CYBERSECURITY

OSINT FRAMEWORK & FOOTPRINTING

—

By Fareeha Naveed

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DISCLAIMER

This document has been created solely for educational and research purposes. The techniques, tools, and methods described for Open-Source Intelligence (OSINT) gathering and website footprinting are intended to enhance understanding of cybersecurity concepts.

The information on OSINT and website footprinting must not be used for unauthorized or malicious activities. Performing these techniques without proper consent may be illegal. The author assumes no responsibility for any misuse; users are solely responsible for ensuring legal and ethical use.

INTRODUCTION to OSINT & FOOTPRINTING:

The ***OSINT Framework*** is a publicly available, web-based directory that organizes and categorizes hundreds of OSINT tools and resources, acting as a roadmap to help investigators find the right tools for their tasks.

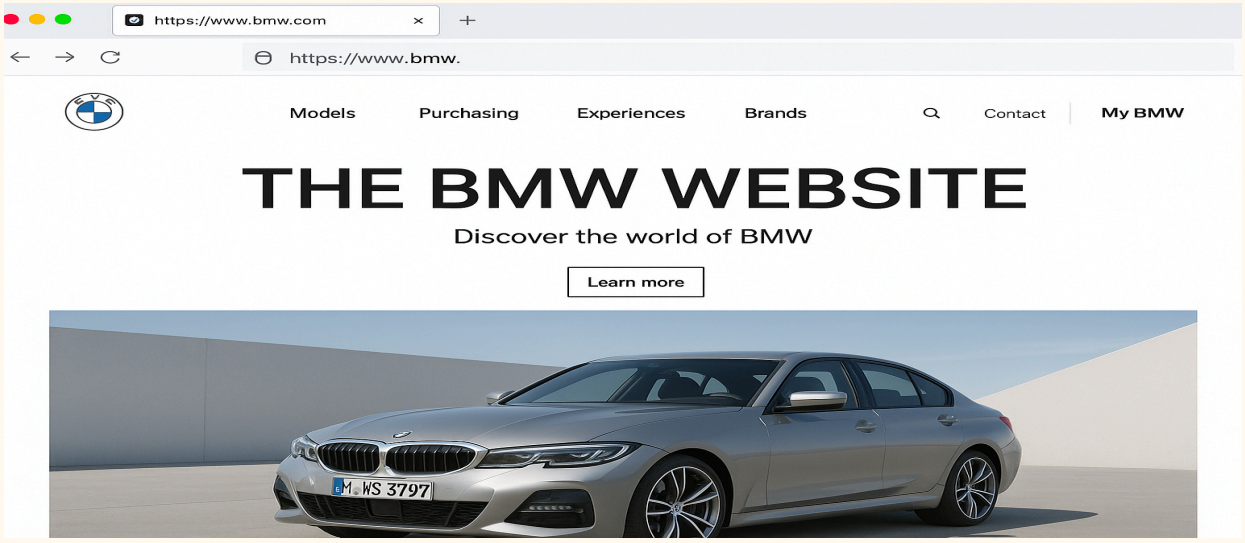
Footprinting, also known as reconnaissance, is a preliminary phase in penetration testing and ethical hacking, where an attacker gathers information about a target system or network before

launching an attack. This involves collecting data about the target's infrastructure, systems, and employees to identify potential vulnerabilities.

- Footprinting: is the initial phase of gathering information about a target.
- OSINT: is the method used to find this information by accessing public data.
- Together, they create a detailed picture of a target's digital footprint, revealing their online activities, connections, and vulnerabilities.

TARGETED DOMAIN

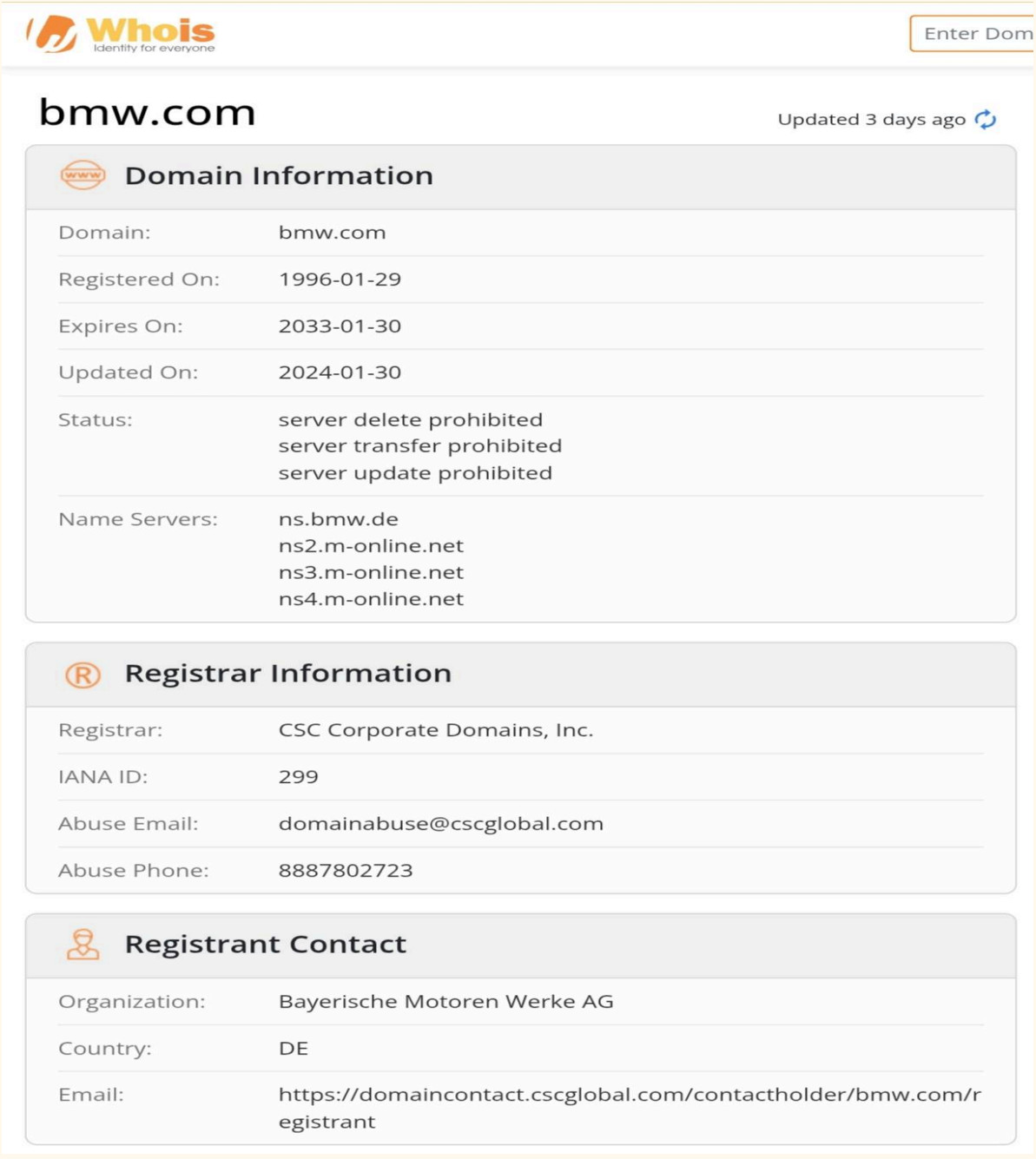
The target website for this OSINT and footprinting exercise is BMW.COM , the official online presence of Bayerische Motoren Werke AG (BMW Group), a globally recognized automobile manufacturer headquartered in Munich, Germany.In the context of footprinting, BMW.com will be analyzed to gather publicly available information about its infrastructure, technologies, and digital footprint. This process does not involve exploiting or attacking the system but focuses on collecting intelligence such as **domain details, DNS records, server information, hosting providers, SSL certificates, and other metadata** that help understand the site's architecture and exposure on the internet by using active and passive footprinting.



TASK 1: Identify Domain Registrar, Creation Date, and Contacts

APPROACH: **Passive Reconnaissance**

TOOL USED: WHOIS LOOKUP / Whois bmw.com (in Kali)



Whois
Identity for everyone

Enter Dom

bmw.com

Updated 3 days ago

Domain Information

Domain:	bmw.com
Registered On:	1996-01-29
Expires On:	2033-01-30
Updated On:	2024-01-30
Status:	server delete prohibited server transfer prohibited server update prohibited
Name Servers:	ns.bmw.de ns2.m-online.net ns3.m-online.net ns4.m-online.net

Registrar Information

Registrar:	CSC Corporate Domains, Inc.
IANA ID:	299
Abuse Email:	domainabuse@cscglobal.com
Abuse Phone:	8887802723

Registrant Contact

Organization:	Bayerische Motoren Werke AG
Country:	DE
Email:	https://domaincontact.cscglobal.com/contactholder/bmw.com/registrant

🔐 KEY FINDINGS:

Domain Information

- Domain: bmw.com

- Registered On:1996-01-29
- Expires On:2033-01-30
- Updated On:2024-01-30

Status:

- server delete prohibited / server transfer prohibited / server update prohibited

Name Servers:

- ns.bmw.de
- ns2.m-online.net
- ns3.m-online.net
- ns4.m-online.net

Registrar Information

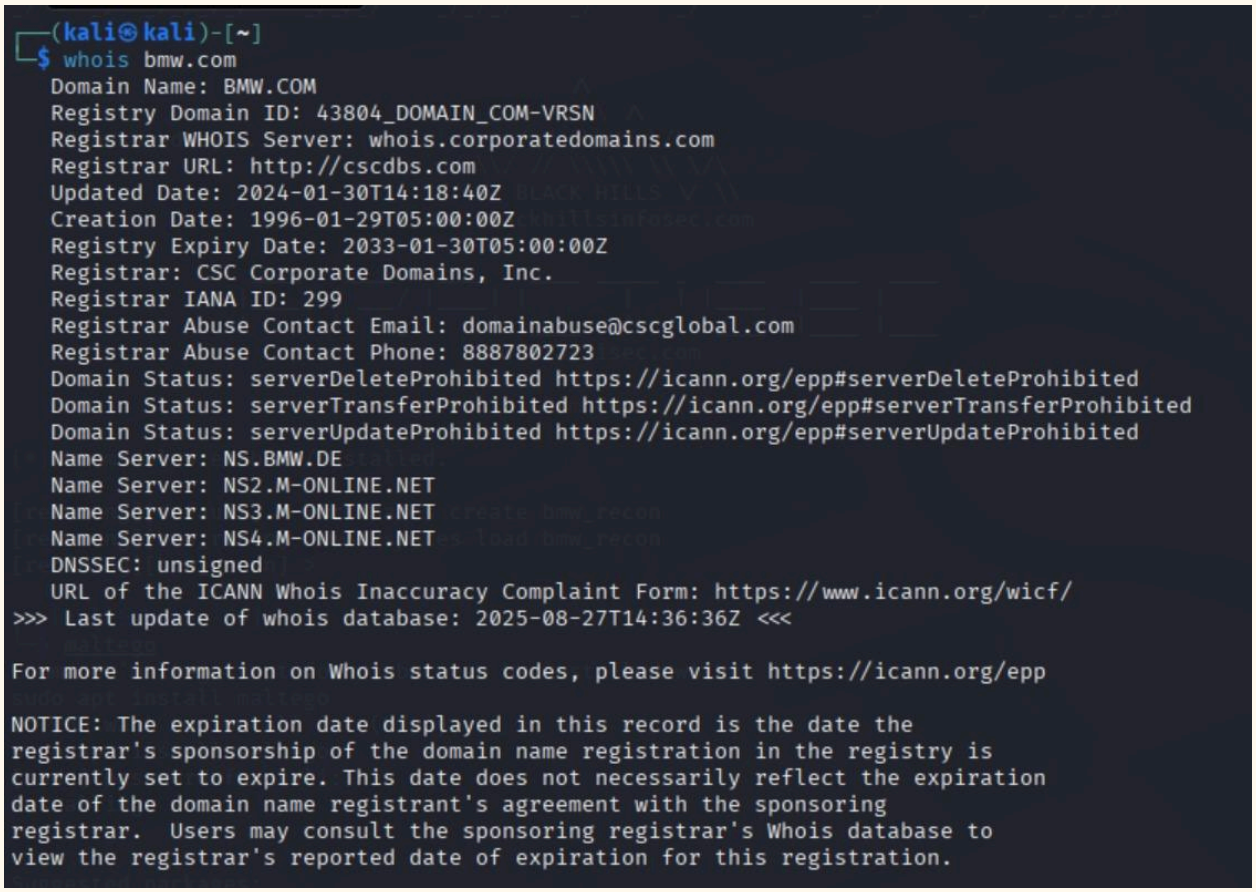
- Registrar: CSC Corporate Domains, Inc.
- IANA ID:299
- Abuse Email:domainabuse@cscglobal.com
- Abuse Phone:8887802723

Registrant Contact

- Organization: **Bayerische Motoren Werke** AG
- Country:DE
- Email: https://domaincontact.cscglobal.com/contactholder/bmw.com/registrant

BMW is registered with CSC Corporate Domains on 29/01/1996 and is valid till 30/01/2033. It has HYBRID DNS CONFIGURATION SYSTEM. The name server *ns.bmw.de* is the custom domain of BMW and it is self hosted

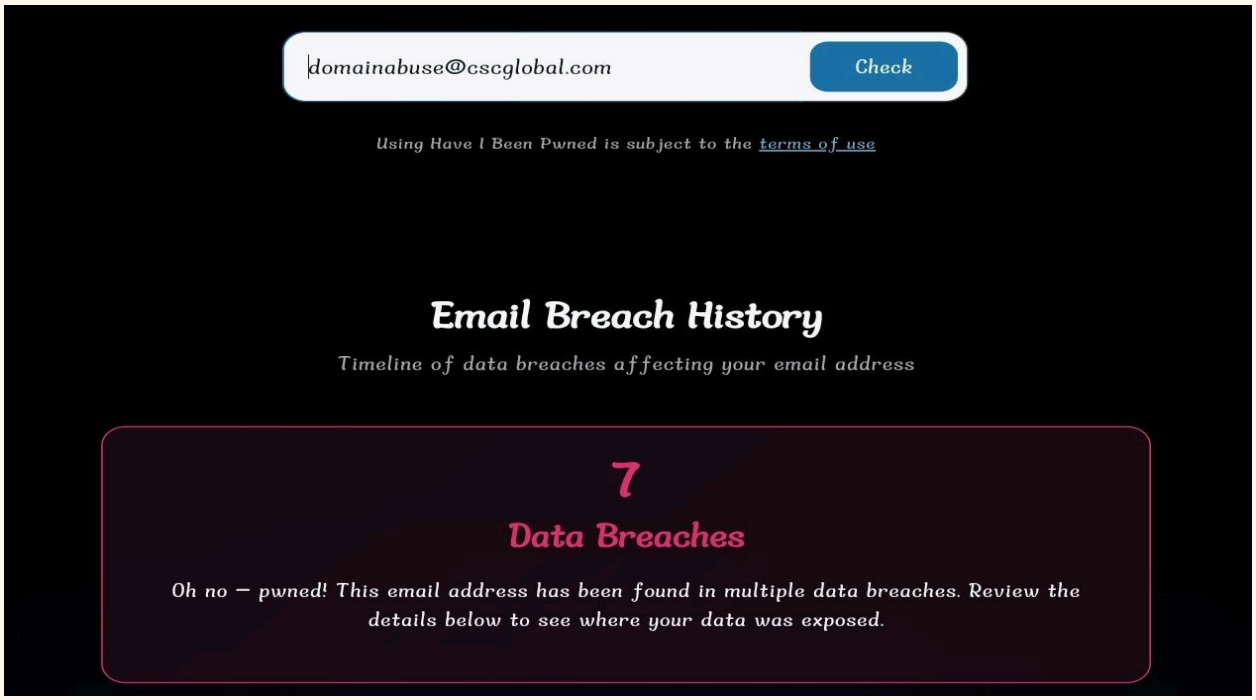
We can use Kali Linux for these details or to cross check from both the sources. On terminal we found the Name Servers, Registrar IDs , Abuse emails and contact info , Domain of bmw.com



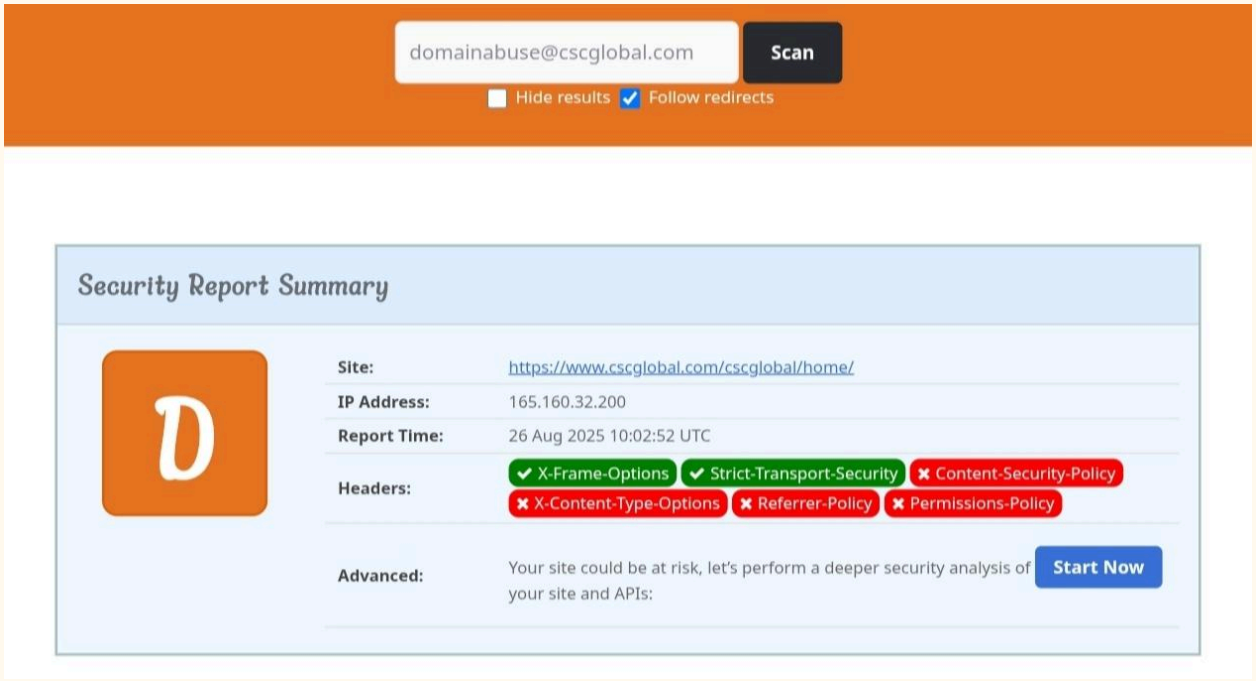
TASK 2 : CHECKING THE DATA BREACH OF ABUSE EMAIL

APPROACH: Passive Reconnaissance

TOOL USED: Have I been owned / Security Headers



The abuse email which is registered in [bmw.com](bmw.com) has been breached over 7 times.



The IP address of abuse email is 165.160.32.200

TASK 3: COMPANY AND TECHNICAL INFORMATION

APPROACH **Passive Reconnaissance**

TOOLS USED **Builtwith**

DETAILS : Company Information

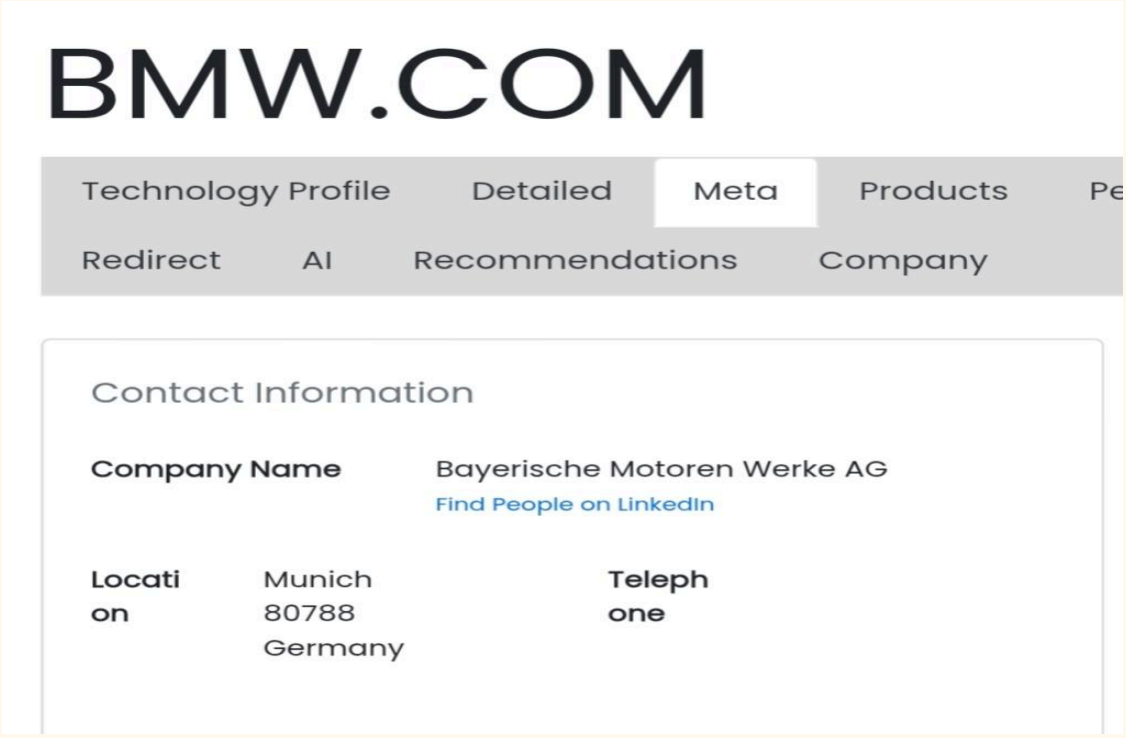
· **Company Name:** **Bayerische Motoren Werke AG**

· **Location: Munich, 80788, Germany**

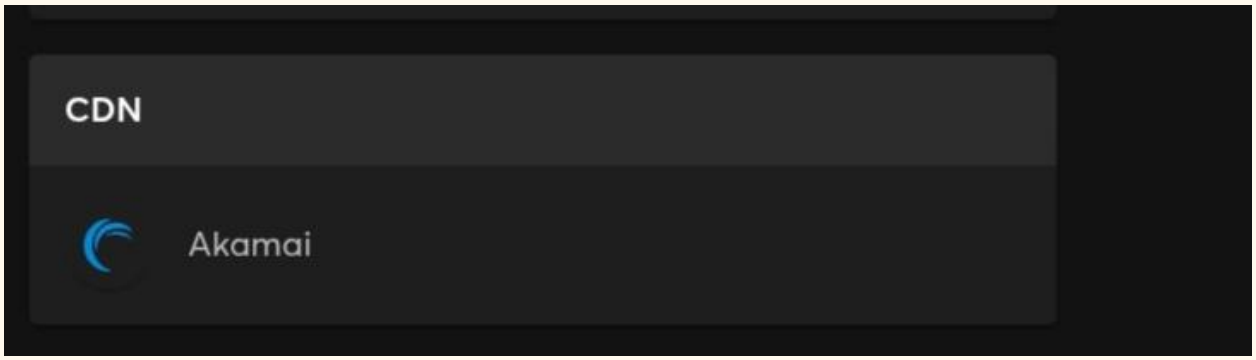
· **Vertical: Automotive and Vehicles**

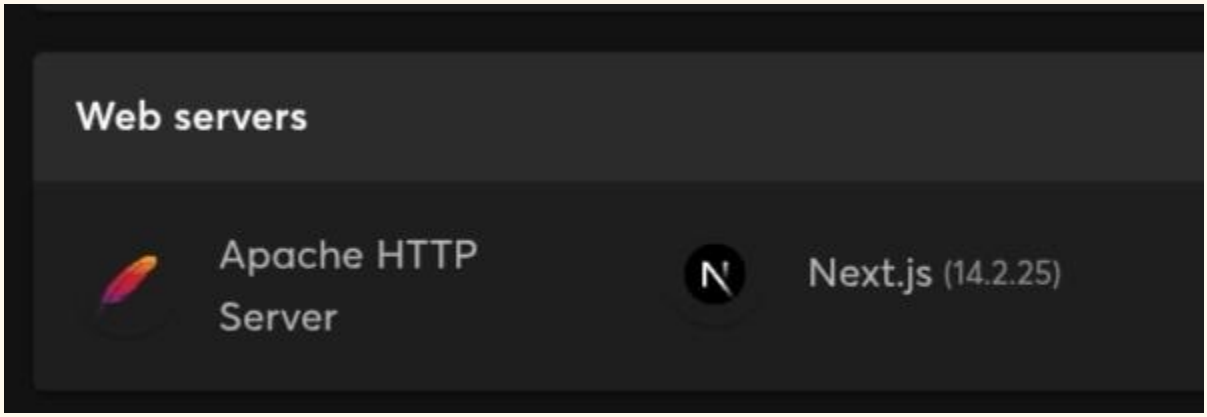
· **Estimated Employees: 100,000+ (This is a global figure for the entire company, not just the web team).**

- **Referring IPs: 10,377 (IP addresses that link to bmw.com).**
- **URLs: 6,728 (An estimate of the number of pages on the site).**
- **Subnets: 100,000+ (A large number of associated network blocks, indicating a massive online infrastructure).**

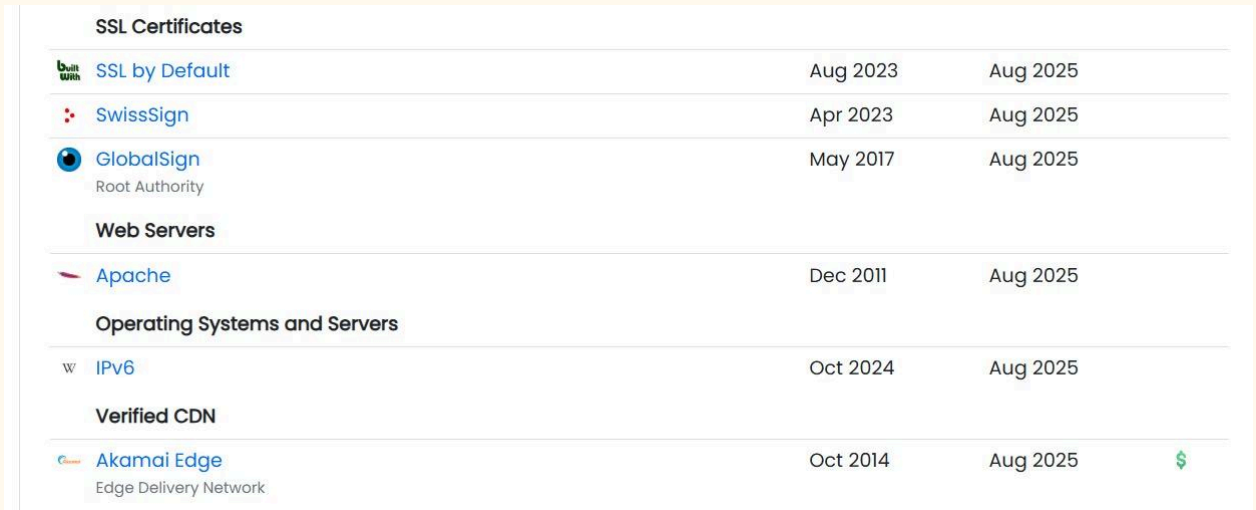


RESULTS BY USING WAPALYZER

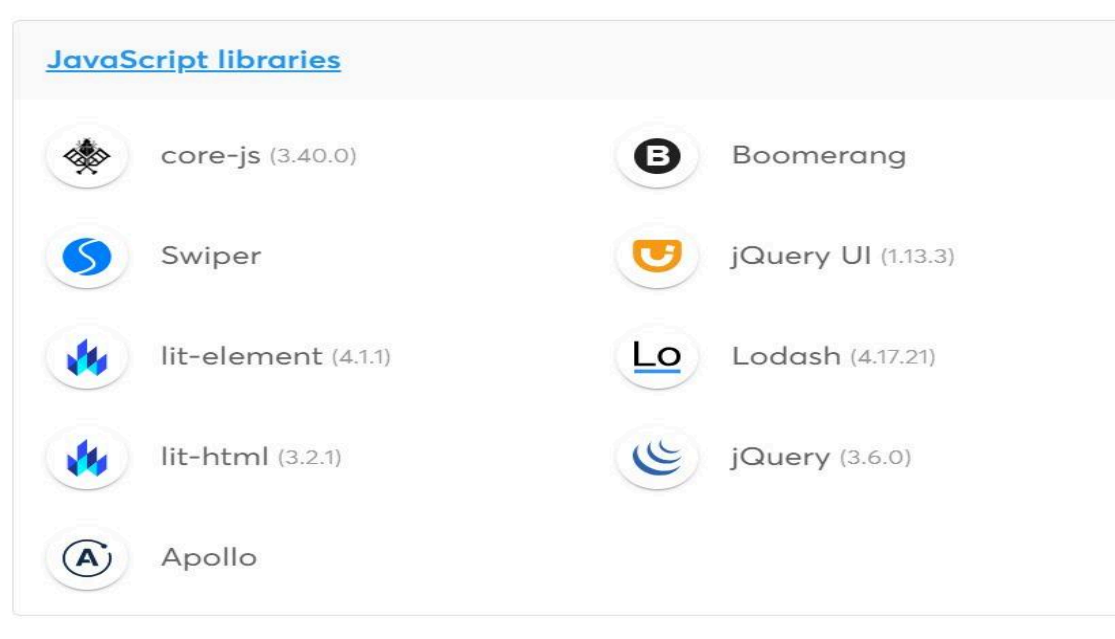




RESULTS BY USING BUILT WITH



SSL Certificates			
SSL by Default	Aug 2023	Aug 2025	
SwissSign	Apr 2023	Aug 2025	
GlobalSign Root Authority	May 2017	Aug 2025	
Web Servers			
Apache	Dec 2011	Aug 2025	
Operating Systems and Servers			
IPv6	Oct 2024	Aug 2025	
Verified CDN			
Akamai Edge Edge Delivery Network	Oct 2014	Aug 2025	$



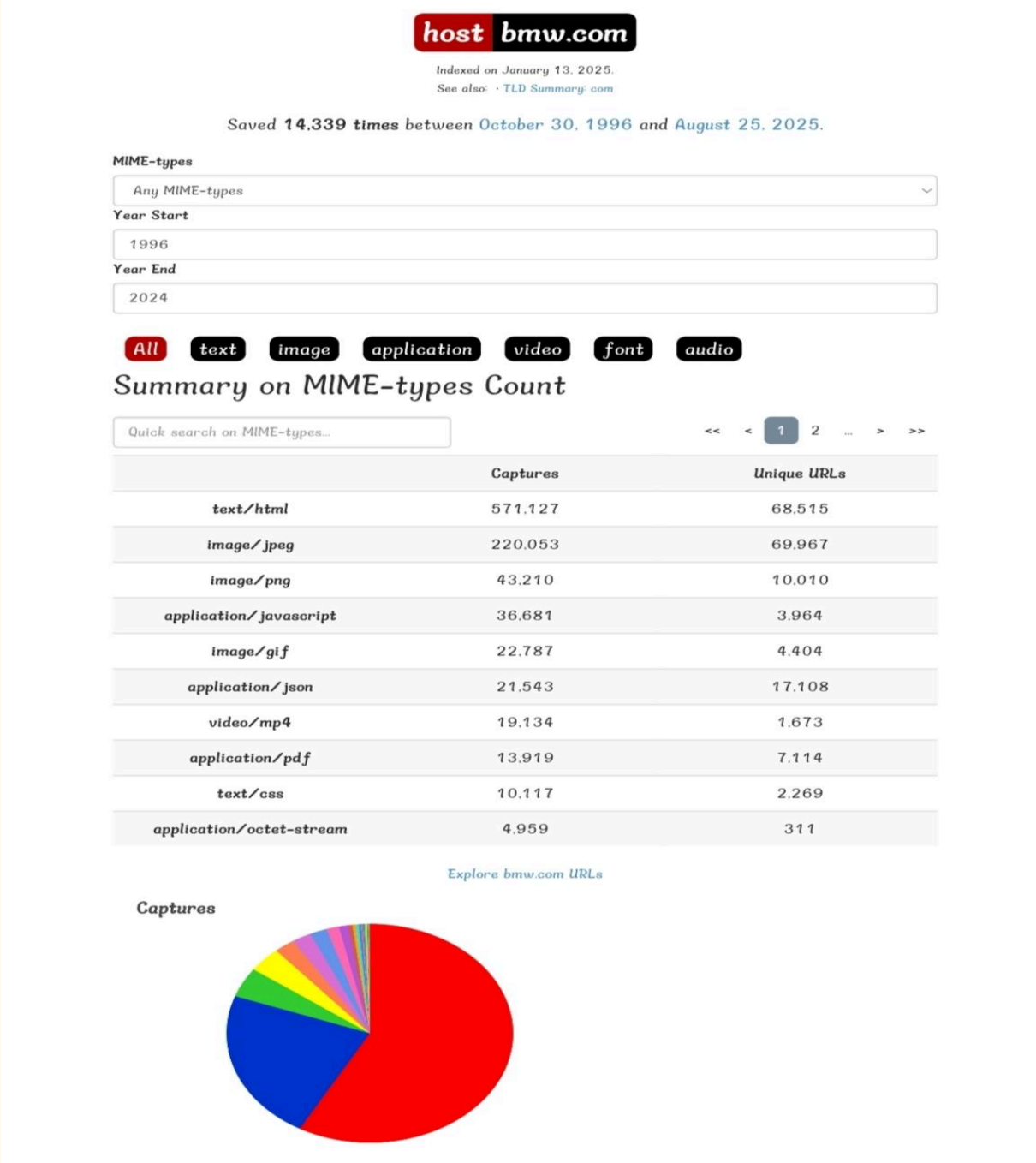
Category	Technology	Source
Web Server	Apache	Builtwith & Wapalyzer
Operating System	IPv6	Builtwith
SSL Certificate	SSL by default	Builtwith
JavaScript Libraries	jQuery UI ، jQuery, Apollo	Wapalyzer & Builtwith
CDN	Akamai	Builtwith & Wapalyzer

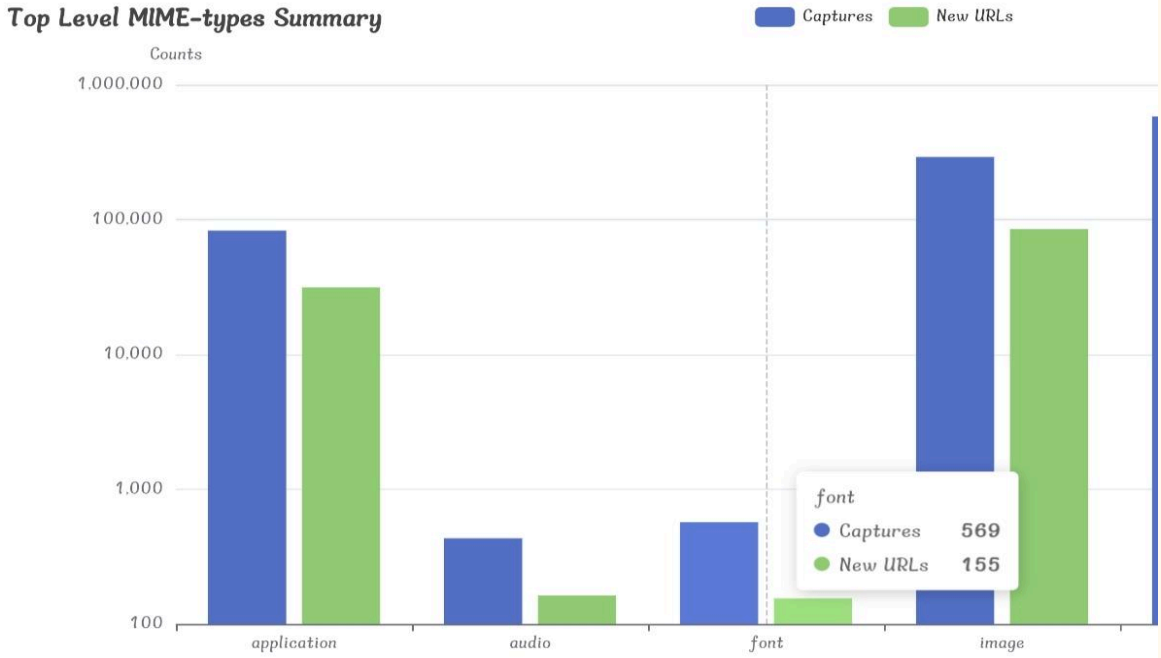
Through passive reconnaissance using Wappalyzer and BuiltWith, several key technologies in use by BMW com were identified. The website previously used the Apache web server, while current technologies include SSL, and the jQuery 1.8.1 JavaScript library. Akamai Edge is used for CDN and DNS services. These findings suggest a mix of legacy and modern technologies with a focus on open-source tools and basic security implementation

TASK 4 : WAY BACK MACHINE ANALYSIS

APPROACH Passive Reconnaissance

TOOL USED Wayback Machine





Last 10 Captures

Capture	Statuscode	MIME-type	Size (bytes)
Thu, 21 Nov 2024 03:41:53 GMT	200	text/html	974
Fri, 18 Jun 2021 11:18:47 GMT	200	text/html	841
Thu, 10 Jun 2021 13:29:38 GMT	200	text/html	601
Mon, 10 Dec 2012 16:27:16 GMT	200	text/html	7,461
Mon, 10 Dec 2012 05:40:47 GMT	200	text/html	7,613
Sat, 08 Dec 2012 18:46:09 GMT	200	text/html	7,621
Thu, 06 Dec 2012 23:20:52 GMT	200	text/html	7,417
Mon, 03 Dec 2012 06:58:08 GMT	200	text/html	7,421
Fri, 30 Nov 2012 05:57:27 GMT	200	text/html	7,418
Tue, 27 Nov 2012 15:13:58 GMT	200	text/html	7,577

Key Overview:

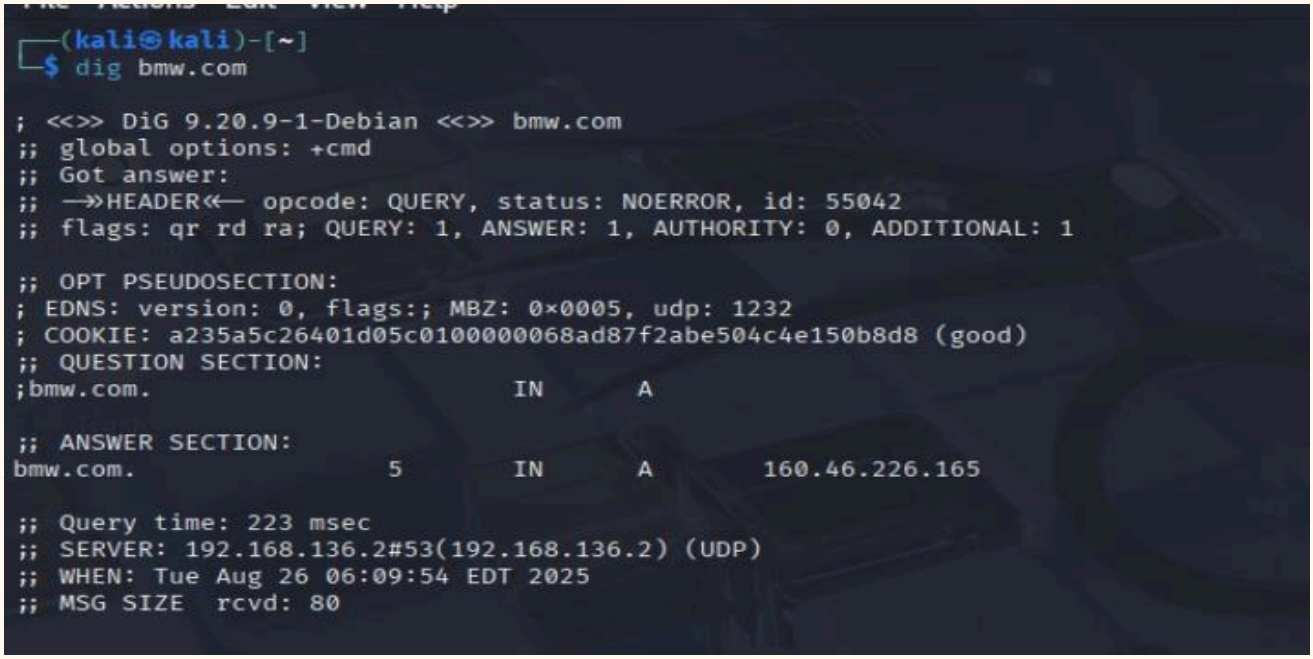
- First Capture: October 30, 1996
- Last Capture: November 21, 2024 (as of this data)
- Total Captures: 14,339 times
- Indexing Date: This data was compiled on January 13, 2025.

There was a significant and sustained period of frequent archiving between approximately 2004 and 2016.Before 2004, captures were less frequent (as the web and the Archive were younger). After 2016, the frequency of captures appears to have decreased noticeably.

TASK 5: Enumerate Name servers and IP Addresses

APPROACH: **Passive Reconnaissance**

TOOL USED: **dig**



- **IP Address 160.46.226.165**
- **DNS SERVER 192.168.136.2**

The tool (dig) directly sent a UDP DNS query packet to a DNS server (192.168.136.2) asking for the bmw.com record.

TASK 6: IP ADDRESS INFORMATION

APPROACH: Passive Reconnaissance

TOOL USED: ipinfo.io

1. **.Network Ownership (ASN):**
    - **Autonomous System Number: AS8590 (Note: The first image had a typo, AS5599; the correct ASN is AS8590).**
    - **Registered Owner: Bayerische Motoren Werke Aktiengesellschaft (BMW AG)**

- **ASN Type: Hosting. This indicates the network is used to host BMW's internet services (websites, APIs, etc.), not just for corporate office connectivity.**
- **Network Range: 160.46.224.0/19**
- **This is a large block containing 8,190 IP addresses, all belonging to BMW.**

2. **Geolocation:**
    - **City: Freising, Bavaria**
    - **Country: Germany (DE)**
    - **Coordinates: 48.4035, 11.7488**
    - **This suggests the physical location of the data center or network egress point for this IP address.**

TASK 7: DISCOVER SUBDOMAINS

APPROACH: Passive Reconnaissance

TOOL USED: Sublist3r

The core function of Sublist3r is to discover as many subdomains associated with a domain as possible. For example, for example.com, it would try to find subdomains

- **By using the sublist3r tool I have discovered the subdomains of the main domain used in BMW.COM**

```
┌──(kali㉿kali)-[~]
└─$ sublist3r -d bmw.com

                # Coded By Ahmed Aboul-Ela - @aboul3la

[-] Enumerating subdomains now for bmw.com
[-] Searching now in Baidu..
[-] Searching now in Yahoo..
[-] Searching now in Google..
[-] Searching now in Bing..
[-] Searching now in Ask..
[-] Searching now in Netcraft..
[-] Searching now in DNSdumpster..
[-] Searching now in Virustotal..
[-] Searching now in ThreatCrowd..
[-] Searching now in SSL Certificates..
[-] Searching now in PassiveDNS..
[!] Error: Virustotal probably now is blocking our requests
Process DNSdumpster-8:
Traceback (most recent call last):
  File "/usr/lib/python3.13/multiprocessing/process.py", line 313, in _bootstrap
    self.run()
    ~~~~~~~~^^
  File "/usr/lib/python3/dist-packages/sublist3r.py", line 269, in run
    domain_list = self.enumerate()
  File "/usr/lib/python3/dist-packages/sublist3r.py", line 649, in enumerate
    token = self.get_csrftoken(resp)
  File "/usr/lib/python3/dist-packages/sublist3r.py", line 644, in get_csrftoken
    token = csrf_regex.findall(resp)[0]
            ~~~~~~~~~~~~~~~~~~~~~~~~^^^
IndexError: list index out of range
```

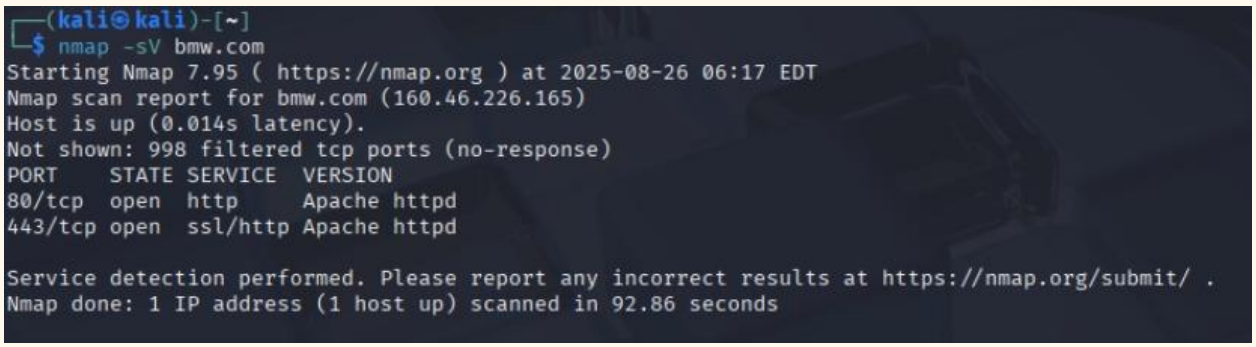
```
[-] Total Unique Subdomains Found: 12
www.bmw.com
auth.bmw.com
b2b.bmw.com
b2bua.bmw.com
baonline.bmw.com
developer.bmw.com
exd-prod.bmw.com
lifestyle.bmw.com
nspeuwebp.bmw.com
pita-b2b.bmw.com
static.bmw.com
xpita-b2b.bmw.com
```

The enumeration discovered 12 unique subdomains, revealing several key aspects of BMW's online infrastructure

TASK 8: Port Scanning and Service Detection

APPROACH Passive Reconnaissance

TOOLS USED nmap

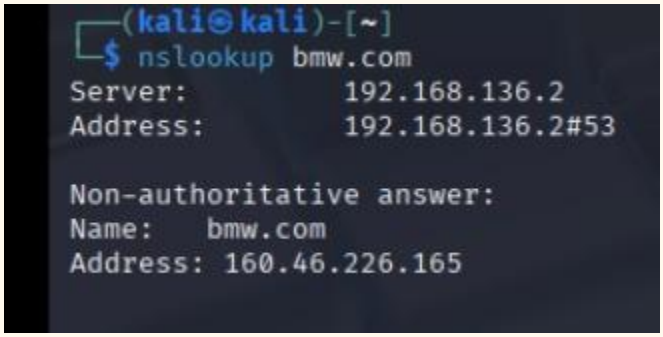


Nmap identified two open ports on BMW.COM : port 80 (HTTP) and port 443 (HTTPS), both running HAProxy, a popular high-performance load balancer. This setup confirms the use of a reverse proxy or load balancer to manage incoming traffic.

TASK 9: IP ADDRESS SEARCHING

APPROACH: Passive Reconnaissance

TOOL USED: nslookup

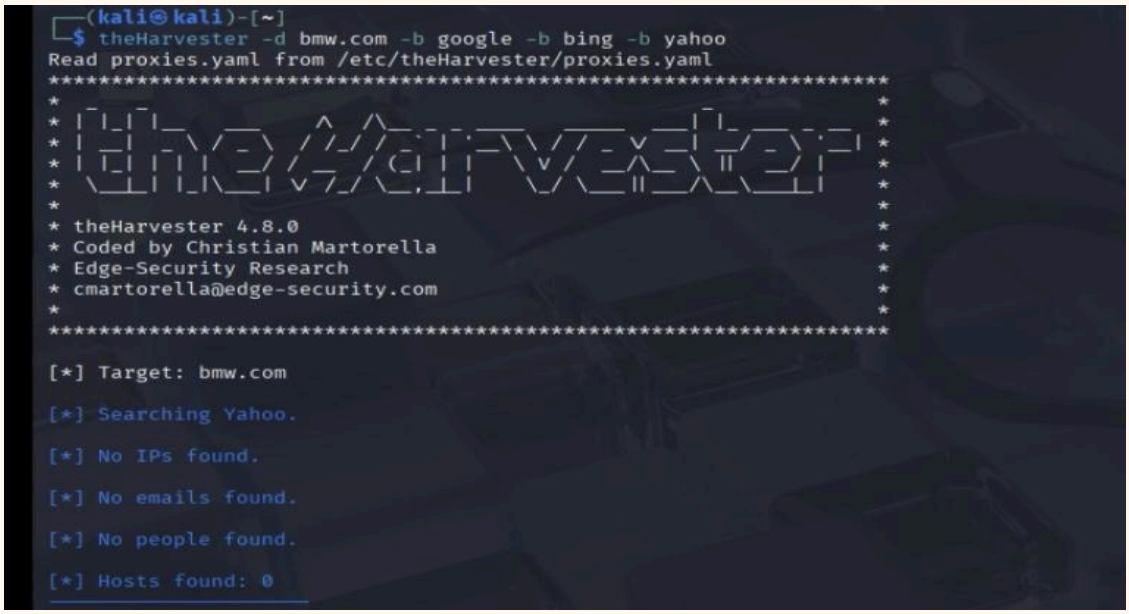


- **Thus the IP address of server is 192.168.136.2 and it sent packets via port 53**
- **The IP address of the site bmw.com is 160.46.226.165**

TASK 10: SEARCH FOR PUBLIC EMAIL ADDRESSES

APPROACH: **Passive Reconnaissance**

TOOL USED **theHarvester**

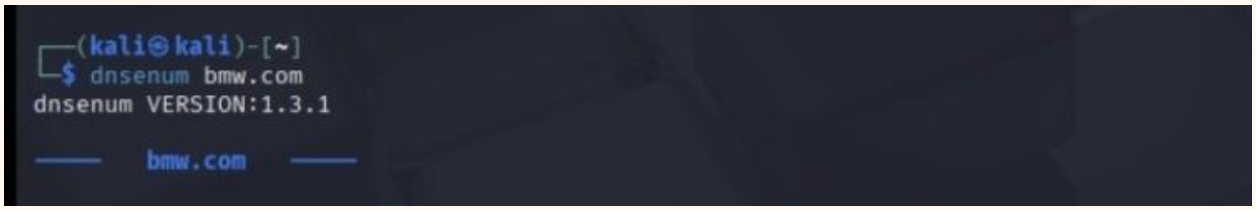


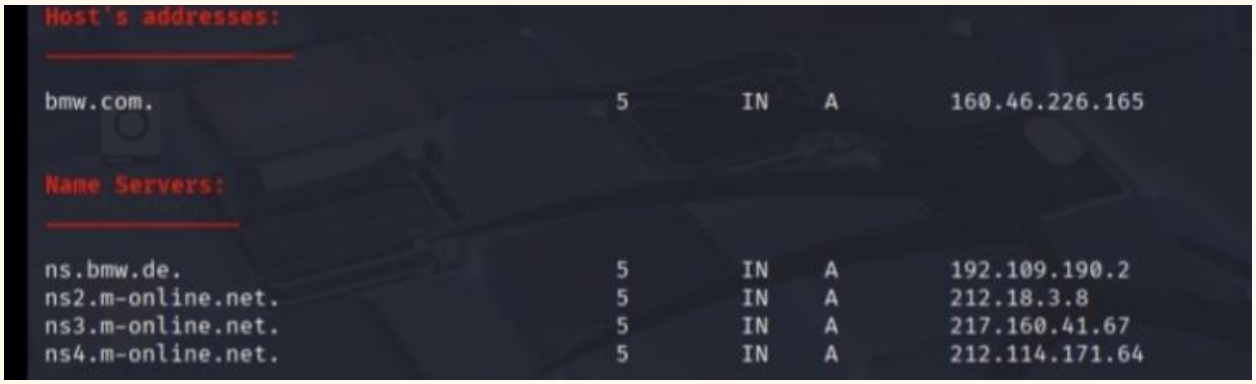
theHarvester revealed no public email addresses linked to bmw.com. It has identified no subdomains.

TASK 11: SEARCH EXPOSED DOCUMENTS OR CREDENTIALS

APPROACH: **Active Reconnaissance**

TOOL USED: **dnsenum**





Its primary purpose is to perform comprehensive DNS enumeration of a target domain. It is significantly more aggressive and detailed than a simple dig or nslookup command

1. ns.bmw.de

- **IP: 192.109.190.2**
- **Significance: This is a name server under BMW's own .de domain, suggesting they manage part of their DNS infrastructure internally.**

2. ns2.m-online.net

- **IP: 212.18.3.8**

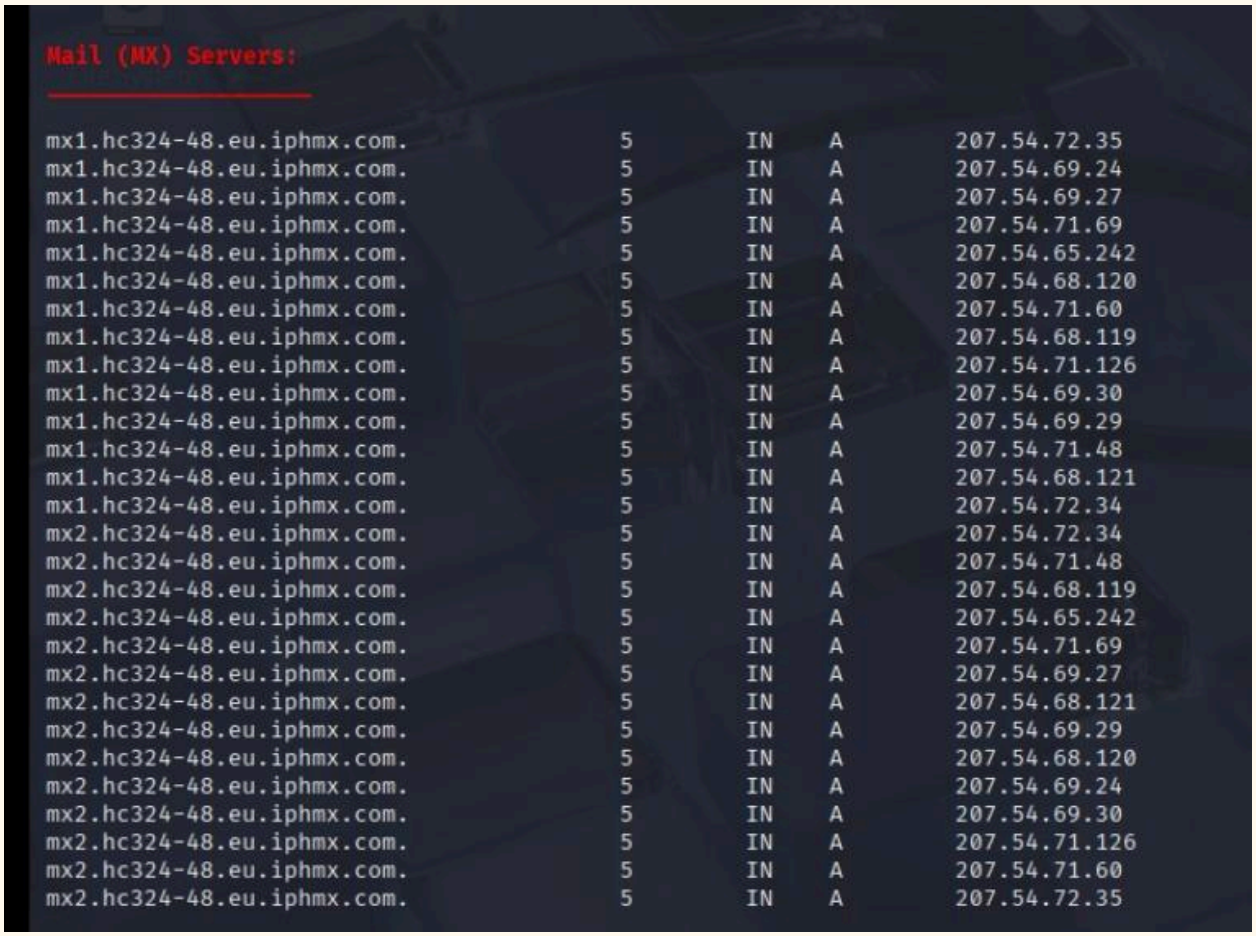
3. ns3.m-online.net

- **IP: 217.160.41.67**

4. ns4.m-online.net

- **IP: 212.114.171.64**

MAIL MX SERVER : An MX mail server is the actual email server that receives email for a specific domain, as designated by an MX record (Mail eXchanger record) in the Domain Name System (DNS).



```
Mail (MX) Servers:
_________________

mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.72.35
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.69.24
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.69.27
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.71.69
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.65.242
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.68.120
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.71.60
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.68.119
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.71.126
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.69.30
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.69.29
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.71.48
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.68.121
mx1.hc324-48.eu.iphmx.com.          5       IN    A       207.54.72.34
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.72.34
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.71.48
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.68.119
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.65.242
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.71.69
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.69.27
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.68.121
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.69.29
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.68.120
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.69.24
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.69.30
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.71.126
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.71.60
mx2.hc324-48.eu.iphmx.com.          5       IN    A       207.54.72.35
```

Multiple IP addresses are mapped for redundancy, load balancing, and resilience. If one server is down, others can still handle mail delivery.

<u>Resolved IP Addresses:</u>

The MX records resolve to multiple IP addresses, such as:

207.54.72.35

207.54.69.24

207.54.69.27

207.54.71.69

207.54.65.242

207.54.68.120

207.54.71.60

207.54.68.119

207.54.71.126

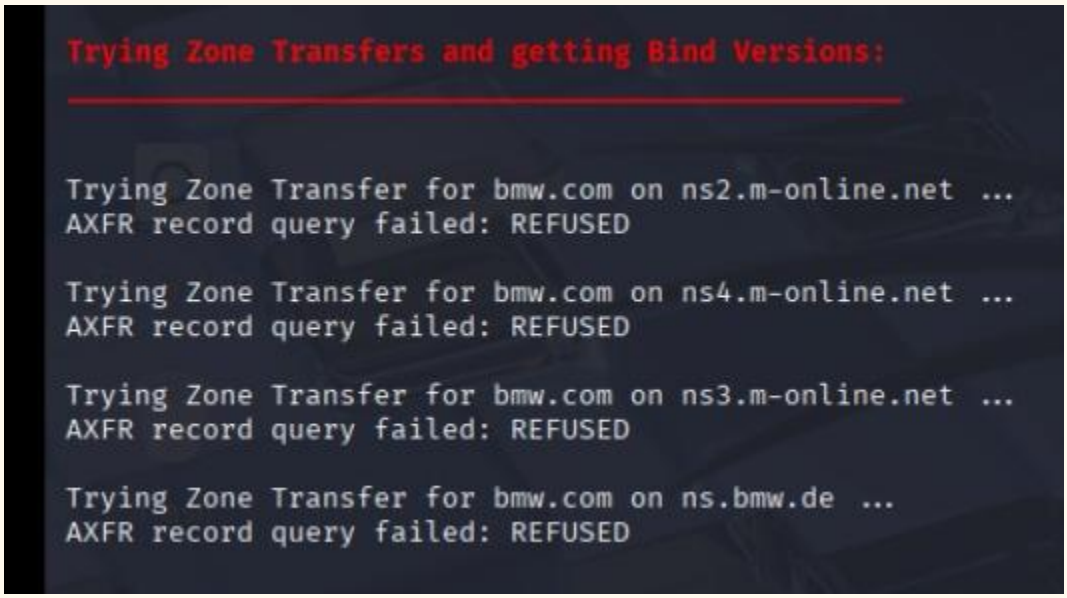
207.54.71.48

207.54.69.30

207.54.68.1

207.54.69.29

ZONE TRANSFER ATTEMPTS



All the DNS servers were refused This demonstrates that zone transfers are securely configured and restricted, preventing unauthorized access to the entire DNS zone data.

BRUTE FORCE SUBDOMAINS

Brute force is a cybersecurity attack method where an attacker uses automated tools to systematically try every possible combination of passwords, usernames, or encryption keys until they successfully gain unauthorized access to a system or account.

```
Brute forcing with /usr/share/dnsenum/dns.txt:
_____________________________________________

asc.bmw.com.                            5       IN    A        160.46.235.194
beta.bmw.com.                           5       IN    CNAME    bmwprod.b.edgekey.net.
bmwprod.b.edgekey.net.                  5       IN    CNAME    e25631.dsca.akamaiedge.net.
e25631.dsca.akamaiedge.net.             5       IN    A        23.215.7.19
e25631.dsca.akamaiedge.net.             5       IN    A        23.215.7.4
fr.bmw.com.                             5       IN    A        160.46.247.181
ftp.bmw.com.                            5       IN    A        195.27.218.60
nic.bmw.com.                            5       IN    A        185.16.184.143
rcc.bmw.com.                            5       IN    CNAME    ocapi.aws.bmw.cloud.
ocapi.aws.bmw.cloud.                    5       IN    A        18.64.141.44
ocapi.aws.bmw.cloud.                    5       IN    A        18.64.141.102
ocapi.aws.bmw.cloud.                    5       IN    A        18.64.141.38
ocapi.aws.bmw.cloud.                    5       IN    A        18.64.141.101
search.bmw.com.                         5       IN    A        62.67.62.32
shop.bmw.com.                           5       IN    CNAME    wcmp.edgekey.net.
wcmp.edgekey.net.                       5       IN    CNAME    e25631.dsca.akamaiedge.net.
e25631.dsca.akamaiedge.net.             5       IN    A        2.16.158.234
e25631.dsca.akamaiedge.net.             5       IN    A        104.116.245.89
static.bmw.com.                         5       IN    CNAME    bmwprod.edgekey.net.
bmwprod.edgekey.net.                    5       IN    CNAME    e12267.dsca.akamaiedge.net.
e12267.dsca.akamaiedge.net.             5       IN    A        104.116.245.83
e12267.dsca.akamaiedge.net.             5       IN    A        104.116.245.120
vpn.bmw.com.                            5       IN    A        193.23.39.10
vpn2.bmw.com.                           5       IN    A        193.23.33.6
www.bmw.com.                            5       IN    CNAME    bmwprod.b-ion.edgekey.net.
bmwprod.b-ion.edgekey.net.              5       IN    CNAME    e25631.dsca.akamaiedge.net.
e25631.dsca.akamaiedge.net.             5       IN    A        23.215.7.19
e25631.dsca.akamaiedge.net.             5       IN    A        23.215.7.4
www2.bmw.com.                           5       IN    CNAME    www2.bmw.com.c.footprint.net.
```

The brute-force attack successfully discovered 13 subdomains, revealing a multi-layered and well-protected infrastructure.

CLASS ‘C’ NETRANGES

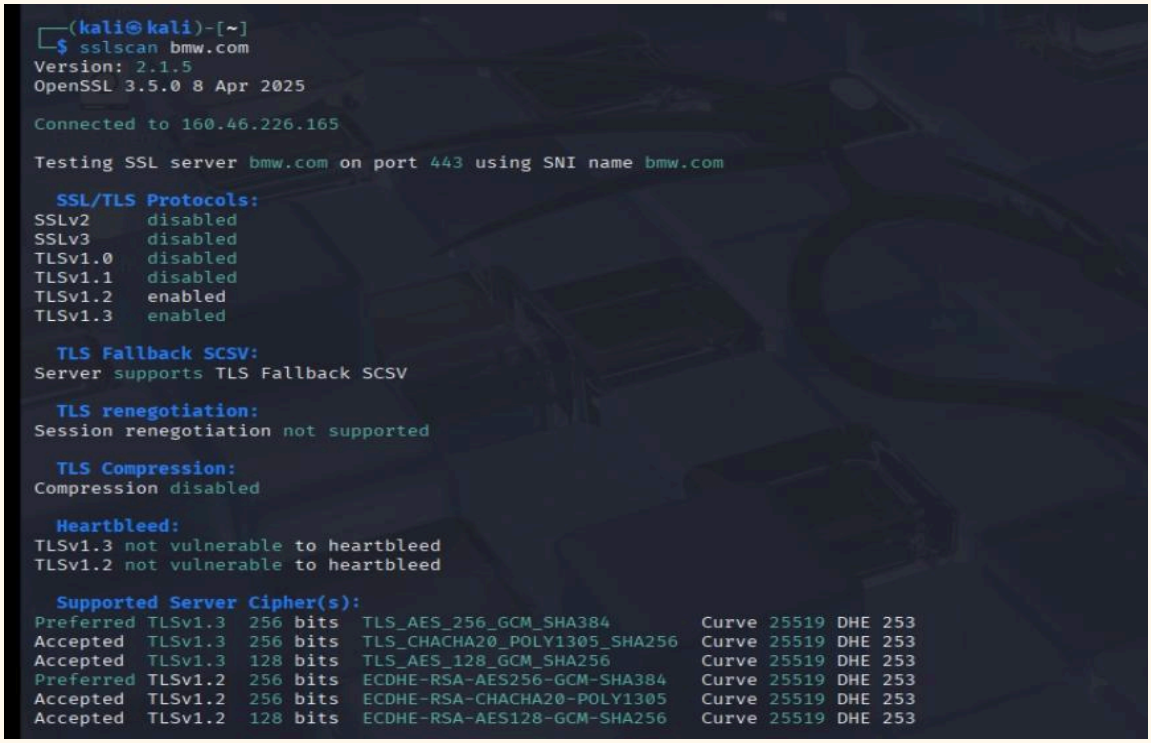
```
bmw.com class C netranges:
__________________________

62.67.62.0/24
160.46.226.0/24
160.46.235.0/24
160.46.247.0/24
185.16.184.0/24
193.23.33.0/24
193.23.39.0/24
195.27.218.0/24
```

The DNS enumeration for bmw.com revealed multiple class C netblocks (e.g., 62.67.62.0/24, 160.46.226.0/24, 193.23.33.0/24) associated with BMW's infrastructure. These IP ranges host various subdomains and services

TASK 12: CHECK SSL / TSL CONFIGURATION

APPROACH Active Reconnaissance

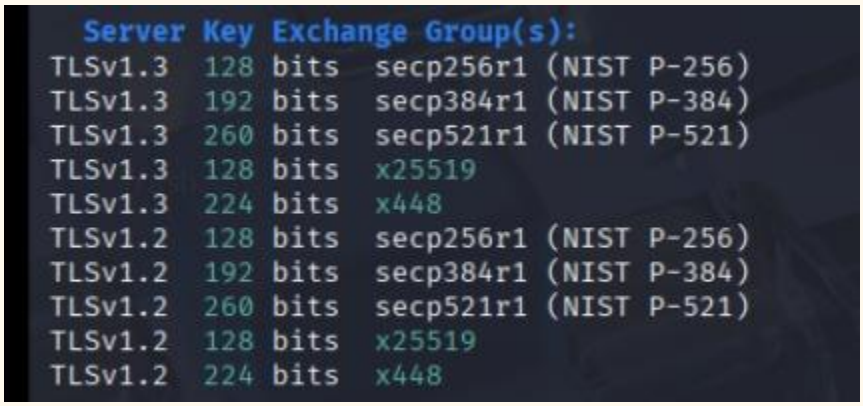
TOOL USED sslscan



Property	Details
Server IP	160.46.226.165
TLS Supporting Version	TLS v1.2
Disabled Protocols	SSL v2, SSL v2 , TLS v1.0 , TLS v1.1 , TLS v1.3

SERVER KEY EXCHANGE GROUP:

The Server Key Exchange message is a step in the TLS handshake where the server sends its cryptographic key to the client. This is necessary for certain key exchange algorithms where the server's certificate alone is not sufficient to establish a shared secret.



The server's TLS configuration supports a robust and modern set of key exchange groups across both TLSv1.2 and TLSv1.3 protocols. This indicates a strong emphasis on security and compatibility.

SSL CERTIFICATE:

An SSL (Secure Sockets Layer) certificate, now more accurately called a TLS (Transport Layer Security) certificate, is digital document that binds a cryptographic key to the details of an organization, server, or entity.s a

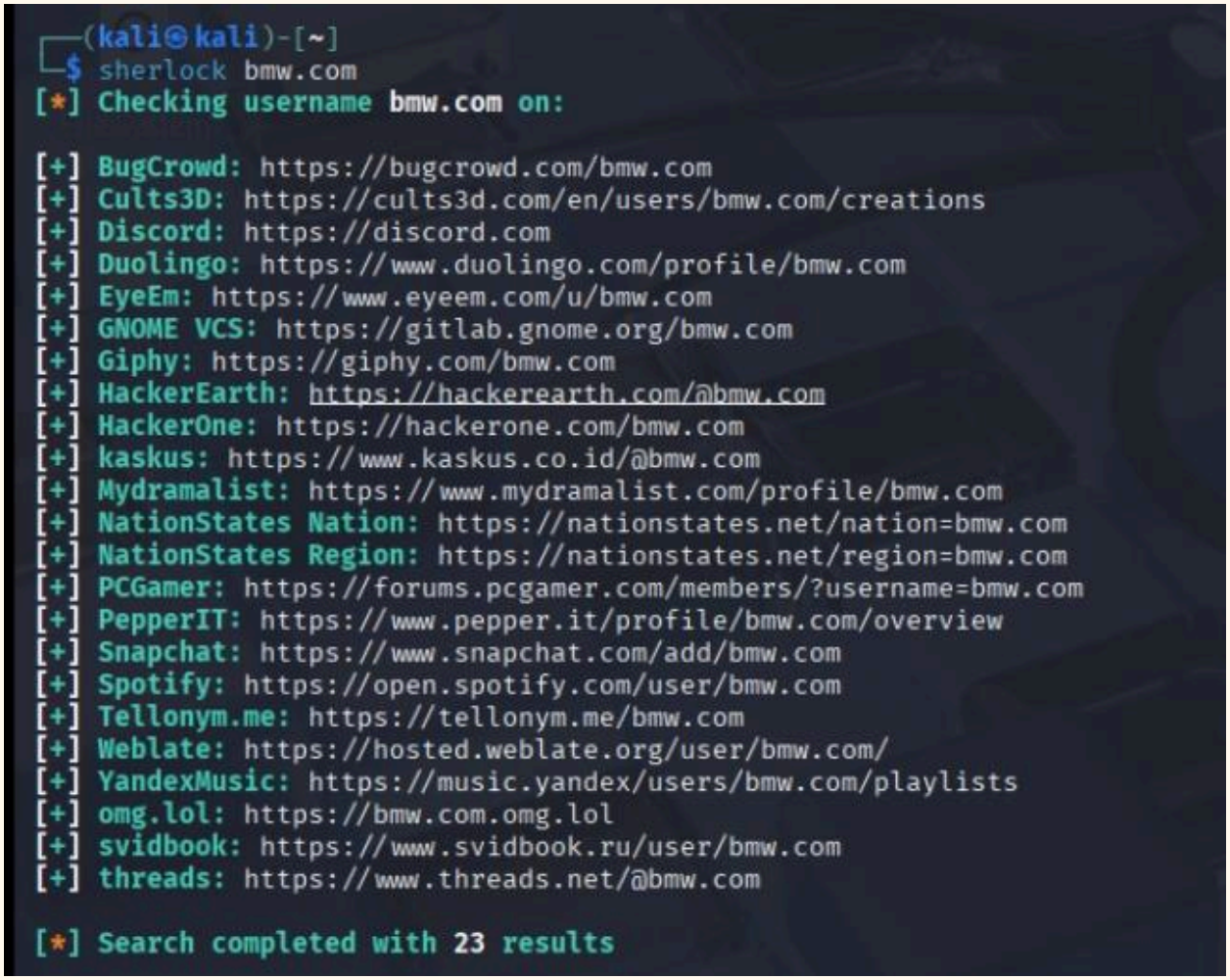
Field	Value
Signature Algorithm	sha256WithRSAEncryption
RSA Key Strength	2048
Subject (Main Name)	ww-origin-proda2.bmw.com
Alt. Names	1. wa-origin-proda2.bmw.com 2. bmw.sn. 3. bmw.sk 4. bmw.si and many more….
Issuer Name	GlobalSign RSA OV SSL CA 2018
Valid From	May 8 08:26:12 2025 GMT
Valid till	Jun 9 08:26:11 2026 GMT

- The issuer indicates this is an Organization Validated (OV) SSL certificate, meaning GlobalSign verified BMW's organizational identity before issuance
- Key Strength: RSA 2048-bit. This is a currently accepted standard, though the industry is moving towards ECC keys for better performance and security.

TASK 13: CHECK THE USERNAMES

APPROACH: **Passive Reconnaissance**

TOOLS USED: **sherlock**



The Sherlock tool searched for the username bmw.com across numerous social media and online platforms. The scan returned 23 results, indicating that this username is registered on a variety of sites.

- BugCrowd: https://bugcrowd.com/bmw.com.
- Cults3D: https://cults3d.com/en/users/bmw.com/creations.
- Discord: https://discord.com.
- Duolingo: https://www.duolingo.com/profile/bmw.com.
- EyeEm: https://www.eyeem.com/u/bmw.com.

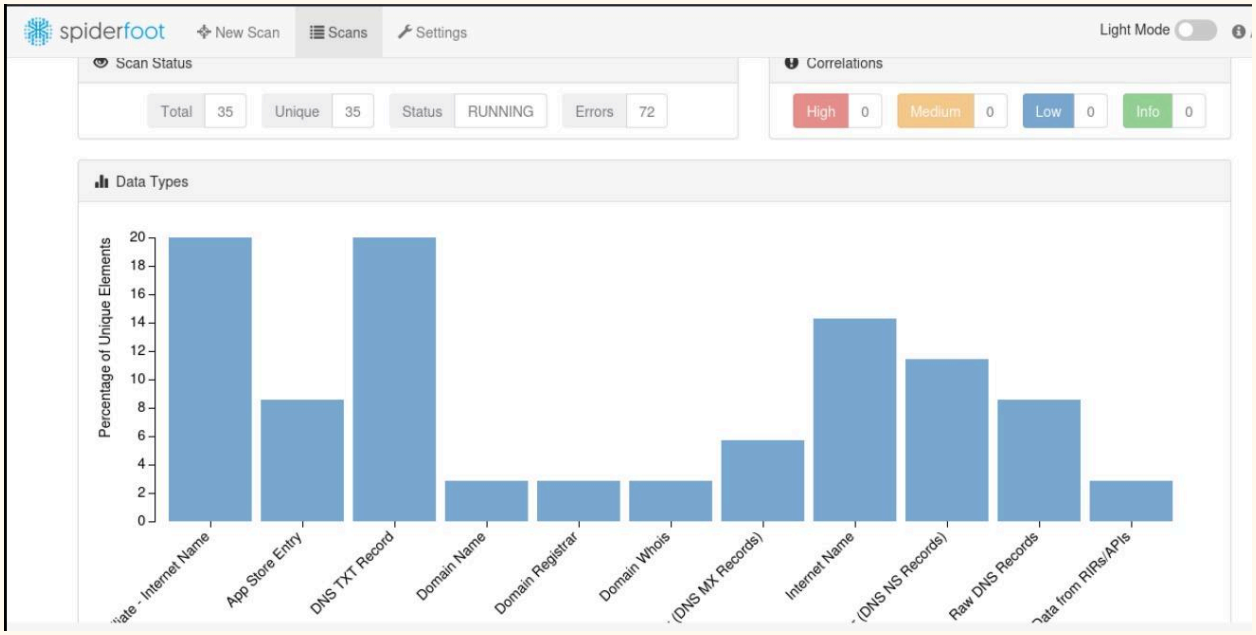
- Giphy: https://giphy.com/bmw.com.
- HackerEarth: https://hackerearth.com/@bmw.com.
- HackerOne: https://hackerone.com/bmw.com.
- kaskus: https://www.kaskus.co.id/@bmw.com.
- LibraryThing: https://www.librarything.com/profile/bmw.com.
- Mydramalist: https://www.mydramalist.com/profile/bmw.com.
- NationStates Nation: https://nationstates.net/nation=bmw.com.
- NationStates Region: https://nationstates.net/region=bmw.com.
- PCGamer: https://forums.pcgamer.com/members/?username=bmw.com.
- PepperIT: https://www.pepper.it/profile/bmw.com/overview.
- Snapchat: https://www.snapchat.com/add/bmw.com.
- Spotify: https://open.spotify.com/user/bmw.com.
- Tellonym.me: https://tellonym.me/bmw.com.
- Weblate: https://hosted.weblate.org/user/bmw.com/.
- YandexMusic: https://music.yandex/users/bmw.com/playlists.
- omg.lol: https://bmw.com.omg.lol
- threads: https://www.threads.net/@bmw.com

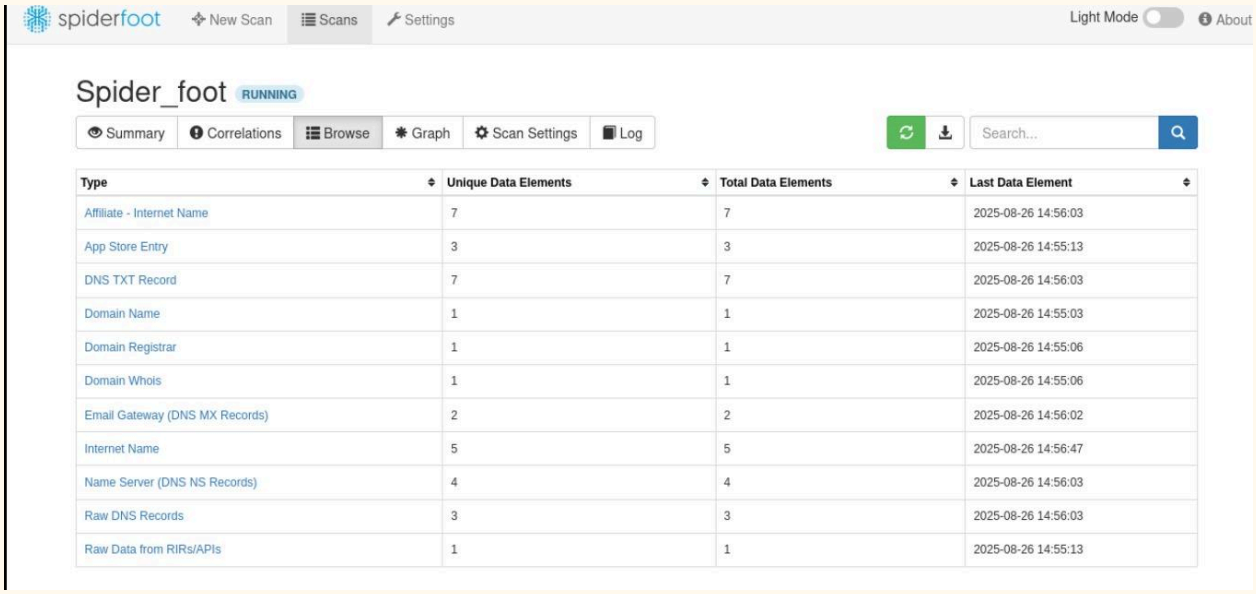
TASK 14: OSINT VISUALISATION

APPROACH: Passive Reconnaissance

TOOLS USED: spiderfoot

```
┌──(kali㉿kali)-[~]
└─$ spiderfoot -l 127.0.0.1:5001

************************************************************
 Use SpiderFoot by starting your web browser of choice and
 browse to http://127.0.0.1:5001/
************************************************************

2025-08-26 14:29:45,235 [INFO] sf : Starting web server at 127.0.0.1:5001 ...
2025-08-26 14:29:45,247 [WARNING] sf :
*********************************************************************
Warning: passwd file contains no passwords. Authentication disabled.
Please consider adding authentication to protect this instance!
Refer to https://www.spiderfoot.net/documentation/#security.
*********************************************************************
```





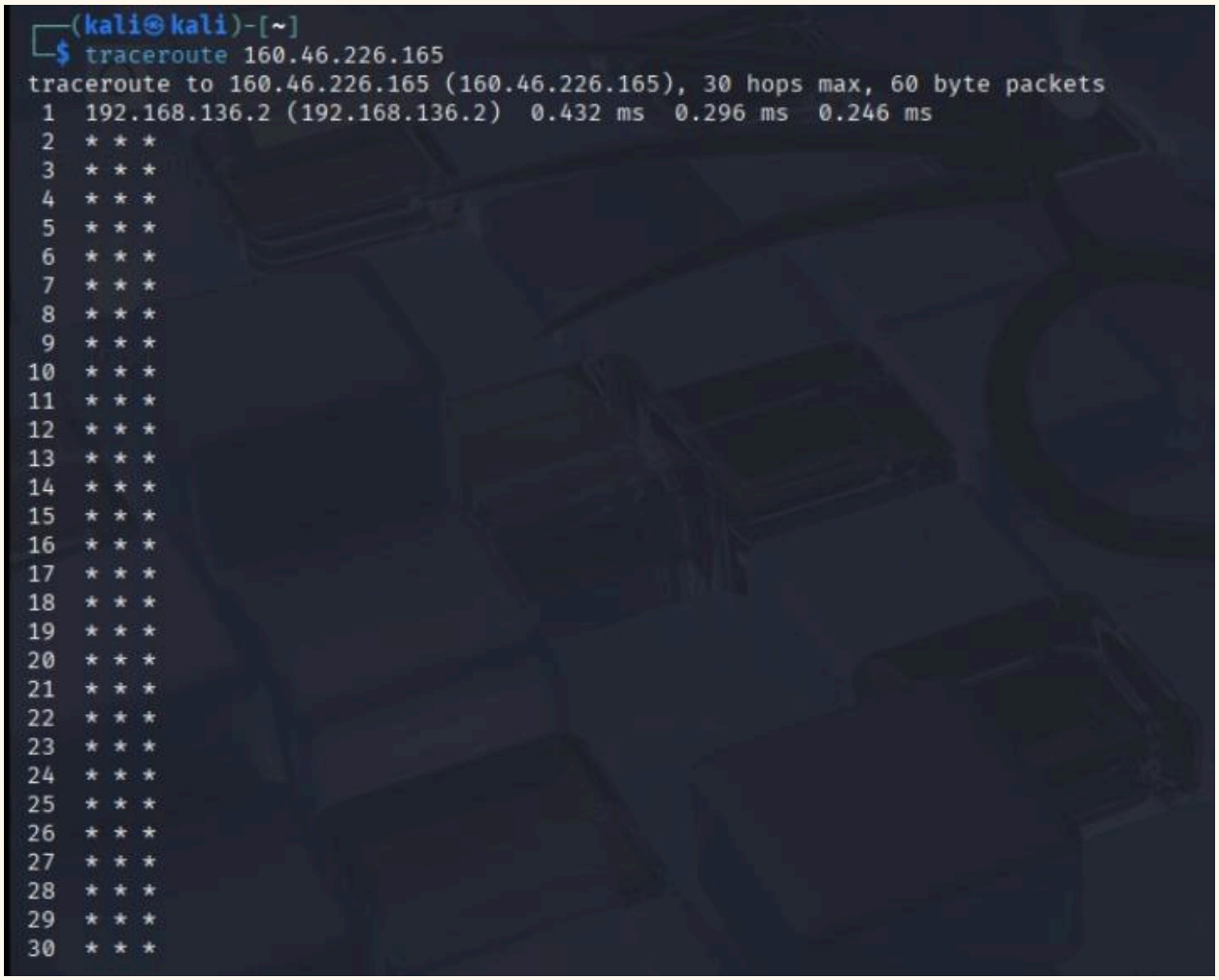
Type	Unique Data Elements	Total Data Elements	Last Data Element
Affiliate - Internet Name	7	7	2025-08-26 14:56:03
App Store Entry	3	3	2025-08-26 14:55:13
DNS TXT Record	7	7	2025-08-26 14:56:03
Domain Name	1	1	2025-08-26 14:55:03
Domain Registrar	1	1	2025-08-26 14:55:06
Domain Whois	1	1	2025-08-26 14:55:06
Email Gateway (DNS MX Records)	2	2	2025-08-26 14:56:02
Internet Name	5	5	2025-08-26 14:56:47
Name Server (DNS NS Records)	4	4	2025-08-26 14:56:03
Raw DNS Records	3	3	2025-08-26 14:56:03
Raw Data from RIRs/APIs	1	1	2025-08-26 14:55:13

1. **Sensitive Info Found:** Multiple hacked email addresses and malicious/blacklisted domains related to bmw.com.
2. **OSINT Scope**: The domain is linked to various usernames, SSL certs, and exposed repositories.
3. **Security Gaps**: Unresolved hostnames and publicly available internal links may indicate recon entry points.

TASK 15: TRACING THE ROUTE

APPROACH: Passive Reconnaissance

TOOLS USED: traceroute



Key Points from the Output:

Hop 1: Local Gateway

- 192.168.36.2 responded successfully.
- This is likely your router or virtual network gateway.

Hops 2–29: No Response

- All hops returned `* * *`, meaning no ICMP or UDP replies were received.
- This suggests that intermediate routers or firewalls are **blocking traceroute probes**.

No Final Destination Reached

- The target IP `160.46.226.165` did not respond.
- Could be due to:
- ICMP filtering
- Firewall restrictions
- Network segmentation or VPN

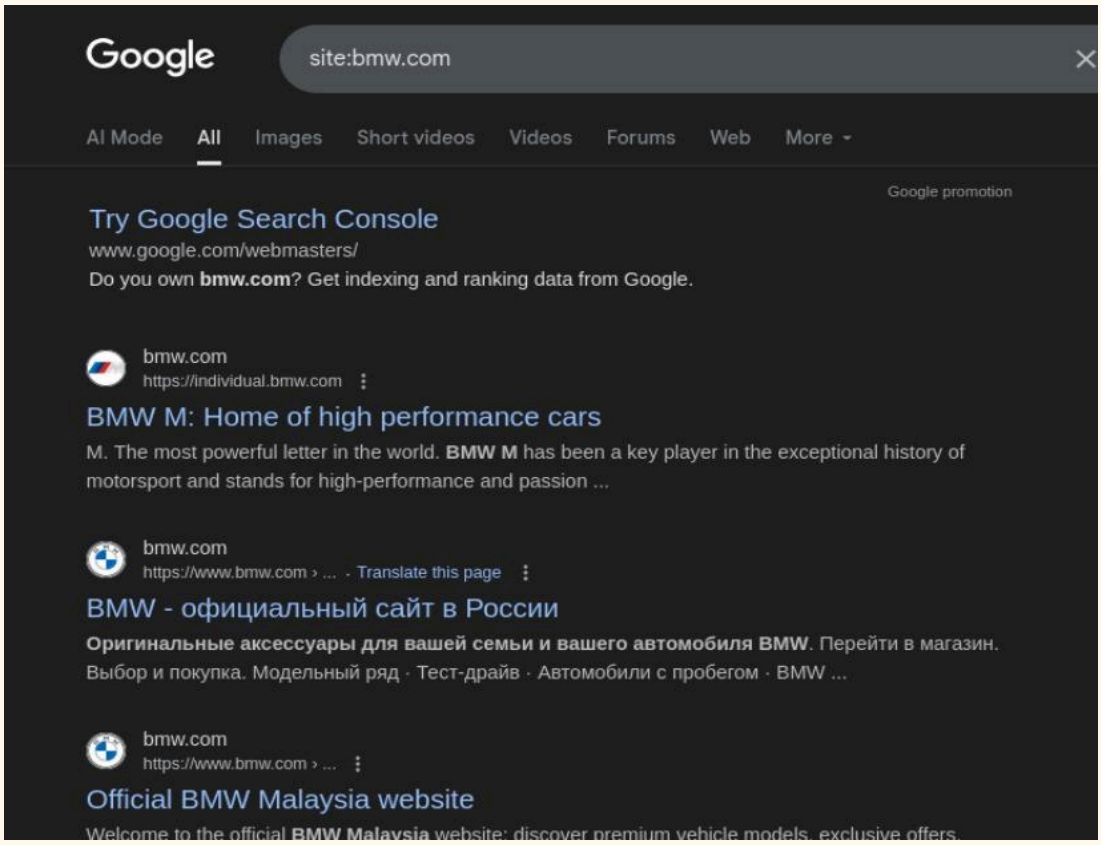
TASK 16: GOOGLE DORKING

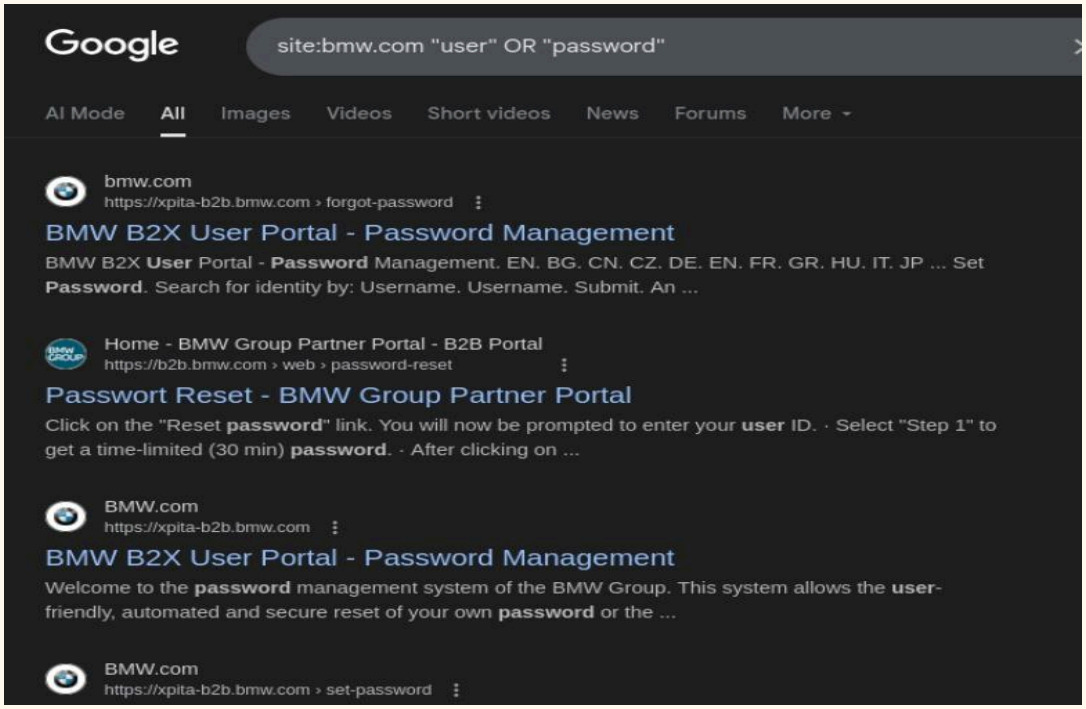
APPROACH: **Passive Reconnaissance**

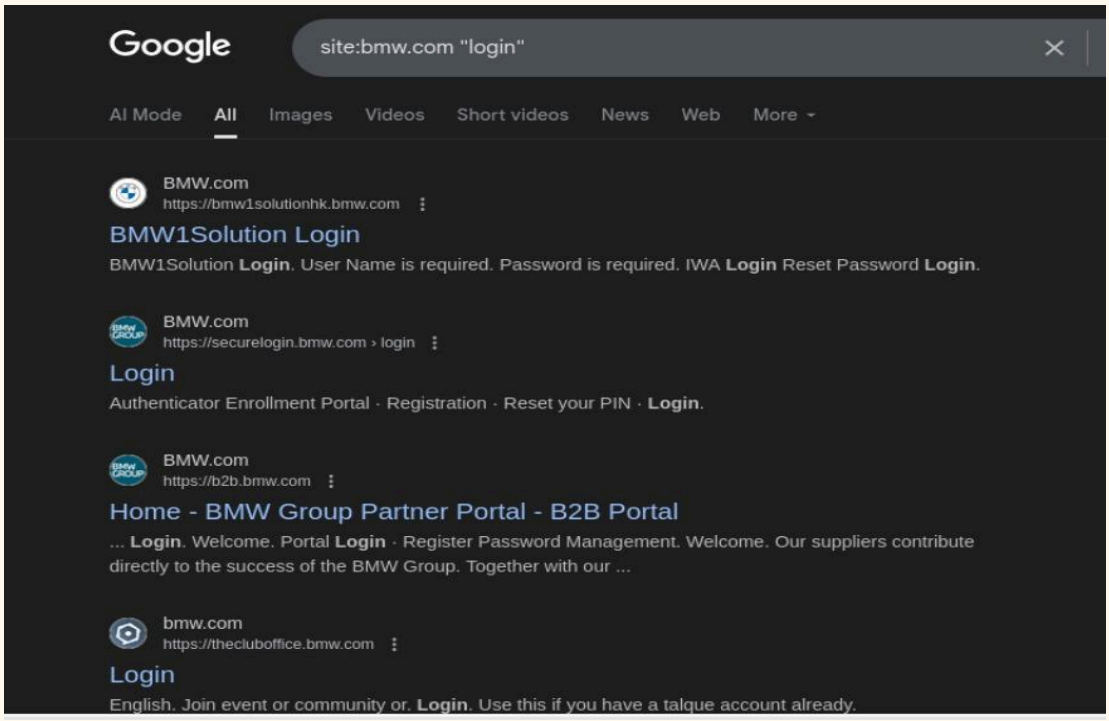
TOOLS USED: **Google**

Google Dorking, also known as Google Hacking, is the practice of using advanced Google search operators to find specific information—and often sensitive data—that is not readily available through a simple search. It's a form of "open-source intelligence" (OSINT).

By searching about BMW on google we got different portals like password management portal and B2B partner portal


Google
site:bmw.com
AI Mode
All
Images
Short videos
Videos
Forums
Web
More
Google promotion
Try Google Search Console
www.google.com/webmasters/
Do you own bmw.com? Get indexing and ranking data from Google.
bmw.com
https://individual.bmw.com
BMW M: Home of high performance cars
M. The most powerful letter in the world. BMW M has been a key player in the exceptional history of motorsport and stands for high-performance and passion ...
bmw.com
https://www.bmw.com › ... · Translate this page
BMW - официальный сайт в России
Оригинальные аксессуары для вашей семьи и вашего автомобиля BMW. Перейти в магазин. Выбор и покупка. Модельный ряд · Тест-драйв · Автомобили с пробегом · BMW ...
bmw.com
https://www.bmw.com › ...
Official BMW Malaysia website
Welcome to the official BMW Malaysia website: discover premium vehicle models, exclusive offers,

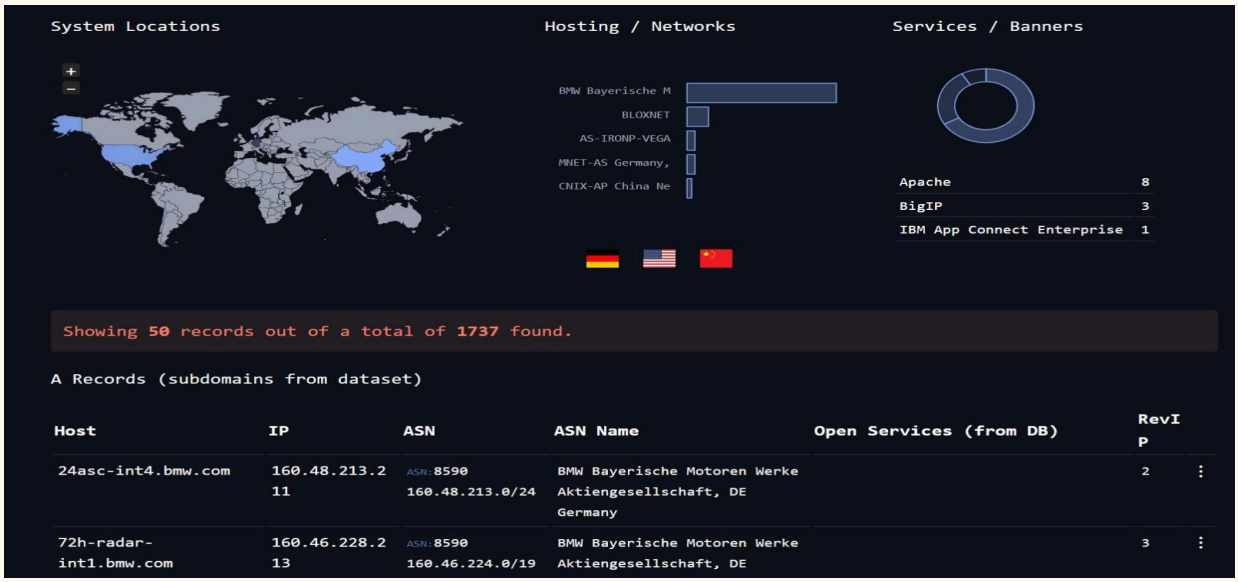

Google
site:bmw.com "user" OR "password"
AI Mode
All
Images
Videos
Short videos
News
Forums
More
bmw.com
https://xpita-b2b.bmw.com › forgot-password
BMW B2X User Portal - Password Management
BMW B2X User Portal - Password Management. EN. BG. CN. CZ. DE. EN. FR. GR. HU. IT. JP ... Set Password. Search for identity by: Username. Username. Submit. An ...
Home - BMW Group Partner Portal - B2B Portal
https://b2b.bmw.com › web › password-reset
Passwort Reset - BMW Group Partner Portal
Click on the "Reset password" link. You will now be prompted to enter your user ID. · Select "Step 1" to get a time-limited (30 min) password. · After clicking on ...
BMW.com
https://xpita-b2b.bmw.com
BMW B2X User Portal - Password Management
Welcome to the password management system of the BMW Group. This system allows the user-friendly, automated and secure reset of your own password or the ...
BMW.com
https://xpita-b2b.bmw.com › set-password



TASK 17: DNS & SUBDOMAIN DETAILS

APPROACH Passive Reconnaissance

TOOLS USED dnsdumpster.com



An excel sheet is given below that is driven from the tool dnsdumpster.com it has the details of all the Subdomains there IP's and Open services.

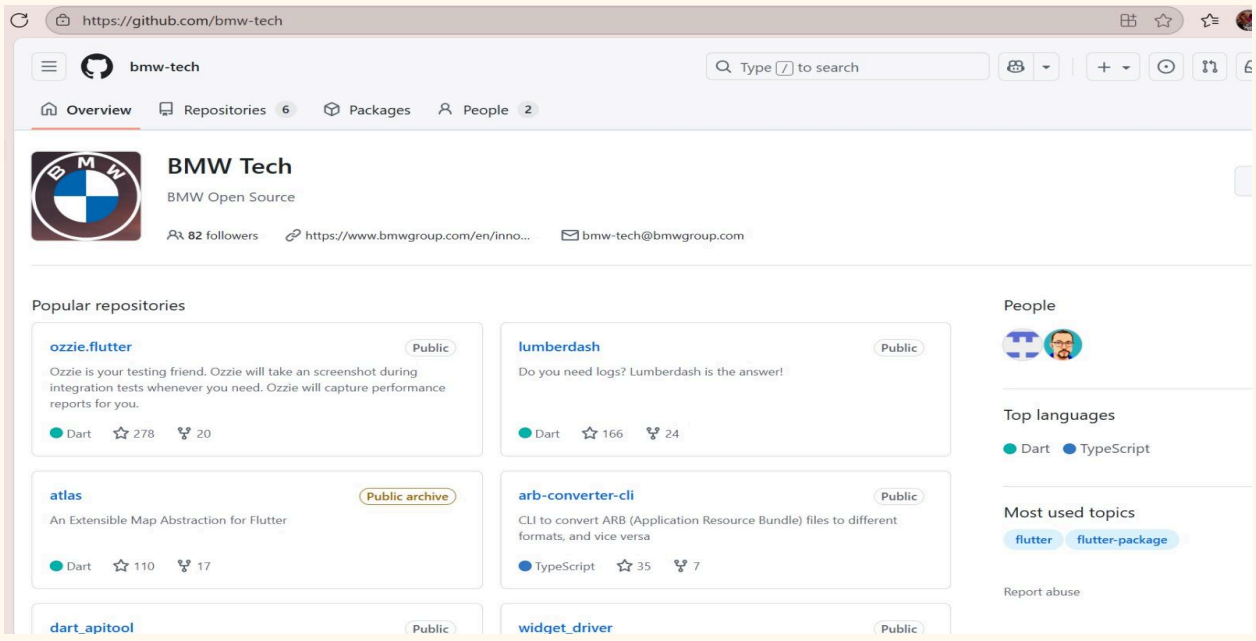
DNS_details

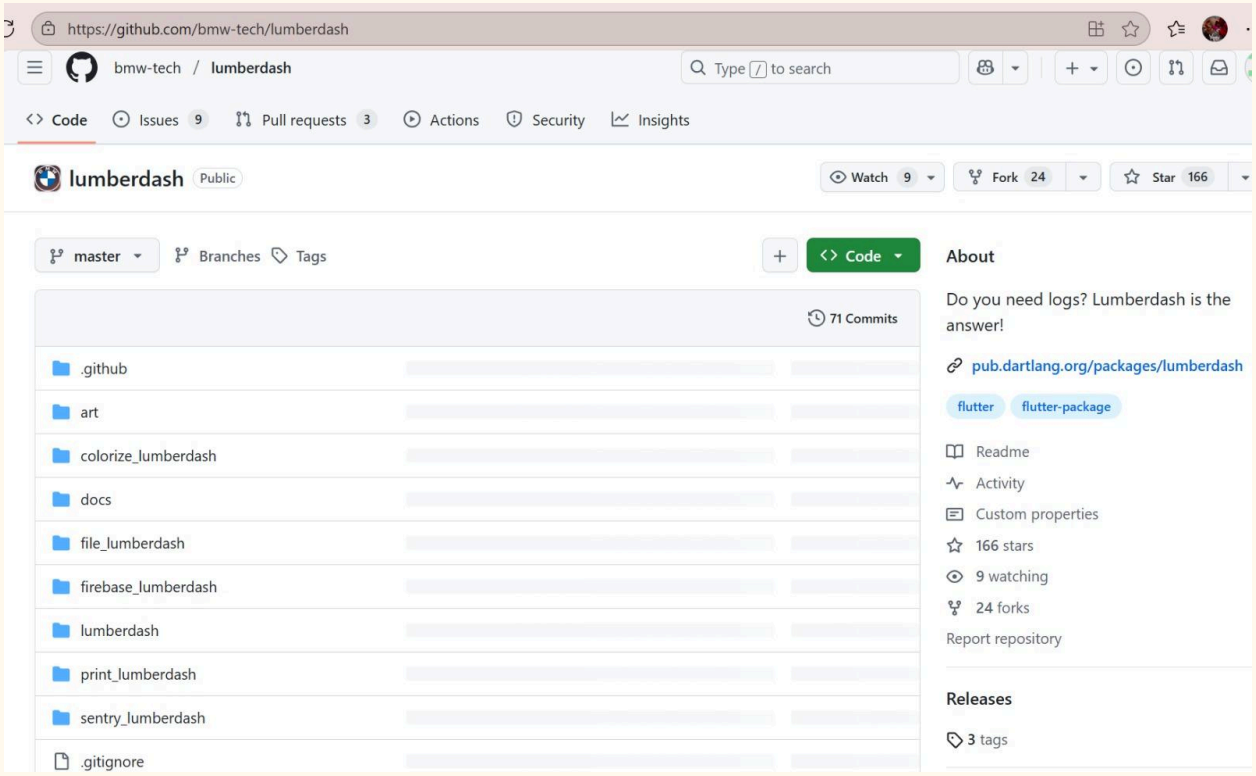
TASK 18: SEARCH EXPOSED DOCUMENTS OR CREDENTIALS USING GITHUB

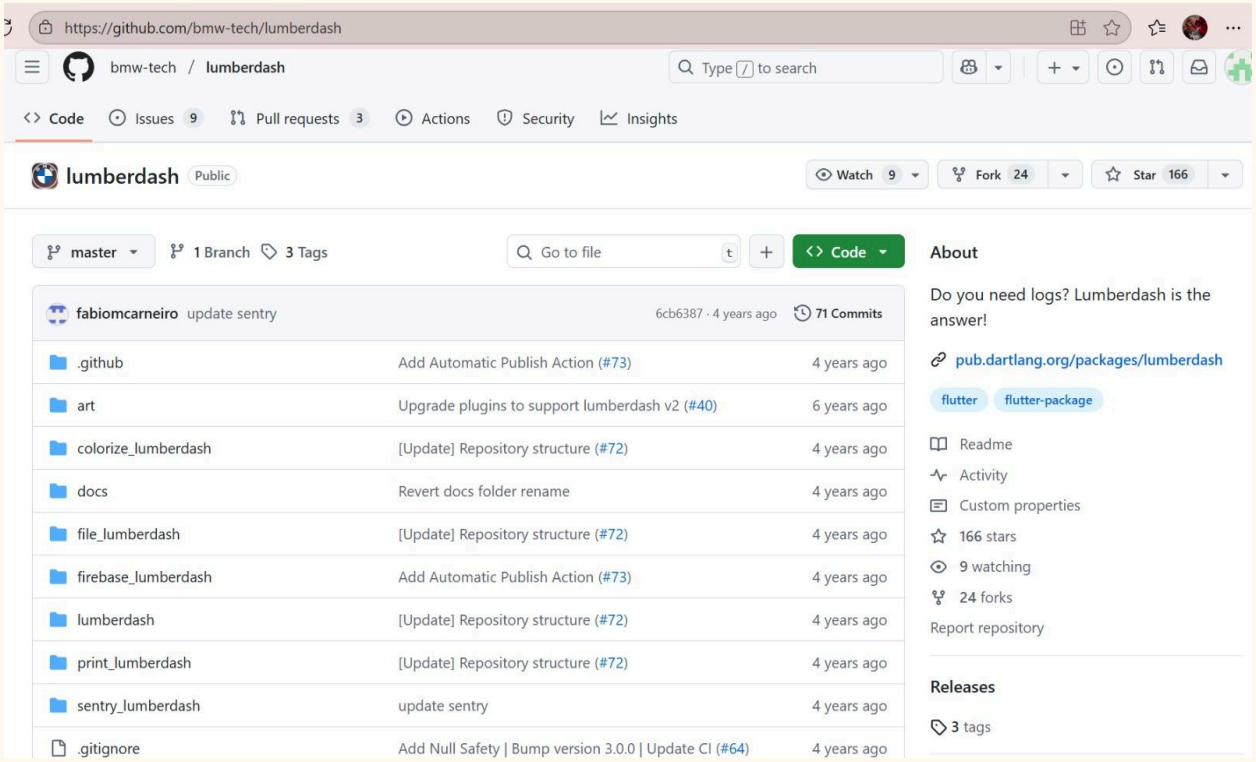
APPROACH Passive Reconnaissance

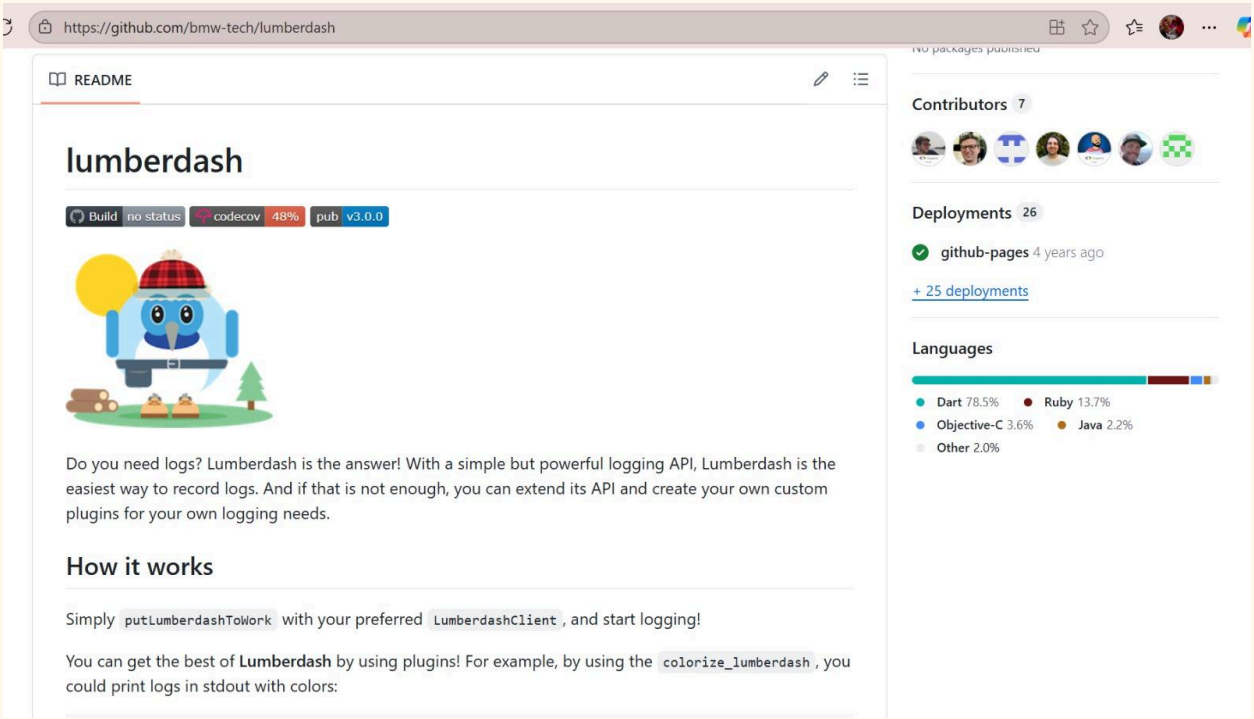
TOOLS USED GitHub

- **The GitHub repository doesn't leak any immediate secrets, but may reveal strategic information helpful to a threat actor or penetration tester.**
- **Tech Stack: Primary use of Dart and Flutter for app development, with secondary use of TypeScript, Ruby, and native mobile languages (Objective-C, Java).**




https://github.com/bmw-tech/lumberdash
bmw-tech / lumberdash
Type / to search
Code
Issues 9
Pull requests 3
Actions
Security
Insights
lumberdash
Public
Watch 9
Fork 24
Star 166
master
Branches
Tags
Code
71 Commits
.github
art
colorize_lumberdash
docs
file_lumberdash
firebase_lumberdash
lumberdash
print_lumberdash
sentry_lumberdash
.gitignore
About
Do you need logs? Lumberdash is the answer!
pub.dartlang.org/packages/lumberdash
flutter
flutter-package
Readme
Activity
Custom properties
166 stars
9 watching
24 forks
Report repository
Releases
3 tags


https://github.com/bmw-tech/lumberdash
bmw-tech / lumberdash
Type / to search
Code
Issues 9
Pull requests 3
Actions
Security
Insights
lumberdash
Public
Watch 9
Fork 24
Star 166
master
1 Branch
3 Tags
Go to file
Code
fabiomcarneiro update sentry
6cb6387 · 4 years ago
71 Commits
.github Add Automatic Publish Action (#73) 4 years ago
art Upgrade plugins to support lumberdash v2 (#40) 6 years ago
colorize_lumberdash [Update] Repository structure (#72) 4 years ago
docs Revert docs folder rename 4 years ago
file_lumberdash [Update] Repository structure (#72) 4 years ago
firebase_lumberdash Add Automatic Publish Action (#73) 4 years ago
lumberdash [Update] Repository structure (#72) 4 years ago
print_lumberdash [Update] Repository structure (#72) 4 years ago
sentry_lumberdash update sentry 4 years ago
.gitignore Add Null Safety | Bump version 3.0.0 | Update CI (#64) 4 years ago
About
Do you need logs? Lumberdash is the answer!
pub.dartlang.org/packages/lumberdash
flutter
flutter-package
Readme
Activity
Custom properties
166 stars
9 watching
24 forks
Report repository
Releases
3 tags

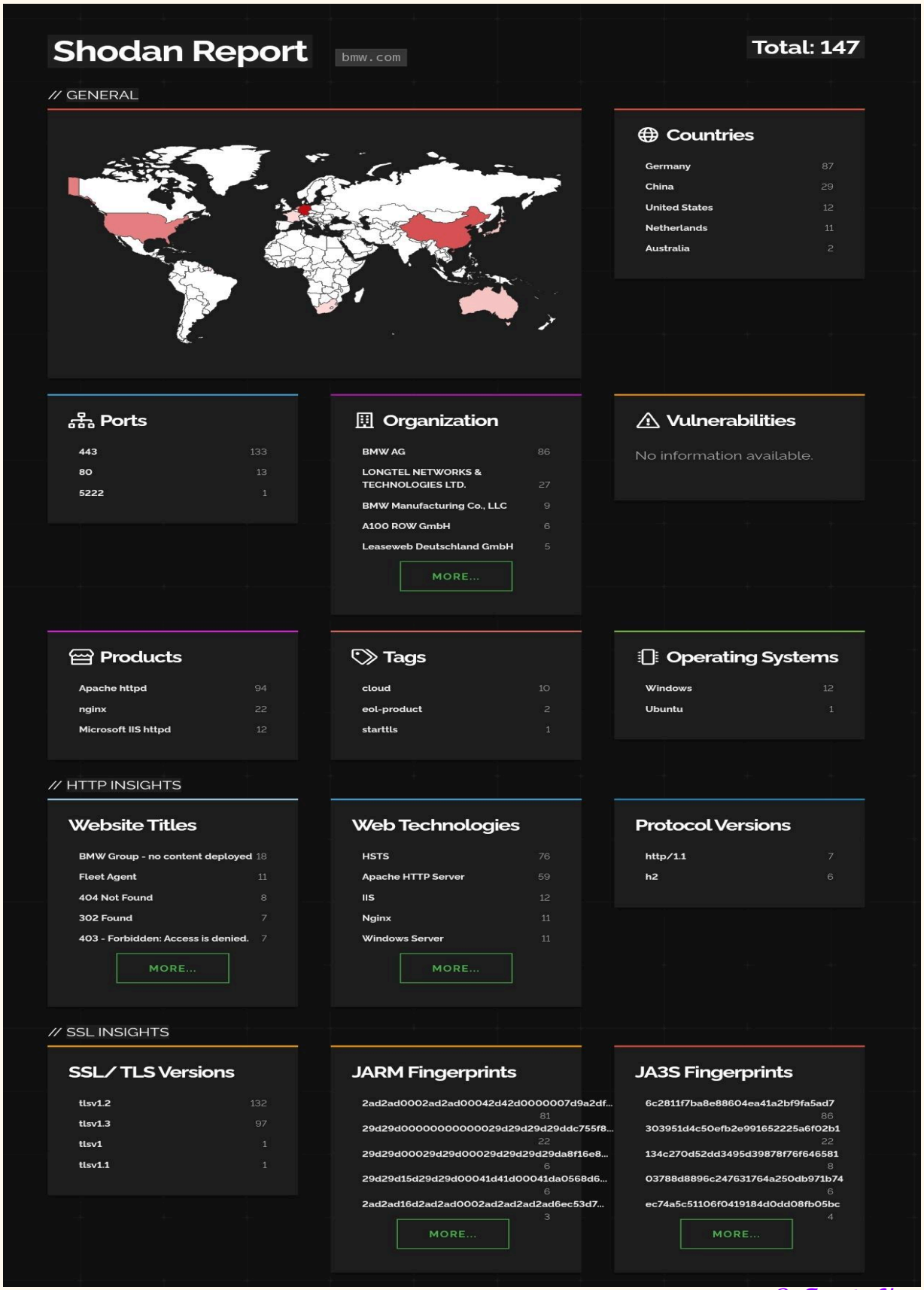


TASK 19: REPORT MAKING

APPROACH: Passive Reconnaissance

TOOLS USED: shodan

This report shows that BMW.com is not a single server but a network of multiple hosts, primarily associated with BMW AG and other related organizations. The infrastructure is a mix of web servers (Apache, nginx, IIS) running on both Linux and Windows, with a strong emphasis on secure connections (TLS 1.2/1.3, HSTS).


Shodan Report
bmw.com
Total: 147
// GENERAL
Countries
Germany 87
China 29
United States 12
Netherlands 11
Australia 2
Ports
443 133
80 13
5222 1
Organization
BMW AG 86
LONGTEL NETWORKS & TECHNOLOGIES LTD. 27
BMW Manufacturing Co., LLC 9
A100 ROW GmbH 6
Leaseweb Deutschland GmbH 5
MORE...
Vulnerabilities
No information available.
Products
Apache httpd 94
nginx 22
Microsoft IIS httpd 12
Tags
cloud 10
eol-product 2
starttls 1
Operating Systems
Windows 12
Ubuntu 1
// HTTP INSIGHTS
Website Titles
BMW Group - no content deployed 18
Fleet Agent 11
404 Not Found 8
302 Found 7
403 - Forbidden: Access is denied. 7
MORE...
Web Technologies
HSTS 76
Apache HTTP Server 59
IIS 12
Nginx 11
Windows Server 11
MORE...
Protocol Versions
http/1.1 7
h2 6
// SSL INSIGHTS
SSL/TLS Versions
tlsv1.2 132
tlsv1.3 97
tlsv1 1
tlsv1.1 1
JARM Fingerprints
2ad2ad0002ad2ad00042d42d0000007d9a2df... 81
29d29d00000000000029d29d29d29ddc755f8... 22
29d29d00029d29d00029d29d29d29da8f16e8... 6
29d29d15d29d29d00041d41d00041da0568d6... 6
2ad2ad16d2ad2ad0002ad2ad2ad2ad6ec53d7... 3
MORE...
JA3S Fingerprints
6c2811f7ba8e88604ea41a2bf9fa5ad7 86
303951d4c50efb2e991652225a6f02b1 22
134c270d52dd3495d39878f76f646581 8
03788d8896c247631764a250db971b74 6
ec74a5c51106f0419184d0dd08fb05bc 4
MORE...

CASE STUDY OF RECENT DATA BREACH OF BMW

BMW FINANCIAL DATA BREACH 7 JULY 2015

Data breach at a vendor:

The breach originated from a data security incident at AIS InfoSource, a third-party vendor that processes data for BMW Financial Services NA, LLC (BMW FS).

Affected data:

Customer personal data was exposed in the breach.

Notification:

BMW FS began notifying affected individuals and state authorities, including the New Hampshire and Texas Attorney Generals' offices, around July 3, 2025.

- The investigation is ongoing

CONCLUSION

The OSINT and footprinting exercise on BMW.com shows how publicly available tools can reveal critical details such as domain records, technologies, IP addresses, subdomains, and security configurations without direct exploitation. While BMW demonstrates strong defenses with secure DNS, TLS, and CDN usage, findings like breached emails highlight the need for continuous monitoring. Overall, OSINT serves as both a potential attacker's entry point and a defender's tool for strengthening cybersecurity.

References

OSINT Framework – https://osintframework.com

Wayback Machine – https://archive.org/web/

Whois Lookup – https://whois.domaintools.com

BuiltWith – https://builtwith.com

Wappalyzer – https://www.wappalyzer.com

Have I Been Pwned – https://haveibeenpwned.com

Shodan – https://www.shodan.io

ipinfo.io – https://ipinfo.io

Tools Used

WHOIS Lookup → Domain registration details

Have I Been Pwned / Security Headers → Breach check

BuiltWith & Wappalyzer → Technology stack analysis

Wayback Machine → Historical snapshots of BMW.com

dig → DNS queries

ipinfo.io → IP and ASN details

Sublist3r → Subdomain enumeration

nmap → Port scanning and service detection

nslookup → IP address resolution

theHarvester → Email & subdomain collection

dnsenum → DNS enumeration, MX records, zone transfer attempts

sslscan → SSL/TLS configuration check

Sherlock → Username enumeration on social media & platforms

SpiderFoot → OSINT visualization and data correlation

traceroute → Network path tracing

Shodan → Host and service discovery across the internet

Note :

Active Reconnaissance interacts with a target's systems through techniques like port scanning to uncover detailed information, but it carries a high risk of detection.

Passive reconnaissance, conversely, gathers information from publicly available sources, such as social media and DNS records, without any direct interaction, making it much stealthier and less detectable.