OSINT

Beware. Your data is out there.

OSINT - Open-source intelligence Digital Footprint

- Open-source intelligence (OSINT) is the collection and analysis of data gathered from open sources (overt and publicly available sources) to produce actionable intelligence. (Wikipedia)
- ▶ It's about digital footprint. Gathering information from:
 - ▶ search engines (Google, ...)
 - social media (Facebook, ...)
 - government sites
 - **...**
- ► The constant battles:
 - ▶ Privacy vs Publicaly available information
 - Convinience vs Security

Disclaimer & Laws



Disclaimer Boring but necessary

- Information in this presentation is intended for **educational and awareness purposes only**.
- **Live presentation**. Not a controlled environment and some contents may be inappropriate for some users.
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- ▶ Ignorance about laws or rules is **no excuse** for illegal activities or wrongdoing.
- ▶ Illegal activities may get you in **trouble or arrested**.
- Always check what is legal, and what laws apply.

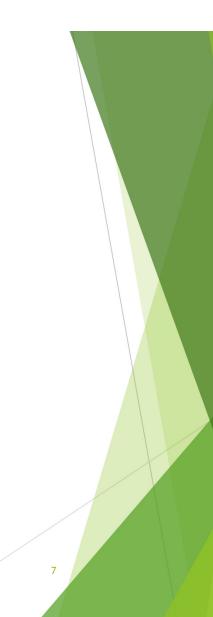


Laws

Portuguese Law and Organizations

- Laws
 - Diário República Eletrónico (link)
 - ► ANACOM (<u>link</u>)
- Organizations
 - ► CNCS Centro Nacional de Cibersegurança (link)
 - ► Incident Notification (link)
 - ► CERT.PT (link)
 - ▶ Unidade Nacional de Combate ao Cibercrime e à Criminalidade Tecnológica (UNC3T)
 (link)
 - Ministério Público (<u>link</u>)

Search, and then search again



Who Am I Let's OSINT me ©

- Just got a name
 - Pedro António Oliveira Vieira
- ► Google (<u>link</u>) →
- ► Google "Improved Search" (link) →
- ▶ Google "Improved Search" (link) ➡
- ► LinkedIn (<u>link</u>) →
 - ▶ Public profile was showing way too much
- ► Certified **Ethical** Hacker (link) →





Who are **YOU**Search yourself

- ► Search your name on Google and analyze the results
 - ▶ As you saw the search can be improved
- Some results can/will include:
 - Family and Friends
 - Work
 - School grades
 - ▶ BI Identity Card Number (yes)
 - ▶ NIF Tax Identification Number
- ▶ That is typically information to **verify your identity** over a phone call.



Search Engines Internet is more than Google

- ▶ Different search engine \rightarrow different rules/crawlers \rightarrow different results
- ► Google (<u>link</u>)
- ▶ Bing (<u>link</u>)
- Yahoo (link)
- DuckDuckGo (<u>link</u>)
- Baidu (China) (link)
- Yandex (Russia) (link)
- ▶ You may ask to be removed from one search engine, not all ⊗

Google Dorks Commonly used searches

- ▶ Google Advanced Search (link) ⇒
- Google Hacking Database (<u>link</u>)
- gbhackers (<u>link</u>)
- google-dork-list (link)
- Google Advanced Operators Guide (<u>link</u>)
- Google Advanced Operators Reference (<u>link</u>)



Search operators Improve the search

- **filetype**: search your results based on the file extension
- **cache**: This operator allows you to view cached version of the web page.
- **allinurl**: This operator restricts results to pages containing all the query terms specified in the URL.
- **inurl**: This operator restricts the results to pages containing the word specified in the URL
- **allintitle**: This operator restricts results to pages containing all the query terms specified in the title.
- **link**: This operator searches websites or pages that contain links to the specified website or page.
- **info**: This operator finds information for the specified web page.
- **location**: This operator finds information for a specific location.
- ▶ 42 Advanced Operators (link)

Search Dork Examples - Pay slip

- ▶ Don't open links just because they are available.
 - ▶ It's like entering a house just because the door was open. Would you do that?
- ▶ Google Search (<u>link</u>) ⇒
- ▶ Bing Search (<u>link</u>) →
- ▶ Yahoo Search (link) ⇒
- "recibo de vencimento" filetype:pdf
 - ▶ "recibo de vencimento" keywords to look for
 - ▶ filetype:pdf only pdf files
- Available information on pay slips
 - Full name, address, nif, nib, marital status, number of children, ...

Search Dork Examples - Hacked

- ► Google Search (<u>link</u>) →
- allintitle: "hacked by" site:pt
 - ► "hacked by" keyword to look for
 - site:pt only "portuguese" sites (registered portuguese domains)
- ► About 13.400 results
 - ▶ Sites / pages that were "tagged"/"signed"
 - ▶ Attack and contents changed to show off skills (mainly kids) compared to street tagging

Awareness



Awareness True stories - Healthy Meal

- Someone posted a photo of healthy meal during COVID
 - ▶ Working remotely on in the usual business environment
 - ▶ Company laptop was in the background
 - ▶ Zoomed in and was possible to read emails
 - ▶ Company private information could be leaked
 - Personal information on other persons was showing
 - Social Media Apps use OCR
 - ▶ Means they also read the emails
 - ▶ And everyone else on that social media could get the same information

Awareness True stories - Quiet vacations

- Long last deserving vacations
 - ▶ Too many friends at destination
 - ▶ So, warn no one and just relax on vacations
- I posted a picture on social media
 - ▶ My friends were alerted I was nearby
 - Friends on that location called me on the phone
 - Everyone else knew I was not home
 - ▶ Burglars love that kind of information
 - Not public profile. At least I think it is not (rules change)
 - ▶ Someone could have shared the photo with the world

Awareness True stories - Store Credit

- Buying a book for almost no money
 - ▶ How I was able to get money just by having the right information
 - ▶ Store clerk asked for store customer card
 - Gave mobile number and full name
 - ▶ Store clerk asked if I wanted to use balance credit
 - ▶ I accepted and little had to pay
 - ▶ Mobile and full name were not mine ©

Awareness Life is hard

- What companies know about us (link)
- Awareness
 - ▶ What do we teach our kids? Do we teach?
 - ▶ They are exposed to everyone on the internet.
- Social Media accounts
 - ▶ If you don't have Facebook, I can create one in your name and call your friends

Awareness Browser F12

- ▶ 1 Type url on browser
- ▶ 2 Page is requested from the internet
- > 3 Page is displayed from local data (previously downloaded)
- Show password text on password field
- Did you ask for a screenshot
 - ▶ Let me just change some data



OSINTing



OSINT Personal Information

- ▶ Posted information can get publicly and world available
 - ▶ Even private profiles can have their data shared by others
- When information is posted
 - ▶ Shows where you are at that time (habits & routines)
- ▶ Information on the picture
 - Metadata
 - ▶ Geolocation

Deadly Social Media The Final Hours of Pop Smoke

- Rapper Pop Smoke Murdered in Home Invasion ... By 4 Masked Gunmen (link)
- Instagram Posts
 - Location Tag
- Geolocation
 - Reverse Image
- Google Maps
 - ▶ Local Recon
- Airbnb/Zillow (Rent/Real-estate)
 - ► House photos (Outside and Inside)
 - Layout
- ► YouTube Video: The Cyber Mentor (<u>link</u>)

OSINT Tools & more tools

- ► OSINT FRAMEWORK (<u>link</u>) →
 - ▶ Yups, only one link is enough



OSINT Profiling

- What's my IP? (link)
- ► Ip2Location (<u>link</u>)
- ► Mylocation (<u>link</u>) →
- Twitter
 - ► Twitter Advanced Search (link) →
- Facebook
 - ► StalkFace (<u>link</u>) →
 - ► Sowdust Github (<u>link</u>)
 - ► IntelligenceX Facebook Search (<u>link</u>)



OSINT Profiling

- Mobile (how long have you been using the same number)
 - ► Sync me (<u>link</u>)
- Usernames (you reuse usernames)
 - ► NameChk (<u>link</u>) →
 - ► WhatsMyName (<u>link</u>)
 - ► NameCheckup (<u>link</u>)

 →
- Tinder
 - ► Username reuse (<u>link</u>) →
- ▶ New awesome tools are always being created



OSINT Profiling - Professional

- ► LinkedIn (<u>link</u>) →
- ► Xing (<u>link</u>) ⇒
- Curriculum Vitae
 - ▶ Sending CV with too much information what is too much ©
 - ► Home address Street View
- Company Information
 - ► Technologies described in job adds (leaking information)
- Professional information phishing
 - ► Fake job adds (Is this a thing?)

OSINT PT



OSINT Portugal - Public contracts

- ► Base (<u>link</u>)
 - ► The example (<u>link</u>)
- ▶ PDF of contract with PII strikethrough (<u>link</u>)
 - ▶ Open with pdf reader and delete the strikethrough boxes
 - Name of employee who edited the document
 - ▶ Information on UA, LinkedIn, Facebook, ...
 - ► Metadata: "KONICA MINOLTA bizhub C454"
- Information leaked
 - ► Full Names, nif, addresses



OSINT

Portugal - Vehicle Information

- Automóvel On-line (<u>link</u>)
- ► Certidão Permanente Automóvel (<u>link</u>) →
 - License Plate: "01-EF-34"
 - Result
 - ▶ Brand: MERCEDES-BENZ
 - ▶ VIN: WDD2040081A043326
 - Example (<u>link</u>)
- ▶ Vehicle Information (<u>link</u>)
 - ► Example (<u>link</u>) →
 - ▶ Information: Brand, Model, Location, Paint, Delivery Date, Extras, ...
- Hack across the globe by VIN (link)

OSINT

Portugal -Insurance Information

- ► ASF Autoridade de Supervisão de Seguros e Fundos de Pensões (link) →
 - Example (<u>link</u>)
 - License Plate: "01-EF-34"
 - ▶ Date: "03-07-2022"
 - Example 2 (<u>link</u>)
 - License Plate: "01-EF-34"
 - ▶ Date : "03-07-2012"
- Insurance Company
 - Current and Past
 - ▶ Length of the contract
 - ▶ Insurance policy number
 - ▶ Is it possible to get information for all license plates ????

OSINT Portugal Specific

- Registo Predial Online (link)
- DGES Direção-Geral de Ensino Superior (link)
- DRE Diário da República (link)
 - ► Search DRE (<u>link</u>)

 →
- Finanças Penhorados (link)
 - Example (<u>link</u>)
 - ► Search Penhorados (link) →
- Ministério da Justiça Penhorados (link)
- Plataforma Eletrónica de Compras (Administração Pública) (link)
- Leaked information:
 - Full Names, Addresses, NIF, Company, Marital Status, ...



OSINT GEO



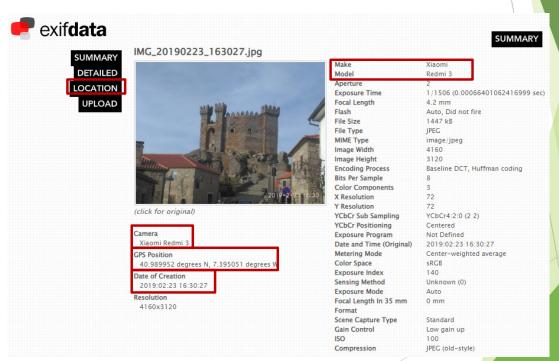
OSINT - Photos Lots of Information

- Where was this image taken?
 - ► Have you been there?
- ▶ When?
 - ▶ Date stamp on photo
 - Filename with date
 - Metadata
- ▶ What else?
- Image search
 - ▶ Identify the castle?



OSINT - Photos Metadata

- Metadata
- ► GPS (<u>link</u>)
- ► Google Maps (<u>link</u>) →



OSINT (Reverse) Image search

- One image is worth 1000 words, maybe more.
 - ▶ What information can be extracted from a photo?
- Google Images (<u>link</u>)
- ▶ Bing Images (link) ⇒
- Yahoo Images (<u>link</u>)
- ► Tineye (<u>link</u>)
- Yandex (<u>link</u>)
- ► The professionals (video explaining) (link)



OSINT Street View

- ► Google Street View (<u>link</u>)
 - ► Identify house by address
 - ► Assess security (cameras, fences, ...)
 - ▶ Parked cars (timeline, ...)
 - ▶ People's habits/routines, timetables, ...
- ► View the past timeline (<u>link</u>) →
- ► Instant Street View (<u>link</u>)



OSINT Maps

- ► Google Maps (<u>link</u>)
- ► Bing Maps (<u>link</u>)
- ▶ Wikimapia (<u>link</u>)
- Tips, Tricks and Techniques (<u>link</u>)



Search Satellite View

- Zoom Earth (link)
- ► Satellites Pro (<u>link</u>)
- ► World Imagery (<u>link</u>)
 - ► Wayback (<u>link</u>)
- ▶ View the past timeline



Search Geolocation

- Digital Cameras/Mobile Phones
 - Metadata
 - ► Geolocation
 - Camera Model
- Breasts lead to arrest of Anonymous hacker (link)
 - ▶ Police allege that an Anonymous hacker posted a picture of his presumed girlfriend's breasts as a taunt to U.S authorities. The picture allegedly contained GPS information that led the FBI to her.
- Stolen goods being sold could be tracked

OSINT MEMORY



Wayback Machine Internet in the past

- Wayback Machine (<u>link</u>)
 - Example (<u>link</u>)
- ► Archive.is (<u>link</u>)
- Cached Pages (<u>link</u>)
- Cached View (<u>link</u>)
- ► OldWeb.Today (<u>link</u>)
- Time Travel (<u>link</u>)
- ▶ Github commits ©



OSINT IOT



Shodan Search Engine for Internet Of Things

- ▶ Internet Exposure Observatory
 - Exposure Dashboard (link)
- Explore
 - ► Shodan explore (<u>link</u>)
- Images
 - ► Shodan images (link)
- Maps
 - ► Shodan maps (<u>link</u>)

Shodan Internet of Things

- ► Remote Desktop (<u>link</u>)
 - ► Total results: 3,482,756
 - ► Braga (<u>link</u>) →
- Images
 - ► Braga (<u>link</u>)
 - ▶ VNC Remote Access and Loggedin (link) →
- Authentication Disabled
 - ► Portugal (<u>link</u>)
 - ► Primavera (<u>link</u>)
- ► Contabilidade (<u>link</u>) →



Shodan Internet of Things

- Fotos
 - ► Portugal (<u>link</u>)
- ▶ IP Cameras
 - ► Portugal (<u>link</u>) (default credentials?)
 - ► Webcams (<u>link</u>)

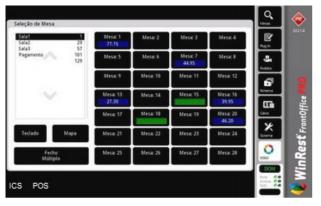


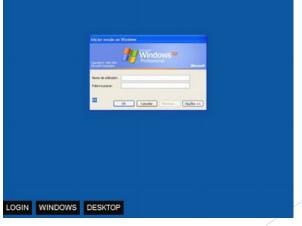
Shodan Internet of Things - Images







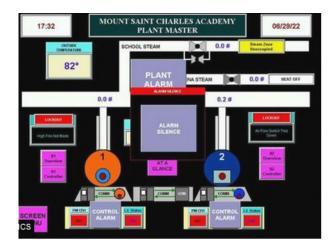


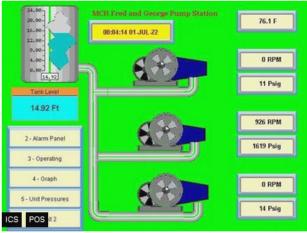


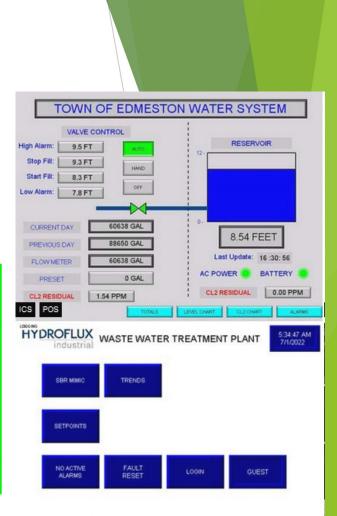


Shodan Industrial Control Systems

Industrial Control Systems (<u>link</u>)







48

ICS POS

Shodan Portugal - Internet Exposure

- Internet Exposure Dashboard (<u>link</u>)
- ► Top Vulnerability
 - ► CVE-2015-0204 CVSS2 4.3 Medium (link)
- BlueKeep Unpatched (link)
 - ▶ 107 (<u>link</u>)
- Industrial Control Systems
 - **>** 516
- SMB (shared folders)
 - ▶ Authentication Disabled: 2898



ONLINE SAFETY



Helping Tools Privacy

- ▶ VPN (Different country, different advertisements, what else ?)
 - ► ProtonVPN (<u>link</u>) →
- Temporary Email (Need to register? Activate software?)
 - ▶ 10 minute email (<u>link</u>)
 - ▶ 20 minute email (link)
- Disposable Email
 - ▶ 60 minute email (<u>link</u>)
- Internet Access (DarkWeb included)
 - ► Tor (<u>link</u>) (internet browser)
 - ► Tails (<u>link</u>) (OS that runs on usb or VM)

Helping Tools Safety

- VirusTotal
 - ► Check received files (<u>link</u>) →
 - ▶ (don't upload Personal or Company related information)
- Netcraft
 - ► Sitereport (<u>link</u>) (check for suspicious sites)
- Ransomware
 - ► No More Ransom (link) →
- Virtual Credit Card (online shopping)
 - ► Mbnet (<u>link</u>) →
 - ► Revolut (<u>link</u>)
 - ► PayPal (link)



Helping Tools Reverse Tracking

- Gmail Plus Address (link) example email: mypersonalemail@gmail.com
 - ▶ If you append a "plus" sign to your email username, Gmail will ignore anything written between the + and @ sign in the email address and still deliver the message to the same mailbox.
- Any email address sent to
 - mypersonalemail+linkedin@gmail.com
 - mypersonalemail+continente@gmail.com
 - mypersonalemail+financas@gmail.com
- ▶ Will still reach the Gmail inbox of mypersonalemail@gmail.com inbox though, technically, they are three different email aliases.
- ▶ Know who is sharing your email ©

Passwords / Credentials Please don't share

- Kaspersky
 - ► Check your password (<u>link</u>)

 →
 - ▶ (or maybe not)
 - ► Check last name "vieira" or "Vieira" or "Vieira123"
- Top 10 passwords
 - "qwerty", "password", ...
 - ► Country specific: BR example "password" → "senha"
- Daniel Miessler SecLists
 - ▶ Usernames (<u>link</u>)
 - Passwords (link)
 - ▶ Default Credentials (<u>link</u>)
- ► IoT Default Passwords (link)



Insecure Insecure Cameras - Is your camera secure ?

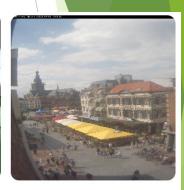
- Browser edit (<u>link</u>)
 - ► Portugal (<u>link</u>)



Live camera in Lisbon, Portugal



Live camera in Lisbon, Portugal



Live camera in Amsterdam, Netherlands



Live camera in Kiefersfelden, Germany



Live camera in PRAGUE, Czech Republic

Databreach



Databreach Is not a thing of the past

- Troy Hunt
 - ► HaveIBeenPwned (link)
 - Pwned websites (<u>link</u>)
- Ashley Madison Breach 2015 (<u>link</u>)
 - ▶ When private data gets public
- Piracy Subtitles
 - ▶ Don't think you can hide Illegal activities are tracked
- Companies are leaking all your information
 - ► Compromised data: Dates of birth, Email addresses, Employers, Family structure, Genders, Income levels, Living costs, Marital statuses, Mothers maiden names, Names, Phone numbers, Physical addresses, Places of birth, Religions, Spouses names

Databreach Company credentials?

- Source
 - Publicly available list of credentials
 - More than 10k credentials just for Bosch
- Information gathered
 - Rule of email/login
 - ▶ (FirstName.LastName)@(Country).(company).com
 - Rule of password complexity
 - List of users
 - Phishing campaigns
 - ▶ Brute force
 - Look for those users on Social Media
- Added Problem
 - Credentials reuse

.bosch.com:\$HEX[576569c3 data/m/i/c:mic data/m/i/c:mic ke@bosch.com:lumpi007 data/m/i/c:mic der@de.bosch.com:a6fc6b19 data/m/i/c:mic z4@de.bosch.com:jaguar data/m/i/c:mic @us.bosch.com:ultra06 data/m/i/c:mic @cz.bosch.com:micsis data/m/i/c:mic ll@uk.bosch.com:frances data/m/i/c:mic @bosch.com:petros69 data/m/i/c:mic us.bosch.com:mike5920 data/m/i/c:mic n@us.bosch.com:radar123 data/m/i/c:mic om@us.bosch.com:2af415a2174b1 data/m/i/c:mic om@us.bosch.com:hardrock data/m/i/c:mic rger@za.bosch.com:mike123 data/m/i/c:mic cn.bosch.com:Mikomido data/m/i/c:mic @us.bosch.com:bulldog3120 data/m/i/c:mic @de.bosch.com:maccaroni mann@de.bosch.com:asdfjklr¶ data/m/i/c:mic data/m/i/c:mic comcast.net:mojopapa1 data/m/i/c:mic s.bosch.com:bogey data/m/i/c:mic cz.bosch.com:kogugeti cz.bosch.com:wunazaqu data/m/i/c:mic data/m/i/c:mic zak@pl.bosch.com:iqi74mick77 data/m/i/c:mic z.bosch.com:hygokibu data/m/i/c:mic @fr.bosch.com:CHOISNE data/m/i/c:mic @be.bosch.com:elsclaes data/m/i/c:mic de.bosch.com:janlasse79 data/m/i/c:mic nl.bosch.com:Killer1 ey@us.bosch.com:leander65 data/m/i/c:mic r.bosch.com:ro67vsh5 data/m/i/c:mic data/m/i/c:mic nte@it.bosch.com:michele data/m/i/c:mic lli@us.bosch.com:radica4 data/m/i/c:mic de@br.bosch.com:m1s2q3a4 data/m/i/c:mic hi@br.bosch.com:Talita data/m/i/c:mi @br.bosch.com:Orquideas1

Databreach Portuguese domain examples (2018)

- uminho.pt Universidade do Minho
- adv.oa.pt Ordem dos Advogados
- pj.pt Policia Judiciária
- mail.exercito.pt Exército
- cm-braga.pt Câmara Municipal de Braga
- cm-guimaraes.pt Câmara Municipal de Guimarães
- psd.pt Partido Social Democrata
- ps.pt Partido Socialista
- fcporto.pt Futebol Clube do Porto
- min.justiça Ministério da Justiça
- ▶ Were these the sources for criminal "hacker" Rui Pinto?

Free to Share



License

- ► Feel free to use/modify/share
- Teach someone
- Improve awareness

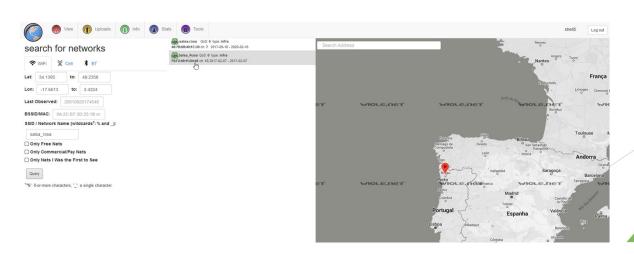


Wifi



Wifi World Map - WiFi Networks

- ▶ Wigle shell5
- https://wigle.net/map?maplat=41.53443897842117&maplon=-8.437174307569958&mapzoom=21&coloring=density
- mac address lookup
- https://dnschecker.org/mac-lookup.php?query=68-cc-6e-c0-c7-e1





Hacker Mentality



Penetration Test Portugal - Ministério da Justiça

- How safe is our information?
- Site URL: https://www.automovelonline.mj.pt/AutoOnlineProd/
 - ► Is there a **DEV** site?
 - ► Error shows software and version (Apache Tomcat/8.0.41)
 - ► Are there exploits? Exploit Database (<u>link</u>)
- Automatic testing website (<u>link</u>)
- ► Are these tests legal?
 - ▶ If you don't own the site, it's usually not legal or allowed.

Capture The Flag



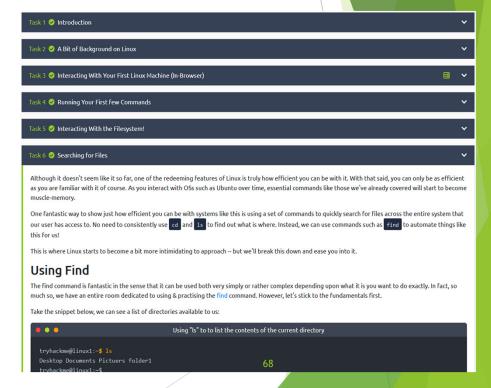
CTF Capture The Flag

- TryHackMe https://tryhackme.com/
- HackTheBox https://www.hackthebox.eu/
- VulnHub https://www.vulnhub.com/
- ► OTW https://overthewire.org/wargames/
- PicoCTF https://picoctf.org/
- CryptoPals https://cryptopals.com/
- CryptoHack https://cryptohack.org/



CTF THM - Try Hack Me

- Try Hack Me (link)
 - ► TryHackMe is a free online platform for learning cyber security, using hands-on exercises and labs, all through your browser!
- Learn
 - Our content is guided with interactive exercises based on real world scenarios, from hacking machines to investigating attacks, we've got you covered.
- Practice
 - Put your knowledge into practice with gamified cyber security challenges.
- Cost Free or \$10/month



CTF HTB -Hack The Box

- Hack The Box (<u>link</u>)
 - Hack The Box is a massive, online cybersecurity training platform, allowing individuals, companies, universities and all kinds of organizations around the world to level up their hacking skills.
- Challenges
 - Hardware, Crypto, Pwn, Mobile, Reversing, Web,...
- Machines / Tracks
- Cost Free / €12/month
- Job Board



CTF OTW -Over The Wire

- Over The Wire (<u>link</u>)
- Linux and Web based games
 - ► Linux Bandit
 - Web Natas

