Grandoreiro Malware Campaign: A Global Threat to Banking Security

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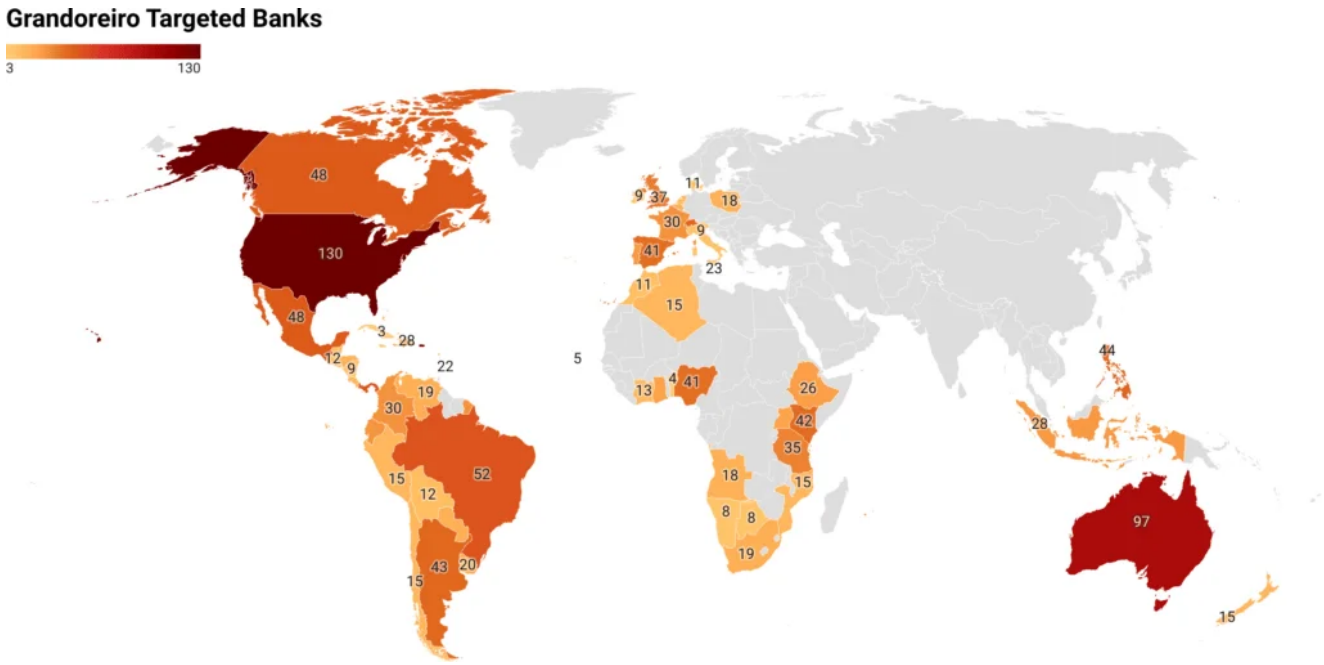
SOCRadar® Cyber Intelligence Inc. | Grandoreiro Malware Campaign: A Global Threat to Banking Security

The Grandoreiro banking trojan was first observed in 2016. This threat is described as a highly sophisticated and adaptive Windows-based banking trojan. Grandoreiro uses a Malware-as-a-Service (MaaS) model, making it easily accessible to various cybercriminals. Its latest wave affected Central and South America, Africa, Europe and the Indonesia-Pacific region, targeting more than **1,500 banks** in more than **60 countries**.

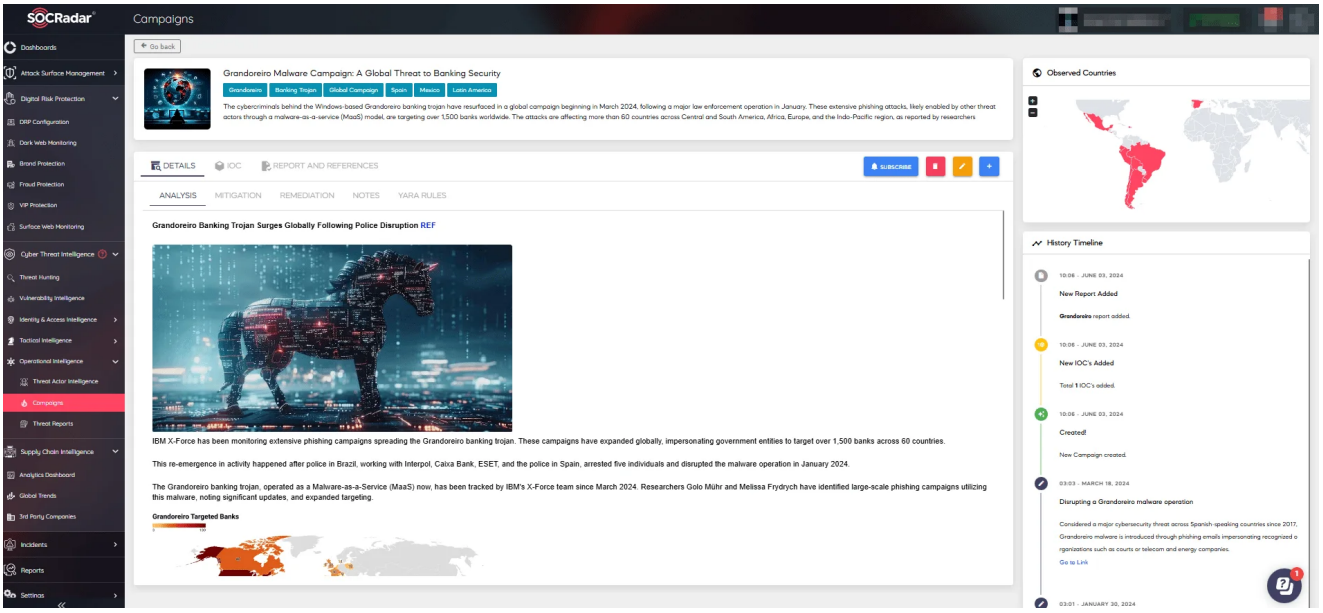


Banks targeted by the Grandoreiro malware, distributed by countries (X Force)

Grandoreiro uses advanced techniques to infiltrate systems and evade detection. These techniques include bypassing **User Account Control (UAC)**, parsing Outlook .pst files to extract email addresses, using HTTP in Command and Control (C2) communications, creating link files in system startup folders to ensure continuity, hijacking browser sessions, and stealing cookie data and credentials from web browsers such as Google Chrome.

Description of the Grandoreiro Malware Campaign

The Grandoreiro banking trojan has reemerged as a significant global threat to banking security, following a resurgence in March 2024 despite law enforcement efforts to dismantle its operations.



For more details, see the Grandoreiro Malware Campaign on SOCRadar Platform's Campaigns page

This sophisticated Windows-based malware, first detected in 2016, has targeted over 1,500 banks across more than 60 countries, employing advanced techniques to infiltrate systems and avoid detection. It uses a Malware-as-a-Service (MaaS) model, making it accessible to a broad spectrum of cybercriminals.

The phishing emails employed in the campaign frequently mimic legitimate organizations, including Mexico's Tax Administration Service (SAT), Mexico's Federal Electricity Commission (CFE), and the South African Revenue Service (SARS). These emails typically contain links that direct recipients to **ZIP files infected with malware**.


File Edit View Go Message Tools Help

Get Messages | Write | Tag

CFE Emision
aviso.4774@cfe.mx

To uolmail.com.mx

Aviso de Factura

Estimado cliente: uolmail.com.mx

Como parte del servicio de CFEMail, al que estás suscrito, te enviamos el acceso donde encontrarás el estado de cuenta en formato PDF y XML.

La relación de los archivos anexos es la siguiente:

linea de captura: 8774943563326585

Número de Servicio	Archivo PDF	Archivo XML
43563326585	Ver	Ver

AVISO DE PRIVACIDAD. Sus Datos Personales en posesión de la empresa "CFE Suministrador de Servicios Básicos" están protegidos. Para mayor información puedes consultar el Aviso de Privacidad

Favor de no contestar éste correo, para cualquier duda o aclaración llamar al 071 o acudir a uno de nuestros centros de atención donde uno de nuestros ejecutivos con gusto lo atenderá.

Con fundamento a los artículos 18,20,21 y 22 de la Ley Federal de Transparencia y Acceso a la Información Pública Gubernamental. Artículos 37 y 40 de su reglamento, así como los lineamientos de la Protección de Datos Personales expedidos por el Instituto Federal de Acceso a la Información y Protección de Datos; los Datos personales contenidos en el presente documento están protegidos, por tanto solo podrán ser utilizados para los fines por los cuales fueron entregados, cualquier uso deberá ser autorizado por el titular de los mismos.

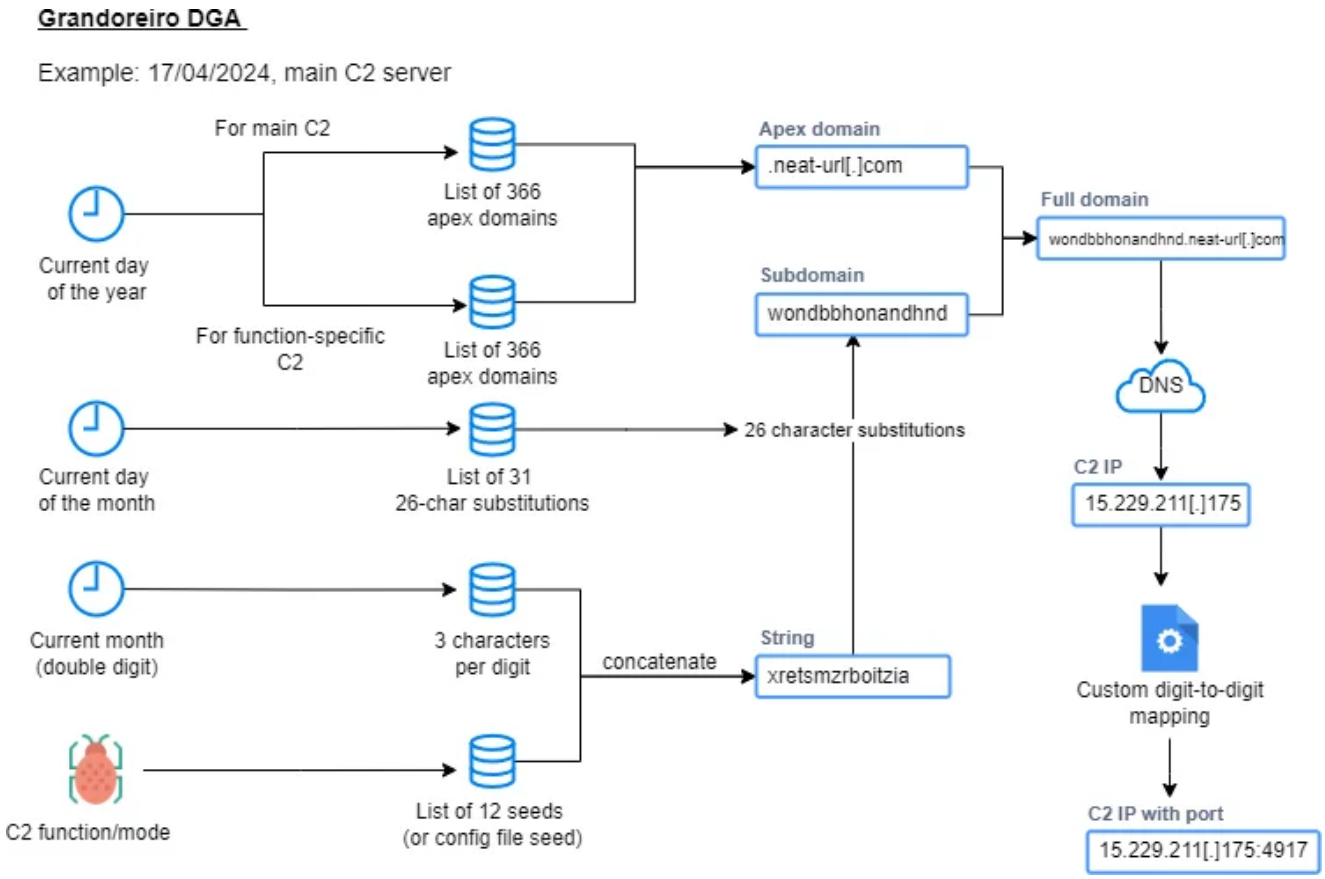
Sample email impersonating CFE, Mexico's Federal Electricity Commission

Grandoreiro Malware Capabilities

Grandoreiro employs several sophisticated techniques to compromise systems, including abusing elevation control mechanisms, email account discovery, application layer protocol communication, boot or logon autostart execution, browser session hijacking, and stealing credentials from web browsers.

The malware's unique loader checks the legitimacy of the victim, gathers basic information, and then executes the Grandoreiro trojan. To bypass automated scanning, it employs a **CAPTCHA pop-up** and evades detection by increasing the size of the executable. The malware uses a complex decryption process, involving multiple layers of encryption and custom algorithms, to obtain the plaintext strings required for its operation.

Grandoreiro collects extensive data from infected machines, including IP addresses, operating system details, and information about installed software, all of which are sent to the C2 server. To avoid DNS-based blocking, it uses DNS over HTTPS and employs a **Domain Generation Algorithm (DGA)** to determine active C2 domains. Encrypted requests are sent to the C2 server to retrieve the final payload.

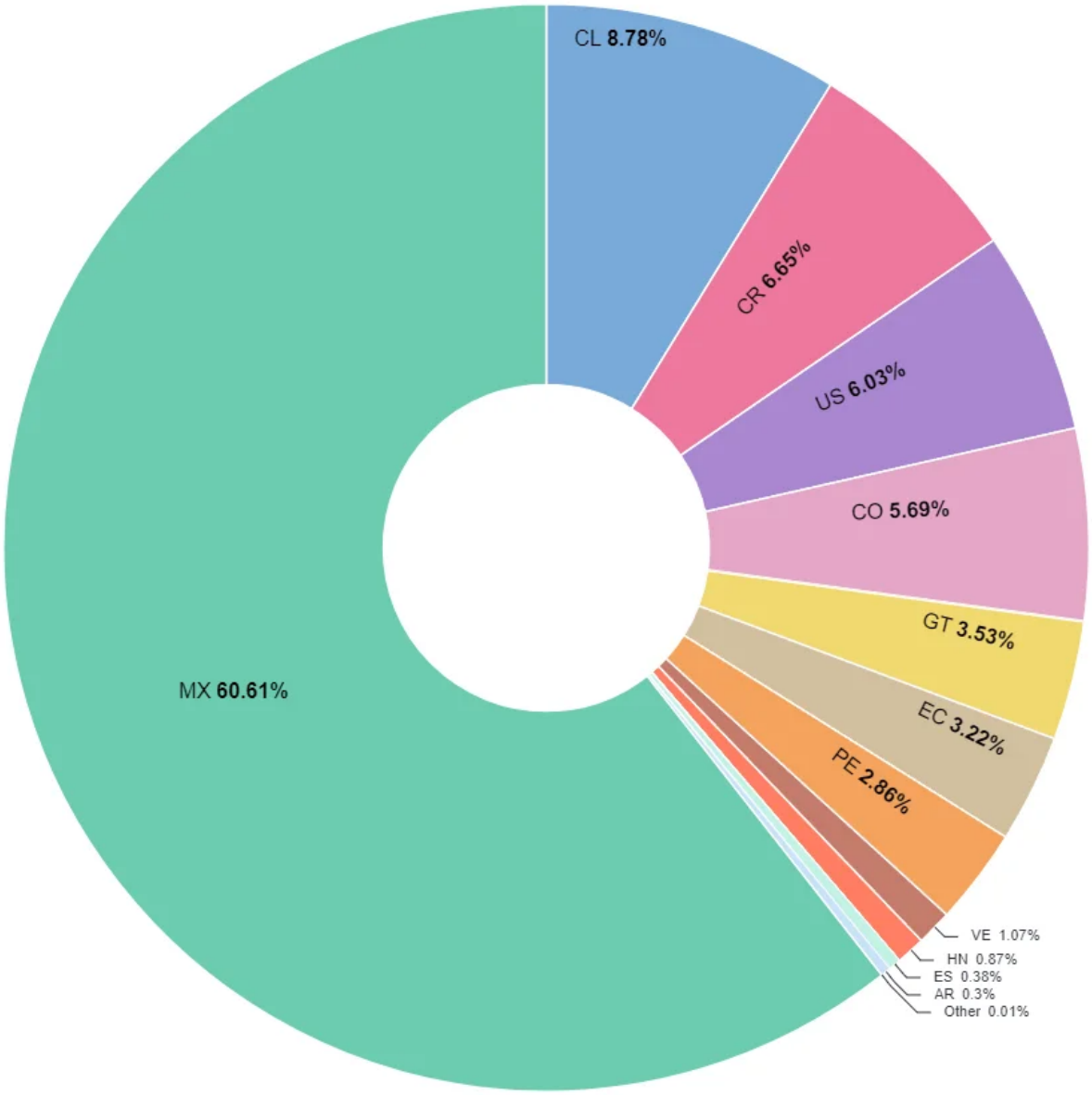


Grandoreiro DGA visualization

Impact of the Grandoreiro Malware Campaign

The impact of the Grandoreiro campaign has been devastating, resulting in financial fraud and significant monetary losses. It affected various sectors such as banking, finance, manufacturing, public administration, telecommunications, and energy and utilities.

The chart below depicts the top countries that have been targeted by the Grandoreiro malware:



Malware infections in early May, distributed by countries

Mitigation Strategies

To combat Grandoreiro, organizations should implement a multi-layered defense strategy, including email and phishing defense, network traffic surveillance, blocking DGA domains, Windows registry surveillance, enhanced endpoint security, and user education programs.

In the event of an infection, critical steps include identifying and removing infected systems, updating and patching systems, monitoring and hardening network security, user account and access management, regular audits and monitoring, and incident response planning. In the face of the re-emergence of Grandoreiro, the following are important countermeasures and defense strategies that organisations should take:

Email and Phishing Defence

- Deploy sophisticated email filtering systems, blocking emails from suspicious domains.
- Provide regular training to employees to raise awareness about recognizing phishing emails.

- Conduct regular training sessions to raise awareness of phishing and educate users on safe browsing habits.
- Encouraging verification of email senders and URLs before clicking or downloading attachments.

Network Traffic Surveillance

- Implement anomaly detection systems that can detect abnormal traffic patterns.
- Using network fragmentation, controlling the spread of malware, and providing isolation against suspicious activities.

Blocking DGA Domains

Using DNS filtering solutions, block domains created by Grandoreiro's Domain Generation Algorithm (DGA).

Proactively monitor and block new malicious domains by utilizing threat intelligence services.

Windows Registry Surveillance

- Regularly audit Windows registry entries to detect and remove unauthorized changes.
- Monitor registry changes in real time using automated tools.

Enhanced Endpoint Security

- Ensuring that all endpoints are equipped with up-to-date antivirus and anti-malware software.
- Providing advanced threat detection and remediation by implementing Endpoint Detection and Response (EDR) solutions.

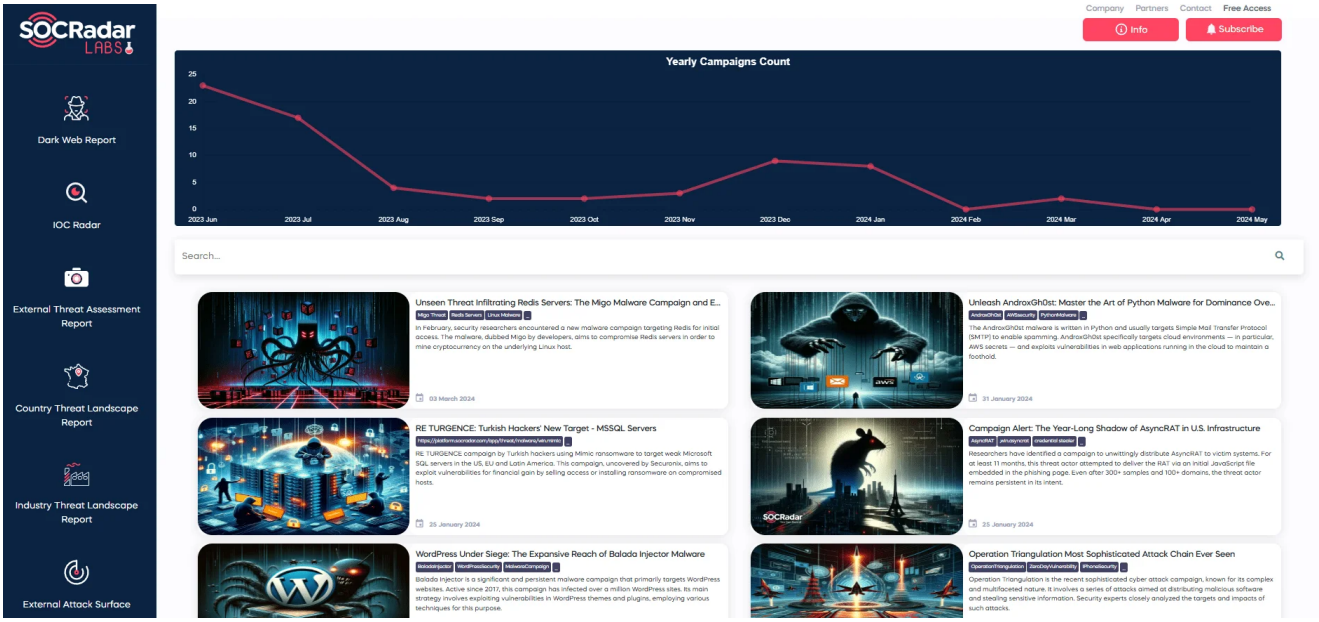
These strategies are critical to building an effective line of defense against complex and adaptive threats such as Grandoreiro.

Conclusion

The resilience and adaptability of the Grandoreiro banking trojan, even after a major law enforcement operation, underscore the need for robust cybersecurity measures. Organizations must adopt advanced threat detection, regular audits, user education, and

comprehensive endpoint protection to effectively counter this persistent threat.

For more information about the Grandoreiro Malware Campaign and many more campaigns, you can visit our Campaigns page on SOCRadar LABS.



SOCRadar LABS, Campaigns page

YARA RULES

Below is a YARA Rule, which may be used for the detection of Grandoreiro malware. You can find YARA Rules related to various malware with SOCRadar's Threat Hunting Rules.

```
rule Windows_Trojan_Grandoreiro_51236ba2 {
    meta:
        author = "Elastic Security"
        id = "51236ba2-fdbc-4c46-b57b-27fc1e135486"
        fingerprint =
"c3082cc865fc177d8cbabcfcf9fb67317af5f2d28e8eeb95eb04108a558d80d4"
        creation_date = "2022-08-23"
        last_modified = "2023-06-13"
        description = "Grandoreiro rule, target loader and payload"
        threat_name = "Windows.Trojan.Grandoreiro"
        reference_sample =
"1bdf381e7080d9bed3f52f4b3db1991a80d3e58120a5790c3d1609617d1f439e"
        severity = 100
        arch_context = "x86"
        scan_context = "file, memory"
        license = "Elastic License v2"
        os = "windows"
    strings:
        $antivm0 = { B8 68 58 4D 56 BB 12 F7 6C 3C B9 0A 00 00 00 66 BA 58 56 ED B8
01 00 00 00 }
        $antivm1 = { B9 [4] 89 E5 53 51 64 FF 35 00 00 00 00 64 89 25 00 00 00 00 BB
00 00 00 00 B8 01 00 00 00 0F 3F 07 0B }
        $xor0 = { 0F B7 44 70 ?? 33 D8 8D 45 ?? 50 89 5D ?? }
        $xor1 = { 8B 45 ?? 0F B7 44 70 ?? 33 C3 89 45 ?? }
    condition:
        all of them
}
```

Indicators of Compromise (IOCs)

MD5 Hashes:

- 5ba143b5cef7e0505de283091c288e35
- 6b9217ef9cbd2b29bfc353261566be1a
- 7b6defb3ec63cc0c4b8ff21bba79c830
- cf48f1fecfe2efbb3071e9c3eb2140e0
- e02c77ecaf1ec058d23d2a9805931bf8
- 970f00d7383e44538cac7f6d38c23530
- 5b7cbc023390547cd4e38a6ecff5d735
- 56416fa0e5137d71af7524cf4e7f878d
- 2ec2d539acfe23107a19d731a330f61c
- 3b5c1137198d2aecfbc288f1d5693b4e
- 1c913e1918f175e135f03146819cd743
- 121a870dd7cdd01fc2baa6897d376492

SHA1 Hashes:

- 8db589e61c6a9aeb47cd35570318b321866a415d

- 987d02620b4f57a667771f03ebb4c89ed3bf7cc8
- ceafe62c098f30e369eb7dac19dc04e66248fa90
- e68804f8fed07df2bfd3f85d38db673f92d9137e
- c91b333502f6f43aef47441bbf06e7912cef8143
- 3c928e286997daab447e0cfe13988dad9923fd96

SHA256 Hashes:

- 2d3ec83c7a50990b13221e9018fe0c2b0b7fd6d1534160adf56f5df836e46537
- 880db8383100c53c408224a003b312b6d57954ef42d3663ec80e4157ba003a01
- e2dc1f6e45a7be302736e1b42bb97e6a7877f82e081389b7a8195ea22cf6a10c
- 794ad887a11149f438ecc886b5dfc6fa0503c26b8e63f48cf0bf2dcc2cdc58bb
- 45992c4d15aa21aa0a6a29bcc306a25cb13b7c6bebe8d5de5f51cd325259b285
- 25acc903388cf6e4d65c0d8295da8688ece1be4a6e6bec9e5d467f91f6026a4a

Domains and IP Addresses:

- vamosparaonde.com
- perfomacepnneu.me
- mantersaols.com
- damacenapirescontab.com
- barusgorlerat.me
- atlasassessorcontabilidade.com
- assesorattlas.me
- http://vamosparaonde.com/segundona/
- http://mantersaols.com/MEX/MX/
- http://barusgorlerat.me/MX/
- http://atlasassessorcontabilidade.com/BRAZIL/
- http://assesorattlas.me/MX/
- http://assesorattlas.me/AR/
- http://167.114.137.244:48514/eyGbtR.xml
- http://167.114.137.244/$TIME
- http://15.188.63.127/$TIME
- http://15.188.63.127:36992/YSRYIRIb.xml
- http://15.188.63.127:36992/vvOGniGH.xml
- http://15.188.63.127:36992/zxeTYhO.xml
- http://35.180.117.32/$FISCALIGENERAL3489213839012
- http://35.181.59.254/$FISCALIGE54327065410839012?id_JIBBRS=DR-307494
- http://35.181.59.254/info99908hhzzb.zip
- http://52.67.27.173/deposito
- http://54.232.38.61/notificacion
- http://15.188.63.127:36992/zxeTYhO.xml”
- http://premiercombate.eastus.cloudapp.azure.com/PUMA/

CVE Identifiers:

CVE-2022-34233

While we strive to provide accurate and up-to-date information about malware threats, it is important to exercise caution when handling potential malware links or Indicators of Compromise (IOCs). Please only access such links or IoCs from trusted sources and take appropriate security measures to protect your system.

PROTECTION OF PERSONAL DATA COOKIE POLICY FOR THE INTERNET SITE

Protecting your personal data is one of the core principles of our organization, SOCRadar, which operates the internet site (www.socradar.com). This Cookie Usage Policy ("Policy") explains the types of cookies used and the conditions under which they are used to all website visitors and users.

Cookies are small text files stored on your computer or mobile device by the websites you visit.

Cookies are commonly used to provide you with a personalized experience while using a website, enhance the services offered, and improve your overall browsing experience, contributing to ease of use while navigating a website. If you prefer not to use cookies, you can delete or block them through your browser settings. However, please be aware that this may affect your usage of our website. Unless you change your cookie settings in your browser, we will assume that you accept the use of cookies on this site.

1. WHAT KIND OF DATA IS PROCESSED IN COOKIES?

Cookies on websites collect data related to your browsing and usage preferences on the device you use to visit the site, depending on their type. This data includes information about the pages you access, the services and products you explore, your preferred language choice, and other preferences.

2. WHAT ARE COOKIES AND WHAT ARE THEIR PURPOSES?

Cookies are small text files stored on your device or web server by the websites you visit through your browsers. These small text files, containing your preferred language and other settings, help us remember your preferences on your next visit and assist us in making

improvements to our services to enhance your experience on the site. This way, you can have a better and more personalized user experience on your next visit.

The main purposes of using cookies on our Internet Site are as follows:

- Improve the functionality and performance of the website to enhance the services provided to you,
- Enhance and introduce new features to the Internet Site and customize the provided features based on your preferences,
- Ensure legal and commercial security for the Internet Site, yourself, and the Organization, and prevent fraudulent transactions through the Site,
- Fulfill legal and contractual obligations, including those arising from Law No. 5651 on the Regulation of Publications on the Internet and the Fight Against Crimes Committed Through These Publications, as well as the Regulation on the Procedures and Principles Regarding the Regulation of Publications on the Internet.

3. TYPES OF COOKIES USED ON OUR INTERNET SITE 3.1. Session Cookies

Session cookies ensure the smooth operation of the internet site during your visit. They are used for purposes such as ensuring the security and continuity of our sites and your visits. Session cookies are temporary cookies and are deleted when you close your browser; they are not permanent.

3.2. Persistent Cookies

These cookies are used to remember your preferences and are stored on your device through browsers. Persistent cookies remain stored on your device even after you close your browser or restart your computer. These cookies are stored in your browser's subfolders until deleted from your browser's settings. Some types of persistent cookies can be used to provide personalized recommendations based on your usage purposes.

With persistent cookies, when you revisit our website with the same device, the website checks if a cookie created by our website exists on your device. If so, it is understood that you have visited the site before, and the content to be presented to you is determined accordingly, offering you a better service.

3.3. Mandatory/Technical Cookies

Mandatory cookies are essential for the proper functioning of the visited internet site. The purpose of these cookies is to provide necessary services by ensuring the operation of the site. For example, they allow access to secure sections of the internet site, use of its features, and navigation.

3.4. Analytical Cookies

These cookies gather information about how the website is used, the frequency and number of visits, and show how visitors navigate to the site. The purpose of using these cookies is to improve the operation of the site, increase its performance, and determine general trend directions. They do not contain data that can identify visitors. For example, they show the number of error messages displayed or the most visited pages.

3.5. Functional Cookies

Functional cookies remember the choices made by visitors within the site and recall them during the next visit. The purpose of these cookies is to provide ease of use to visitors. For example, they prevent the need to re-enter the user's password on each page visited by the site user.

3.6. Targeting/Advertising Cookies

They measure the effectiveness of advertisements shown to visitors and calculate how many times ads are displayed. The purpose of these cookies is to present personalized advertisements to visitors based on their interests.

Similarly, they determine the specific interests of visitors' navigation and present appropriate content. For example, they prevent the same advertisement from being shown again to the visitor in a short period.

4. HOW TO MANAGE COOKIE PREFERENCES?

To change your preferences regarding the use of cookies, block or delete cookies, you only need to change your browser settings.

Many browsers offer options to accept or reject cookies, only accept certain types of cookies, or receive notifications from the browser when a website requests to store cookies on your device.

Also, it is possible to delete previously saved cookies from your browser.

If you disable or reject cookies, you may need to manually adjust some preferences, and certain features and services on the website may not work properly as we will not be able to recognize and associate with your account. You can change your browser settings by clicking on the relevant link from the table below.

5. EFFECTIVE DATE OF THE INTERNET SITE PRIVACY POLICY

The Internet Site Privacy Policy is dated The effective date of the Policy will be updated if the entire Policy or specific sections are renewed. The Privacy Policy is published on the Organization's website (www.socradar.com) and made accessible to relevant individuals upon request.

SOCRadar
Address: 651 N Broad St, Suite 205 Middletown, DE 19709 USA
Phone: +1 (571) 249-4598
Email:
Website: www.socradar.com