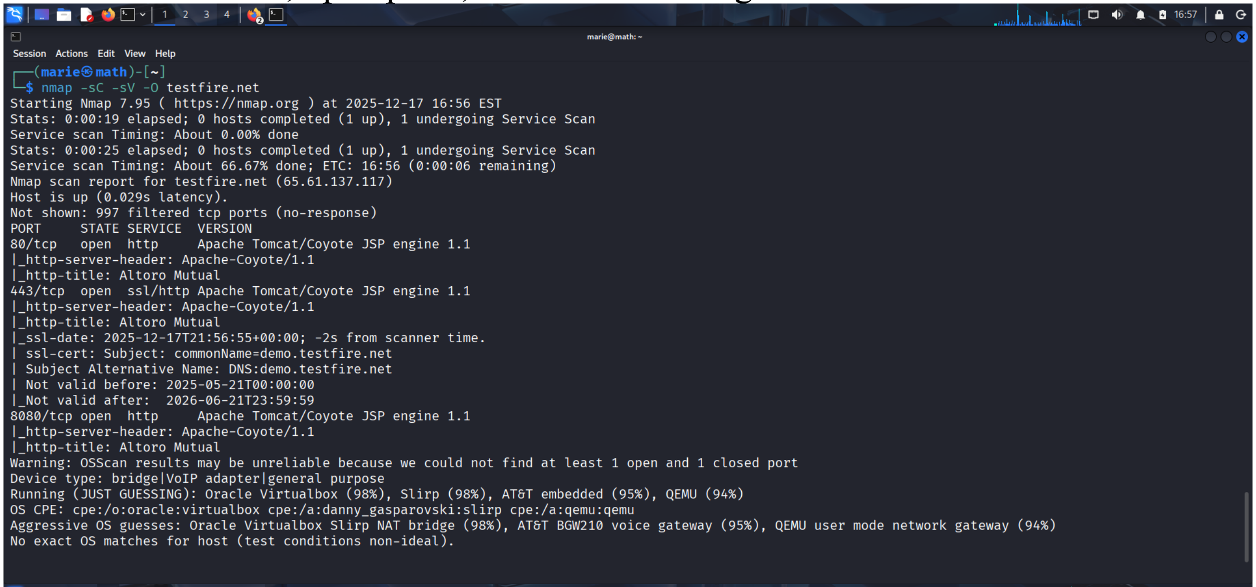
Automated Vulnerability Discovery

Tools Used(Kali Linux)

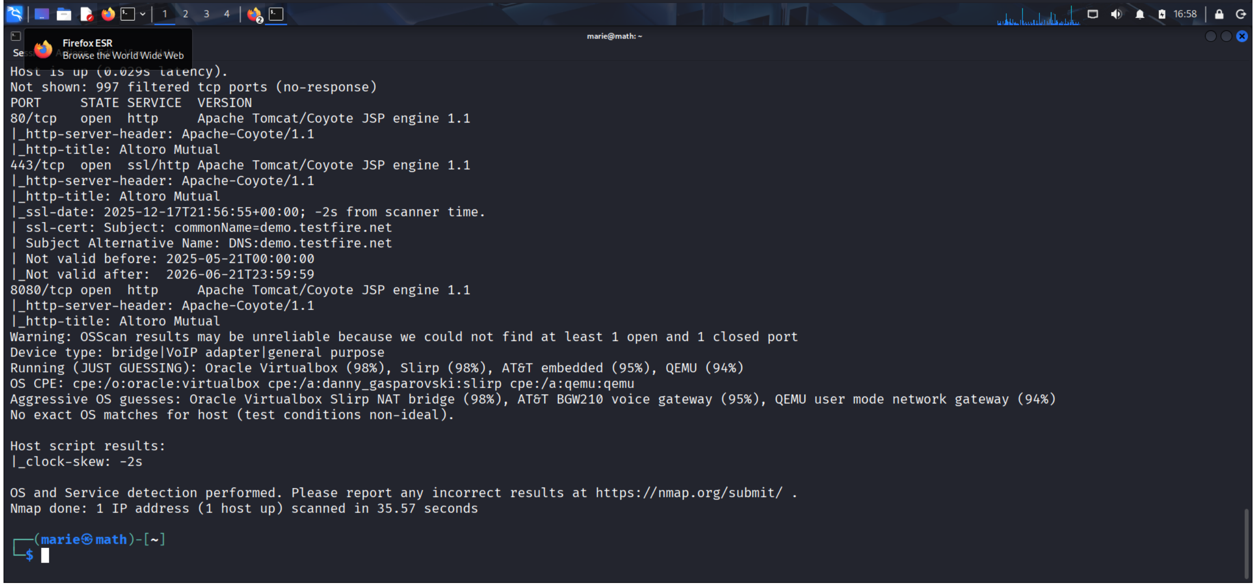
Network discovery: Nmap
Web server scanning: Nikto, WhatWeb
Automated web scanners: OWASP ZAP (baseline / active scan),
Nuclei (template-basedfast checks)
CMS / app-specific: WPScan (WordPress)
Fuzzing / directory discovery: Gobuster / Dirb

Step 1 — Recon & Discovery

Identified live host, open ports, and services using NMAP



```
┌──(marie㉿math)-[~]
└─$ nmap -sC -sV -O testfire.net
Starting Nmap 7.95 ( https://nmap.org ) at 2025-12-17 16:56 EST
Stats: 0:00:19 elapsed; 0 hosts completed (1 up), 1 undergoing Service Scan
Service scan Timing: About 0.00% done
Stats: 0:00:25 elapsed; 0 hosts completed (1 up), 1 undergoing Service Scan
Service scan Timing: About 66.67% done; ETC: 16:56 (0:00:06 remaining)
Nmap scan report for testfire.net (65.61.137.117)
Host is up (0.029s latency).
Not shown: 997 filtered tcp ports (no-response)
PORT     STATE SERVICE  VERSION
80/tcp   open  http     Apache Tomcat/Coyote JSP engine 1.1
|_http-server-header: Apache-Coyote/1.1
|_http-title: Altoro Mutual
443/tcp  open  ssl/http Apache Tomcat/Coyote JSP engine 1.1
|_http-server-header: Apache-Coyote/1.1
|_http-title: Altoro Mutual
|_ssl-date: 2025-12-17T21:56:55+00:00; -2s from scanner time.
| ssl-cert: Subject: commonName=demo.testfire.net
| Subject Alternative Name: DNS:demo.testfire.net
| Not valid before: 2025-05-21T00:00:00
|_Not valid after:  2026-06-21T23:59:59
8080/tcp open  http     Apache Tomcat/Coyote JSP engine 1.1
|_http-server-header: Apache-Coyote/1.1
|_http-title: Altoro Mutual
Warning: OSScan results may be unreliable because we could not find at least 1 open and 1 closed port
Device type: bridge|VoIP adapter|general purpose
Running (JUST GUESSING): Oracle Virtualbox (98%), Slirp (98%), AT&T embedded (95%), QEMU (94%)
OS CPE: cpe:/o:oracle:virtualbox cpe:/a:danny_gasparovski:slirp cpe:/a:qemu:qemu
Aggressive OS guesses: Oracle Virtualbox Slirp NAT bridge (98%), AT&T BGW210 voice gateway (95%), QEMU user mode network gateway (94%)
No exact OS matches for host (test conditions non-ideal).
```



```
Host is up (0.029s latency).
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PORT     STATE SERVICE  VERSION
80/tcp   open  http     Apache Tomcat/Coyote JSP engine 1.1
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|_http-server-header: Apache-Coyote/1.1
|_http-title: Altoro Mutual
|_ssl-date: 2025-12-17T21:56:55+00:00; -2s from scanner time.
| ssl-cert: Subject: commonName=demo.testfire.net
| Subject Alternative Name: DNS:demo.testfire.net
| Not valid before: 2025-05-21T00:00:00
|_Not valid after:  2026-06-21T23:59:59
8080/tcp open  http     Apache Tomcat/Coyote JSP engine 1.1
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No exact OS matches for host (test conditions non-ideal).

Host script results:
|_clock-skew: -2s

OS and Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 35.57 seconds

┌──(marie㉿math)-[~]
└─$ 
```
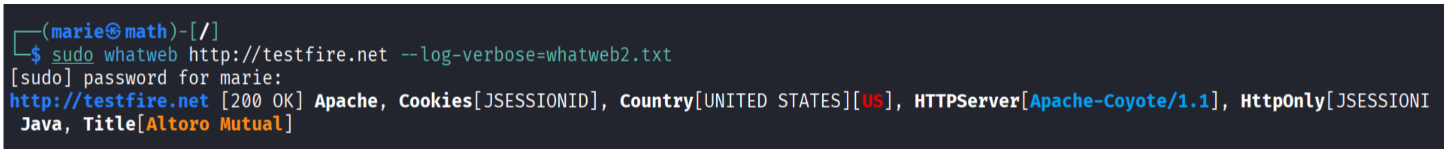
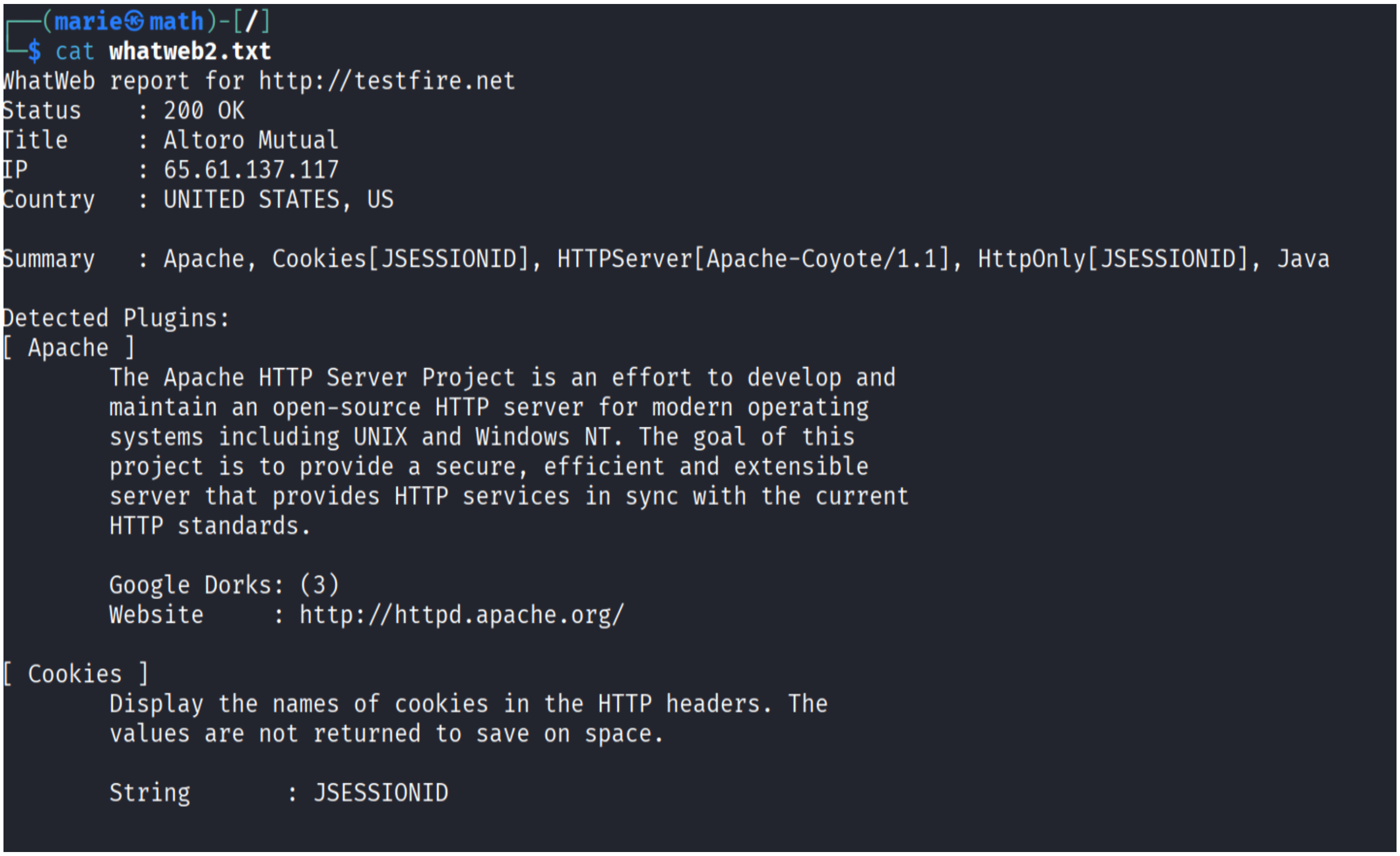
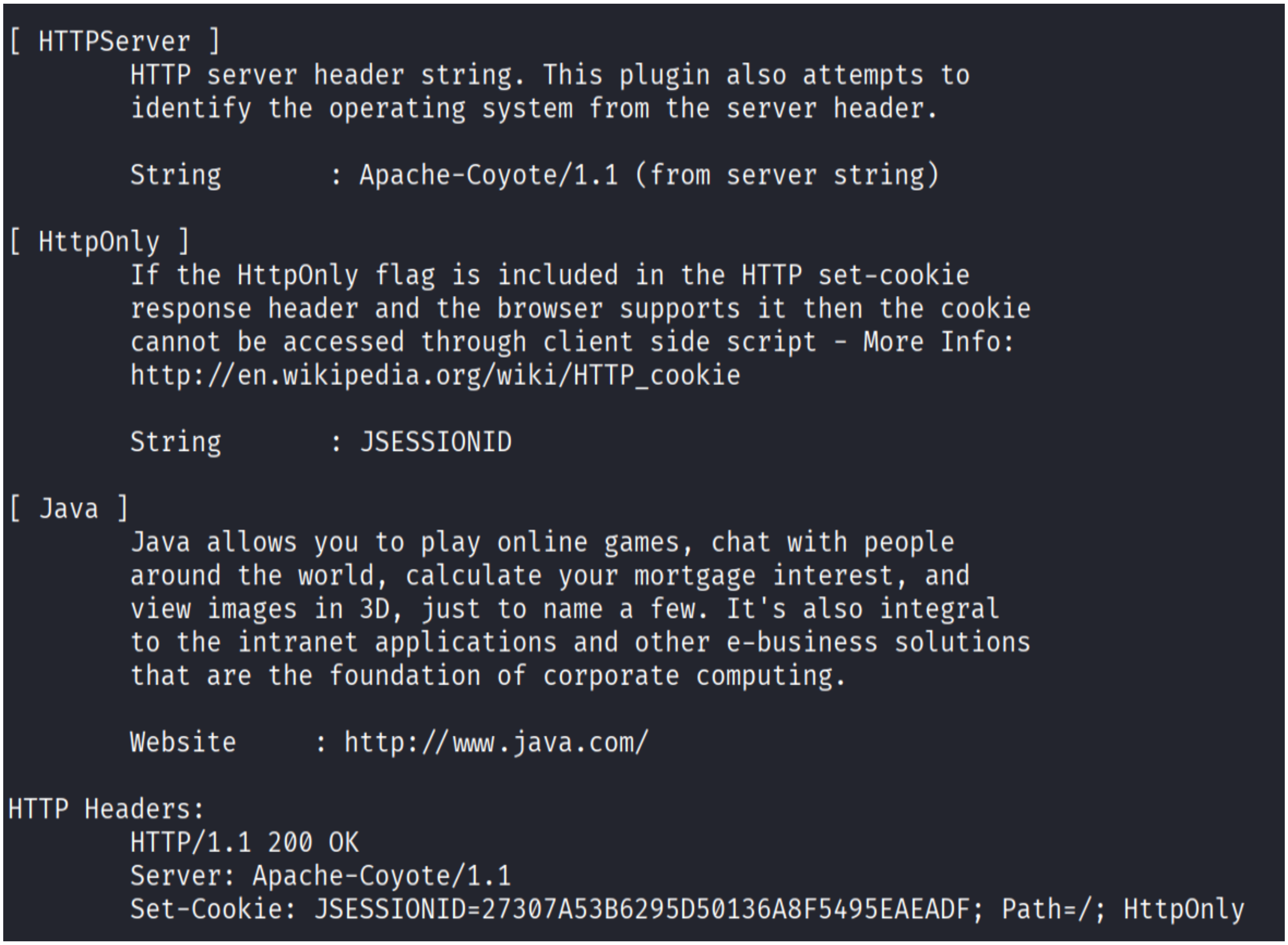

Web fingerprinting: whatweb / wappalyzer



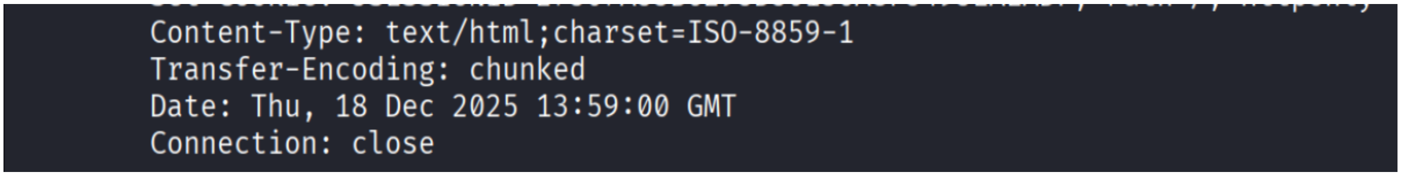
```
┌──(marie㉿math)-[/]
└─$ sudo whatweb http://testfire.net --log-verbose=whatweb2.txt
[sudo] password for marie:
http://testfire.net [200 OK] Apache, Cookies[JSESSIONID], Country[UNITED STATES][US], HTTPServer[Apache-Coyote/1.1], HttpOnly[JSESSIONI
 Java, Title[Altoro Mutual]
```



```
┌──(marie㉿math)-[/]
└─$ cat whatweb2.txt
WhatWeb report for http://testfire.net
Status    : 200 OK
Title     : Altoro Mutual
IP        : 65.61.137.117
Country   : UNITED STATES, US

Summary   : Apache, Cookies[JSESSIONID], HTTPServer[Apache-Coyote/1.1], HttpOnly[JSESSIONID], Java

Detected Plugins:
[ Apache ]
        The Apache HTTP Server Project is an effort to develop and
        maintain an open-source HTTP server for modern operating
        systems including UNIX and Windows NT. The goal of this
        project is to provide a secure, efficient and extensible
        server that provides HTTP services in sync with the current
        HTTP standards.

        Google Dorks: (3)
        Website     : http://httpd.apache.org/

[ Cookies ]
        Display the names of cookies in the HTTP headers. The
        values are not returned to save on space.

        String       : JSESSIONID
```

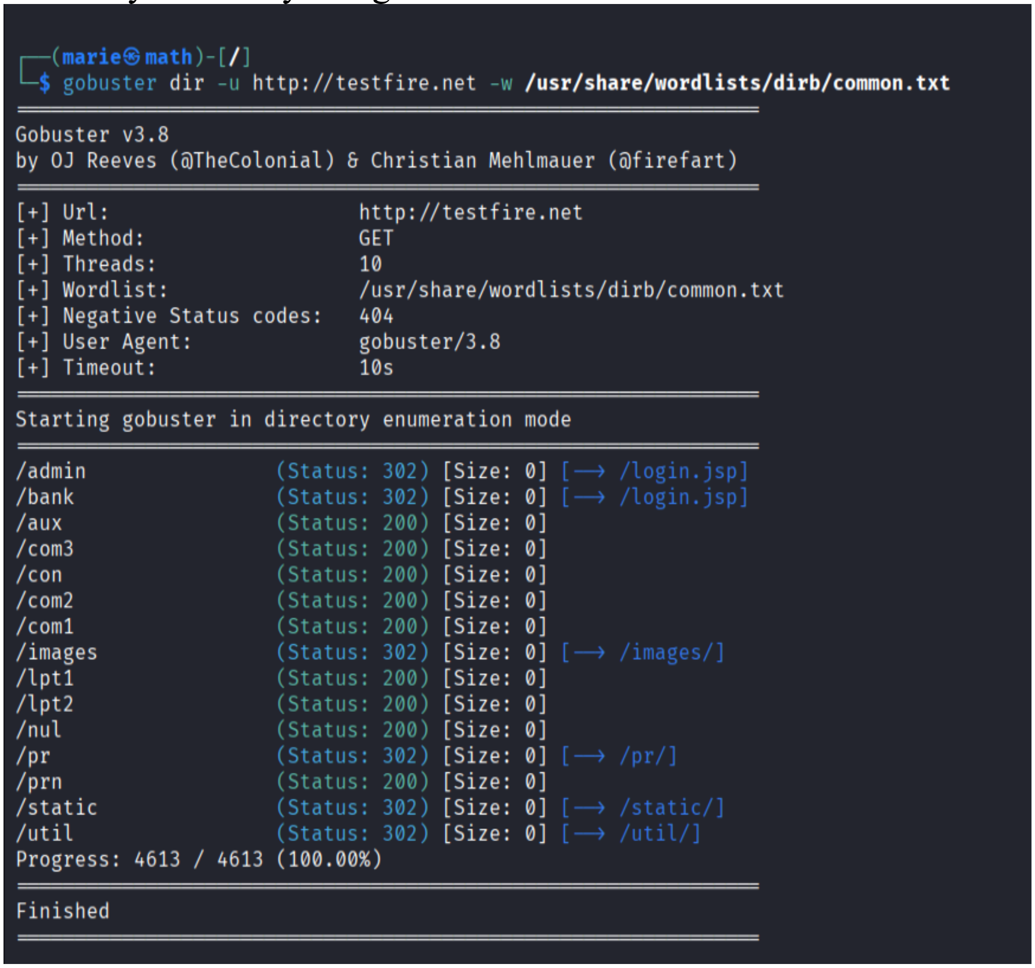


```
[ HTTPServer ]
        HTTP server header string. This plugin also attempts to
        identify the operating system from the server header.

        String       : Apache-Coyote/1.1 (from server string)

[ HttpOnly ]
        If the HttpOnly flag is included in the HTTP set-cookie
        response header and the browser supports it then the cookie
        cannot be accessed through client side script - More Info:
        http://en.wikipedia.org/wiki/HTTP_cookie

        String       : JSESSIONID

[ Java ]
        Java allows you to play online games, chat with people
        around the world, calculate your mortgage interest, and
        view images in 3D, just to name a few. It's also integral
        to the intranet applications and other e-business solutions
        that are the foundation of corporate computing.

        Website     : http://www.java.com/

HTTP Headers:
        HTTP/1.1 200 OK
        Server: Apache-Coyote/1.1
        Set-Cookie: JSESSIONID=27307A53B6295D50136A8F5495EAEADF; Path=/; HttpOnly
```



```
        Content-Type: text/html;charset=ISO-8859-1
        Transfer-Encoding: chunked
        Date: Thu, 18 Dec 2025 13:59:00 GMT
        Connection: close
```

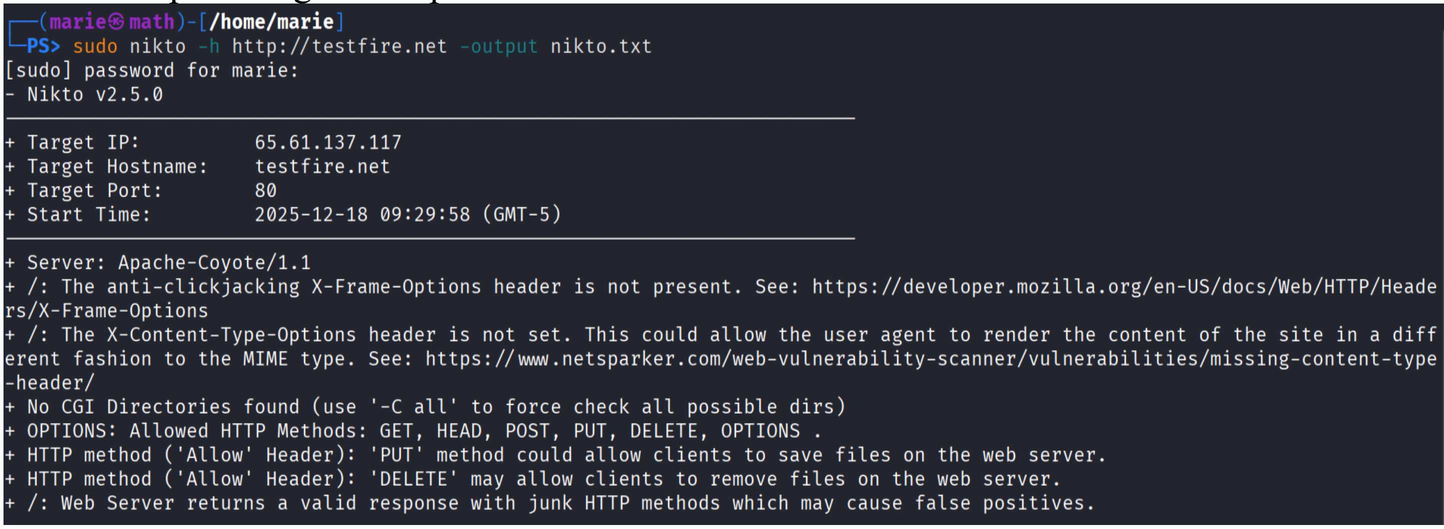
Directory discovery using DIRB



```
┌──(marie㉿math)-[/]
└─$ gobuster dir -u http://testfire.net -w /usr/share/wordlists/dirb/common.txt
===============================================================
Gobuster v3.8
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
===============================================================
[+] Url:                     http://testfire.net
[+] Method:                  GET
[+] Threads:                 10
[+] Wordlist:                /usr/share/wordlists/dirb/common.txt
[+] Negative Status codes:   404
[+] User Agent:              gobuster/3.8
[+] Timeout:                 10s
===============================================================
Starting gobuster in directory enumeration mode
===============================================================
/admin                (Status: 302) [Size: 0] [--> /login.jsp]
/bank                 (Status: 302) [Size: 0] [--> /login.jsp]
/aux                  (Status: 200) [Size: 0]
/com3                 (Status: 200) [Size: 0]
/con                  (Status: 200) [Size: 0]
/com2                 (Status: 200) [Size: 0]
/com1                 (Status: 200) [Size: 0]
/images               (Status: 302) [Size: 0] [--> /images/]
/lpt1                 (Status: 200) [Size: 0]
/lpt2                 (Status: 200) [Size: 0]
/nul                  (Status: 200) [Size: 0]
/pr                   (Status: 302) [Size: 0] [--> /pr/]
/prn                  (Status: 200) [Size: 0]
/static               (Status: 302) [Size: 0] [--> /static/]
/util                 (Status: 302) [Size: 0] [--> /util/]
Progress: 4613 / 4613 (100.00%)
===============================================================
Finished
===============================================================
```

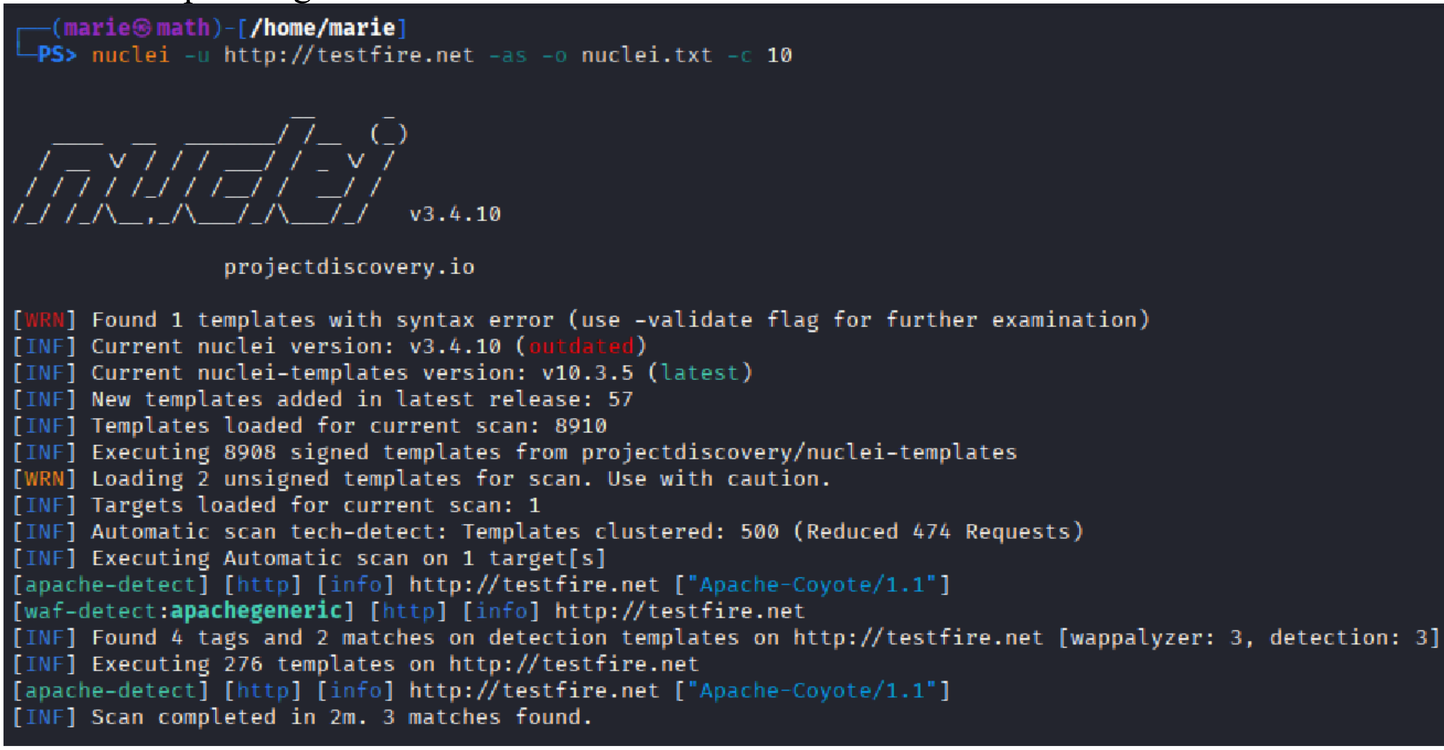
Step 2: Light Automated Scans

Nikto (HTTP server issues, headers, outdated software)
nikto -h https://<target> -output nikto.txt



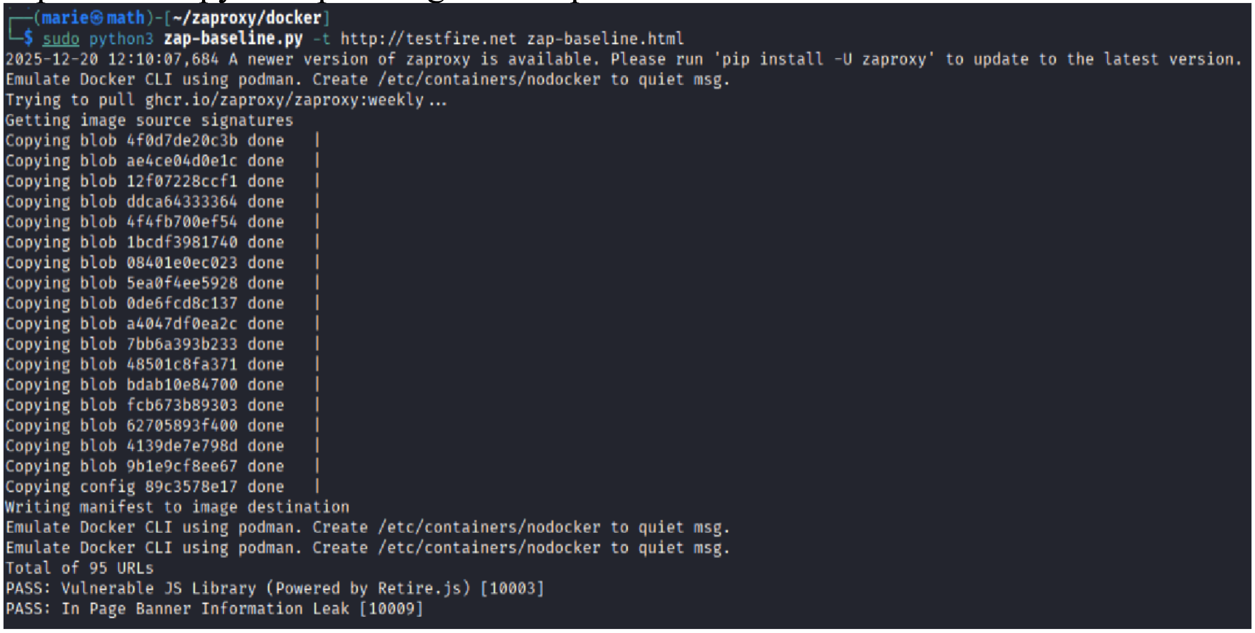
```
┌──(marie㉿math)-[/home/marie]
└─PS> sudo nikto -h http://testfire.net -output nikto.txt
[sudo] password for marie:
- Nikto v2.5.0
---------------------------------------------------------------------------
+ Target IP:          65.61.137.117
+ Target Hostname:    testfire.net
+ Target Port:        80
+ Start Time:         2025-12-18 09:29:58 (GMT-5)
---------------------------------------------------------------------------
+ Server: Apache-Coyote/1.1
+ /: The anti-clickjacking X-Frame-Options header is not present. See: https://developer.mozilla.org/en-US/docs/Web/HTTP/Heade
rs/X-Frame-Options
+ /: The X-Content-Type-Options header is not set. This could allow the user agent to render the content of the site in a diff
erent fashion to the MIME type. See: https://www.netsparker.com/web-vulnerability-scanner/vulnerabilities/missing-content-type
-header/
+ No CGI Directories found (use '-C all' to force check all possible dirs)
+ OPTIONS: Allowed HTTP Methods: GET, HEAD, POST, PUT, DELETE, OPTIONS .
+ HTTP method ('Allow' Header): 'PUT' method could allow clients to save files on the web server.
+ HTTP method ('Allow' Header): 'DELETE' may allow clients to remove files on the web server.
+ /: Web Server returns a valid response with junk HTTP methods which may cause false positives.
```

Nuclei (fast template checks)
nuclei -u http://<target> -as -o nuclei.txt -c 10

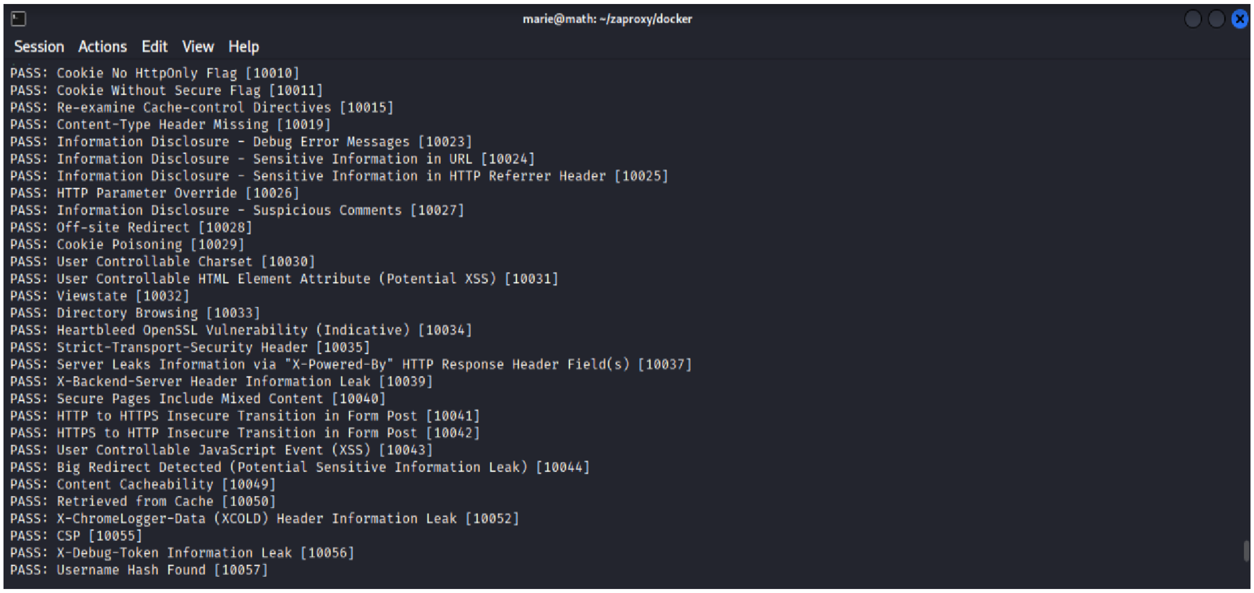


```
┌──(marie㉿math)-[/home/marie]
└─PS> nuclei -u http://testfire.net -as -o nuclei.txt -c 10

                     __     _
   ____  __  _______/ /__  (_)
  / __ \/ / / / ___/ / _ \/ /
 / / / / /_/ / /__/ /  __/ /
/_/ /_/\__,_/\___/_/\___/_/   v3.4.10

                projectdiscovery.io

[WRN] Found 1 templates with syntax error (use -validate flag for further examination)
[INF] Current nuclei version: v3.4.10 (outdated)
[INF] Current nuclei-templates version: v10.3.5 (latest)
[INF] New templates added in latest release: 57
[INF] Templates loaded for current scan: 8910
[INF] Executing 8908 signed templates from projectdiscovery/nuclei-templates
[WRN] Loading 2 unsigned templates for scan. Use with caution.
[INF] Targets loaded for current scan: 1
[INF] Automatic scan tech-detect: Templates clustered: 500 (Reduced 474 Requests)
[INF] Executing Automatic scan on 1 target[s]
[apache-detect] [http] [info] http://testfire.net ["Apache-Coyote/1.1"]
[waf-detect:apachegeneric] [http] [info] http://testfire.net
[INF] Found 4 tags and 2 matches on detection templates on http://testfire.net [wappalyzer: 3, detection: 3]
[INF] Executing 276 templates on http://testfire.net
[apache-detect] [http] [info] http://testfire.net ["Apache-Coyote/1.1"]
[INF] Scan completed in 2m. 3 matches found.
```

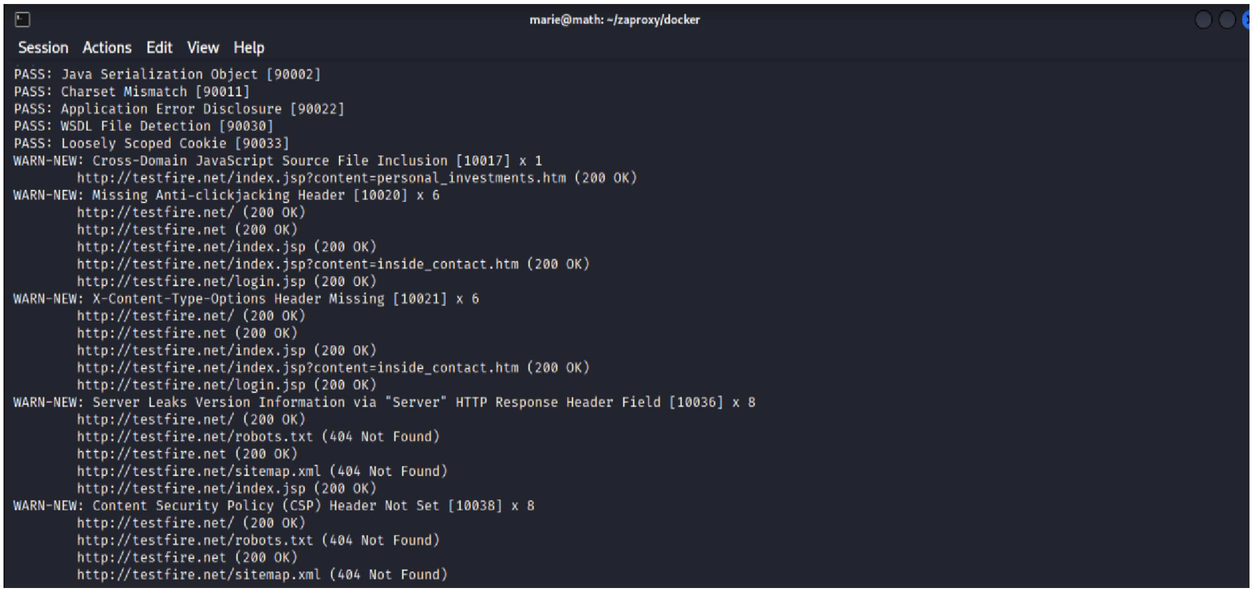
OWASP ZAP baseline scan :
zap-baseline.py -t http://<target> -r zap-baseline.html



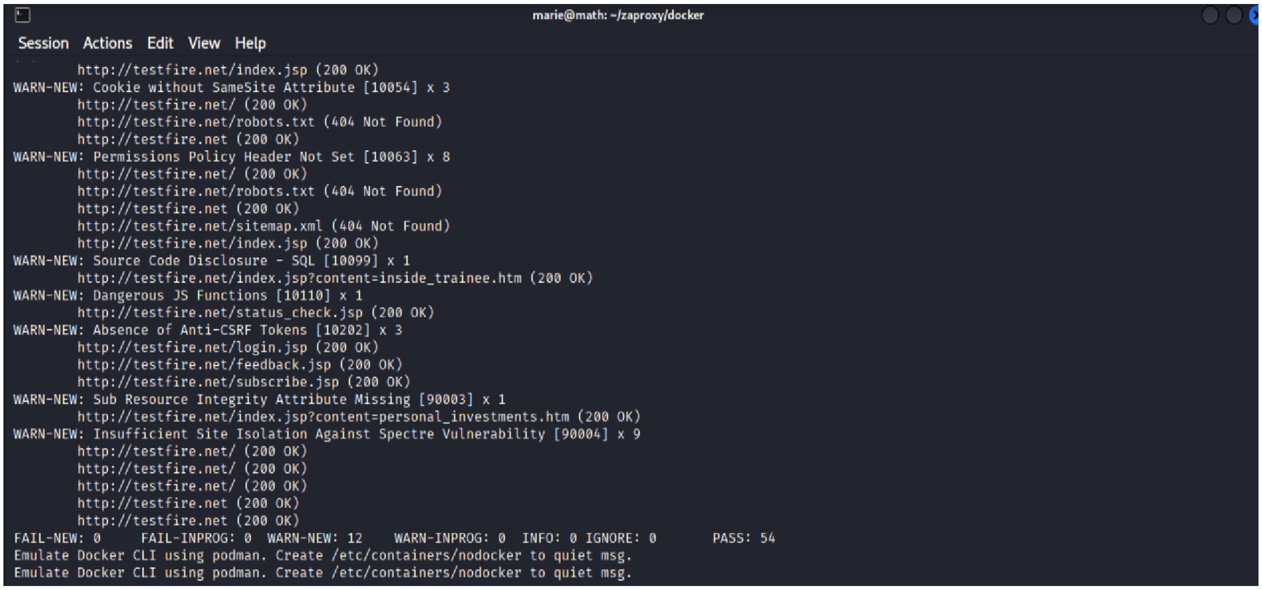
```
┌──(marie㉿math)-[~/zaproxy/docker]
└─$ sudo python3 zap-baseline.py -t http://testfire.net zap-baseline.html
2025-12-20 12:10:07,684 A newer version of zaproxy is available. Please run 'pip install -U zaproxy' to update to the latest version.
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
Trying to pull ghcr.io/zaproxy/zaproxy:weekly...
Getting image source signatures
Copying blob 4f0d7de20c3b done   |
Copying blob ae4ce04d0e1c done   |
Copying blob 12f07228ccf1 done   |
Copying blob ddca64333364 done   |
Copying blob 4f4fb700ef54 done   |
Copying blob 1bcdf3981740 done   |
Copying blob 08401e0ec023 done   |
Copying blob 5ea0f4ee5928 done   |
Copying blob 0de6fcd8c137 done   |
Copying blob a4047df0ea2c done   |
Copying blob 7bb6a393b233 done   |
Copying blob 48501c8fa371 done   |
Copying blob bdab10e84700 done   |
Copying blob fcb673b89303 done   |
Copying blob 62705893f400 done   |
Copying blob 4139de7e798d done   |
Copying blob 9b1e9cf8ee67 done   |
Copying config 89c3578e17 done   |
Writing manifest to image destination
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
Total of 95 URLs
PASS: Vulnerable JS Library (Powered by Retire.js) [10003]
PASS: In Page Banner Information Leak [10009]
```



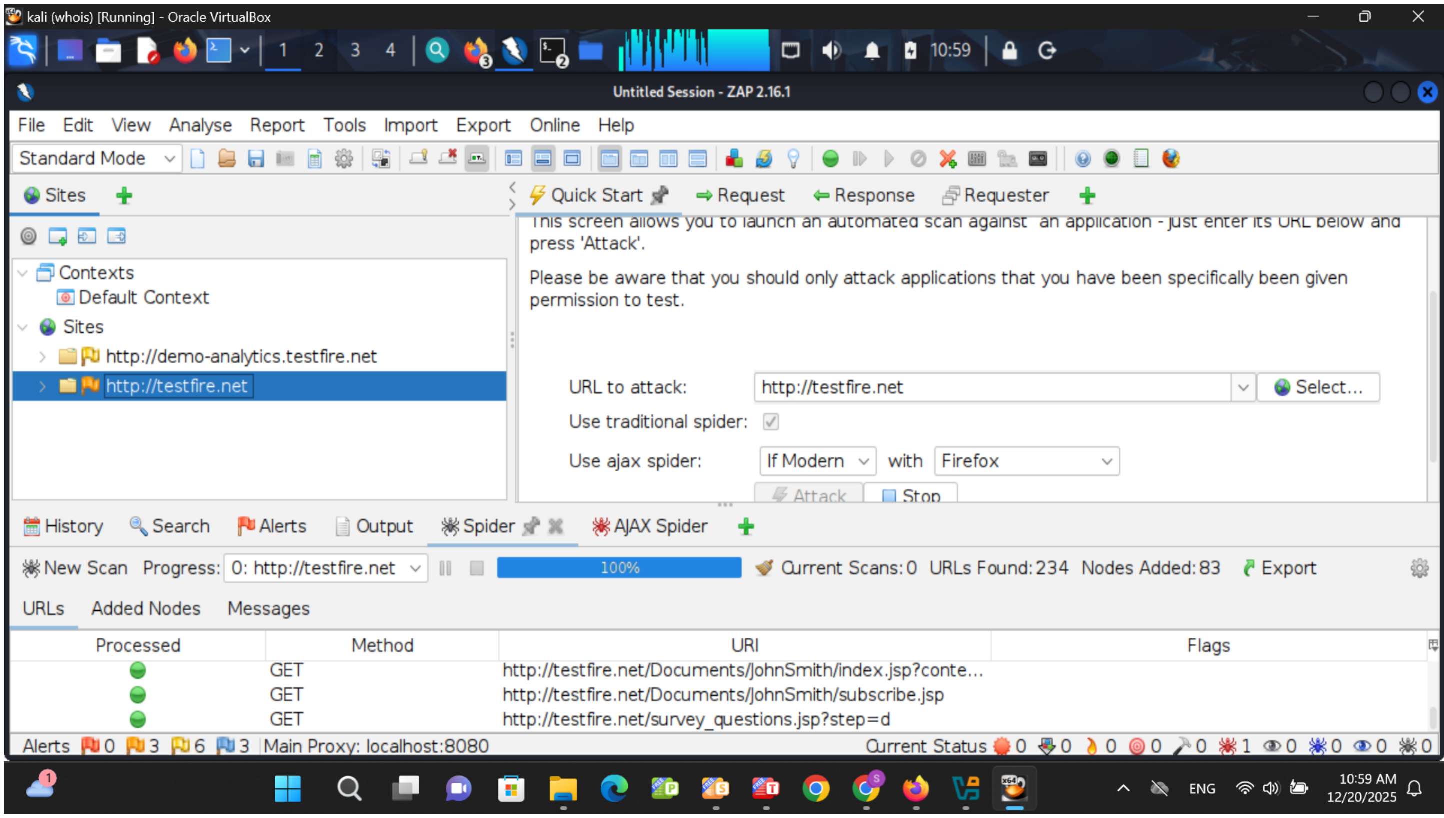
```
PASS: Cookie No HttpOnly Flag [10010]
PASS: Cookie Without Secure Flag [10011]
PASS: Re-examine Cache-control Directives [10015]
PASS: Content-Type Header Missing [10019]
PASS: Information Disclosure - Debug Error Messages [10023]
PASS: Information Disclosure - Sensitive Information in URL [10024]
PASS: Information Disclosure - Sensitive Information in HTTP Referrer Header [10025]
PASS: HTTP Parameter Override [10026]
PASS: Information Disclosure - Suspicious Comments [10027]
PASS: Off-site Redirect [10028]
PASS: Cookie Poisoning [10029]
PASS: User Controllable Charset [10030]
PASS: User Controllable HTML Element Attribute (Potential XSS) [10031]
PASS: Viewstate [10032]
PASS: Directory Browsing [10033]
PASS: Heartbleed OpenSSL Vulnerability (Indicative) [10034]
PASS: Strict-Transport-Security Header [10035]
PASS: Server Leaks Information via "X-Powered-By" HTTP Response Header Field(s) [10037]
PASS: X-Backend-Server Header Information Leak [10039]
PASS: Secure Pages Include Mixed Content [10040]
PASS: HTTP to HTTPS Insecure Transition in Form Post [10041]
PASS: HTTPS to HTTP Insecure Transition in Form Post [10042]
PASS: User Controllable JavaScript Event (XSS) [10043]
PASS: Big Redirect Detected (Potential Sensitive Information Leak) [10044]
PASS: Content Cacheability [10049]
PASS: Retrieved from Cache [10050]
PASS: X-ChromeLogger-Data (XCOLD) Header Information Leak [10052]
PASS: CSP [10055]
PASS: X-Debug-Token Information Leak [10056]
PASS: Username Hash Found [10057]
```



```
PASS: Java Serialization Object [90002]
PASS: Charset Mismatch [90011]
PASS: Application Error Disclosure [90022]
PASS: WSDL File Detection [90030]
PASS: Loosely Scoped Cookie [90033]
WARN-NEW: Cross-Domain JavaScript Source File Inclusion [10017] x 1
        http://testfire.net/index.jsp?content=personal_investments.htm (200 OK)
WARN-NEW: Missing Anti-clickjacking Header [10020] x 6
        http://testfire.net/ (200 OK)
        http://testfire.net (200 OK)
        http://testfire.net/index.jsp (200 OK)
        http://testfire.net/index.jsp?content=inside_contact.htm (200 OK)
        http://testfire.net/login.jsp (200 OK)
WARN-NEW: X-Content-Type-Options Header Missing [10021] x 6
        http://testfire.net/ (200 OK)
        http://testfire.net (200 OK)
        http://testfire.net/index.jsp (200 OK)
        http://testfire.net/index.jsp?content=inside_contact.htm (200 OK)
        http://testfire.net/login.jsp (200 OK)
WARN-NEW: Server Leaks Version Information via "Server" HTTP Response Header Field [10036] x 8
        http://testfire.net/ (200 OK)
        http://testfire.net/robots.txt (404 Not Found)
        http://testfire.net (200 OK)
        http://testfire.net/sitemap.xml (404 Not Found)
        http://testfire.net/index.jsp (200 OK)
WARN-NEW: Content Security Policy (CSP) Header Not Set [10038] x 8
        http://testfire.net/ (200 OK)
        http://testfire.net/robots.txt (404 Not Found)
        http://testfire.net (200 OK)
        http://testfire.net/sitemap.xml (404 Not Found)
```



```
        http://testfire.net/index.jsp (200 OK)
WARN-NEW: Cookie without SameSite Attribute [10054] x 3
        http://testfire.net/ (200 OK)
        http://testfire.net/robots.txt (404 Not Found)
        http://testfire.net (200 OK)
WARN-NEW: Permissions Policy Header Not Set [10063] x 8
        http://testfire.net/ (200 OK)
        http://testfire.net/robots.txt (404 Not Found)
        http://testfire.net (200 OK)
        http://testfire.net/sitemap.xml (404 Not Found)
        http://testfire.net/index.jsp (200 OK)
WARN-NEW: Source Code Disclosure - SQL [10099] x 1
        http://testfire.net/index.jsp?content=inside_trainee.htm (200 OK)
WARN-NEW: Dangerous JS Functions [10110] x 1
        http://testfire.net/status_check.jsp (200 OK)
WARN-NEW: Absence of Anti-CSRF Tokens [10202] x 3
        http://testfire.net/login.jsp (200 OK)
        http://testfire.net/feedback.jsp (200 OK)
        http://testfire.net/subscribe.jsp (200 OK)
WARN-NEW: Sub Resource Integrity Attribute Missing [90003] x 1
        http://testfire.net/index.jsp?content=personal_investments.htm (200 OK)
WARN-NEW: Insufficient Site Isolation Against Spectre Vulnerability [90004] x 9
        http://testfire.net/ (200 OK)
        http://testfire.net/ (200 OK)
        http://testfire.net/ (200 OK)
        http://testfire.net (200 OK)
        http://testfire.net (200 OK)
FAIL-NEW: 0     FAIL-INPROG: 0  WARN-NEW: 12    WARN-INPROG: 0  INFO: 0 IGNORE: 0       PASS: 54
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
Emulate Docker CLI using podman. Create /etc/containers/nodocker to quiet msg.
```



This screen allows you to launch an automated scan against an application - just enter its URL below and press 'Attack'.

Please be aware that you should only attack applications that you have been specifically been given permission to test.

URL to attack: http://testfire.net

Use traditional spider: ☑

Use ajax spider: If Modern with Firefox

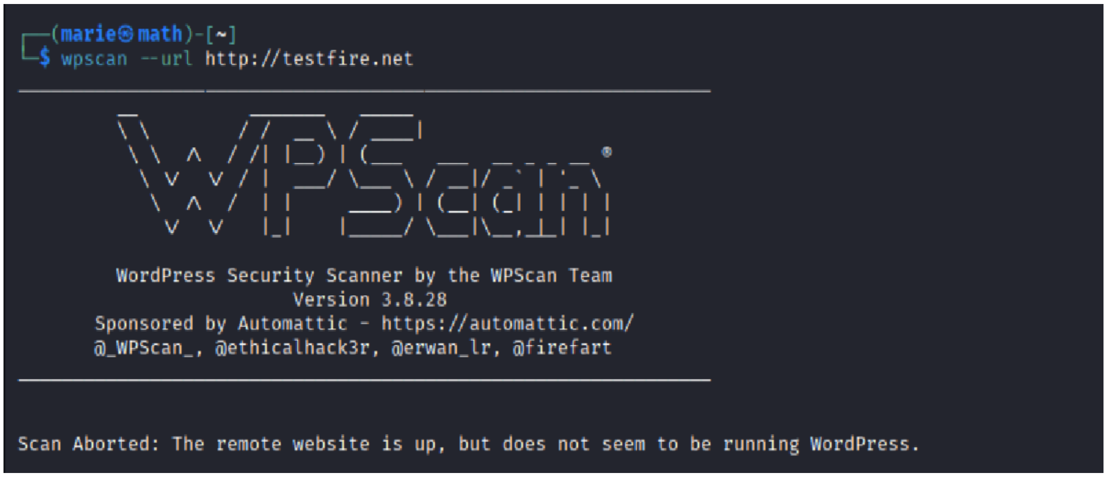
Progress: 0: http://testfire.net 100% Current Scans: 0 URLs Found: 234 Nodes Added: 83

Processed	Method	URI	Flags
●	GET	http://testfire.net/Documents/JohnSmith/index.jsp?conte...	
●	GET	http://testfire.net/Documents/JohnSmith/subscribe.jsp	
●	GET	http://testfire.net/survey_questions.jsp?step=d	

Alerts 0 3 6 3 Main Proxy: localhost:8080 Current Status 0 0 0 0 0 1 0 0 0 0

WPScan :

wpscan --url https://testfire.net



```
┌──(marie㉿math)-[~]
└─$ wpscan --url http://testfire.net
_______________________________________________________________
         __          _______   _____
         \ \        / /  __ \ / ____|
          \ \  /\  / /| |__) | (___   ___  __ _ _ __ ®
           \ \/  \/ / |  ___/ \___ \ / __|/ _` | '_ \
            \  /\  /  | |     ____) | (__| (_| | | | |
             \/  \/   |_|    |_____/ \___|\__,_|_| |_|

         WordPress Security Scanner by the WPScan Team
                         Version 3.8.28
       Sponsored by Automattic - https://automattic.com/
       @_WPScan_, @ethicalhack3r, @erwan_lr, @firefart
_______________________________________________________________

Scan Aborted: The remote website is up, but does not seem to be running WordPress.
```