

Raytheon Blackbird Technologies

**20150904-272-MalwareBytes
HanJuan Drops New Tinba**

**For
SIRIUS Task Order PIQUE**

**Submitted to:
U.S. Government**

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04 September 2015

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1.0 (U) Analysis Summary

(S//NF) This Malwarebytes blog report discusses a recent sighting of the elusive Exploit Kit (EK) HanJuan. Separately, the Dutch security firm, Fox-IT, has identified the payload observed being dropped by EK as Tinba v2. No details on the new version of Tinba were provided in this report. The report provides quite a bit of detail about the flow of the attack, screenshots of URL redirects, screenshots of IDA Pro, and screenshots of Fiddler web debugger. However, there is nothing interesting or unique about how the malware implements code injection and API hooking. Code injection is accomplished via the standard methods and APIs (VirtualAllocEx() and NtProtectVirtualMemory()).

(S//NF) HanJuan appears to be using URL shortener services (Adf.ly in this case) to embed links to malicious websites. After a complex chain of malvertising redirects, the EK is loaded and one of two exploits is executed (either an Adobe Flash exploit CVE-2015-0359 or an Internet Explorer exploit CVE-2014-1776) in order to drop its payload to disk. It is an interesting note that this round of HanJuan attacks uses very recent and fresh exploits.

- CVE-2015-0359 is a Double Free vulnerability in Adobe Flash versions up to 17.0.0.134
- CVE-2014-1776 is a Use-After-Free (UAF) vulnerability in MS IE versions 6 through 11

(S//NF) The payload dropped is designed to steal user information from browsers. Standard browser hooking is implemented to steal specific website logon credentials.

(S//NF) HanJuan uses an interesting unpacking and Explorer PID detection techniques. The unpacking technique involves a ROP gadget that is believed to hinder analysis. In order to locate the PID for Explorer, its target process for injection, it searches for a known window name of “Shell_TrayWnd”, which is used by the Explorer process. Once the Explorer process is found, it appears HanJuan uses standard injection techniques to inject the malware into the Explorer process.

(S//NF) Persistence is obtained in the standard, pedestrian way; via copying the executable to ..\AppData\Roaming\ and creating a “Run” key in the registry.

(S//NF) If Firefox is installed, the malware will modify the browser settings by disabling the SPDY protocol. The report does not explain how SPDY is disabled.

(S//NF) In communicating with its command and control (C2) servers, HanJuan uses a unique ID for each infection, which consists of the hard disk serial number combined with the OS install date.

(S//NF) HanJuan injects code into every browser running in order to hook specific APIs for each browser type in order to intercept logon credentials for selected websites. It detects the selected websites by comparing URL strings in the browser.

(S//NF) While it is slightly interesting that HanJuan uses Shell_TrayWnd to find the Explorer PID and that it uses such fresh exploits, we don’t view these aspects of the malware to be PoC material. No PoCs are recommended from this report.

2.0 (U) Description of the Technique

(S//NF) Not applicable as no PoCs are recommended.

3.0 (U) Identification of Affected Applications

(U) Windows and Linux.

4.0 (U) Related Techniques

(S//NF) Use-After-Free (UAF) exploitation, code injection, unpacking, and ROP.

5.0 (U) Configurable Parameters

(U) Varied.

6.0 (U) Exploitation Method and Vectors

(S//NF) The exploitation methods mentioned in this report are:

- CVE-2015-0359 is a Double Free vulnerability in Adobe Flash versions up to 17.0.0.134
- CVE-2014-1776 is a Use-After-Free (UAF) vulnerability in MS IE versions 6 through 11

(S//NF) The attack vector mentioned in this report is malvertisement and website re-direct.

7.0 (U) Caveats

(U) None.

8.0 (U) Risks

(S//NF) Not applicable as no PoCs are recommended.

9.0 (U) Recommendations

(S//NF) No PoCs are recommended.