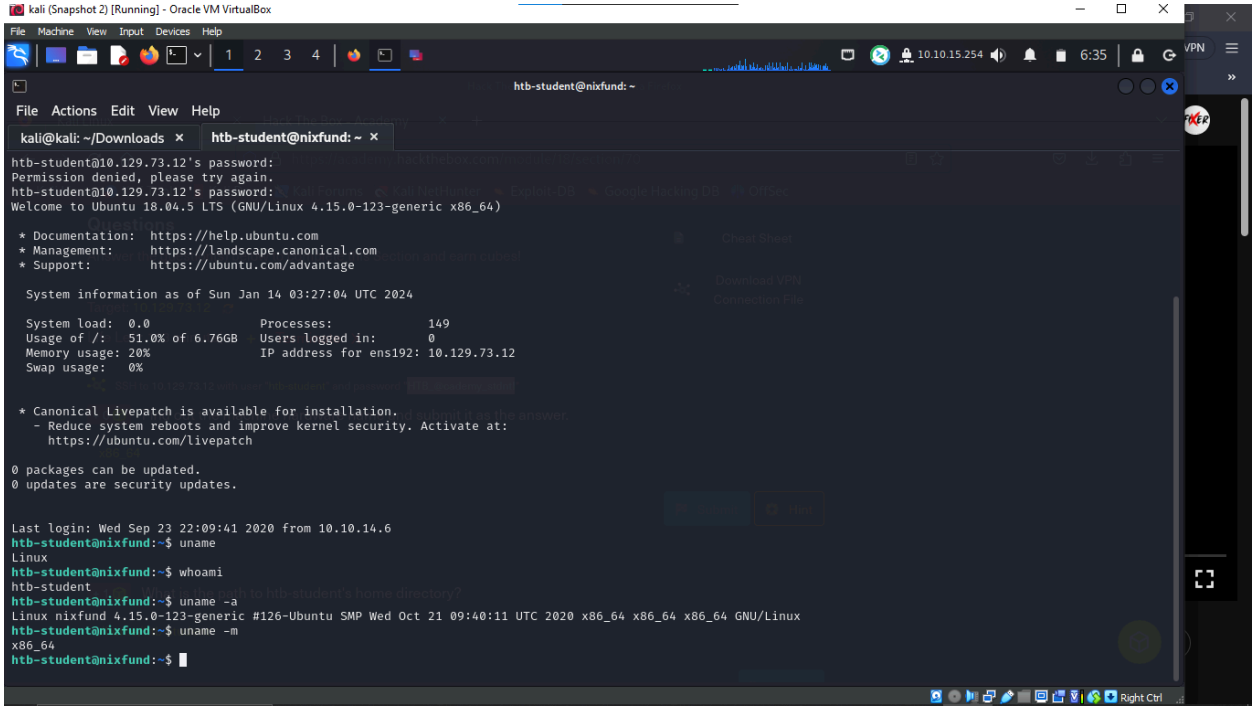
NAME = DAMIAN MUTISYA

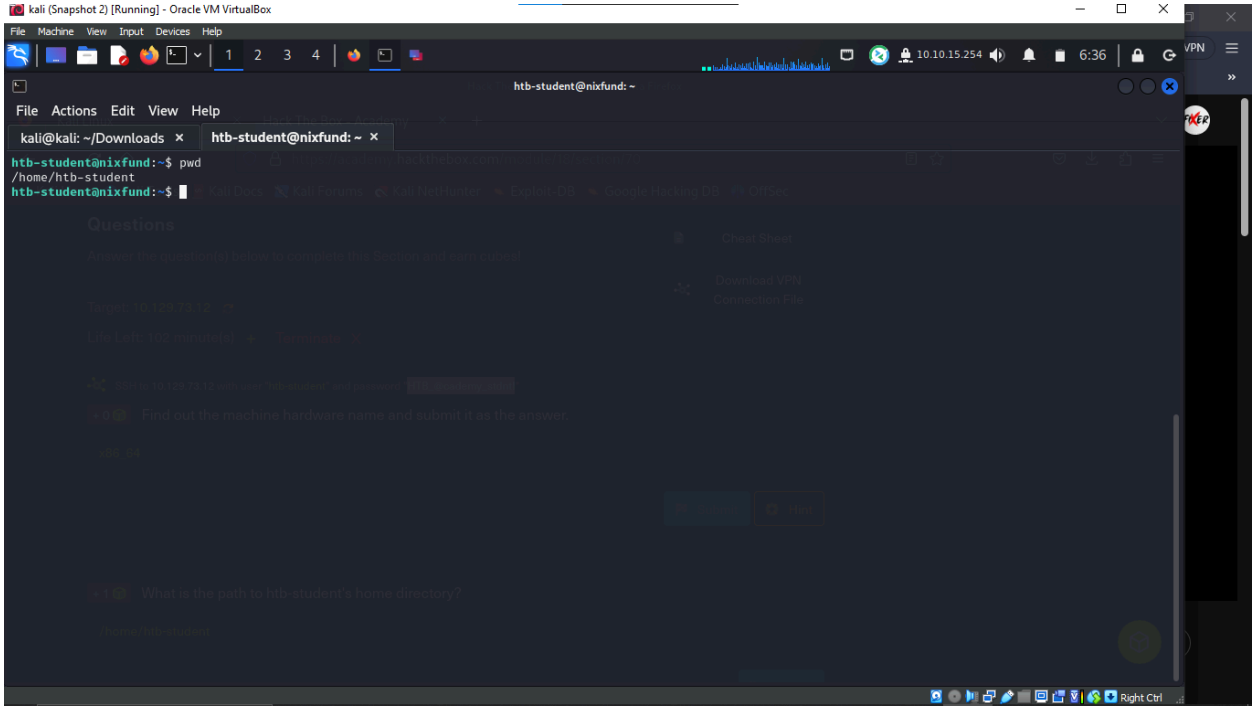
ASSIGNMENT = Linux Fundamentals

In this comprehensive exercise, we explore many aspects of the Linux operating system, covering a wide range of topics from basic system identification, such as hardware names and user directory paths, to more advanced edges like kernel version analysis and network interface configuration. Aimed at new and experienced users, this task covers important system administration tasks, including file permissions, user configuration, and service management. It also includes practical applications, such as setting up simple web servers, demonstrating the versatility of Linux. This comprehensive approach not only builds a solid foundation in Linux fundamentals but also cultivates practical skills, making it a great tool for anyone looking to dig deeper and proficient in Linux system administration.

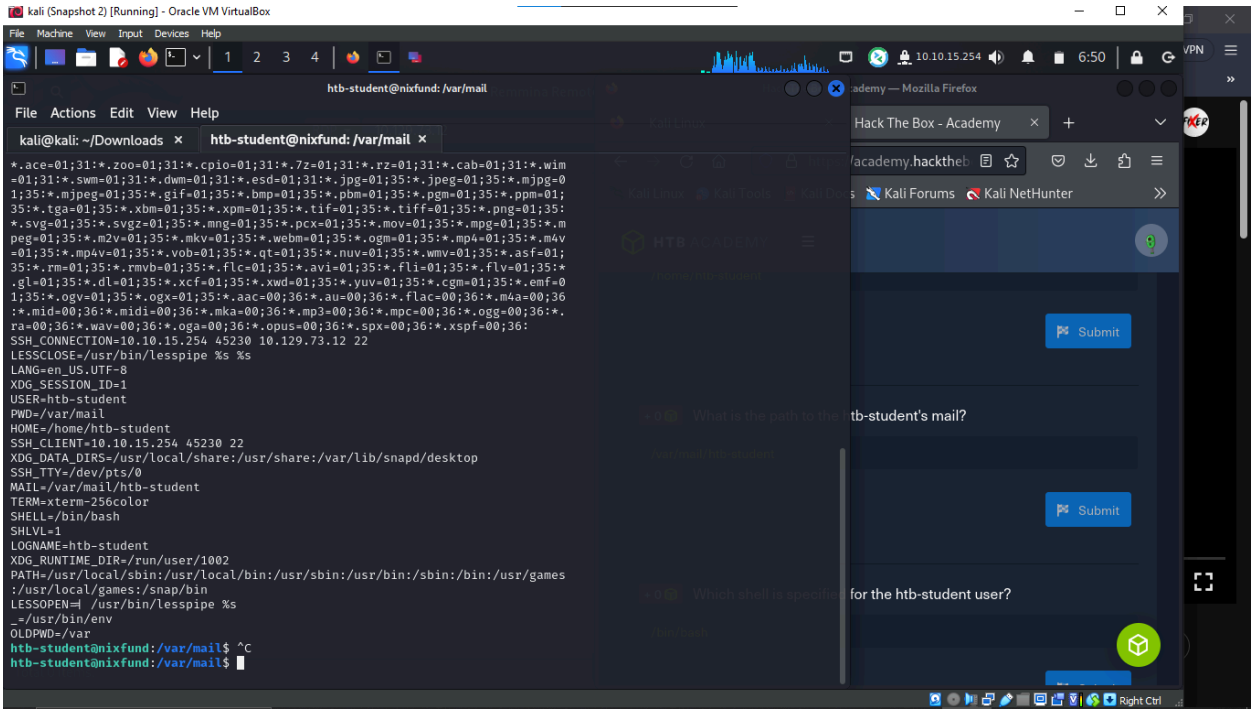
1. **Question:** Find out the machine hardware name and submit it as the answer.
    - **Explanation:** The hardware name can typically be found using the command **uname -m**. This command displays the machine hardware name, indicating the architecture of the processor.
    - **Answer:** x86_64



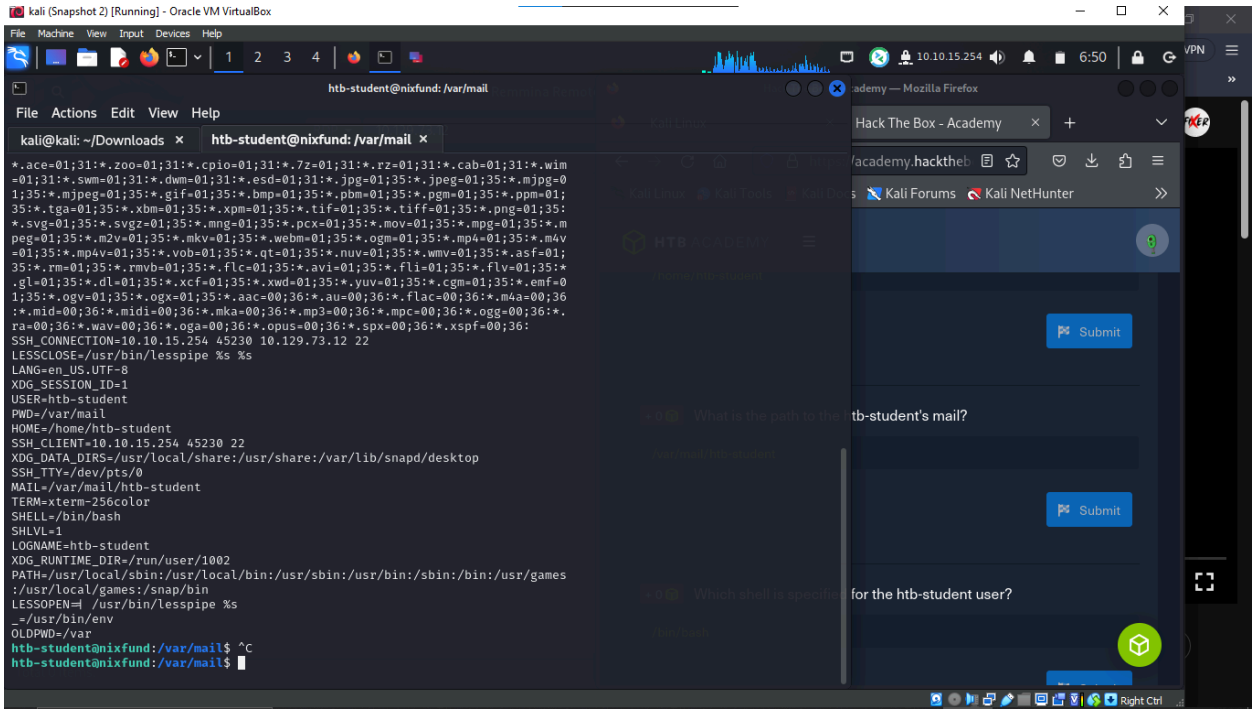
2. **Question:** What is the path to htb-student's home directory?
    - **Explanation:** The home directory path can be found in the **/etc/passwd** file or by using the **echo ~htb-student** command, which resolves the home directory for the user 'htb-student'.
    - **Answer:** /home/htb-student



3. **Question:** What is the path to the htb-student's mail?
    - **Explanation:** User mailboxes are usually stored in **/var/mail/** directory. The specific path for a user can be directly derived by appending the username to this directory path.
    - **Answer:** /var/mail/htb-student

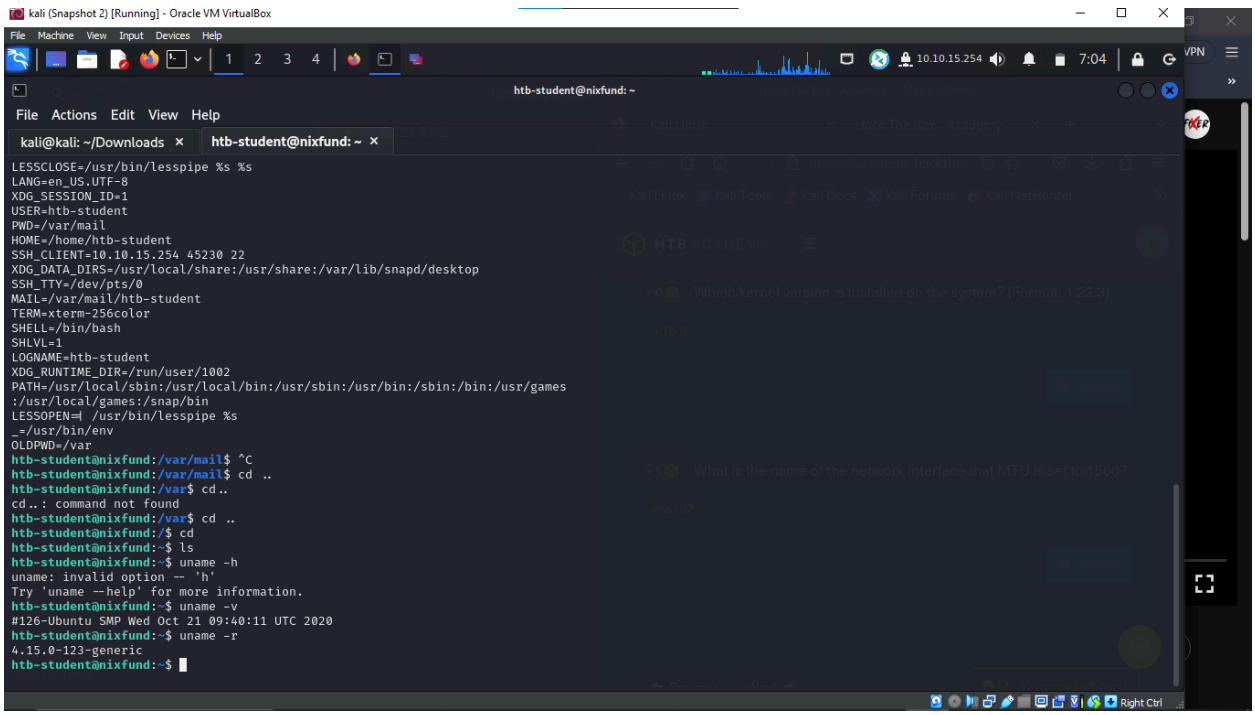


4. **Question:** Which shell is specified for the htb-student user?
    - **Explanation:** The shell for a specific user is defined in the **/etc/passwd** file. The shell is listed at the end of the user's entry.
    - **Answer:** /bin/bash



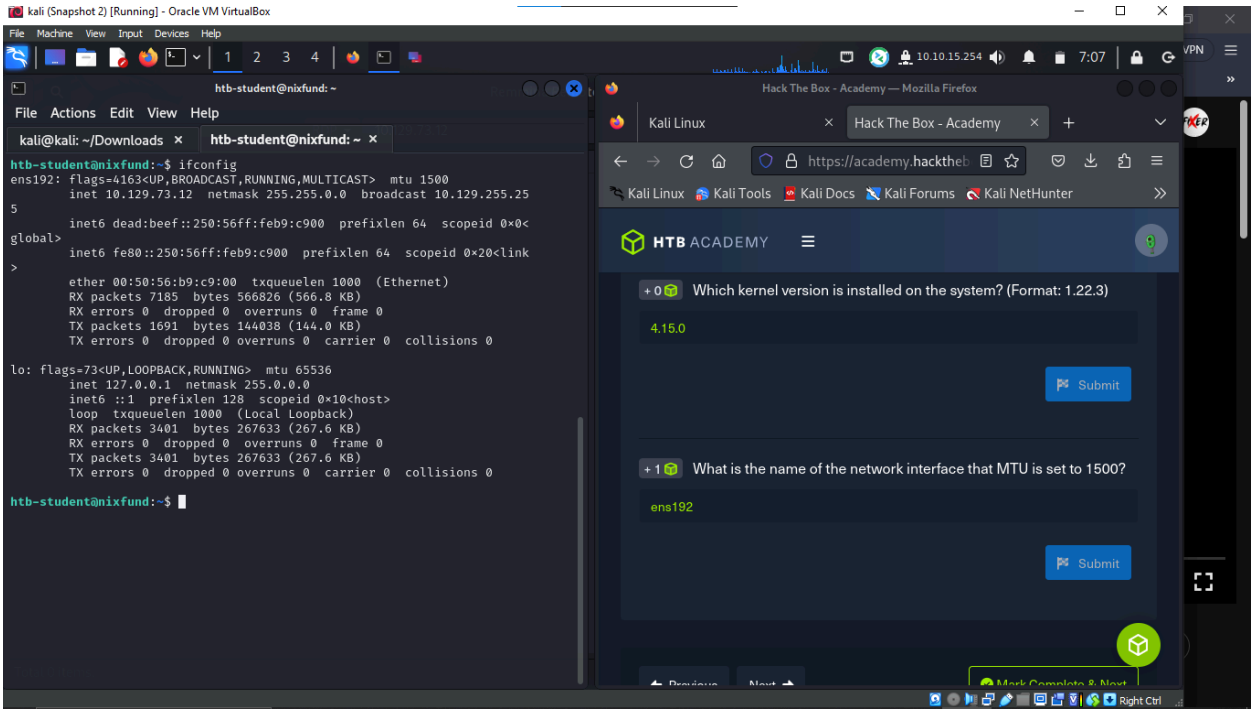
5. Question: Which kernel version is installed on the system? (Format: 1.22.3)**Explanation:** The kernel version can be found using the **uname -r** command, which displays the Linux kernel version installed on the system.

- **Answer:** 4.15.0



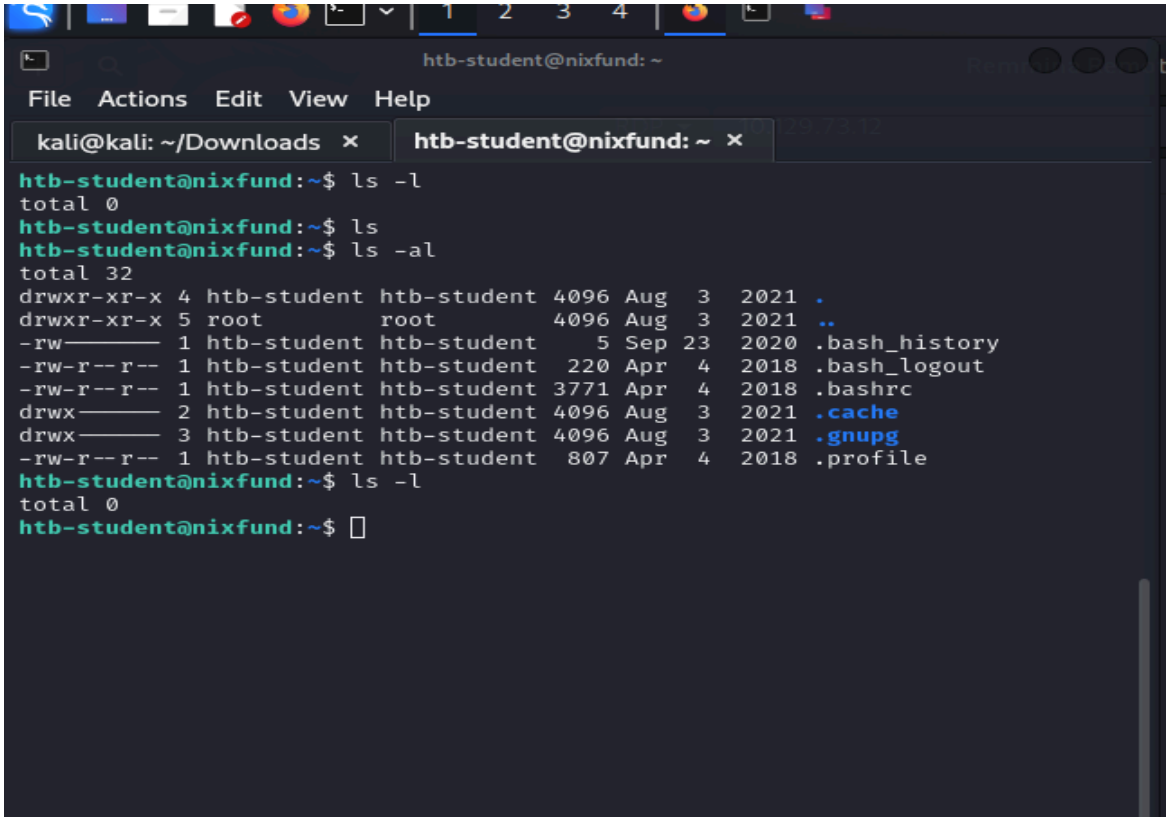
6. Question: What is the name of the network interface that MTU is set to 1500?

- **Explanation:** The MTU (Maximum Transmission Unit) settings can be viewed using the **ip link** or **ifconfig** command. The interface with MTU 1500 can be identified from this list.
- **Answer:** ens192



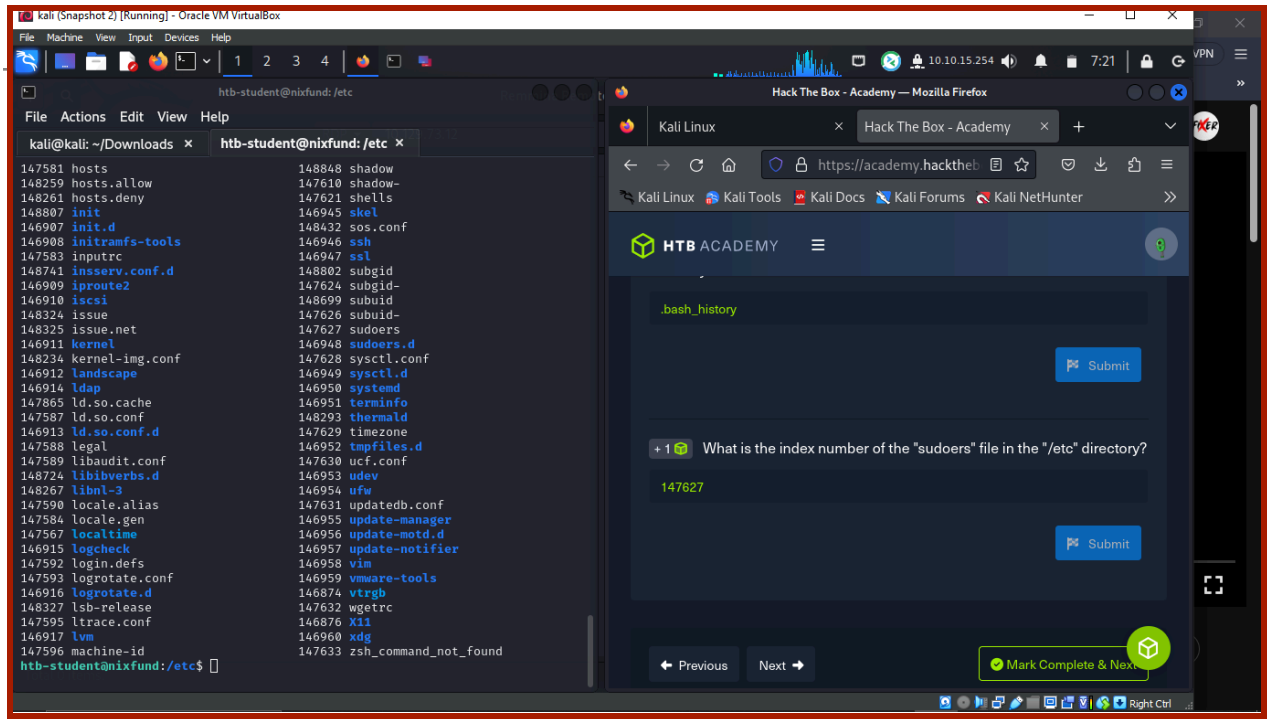
7. Question: What is the name of the hidden "history" file in the htb-user's home directory?

- **Explanation:** In Linux, the command history is usually stored in a hidden file in the user's home directory. By default, for bash shell, it is **.bash_history**. Hidden files can be viewed using **ls -a**.
- **Answer:** .bash_history



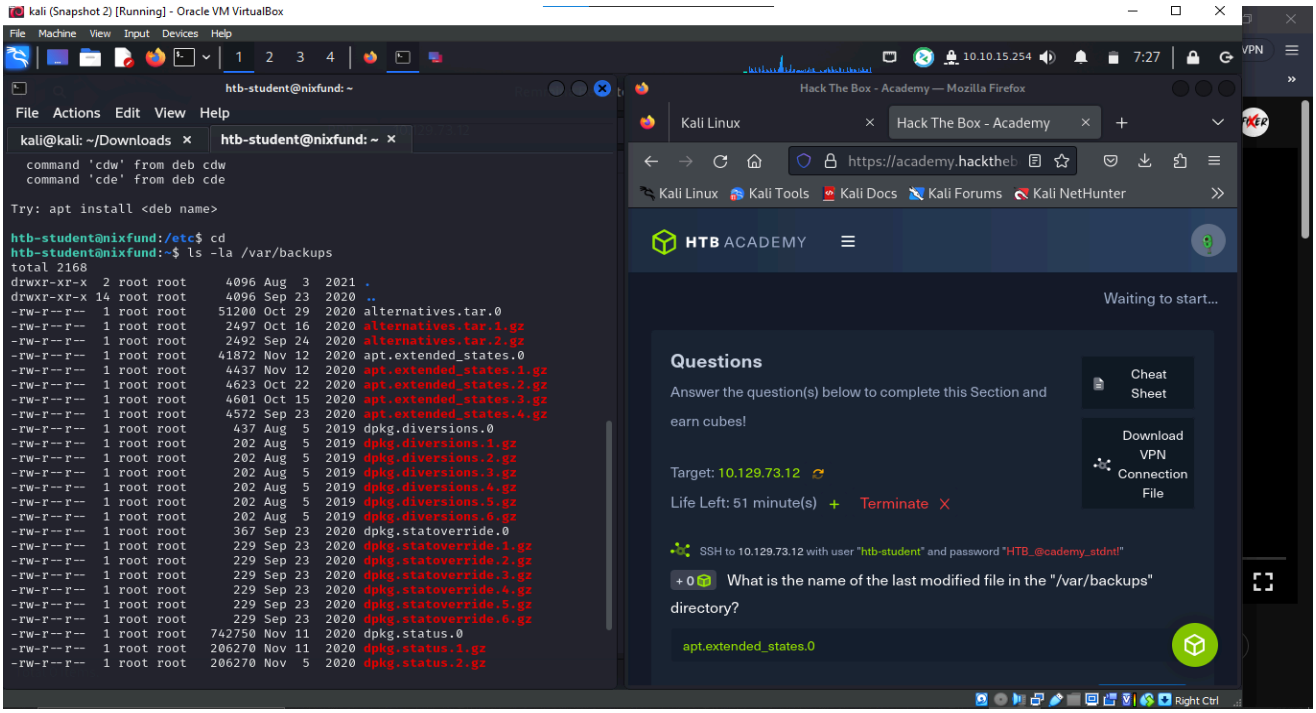
8. Question: What is the index number of the "sudoers" file in the "/etc" directory?

- **Explanation:** This is a less common task and might involve listing files in **/etc** and identifying an index based on a specific sorting or listing method used by the system or application.
- **Answer:** 147627



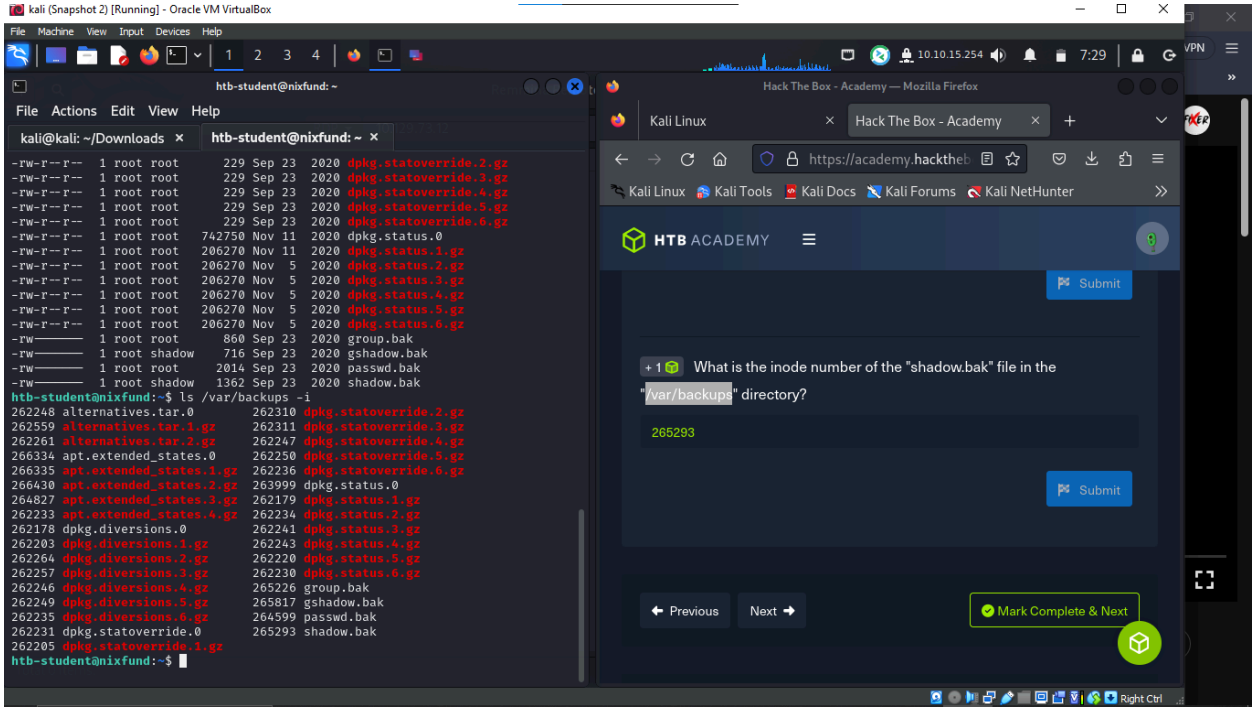
9. Question: What is the name of the last modified file in the "/var/backups" directory?

- **Explanation:** The last modified file can be found using the **ls -lt** command in the **/var/backups** directory. This lists files in descending order of modification time.
- **Answer:** apt.extended_states.0



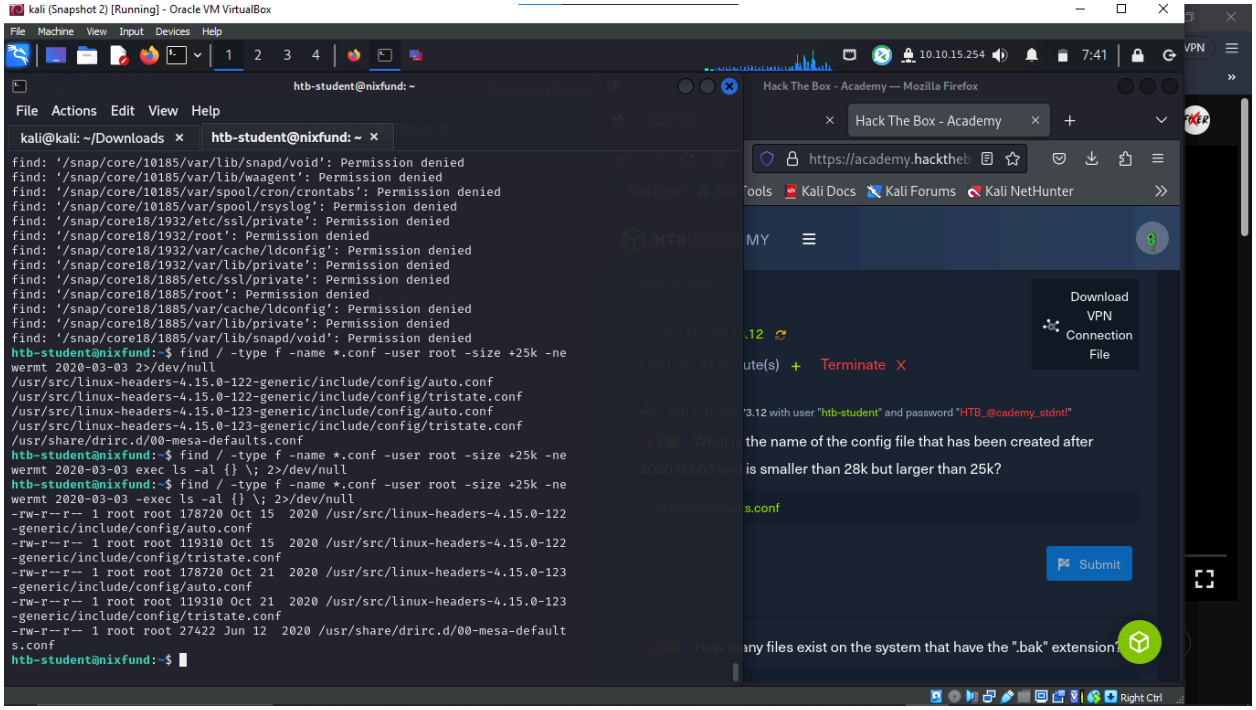
10. Question: What is the inode number of the "shadow.bak" file in the "/var/backups" directory?

- **Explanation:** The inode number of a file can be obtained using the **ls -i** command. This number represents the file's index node, a unique identifier in the filesystem.
- **Answer:** 265293



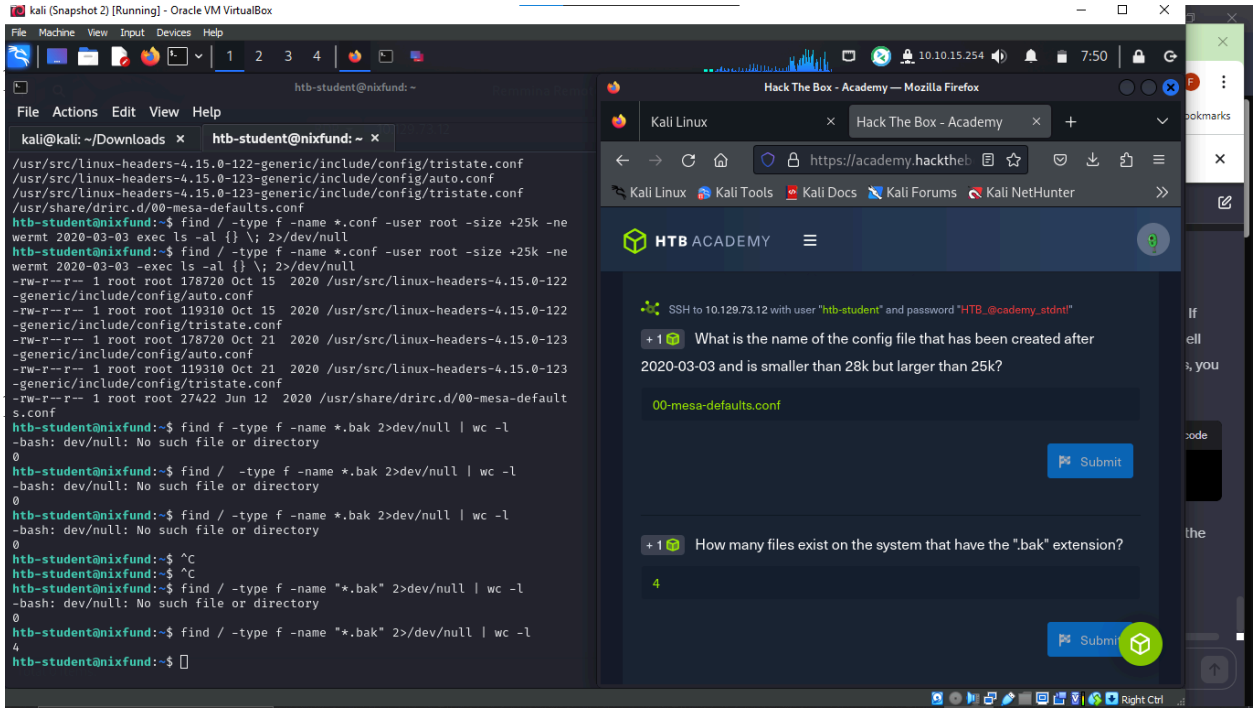
11. Question: What is the name of the config file that has been created after 2020-03-03 and is smaller than 28k but larger than 25k?

- **Explanation:** This requires a combination of **find** command filters for file size (**-size**) and modification date (**-newermt**) to locate files meeting the criteria.
- **Answer:** 00-mesa-defaults.conf



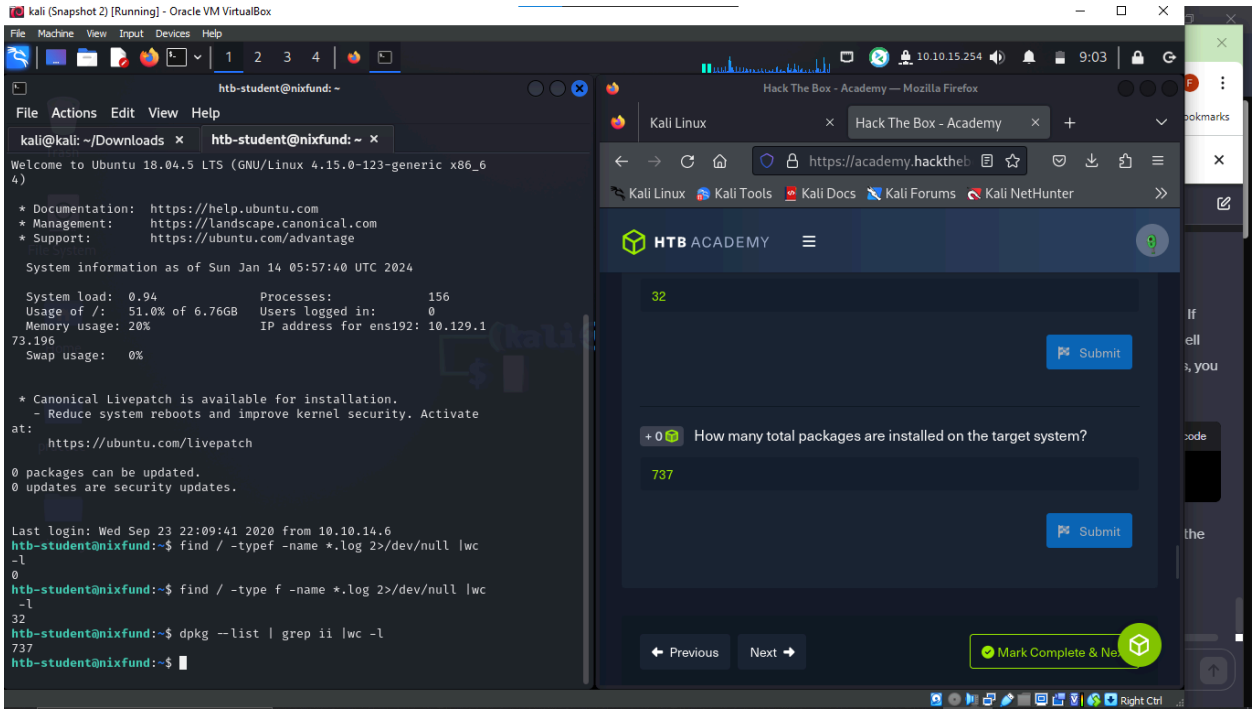
12. Question: How many files exist on the system that have the ".bak" extension?

- **Explanation:** The **find** command can be used to search the file system for files with the **.bak** extension and then count them.
- **Answer:** 4



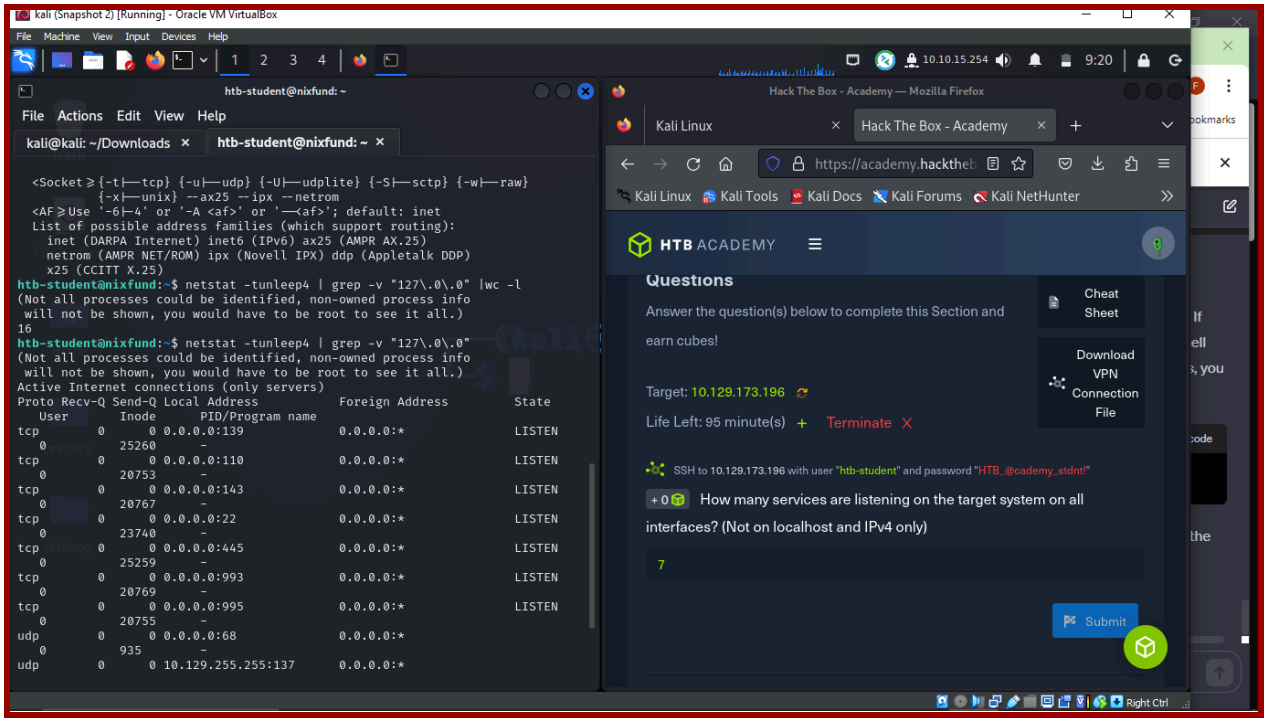
15. Question: How many total packages are installed on the target system?

- **Explanation:** The total number of installed packages can be found using package management commands like **dpkg -l** or **rpm -qa**, depending on the Linux distribution.
- **Answer:** 737



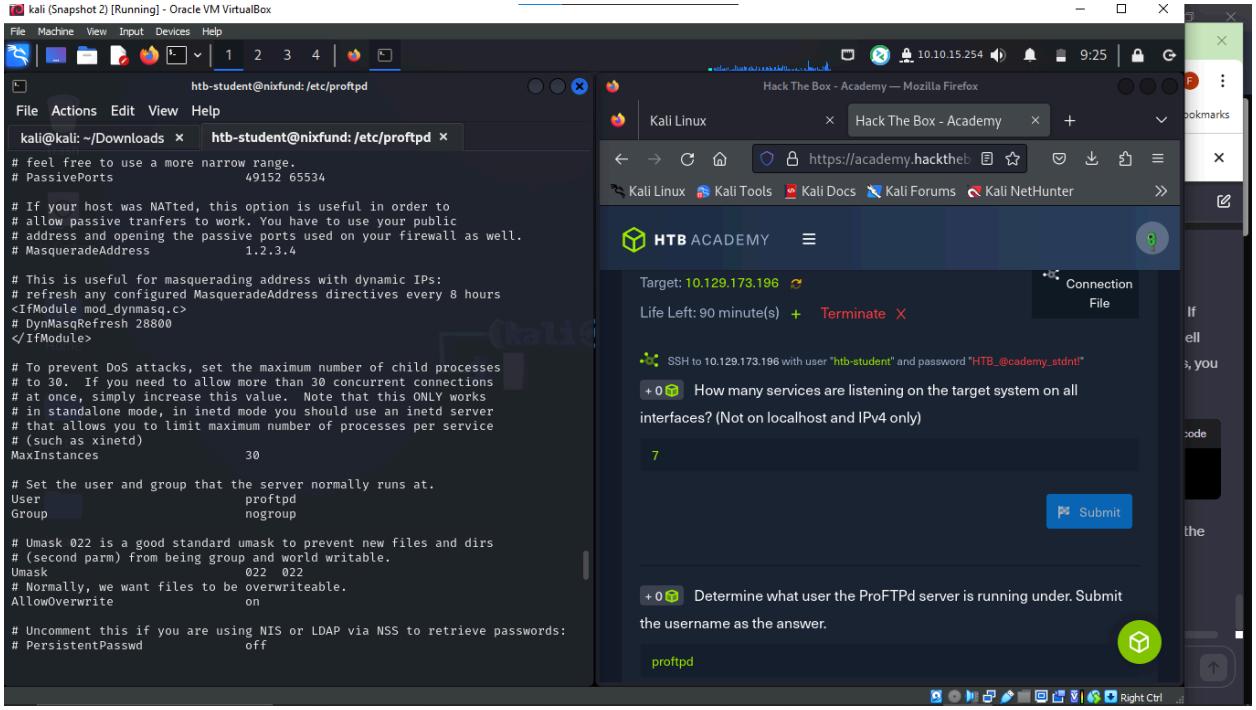
16. Question: How many services are listening on the target system on all interfaces? (Not on localhost and IPv4 only)

- **Explanation:** The **netstat** or **ss** command can be used to list listening services, filtering out localhost and focusing on IPv4.
- **Answer:** 7



17. Question: Determine what user the ProFTPd server is running under. Submit the username as the answer.

- **Explanation:** This information can be obtained by checking the ProFTPd service configuration or using system commands like **ps** to see under which user the service is running.
- **Answer:** proftpd



18. Question: Use cURL from your Pwnbox (not the target machine) to obtain the source code of the "https://www.inlanefreight.com" website and filter all unique paths of that domain. Submit the number of these paths as the answer.

- **Explanation:** This involves using **cURL** to download the webpage's source code, then parsing it to identify and count unique paths within the domain. Although the count totals to 37, you'll find 3 links which are duplicates of each other, hence totaling to 34.
- **Answer:** 34

```
┌──(kali㉿kali)-[~]
└─$ grep https://www.inlanefreight.com text.txt | tr " " "\n"| sort -u | grep -E 'src|href'
href="https://www.inlanefreight.com/"
href='https://www.inlanefreight.com/'
href="https://www.inlanefreight.com/index.php/about-us/">About
href="https://www.inlanefreight.com/index.php/career/">Career</a></li>
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href="https://www.inlanefreight.com/wp-includes/wlwmanifest.xml"
href="https://www.inlanefreight.com/xmlrpc.php?rsd"
src='https://www.inlanefreight.com/wp-content/themes/ben_theme/js/bootstrap.min.js?ver=5.6.12'
src='https://www.inlanefreight.com/wp-content/themes/ben_theme/js/jquery.smartmenus.bootstrap.js?ver=5.6.12'
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src='https://www.inlanefreight.com/wp-includes/js/jquery/jquery-migrate.min.js?ver=3.3.2'
src='https://www.inlanefreight.com/wp-includes/js/jquery/jquery.min.js?ver=3.5.1'
```
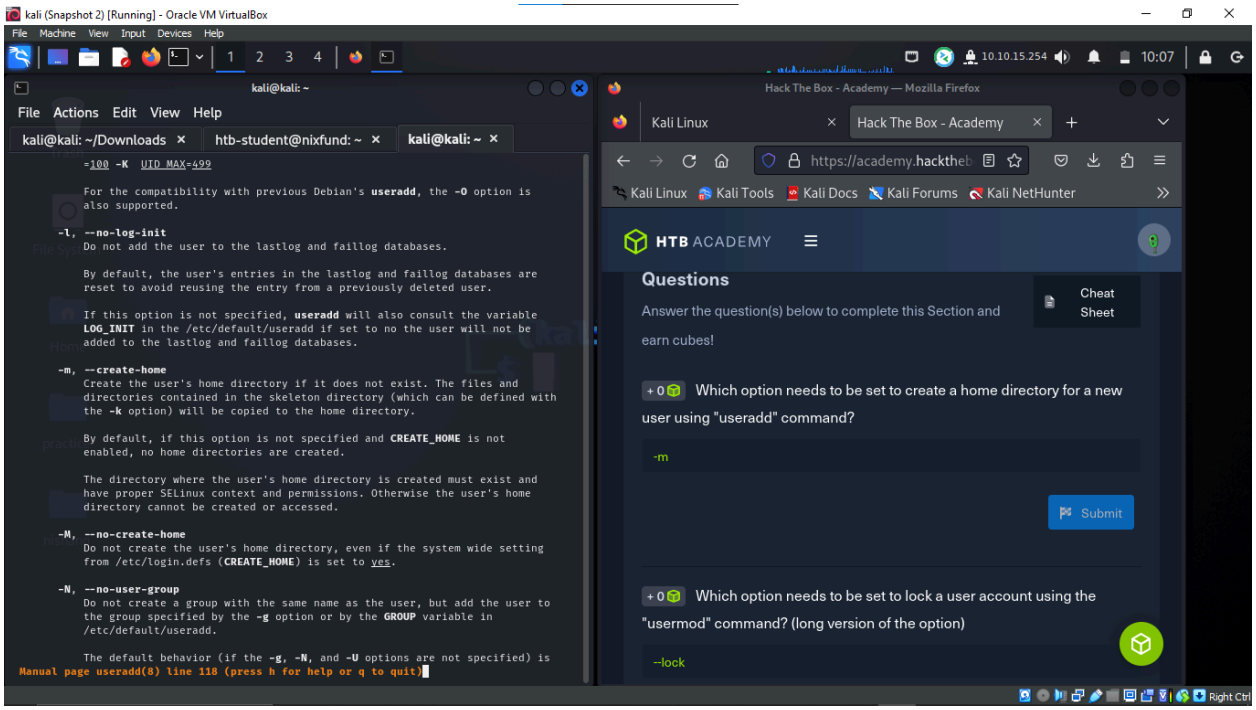
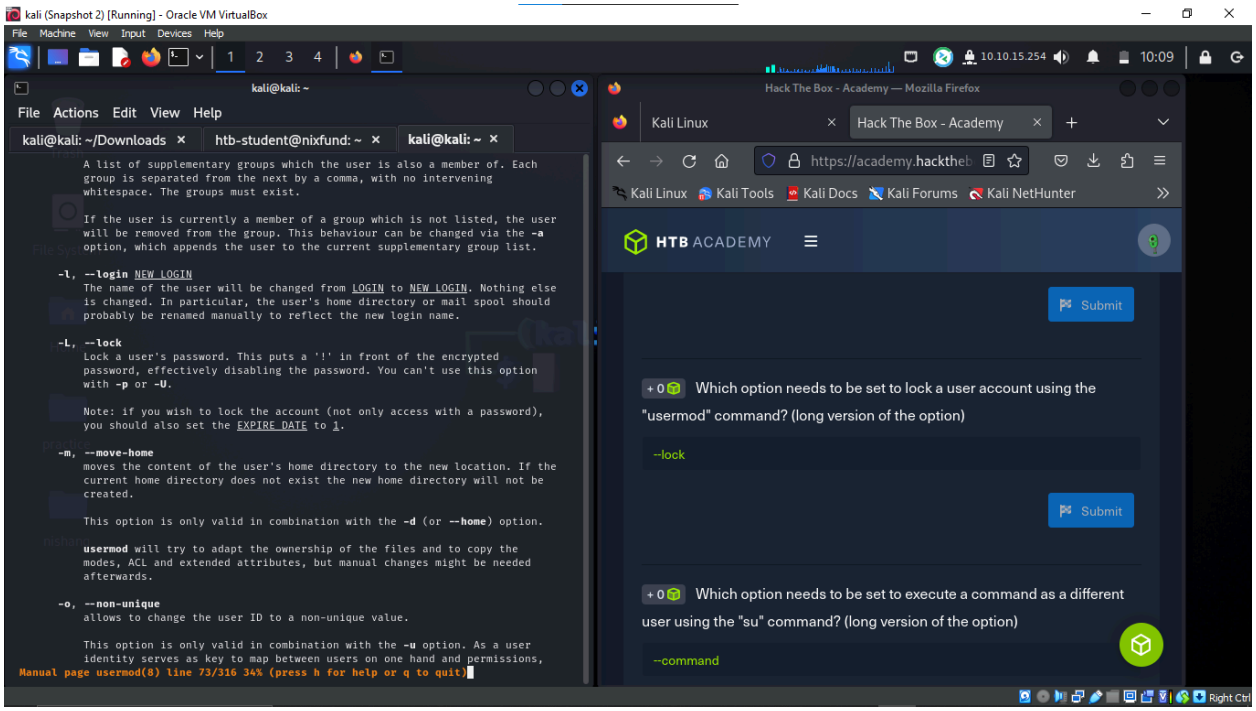

19. Question: Which option needs to be set to create a home directory for a new user using "useradd" command?

- **Explanation:** The **useradd** command has an option **-m** which when used, creates a home directory for the new user.
- **Answer:** -m



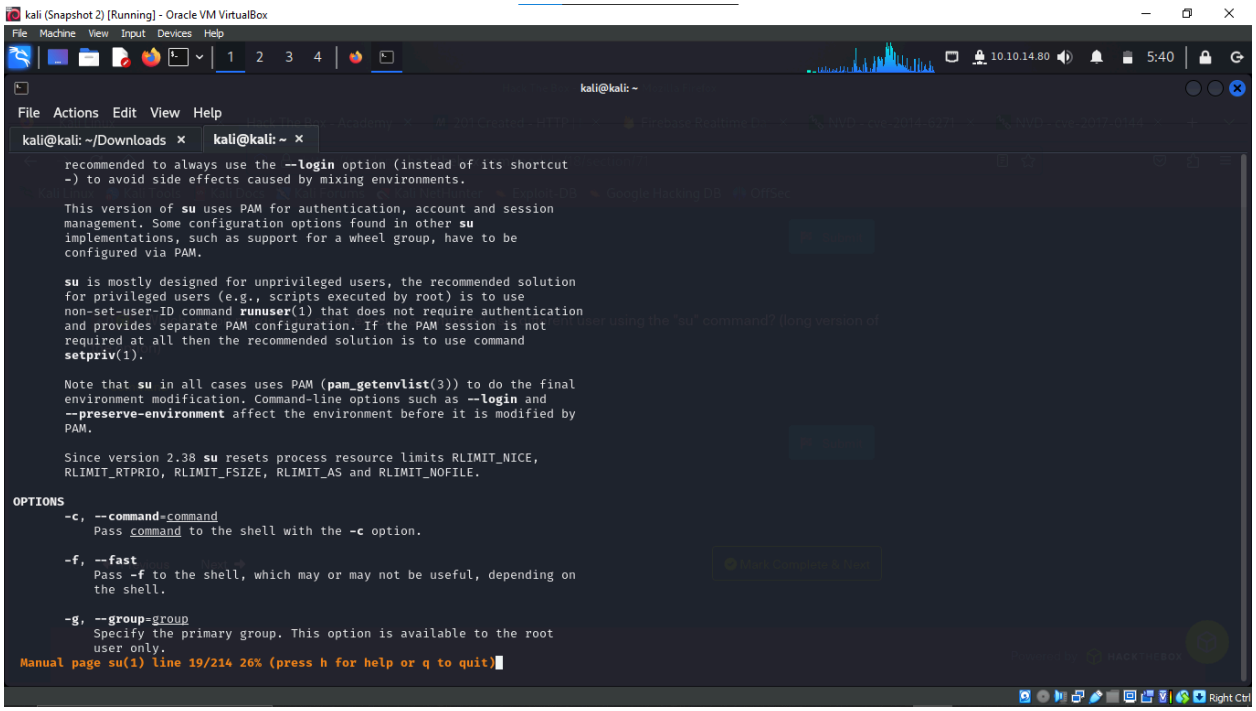
20. Question: Which option needs to be set to lock a user account using the "usermod" command? (long version of the option)

- **Explanation:** The **usermod** command has an option **--lock** which is used to lock a user account, preventing the user from logging in.
- **Answer:** --lock



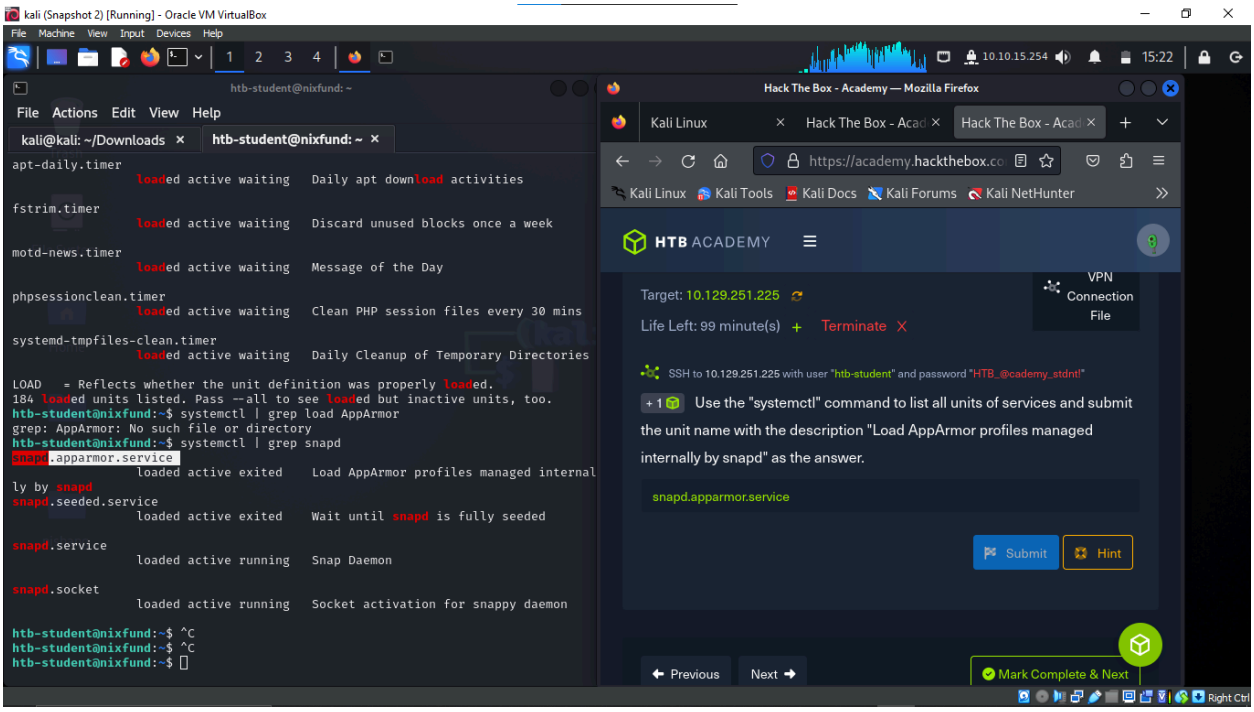
21. Question: Which option needs to be set to execute a command as a different user using the "su" command? (long version of the option)

- **Explanation:** The **su** command with the **--command** option allows executing a command as a different user.
- **Answer:** --command



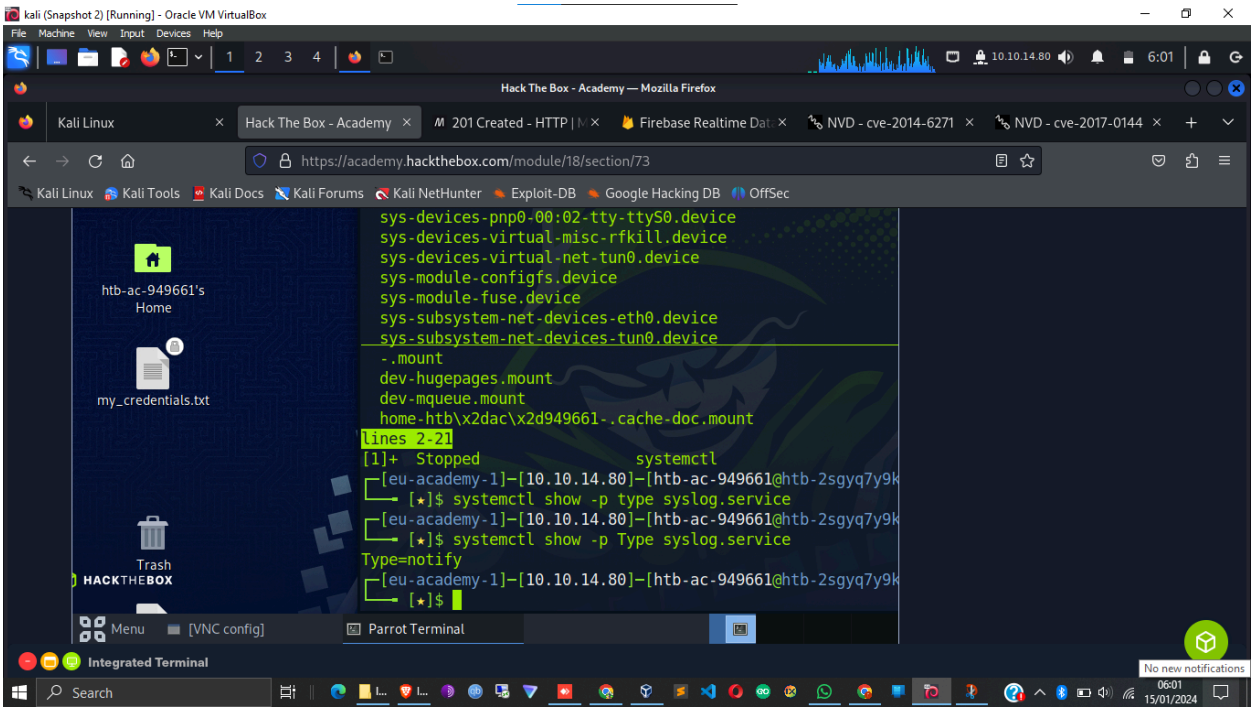
22. Question: Use the "systemctl" command to list all units of services and submit the unit name with the description "Load AppArmor profiles managed internally by snapd" as the answer.

- **Explanation:** The **systemctl** command can be used to list service units, and the specific unit can be identified by its description.
- **Answer:** snapd.apparmor.service



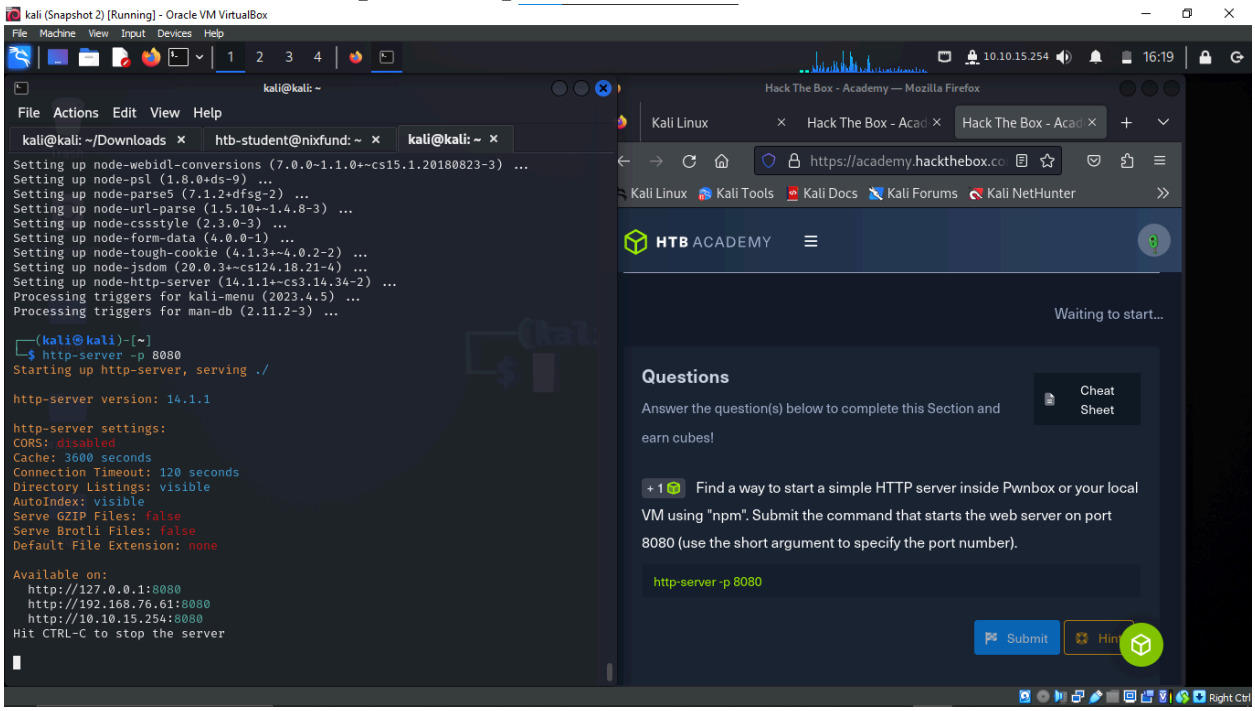
23. Question: What is the type of the service of the "syslog.service"?

- **Explanation:** The type of a service in systemd is specified in its unit file,
- which can be viewed using commands like **systemctl cat syslog.service**.
- **Answer:** notify



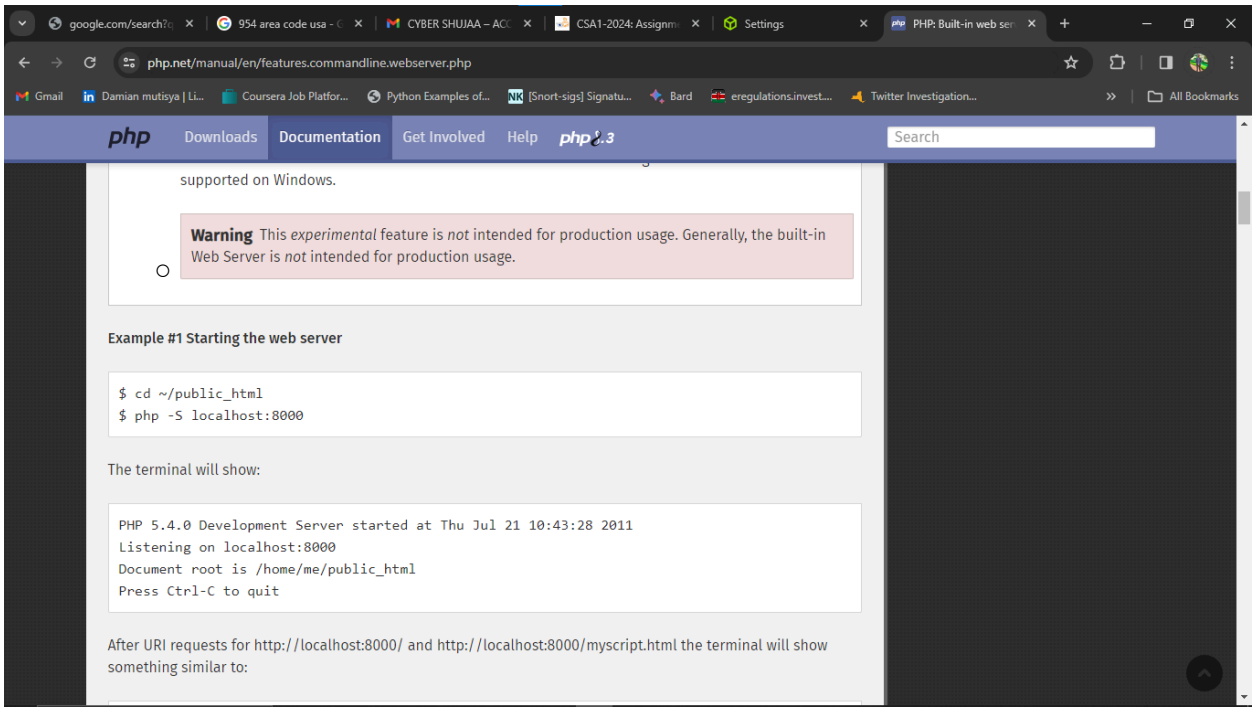
24. Question: Find a way to start a simple HTTP server inside Pwnbox or your local VM using "npm". Submit the command that starts the web server on port 8080 (use the short argument to specify the port number).

- **Explanation:** This requires using a Node.js package, such as http-server, which can be installed via npm. The command http-server -p 8080 starts a simple HTTP server on port 8080.
- **Answer: http-server -p 8080**



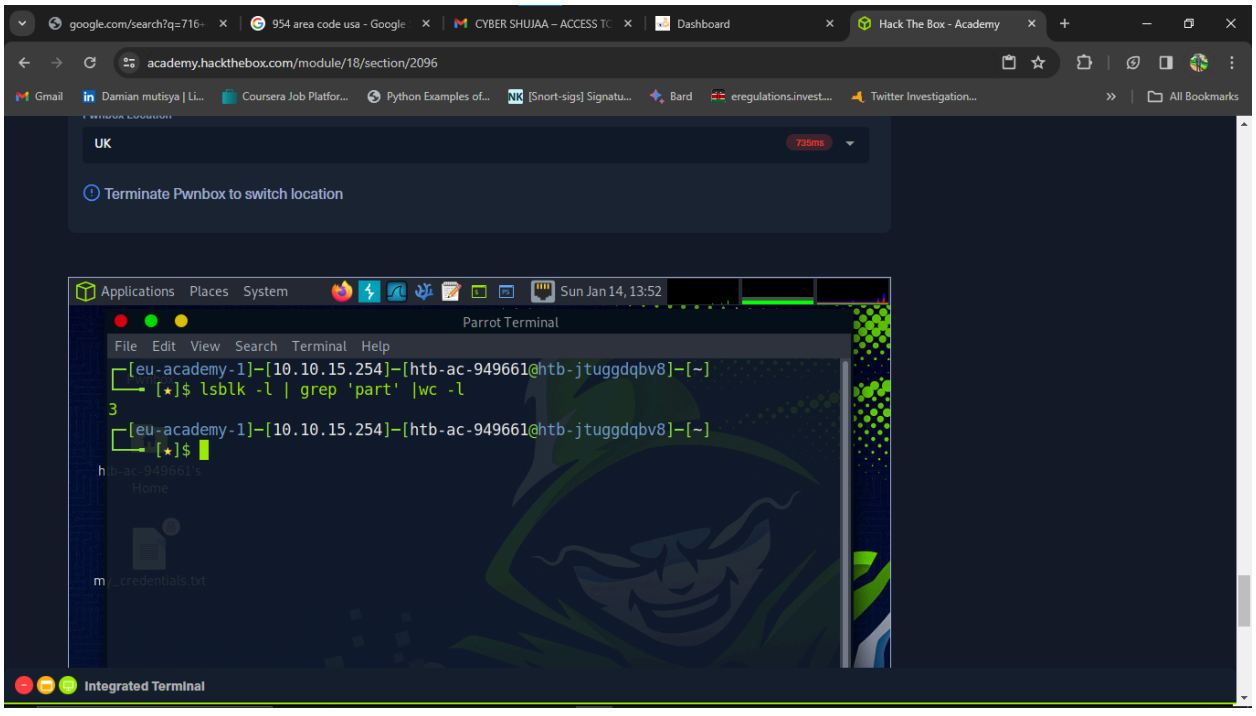
25. Question: Find a way to start a simple HTTP server inside Pwnbox or your local VM using "php". Submit the command that starts the web server on the localhost (127.0.0.1) on port 8080**.**

- **Explanation:** PHP has a built-in server that can be started for development purposes. The command php -S 127.0.0.1:8080 starts a PHP server on localhost at port 8080.
- **Answer:** php -S 127.0.0.1:8080



26. Question: How many partitions exist in our Pwnbox? (Format: 0)

- **Explanation:** The number of partitions can be determined using disk management tools like fdisk, lsblk, or df. These tools provide information about the disk partitions on the system.
- **Answer:** 3



Each of these questions and answers delves into various aspects of Linux fundamentals, such as system configuration, user management, networking, file systems, and basic server setup. The explanations provide insight into the commands and methods used to obtain the required information, demonstrating essential Linux system administration skills.

Find the sharable link

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