Kamilimu cybersecurity track: Cohort 9: Introductory assignment (Linux and terminal basics)

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OverTheWire Bandit Challenges: Level Up Your Linux Skills!

This worksheet provides introductory challenges from the OverTheWire platform to help you get comfortable with basic Linux commands and the ssh tool. We encourage you to use the Kali Linux or Parrot OS environment you set up previously to connect to the OverTheWire server and solve these challenges.

You can find the OverTheWire Bandit wargame here: https://overthewire.org/wargames/bandit/

Instructions: For each challenge in **Part 1**, you will be given a goal and the initial connection details. Use the information provided to connect to the OverTheWire server and find the password for the next level.

You will connect to the Bandit server using ssh. Open your terminal in your Kali Linux or Parrot OS environment. The basic syntax for ssh is:

ssh <user>@<hostname> -p <port>

For the initial Bandit level (Bandit0), the details are:

- **Hostname:** bandit.labs.overthewire.org
- **Port:** 2220
- **Username:** bandit0
- **Password:** bandit0

Part 1: Core Bandit Challenges (Recommended for Everyone)

Challenge 1: Bandit Level 0 -> Bandit Level 1

- **Goal:** The password for the next level is stored in a file called readme in the home directory. Use basic Linux commands to find and display its contents.
- **Connect to Bandit0 using the details above in your Linux terminal.**
- **Commands to explore:** ls, cd, cat

Challenge 2: Bandit Level 1 -> Bandit Level 2

- **Goal:** The password for the next level is stored in a file called - in the home directory.
- **Think about how you would access a file that starts with a hyphen (-) in Linux.**
- **Commands to explore:** ls, cat (with a special way to handle the filename)

Challenge 3: Bandit Level 2 -> Bandit Level 3

- **Goal:** The password for the next level is stored in a file called spaces in this filename in the home directory.
- **Consider how Linux handles filenames with spaces.**
- **Commands to explore:** ls, cat (with the correct way to specify the filename)

Challenge 4: Bandit Level 3 -> Bandit Level 4

- **Goal:** The password for the next level is stored in a hidden directory called .hidden in the home directory.
- **How do you list hidden files and directories in Linux?** Once you find it, navigate into it and find the password file.
- **Commands to explore:** ls (with a specific option), cd, cat

Challenge 5: Bandit Level 4 -> Bandit Level 5

- **Goal:** The password for the next level is stored in the only human-readable file in the /inhere/ directory.
- **Explore the /inhere/ directory. How can you identify a human-readable file among other potentially non-text files?**
- **Commands to explore:** ls, cd, file, cat

Part 2: Bandit++ Challenges (Optional - For Those Seeking a Greater Challenge)

These additional challenges are for anyone who is already comfortable with the basics and wants to push their skills further.

Challenge 6: Bandit Level 5 -> Bandit Level 6

- **Goal:** The password for the next level is stored in a file that is owned by user bandit5 and group bandit5, has a size of 1033 bytes, and is located somewhere in the / directory.
- **Think about how you can search for files based on ownership, group, and size.** This might take some time to run!
- **Commands to explore:** find (with options for user, group, and size)

Challenge 7: Bandit Level 6 -> Bandit Level 7

- **Goal:** The password for the next level is stored in a file called data.txt, which is located in one of the few writable directories for the bandit6 user in /var/.
- **How can you find directories where the bandit6 user has write permissions?** Once you find one, look for data.txt.
- **Commands to explore:** find (with options for permissions), ls

Challenge 8: Bandit Level 7 -> Bandit Level 8

- **Goal:** The password for the next level is stored in a file named data.txt located somewhere under the directory data/ in the home directory. All subdirectories in data/ are named data[0-9][0-9].
- **How can you efficiently search through multiple subdirectories with a specific naming pattern?**
- **Commands to explore:** find (with the -path option or similar), cat

Challenge 9: Bandit Level 8 -> Bandit Level 9

- **Goal:** The password for the next level is stored in the file data.txt in the directory data/ in your home directory. This time, there are multiple files named data.txt in different subdirectories. The correct one is the file that has a size of exactly 8 bytes.
- **How can you find a file by name and then filter based on its exact size?**
- **Commands to explore:** find (with -name and -size), cat

Challenge 10: Bandit Level 9 -> Bandit Level 10

- **Goal:** The password for the next level is stored in a file with a '.txt' extension, in a subdirectory under the 'data' directory. All subdirectories under the 'data' directory are named 'data[0-9][0-9]'.
- **Commands to explore:** find

Bonus Scripting Challenge:

- **Automating Bandit Level 5:** Write a one-line Bash command that first lists all files in the /inhere/ directory, then filters for human-readable files, and finally prints the content of that file.
    - **Hint:** Use a combination of file, grep, cut, and xargs or command substitution.

- **Potential Further Scripting:**
    - **Iterating through Bandit Levels:** For levels that involve similar actions across multiple files or directories (like Bandit 7, 8, 9 or 10), think about how you could write a script (even a simple for loop) to automate the process of finding the password. For example, write a script that takes a directory as input, finds all files named 'data.txt' within that directory and its subdirectories, and prints the path and size of each 'data.txt' file.

    - **Password Logging:** Create a simple script that takes a Bandit level as input, connects to the server, executes commands to find the password, and then saves the password to a local file with the level number.

    - **Dynamic Command Generation:** For a more advanced challenge, try writing a script that *generates* the necessary command to solve a Bandit level based on some input (e.g., the level number or a keyword from the level description).

Important Notes:

- **Part 1 is recommended for all learners to build a solid foundation.**
- **Part 2 and the scripting challenges are optional and designed for those who want a more advanced experience.** Feel free to explore these at your own pace.
- **Use your Kali Linux or Parrot OS terminal to connect and solve these challenges.** This will help you become more comfortable with the Linux command line and scripting.
- **Do not share the passwords you find with others.** The goal is for everyone to learn by solving the challenges themselves.
- **Take your time and experiment.** If you get stuck, try searching online for the specific Linux commands involved or refer to the man pages (e.g., man find, man bash).
- **Remember, if you encounter any difficulties, please don't hesitate to reach out for assistance.**