

Navigation

Navigation is essential, like working with the mouse as a standard Windows user. With it, we move across the system and work in directories and with files, we need and want. Therefore, we use different commands and tools to print out information about a directory or a file and can use advanced options to optimize the output to our needs.

One of the best ways to learn something new is to experiment with it. Here we cover the sections on navigating through Linux, creating, moving, editing, and deleting files and folders, finding them on the operating system, different types of redirects, and what file descriptors are. We will also find shortcuts to make our work with the shell much easier and more comfortable. We recommend experimenting on our locally hosted VM. Ensure we have created a snapshot for our VM in case our system gets unexpectedly damaged.

Let us start with the navigation. Before we move through the system, we have to find out in which directory we are. We can find out where we are with the command `pwd`.

```
cry0l1t3@htb[~]$ pwd

/home/cry0l1t3
```

Only the `ls` command is needed to list all the contents inside a directory. It has many additional options that can complement the display of the content in the current folder.

```
cry0l1t3@htb[~]$ ls

Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos
```

Using it without any additional options will display the directories and files only. However, we can also add the `-l` option to display more information on those directories and files.

```
cry0l1t3@htb[~]$ ls -l

total 32
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:37 Desktop
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Documents
drwxr-xr-x 3 cry0l1t3 htbacademy 4096 Nov 15 03:26 Downloads
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Music
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Pictures
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Public
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Templates
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Videos
```

First, we see the total amount of blocks (512-byte) used by the files and directories listed in the current directory, which indicates the total size used. That means it used 32 * 512-byte = 16384 bytes of disk space. Next, we see a few columns that are structured as follows:

Column Content	Description
drwxr-xr-x	Type and permissions

Column	Content	Description
2		Number of hard links to the file/directory
cry0l1t3		Owner of the file/directory
htbacademy		Group owner of the file/directory
4096		Size of the file or the number of blocks used to store the directory information
Nov 13 17:37		Date and time
Desktop		Directory name

However, we will not see everything that is in this folder. A directory can also have hidden files that start with a dot at the beginning of its name (e.g., `.bashrc` or `.bash_history`). Therefore, we need to use the command `ls -la` to list all files of a directory:

```
cry0l1t3@htb[~]$ ls -la

total 403188
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:37 .bash_history
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:37 .bashrc
...SNIP...
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:37 Desktop
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Documents
drwxr-xr-x 3 cry0l1t3 htbacademy 4096 Nov 15 03:26 Downloads
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Music
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Pictures
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Public
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Templates
drwxr-xr-x 2 cry0l1t3 htbacademy 4096 Nov 13 17:34 Videos
```

To list the contents of a directory, we do not necessarily need to navigate there first. We can also use “`ls`” to specify the path where we want to know the contents.

```
cry0l1t3@htb[~]$ ls -l /var/

total 52
drwxr-xr-x 2 root root      4096 Mai 15 18:54 backups
drwxr-xr-x 18 root root      4096 Nov 15 16:55 cache
drwxrwsrwt 2 root whoopsie 4096 Jul 25 2018 crash
drwxr-xr-x 66 root root      4096 Mai 15 03:08 lib
drwxrwsr-x 2 root staff     4096 Nov 24 2018 local
<SNIP>
```

We can do the same thing to navigate to the directory. To move through the directories, we use the command `cd`. Let us change to the `/dev/shm` directory. Of course, we can go to the `/dev` directory first and then `/shm`. Nevertheless, we can also enter the full path and jump there.

```
cry0l1t3@htb[~]$ cd /dev/shm

cry0l1t3@htb[/dev/shm]$
```

Since we were in the home directory before, we can quickly jump back to the directory we were last in.

```
cry0l1t3@htb[/dev/shm]$ cd -  
cry0l1t3@htb[~]$
```

The shell also offers us the auto-complete function, which makes navigation easier. If we now type `cd /dev/s` and press `[TAB]` twice, we will get all entries starting with the letter “s” in the directory of `/dev/`.

```
cry0l1t3@htb[~]$ cd /dev/s [TAB 2x]  
shm/ snd/
```

If we add the letter “h” to the letter “s,” the shell will complete the input since otherwise there will be no folders in this directory beginning with the letters “sh”. If we now display all contents of the directory, we will only see the following contents.

```
cry0l1t3@htb[/dev/shm]$ ls -la /dev/shm  
  
total 0  
drwxrwxrwt 2 root root 40 Mai 15 18:31 .  
drwxr-xr-x 17 root root 4000 Mai 14 20:45 ..
```

The first entry with a single dot (.) indicates the current directory we are currently in. The second entry with two dots (..) represents the parent directory `/dev`. This means we can jump to the parent directory with the following command.

```
cry0l1t3@htb[/dev/shm]$ cd ..  
cry0l1t3@htb[/dev]$
```

Since our shell is filled with some records, we can clean the shell with the command `clear`. First, however, let us return to the directory `/dev/shm` before and then execute the `clear` command to clean up our terminal.

```
cry0l1t3@htb[/dev]$ cd shm && clear
```

Another way to clean up our terminal is to use the shortcut `[Ctrl] + [L]`. We can also use the arrow keys (`↑` or `↓`) to scroll through the command history, which will show us the commands that we have used before. But we also can search through the command history using the shortcut `[Ctrl] + [R]` and type some of the text that we are looking for.

VPN Servers

 Warning: Each time you "Switch", your connection keys are regenerated and you must re-download your VPN connection file.

All VM instances associated with the old VPN Server will be terminated when switching to a new VPN server.

Existing PwnBox instances will automatically switch to the new VPN server.

eu-academy-1



PROTOCOL

● UDP 1337 ● TCP 443

DOWNLOAD VPN CONNECTION FILE

Start Instance

0 / 1 spawns left

Waiting to start...

Questions

Answer the question(s) below to complete this Section and earn cubes!

Target: 10.129.55.110



Life Left: 107 minutes



Cheat Sheet



Download VPN Connection
File

SSH to 10.129.55.110 with user "htb-student" and password "HTB_@cademy_stdnt!"

+ 0 What is the name of the hidden "history" file in the htb-user's home directory?

Submit your answer here...

Submit

+ 1 What is the index number of the "sudoers" file in the "/etc" directory?

Submit your answer here...

Submit

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Next →