OPERATIONAL REPORT: BLACKBASTA RANSOMWARE GROUP

DATE: *yyyy-mm-dd*

RECIPIENT: *SOC leader*

ANALYST: *Name*

EXECUTIVE SUMMARY

- The group started its operation in early 2022 against companies from multiple spheres of activity (including the financial sector)
- Current level of activity: low since the start of 2023
- The group uses a double extortion technique - exfiltration and encryption - and targets a network's key assets - servers and hypervisors
- No known victims based in the UAE; the victims are mainly located in the United States of America, Germany and Italy.
- Main initial vectors of infection include vulnerable Internet facing application exploitation, phishing emails and vulnerable remote access exploitation
- The QakBot malware was often used in past attacks

I/ BACKGROUND

CONTEXT: BlackBasta is a ransomware group that started its operations in April 2022. BlackBasta operators are mainly russian-native speakers as post on Darkweb forums are written in russian. Multipe reports state that the ransomware group is a Ransomware-as-a-Service (RaaS) that recruits affiliates that conduct malicious operations with the BlackBasta encryption payload against a percentage of the paid ransom. The group uses a double extortion technique as it exfiltrates data from the target's network before encrypting the most important assets of a network (servers, virtual environments, storage devices).

OBJECTIVE: financial gain

VICTIMOLOGY: companies from the healthcare, government, financial services, energy, transportation, education and media. Most of the victims are based in the United States of America and Europe.

PUBLICATION SITE:

http://stniiomyjliimcgkvdszvgen3eaaoz55hreqqx6o77yvmpwt7gklffqd.onion/

GROUP PECULIARITIES:

- The final encryption payload is specific to the group as it adds the .basta extension to encrypted files.
- The group has not published any data from victims based in the Commonwelath of Independent States (CIS).
- BlackBasta operators have used the QakBot malware in most of their past operations to deliver the final encryption payload on the target's network.

Analyst assessment: the analyst assesses with a medium level of confidence that BlackBasta ransomware started its operations in April 2022 as the compilation date of the encryption payload is from 2022 and the first victim published on the group's website is from April 2022.

The analyst assesses with low confidence that the groups uses the RaaS model as no recruitment campaigns from the ransomware group has been identified on the Darkweb.

The analyst assesses with a medium level of confidence that the group does not target CIS countries since some operators are russian-native speakers and no data on victims based in CIS countries have been leaked by the group after one year of operation.

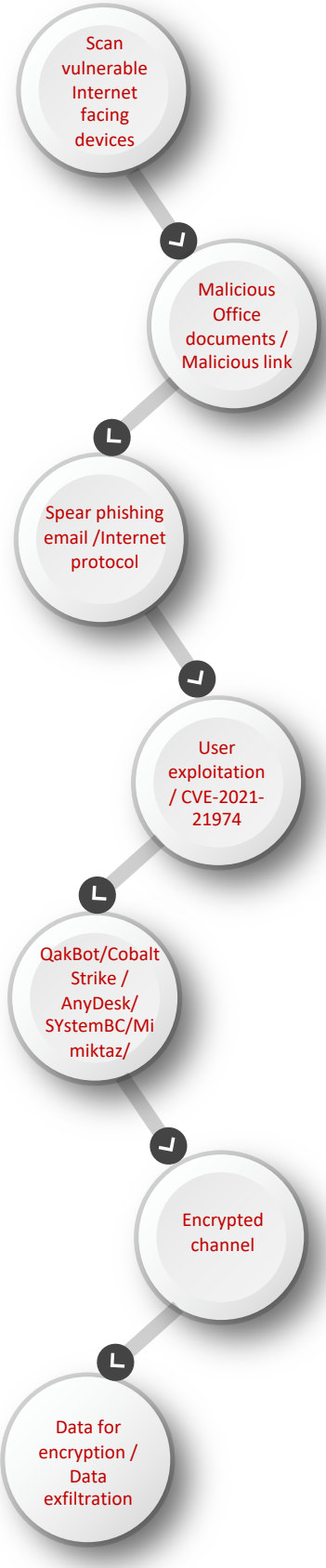
II/ MODUS OPERANDI

CYBER KILL CHAIN: in past operations, the initial vector of infection was mainly spear phishing emails with a malicious link or an attached document. The attached document usually was an Office document within a password protected archive to evade defenses. After the user execution of the malicious document, the QakBot malware is dropped on the compromised machine. QakBot has information gathering capabilities, persistence capabilities, and additional tool download and execution capabilities.

Once the malicious operator has an initial foothold on the targeted network, he proceeds to do a network discovery with several open source tools including SoftPerfect network scanner, Ntscan, and Cobalt Strike. The next step is usually laterall movement with legitimate remote access tools including AnyDesk and AteraAgent or the Remote Desktop Protocol (RDP) service. While getting access to additional assets, the operator attempts to gain in privileges by dumping password stores using the Mimikatz tool.

After the privilege escalation phase completed, the malicious operator usually creates additional persistence means including creating new accounts on the targeted domain's Active Directory. With domain level privileges, the threat actor is able to access data from contained in key assets including servers and storage devices. The exfiltration phase is usually conducted with legitimate tools including Rclone to exfiltrate data over cloud services and file sharing platforms.

Once the exfiltration phase is completed, the malicious operator proceeds to the encryption phase by executing the final encryption payload responsible for the deletion of the shadow copies and the encryption of files of interest by adding the .basta extension to the encrypted files. Finally, a ransom note is dropped on compromised machines' desktops asking for a ransom.



Analyst assessment: as for other ransomware groups, the initial vector of infection usually is the exploitation of a vulnerable Internet-facing application, a spear-phishing email or the use of compromised valid credentials available for sale in the Darkweb. Patch management, Internet exposure monitoring and credential leak monitoring should be a priority to defend against the BlackBasta ransomware group.

III/ TOOLS & EXPLOITS

On-the-shelf:

- **QakBot:** malware mainly delivered through phishing and spear phishing e-mails. The malware is used to steal sensitive information (login credentials and financial information), download additional tools, execute binaries, data exfiltration and C2 communications. Recent campaigns include the delivery of QakBot with malicious OneNote documents.
- **Cobalt Strike:** attacker-simulating framework used by pentesters and malicious actors
- **Mimikatz**: tool that allows attackers to dump passwords stored in memory, as well as hashes, PINs and Kereberos tickets.
- **SystemBC**: Remote Access Trojan (RAT) that provides a persistent remote eonnection to attackers after the initial compromise of a machine. The malware can also download and execute additional tools on a compromised machine.

Custom:

- **BlackBasta encryption payload**: Windows and Linux versions available. One of the first payloads was compiled in February 2022; a VMWare ESXi variant was observed in mid-2022. The payload has several anti analysis techniques including sandboxing environment detections. Once executed, the payload deletes shadow copies, adds the .basta extension to encrypted files and drops a ransom note on the compromised machines. The payload has both full and partial encryption methods to fasten the overall encryption process.

Known exploited vulnerabilities:

- **ZeroLogOn (CVE-2020-1472):** vulnerability that affects Windows servers and that allows an attacker to bypass authentication and gain administrator-level privileges on a vulnerable machine.
- **NoPac (CVE-2021-42287):** after having access to a Windows domain Active Directory, this vulnerability allows an attacker to impersonate a domain admin with a reguler user account. Several proof of concepts are available for free on GitHub.
- **PrintNightMare (CVE-2021-34527):** critical vulnerability disclosed in June 2021 affecting the Zindows Print Spooler service. This vulnerability allows an attacker to execute malicious code with system privileges. An attacker could then install additional tools, view, change or delete data, or create new accounts.
- **VMWare ESXi vulnerability (CVE-2021-21974):** vulnerability impacting VMWare ESXi products that allow an attacker with an access to the same network segment as an ESXi to conduct remote code execution on the vulnerable machine.

IV/ RECOMMENDATIONS

CYBER KILL CHAIN	RECOMMENDATIONS
Reconnaissance	• Set MFA for remote connexions (VPN) to prevent used of compromised valid credentials • Limit Internet exposure to prevent unwanted adversary's scan
Weaponization	• N/A
Delivery	• Set up / Acquire email filtering solutions to limit exposure to phishing attacks
Exploit	• User warning VS phishing attacks • Patch management especially for Internet facing applications
Install	• Principle of least privileges ot limit the installation of legitimate remote management tools
C2	• QakBot operatons monitoring • Block known C2 infrastructure • Data Loss Prevention policy to limit or stop sensible data exfiltration
Actions on Objective	• Backup policy 3:2:1 • Segment networks to limit scope of attack • Apply Windows Tier Model to manage admin access • Patch management to prevent exploitation of CVEs on critical assets like servers hypervisors.

Annexe 1 – MITRE ATT&CK NAVIGATOR

Annexe 2 – MALWARE CAPABILITIES

Threat actor name	BlackBasta ransomware				
Names	QakBot	Cobalt Strike	SystemBC	BlackBasta encryption payload	Mimikatz
Malware type	Qbot, PinkSlipbot	Cobalt Strike	Coroxy	BlackBasta	Mimikatz
	Trojan	Attack emulation framework	RAT	Encryption payload	Password dumper
Capabilities	Information theft / additional tool download / tool execution / data exfiltration / defense evasion	Information gathering / Persistence / additional tool download and execution / laterlaization / C2	C2 communications / File download & execution / Script execution	Data encryption / anti analysis features	Credential data gathering
OS and architecture	Windows	Windows	Windows	Windows / Limux / Vmware	Windows
Kill chain phase	Exploit / Install / C2	All	Exploit / Install / C2	Actions on objective	Actions on objective
First seen	2007	2012	2019	Early 2022	2007
Last seen	Today	Today	Today	Today	Today
Samples	3ea11f515eb42ed351b3e53855097b35dcf00a9faf9fd8682996b71fb4e34847e	fdd15df9dc42717a91f94ae508744f9b584d81503408b34d3c2227895d8d3400	5e19e7fc39a959eae012efb699bca70cfca8591da0d4e893659948c2f47abd99f	20D03F8272648FA3FD31E22288E2220F	31eb1de7e840a342fd468e558e5ab627bcb4c542a8fe01aec4d5ba01d539a0fc
Yara rules	Available	Available	Available	Available	Available
Analyst assessment	BlackBasta operatos also use legitimate tools during their attacks including remote management solutions (AnyDesk, AteraAgent, etc.); application blacklisting & whitelisting policies should give defenders a protection against unwanted installation of these legitimate tools by BlackBasta operators.				

Sources

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