

# Indicator Removal: File Deletion, Sub-technique T1070.004 - Enterprise

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## [C0028 2015 Ukraine Electric Power Attack](#)

During the [2015 Ukraine Electric Power Attack](#), vba\_macro.exe deletes itself after `FONTCACHE.DAT` , `rundll32.exe` , and the associated .lnk file is delivered. [\[2\]](#)

## [S1167 AcidPour](#)

[AcidPour](#) includes a self-delete function where the malware deletes itself from disk after execution and program load into memory. [\[3\]](#)

## [S0045 ADVSTORESHELL](#)

[ADVSTORESHELL](#) can delete files and directories. [\[4\]](#)

## [S0504 Anchor](#)

[Anchor](#) can self delete its dropper after the malware is successfully deployed. [\[5\]](#)

## [S1133 Apostle](#)

[Apostle](#) writes batch scripts to disk, such as `system.bat` and `remover.bat` , that perform various anti-analysis and anti-forensic tasks, before finally deleting themselves at the end of execution. [Apostle](#) attempts to delete itself after encryption or wiping operations are complete and before shutting down the victim machine. [\[6\]](#)

## [S0584 AppleJeus](#)

[AppleJeus](#) has deleted the MSI file after installation. [\[7\]](#)

## [S0622 AppleSeed](#)

[AppleSeed](#) can delete files from a compromised host after they are exfiltrated. [\[8\]](#)

## [G0026 APT18](#)

[APT18](#) actors deleted tools and batch files from victim systems. [\[9\]](#)

## [G0007 APT28](#)

[APT28](#) has intentionally deleted computer files to cover their tracks, including with use of the program CCleaner. [\[10\]](#)

### [G0016 APT29](#)

[APT29](#) has used [SDelete](#) to remove artifacts from victim networks. [\[11\]](#)

### [G0022 APT3](#)

[APT3](#) has a tool that can delete files. [\[12\]](#)

### [G0050 APT32](#)

[APT32](#)'s macOS backdoor can receive a "delete" command. [\[13\]](#)

### [G0082 APT38](#)

[APT38](#) has used a utility called CLOSESHAVE that can securely delete a file from the system. They have also removed malware, tools, or other non-native files used during the intrusion to reduce their footprint or as part of the post-intrusion cleanup process. [\[14\]\[15\]](#)

### [G0087 APT39](#)

[APT39](#) has used malware to delete files after they are deployed on a compromised host. [\[16\]](#)

### [G0096 APT41](#)

[APT41](#) deleted files from the system. [\[17\]\[18\]](#)

### [C0040 APT41 DUST](#)

[APT41 DUST](#) deleted various artifacts from victim systems following use. [\[19\]](#)

### [G1023 APT5](#)

[APT5](#) has deleted scripts and web shells to evade detection. [\[20\]\[21\]](#)

### [G0143 Aquatic Panda](#)

[Aquatic Panda](#) has deleted malicious executables from compromised machines. [\[22\]\[23\]](#)

### [C0046 ArcaneDoor](#)

[ArcaneDoor](#) included multiple instances of file deletion or removal during execution and other adversary actions. [\[24\]\[25\]](#)

### [S0456 Aria-body](#)

[Aria-body](#) has the ability to delete files and directories on compromised hosts. [\[26\]](#)

### [S0438 Attor](#)

[Attor](#)'s plugin deletes the collected files and log files after exfiltration. [\[27\]](#)

#### [S0347 AuditCred](#)

[AuditCred](#) can delete files from the system. [\[28\]](#)

#### [S0344 Azorult](#)

[Azorult](#) can delete files from victim machines. [\[29\]](#)

#### [S0414 BabyShark](#)

[BabyShark](#) has cleaned up all files associated with the secondary payload execution. [\[30\]](#)

#### [S0475 BackConfig](#)

[BackConfig](#) has the ability to remove files and folders related to previous infections. [\[31\]](#)

#### [S0093 Backdoor.Oldrea](#)

[Backdoor.Oldrea](#) contains a cleanup module that removes traces of itself from the victim. [\[32\]](#)

#### [S1081 BADHATCH](#)

[BADHATCH](#) has the ability to delete PowerShell scripts from a compromised machine. [\[33\]](#)

#### [S0234 Bandook](#)

[Bandook](#) has a command to delete a file. [\[34\]](#)

#### [S0239 Bankshot](#)

[Bankshot](#) marks files to be deleted upon the next system reboot and uninstalls and removes itself from the system. [\[35\]](#)

#### [S0534 Bazar](#)

[Bazar](#) can delete its loader using a batch file in the Windows temporary folder. [\[36\]](#)

#### [S0127 BBSRAT](#)

[BBSRAT](#) can delete files and directories. [\[37\]](#)

#### [S1246 BeaverTail](#)

[BeaverTail](#) has deleted files from a compromised host after they were exfiltrated. [\[38\]](#)

#### [S0268 Bisonal](#)

[Bisonal](#) will delete its dropper and VBS scripts from the victim's machine. [\[39\]](#)[\[40\]](#)[\[41\]](#)

### [G1043 BlackByte](#)

[BlackByte](#) deleted ransomware executables post-encryption. [\[42\]](#)[\[43\]](#)[\[44\]](#)[\[45\]](#)

### [S1181 BlackByte 2.0 Ransomware](#)

[BlackByte 2.0 Ransomware](#) deletes itself following device encryption. [\[44\]](#)

### [S0069 BLACKCOFFEE](#)

[BLACKCOFFEE](#) has the capability to delete files. [\[46\]](#)

### [S0520 BLINDINGCAN](#)

[BLINDINGCAN](#) has deleted itself and associated artifacts from victim machines. [\[47\]](#)

### [S0657 BLUELIGHT](#)

[BLUELIGHT](#) can uninstall itself. [\[48\]](#)

### [S1184 BOLDMOVE](#)

[BOLDMOVE](#) can remove files on victim systems. [\[49\]](#)

### [S1161 BPFDoor](#)

After initial setup, [BPFDoor](#)'s original execution process deletes the dropped binary and exits. [\[50\]](#)

### [G0060 BRONZE BUTLER](#)

The [BRONZE BUTLER](#) uploader or malware the uploader uses `command` to delete the RAR archives after they have been exfiltrated. [\[51\]](#)

### [S1039 Bumblebee](#)

[Bumblebee](#) can uninstall its loader through the use of a `Sdl` command. [\[52\]](#)

### [C0032 C0032](#)

During the [C0032](#) campaign, [TEMP.Veles](#) routinely deleted tools, logs, and other files after they were finished with them. [\[53\]](#)

### [S0274 Calisto](#)

[Calisto](#) has the capability to use `rm -rf` to remove folders and files from the victim's machine. [\[54\]](#)

### [S0030 Carbanak](#)

[Carbanak](#) has a command to delete files. [\[55\]](#)

### [S0348 Cardinal RAT](#)

[Cardinal RAT](#) can uninstall itself, including deleting its executable. [\[56\]](#)

### [S0462 CARROTBAT](#)

[CARROTBAT](#) has the ability to delete downloaded files from a compromised host. [\[57\]](#)

### [S1043 ccf32](#)

[ccf32](#) can delete files and folders from compromised machines. [\[58\]](#)

### [S0674 CharmPower](#)

[CharmPower](#) can delete created files from a compromised system. [\[59\]](#)

### [S0107 Cherry Picker](#)

Recent versions of [Cherry Picker](#) delete files and registry keys created by the malware. [\[60\]](#)

### [G0114 Chimera](#)

[Chimera](#) has performed file deletion to evade detection. [\[61\]](#)

### [S0106 cmd](#)

[cmd](#) can be used to delete files from the file system. [\[62\]](#)

### [S1105 COATHANGER](#)

[COATHANGER](#) removes files from victim environments following use in multiple instances. [\[63\]](#)

### [G0080 Cobalt Group](#)

[Cobalt Group](#) deleted the DLL dropper from the victim's machine to cover their tracks. [\[64\]](#)

### [G1052 Contagious Interview](#)

[Contagious Interview](#) has configured malware to remove archives used in collection activities following successful exfiltration. [\[38\]](#)

### [S0115 Crimson](#)

[Crimson](#) has the ability to delete files from a compromised host. [\[65\]](#)[\[66\]](#)[\[67\]](#)

### [S0498 Cryptoistic](#)

[Cryptoistic](#) has the ability delete files from a compromised host. [\[68\]](#)

### [S0527 CSPY Downloader](#)

[CSPY Downloader](#) has the ability to self delete.<sup>[69]</sup>

#### [S0625 Cuba](#)

[Cuba](#) can use the command `cmd.exe /c del` to delete its artifacts from the system.<sup>[70]</sup>

#### [C0029 Cutting Edge](#)

During [Cutting Edge](#), threat actors deleted `/tmp/test1.txt` on compromised Ivanti Connect Secure VPNs which was used to hold stolen configuration and cache files.<sup>[71][72]</sup>

#### [S1014 DanBot](#)

[DanBot](#) can delete its configuration file after installation.<sup>[73]</sup>

#### [S1111 DarkGate](#)

[DarkGate](#) has deleted its staging directories.<sup>[74]</sup>

#### [S0673 DarkWatchman](#)

[DarkWatchman](#) has been observed deleting its original launcher after installation.<sup>[75]</sup>

#### [S0354 Denis](#)

[Denis](#) has a command to delete files from the victim's machine.<sup>[76][77]</sup>

#### [S0021 Derusbi](#)

[Derusbi](#) is capable of deleting files. It has been observed loading a Linux Kernel Module (LKM) and then deleting it from the hard disk as well as overwriting the data with null bytes.<sup>[78][79]</sup>

#### [G0035 Dragonfly](#)

[Dragonfly](#) has deleted many of its files used during operations as part of cleanup, including removing applications and deleting screenshots.<sup>[80]</sup>

#### [S0502 Drovorub](#)

[Drovorub](#) can delete specific files from a compromised host.<sup>[81]</sup>

#### [S0567 Dtrack](#)

[Dtrack](#) can remove its persistence and delete itself.<sup>[82]</sup>

#### [S0062 DustySky](#)

[DustySky](#) can delete files it creates from the infected system.<sup>[83]</sup>

## [S0593 ECCENTRICBANDWAGON](#)

[ECCENTRICBANDWAGON](#) can delete log files generated from the malware stored at

```
C:\windows\temp\tmp0207 .[84]
```

## [S0081 Elise](#)

[Elise](#) is capable of launching a remote shell on the host to delete itself.<sup>[85]</sup>

## [S1247 Embargo](#)

[Embargo](#) has leveraged MDeployer to terminate the MS4Killer process, delete the decrypted payload files and a driver file dropped by MS4killer, and reboot the system.<sup>[86]</sup>

## [G1003 Ember Bear](#)

[Ember Bear](#) deletes files related to lateral movement to avoid detection.<sup>[87]</sup>

## [S0091 Epic](#)

[Epic](#) has a command to delete a file from the machine.<sup>[88]</sup>

## [S0396 EvilBunny](#)

[EvilBunny](#) has deleted the initial dropper after running through the environment checks.<sup>[89]</sup>

## [G0120 Evilnum](#)

[Evilnum](#) has deleted files used during infection.<sup>[90]</sup>

## [S0401 Exaramel for Linux](#)

[Exaramel for Linux](#) can uninstall its persistence mechanism and delete its configuration file.<sup>[91]</sup>

## [S1179 Exbyte](#)

[Exbyte](#) will self-delete if a hard-coded configuration file is not found.<sup>[44]</sup>

## [S0181 FALLCHILL](#)

[FALLCHILL](#) can delete malware and associated artifacts from the victim.<sup>[92]</sup>

## [S0512 FatDuke](#)

[FatDuke](#) can secure delete its DLL.<sup>[93]</sup>

## [S0267 FELIXROOT](#)

[FELIXROOT](#) deletes the .LNK file from the startup directory as well as the dropper components.<sup>[94]</sup>

### [S0679 Ferocious](#)

[Ferocious](#) can delete files from a compromised host. [\[95\]](#)

### [G0051 FIN10](#)

[FIN10](#) has used batch scripts and scheduled tasks to delete critical system files. [\[96\]](#)

### [G0053 FIN5](#)

[FIN5](#) uses [SDelete](#) to clean up the environment and attempt to prevent detection. [\[97\]](#)

### [G0037 FIN6](#)

[FIN6](#) has removed files from victim machines. [\[98\]](#)

### [G0061 FIN8](#)

[FIN8](#) has deleted tmp and prefetch files during post compromise cleanup activities. [FIN8](#) has also deleted PowerShell scripts to evade detection on compromised machines. [\[99\]\[100\]](#)

### [S0381 FlawedAmmyy](#)

[FlawedAmmyy](#) can execute batch scripts to delete files. [\[101\]](#)

### [S0277 FruitFly](#)

[FruitFly](#) will delete files on the system. [\[102\]](#)

### [S1044 FunnyDream](#)

[FunnyDream](#) can delete files including its dropper component. [\[58\]](#)

### [S0410 Fysbis](#)

[Fysbis](#) has the ability to delete files. [\[103\]](#)

### [G0047 Gamaredon Group](#)

[Gamaredon Group](#) tools can delete files used during an operation. [\[104\]\[105\]\[106\]\[107\]](#)

### [S0168 Gazer](#)

[Gazer](#) has commands to delete files and persistence mechanisms from the victim. [\[108\]\[109\]](#)

### [S0666 Gelsemium](#)

[Gelsemium](#) can delete its dropper component from the targeted system. [\[110\]](#)

### [S0032 gh0st RAT](#)

[gh0st RAT](#) has the capability to delete files. [\[111\]](#)[\[112\]](#)

#### [S0249 Gold Dragon](#)

[Gold Dragon](#) deletes one of its files, 2.hwp, from the endpoint after establishing persistence. [\[113\]](#)

#### [S0493 GoldenSpy](#)

[GoldenSpy](#)'s uninstaller can delete registry entries, files and folders, and finally itself once these tasks have been completed. [\[114\]](#)

#### [S1198 Gomir](#)

[Gomir](#) deletes its original executable and terminates its original process after creating a systemd service. [\[115\]](#)

#### [S0531 Grandoreiro](#)

[Grandoreiro](#) can delete .LNK files created in the Startup folder. [\[116\]](#)

#### [S0690 Green Lambert](#)

[Green Lambert](#) can delete the original executable after initial installation in addition to unused functions. [\[117\]](#)[\[118\]](#)

#### [S0342 GreyEnergy](#)

[GreyEnergy](#) can securely delete a file by hooking into the DeleteFileA and DeleteFileW functions in the Windows API. [\[119\]](#)

#### [S0632 GrimAgent](#)

[GrimAgent](#) can delete old binaries on a compromised host. [\[120\]](#)

#### [G0043 Group5](#)

Malware used by [Group5](#) is capable of remotely deleting files from victims. [\[121\]](#)

#### [S0561 GuLoader](#)

[GuLoader](#) can delete its executable from the `AppData\Local\Temp` directory on the compromised host. [\[122\]](#)

#### [S0151 HALFBAKED](#)

[HALFBAKED](#) can delete a specified file. [\[123\]](#)

#### [S0499 Hancitor](#)

[Hancitor](#) has deleted files using the VBA `kill` function. [\[124\]](#)

#### [S0391 HAWKBALL](#)

[HAWKBALL](#) has the ability to delete files. [\[125\]](#)

#### [S0697 HermeticWiper](#)

[HermeticWiper](#) has the ability to overwrite its own file with random bites. [\[126\]](#)[\[127\]](#)

#### [S1027 Heyoka Backdoor](#)

[Heyoka Backdoor](#) has the ability to delete folders and files from a targeted system. [\[128\]](#)

#### [S0087 Hi-Zor](#)

[Hi-Zor](#) deletes its RAT installer file as it executes its DLL payload file. [\[129\]](#)

#### [S0601 Hildegard](#)

[Hildegard](#) has deleted scripts after execution. [\[130\]](#)

#### [S0431 HotCroissant](#)

[HotCroissant](#) has the ability to clean up installed files, delete files, and delete itself from the victim's machine. [\[131\]](#)

#### [S0070 HTTPBrowser](#)

[HTTPBrowser](#) deletes its original installer file once installation is complete. [\[132\]](#)

#### [S0203 Hydraq](#)

[Hydraq](#) creates a backdoor through which remote attackers can delete files. [\[133\]](#)[\[134\]](#)

#### [S0398 HyperBro](#)

[HyperBro](#) has the ability to delete a specified file. [\[135\]](#)

#### [S1022 IceApple](#)

[IceApple](#) can delete files and directories from targeted systems. [\[136\]](#)

#### [S0434 Imminent Monitor](#)

[Imminent Monitor](#) has deleted files related to its dynamic debugger feature. [\[137\]](#)

#### [G1032 INC Ransom](#)

[INC Ransom](#) has uninstalled tools from compromised endpoints after use. [\[138\]](#)

#### [S0259 InnaputRAT](#)

[InnaputRAT](#) has a command to delete files. [\[139\]](#)

### [S0260 InvisiMole](#)

[InvisiMole](#) has deleted files and directories including XML and files successfully uploaded to C2 servers. [\[140\]](#)[\[141\]](#)

### [S1132 IPsec Helper](#)

[IPsec Helper](#) can delete itself when given the appropriate command. [\[6\]](#)

### [S0015 Ixeshe](#)

[Ixeshe](#) has a command to delete a file from the machine. [\[142\]](#)

### [S0044 JHUHUGIT](#)

The [JHUHUGIT](#) dropper can delete itself from the victim. Another [JHUHUGIT](#) variant has the capability to delete specified files. [\[143\]](#)[\[144\]](#)

### [S0201 JPIN](#)

[JPIN](#)'s installer/uninstaller component deletes itself if it encounters a version of Windows earlier than Windows XP or identifies security-related processes running. [\[145\]](#)

### [S0283 jRAT](#)

[jRAT](#) has a function to delete files from the victim's machine. [\[146\]](#)

### [S0265 Kazuar](#)

[Kazuar](#) can delete files. [\[147\]](#)

### [S1020 Kevin](#)

[Kevin](#) can delete files created on the victim's machine. [\[148\]](#)

### [S0271 KEYMARBLE](#)

[KEYMARBLE](#) has the capability to delete files off the victim's machine. [\[149\]](#)

### [S0607 KillDisk](#)

[KillDisk](#) has the ability to quit and delete itself. [\[150\]](#)

### [G0094 Kimsuky](#)

[Kimsuky](#) has deleted the exfiltrated data on disk after transmission. [Kimsuky](#) has also used an instrumentor script to terminate browser processes running on an infected system and then delete the cookie files on disk. [\[151\]](#)[\[152\]](#)  
[\[153\]](#) [Kimsuky](#) has deleted files using the `Remove-Item` PowerShell commandlet to remove traces of executed payloads. [\[154\]](#)

### [S0437 Kivars](#)

[Kivars](#) has the ability to uninstall malware from the infected host. [\[155\]](#)

### [S0162 Komplex](#)

The [Komplex](#) trojan supports file deletion. [\[156\]](#)

### [S0356 KONNI](#)

[KONNI](#) can delete files. [\[157\]](#)

### [C0035 KV Botnet Activity](#)

[KV Botnet Activity](#) removes on-disk copies of tools and other artifacts after it the primary botnet payload has been loaded into memory on the victim device. [\[158\]](#)

### [S1160 Latrodectus](#)

[Latrodectus](#) has the ability to delete itself. [\[159\]](#)[\[160\]](#)

### [G0032 Lazarus Group](#)

[Lazarus Group](#) malware has deleted files in various ways, including "suicide scripts" to delete malware binaries from the victim. [Lazarus Group](#) also uses secure file deletion to delete files from the victim. [\[161\]](#)[\[162\]](#)

### [S0395 LightNeuron](#)

[LightNeuron](#) has a function to delete files. [\[163\]](#)

### [S1188 Line Runner](#)

[Line Runner](#) removes its initial ZIP delivery archive after processing the enclosed LUA script. [\[24\]](#)

### [S0211 Linfo](#)

[Linfo](#) creates a backdoor through which remote attackers can delete files. [\[164\]](#)

### [S0513 LiteDuke](#)

[LiteDuke](#) can securely delete files by first writing random data to the file. [\[93\]](#)

### [S1199 LockBit 2.0](#)

[LockBit 2.0](#) can delete itself from disk after execution. [\[165\]](#)[\[166\]](#)[\[167\]](#)

### [S1202 LockBit 3.0](#)

[LockBit 3.0](#) can delete itself from disk. [\[168\]](#)[\[169\]](#)

### [S0372 LockerGoga](#)

[LockerGoga](#) has been observed deleting its original launcher after execution. [\[170\]](#)

### [S0447 Lokibot](#)

[Lokibot](#) will delete its dropped files after bypassing UAC. [\[171\]](#)

### [S0582 LookBack](#)

[LookBack](#) removes itself after execution and can delete files on the system. [\[172\]](#)

### [S0451 LoudMiner](#)

[LoudMiner](#) deleted installation files after completion. [\[173\]](#)

### [S1142 LunarMail](#)

[LunarMail](#) can delete the previously used staging directory and files on subsequent rounds of exfiltration and replace it with a new one. [\[174\]](#)

### [S1141 LunarWeb](#)

[LunarWeb](#) can self-delete from a compromised host if safety checks of C2 connectivity fail. [\[174\]](#)

### [S0409 Machete](#)

Once a file is uploaded, [Machete](#) will delete it from the machine. [\[175\]](#)

### [S1016 MacMa](#)

[MacMa](#) can delete itself from the compromised computer. [\[176\]](#)

### [S0282 MacSpy](#)

[MacSpy](#) deletes any temporary files it creates [\[177\]](#)

### [G0059 Magic Hound](#)

[Magic Hound](#) has deleted and overwrote files to cover tracks. [\[178\]\[179\]\[180\]](#)

### [S1182 MagicRAT](#)

[MagicRAT](#) can delete files on victim systems, including itself. [\[181\]](#)

### [G1051 Medusa Group](#)

[Medusa Group](#) has deleted previously installed tools. [\[182\]](#)

### [S1244 Medusa Ransomware](#)

[Medusa Ransomware](#) has the ability to delete itself after execution. <sup>[183]</sup> [Medusa Ransomware](#) also has the ability to delete itself after execution through the command `cmd /c ping localhost -n 3 > nul & del .` <sup>[184][185]</sup>

#### [G0045 menuPass](#)

A [menuPass](#) macro deletes files after it has decoded and decompressed them. <sup>[186][187]</sup>

#### [S0443 MESSAGETAP](#)

Once loaded into memory, [MESSAGETAP](#) deletes the `keyword_parm.txt` and `parm.txt` configuration files from disk. <sup>[188]</sup>

#### [G1013 Metador](#)

[Metador](#) has quickly deleted `cbd.exe` from a compromised host following the successful deployment of their malware. <sup>[189]</sup>

#### [S1059 metaMain](#)

[metaMain](#) has deleted collected items after uploading the content to its C2 server. <sup>[189][190]</sup>

#### [S0455 Metamorfo](#)

[Metamorfo](#) has deleted itself from the system after execution. <sup>[191][192]</sup>

#### [S0688 Meteor](#)

[Meteor](#) will delete the folder containing malicious scripts if it detects the hostname as `PIS-APP` , `PIS-MOB` , `WSUSPROXY` , or `PIS-DB` . <sup>[193]</sup>

#### [S1015 Milan](#)

[Milan](#) can delete files via `C:\Windows\system32\cmd.exe /c ping 1.1.1.1 -n 1 -w 3000 > Nul & rmdir /s /q .` <sup>[73]</sup>

#### [S0083 Misdat](#)

[Misdat](#) is capable of deleting the backdoor file. <sup>[194]</sup>

#### [S0149 MoonWind](#)

[MoonWind](#) can delete itself or specified files. <sup>[195]</sup>

#### [S0284 More\\_eggs](#)

[More\\_eggs](#) can remove itself from a system. <sup>[64][196]</sup>

#### [S1047 Mori](#)

[Mori](#) can delete its DLL file and related files by Registry value. [\[197\]](#)

#### [S0256 Mosquito](#)

[Mosquito](#) deletes files using DeleteFileW API call. [\[198\]](#)

#### [S1135 MultiLayer Wiper](#)

[MultiLayer Wiper](#) uses a batch file, `remover.bat` to delete malware artifacts and the batch file itself during execution. [\[199\]](#)

#### [S0233 MURKYTOP](#)

[MURKYTOP](#) has the capability to delete local files. [\[79\]](#)

#### [G0129 Mustang Panda](#)

[Mustang Panda](#) will delete their tools and files, and kill processes after their objectives are reached. [\[200\]](#)[\[201\]](#)

#### [S0228 NanHaiShu](#)

[NanHaiShu](#) launches a script to delete their original decoy file to cover tracks. [\[202\]](#)

#### [S0630 Nebulae](#)

[Nebulae](#) has the ability to delete files and directories. [\[203\]](#)

#### [S1192 NICECURL](#)

[NICECURL](#) has a function to remove artifacts. [\[204\]](#)

#### [S1147 Nightdoor](#)

[Nightdoor](#) can self-delete. [\[205\]](#)

#### [S0385 njRAT](#)

[njRAT](#) is capable of deleting files. [\[206\]](#)[\[207\]](#)

#### [S0353 NOKKI](#)

[NOKKI](#) can delete files to cover tracks. [\[208\]](#)

#### [S0346 OceanSalt](#)

[OceanSalt](#) can delete files from the system. [\[209\]](#)

#### [S1170 ODAgent](#)

[ODAgent](#) can delete payloads and files used to pass C2 commands from remotely hosted cloud accounts. [\[210\]](#)

### [G0049 OilRig](#)

[OilRig](#) has deleted files associated with their payload after execution. [\[211\]](#)[\[212\]](#)

### [S0439 Okrum](#)

[Okrum](#)'s backdoor deletes files after they have been successfully uploaded to C2 servers. [\[213\]](#)

### [S0264 OopsIE](#)

[OopsIE](#) has the capability to delete files and scripts from the victim's machine. [\[214\]](#)

### [C0022 Operation Dream Job](#)

During [Operation Dream Job](#), [Lazarus Group](#) removed all previously delivered files from a compromised computer. [\[215\]](#)

### [C0006 Operation Honeybee](#)

During [Operation Honeybee](#), the threat actors used batch files that reduced their fingerprint on a compromised system by deleting malware-related files. [\[216\]](#)

### [C0014 Operation Wocao](#)

During [Operation Wocao](#), the threat actors consistently removed traces of their activity by first overwriting a file using `/c cd /d c:\windows\temp\ & copy \\<IP ADDRESS>\c$\windows\system32\devmgr.dll \\<IP ADDRESS>\c$\windows\temp\LMAKSW.ps1 /y` and then deleting the overwritten file using `/c cd /d c:\windows\temp\ & del \\<IP ADDRESS>\c$\windows\temp\LMAKSW.ps1`. [\[217\]](#)

### [S0352 OSX\\_OCEANLOTUS.D](#)

[OSX\\_OCEANLOTUS.D](#) has a command to delete a file from the system. [OSX\\_OCEANLOTUS.D](#) deletes the app bundle and dropper after execution. [\[218\]](#)[\[219\]](#)[\[220\]](#)

### [S1017 OutSteel](#)

[OutSteel](#) can delete itself following the successful execution of a follow-on payload. [\[221\]](#)

### [S0598 P.A.S. Webshell](#)

[P.A.S. Webshell](#) can delete scripts from a subdirectory of /tmp after they are run. [\[91\]](#)

### [S0208 Pasam](#)

[Pasam](#) creates a backdoor through which remote attackers can delete files. [\[222\]](#)

### [G0040 Patchwork](#)

[Patchwork](#) removed certain files and replaced them so they could not be retrieved. [\[223\]](#)

### [S0556 Pay2Key](#)

[Pay2Key](#) can remove its log file from disk. [\[224\]](#)

### [S1050 PcShare](#)

[PcShare](#) has deleted its files and components from a compromised host. [\[58\]](#)

### [S0587 Penguin](#)

[Penguin](#) can delete downloaded executables after running them. [\[225\]](#)

### [S0517 Pillowmint](#)

[Pillowmint](#) has deleted the filepath `%APPDATA%\Intel\devmonsrv.exe`. [\[226\]](#)

### [G1040 Play](#)

[Play](#) has used tools including [Wevtutil](#) to remove malicious files from compromised hosts. [\[227\]](#)

### [S0435 PLEAD](#)

[PLEAD](#) has the ability to delete files on the compromised host. [\[155\]](#)

### [S0013 PlugX](#)

[PlugX](#) has the remove itself and other artifacts. [\[228\]](#)[\[229\]](#)

### [S0067 pngdowner](#)

[pngdowner](#) deletes content from C2 communications that was saved to the user's temporary directory. [\[230\]](#)

### [S0428 PoetRAT](#)

[PoetRAT](#) has the ability to overwrite scripts and delete itself if a sandbox environment is detected. [\[231\]](#)

### [S0453 Pony](#)

[Pony](#) has used scripts to delete itself after execution. [\[232\]](#)

### [S0139 PowerDuke](#)

[PowerDuke](#) has a command to write random data across a file and delete it. [\[233\]](#)

### [S0441 PowerShower](#)

[PowerShower](#) has the ability to remove all files created during the dropper process. [\[234\]](#)

### [S0223 POWERSTATS](#)

[POWERSTATS](#) can delete all files on the C:\, D:\, E:\ and, F:\ drives using [PowerShell](#) Remove-Item commands. [\[235\]](#)

#### [S0113 Prikormka](#)

After encrypting its own log files, the log encryption module in [Prikormka](#) deletes the original, unencrypted files from the host. [\[236\]](#)

#### [S0654 ProLock](#)

[ProLock](#) can remove files containing its payload after they are executed. [\[237\]](#)

#### [S0279 Proton](#)

[Proton](#) removes all files in the /tmp directory. [\[102\]](#)

#### [S0238 Proxysvc](#)

[Proxysvc](#) can delete files indicated by the attacker and remove itself from disk using a batch file. [\[162\]](#)

#### [S0147 Pteranodon](#)

[Pteranodon](#) can delete files that may interfere with it executing. It also can delete temporary files and itself after the initial script executes. [\[238\]](#)

#### [S0196 PUNCHBUGGY](#)

[PUNCHBUGGY](#) can delete files written to disk. [\[99\]\[239\]](#)

#### [S1032 PyDCrypt](#)

[PyDCrypt](#) will remove all created artifacts such as dropped executables. [\[240\]](#)

#### [S0583 Pysa](#)

[Pysa](#) has deleted batch files after execution. [\[241\]](#)

#### [S0650 QakBot](#)

[QakBot](#) can delete folders and files including overwriting its executable with legitimate programs. [\[242\]\[243\]\[244\]](#)  
[\[237\]](#)

#### [S1242 Qilin](#)

[Qilin](#) can delete itself from infected hosts after execution. [\[245\]\[246\]](#)

#### [S0269 QUADAGENT](#)

[QUADAGENT](#) has a command to delete its Registry key and scheduled task. [\[247\]](#)

### [S1148 Raccoon Stealer](#)

[Raccoon Stealer](#) can remove files related to use and installation. [\[248\]](#)

### [S0629 RainyDay](#)

[RainyDay](#) has the ability to uninstall itself by deleting its service and files. [\[203\]](#)

### [S1212 RansomHub](#)

[RansomHub](#) has the ability to self-delete. [\[249\]](#)

### [S1130 Raspberry Robin](#)

[Raspberry Robin](#) can delete its initial delivery script from disk during execution. [\[250\]](#)

### [S0662 RCSession](#)

[RCSession](#) can remove files from a targeted system. [\[251\]](#)

### [S0495 RDAT](#)

[RDAT](#) can issue SOAP requests to delete already processed C2 emails. [RDAT](#) can also delete itself from the infected system. [\[252\]](#)

### [S0416 RDFSNIFFER](#)

[RDFSNIFFER](#) has the capability of deleting local files. [\[253\]](#)

### [S0172 Reaver](#)

[Reaver](#) deletes the original dropped file from the victim. [\[254\]](#)

### [G1039 RedCurl](#)

[RedCurl](#) has deleted files after execution. [\[255\]](#)[\[256\]](#)[\[257\]](#)

### [S0153 RedLeaves](#)

[RedLeaves](#) can delete specified files. [\[258\]](#)

### [C0056 RedPenguin](#)

During [RedPenguin](#), [UNC3886](#) used malware capable of removing scripts after execution. [\[259\]](#)

### [S0125 Remsec](#)

[Remsec](#) is capable of deleting files on the victim. It also securely removes itself after collecting and exfiltrating data. [\[260\]](#)[\[261\]](#)[\[262\]](#)

### [S0496 REvil](#)

[REvil](#) can mark its binary code for deletion after reboot. [\[263\]](#)

### [S0448 Rising\\_Sun](#)

[Rising\\_Sun](#) can delete files and artifacts it creates. [\[264\]](#)

### [S1150 ROADSWEEP](#)

[ROADSWEEP](#) can use embedded scripts to remove itself from the infected host. [\[265\]](#)[\[266\]](#)

### [G0106 Rocke](#)

[Rocke](#) has deleted files on infected machines. [\[267\]](#)

### [S0240 ROKRAT](#)

[ROKRAT](#) can request to delete files. [\[268\]](#)

### [S0148 RTM](#)

[RTM](#) can delete all files created during its execution. [\[269\]](#)[\[270\]](#)

### [S0253 RunningRAT](#)

[RunningRAT](#) contains code to delete files from the victim's machine. [\[113\]](#)

### [S0085 S-Type](#)

[S-Type](#) has deleted files it has created on a compromised host. [\[194\]](#)

### [S1018 Saint Bot](#)

[Saint Bot](#) can run a batch script named `del.bat` to remove any [Saint Bot](#) payload-linked files from a compromise system if anti-analysis or locale checks fail. [\[221\]](#)

### [S0074 Sakula](#)

Some [Sakula](#) samples use `cmd.exe` to delete temporary files. [\[271\]](#)

### [S0370 SamSam](#)

[SamSam](#) has been seen deleting its own files and payloads to make analysis of the attack more difficult. [\[272\]](#)

### [G0034 Sandworm Team](#)

[Sandworm Team](#) has used backdoors that can delete files used in an attack from an infected system. [\[150\]](#)[\[273\]](#)[\[274\]](#)

### [S0461 SDBbot](#)

[SDBbot](#) has the ability to delete files from a compromised host. [\[275\]](#)

#### [S0195 SDelete](#)

[SDelete](#) deletes data in a way that makes it unrecoverable. [\[11\]](#)

#### [S0053 SeaDuke](#)

[SeaDuke](#) can securely delete files, including deleting itself from the victim. [\[276\]](#)

#### [S0345 Seasalt](#)

[Seasalt](#) has a command to delete a specified file. [\[277\]](#)

#### [S0382 ServHelper](#)

[ServHelper](#) has a module to delete itself from the infected machine. [\[278\]\[279\]](#)

#### [S1019 Shark](#)

[Shark](#) can delete files downloaded to the compromised host. [\[73\]](#)

#### [S0444 ShimRat](#)

[ShimRat](#) can uninstall itself from compromised hosts, as well create and modify directories, delete, move, copy, and rename files. [\[280\]](#)

#### [S1178 ShrinkLocker](#)

[ShrinkLocker](#) can delete itself depending on various checks performed during execution. [\[281\]](#)

#### [S0589 Sibot](#)

[Sibot](#) will delete itself if a certain server response is received. [\[282\]](#)

#### [G0091 Silence](#)

[Silence](#) has deleted artifacts, including scheduled tasks, communicates files from the C2 and other logs. [\[283\]\[284\]](#)

#### [S0692 SILENTRINITY](#)

[SILENTRINITY](#) can remove files from the compromised host. [\[285\]](#)

#### [S0533 SLOTHFULMEDIA](#)

[SLOTHFULMEDIA](#) has deleted itself and the 'index.dat' file on a compromised machine to remove recent Internet history from the system. [\[286\]](#)

#### [S1166 Solar](#)

[Solar](#) has the ability to delete staged files after they are uploaded to C2. [\[287\]](#)

#### [C0024 SolarWinds Compromise](#)

During the [SolarWinds Compromise](#), [APT29](#) routinely removed their tools, including custom backdoors, once remote access was achieved. [\[288\]](#)

#### [S0615 SombRAT](#)

[SombRAT](#) has the ability to run `cancel` or `closeanddeletestorage` to remove all files from storage and delete the storage temp file on a compromised host. [\[289\]](#)

#### [S0374 SpeakUp](#)

[SpeakUp](#) deletes files to remove evidence on the machine. [\[290\]](#)

#### [S0390 SQLRat](#)

[SQLRat](#) has used been observed deleting scripts once used. [\[291\]](#)

#### [S1200 StealBit](#)

[StealBit](#) can self-delete its executable file from the compromised system. [\[292\]\[165\]](#)

#### [S0380 StoneDrill](#)

[StoneDrill](#) has been observed deleting the temporary files once they fulfill their task. [\[293\]](#)

#### [S1034 StrifeWater](#)

[StrifeWater](#) can self delete to cover its tracks. [\[294\]](#)

#### [S0491 StrongPity](#)

[StrongPity](#) can delete previously exfiltrated files from the compromised host. [\[295\]\[296\]](#)

#### [S0603 Stuxnet](#)

[Stuxnet](#) uses an RPC server that contains a routine for file deletion and also removes itself from the system through a DLL export by deleting specific files. [\[297\]](#)

#### [S0559 SUNBURST](#)

[SUNBURST](#) had a command to delete files. [\[288\]\[298\]](#)

#### [S0562 SUNSPOT](#)

Following the successful injection of [SUNBURST](#), [SUNSPOT](#) deleted a temporary file it created named `InventoryManager .bk` after restoring the original SolarWinds Orion source code to the software library. [\[299\]](#)

### [S0663 SysUpdate](#)

[SysUpdate](#) can delete its configuration file from the targeted system. [\[300\]](#)

### [S0011 Taidoor](#)

[Taidoor](#) can use `DeleteFileA` to remove files from infected hosts. [\[301\]](#)

### [S0586 TAINTEDSCRIBE](#)

[TAINTEDSCRIBE](#) can delete files from a compromised host. [\[302\]](#)

### [S0164 TDTESS](#)

[TDTESS](#) creates then deletes log files during installation of itself as a service. [\[303\]](#)

### [G0139 TeamTNT](#)

[TeamTNT](#) has used a payload that removes itself after running. [TeamTNT](#) also has deleted locally staged files for collecting credentials or scan results for local IP addresses after exfiltrating them. [\[304\]](#)[\[305\]](#)

### [G0089 The White Company](#)

[The White Company](#) has the ability to delete its malware entirely from the target system. [\[306\]](#)

### [G0027 Threat Group-3390](#)

[Threat Group-3390](#) has deleted existing logs and exfiltrated file archives from a victim. [\[307\]](#)[\[308\]](#)

### [S1239 TONESHELL](#)

[TONESHELL](#) has deleted payload files received from the C2 server. [\[309\]](#)

### [S0094 Trojan.Karagany](#)

[Trojan.Karagany](#) has used plugins with a self-delete capability. [\[310\]](#)

### [S1196 Troll Stealer](#)

[Troll Stealer](#) creates and can execute a BAT script that will delete the malware. [\[311\]](#)

### [G0081 Tropic Trooper](#)

[Tropic Trooper](#) has deleted dropper files on an infected system using command scripts. [\[312\]](#)

### [S0263 TYPEFRAME](#)

[TYPEFRAME](#) can delete files off the system. [\[313\]](#)

### [G1048 UNC3886](#)

[UNC3886](#) has used the the `esxcli` command line to remove files created by malicious vSphere Installation Bundles from disk. [\[314\]](#)[\[315\]](#)

#### [S1164 UPSTYLE](#)

[UPSTYLE](#) removes `bootstrap.min.css` after parsing command and control instructions, restoring the file to its original state. [\[316\]](#)

#### [S0022 Uroburos](#)

[Uroburos](#) can run a `Clear Agents Track` command on an infected machine to delete [Uroburos](#)-related logs. [\[317\]](#)

#### [S0386 Ursnif](#)

[Ursnif](#) has deleted data staged in tmp files after exfiltration. [\[318\]](#)

#### [S0136 USBStealer](#)

[USBStealer](#) has several commands to delete files associated with the malware from the victim. [\[319\]](#)

#### [S0442 VBShower](#)

[VBShower](#) has attempted to complicate forensic analysis by deleting all the files contained in `%APPDATA%..\Local\Temporary Internet Files\Content.Word` and `%APPDATA%..\Local Settings\Temporary Internet Files\Content.Word\`. [\[320\]](#)

#### [S0257 VERMIN](#)

[VERMIN](#) can delete files on the victim's machine. [\[321\]](#)

#### [S1154 VersaMem](#)

[VersaMem](#) deleted files related to initial installation such as temporary files related to the PID of the main web process. [\[322\]](#)

#### [S0180 Volgmer](#)

[Volgmer](#) can delete files and itself after infection to avoid analysis. [\[323\]](#)

#### [G1017 Volt Typhoon](#)

[Volt Typhoon](#) has run `rd /S` to delete their working directories and deleted `systeminfo.dat` from `C:\Users\Public\Documentsfiles`. [\[324\]](#)[\[325\]](#)

#### [S0689 WhisperGate](#)

[WhisperGate](#) can delete tools from a compromised host after execution. [\[326\]](#)

#### [S0155 WINDSHIELD](#)

[WINDSHIELD](#) is capable of file deletion along with other file system interaction. [\[327\]](#)

#### [S0466 WindTail](#)

[WindTail](#) has the ability to receive and execute a self-delete command. [\[328\]](#)

#### [S0176 Wingbird](#)

[Wingbird](#) deletes its payload along with the payload's parent process after it finishes copying files. [\[329\]](#)

#### [S0141 Winnti for Windows](#)

[Winnti for Windows](#) can delete the DLLs for its various components from a compromised host. [\[330\]](#)

#### [G0102 Wizard Spider](#)

[Wizard Spider](#) has used file deletion to remove some modules and configurations from an infected host after use. [\[331\]](#)

#### [S1065 Woody RAT](#)

[Woody RAT](#) has the ability to delete itself from disk by creating a suspended notepad process and writing shellcode to delete a file into the suspended process using `NtWriteVirtualMemory`. [\[332\]](#)

#### [S0161 XAgentOSX](#)

[XAgentOSX](#) contains the `deleteFileFromPath` function to delete a specified file using the `NSFileManager:removeFileAtPath` method. [\[333\]](#)

#### [S1207 XLoader](#)

[XLoader](#) can delete malicious executables from compromised machines. [\[334\]](#)

#### [S0251 Zebrocy](#)

[Zebrocy](#) has a command to delete files and directories. [\[335\]](#)[\[336\]](#)[\[337\]](#)

#### [S1151 ZeroCleare](#)

[ZeroCleare](#) has the ability to uninstall the [RawDisk](#) driver and delete the `rwdsk` file on disk. [\[265\]](#)[\[338\]](#)

#### [S0330 Zeus Panda](#)

[Zeus Panda](#) has a command to delete a file. It also can uninstall scripts and delete files to cover its track. [\[339\]](#)

#### [S0350 zwShell](#)

[zwShell](#) has deleted itself after creating a service as well as deleted a temporary file when the system reboots. [\[340\]](#)

## [S0412 ZxShell](#)

[ZxShell](#) can delete files from the system. [\[17\]](#)[\[341\]](#)

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Source: <https://attack.mitre.org/techniques/T1070/004>