



MALWARE AND REAL LIFE CYBER THREAT

Aldwin Tapican





TOPICS WILL BE COVERED

0

What is malware

Understanding the world of malware, its definition, and how it

02

Common Strains

Examining the characteristics and potential dangers associated with each of these common strains.

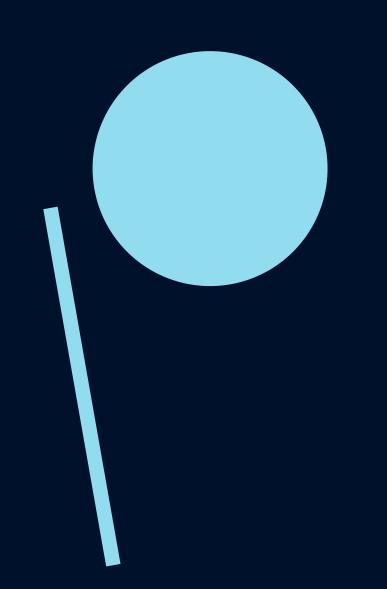
03

Prevention and Safekeeping

Proactive measures and best practices to safeguard your systems from malware attacks.

Disclaimer

- This presentation is for educational purposes only.
- We will provide live demos of different malware types.
- The intention is to raise awareness and encourage vigilance, not to promote or endorse their use.





1:47 PM

Someone has your password

Hi,

Someone just used your password to try to sign in to your Google Account.

Information:

Wednesday, November 1, 2023 at 1:47:17 PM GMT+08:00 Slatina, Romania Firefox browser

Google stopped this sign-in attempt. You should change your password immediately

CHANGE PASSWORD

Best,

The Mail Team



Google <no-reply@google.support>

to me 🔻



This phish used a look-alike URL to masquerade as Gmail. In fact, this is almost identical to an attack used to successfully hack politicians' emails. Always be sure to check URLs carefully!

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CHANGE PASSWORD

Best,

The Mail Team

this links points to a subdomain of "mlsecurity.org", not Google





Hi Aldwin devs@taptap.addymail.com

TripIt wants to



View your email messages and settings





Allow Triplt to do this?

You may review this app's terms of service and privacy policies. You can remove this or any other app connected to your account in My Account

CANCEL

ALLOW

You've signed up for a travel planning service.



Hi Aldwin devs@taptap.addymail.com

Triplt wants to



View your email messages and settings



Allow Triplt to do this?

You may review this app's terms of service and privacy policies. You can remove this or any other app connected to your account in My Account



ALLOW

It's important to be cautious with these kinds of account access requests though, and to be sure you trust the developer.

Check the domain that is displayed, and be sure to click on it for more details.

You may review this app's terms of service and privacy policies. You can remove this or any other app connected to your account in My Account



Google <no-reply@google.support>

to me 🗸

1:52 PM



Government-backed attackers may be trying to steal your password

There's a chance this is a false alarm, but we believe we detected government-backed attackers trying to steal your password. This happens to less then 0.1% of all Gmail users. We can't reveal what tipped us off because the attackers will take note and change their tactics, but if they are successful at some point they could access your data or take other actions using your account. To further improve your security, based on your current settings, we recommend:

Change password



1:52 PM

This is based on a real warning but links to a fake login page.

The hackers tried to use Google to hide the actual link, which is from tinyurl. An email similar to this was used to target think tanks and politicians.



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IMPACT

Malware is one of the leading causes of data breaches, and the cost of malware attacks is on the rise. In 2022, the average cost of a malware attack was **\$2.65 million, up from \$2.5 million in 2021**. The report also found that the average time it takes to recover from a malware attack is now 82 days, up from 78 days in 2021.

- IBM Cost of a Data Breach Report 2023





















BANKING MALWARE

Financial Data Theft Tool:

Using sneaky tricks like web injections and extra tools to steal your money-related data.







RANSOMWARE

Data Hostage-Taker:

Encrypts your data and demands a ransom in exchange for the decryption key.







SPYWARE

Covert Information Collector:

Instead of banking data, this software primarily targets and steals your login information.





BANKING MALWARE

Financial Data Theft Tool: Using sneaky tricks like web injections and extra tools to

steal your money-related data.



WORMS

Widespread Seekers

Their mission is to infect as many systems as they can.





RANSOMWARE

Data Hostage-Taker:

Encrypts your data and demands a ransom in exchange for the decryption key.



WIPERS

Data Obliteration Specialists:

solely focused on erasing or destroying data on a system, often with no other agenda.





SPYWARE

Covert Information Collector:

Instead of banking data, this software primarily targets and steals your login information.



SPAMBOT

Email Spam Distributors:

primarily hijack infected machines to send out large volumes of spam emails, often numbering in the hundreds or thousands.



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REMOTE ACCESS TOOLS

Cyber Intrusion Facilitator

Popular tools that allow complete control over an infected machines.



RANSOMWARE

Data Hostage-Taker:

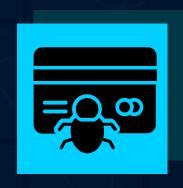
Encrypts your data and demands a ransom in exchange for the decryption key.



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solely focused on erasing or destroying data on a system, often with no other agenda.



POS-BASED MALWARE

Credit/Debit Card Data Thiefs:

designed to specifically exploit Point-of-Sale systems, with the primary aim of illicitly acquiring credit and debit card information.



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BANKING MALWARE

Consist of two main parts:

The 'Main Bot':

- Think of this as the mastermind.
- Stealthy intruder that slips into your web browser, such as Chrome or Firefox. It secretly injects a Malicious DLL (a piece of code)
- Retrieves (web-injects) from the DLL which contains sensitve data and transmits it to the evil server (C2 server).

The 'DLL':

- Main Bot's undercover agent.
- Its job is to inject tricky code (web-injects) into specific websites you visit.
- If it detects valuable information, it sends it back to the Main Bot.
- Watches the data coming in and out of your browser

Extra tools or the "Henchmen":

- VNC (a way for attackers to take control of your computer) or
- **SOCKS** (a sneaky trick to make them harder to track). They might also include other secretive components to further their malicious objectives.



BANKING MALWARE



BACKGROUND

QBot, also known as Qakbot or Pinkslipbot, is a versatile information stealer with roots dating back to 2007. Initially focused on banking data theft, it also acts as a loader, utilizing C2 servers for payload targeting and download.

INITIAL ACCESS

- QakBot campaigns transitioned from Microsoft Office attachments to malicious HTML files.
- The malicious HTML files contain encoded JavaScript (HTML Smugling).
- When executed by the victim's browser, they trigger the download of the
- next payload stage.



HOW IT WORKS

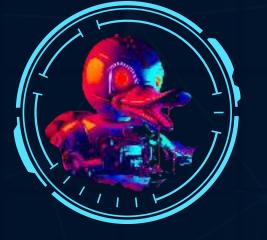
• Once the malicious DLL detects a user visiting a banking site, it can modify the website's content. With a single line of code, it can even replace the site with allowing pages, fake cybercriminals to carry out various tricks.

INTERNALS

Type Size Name: qbot_inject_ldr.dll 394 KB Application extension













- 1. Internet Explorer initiates a request for a web page.
- 2. It uses the InternetReadFile API to read data from the web server.
- 3. The API sends a request to the Web Server.
- 4.The web server processes the request and sends back the Response Data (the web page) to Internet Explorer.



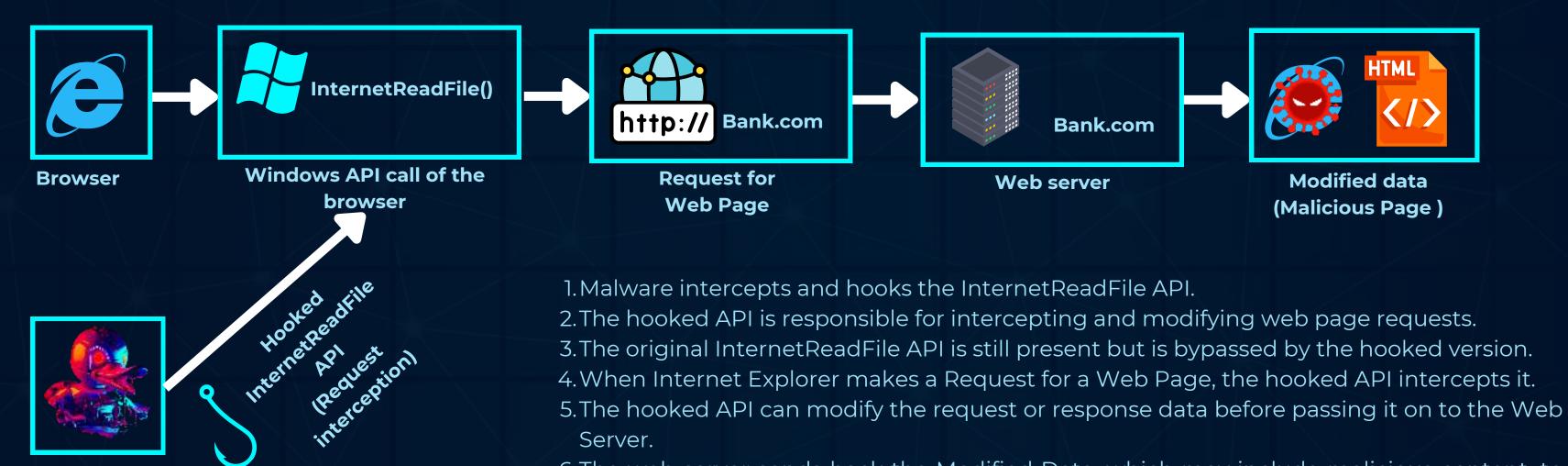


qakbot malware

QAKBOT INTERNALS

SIMPLIFIED REPRESENTATION OF HOOK WIN API





the browser.

Modified data

(Malicious Page)



REVERSE ENGINEERING TO EXTRACT INSIGHTS

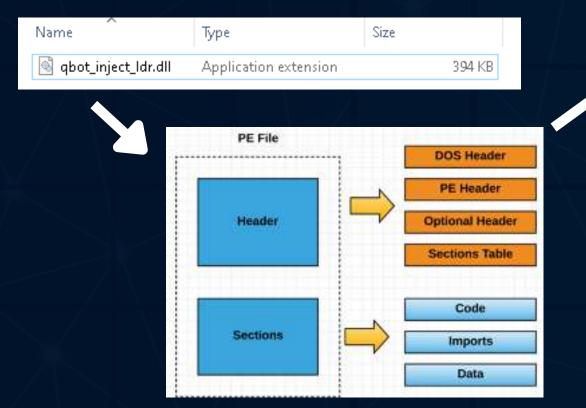


Figure 1 - IDA decompiled obfuscated hooking function address 0x100026DC

Figure 2 - IDA decompiled obfuscated hooking function address **InternetReadFile**



These DLLs are essential components for web browsers and internet-related functionalities in both Chrome and Firefox, as well as for general network and security tasks in Windows.

The trojan attaches to 'InternetReadFile' and alters data it fetches.

When you visit your online bank, it secretly changes the website data.

Think of it like a forger modifying a document, but with online bank information.



REVERSE ENGINEERING TO EXTRACT INSIGHTS



Figure 3 - An entire injection data block for one website

- Injects data into a website specified in the "set_url" item.
- When a victim visits the matching website, a local hook function captures the website's HTML source code.
- It locates the "<head>" section within the HTML code, defined between "data_before" and "data_end."
- The injection module then adds
 JavaScript code between "data_inject"
 and "data_end" within the "<head>" and "
 </head>" labels.
- The modified HTML source code is sent back to the browser, and the malicious JavaScript code executes when the page is displayed.









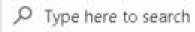




























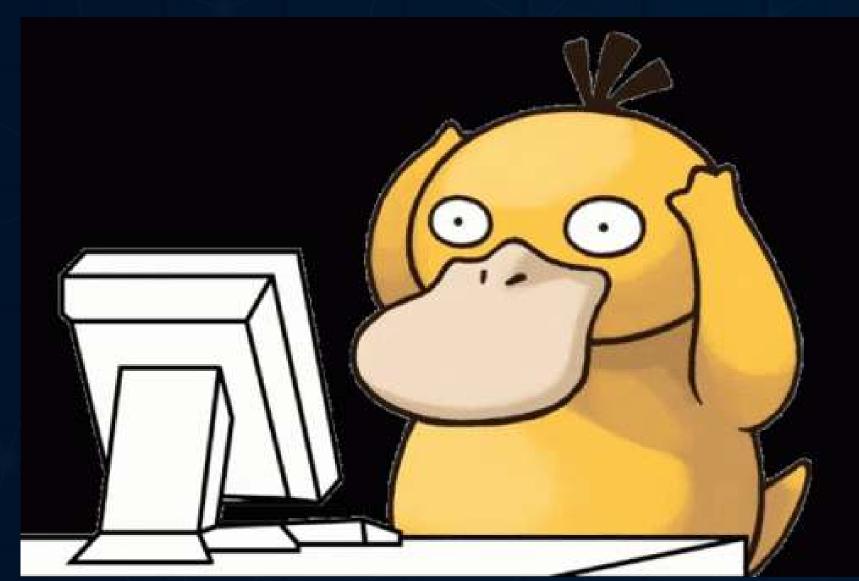








IN A NUTSHELL



html > .zip > .iso > .lnk > calc.exe > .dll > .dll

HOW TO GET INFECTED

- Phishing email with an HTML attachment sent to the victim.
- Creation of an HTML file in unusual locations.
- Opening a standalone HTML file in a web browser.
- Browser downloading/creating a zip file.
- Extracting a password-protected zip file.
- Generating a mountable disk drive file (e.g., .iso, .img).
- Mounting the drive.
- Executing processes from an external drive (via an executable or system files).



4

























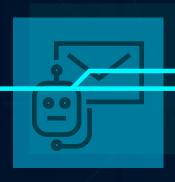




SPYWARE

- Type of software that secretly monitors a victim's activities, such as accessing their webcam, taking screenshots, stealing files, or capturing passwords.
- A common type of spyware is credential stealers, available for as little as \$10 \$300.
- Credential stealers work by stealing saved login information, using keyloggers, or implementing a form grabber. To find saved credentials, they rely on a list of predefined file paths.
- The stolen data is stored locally and eventually sent to a central control server.







CRED. STEALER



BACKGROUND

RedLine Stealer is a malware available on underground forums, sold as a standalone for \$100/\$150 or via a \$100/month subscription.

DISTRIBUTION

Distribution methods include:

- Phishing Emails
- Malicious software posing as installation files (e.g., Telegram, Discord, cracked software)
- Phishing Links that download Chrome Extensions with RedLine Stealer (abusing YouTube Video Descriptions and Google Ads)
- Python Scripts that execute RedLine Stealer via FTP.



REDLINE

STEALS

- Browser data (Cookie, passwords, autofills and credit cards)
- Files and images from desktop (.txt, .md, .doc, .docx, .jpg, .png, .jpeg
- Discord tokens
- Ftp Clients
- Telegram and Steam sessions
- Roblox cookie from Roblox Studio
- Cryptowallets (Metamask, ronin, exodus, phantom and more)
- Userinformation and screenshot
- Installed browsers and software







DARKReading

Application Security ○ 1 MIN READ QUICK HITS

Al-Created YouTube Videos Spread Around Malware

Al-generated videos pose as tutorials on how to get cracked versions of Photoshop, Premiere Pro, and more.

videos pretending to be step-by-step tutorials on how to access programs

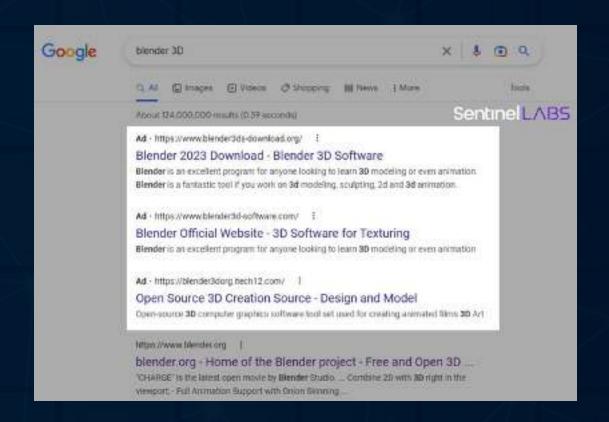
DARKReading

Infostealer Malware Market Booms, as MFA Fatigue Sets In

The successful combo of stolen credentials and social engineering to breach networks is increasing demand for infostealers on the Dark Web.



Malicious Facebook ads pretending to be legitimate

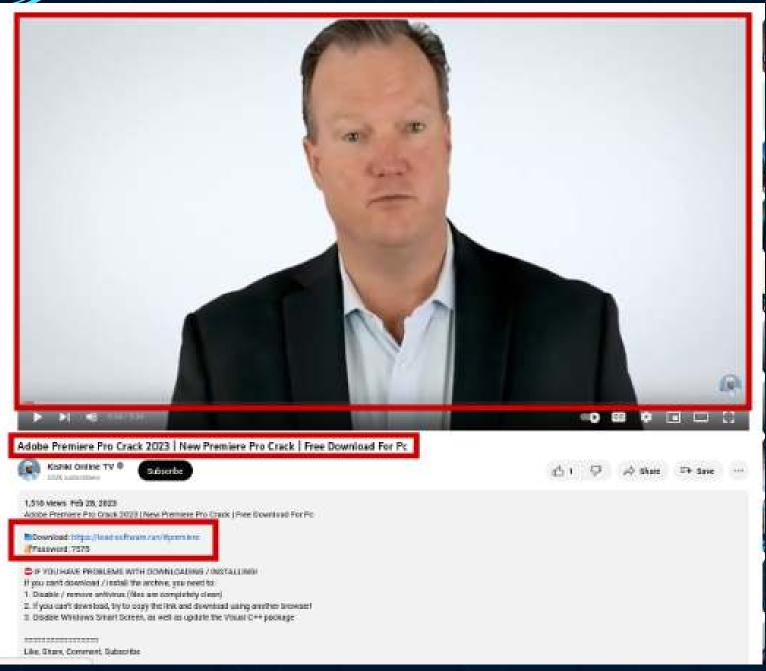


Malicious Google Search results (Sentinel Labs)

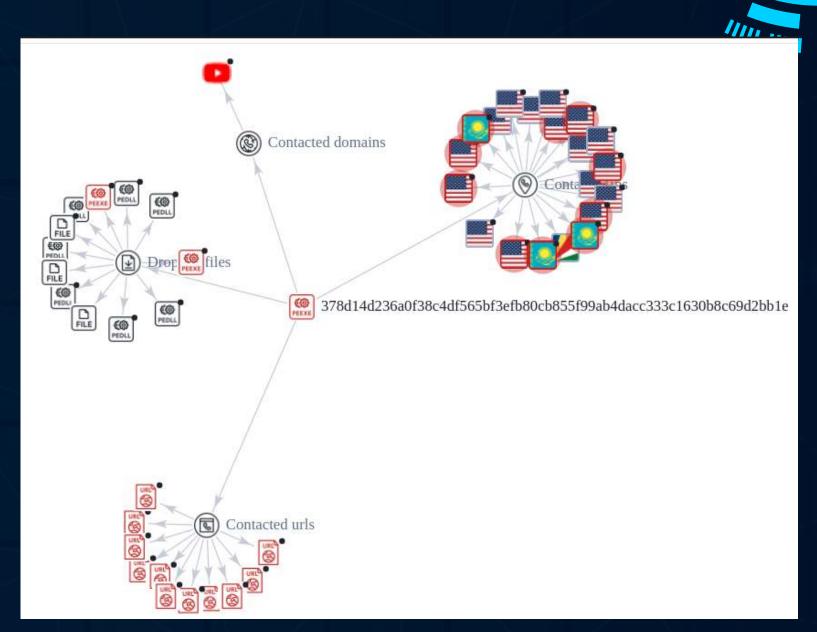
https://www.darkreading.com/application-security/ai-creating-compelling-youtube-videos-loaded-with-malwarehttps://www.darkreading.com/threat-intelligence/infostealer-malware-market-booms-mfa-fatigue https://www.sentinelone.com/blog/breaking-down-the-seo-poisoning-attack-how-attackers-are-hijacking-search-results/ https://blog.sekoia.io/stealc-a-copycat-of-vidar-and-raccoon-infostealers-gaining-in-popularity-part-1/







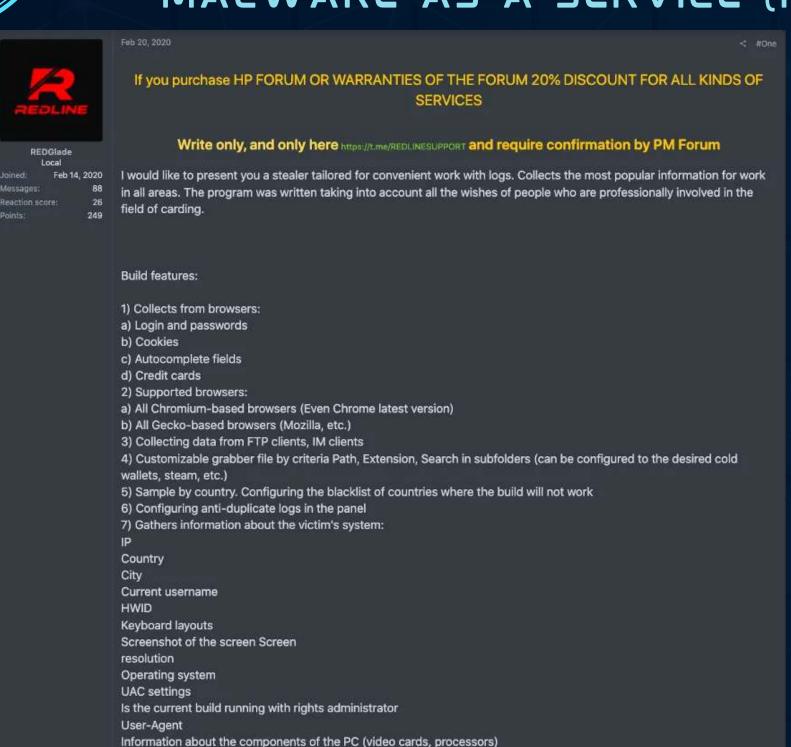
Al-Generated YouTube videos contain links to information-stealing malware such as Vidar, RedLine, and Raccoon.



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MALWARE-AS-A-SERVICE (MAAS)



Redline Stealer Cloud Pinned message All Fresh log available redline stealer Fix bug wallet checker v 28.1 Uploaded Private group A @Redlineowner @ 194 11:05 PM Redline Stealer Cloud Private Logs 4 we upload more than 10,000 - 20,000 logs daily Техническая поддержка систем Game, cryptocurrency, wallets, видеонаблюдения RedLine и PractiCam. Мы с Вами в будни, с 10 до 18 часов CC debit/credit card , Paypal,Steam,Bank login (MCK,GMT+3) cookies EpicGames, Netflix, Amazon, Paypal, Facebook, Google, Description Google Ads @RedLineSupport_bot Country: Username USA, DE, GB, ES, AU, CA, MIX We also work for any of your request and give any volumes **Support for the Customers** S PRICE: 2 weeks 110\$ 1 month 2005 3 months 500\$ 12 months 1000\$ Support - @redlineowner **⊙** 217 11:08 PM

Redline Stealer's Pricing

Policy



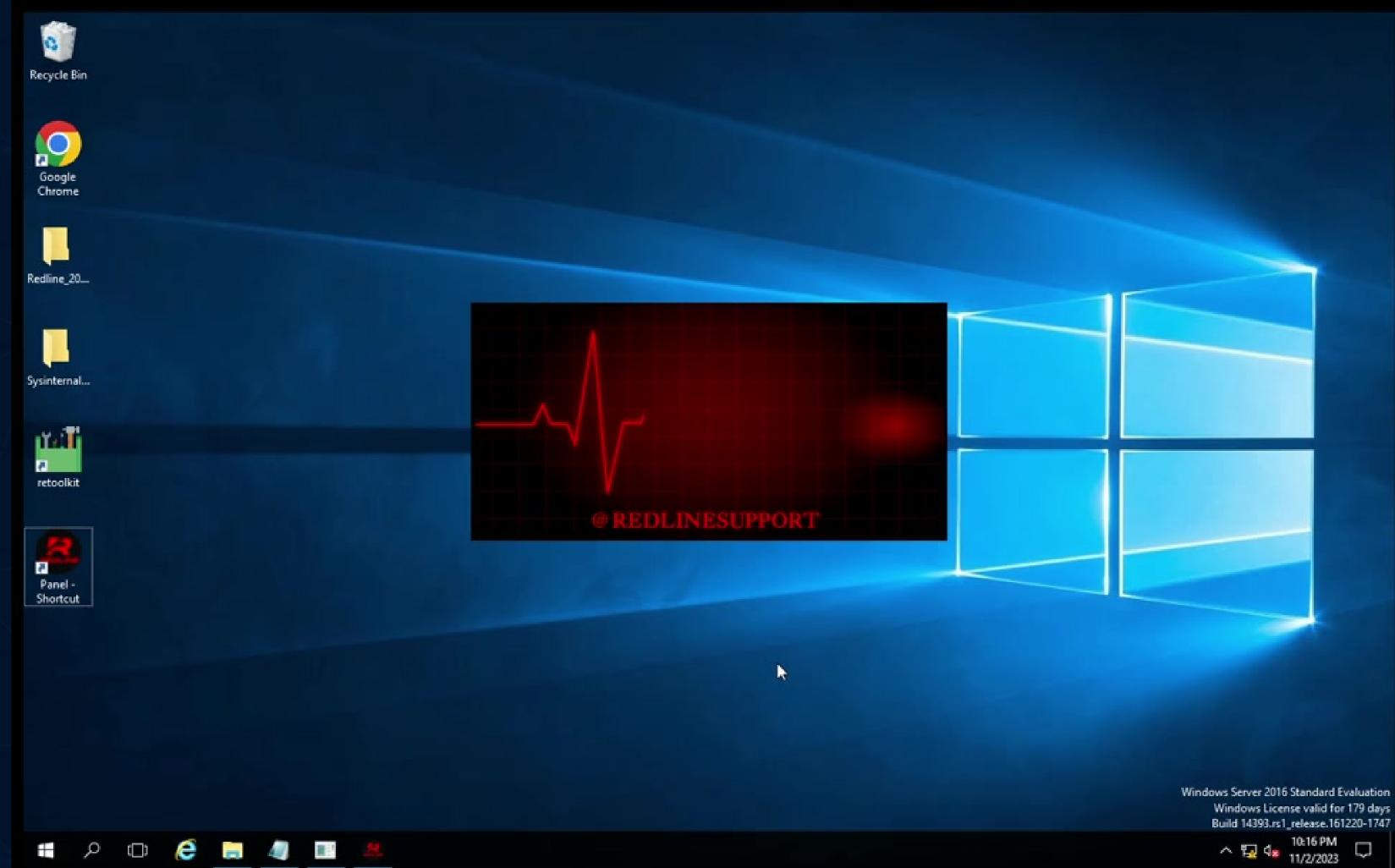
RedLine Support

Redline Stealer Sales Post

Installed antiviruses



1111 1111





INFECTION CHAIN SCENARIO

Binary





Collected Information Summary

- Username
- Language
- HW Serial
- Monitor Size
- Malware File Location
- Time zone
- OS version
- Process
- IPv4
- Graphic Information
- Memory Information
- Processor Information

- Browser information
- Anti-Virus
- Crypto wallets
- Accounts
- User Data files of (Telegram, Discord, Steam, etc.)
- Local Files (Files in Desktop, Documents)

































RANSOMWARE

Ransomware is like a Digital Kidnapper:

- Ransomware encrypts most files on a system and uses that to ransom the victim out of money.
- The attackers then demand a ransom from the victim in exchange for the **decryption key** that can restore the files.
- It ranges from basic to sophisticated.

Easy Money

• Easy to create; potential for significant financial gain.

Cryptocurrency Payments

• Payment via cryptocurrencies ensures anonymity for both the attacker and the victim.



RANSOMWARE



BACKGROUND

LockBit 3.0 operates as a Ransomware-as-a-Service (RaaS), allowing various affiliates to use it to target businesses and critical infrastructure. This approach makes defending against and mitigating attacks more challenging.

INITIAL ACCESS

LockBit 3.0 affiliates use

- RDP exploitation,
- drive-by compromise, phishing,
- valid account abuse,
- Aplication exploitation to gain initial network access.



LOCKBIT 3.0

CAPABILITY

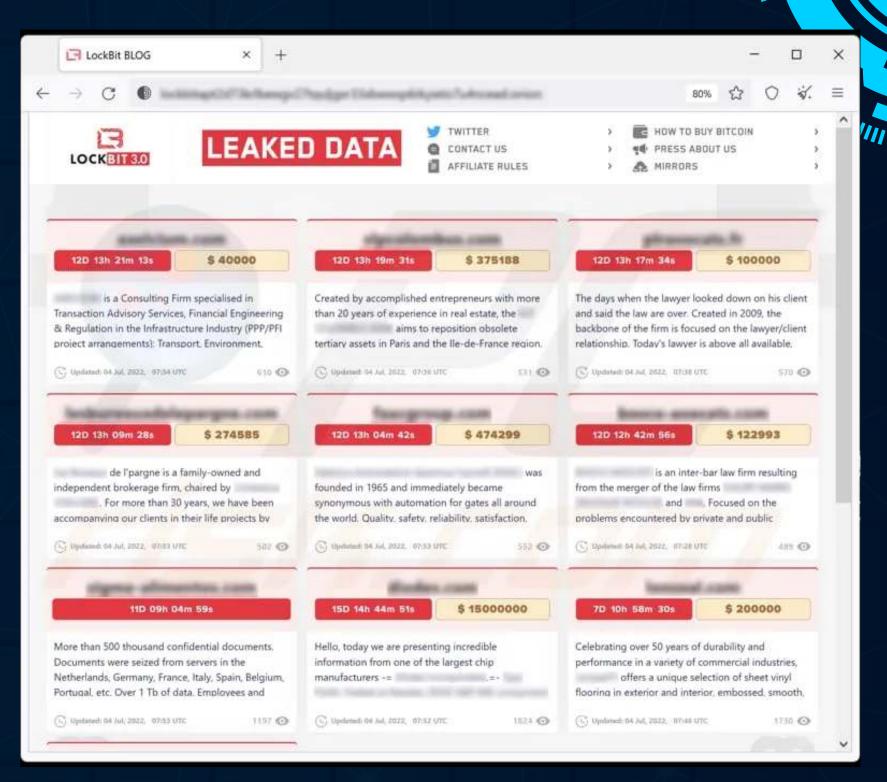
- Highly customizable and evasive ransomware. It can be configured with various options, allowing affiliates to tailor its behavior.
- LockBit 3.0 also has a language-based filter, ensuring it only infects systems with certain language settings.
- They assert that LockBit 3.0 has been the world's fastest and most stable ransomware since 2019.



LOCKBIT RANSOMWARE



LockBit Ransomware Website

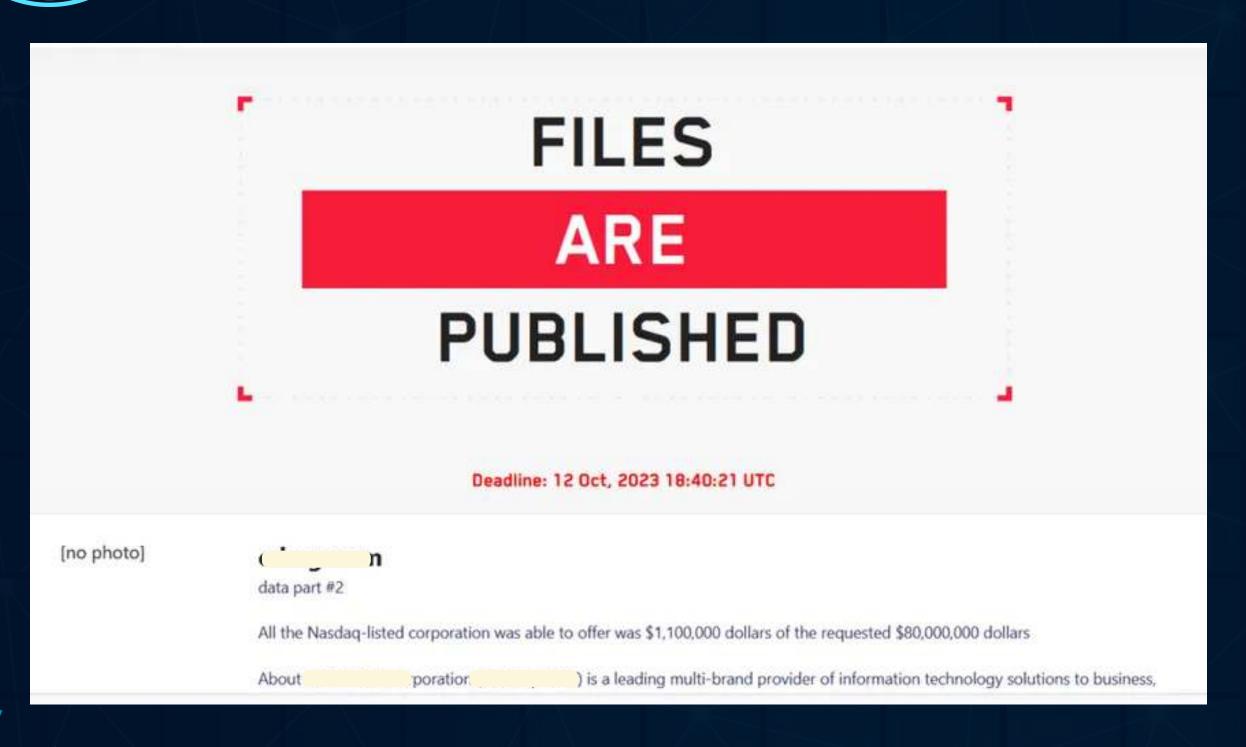


Threatening to release it unless a substantial ransom in cryptocurrency is paid.



LOCKBIT RANSOMWARE





Multi-extortion ransomware

• sometimes called multifaceted extortion, uses multiple layers of attack to persuade victims to pay a ransom to the attacker. In addition to encrypting files, this type of cybersecurity attack might include additional attack methods, such as file exfiltration, distributed denial of service (DDoS) attacks or extending ransoms to third-party associates.



IIII 11111



Recycle Bin





Boxstarter Shell



Google Chrome































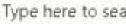


⊕ Security and Maintenance



The Windows Security Centre service is turned off. Tap or click to turn it on.



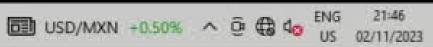




















Type here to search





























super_conf... super_conf... super_conf... super_conf... super_conf... super_confid ential.txt























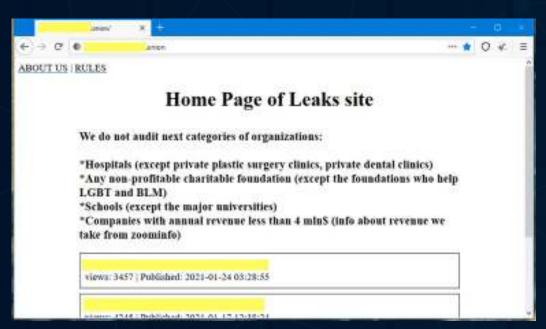




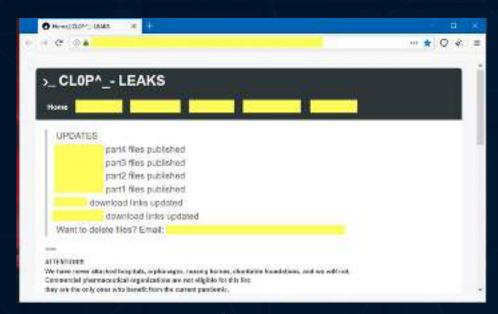


OTHER RANSOMWARE

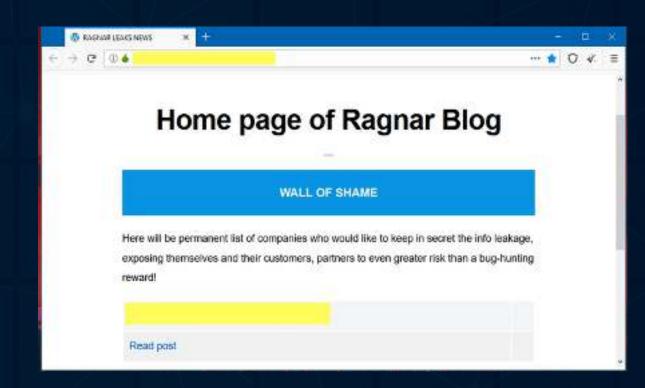
GROUPS



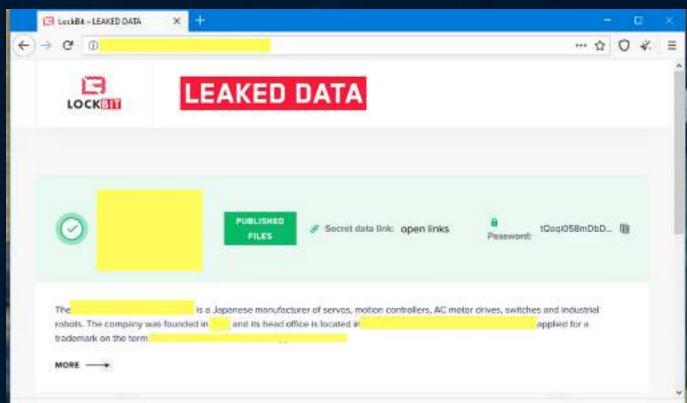
Babuk Locker



Clop



Ragnar



Lockbit

MOST COMMON STRAINS













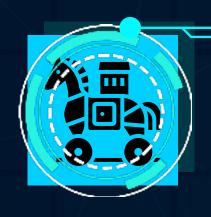




MOST COMMON STRAINS

















REMOTE ACESS TOOL

- Remote Access Tools, or Remote Access Trojans, are sneaky programs that let someone secretly watch what you do on your computer without your permission.
- They can record your keystrokes, passwords, take screenshots, and more. What's different is that they also allow the attacker to control your computer from afar. This means they can look at your stuff, change your computer settings, use your internet connection for bad stuff, and even access other computers on your network. It's like giving them a secret backdoor into your computer.



REMOTE ACESS TOOL



BACKGROUND

Remote access tool that bills itself as "adversary simulation software designed to execute targeted attacks and emulate the post-exploitation actions of advanced threat actors.

INITIAL ACCESS

- It lets attackers put a program called 'Beacon' on a victim's computer.
- Beacon can do various things like running commands, recording keystrokes, sending and receiving files, and more.



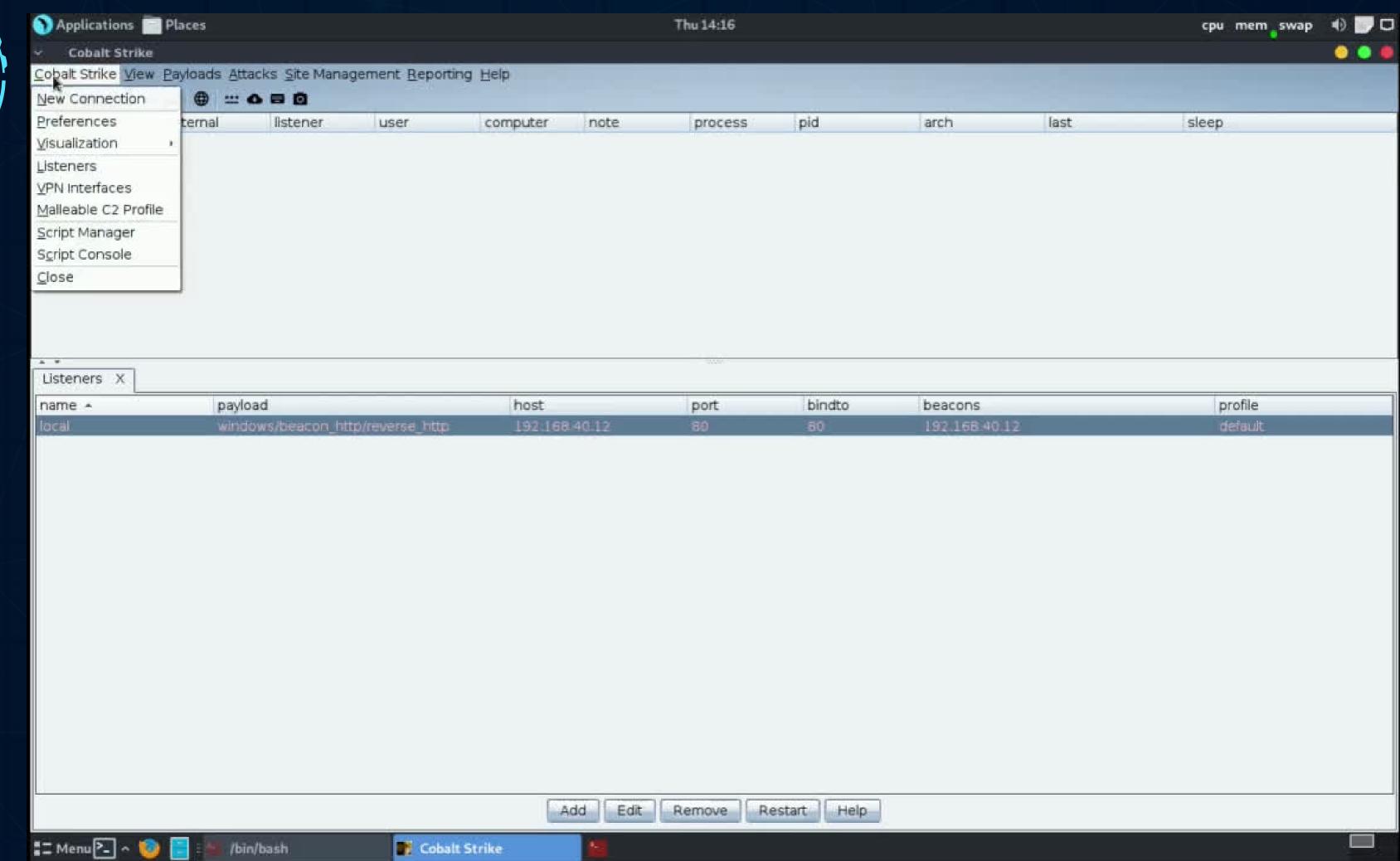
COBALT

• FAVORITE AMONG THIEVES

The Swiss Army Hacker Framework

- Cobalt Strike's standout feature is creating covert connections for network compromise.
- Favorite because it's stable and highly flexible. It can be repurposed to deploy all manner of payloads, like ransomware or keylogger, to the compromised network. It's well organized and provides a framework to manage compromised assets.
- Essentially, this tool helps the 'B list' act like 'A list' hackers.





QUICK SECURITY TIPS

- Security Tip 1: Steer clear of cracked software.
 - If you're on a tight budget, consider using Free and Open Source Software (FOSS) alternatives.



- Strong passwords with at least eight characters, a mix of uppercase and lowercase letters, numbers, and symbols,
- enabling multi-factor authentication by default.
- Refraining from saving passwords on computers or networks while considering the use of a secure password manager

• Security Tip 3: Keep software updated.

Recognize that no software package is entirely immune to malware, but to mitigate risks, adhere to best practices by regularly updating your operating systems, software tools, browsers, and plug-ins, while also conducting routine maintenance to keep all software up to date and monitoring log reports for potential signs of malware.



QUICK SECURITY TIPS

• Security Tip 4: Reserve administrator accounts for essential tasks

 As malware often inherits user privileges. Avoid using admin rights for web browsing or email. Log in as an admin solely for configuration changes, and install software using admin credentials after validating its legitimacy and security.



• At the end of the day, user education is the key defense. This involves building awareness of malware attacks, cybersecurity best practices, recognizing credible websites, reporting unusual system behavior, and using secure networks and VPNs when working remotely.







THANK YOU

Do you have questions?

