Ursnif incident report

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Executive Summary

Ursnif/Gozi malware, is worldwide trojan which is widely spread as a banking malware in 2000. The traffic data is at 2019-12-06. It collects data about the victims including their keystrokes and browsing activities. So, it is able to steal bank account details, credit card data, and login credentials.

Gozi was developed by **Nikita Kurmin**, and he borrowed code from Ursnif aka Snifula, a spyware developed by **Alexey Ivanov**. Gozi v1.0 often is classified as Ursnif. It became available in GitHub in 2015, so other developers can extend its functionality easily.

It performs data gathering through malicious phishing /spam campaigns effectively, but also can be spread using USB flash drives. The email/spam contains .zip attachment of type Microsoft office document (Such as Excel) that contains instructions to the victim to enable a macro (a single instruction that expands automatically into a set of instructions to perform a particular task).

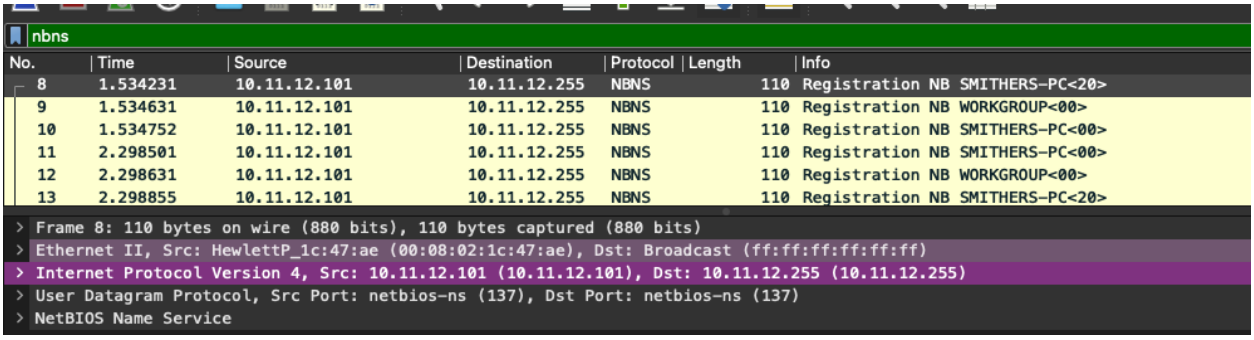
The email is sent as if it is from the manager (with the manager signature), so that victims are more likely to open the file. The email includes a password that is required to open the file. Once opened, victim will have the file that contains URL. From that URL, the victim will have DLL downloaded on its machine, and malware will spread to infect the system.

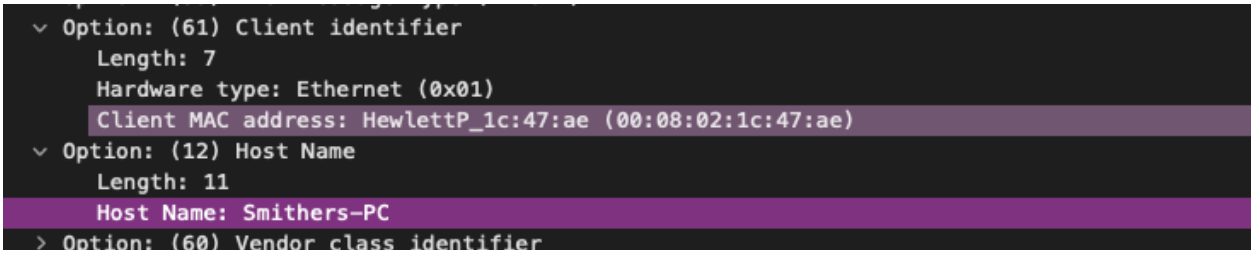
Details of the victim

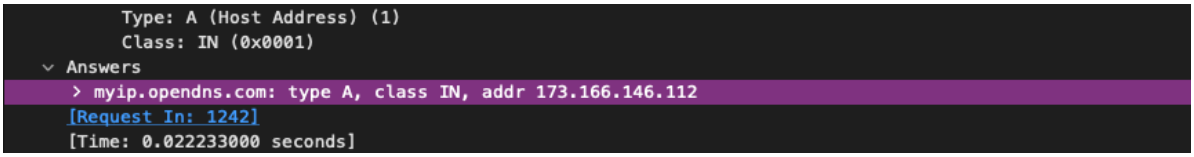
Victim's Details

Hostname Smithers-PC **Mac Address** 00:08:02:1c:47:ae

IP Addresses 10.11.12.101 **Public IP Addresses** 173.166.146.112

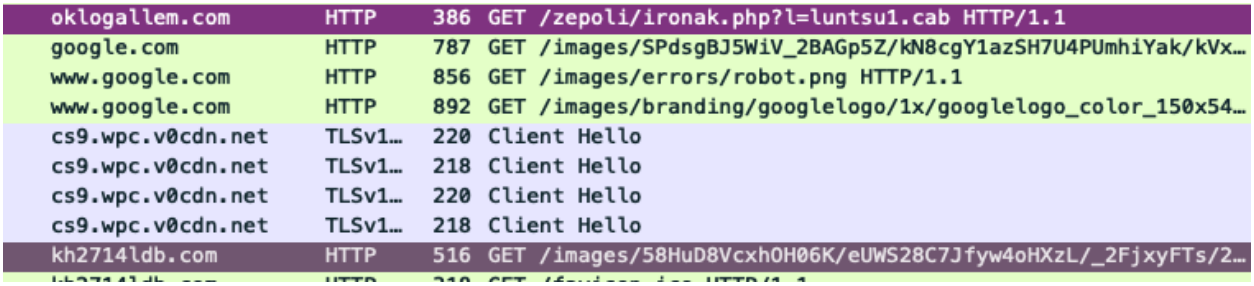






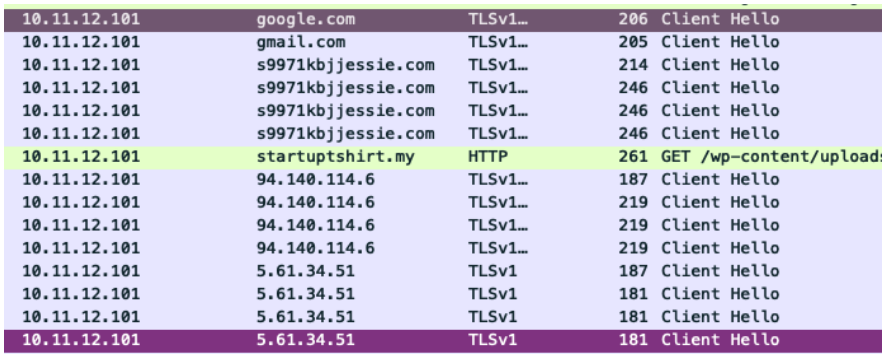
*User account is unavailable for the given the pcap files.

Indicators of Compromise (IOCs)



oklogallem.com	HTTP	386	GET /zepoli/ironak.php?l=luntsu1.cab HTTP/1.1
google.com	HTTP	787	GET /images/SPdsgBJ5WiV_2BAGp5Z/kN8cgY1azSH7U4PUmhiYak/kVx…
www.google.com	HTTP	856	GET /images/errors/robot.png HTTP/1.1
www.google.com	HTTP	892	GET /images/branding/googlelogo/1x/googlelogo_color_150x54…
cs9.wpc.v0cdn.net	TLSv1…	220	Client Hello
cs9.wpc.v0cdn.net	TLSv1…	218	Client Hello
cs9.wpc.v0cdn.net	TLSv1…	220	Client Hello
cs9.wpc.v0cdn.net	TLSv1…	218	Client Hello
kh2714ldb.com	HTTP	516	GET /images/58HuD8VcxhOH06K/eUWS28C7Jfyw4oHXzL/_2FjxyFTs/2…

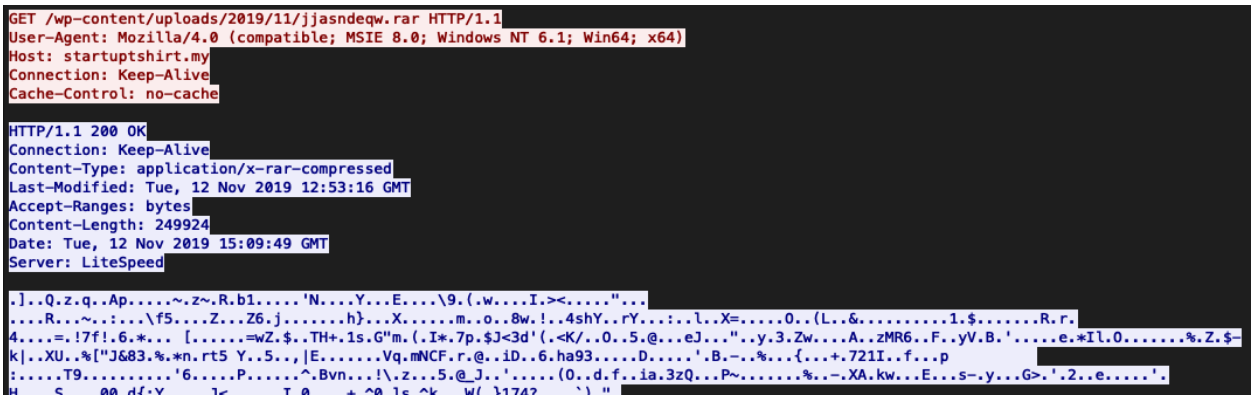
IP address	Domain	Port	URL
80.85.159.236	oklogallem.com	80	http://oklogallem.com/zepoli/ironak.php?l=luntsu1.cab
194.87.147.244	kh2714ldb.com	80	http://kh2714ldb.com/images/58HuD8VcxhOH06K/eUWS28C7Jfyw4oHXzL/_2FjxyFTs/2mwSlPW_2FV4rSxAQZq3/WEnEAO7KAF1nmNFHyd2/OPs9FAmiyy6Rzf_2FtqcEl/a_2Bn2XZvVjEI/OFh1gdQL/Ci2LaQBKQGuvqMSky2OytwY/gXim0rEnHt/qqtju0TWOjD0isRRc/_2BagK_2/B.avi
208.67.222.222	resolver1.opendns.com	53	Not Applicable.



10.11.12.101	google.com	TLSv1…	206	Client Hello
10.11.12.101	gmail.com	TLSv1…	205	Client Hello
10.11.12.101	s9971kbjjessie.com	TLSv1…	214	Client Hello
10.11.12.101	s9971kbjjessie.com	TLSv1…	246	Client Hello
10.11.12.101	s9971kbjjessie.com	TLSv1…	246	Client Hello
10.11.12.101	s9971kbjjessie.com	TLSv1…	246	Client Hello
10.11.12.101	startuptshirt.my	HTTP	261	GET /wp-content/upload
10.11.12.101	94.140.114.6	TLSv1…	187	Client Hello
10.11.12.101	94.140.114.6	TLSv1…	219	Client Hello
10.11.12.101	94.140.114.6	TLSv1…	219	Client Hello
10.11.12.101	94.140.114.6	TLSv1…	219	Client Hello
10.11.12.101	5.61.34.51	TLSv1	187	Client Hello
10.11.12.101	5.61.34.51	TLSv1	181	Client Hello
10.11.12.101	5.61.34.51	TLSv1	181	Client Hello
10.11.12.101	5.61.34.51	TLSv1	181	Client Hello

IP address	Domain	Port	URL
85.143.219.95	s9971kbjjessie.com	443	Encrypted
124.217.255.96	startuptshirt.my	80	http://startuptshirt.my/wp-content/uploads/2019/11/jjasndeqw.rar
94.140.114.6	Unavailable	443	Encrypted
5.61.34.51	Unavailable	443	Encrypted

- SHA256 hashes of malware binaries that is extracted from the pcap



This URL ending in .rar returned follow-up malware. However, this follow-up malware is encoded/encrypted when sent over the network. The binary decoded on the infected Windows host, which is not seen in the infection traffic, so we cannot export a copy of the follow-up malware from the pcap, and have its SHA256. But based on the post-infection traffic, the type of malware was sent to the Ursnif-infected host is Dridex.

Technical Description

General infection chain is as follow:

1. Arrives as an office document attachment
2. User tricked into opening document and executed malicious macro
3. Users download malicious DLL
4. DLL DLL is executed
5. Malware steal data and credentials
6. Victim‘s computer connect to remote server
7. Remote server able to use backdoor commands

We can note the sequence of events:

- HTTP GET request that returns an initial Ursnif binary to `oklogallem.com`. (80.85.159.236) Port 80 [Stage#1 Recon]
- HTTP GET requests caused by the initial Ursnif binary, including decoy URLs to `kh2714ldb.com` before the infection becomes persistent.(194.87.147.244) Port 80 [Stage#2 Delivery]
- HTTPS traffic after Ursnif is persistent in the Windows registry, Ursnif causes HTTPS traffic to `s9971kbjjessie.com` [Stage#3 Exploit]
- HTTP GET request for follow-up malware HTTP GET request to `startuptshirt.my` [Stage#4 Install]
- Post-infection activity from the follow-up malware [Stage#5 C&C],[Stage#6 Exfiltrate]

Impact

Since it causes information theft as the main consequence, this will impact victims financial data such as loss includes stealing bank and digital wallets and cryptocurrency information. It will also impact and Violate the victims' privacy such as gathers victims' credentials, logs keystroke and steals user data.

Recommendation to prevent Ursnif

There are several solutions, include the following:

- Email Protection
- URL Protection
- Network Pattern
- File Detection
- Predictive Learning
- Advance Threat Scan Engine

References:

- https://success.trendmicro.com/solution/000283513#:~:text=Ursnif%20malware%2C%20also%20known%20as,most%20widely%20spread%20banking%20Trojan.&text=Ursnif%20malware%20is%20effectively%20delivered,the%20user%20to%20enable%20macro
- https://malpedia.caad.fkie.fraunhofer.de/details/win.gozi#:~:text=It%20was%20offered%20as%20a,classified%20as%20Ursnif%20aka%20Snifula
- https://unit42.paloaltonetworks.com/using-wireshark-identifying-hosts-and-users/