

Possible ShadowHammer Targeting (Low Confidence)

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Update: The conclusions drawn below are likely incorrect (or, at the least, presented incorrectly). The post will remain up to preserve the data collected and in case additional OSINT information becomes available.

Last week, this blog examined the first stage of an infection chain deployed through a supply chain attack. The malware involved in this phase of the infection chain performed an MD5 hash of infected devices' MAC addresses and compared them to MD5s in a hardcoded database. If a match was found, the malware called out to a hardcoded C2. Since then, multipleresearchers have cracked these hashes and generated the underlying plaintext MACs.

The objectives of this supply chain attack remain unknown; however, this blog has identified one (low-confidence) possibility by comparing the plaintext MAC addresses with the Wigle database, a publicly available network data repository: The MAC addresses involved may be associated with industrial processes, logistics, and technology.

The supporting data for this assessment is below, and this blog emphasizes that these are low-confidence findings based on a limited dataset; should more specific targeting and victimology become available, this post will be revised (with the original content remaining intact for retrospective analysis).

Technical Findings

This assessment is derived from the following process:

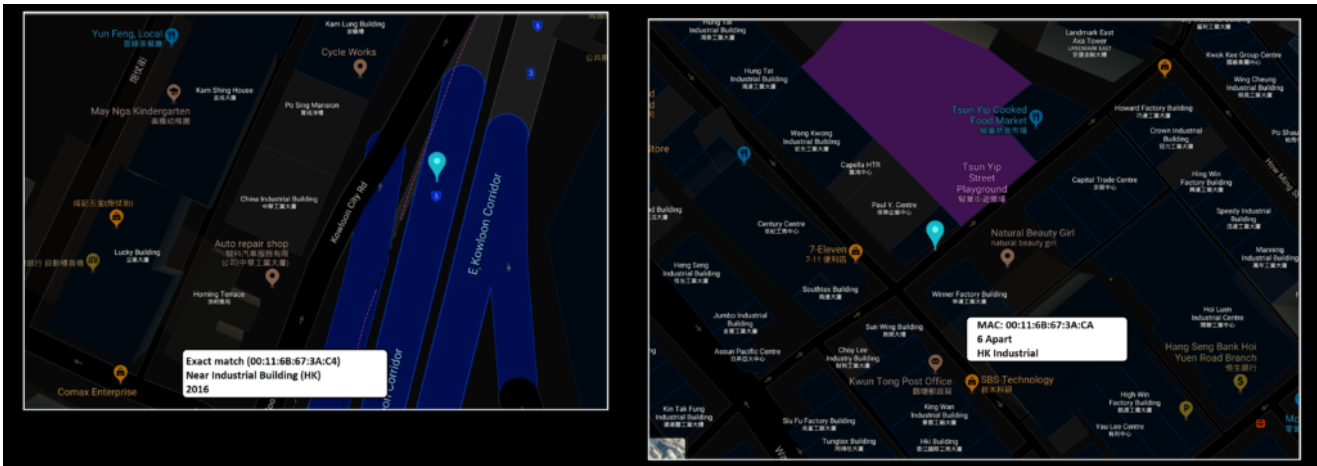
- A comparison was run for the first five (out of six) octets of the identified MAC addresses. A manufacturer will often ship devices with sequential MAC addresses to companies ordering in bulk; thus, a MAC address “near” a specified value may belong to the same entity as the device with that value.
- One MAC targeted by this adversary has an *exact match* in the Wigle database. This is unusual, given that the targeted devices should, theoretically, be Windows machines. This address (00:11:6B:67:3A:C4) was located near an industrial center in Hong Kong, and three other addresses with the same “:C*” range were also identified in industrial areas in Hong Kong, suggesting a consistent deployment pattern for this hardware.
- A second MAC address “near” a targeted value was found near a logistics company and a shipping company in the Philippines. A third was found “near” a technical institute in the United States.

– While both the HK and Philippines MACs require a second MAC address to form a “target pair,” they both share a commonality in that they require an AzureWave MAC as the pairing address.

– Of these findings, the Hong Kong MAC address pattern is the most compelling, given the distribution of MAC addresses in a very close manufacturing proximity across multiple different industrial sites. The Philippines and U.S. data are sequentially weaker.

On the other hand, the data in general may be a result of statistical bias due to factors (such as stronger industrial WiFi networks being more likely to be collected during drive-by scanning). In addition, multiple “matching” ranges identified with this methodology do not appear to conform to this hypothesis- perhaps because they are personal/home networks and randomly appear in the dataset.

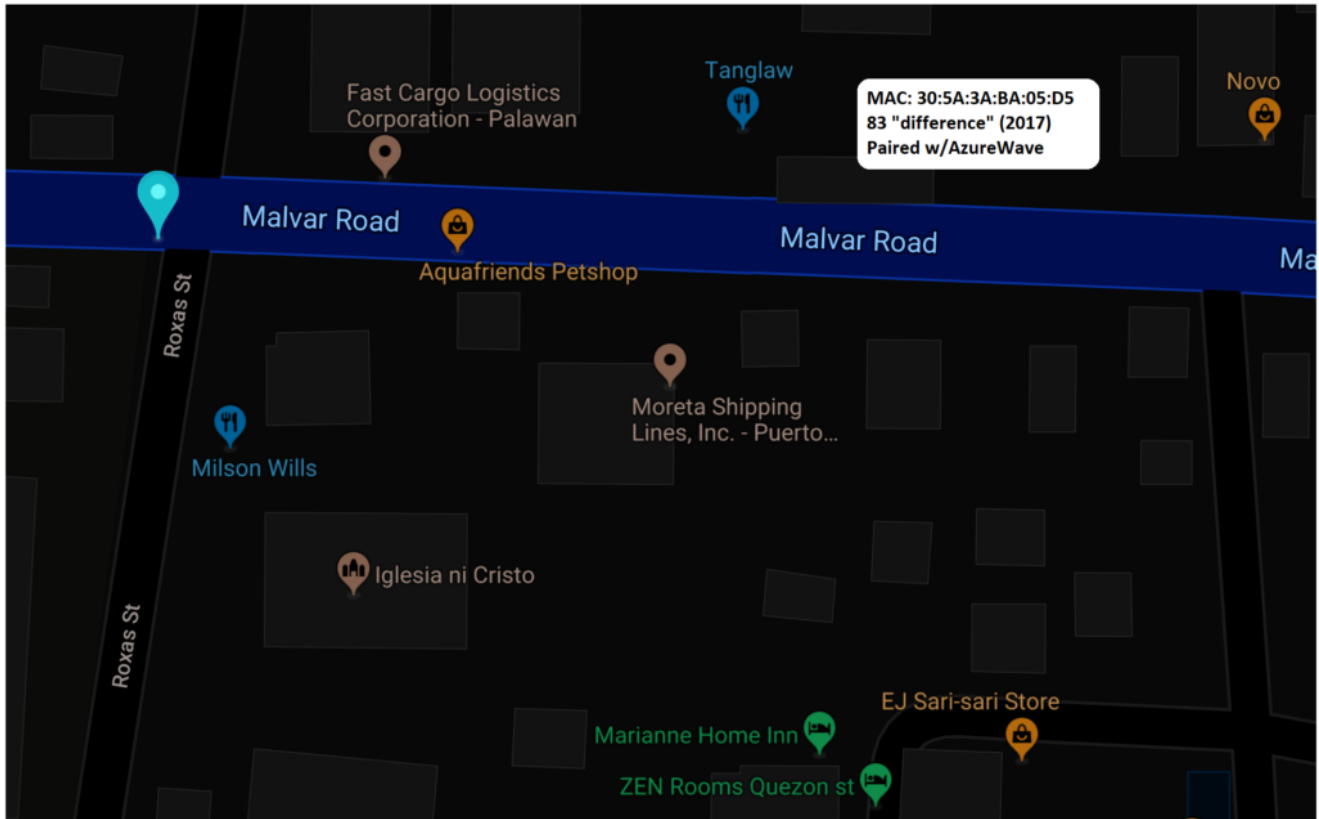
Images for data supporting this hypothesis are below, and all results identified from the “Five Octet” methodology are included at the end of this post. As this blog does not use image plugins, right click and open any image in a new tab to enlarge it.



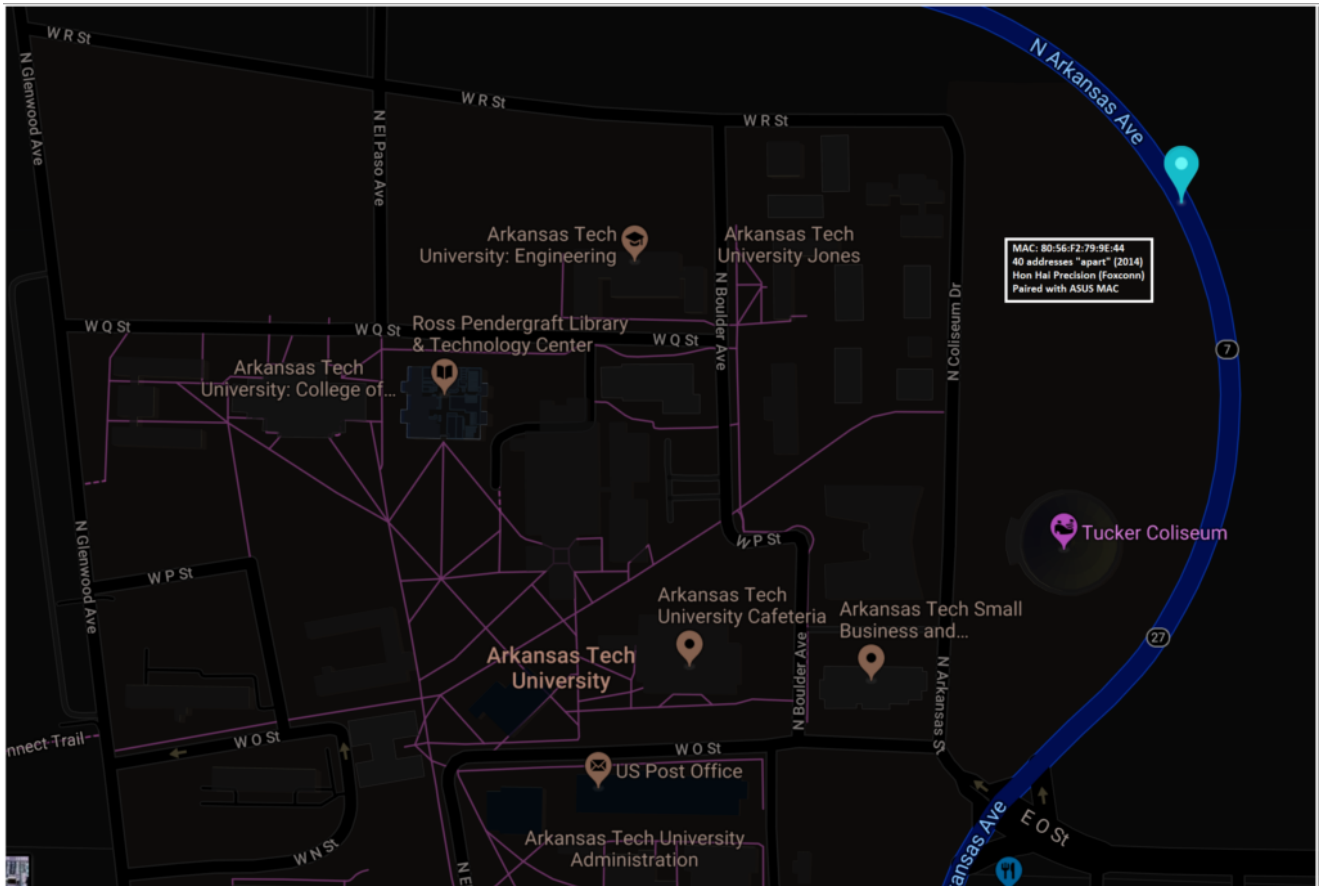
Exact HK Industrial match and one “near match” in a second industrial area



Two “near matches” in industrial areas of Hong Kong



Philippines “close match” near shipping and logistics companies



Potential “matching range” near Arkansas Tech University
Raw Data from Wigle API

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