Raytheon Blackbird Technologies

20150911-277-FireEye HammerToss – Stealthy Tactics

For

SIRIUS Task Order PIQUE

Submitted to:

U.S. Government

Submitted by:

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Pique Analysis Report 20150911-277-FireEye-HammerToss-Stealth Tactics

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1.0 (U) Analysis Summary

(S//NF) This report summarizes HammerToss, a suspected Russian State-sponsored malware sample discovered in early 2015 and suspected as being operational since late 2014. HammerToss is an interesting piece of malware because of its architecture, which leverages Twitter accounts, GitHub or compromised websites, basic steganography, and Cloud-storage to orchestrate command and control (C2) functions of the attack.

(S//NF) HammerToss is written in C# and uses a custom algorithm to name, create and register Twitter accounts on a daily basis. Each day, the implant will check for that day's Twitter account. If that day's Twitter handle has not been created and registered by the attacker, the implant will check the next day for the next Twitter handle. When the attacker creates and registers the expected Twitter account (as calculated by the algorithm) the attacker posts a URL and a hashtag. The URL directs the malware to a Github website that contains an image that is downloaded and decrypted using a value provided in the hashtag. The image located at the URL provided contains commands hidden within it using basic steganography (appended to the end of the file). Figure 1 details the HammerToss components in Twitter.



Figure 1. HammerToss Components in Twitter

(S//NF) The HammerToss malware can be described by its five architectural stages:

- Stage 1 HammerToss contains an algorithm that generates Twitter handles telling the malware to visit a specific Twitter handle on a specific day. HammerToss visits the specified Twitter handle to retrieve instructions for the next stage.
- Stage 2 The Twitter handle directed to in Stage 1 will contain a URL and a hashtag. Content located at the URL provided is to be downloaded. An image stored at the URL contains steganography hidden and encrypted commands. The hashtag provides the offset at which the commands are stored in the image and a string to be used to decrypt the data.

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- Stage 3 The HammerToss implant browses to the URL indicated in the daily Twitter handle using InternetExplorer.Application COM Object and downloads the image to its cache.
- Stage 4 Browse the download cache looking for an image at least the size of the offset provided in the Twitter handle. It then decrypts the encrypted data using the string provided in the Twitter handle and extracts it.
- Stage 5 Execute the commands and upload any collected data from the victim. Many of the HammerToss commands observed have been PowerShell commands. Any collected data is uploaded to a cloud-storage server where it is later retrieved by the operators.

(S//NF) While HammerToss is an interesting malware sample, the interesting aspect is its architecture and its use of Twitter, compromised websites, and cloud-storage, there is nothing we can make a PoC recommendation on. We do recommend this architecture be noted for potential full development of a capability beyond the scope of a PoC.

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.

4.0 (U) Related Techniques

(S//NF) Social Media-based C2 infrastructure.

5.0 (U) Configurable Parameters

(U) Varied.

6.0 (U) Exploitation Method and Vectors

(S//NF) No exploitation methods or attack vectors were mentioned in this report.

7.0 (U) Caveats

(S//NF) The Twitter handler generation algorithm would need to be developed.

8.0 (U) Risks

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

9.0 (U) Recommendations

(S//NF) No PoCs are recommended from this report.

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