

Raytheon

Blackbird Technologies

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Skipper Implant

For
SIRIUS Task Order PIQUE

Submitted to:
U.S. Government

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1.0 (U) Analysis Summary

(S//NF) This report summarizes a CrowdStrike Tipper report on a multi-component malware sample known as “Skipper.” The malware attack vector is apparently spear phishing email campaigns with malicious document attachments. The malicious document observed embedded a VBA macro that requires the victim to initiate via social engineering. Once the VBA macro is executed it reads the last four bytes from the end of the document to get the size of the embedded executable, de-obfuscates it, and copies it to %APPDATA%\Microsoft\Word\MSWord.exe.

(S//NF) MSWord.exe is Skipper’s dropper, which uses minimal library code and APIs. The dropper doesn’t contain a main() or WinMain() function, using its entry point address only.

(S//NF) Similar to the initial infection document, the MSWord.exe dropper reads the last four bytes of its file to get the size of the encrypted data to be processed. The decrypted data structure contains three files:

- A decoy document
- An inner dropper (randomly named)
- A JavaScript file that deletes the dropper

(S//NF) Skipper’s inner dropper is responsible for extracting 8 additional files to the user’s temporary directory:

- ntlm.exe – a loader
- msycop.dll – a utility that checks for browsers installed on the target
- msuci.exe – a 64-bit injector
- msuci.dll – a 32-bit version of the msuci.dll 64-bit injector
- msck.dll – the main implant
- msck60.dll – 64-bit version of the main implant
- msct60.dll – 64-bit utility responsible for contacting the command and control (C2) server
- msct.dll – 32-bit utility responsible for contacting the command and control (C2) server

(S//NF) Once installed, the implant attempts to contact the C2 server and if unsuccessful, will retry contact with the C2 server every 28 minutes. If contact with the C2 server is successful, it requests the actions it should take next.

(S//NF) The implant has a simplistic list of commands it supports and does not provide any obfuscation, which leads the authors of this report to speculate that Skipper is a first stage implant used to download and install additional tools. There is nothing unique, novel, or interesting about how Skipper is unpacked and installed.

(S//NF) There is, however, an interesting and clever persistence technique used. After the inner dropper writes the 8 files to disk it enumerates all shortcuts on the victim’s desktop and copies them to a directory named “links” under the victim’s temporary path. It then changes the existing shortcuts to point to ntlm.exe, which is run with an argument corresponding to the original shortcut’s target. We recommend this technique be developed as a PoC.

2.0 (U) Description of the Technique

(S//NF) The PoC recommended is a novel persistence technique that modifies the victim's desktop shortcuts to point to the malware plus the original shortcut's target.

3.0 (U) Identification of Affected Applications

(U) Windows.

4.0 (U) Related Techniques

(S//NF) Persistence.

5.0 (U) Configurable Parameters

(U) None.

6.0 (U) Exploitation Method and Vectors

(S//NF) No exploitation methods were discussed. The attack vector mentioned is spear phishing email campaigns with malicious document attachments.

7.0 (U) Caveats

(U) None.

8.0 (U) Risks

(S//NF) The risk associated with the development of the recommended PoC is low to moderate. We estimate it will take roughly 1 FTE week to complete this PoC.

9.0 (U) Recommendations

(S//NF) We recommend the desktop shortcut hijack persistence technique be developed as a PoC.