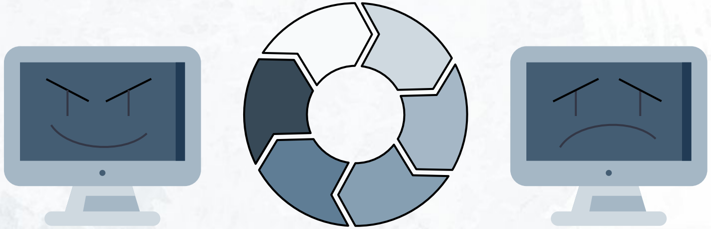
ffuf.



Presentation by:

- Ben ™
- Marty D
- Nick W

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Nick.

Topic Choice

- **Ruxmon** discussion on fuzzing sounded interesting and so we decided to find a tool that incorporated the fuzzing concepts.

- We liked ffuf for its diverse usage, community interest and ease of use.

- We wanted to focus on a tool that we thought we would find useful in the future without it being too niche.

Nick.

01

What is ffuf?

fuzz faster U fool

“ffuf is one of the latest and by far the fastest fuzzing open source tool out there.”

Aditya Verma - medium.com (2020)

Nick.

ffuf

ffuf is a command line utility that assists with fuzzing and discovery for web applications.

ffuf can be used to:

- Find hidden directories and files of websites
- Bruteforce login
- Compromising

Nick.

What is Fuzzing?

Fuzzing is the process of injecting irregular or unorthodox inputs with the goal of receiving an irregular response, one that perhaps may leak critical information or lead to a vulnerability that can be used.

Features:

(a) Assists with finding bugs

(b) Discovers specific vulnerabilities

(c) Cost effective / Scalable

Methods:

(a) Manual

Individual entries one at a time using your your own custom inputs.

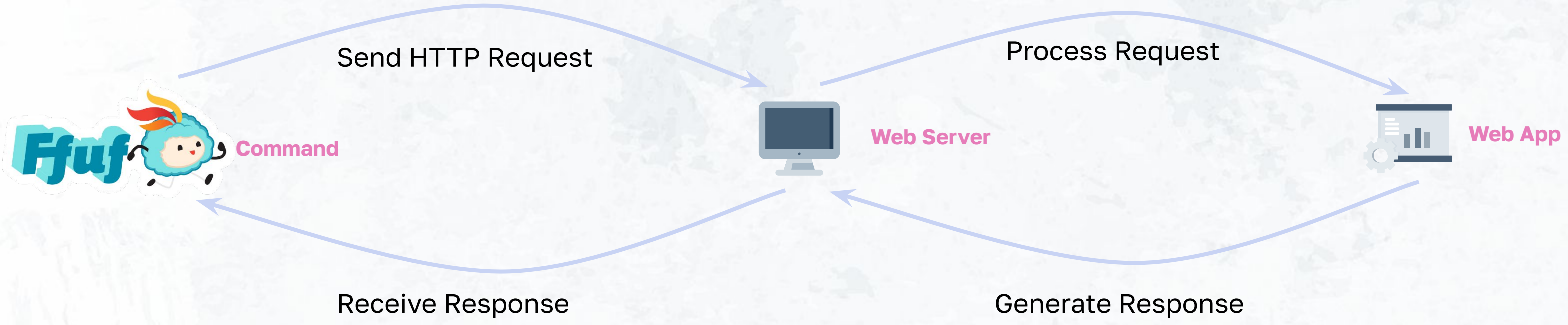
(b) Automated

Automated process that uses wordlists, this will be demonstrated using ffuf.

Nick.

How ffuf (fuzzing) works

Identify the target → Specify Inputs → Generate fuzz data → Test fuzz data



Send HTTP Request

Process Request

Command

Web Server

Web App

Receive Response

Generate Response

Log Response ← Analyse Response

Nick.

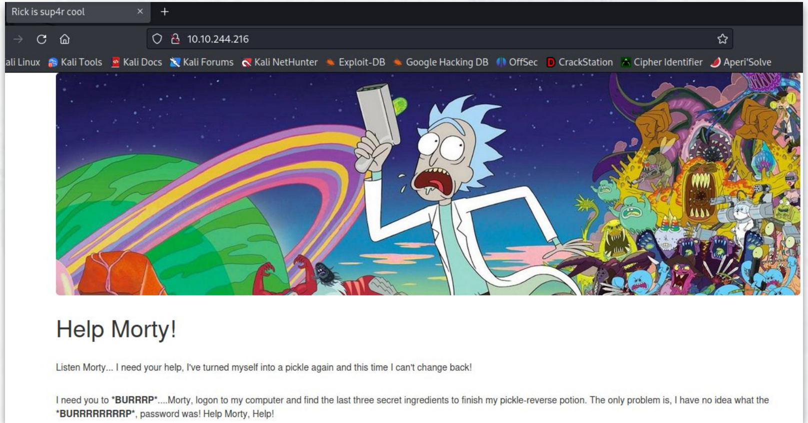
02

Demonstration

TryHackMe: Pickle Rick

Challenge Overview

- Challenge: web based CTF
- Objective: capture 3 flags (ingredients)
- Information Provided: IP Address (10.10.244.216)



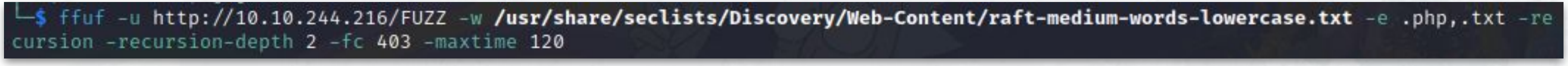
Help Morty!

Listen Morty... I need your help, I've turned myself into a pickle again and this time I can't change back!

I need you to ***BURRRP***....Morty, logon to my computer and find the last three secret ingredients to finish my pickle-reverse potion. The only problem is, I have no idea what the ***BURRRRRRRRP***, password was! Help Morty, Help!

Ben.

Command: Directory and File enumeration



```
└─$ ffuf -u http://10.10.244.216/FUZZ -w /usr/share/seclists/Discovery/Web-Content/raft-medium-words-lowercase.txt -e .php,.txt -re
cursion -recursion-depth 2 -fc 403 -maxtime 120
```

-u http://10.10.244.216

-w [wordlist path]

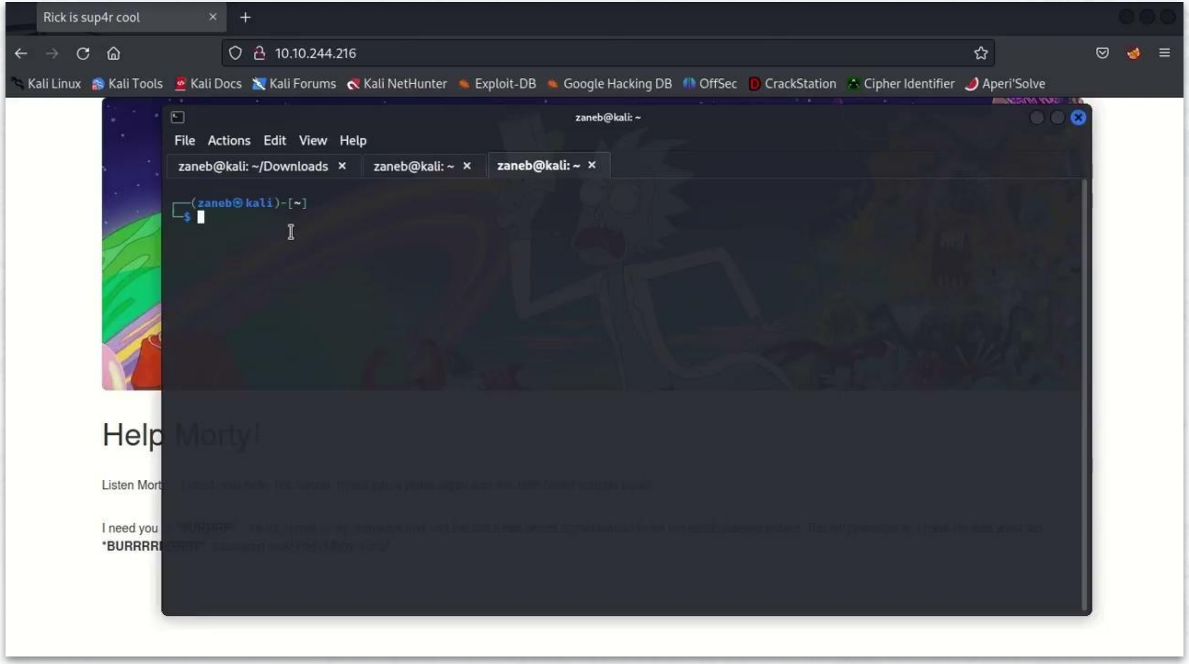
-e [required file extensions]

-recursion

-fc 403

Ben.

Walkthrough - Directory and File Enumeration



```
┌──(zaneb㉿kali)-[~]
└─$ 
```

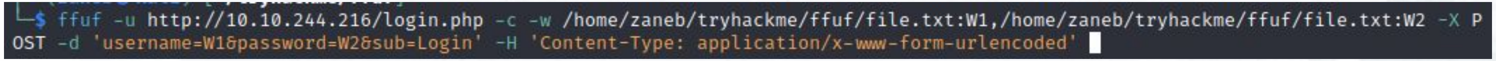
Help Morty!

Listen Mort [illegible]

I need you [illegible] *BURRRR[illegible]

Ben.

Command: Bruteforce Login



```
└─$ ffuf -u http://10.10.244.216/login.php -c -w /home/zaneb/tryhackme/ffuf/file.txt:W1,/home/zaneb/tryhackme/ffuf/file.txt:W2 -X P
OST -d 'username=W1&password=W2&sub=Login' -H 'Content-Type: application/x-www-form-urlencoded'
```

-u http://10.10.244.216/login.php

-c [colorize output]

-w [wordlist path 1, wordlist path 2]

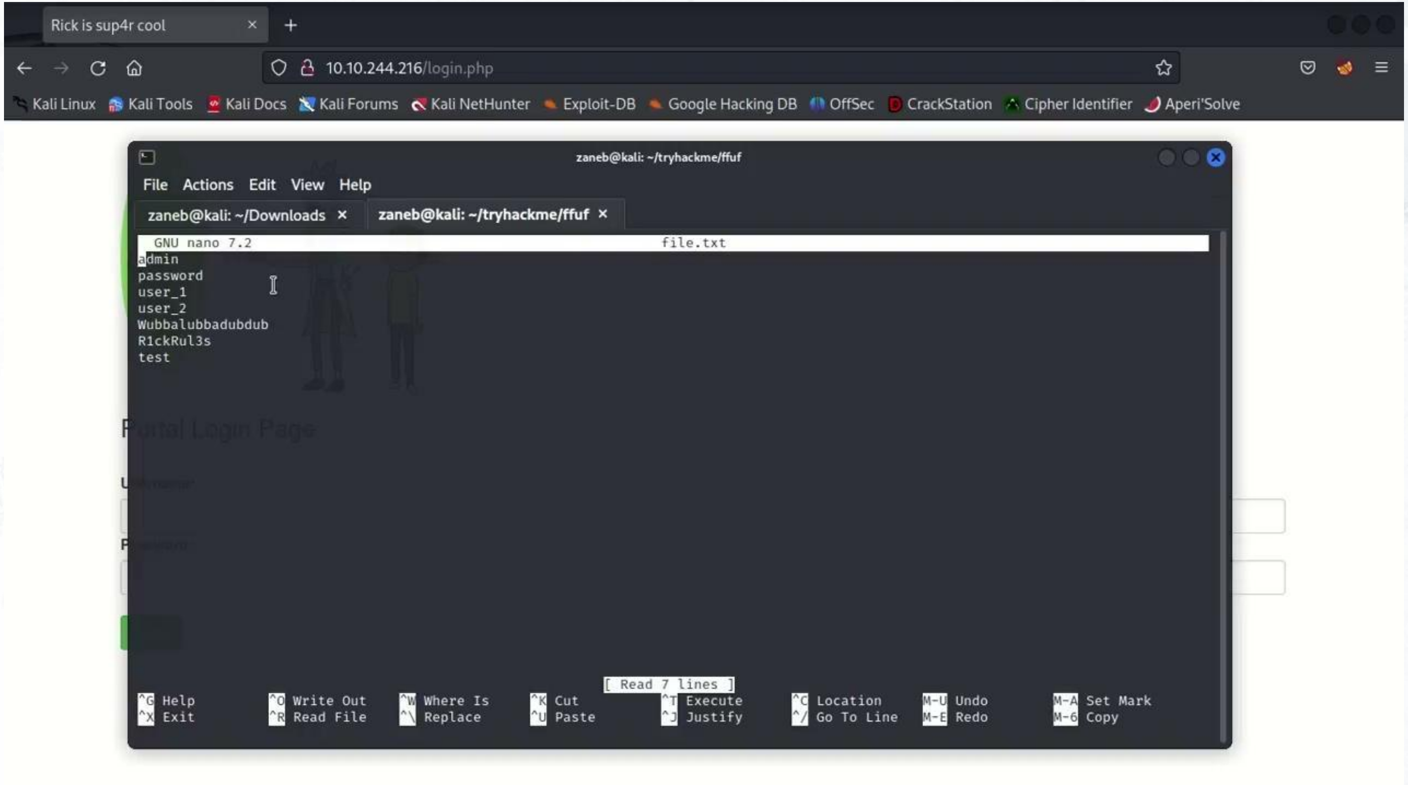
-X [http method]

-d [post the data]

-H [header content type]

Ben.

Walkthrough - Bruteforce Login



```
  GNU nano 7.2                                              file.txt
admin
password
user_1
user_2
Wubbalubbadubdub
R1ckRul3s
test



                                      [ Read 7 lines ]
^G Help        ^O Write Out   ^W Where Is    ^K Cut         ^T Execute     ^C Location    M-U Undo       M-A Set Mark
^X Exit        ^R Read File   ^\ Replace     ^U Paste       ^J Justify     ^/ Go To Line  M-E Redo       M-6 Copy
```

Ben.

Demonstration Summary

- Through using ffuf, we were able to find a starting point for our attack (i.e. login page) and find the file extension contain a password

- ffuf gave us the ability to quickly search and find the first 2 flags

- The flags have been discovered, but fall out of the scope of this demonstration

Ben.

Strengths of ffuf

(+) Versatile

Brute forcing web applications, enumerating directories, and more.

(+) Easy to use / obtain results

At its most basic level only requires 2 inputs; the **web app source** and the **wordlist.**

(+) Well maintained and regularly updated

Open source and well maintained / developed by the community.

Weaknesses of ffuf

(-) Can be hard to interpret

Can return huge quantities of results and false positives.

(-) Will allow you to improperly use it

Will allow you to use it even when you have incorrect or poorly formed commands.

03

Mitigation

Marty.

Mitigation

(+) Sanitise inputs

(+) Protect all pages and inputs including hidden pages

(+) Use complex and irregular usernames & passwords

(+) Implement rules to block suspicious activity

Presentation by:

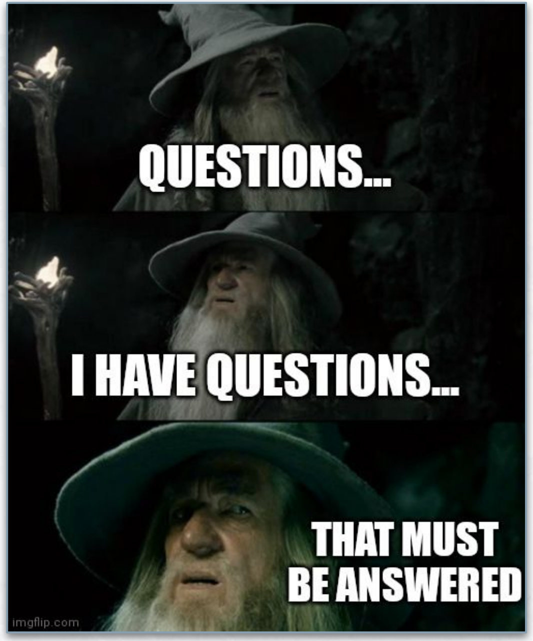
Ben TM

Marty D

Nick W

Thanks!

Any questions?



04

Appendix

Details

Assets

- Kali Linux Machine
- Vulnerable web app - DVWA, OWASP, Tryhackme CTFs
- Internet connection

Resources

- Ruxmon Melbourne April 2023
- https://tryhackme.com/
- http://ffuf.me/
- PickleRick - BYPASSING Blacklists, John Hammond, Aug 20, 2020
- https://tryhackme.com/room/ffuf
- https://github.com/ffuf/ffuf
- https://codingo.io/tools/ffuf/bounty/2020/09/17/everything-you-need-to-know-about-ffuf.html
- https://owasp.org/www-community/Fuzzing
- https://medium.com/quiknapp/fuzz-faster-with-ffuf-c18c031fc480
- https://allabouttesting.org/top-25-example-usage-of-ffuf-web-fuzzer/
- https://www.freecodecamp.org/news/web-security-fuzz-web-applications-using-ffuf/

Demonstration 2

TryHackMe: ffuf

Challenge Overview

- Challenge: web based CTF
- Objective: utilise ffuf to discover, access and exploit vulnerabilities
- Information Provided: IP Addresses (multiple)

ffuf: Enumeration and Brute Forcing

LOGIN ATTEMPT FAILED

ffuf.

05

Question Responses

Marty.

Questions

(+) How does Ffuf work with login portals with either reCAPTCHA or a CSRF token. *Credit - Asheal*

- The work around on this depends on the web app security; A simple workaround that could work is swapping the request from POST to GET as some CSRF tokens aren’t set up to validate GET requests.
- Other options may include utilising SQLMAP to grab the tokens or using token omission as a way to trip up the validation.