debug057:00B8809C mov     dword ptr [ebp-90h], 'triV'
debug057:00B880A6 mov     dword ptr [ebp-8Ch], 'Alau'
debug057:00B880B0 mov     dword ptr [ebp-88h], 'coll'
debug057:00B880BA and     dword ptr [ebp-84h], 0
debug057:00B880C1 lea     eax, [ebp-90h]
debug057:00B880C7 push    eax
debug057:00B880C8 push    dword ptr [ebp-3Ch]
debug057:00B880CB call   dword ptr [ebp-68h]
debug057:00B880CE mov     [ebp-4Ch], eax
debug057:00B880D1 mov     dword ptr [ebp-90h], 'triV'
debug057:00B880DB mov     dword ptr [ebp-8Ch], 'Plau'
debug057:00B880E5 mov     dword ptr [ebp-88h], 'etor'
debug057:00B880EF mov     dword ptr [ebp-84h], 7463h
debug057:00B880F9 lea     eax, [ebp-90h]
debug057:00B880FF push    eax
debug057:00B88100 push    dword ptr [ebp-3Ch]
debug057:00B88103 call   dword ptr [ebp-68h]
debug057:00B88106 mov     [ebp-28h], eax
debug057:00B88109 mov     dword ptr [ebp-90h], 'triV'
debug057:00B88113 mov     dword ptr [ebp-8Ch], 'Flau'
debug057:00B8811D mov     dword ptr [ebp-88h], offset unk_656572
debug057:00B88127 lea     eax, [ebp-90h]

```

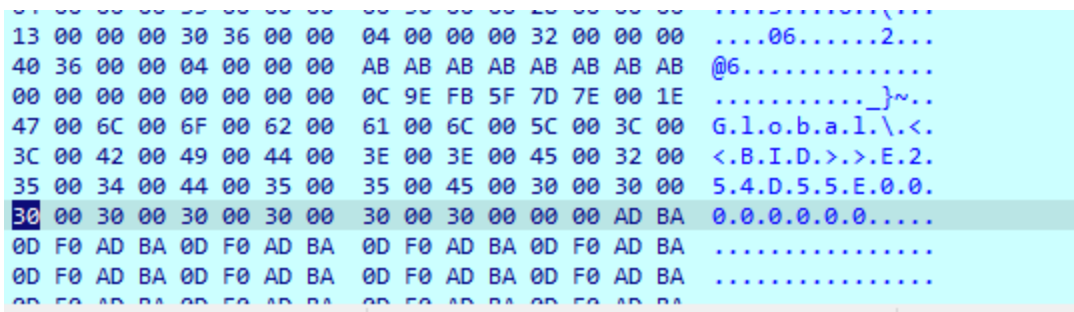
Here are some imports used to work with files, loaded during execution:

```

kernel32_FindClose
kernel32_FindNextFileW
kernel32_SystemTimeToFileTime
kernel32_FindFirstFileW
kernel32_MoveFileW
kernel32_GetFileSizeEx
kernel32_SetFilePointerEx
kernel32_SetEndOfFile
kernel32_SetFilePointer
kernel32_GetLogicalDrives
kernel32_CopyFileW
kernel32_GetFileAttributesW
kernel32_ReadFile
kernel32_WriteFile

```

8Base then loads the mutex name and checks if it already exists. If so, it will terminate execution; if not, it creates a mutex and a new process of itself with the 'CreateProcessW' function.



mtx777.exe	4624	ReadFile	C:\Windows\SysWOW64\windows.storage.dll
mtx777.exe	4624	Process Create	C:\Users\Flare\Desktop\mtx777.exe
mtx777.exe	5632	Process Start	
mtx777.exe	5632	Thread Create	
mtx777.exe	4624	CreateFile	C:\Windows\SysWOW64\pcacli.dll

Before encrypting files, 8Base takes some preparatory steps. First, it copies itself to three different folders on the system:

```
C:\Users\Flare\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup
C:\ProgramData\Microsoft\Windows\Start Menu\Programs\StartUp\mtx777.exe
C:\Users\Flare\AppData\Local\mtx777.exe
```

Next, it creates new Registry keys to enable itself to auto-start:

```
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run\mtx777
HKCU\SOFTWARE\Microsoft\Windows\CurrentVersion\Run\mtx777
```

It modifies some keys, responsible for internet policy:

```
HKCU\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet
Settings\ZoneMap\ProxyBypass 1
HKCU\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet
Settings\ZoneMap\IntranetName 1
HKCU\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet
Settings\ZoneMap\UNCAsIntranet 1
HKCU\SOFTWARE\Microsoft\Windows\CurrentVersion\Internet
Settings\ZoneMap\AutoDetect 0
```

8Base then uses the 'Wow64DisableWow64FsRedirection' function to disable file system redirection.

It executes some commands to delete shadow copies, backup catalogs, change BootStatusPolicy and disable Recovery Mode.

```
vssadmin delete shadows /all /quiet
wmic shadowcopy delete
bcdedit /set {default} bootstatuspolicy ignoreallfailures
bcdedit /set {default} recoveryenabled no
wbadmin delete catalog -quiet
```

It also executes the following commands to disable the firewall:

```
netsh advfirewall set currentprofile state off
netsh firewall set opmode mode=disable
```

File encryption

8Base begins searching for available drives on the system with 'GetLogicalDrives' and obtains information about them.

```
.text:00403C99 call    loc_4090C6
.text:00403C9E pop     ecx
.text:00403C9F push   eax
.text:00403CA0 push   esi
.text:00403CA1 push   edi
EIP> .text:00403CA2 call    ds:jpt_40A0B4 ; C:\
      | kernel32_GetVolumeInformationW
.text:00403CA8 test   eax, eax
.text:00403CAA jnz    short loc_403CAF
.text:00403CAC
      | loc_403CAC: ; DATA XREF: .text:0040233Cfo
```

Then it starts creating encryption threads:

TID	CPU	Cycles delta	Start address	Priority
15248	10.43	2,319,750,...	123.exe+0x54bf	Normal
16540	10.25	2,279,194,...	123.exe+0x54bf	Normal
11164	1.44	319,943,544	123.exe+0x56b3	Normal
15908	0.32	70,519,599	123.exe+0x22ee	Normal
12548		648,832	123.exe+0x239a	Normal
6776		33,411	123.exe+0x1cc5	Normal
8716			123.exe+0x1a76	Normal
4756			123.exe+0x80ec	Normal

To search files on the drive, 8Base uses the 'FindFirstFileW' and 'FindNextFileW' functions. During encryption, it skips the 'C:\Windows' folder, files with its own extension, and ransom note files. Other found files are given to the encryption thread.

```
00405DC4 50          push  eax
00405DC5 56          push  esi
00405DC6 FF15 50A04000 call   dword ptr ds:[<&FindFirstFileW>]
00405DCC 8945 F4     mov   dword ptr ss:[ebp-C],eax
00405DCF 83F8 FF     cmp   eax,FFFFFFFF
00405DD2 > 0F84 D8000000 jbe   mtX777.405E83
00405DD8 8B7D 18     mov   edi,dword ptr ss:[ebp+18]
00405DD8 66:83BD D0FDFFFF 2E  cmp   word ptr ss:[ebp-230],2E
00405DE3 > 75 26     jne   mtX777.405E08
00405DE5 66:83BD D2FDFFFF 00  cmp   word ptr ss:[ebp-22E],0
00405DED > 0F84 9F000000 jbe   mtX777.405E92
00405DF3 66:83BD D2FDFFFF 2E  cmp   word ptr ss:[ebp-22E],2E
00405DF8 > 75 0E     jne   mtX777.405E08
00405DFD 66:83BD D4FDFFFF 00  cmp   word ptr ss:[ebp-22C],0
00405E05 > 0F84 87000000 jbe   mtX777.405E92
00405E08 FF75 08     push dword ptr ss:[ebp+8]
00405E0E E8 B3320000 call   mtX777.4090C6
00405E13 8BD8       mov   ebx,eax
00405E15 59         pop   ecx
00405E16 8D85 D0FDFFFF lea  eax,dword ptr ss:[ebp-230]
00405E1C 50          push  eax
00405E1D ES A4320000 call   mtX777.4090C6
00405E22 8D4403 01  lea  eax,dword ptr ds:[ebx+eax+1]
00405E26 59         pop   ecx
00405E27 3945 14     cmp   dword ptr ss:[ebp+14],eax
00405E2A > 72 66     jb   mtX777.405E92
00405E2C FF75 08     push dword ptr ss:[ebp+8]
00405E2F 56         push  esi
00405E30 E8 48340000 call   mtX777.40927D
00405E35 68 08A24000 push  mtX777.40A208
00405E3A 56         push  esi
esi:L"\\\\?\\C:\\Program Files\\Far Manager\\Plugins\\ArCLite\\zcon.sfx"
```

The encryption thread opens the file, gets its attributes, and reads its context.

```

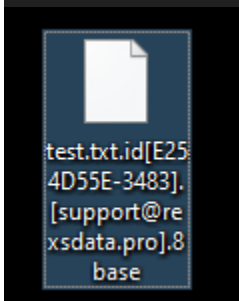
00408813 FF75 10          push dword ptr ss:[ebp+10]
00408816 FF15 90A04000   call dword ptr ds:[<&GetFileAttributesw>]
0040881C 83F8 FF        cmp eax,FFFFFFFF
0040881F 0F85 C4020000  jne mtx777.408AE9
00408825 33C0          xor eax,eax
00408827 50           push eax
00408828 50           push eax
00408829 6A 03        push 3
0040882B 50           push eax
0040882C 50           push eax
0040882D 68 000000C0   push C0000000
00408832 FF75 0C          push dword ptr ss:[ebp+C]
00408835 FF15 98A04000   call dword ptr ds:[<&CreateFilew>]
0040883B 8945 F8        mov dword ptr ss:[ebp-8],eax
0040883E 83F8 FF        cmp eax,FFFFFFFF
00408841 0F84 A2020000  je mtx777.408AE9
00408847 8365 EC 00     and dword ptr ss:[ebp-14],0
0040884B 8365 E8 00     and dword ptr ss:[ebp-18],0
0040884F 6A 02        push 2
00408851 8D4D E8       lea ecx,dword ptr ss:[ebp-18]
00408854 51           push ecx
00408855 FF75 EC        push dword ptr ss:[ebp-14]
00408858 FF75 E8        push dword ptr ss:[ebp-18]
0040885B 50           push eax
0040885C FF15 5CA04000   call dword ptr ds:[<&SetFilePointerEx>]
00408862 85C0          test eax,eax
00408864 0F84 4F020000  je mtx777.408AB9
0040886A 8B45 E8       mov eax,dword ptr ss:[ebp-18]
0040886D 0B45 EC       or eax,dword ptr ss:[ebp-14]
00408870 0F84 43020000  je mtx777.408AB9
00408876 33C0          xor eax,eax
00408878 50           push eax
00408879 8945 E8       mov dword ptr ss:[ebp-18],eax
0040887C 8945 EC       mov dword ptr ss:[ebp-14],eax
0040887F 8D45 E8       lea eax,dword ptr ss:[ebp-18]
00408882 50           push eax
00408883 FF75 EC        push dword ptr ss:[ebp-14]
00408886 FF75 E8        push dword ptr ss:[ebp-18]
00408889 FF75 F8        push dword ptr ss:[ebp-8]
0040888C FF15 5CA04000   call dword ptr ds:[<&SetFilePointerEx>]
00408892 85C0          test eax,eax
00408894 0F84 1F020000  je mtx777.408AB9
0040889A 6A 00        push 0

```

Before starting encryption, 8Base creates a new file with a new extension:

<Original file name and extension>.id[<Unique victim ID>].[<Threat actors email>].8base

Wks9Pxy.cnv	2/17/2010 8:56 PM	CNV File	56 KB
Wks9Pxy.cnv.id[E254D55E-3483].[support...	7/16/2023 7:34 AM	8BASE File	0 KB
WPFT532.CNV	8/23/2017 11:46 PM	CNV File	203 KB
WPFT632.CNV	8/23/2017 11:46 PM	CNV File	296 KB



Next, it transfers data to the encryption function, which uses the AES-256 algorithm in CBC mode. The IV keys are generated randomly during execution and will later be written to the encrypted file. To encrypt the AES key, it uses the RSA algorithm, making this encryption pretty strong. The encryption algorithms are hardcoded and don't use any crypto imports.


```

00406718 BE FF000000 mov esi,FF
0040671D 8B48 1C mov ecx,dword ptr ds:[eax+1C]
00406720 0FB650 1F movzx edx,byte ptr ds:[eax+1F]
00406724 0FB692 48B44000 movzx edx,byte ptr ds:[edx+40B448]
00406728 23CE and ecx,esi
0040672D 0FB689 48B44000 movzx ecx,byte ptr ds:[ecx+40B448]
00406734 C1E1 08 shl ecx,8
00406737 33CA xor ecx,edx
00406739 0FB650 1E movzx edx,byte ptr ds:[eax+1E]
0040673D 0FB692 48B44000 movzx edx,byte ptr ds:[edx+40B448]
00406744 C1E1 08 shl ecx,8
00406747 33CA xor ecx,edx
00406749 0FB650 1D movzx edx,byte ptr ds:[eax+1D]
0040674D 0FB692 48B44000 movzx edx,byte ptr ds:[edx+40B448]
00406754 C1E1 08 shl ecx,8
00406757 33CA xor ecx,edx
00406759 8B55 FC mov edx,dword ptr ss:[ebp-4]
0040675C 338A 48B44000 xor ecx,dword ptr ds:[edx+40B448]
00406762 8B50 04 mov edx,dword ptr ds:[eax+4]
00406765 3308 xor ecx,dword ptr ds:[eax]
00406767 8345 FC 04 add dword ptr ss:[ebp-4],4
00406768 33D1 xor edx,ecx
0040676D 8948 20 mov dword ptr ds:[eax+20],ecx
00406770 8B48 08 mov ecx,dword ptr ds:[eax+8]
00406773 33CA xor ecx,edx
00406775 8948 28 mov dword ptr ds:[eax+28],ecx
00406778 8950 24 mov dword ptr ds:[eax+24],edx
0040677B 8B50 0C mov edx,dword ptr ds:[eax+C]
0040677E 33D1 xor edx,ecx
00406780 8950 2C mov dword ptr ds:[eax+2C],edx
00406783 0FB648 2F movzx ecx,byte ptr ds:[eax+2F]
00406787 0FB689 48B44000 movzx ecx,byte ptr ds:[ecx+40B448]
0040678E 0FB658 2E movzx ebx,byte ptr ds:[eax+2E]
00406792 0FB69B 48B44000 movzx ebx,byte ptr ds:[ebx+40B448]
00406799 C1E1 08 shl ecx,8
0040679C 33CB xor ecx,ebx
0040679E 0FB658 2D movzx ebx,byte ptr ds:[eax+2D]
004067A2 0FB69B 48B44000 movzx ebx,byte ptr ds:[ebx+40B448]
004067A9 C1E1 08 shl ecx,8
004067AC 33CB xor ecx,ebx
004067AE 23D6 and edx,esi
004067B0 0FB692 48B44000 movzx edx,byte ptr ds:[edx+40B448]
004067B7 C1E1 08 shl ecx,8
004067BA 33CA xor ecx,edx
004067BC 3348 10 xor ecx,dword ptr ds:[eax+10]
004067BF 8B50 14 mov edx,dword ptr ds:[eax+14]
004067C2 33D1 xor edx,ecx
004067C4 8948 30 mov dword ptr ds:[eax+30],ecx
004067C7 8B48 18 mov ecx,dword ptr ds:[eax+18]
004067CA 33CA xor ecx,edx
004067CC 8948 38 mov dword ptr ds:[eax+38],ecx
004067CF 3348 1C xor ecx,dword ptr ds:[eax+1C]
004067D2 8950 34 mov dword ptr ds:[eax+34],edx
004067D5 8948 3C mov dword ptr ds:[eax+3C],ecx
004067D8 83C0 20 add eax,20
004067DB 837D FC 1C cmp dword ptr ss:[ebp-4],1C
004067DE 0FB2 38FFFFFF

```

After encrypted data is written, 8Base takes one further step — it encrypts the AES key and writes it to the end of the file with the IV key.



All your files have been encrypted!

All your files have been encrypted due to a security problem with your PC.

If you want to restore them, write us to the e-mail support@rexdata.pro

Or write us to the Tox: **78E21CFF7A85F713C1530AEF2E74E62830BEE77238F4B0A73E5E3251EAD56427BF9F7A1A074**

Write this ID in the title of your message **E254D55E-3483**

You have to pay for decryption in Bitcoins. The price depends on how fast you write to us. After payment we will send you the tool that will decrypt all your files.

Free decryption as guarantee

Before paying you can send us up to 3 files for free decryption. The total size of files must be less than 4Mb (non archived), and files should not contain valuable information. (databases, backups, large excel sheets, etc)

How to obtain Bitcoins

The easiest way to buy bitcoins is LocalBitcoins site. You have to register, click 'Buy bitcoins', and select the seller by payment method and price.


<https://localbitcoins.com/buy-bitcoins>

Also you can find other places to buy Bitcoins and beginners guide here:

<http://www.condesk.com/nformaton/how-can-i-buy-bitcoins/>

Attention!

- Do not rename encrypted files.
- Do not try to decrypt your data using third party software, it may cause permanent data loss.
- Decryption of your files with the help of third parties may cause increased price (they add their fee to our) or you can become a victim of a scam.

 info.txt - Notepad

File Edit Format View Help

!!!All of your files are encrypted!!!

To decrypt them send e-mail to this address: support@rexdata.pro.

Write us to the Tox Messenger: 11678DDAA32671D52932698FF508CFF194BF9E9B35E91BFBA7AD803C0A57EB41BB2388DD595

Data leak site

While the ransom notes don't have a link to the data leak site, the threat actor's Twitter account does:

<http://basemmnnqwxevlymli5bs36o5ynti55xojzvn246spahniugwkff2pad.onion/>

This site contains the main page with the most recent victims of 8Base ransomware, a page for contacting the threat actors, a FAQ, and a "Rules" page.

8BASE

YOUR DATA IS NOT SAFE.



[Main](#)

[Contact](#)

[FAQ](#)

[Rules](#)

Below is a list of companies that either have considered their financial gain to be above the interests of their partners / individuals who have entrusted their data to them or have chosen to conceal the fact that they have been compromised.

Terms of service

1. Payment

- 1.1. A Bitcoin wallet will be provided to the customer directly in the chat room when the customer is ready to pay;
- 1.2. One bitcoin must be transferred to payment wallet for verification first; the remaining amount must be transferred after confirming the transaction from our side;

2. Participation of third-parties

- 2.1. Participation of police departments is prohibited;
- 2.2. Participation of FBI, CIA, NSA or other special agencies is prohibited;
- 2.3. Participation of third-party negotiators is prohibited;
- 2.4. Violation of clauses 2.1.-2.3. of "Terms of service" causes immediate termination of negotiations and all reached agreements. In this case all the data the team has will be disclosed on the website, Telegram channel and sent to all involved companies and individuals.

3. Post-transaction guarantees

- 3.1. All uploaded information will be removed from the team's servers;
- 3.2. All posts/websites/pages etc. posted by the team and associated with the data leak will be removed;
- 3.3. All backdoors exploited by the team will be removed;
- 3.4. Personal data will not be shared with third parties by the team;
- 3.5. A list of information security recommendations will be provided to the head of the company;
- 3.6. Decryption software, guidance and support will be provided if required;
- 3.7. Current vulnerabilities will never be used by the team for further attacks. In case new vulnerabilities will be discovered, the company will be notified.

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The data leak site shares a lot of similarities to the RansomHouse group site, but it is still not clear whether these two groups are connected to each other or whether the 8Base threat actors have simply borrowed their site design.


Conclusion

8Base ransomware successfully stayed unseen for almost a year before it was spotted with a large spike of targeted victims. On their Twitter account, the threat actors actively publish news, including info about recently breached victims.

The sample that was analyzed is a customized version of the Phobos ransomware, which encrypts users' files with AES-256-CBC algorithm, and utilizes SmokeLoader to bring malware to targeted systems.

The most interesting question here is about a potential connection between 8Base and another ransomware group (RansomHouse), as their data leak sites share a lot of similarities.

Detected by Acronis

 Malware is detected and quarantined (RTP)

Jul 14, 2023, 08:02 AM

Anti-Malware Protection has detected and quarantined the malware 'ML:Generic.MaliciousExe' during the real-time scan.

Alert category	Antimalware protection
Plan name	Entire machine to Cloud
File name	mtx777.bin
File path	C:\Users\IEUser\AppData\Local\Temp\Rar\$DRb10552.46199
MD5	2809e15a3a54484e042fe65fffd17409
SHA1	4a8f0331abaf8f629b3c8220f0d55339cfa30223
SHA256	518544e56e8ccee401ffa1b0a01a10ce23e49ec21ec441c6c7c3951b01c1b19c
Threat name	ML:Generic.MaliciousExe
Action	Moved to quarantine

[Search for solution](#)

[Clear](#)

IoCs

Files

File name

SHA256

mtx777.exe

518544e56e8ccee401ffa1b0a01a10ce23e49ec21ec441c6c7c3951b01c1b19c

Network indicators

URL

Description

<http://basemmnnqwxevlymli5bs36o5ynti55xojzvn246spahniugwkff2pad.onion/>

Data leak site

<https://twitter.com/8BASEHOME>

Threat actor Twitter account

About Acronis

Acronis is a Swiss company, founded in Singapore. Celebrating two decades of innovation, Acronis has more than 2,000 employees in 45 locations. Acronis Cyber Protect solution is available in 26 languages in over 150 countries and is used by 18,000 service providers to protect over 750,000 businesses.