Threat Hunting

HW01 - Recognize the APT group

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目錄

Task 1: Research an APT Group

APT41

- APT41 as known as AMOEBA, Winnti, APT41, BARIUM
- sponsor nation: China
- Common TTPs：
  - https://mitre-attack.github.io/attack-navigator//#layerURL=https%3A%2F%2Fattack.mitre.org%2Fgroups%2FG0096%2FG0096-enterprise-layer.json (https://mitre-attack.github.io/attack-navigator//#layerURL=https%3A%2F%2Fattack.mitre.org%2Fgroups%2FG0096%2FG0096-enterprise-layer.json)
  - Top 10 of TTPs (shout out to ChatGPT 5, prompt：`https://mitre-attack.github.io/attack-navigator//#layerURL=https%3A%2F%2Fattack.mitre.org%2Fgroups%2FG0096%2FG0096-enterprise-layer.json 排名前十名的 TTPs 請用英文輸出`)：

    1. **T1190 — Exploit Public-Facing Applications**
    2. **T1078 — Valid Accounts**
    3. **T1071.004 — Application Layer Protocol: DNS**
    4. **T1110 — Brute Force**
    5. **T1105 — Ingress Tool Transfer**
    6. **T1071.001 — Application Layer Protocol: Web Protocols**
    7. **T1574.001 — Hijack Execution Flow: DLL Search Order Hijacking**
    8. **T1036.004 — Masquerading: Masquerade Task or Service**
    9. **T1070.004 — Indicator Removal: File Deletion**
    10. **T1567.002 — Exfiltration Over Web Service: Exfiltration to Cloud Storage**

- Notable APT41 Campaigns / Incidents
  1. **Arisen from the DUST (2023-2024)**
     Long-term access in logistics, media, tech, automotive across Europe & Asia. Used *DUSTPAN*/*DUSTTRAP* droppers, ANTSWORD/BLUEBEAM web shells, exfiltration via OneDrive. Ref: https://cloud.google.com/blog/topics/threat-intelligence/apt41-arisen-

from-dust (https://cloud.google.com/blog/topics/threat-intelligence/apt41-arisen-from-dust)

2. **US State Governments (2021)**
   Exploited USAHERDS & ASP[.]NET apps; later Log4j. Compromised at least 6 U.S. state networks. Ref: https://www.wired.com/story/china-apt41-hacking-usaherds-log4j (https://www.wired.com/story/china-apt41-hacking-usaherds-log4j)
3. **World Tour 2021**
   Four campaigns, 13 victims globally, heavy use of Cobalt Strike. Ref: https://www.group-ib.com/blog/apt41-world-tour-2021/ (https://www.group-ib.com/blog/apt41-world-tour-2021/)
4. **Earth Longzhi subgroup (2020-2022)**
   Sub-team targeting Taiwan, SE Asia, Ukraine. Used custom loaders, phishing, in-memory evasion. Ref: https://www.trendmicro.com/en_in/research/22/k/hack-the-real-box-apt41-new-subgroup-earth-longzhi.html (https://www.trendmicro.com/en_in/research/22/k/hack-the-real-box-apt41-new-subgroup-earth-longzhi.html)
5. **DOJ Indictment (2019-2020)**
   Five members charged with hacking 100+ companies worldwide, stealing source code, certificates, customer data. Ref: https://www.justice.gov/opa/pr/seven-international-cyber-defendants-including-apt41-actors-charged-connection-computer (https://www.justice.gov/opa/pr/seven-international-cyber-defendants-including-apt41-actors-charged-connection-computer)

- Target sectors or regions： **UK, China, Taiwan, Hong Kong, India,Thailand, Mongolia, Indonesia,Vietnam, Bangladesh, Ireland, Brunei**

known operations in 2007. Twelve of those countries can be seen in *Figure 1*. This includes both government and private organizations based in the U.S., the UK, China, Taiwan, Hong Kong, India, Thailand, Mongolia, Indonesia, Vietnam, Bangladesh, Ireland, and Brunei. The group's espionage campaigns have targeted healthcare (including pharamceuticals), telecommunications, software and the high-tech sector, media/news, retail, travel, hospitality, sports, education, logistics, finance, entertainment (especially video games) and digital currencies. They are also known to target state governments, which can include healthcare organizations. Much of their targeting has historically included theft of intellectual property, and generally has been observed to align with China's most recent 5-year plan. Their cybercriminal activities have primarily targeted the video game industry and virtual currency entities to date, and often involve the deployment of ransomware. There are also indications that the group tracks individuals and conducts surveillance, although HC3 is unaware of thiese types of activities specifically being leveraged against the U.S. health sector to date.

Figure 1: APT41 geographic targeting according to 2022 Mandiant data.

Analysis of Operations: APT41 is believed to have been in operations since at least 2007. They are a group whose goals include cyber espionage and financial gain. They distinguish themselves by primarily engaging in financially-motivated cybercriminal activities, possibly without the knowledge of the state and ostensibly for the benefit of the individual members of the group. This combination of operational goals is the reason they are referred to by some as Double Dragon.

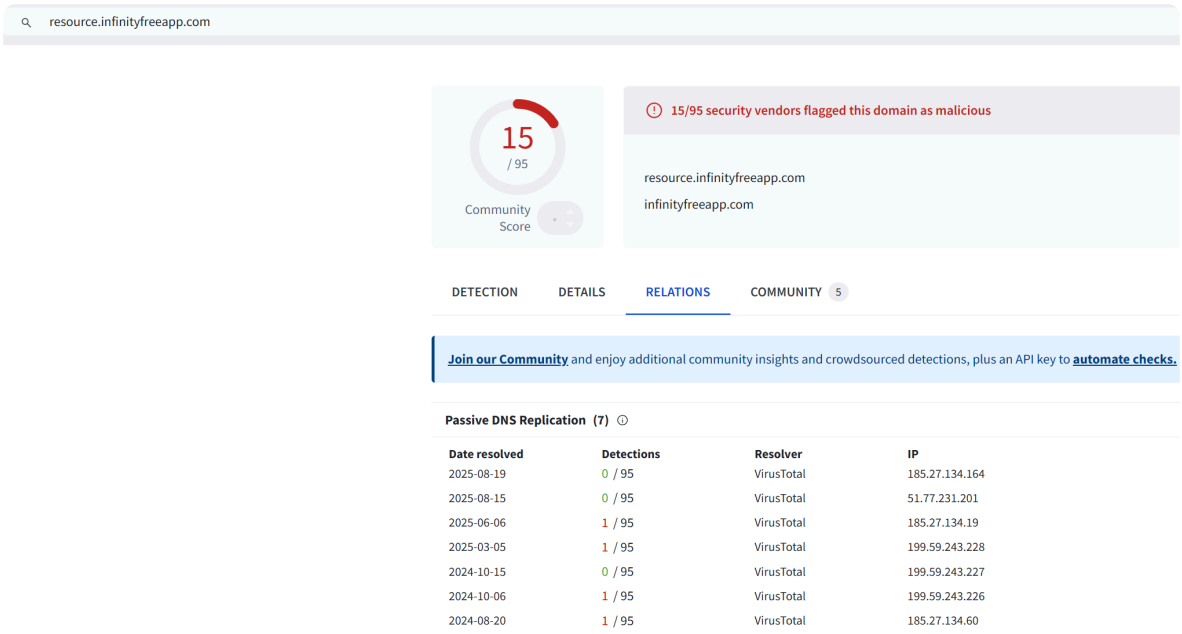
https://www.hhs.gov/sites/default/files/china-based-threat-actor-profiles-tlpclear.pdf (https://www.hhs.gov/sites/default/files/china-based-threat-actor-profiles-tlpclear.pdf)

Task 2: Apply an OSINT Tool

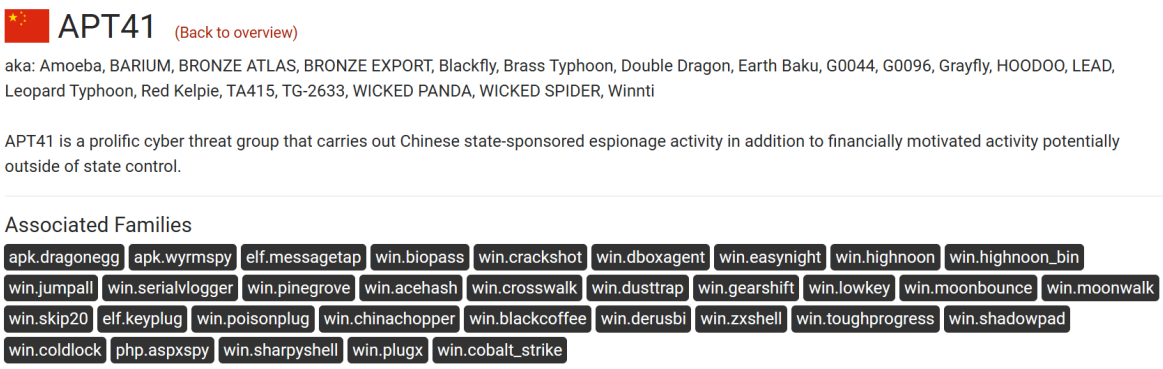
- Look up domains or IPs historically linked to the group：
  - Domains (from https://www.hhs.gov/sites/default/files/apt41.pdf (https://www.hhs.gov/sites/default/files/apt41.pdf))
    - word[.]msapp[.]workers[.]dev
    - cloud[.]msapp[.]workers[.]dev
    - term-restore-satisfied-hence[.]trycloudflare[.]com
    - ways-sms-pmc-shareholders[.]trycloudflare[.]com
    - resource[.]infinityfreeapp[.]com
    - pubs[.]infinityfreeapp[.]com
  - IPs and relation domain (from https://www.group-ib.com/blog/apt41-world-tour-2021/ (https://www.group-ib.com/blog/apt41-world-tour-2021/))

    - 45.142.212[.]47 | socialpt2021[.]club, mute-pond-371d.zalocdn[.]workers.dev
    - 185.250.150[.]22 | mute-pond-371d.zalocdn[.]workers.dev
    - 45.133.216[.]21
    - 45.153.231[.]32
    - 185.118.166[.]66 | olunm[.]tk

- virustotal：



- Explore malware samples or indicators of compromise (IOCs)：



https://malpedia.caad.fkie.fraunhofer.de/actor/apt41

(https://malpedia.caad.fkie.fraunhofer.de/actor/apt41)

- Review public datasets or repositories of threat reports：
    - https://services.google.com/fh/files/misc/m-trends-2025-en.pdf

      (https://services.google.com/fh/files/misc/m-trends-2025-en.pdf)

    - https://www.sentinelone.com/labs/follow-the-smoke-china-nexus-threat-actors-hammer-at-the-doors-of-top-tier-targets/ (https://www.sentinelone.com/labs/follow-the-smoke-china-nexus-threat-actors-hammer-at-the-doors-of-top-tier-targets/)

- Why you selected this tool：I use virustoal to find "relation" information and try to link them togethter.
- How you applied it：
    1. search the IoC(IP, Domain, hash...) which I found on the public report
    2. use `details` to find the malware hash
    3. use `relation` function to find relation IP / Domain name
    4. use `community` to find the report that upload by others researcher.
- What results (if any) you obtained：
    1. Relation IPs / Domain name (suspective C2 or familes)
    2. Relation malware filename or software or Application
    3. Relation malware hash
- Reflections on the usefulness and limitations of OSINT in this context：
    1. The information can be wrong(because everyone can upload their research on it.). Need more intelligence to cross-validation their authenticity.
    2. The information is not attribute only one hacker group. Maybe can be more relation to others hacker group or cyber criminal
    3. Must be suspect to everthings that didn't been validation. The intelligence can be polluted.

Reference:

- ChatGPT：help me to summarize information of APT41's TTPs and campaigns / incidents
- https://www.hhs.gov/sites/default/files/apt41.pdf (https://www.hhs.gov/sites/default/files/apt41.pdf)
- https://cloud.google.com/security/resources/insights/apt-groups (https://cloud.google.com/security/resources/insights/apt-groups)
- https://malpedia.caad.fkie.fraunhofer.de/actor/apt41 (https://malpedia.caad.fkie.fraunhofer.de/actor/apt41)

- https://www.hhs.gov/sites/default/files/china-based-threat-actor-profiles-tlpclear.pdf (https://www.hhs.gov/sites/default/files/china-based-threat-actor-profiles-tlpclear.pdf)
- https://www.sentinelone.com/labs/follow-the-smoke-china-nexus-threat-actors-hammer-at-the-doors-of-top-tier-targets/ (https://www.sentinelone.com/labs/follow-the-smoke-china-nexus-threat-actors-hammer-at-the-doors-of-top-tier-targets/)