FEMINIST HACKING

INTRODUCTION TO INFO-SEC

CATNAT

OVERVIEW

- What is information security and why should we care
- The classical hacker narrative and it’s reality
- Feminist Hacking
- How to get into hacking
- Networking Concepts
- The most common attack types
- Security Enhancing Tech
- Open discussion: What is feminist hacking?

WHAT IS INFORMATION SECURITY ? - KEYWORDS

Cybersecurity

Malware

Ransom Ware

Cryptography

Hacking

Pentesting

privacy rights

Spying
Secret Services

Script Kiddies

privacy enhancing technology

Virus

Antivirus Software

Attack Vector

Phishing Emails

Info-sec “as a service”

Industrial Control System Hacking

Internet of Things Security

WHAT IS INFORMATION SECURITY ?
- A DEFINITION

Information Security:
The means and processes of keeping entities save from unwanted access.

“Means and processes”:
Firewalls, Encryption, good changing passwords, Security Operation Centers, …

“Entities”:
states, companies, critical infrastructure, and we, the public.

“Unwanted Access ”:
Hacking, collection of personal data, physical access (breaking in)

WHAT IS INFORMATION SECURITY ?
- A LITTLE ADD-ON

BUT

Information Security can also mean active hacking:

- Secret services spying on each other or actively destroying infrastructure (eg. Stuxnet)
- Pentesting: When you are paid to break into a entity by electronical or physical means.

WHAT IS INFORMATION SECURITY ?
- CHOOSE YOUR CAREER

Three main paths:

- Hacker: yes, hacks stuff for good or evil (pentester, malware architect, intruder, …).
- Info-sec analyst: detects when hackers try to intrude.
- Privacy enhancement expert/activist: makes stuff more secure and harder to be hacked, accessed.

Naturally, those paths are overlap a great deal.

HOW TO BECOME A HACKER/ INFO-SEC PERSON (ACCORDING TO THE HACKER MAINSTREAM)

1. The mindset

A hack is "a clever, benign, and 'ethical' prank or practical joke, which is both challenging for the perpetrators and amusing to the MIT community." (MIT Hackers, the grandparents of hackers, http://hacks.mit.edu/Hacks/)

HOW TO BECOME A HACKER/ INFO-SEC PERSON
(ACCORDING TO THE HACKER MAINSTREAM)

1. The mindset

Hackers are like artists, philosophers, and engineers all rolled up into one. They believe in freedom and mutual responsibility. The world is full of fascinating problems waiting to be solved. Hackers take a special delight in solving problems, sharpening their skills, and exercising their intelligence.
(wikihow https://www.wikihow.com/Become-a-Hacker)

HOW TO BECOME A HACKER/ INFO-SEC PERSON
(ACCORDING TO THE HACKER MAINSTREAM)

1. The mindset, according to “THE" hacker manifesto

I am a hacker, enter my world...
Mine is a world that begins with school...
I'm smarter than most of the other kids, this crap they teach us bores me...

Damn underachiever. They're all alike.

Yes, I am a criminal. My crime is that of curiosity. My crime is that of judging people by what they say and think, not what they look like. My crime is that of outsmarting you, something that you will never forgive me for.

I am a hacker, and this is my manifesto. You may stop this individual, but you can't stop us all... after all, we're all alike. http://www.mithral.com/~beberg/manifesto.html

HOW TO BECOME A HACKER/ INFO-SEC PERSON (ACCORDING TO THE HACKER MAINSTREAM)

1. The skillset

Learn to Program in C
Learn to Program in python
Learn Ruby
Learn HTML
Learn JavaScript
Learn UNIX
Learn Networking Concepts
Learn Cryptography
Participate In Hacking Challenges
Go Next Level: Write Vulnerability
Build a computer
Learn security concepts
Wireshark
Virtualisation
Kali Linux
Database skills
Learn Reverse Engineering

Well, maybe just this (imao) ….

Learn to Program

Learn Networking Concepts

Learn UNIX

Study common attack types

WHO ARE THOSE HACKERS?

CN: cliché

- Ethical Hackers (often working for the military)
- Script Kiddies (haha pranks)
- It-security analysts/ data scientists (often working for the military)
- Ransom ware criminals (i got your machine, where is my money?)
- 'Malware as a service' criminals (i am totally not a criminal, i just wrote a script)
- Political activists (information needs to be open OR privacy needs to be protected)

HACKER CONFERENCES

- Black Hat https://www.blackhat.com/
- Chaos Communication Congress https://www.ccc.de/en/club
- Defcon https://defcon.org/

F.E.M.M.I.N.I.S.T HACKING

Key Question: What can feminist hacking look like?

- Hacking mindset has this smell of practical jokes, genius, bullied nerd and underdog hero –> What can a feminist hacking narrative look like?
- What would you personally like to hack/secure/analyse?
- How to get into hacking the feminist way?

HOW TO GET INTO HACKING, THE FEMINIST WAY.

1. The mindset

- What would you personally like to hack/secure/analyse?

  My personal list:
  * Secure myself from being doxed
  * Find out about those who threaten me or others online
  * Understand how insecure critical infrastructure is (like power plants)
  * Find out how to secure/enhance democracy through this knowledge
  * For the puzzle fun of it: How does malware work, and how can it be detected
  * Protect my data/messages from being accessed by the state/FB/Google

What’s your list?

HOW TO GET INTO HACKING, THE FEMINIST WAY.

1. The skillset (my choice)

Well, to start just this (imao) ….

Learn to Program

Learn Networking Concepts

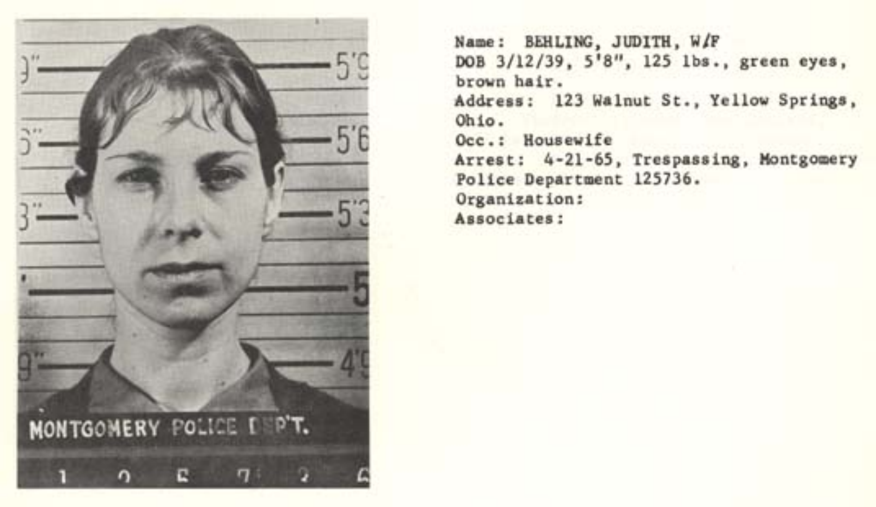
Learn UNIX

Study common attack types

NETWORKING CONCEPTS LAYERS, PROTOCOLS, LOGFILES, ENCRYPTION

Jude Milhon, aka St. Jude

Back in the 70s we connected bay area books stores and libraries. We called it the Community memory database, a kind of proto-internet.
Also, i care about privacy enhancing technologies.



Name: BEHLING, JUDITH, W/F
DOB 3/12/39, 5'8", 125 lbs., green eyes, brown hair.
Address: 123 Walnut St., Yellow Springs, Ohio.
Occ.: Housewife
Arrest: 4-21-65, Trespassing, Montgomery Police Department 125736.
Organization:
Associates:

NETWORKING CONCEPTS

- How does the internet work (aka how is information sent and received)
  In short:
  DNS
  Network Layers,
  TCP/IP Stack,
  TLS (Transport Layer Security)
  Symmetric and asymmetric cryptography.

- Awesome starting Videos:
  What is the internet: https://www.youtube.com/watch?v=Dxcc6ycZ73M
  Packets, Routing and Reliability: https://www.youtube.com/watch?v=AYdF7b3nMto
  IP Adresses and DNS : https://www.youtube.com/watch?v=5o8CwafCxnU

NETWORKING CONCEPTS: PLAY WAR GAMES

Overthewire: http://overthewire.org/wargames/ :
a bunch of “games” where you log onto the overthewire server and have to retrieve the password of the following level
to get ahead .

You learn everything about protocols, encryption, unix you need!

HACKING: OTHER PLAYGROUNDS

- Let's be bad Guys - Shiny, Let's Be Bad Guys: Exploiting and Mitigating the Top 10 Web App Vulnerabilities (https://github.com/mpirnat/lets-be-bad-guys)
- django.nV - django.nV is a purposefully vulnerable Django application provided by nVisium. (https://github.com/nVisium/django.nV)
- DSVW - Damn Small Vulnerable Web (DSVW) is a deliberately vulnerable web application written in under 100 lines of code, created for educational purposes. (https://github.com/stamparm/DSVW)
- DVPWA - Damn Vulnerable Python Web Application was inspired by famous dvwa project and bobby-tables xkcd comics (https://github.com/stamparm/DSVW)

thanks to https://github.com/guardrailsio/awesome-python-security

COMMON ATTACK TYPES AND HOW THEY ARE DETECTED

Maria Mitchell

my computation of the motion of Venus will be soon on github. Also check out out my blog on voting rights for women.

COMMON ATTACK TYPES

- Brute Force Passwords (guesspwd)
- DOS/DDOS Attacks ((distributed)-Denial of service)
- Phishing Emails and online identity theft (social engineering)
- Common malware: computer "worms", ransomware, spyware, adware, trojan horses, keyloggers, rootkits, bootkits,war

DETECTION & ANALYSIS

- Static Analysis: analyising malware without execution, most common: hashing (antivirus software, virustotal https://www.virustotal.com/#/home/upload

- Dynamic Analysis and Reverse Engineering: execution in controlled environment (sandbox systems)

- Network Analysis (NIDS): analysing how network reacts, data: log files

  (this is how a raw tcpdump looks like: https://en.wikipedia.org/wiki/Tcpdump#/media/File:Tcpdump.png, and you can analyse it with wireshark https://www.wireshark.org/download.html)

NETWORK ANALYSIS

- Intrusion detection == Anomaly Detection
- For starters: find sample set for example
  https://github.com/FransHBotes/UNSW_NB15
- Use python/scikit learn to perform anomaly detection/outlier detection/
  /isolation forest/…/
  https://scikit-learn.org/stable/modules/outlier_detection.html

SECURITY ENHANCING TECHNOLOGY

Katherine Johnson

I calculated flight trajectories for NASA aircraft, keeping astronauts save.

SECURITY ENHANCING TECHNOLOGY

- Secure Messengers: How does the signal messenger work? (https://www.signal.org/docs/)
- Secure Android: Should you go for lineage OS? https://www.lineageos.org/
- Secure Python: How can we include security concepts into python? >>>

SECURE PYTHON

- Secure.py - secure.py is a lightweight package that adds optional security headers and cookie attributes for Python web frameworks. (https://github.com/TypeError/secure.py)
- Flask-HTTPAuth - Simple extension that provides Basic, Digest and Token HTTP authentication for Flask routes (https://github.com/miguelgrinberg/flask-httpauth/)
- Flask Talisman - Talisman is a small Flask extension that handles setting HTTP headers that can help protect against a few common web application security issues. (https://github.com/GoogleCloudPlatform/flask-talisman)
- Django Session CSRF - CSRF protection for Django without cookies. (https://github.com/mozilla/django-session-csrf)

again thanks to https://github.com/guardrailsio/awesome-python-security

THE END.

THANKS!

WHAT'S NEXT?

- Discussion: What is feminist hacking?
- What would you like to do hands on?

  [ ] Hacking
  [ ] Learn about security enhancing tech
  [ ] Intrusion Detection and Analysis