Inside Cybercrime Groups Harvesting Active Directory for Fun and Profit - Vitali Kremez

Archived: 2026-04-05 22:49:25 UTC

Automated Malware + Interactive Human Exploitation Operator

Emotet (Loader for Installs) -> **TrickBot** -> **Ryuk Ransomware** (via PowerShell Empire/Cobalt Strike)

...Network & Active Directory Parsing!....

Reference: "Charting the Next Cybercrime Frontier, or Evolution of Criminal Intent
https://www.youtube.com/watch?v=pfL0aTYzRM
Credit: Ryuk image (https://hogarthsp.com/products/ryuk)

Scope of TrickBot Installs: How Big is the Problem?

Newer Cybercrime Frontier: TrickBot Makes Headlines with Ryuk Install via Active Directory

What is **Ryuk**, the malware believed to have hit the Los Angeles **Times**?
Los Angeles Times - Jan 1, 2019
Ryuk, a malware program believed to have been used in an attack this ... hobbled newspapers nationwide, including the Los Angeles **Times**, ...

Ryuk ransomware attack delays the distribution of major US newspapers
2-spyware.com (blog) - Jan 2, 2019

Major US newspapers crippled by **Ryuk** ransomware attack
CSO Online - Jan 2, 2019

TrickBot in the Cloud: CloudJumper MSP Intrusion: $5 Billion Extortion Amount in Total (!)

Reference:
https://twitter.com/barton_paul/status/1127068679132987394

TrickBot Makes Headlines with Ryuk Install via Active Directory: CloudJumper MSP

Breached MSP Victim –>
Gateway to Other Organization Cloud Infrastructure

Active Directory Kill Chain Attack & Defense

Credit:
Rahmat Nurfauzi (https://github.com/infosecn1nja/AD-Attack-Defense/blob/master/README.md)

Active Directory Enumeration & Exploitations

Active Directory Enumeration Methodologies

domainDll (32/64)

- "domainDll32," compiled via 'GCC: (Rev1, Built by MSYS2 project) 7.2.0,' allows TrickBot operators to collect domain controller information once they are already on the compromised machine.
- This module is internally called "DomainGrabber" and accepts command "getdata" in order to start harvest domain information.
- domainDll appears to be aimed at exploiting networks with unsecured domain controllers.

Reference: https://www.vkremez.com/2017/12/lets-learn-introducing-new-trickbot.html

Active Directory Enumeration Methodologies

domainDll (32/64) (decoded)
(1e2791877da0249998dea79515a89ca)

Active Directory Enumeration Methodologies

domainDll (32/64)

Active Directory Enumeration Methodologies

networkDll (32/64)

- "**networkDll**" module is a single harvester of all possible network victim information from running commands such as "ipconfig /all" and "nltest /domain_trusts /all_trusts" to WMI Query Language (WQL) queries such as "SELECT * FROM Win32_OperatingSystem" to lightweight directory access protocol (LDAP) queries.
- Notably, the group leverages "nltest" commands to establish trust relationship between between a compromised workstation and its possible domain before querying LDAP.

Reference:
https://www.vkremez.com/2018/04/lets-learn-trickbot-implements-network.html

Active Directory Enumeration Methodologies

networkDll (32/64) (decoded)
(aeb08b0651bc8a13dcf5e5f6c0d48218)

LDAP network and domain queries

Active Directory Enumeration Methodologies

c nfidence

networkDll (32|64)

Active Directory Enumeration Methodologies

c nfidence

psfinDll (32|64)

- "**psfin32**" is a point-of-sale finder reconnaissance module hunts for point of sale related services, software, and machines in Lightweight Directory Access Protocol (LDAP)
- The module itself does not steal any point-of-sale data but rather used to profile corporate machines of interest with possible point-of-sale devices.
- This module arrived just in time for the holiday shopping season highlighting the group interest in exploring possible point-of-sale breaches.

Reference:
https://www.vkremez.com/2018/11/lets-learn-introducing-latest-trickbot.html

Active Directory Enumeration Methodologies

c nfidence

psfinDll (32|64): Typical Point-of-Sale Network Layout

Credit:
https://www.smart-acc.com/?page=size-options/multiple-outlets/retail

Active Directory Enumeration Methodologies

c nfidence

psfinDll (32|64)
(4fce2da754c9a1ac06ad11a46d215d23)

Active Directory Enumeration Methodologies

c nfidence

psfinDll (32|64)

LDAP provider is used to access Active Directory domain services. The LDAP binding string takes the following form of "GC://" binding to the root of the namespace. "GC:" uses the LDAP provider to bind to the Global Catalog service to execute queries.
The module queries for DOMAIN Global Catalog the following accesses:

```
COMPUTERS
USERS
GROUPS
SITES
DCs
```

The point-of-note key terms of interest are as follows:

```
*DCS*
*DES*
*CASE*
*GAME*
*VICTIM*
*NETBIOS*
*NEW*
*YELLOW*
*MICROSOFT
*YEARN*
```

c nfidence

Life Cycle of High-Profile Event: Typical Exploitation Chain & Tactics, Techniques & Procedures

Credit:
Brad Duncan (https://www.malware-traffic-analysis.net/2018/10/08/index.html)

c nfidence

Life Cycle of High-Profile Event: Victim Domain Parser

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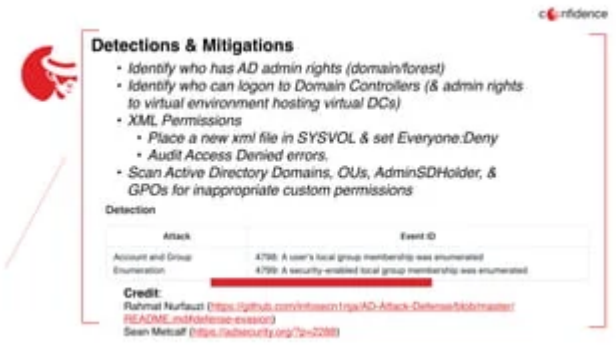
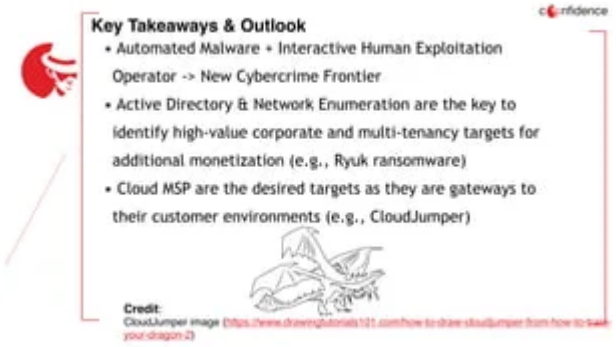
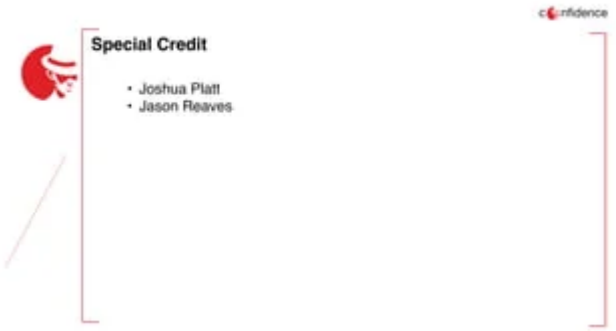
Life Cycle of High-Profile Event: "No system is safe"







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- 1.
- 2.

  Introducing Cybercrime Groups Talk Outline 1 3 TrickBotin the Cloud: CloudJumper MSP Intrusion Active Directory Enumeration Methodologies 2 4 Life Cycle of High- Profile Event: Typical Exploitation & TTPs 5 Detections & Mitigations 5 Key Takeaways & Outlook

- 3.

  Cybercrime Enterprise Dealwith Big Data • Sophisticated criminal enterprises such as TrickBot & QakBot - focused on parsing and identifying high-value targets (HVT) • Need reliable install loaders - intermittently rely on Emotet Loader for installs • Big botnet data collectors necessitate scalable solutions to identify high-value targets (corporate networks with local domains) versus “useless” infections • Simple idea: Squeeze as £ / € / $ value from your bots as possible • Banking Malware • Credential Stealer • Miner • Ransomware! Reference: “Charting the Next Cybercrime Frontier, or Evolution of Criminal Intent https://www.youtube.com/watch?v=ptL0aTYzRfM

- 4.

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  Life Cycle ofHigh-Profile Event: Victim Domain Parser

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  Detections & Mitigations •Identify who has AD admin rights (domain/forest) • Identify who can logon to Domain Controllers (& admin rights to virtual environment hosting virtual DCs) • XML Permissions • Place a new xml file in SYSVOL & set Everyone:Deny • Audit Access Denied errors. • Scan Active Directory Domains, OUs, AdminSDHolder, & GPOs for inappropriate custom permissions Credit: Rahmat Nurfauzi (https://github.com/infosecn1nja/AD-Attack-Defense/blob/master/ README.md#defense-evasion) Sean Metcalf (https://adsecurity.org/?p=2288)

- 26.

  Key Takeaways &Outlook • Automated Malware + Interactive Human Exploitation Operator -> New Cybercrime Frontier • Active Directory & Network Enumeration are the key to identify high-value corporate and multi-tenancy targets for additional monetization (e.g., Ryuk ransomware) • Cloud MSP are the desired targets as they are gateways to their customer environments (e.g., CloudJumper) Credit: CloudJumper image (https://www.drawingtutorials101.com/how-to-draw-cloudjumper-from-how-to-train-your-dragon-2)

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  La Fin Thank youfor attending! Please feel free to reach out. @VK_Intel

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