Project 3

CS 4371

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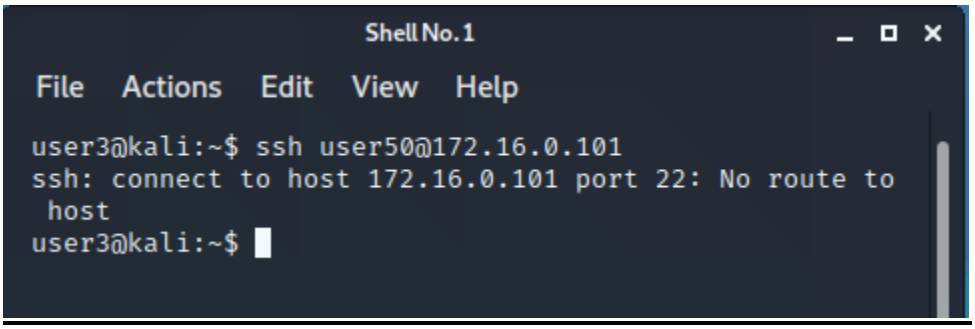
Section I (Introduction) – Benjamin Nye:

For Project 3, our group learned cryptographic algorithms and protocols using passwords and keys, how to crack passwords using different methods, and how to use and develop various security tools. The roles of the members in our group were for each of us to complete a task and section of the report. Task I was completed by Jacob, Task II was completed by Brandon, Task III was completed by Bridgett, and Task IV was completed by Benjamin. For the report, Benjamin worked on sections I and V, Jacob worked on section II, Brandon worked on section III, and Bridgett worked on section IV. As a group we met on Zoom and in the computer lab to discuss the project and work on the tasks. When not meeting, we used GroupMe to coordinate and ask each other questions when we needed assistance.

Section II (Task I) – Jacob:



I was unable to establish a connection to A.1 from A.2 using ssh. I was also unable to ssh to A.1 using user3 as well.

However I estimate that it would take about .00000006 seconds to test one password.

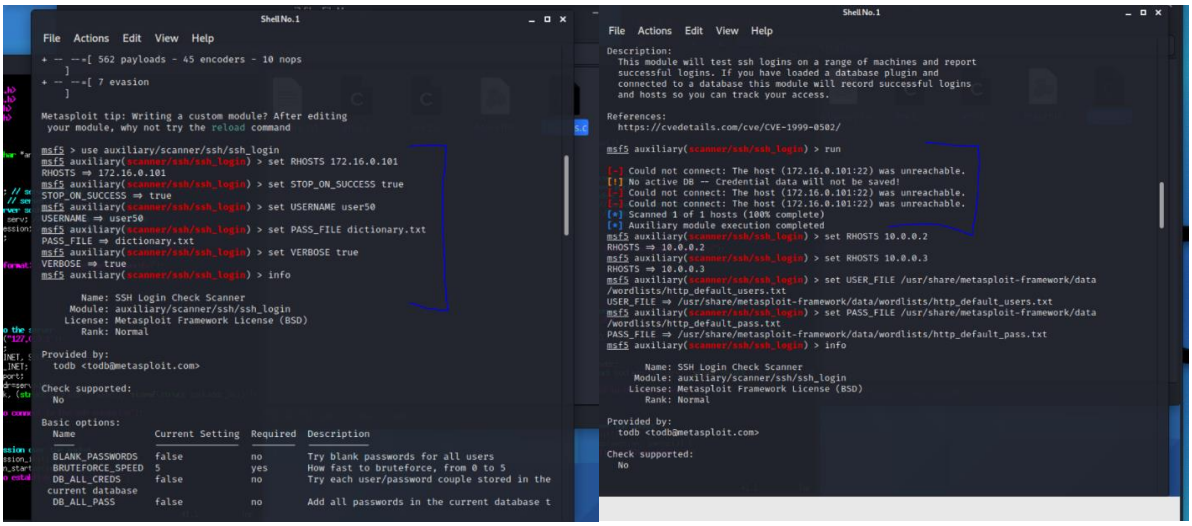
If the dictionary has 1 millions passwords I would estimate that it takes about .0587 seconds to test all of the passwords.

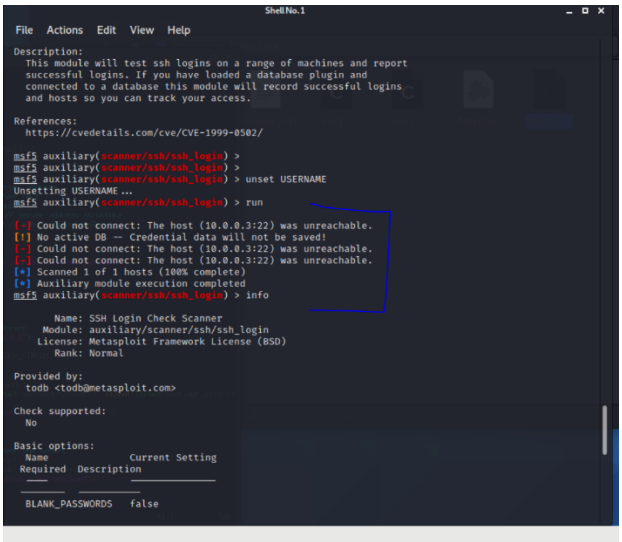
Section III (Task II) – Brandon:

Each attempt seems to start but gives messages that it could not connect to either 172.16.0.101 (A1) or 10.0.0.3 (B2), but then gives a message indicating "Scanned 1 of 1 hosts (100% complete)". However, I don't see the found username or password afterward though, even with the "info" command.

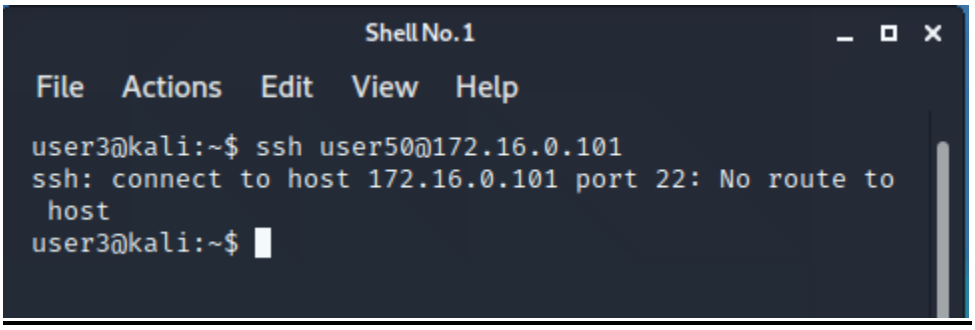
I'm wondering if there is something in task 1 that has to be done first or if our network settings aren't quite right. But I don't think we had a problem with the last task, bringing the file over from A1 to A2, so I'm confused.

**Just a note, you can use the command "unset" to clear any flags [such as "unset USERNAME"], after the first run so that it does not try running with both USERNAME and USER_FILE both set to something. That may cause problems.*





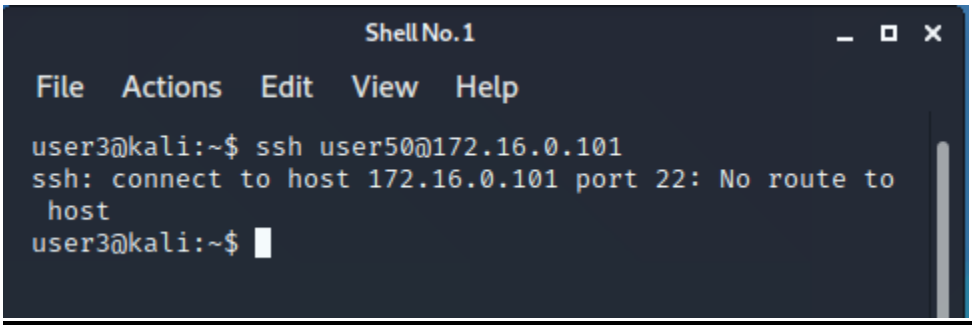
Section IV (Task III) – Bridgett:



We were unable to ssh to A.1 from A.2 therefore, I was unable to retrieve the “secret.pdf.enc1” and “secret.pdf.enc2” in order to attempt the cryptanalysis cracking.

I believe that it would not take very long to brute force these encryptions since the first 8 bytes of “secret.pdf.enc1” are always going to be the same. This would make it easy to guess the key since we already know what those first 8 bytes will correspond to.

Section V (Task IV) – Benjamin:



Due to our issues with being able to ssh to A.1, I was unable to retrieve the file to apply the cryptoanalysis program to.

If I was able to retrieve the file then I would have had the program come up with a possible key, and a second possible key to try if the first one fails. If the first one fails then create another possible key to try after testing the second key and continue that until one of the keys works. If it works then stop generating possible keys and apply the one that worked.