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Network Defense 2

Homework #2

My domain generation algorithm creates a domain that consists of four different parts. These four parts are:

1. random word1
2. random word 2
3. random word 3
4. random top-level domain

I wanted to create my domains using English words, therefore all of the random words are selected from a wordlist located in the same directory as my Python file. I used a wordlist found online (<https://github.com/OliverCollins/Oxford-3000-Word-List)>, but my program is coded such that in the event my botnet becomes compromised, the wordlist file can be updated and the code will still generate random domains. I also use one more library than the included wrapper code, the random library. I created this code because I wanted to use wordlists, and each part is derived using permutations from a random seed that are hard to reverse-engineer without access to the original code. From a wordlist of this size, there are over 27,000,000,000 potential domains which is more than enough to overwhelm possible investigators.

**Word1**

A random number is generated between 0 and the total number of words in the wordlist. Word1 becomes the word located on the line in the wordlist equivalent to the randomly-generated number

**Word2**

My program accepts two inputs—a date and a count. Each count is appended to the date and become a seed value. The MD5 hash of this seed is created, and each ASCII value in the hash is summed up. The word located on the line in the wordlist equivalent to this sum becomes word2.

**Word3**

The MD5 hash of word2 is created, and each ASCII value in the hash is summed up. The word located on the line in the wordlist equivalent to this sum divided by two becomes word2.

**TLD**

My program included a list of possible top-level domains. This list can be modified. The first letter in word1 mod the length of the TLD list becomes the selected TLD for each iteration.

**Final Domain**

Word1, word2, word3, and the TLD are appended to one another, creating a domain.