## Dark Web Monitoring: Everything you need to know

### **\$whoami**

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- Threat Researcher @ PCYBLE



- Cybersecurity @ Georgia Tech (Go Jackets)
- Presented at conferences













- **Hobbies** 
  - Hiking 🏋
    - Lockpicking
  - Gaming/Streaming

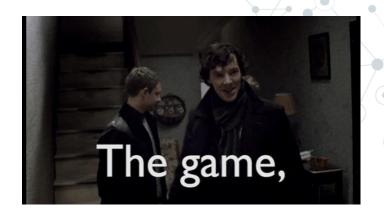


- Social
  - Twitter @ASG\_Sc0rpi0n
  - Website apurvsinghgautam.me



### **Agenda**

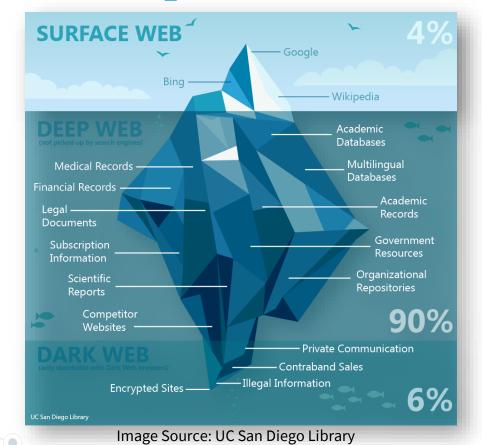
- Introduction to the Dark Web
- Why focusing on the Dark Web?
- Methodology and Skills
- People Skills
- Technology Skills
- OpSec? What's that?
- Case Study
- Conclusion





## Introduction to the Dark Web

### Clear Web? Deep Web? Dark Web?



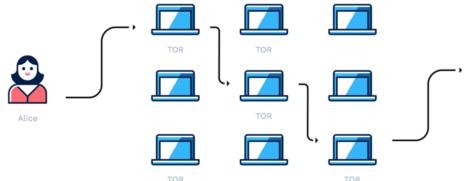
### **Accessing the Dark Web**

- Tor /I2P/ZeroNet
- onion domains/.i2p domains
- Traffic through relays













### What's all the Hype? Good..Bad..

- O Hype
  - Vast and mysterious part of the Internet
  - Place for cybercriminals only
  - Illegal to access the Dark Web
- Reality
  - Few reachable onion domains
  - Uptime isn't ideal
  - Useful for free expression in few countries
  - Popular sites like Facebook, NYTimes, etc.
  - Legal to access the Dark Web



### Sites Examples

### Whistleblowing

- Doxbin ☐ A pastebin for personally identifiable information.
- Active at Darknet Markets? Onion set up by the Police and the Judicial At arrested Darknet Market operators.
- Cryptomets Archive Government Leaks. Documents for publication that are prohibited by governments worldwide, in particular material on freedom of expression, privacy, cryptology, dual-use technologies, national security, intelligence, and secret governance -- open,
- SecureDrop An open-so

#### Financial Services

Currencies, banks, money markets, clearing houses, exchangers:

- The Green Machine! Forum type marketplace with some of the oldest and most experienced vendors around. Get your paypals, CCs, etc.
- The Paypal World Paypal accounts with good balances buy some, and fix your financial situation for awhile.
- Premium Cards Oldest cc vendor, Top quality Us & Eu credit cards!
- Financial Oasis A slew of products from a darker side of finance.

- secret and classified docun H/P/A/W/V/C
- from and communicate with Hack, Phreak, Anarchy (internet), Warez, Virus, Crack
  - HeLL Forum HeLL Reloaded is back!
  - RelateList New era of intelligence.
  - CODE: GREEN® Ethical hacktivism for a better world. Join us and participate in modern world protests!
  - Hack Canada 🗗 America is a joke and Canada is the punchline. Old-ish hacking site, hosts a few archives.
  - Hacker Place Site with several books and resources on software development, pentesting and hacking.
  - WE fight censorship a Reporters Without Borders project that aims to combat censorship and promote the flow of news and information

### **Types of Information Sold?**

- Personal health Records (PHI)
- Social Security Numbers (SSNs)
- Exposed codebases
- Personally Identifiable Information (PII)
- Email Password details
- Financial data like credit cards, accounts

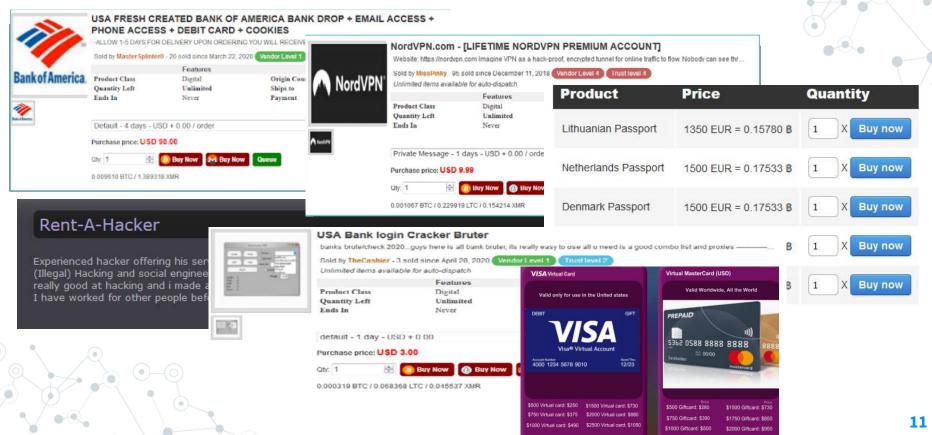


Image Source: Intsights

### Cost of products?

- O SSN \$2
- DDoS Service \$7/hr
- Rent a Hacker \$12/hr
- Credit Card \$25+
- FB Account- \$65+
- Crypto Accounts \$300+
- License/Passport \$100 \$7000
- Bank Details \$1000+
- Exploits or 0-days \$150,000+
- Critical databases \$300,000+

### **Product/Service Examples**

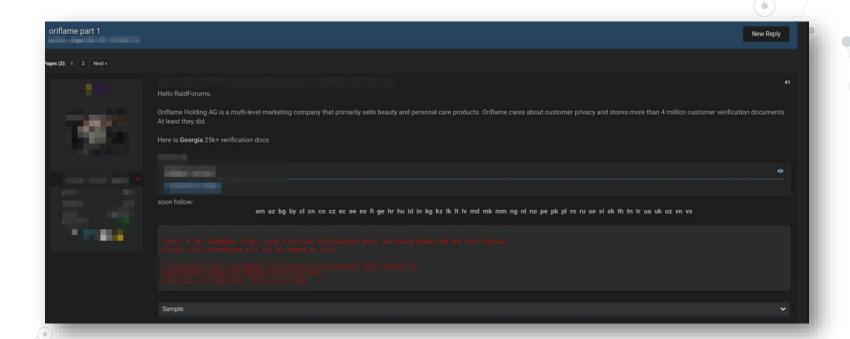


## Why focusing on the Dark Web

### Why So Serious (Eh! Important)?

- Macker forums, darknet markets, dump shops, etc.
- Criminals can learn, monetize, trade, and communicate
- Oldentification of compromised assets
- Can potentially identify attacks in earlier stages
- Direct impacts PII (Personal Info),
   financial, EHRs (healthcare records), trade secrets
- Indirect impacts reputation, revenue loss, legal penalties

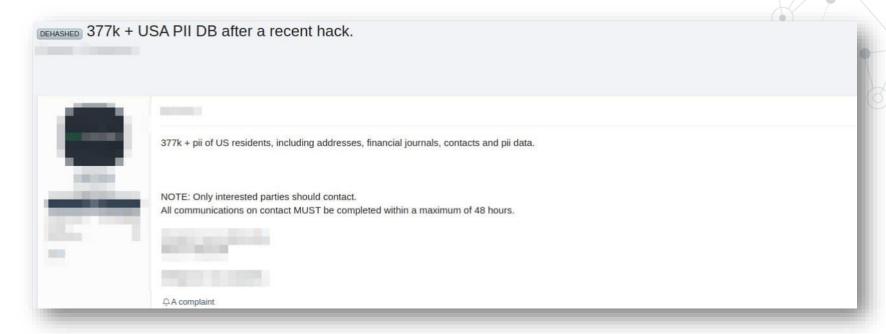
### Why should you care?



### Why should you care?

```
Hello im selling Fresh (Non VBV) CCV/FULLZ & BANKLOGINS
Format is:
|Card Number|Exp. Date|CVV/CVV2|First Name|Last Name|Street|City|State|Zip Code|Country|Phone|Type Of Card|Bank Name|
Format is:
==== BILLING INFO
I Full name:
Date of birth
Address:
Postcode
Phone:
| Security Question :
| Security Answer :
+ ==== CREDIT CARD DETAILS
Card BIN:
Cardholder Name:
Card Number:
Expiration date :
Account number :
| Sort Code :
+ ==== EMAIL INFORMATION
Username:
Password:
```

### Why should you care?



# Methodology and **Skills**

### What skills you need?

- People Skills
  - Understanding people
  - Soft Skills
  - Knowledge of different languages
  - Research mindset
- Technology Skills
  - Scripting (Python, Go)
  - Knowledge of databases (SQL, ES, Mongo)
  - Knowledge of VMs, Cloud instances

# People Skills

### **OSINT**

- Open-Source Intelligence
- Starter to any intelligence research
- All public surface web data
- Easy to find
- Basic information gathering
- Has good and bad parts
- Information on threat actors



Image Source: ACFCS

### **HUMINT**

- O Human Intelligence
- Most dangerous and difficult form
- Most valuable source
- Infiltrating forums, markets, etc.
- Become one of them
- How threat actors think
- Profiling actors
- Can be very risky
- Time consuming



Image Source: Intsights

## **5**. **Technology** Skills

### Setting up a Lab

- Cab/VM
- Physical or Cloud
- Isolate the network
- Install relevant tools
  - O Go
  - Scrapy
  - Privoxy
  - Tor
  - ELK
  - Go libraries
    - Python libraries



Image Source: Hayden James

### **Readily Available Tools**

- Search Engine tools
- Onion Link Collection tools
- Onion Link Scan tools
- Onion Link Scraping tools

All tools available at: https://github.com/apurvsinghgautam/dark-web-osint-tools



### **Search Engine Tools**

- Katana
- Onionsearch
- Ahmia Search Engine
- O Darksearch

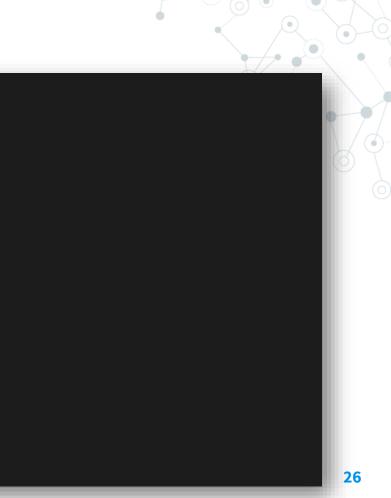








### Onionsearch



### Onionsearch (Contd.)



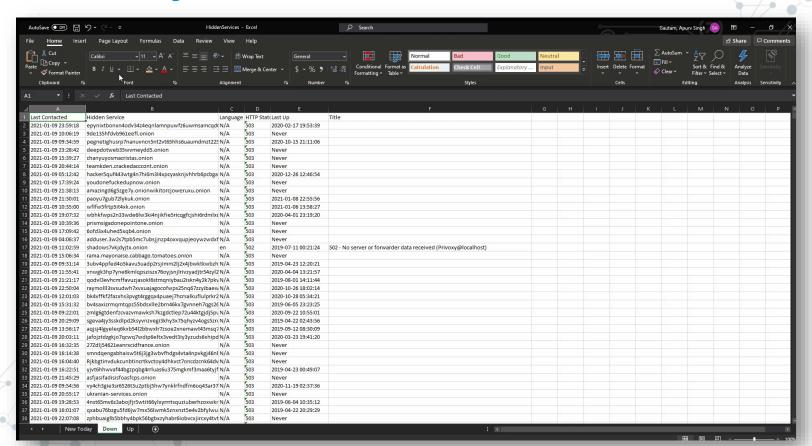
### **Onion Link Collection Tools**

- O Hunchly
- O H-Indexer
- Tor66
- r/onions





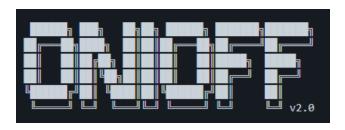
### Hunchly



### **Onion Link Scan Tools**

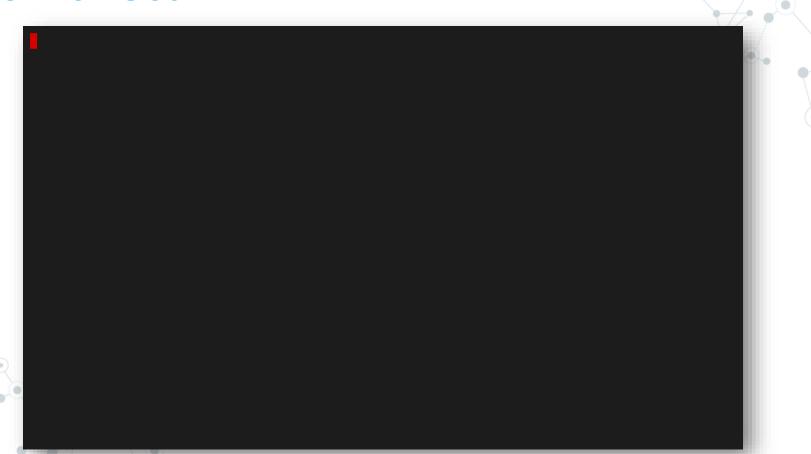
- OnionScan
- Onioff
- Onion-nmap







### **OnionScan**



### **Onion Link Scraping Tools**

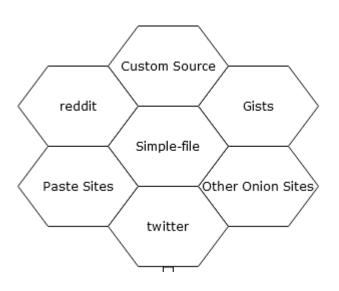
- TorBot
- TorCrawl
- OnionIngestor

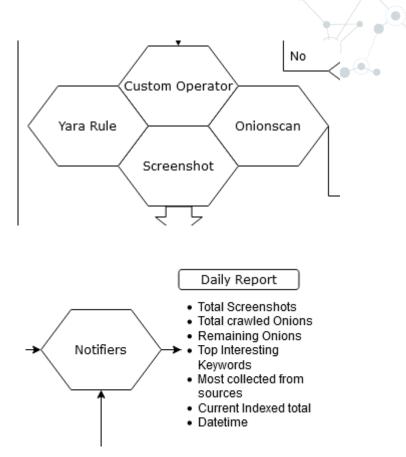




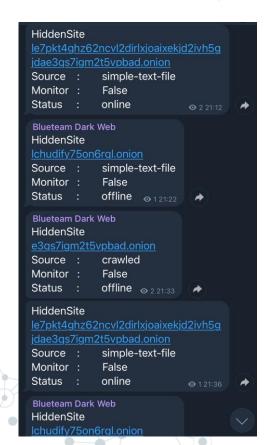


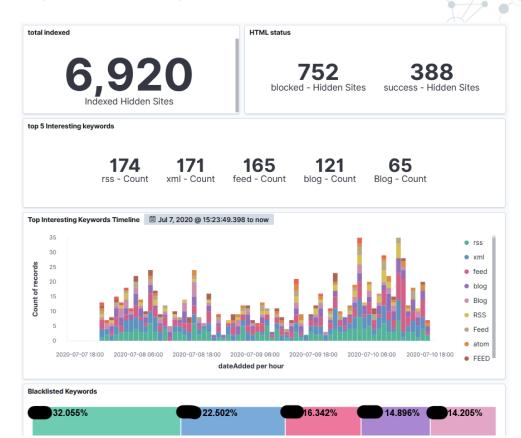
### OnionIngestor



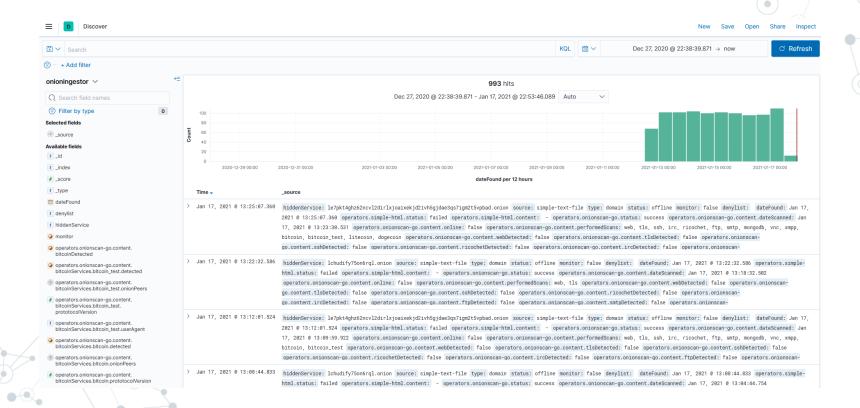


### OnionIngestor (Contd.)





### OnionIngestor (Contd.)



Create your own tools

- Scrapy
- Tor
- OnionScan
- Privoxy
- © Elastic
- and many more...













# OpSec? What's that?

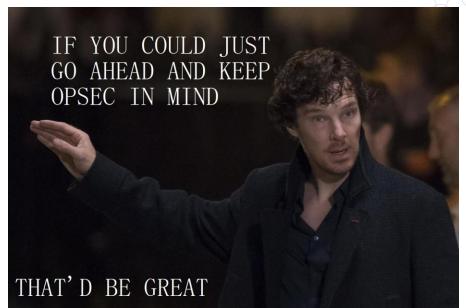
#### What is OpSec?

- Actions taken to ensure that information leakage doesn't compromise you or your operations
- Derived from US military Operational Security
- PII Personally Identifiable Information
- Not just a process a mindset
- OpSec is Hard



#### Maintaining OpSec in your lifestyle

- Use VM/Lab or an isolated system
- Use Tor over SOCKS or VPN
- Ochange Time zones
- Never talk about your work
- Maintain different persona
- Take extensive notes
- Use password manager





#### **All World Cards 1M Credit Cards**





08/02/2021

## A LES WORLD CARDS

We publish 1,000,000 bank cards to the public .
Walid is about 20% . All material from 2018-2019.
Fields: CC Number Exp CVV Name Country State City Address Zip Email Phone

Promotion of unprecedented generosity from the store AllWorld.Cards

Checking the validity of random 98 cards Password from the archive - tor domain

Checked: 98 of 98 Valid: 26 (27%) Total cost: 12.90\$

#### **Type of Data Leaked**

- O CC number
- CVV
- Name
- Country
- Address
- © Email/Phone



#### **Affected Banks/Countries**

Bank Name	Number of Cards	
STATE BANK OF INDIA	72937	
BANCO SANTANDER (BRASIL) S.A.	38010	
SUTTON BANK	30480	
JPMORGAN CHASE BANK N.A.	27441	
BBVA BANCOMER S.A.	24307	

	Country	Number of Leaked Cards
	INDIA	200359
	MEXICO	91278
	UNITED STATES	83433
\	AUSTRALIA	80023
Ć	BRAZIL	72576

Source: https://blog.cyble.com/2021/08/08/one-million-credit-cards-leaked-in-a-cybercrime-forum-for-free/



#### What we discussed so far?

- Types of web
- Misconceptions of Dark web
- Why Dark web is important to monitor
- Skills needed to perform Dark Web monitoring
- OSINT, HUMINT
- OSINT tools
- Methods to create your own scripts



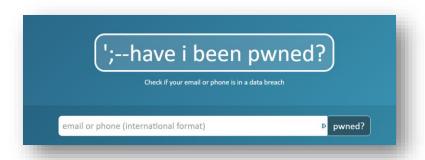
#### I don't know how to conclude but...

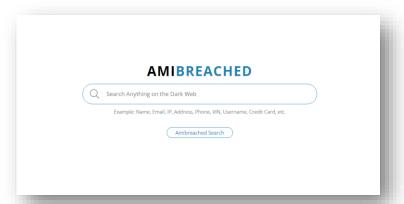
- Dark Web monitoring is hard but worth the effort
- Keep OpSec in mind
- Look at more than one resource
- Takes a lot of resources and team effort
- It can be fun if you enjoy research and investigations



#### How to protect yourself

- Search on surface web to identify the information available.
- Utilize services like AmIBreached or HaveIBeenPwned to see how much data is exposed





#### Resources

- Read White papers & blogs from different security organizations
- Follow people on LinkedIn and Twitter
- Follow hashtags #darkweb, #threatintelligence
- Search Terms darkweb, tor, deepweb, cybercrime forums
- OSINT Framework https://osintframework.com/
- OSINT Combine Dark Web Searching https://www.osintcombine.com/post/dark-web-searching

#### **Resources (Contd.)**

- Jake Creps Blog https://jakecreps.com/2019/05/16/osinttools-for-the-dark-web/
- SANS Cyber Defense Forum Automating Threat Hunting on the Dark Web and other nitty-gritty things talk by Apurv Singh Gautam
- DEFCON Recon Village Ambly the Smart Darknet Spider talk by Cytisus Eurydice (@levitannin)

### Thanks!

#### Any questions?

You can contact me at:

Twitter: @ASG\_Sc0rpi0n

LinkedIn: /in/apurvsinghgautam

