

# Práctica 2: Uso avanzado de Shodan y ZoomEye para reconocimiento pasivo

## Objetivo

Utilizar motores de búsqueda especializados en dispositivos y servicios expuestos en Internet (**Shodan** y **Zoomeye**) para recopilar información crítica sobre una infraestructura empresarial simulada.

## 1. Entorno virtualizado recomendado

### Máquina atacante

- SO: *Kali Linux 2025.2*
- Requisitos:
  - Navegador *Firefox o Chromium*
  - Python3 y pip
  - Cuenta gratuita en Shodan y ZoomEye

## 2. Instalación de herramientas y API

Usar un entorno virtual aislado y no ejecutar como root si se puee (mejor con un usuario normal):

```
# como usuario normal (recomendado).  
python3 -m venv ~/osint-venv  
source ~/osint-venv/bin/activate
```



```
(kali㉿kali)-[~]  
└─$ python3 -m venv ~/osint-venv  
  
(kali㉿kali)-[~]  
└─$ source ~/osint-venv/bin/activate  
  
(osint-venv)–(kali㉿kali)-[~]  
└─$
```

```
# actualiza herramientas del venv  
python -m pip install --upgrade pip setuptools Wheel
```

```
(osint-venv)-(kali㉿kali)-[~]
└─$ python -m pip install --upgrade pip setuptools wheel
Requirement already satisfied: pip in ./osint-venv/lib/python3.13/site-packages (25.2)
Collecting setuptools
  Downloading setuptools-80.9.0-py3-none-any.whl.metadata (6.6 kB)
Collecting wheel
  Downloading wheel-0.45.1-py3-none-any.whl.metadata (2.3 kB)
Downloading setuptools-80.9.0-py3-none-any.whl (1.2 MB)
   ━━━━━━━━━━━━━━━━ 1.2/1.2 MB 8.8 MB/s 0:00:00
Downloading wheel-0.45.1-py3-none-any.whl (72 kB)
Installing collected packages: wheel, setuptools
Successfully installed setuptools-80.9.0 wheel-0.45.1

(osint-venv)-(kali㉿kali)-[~]
└─$
```

### 3) Instala Shodan y ZoomEyeAI dentro del venv

```
pip install shodan zoomeyeai
```

```
(osint-venv)-(kali㉿kali)-[~]
└─$ pip install shodan zoomeye
Collecting shodan
  Downloading shodan-1.31.0.tar.gz (57 kB)
    Preparing metadata (setup.py) ... done
Collecting zoomeye
  Downloading zoomeye-3.0.0-py3-none-any.whl.metadata (11 kB)
Collecting click (from shodan)
  Downloading click-8.2.1-py3-none-any.whl.metadata (2.5 kB)
Collecting click-plugins (from shodan)
  Downloading click_plugins-1.1.1.2-py2.py3-none-any.whl.metadata (6.5 kB)
Collecting colorama (from shodan)
  Downloading colorama-0.4.6-py2.py3-none-any.whl.metadata (17 kB)
Collecting requests≥2.2.1 (from shodan)
  Downloading requests-2.32.5-py3-none-any.whl.metadata (4.9 kB)
Collecting XlsxWriter (from shodan)

(osint-venv)-(kali㉿kali)-[~]
```

```
$ pip3 install zoomeyeai
Collecting zoomeyeai
  Downloading zoomeyeai-3.0.1-py3-none-any.whl.metadata (8.3 kB)
Requirement already satisfied: certifi==2021.10.8 in ./osint-venv/lib/python3.13/site-packages (from zoomeyeai) (2021.10.8)
Requirement already satisfied: charset-normalizer==2.0.8 in ./osint-venv/lib/python3.13/site-packages (from zoomeyeai) (2.0.8)
)
Requirement already satisfied: colorama==0.4.4 in ./osint-venv/lib/python3.13/site-packages (from zoomeyeai) (0.4.4)
Requirement already satisfied: graphviz==0.19 in ./osint-venv/lib/python3.13/site-packages (from zoomeyeai) (0.19)
Requirement already satisfied: idna==3.3 in ./osint-venv/lib/python3.13/site-packages (from zoomeyeai) (3.3)
Requirement already satisfied: requests==2.26.0 in ./osint-venv/lib/python3.13/site-packages (from zoomeyeai) (2.26.0)
Requirement already satisfied: urllib3<1.27,≥1.21.1 in ./osint-venv/lib/python3.13/site-packages (from requests==2.26.0→zoomeyeai) (1.26.7)
Downloading zoomeyeai-3.0.1-py3-none-any.whl (23 kB)
Installing collected packages: zoomeyeai
Successfully installed zoomeyeai-3.0.1

(zk㉿kali)-[~]
└─$ zoomeyeai init -apikey [REDACTED]
Role: Free
Points: 3000
Zoomeye Points: 0
successfully initialized
```

```
shodan version
zoomeyeai -help
```

Inicia sesión Shodan / configura:

```
shodan init TU_API_KEY
```

```
[osint-venv]-(kali㉿kali)-[~]
$ shodan init
Successfully initialized

[osint-venv]-(kali㉿kali)-[~]
$ █
```

Cada vez que quieras usar estas herramientas, activa el venv:

```
source ~/osint-venv/bin/activate
```

Para salir del entorno virtual (venv):

deactivate

### 3. SHODAN

## 1 - Búsqueda básica desde web

Ir a <https://www.shodan.io>

Buscar: org:"tesla" O hostname:"vpn.tesla.com"

Shodan Maps Images Monitor Developer More...

SHODAN Explore Downloads Pricing org:"tesla" Search

Account

TOTAL RESULTS

**1,705**

TOP COUNTRIES



United States 687

Germany 170

Russian Federation 107

France 98

Netherlands 80

More...

TOP PORTS

443 655

161 600

80 135

View ReportDownload ResultsHistorical TrendView on MapAdvanced Search**Product Spotlight:** Free, Fast IP Lookups for Open Ports and Vulnerabilities using [InternetDB](#)

2025-09-10T20:06:38.707Z

84.14.170.184  
184.170.184.184.tesla.co...  
TESLA FRANCE  
France, Paris

SNMP:

Versions:

3

EngineId Format: mac  
Engine Bootts: 10  
EngineId Data: cc:6a:33:1d:98:00  
Enterprise: 9  
Engine Time: 28 days, 10:02:27  
Enterprise Name: ciscoSystems199.120.48.131 ☒

Tesla Motors, Inc.

United States, Washington

HTTP/1.1 403 Forbidden  
Server: Tesla Edge  
Connection: close  
Content-Length: 0

2025-09-10T19:54:27.563Z

403 Not allowed ☒199.120.51.147  
Tesla Motors, Inc.

Germany, Frankfurt am Main

HTTP/1.1 403 Not allowed  
Date: Wed, 10 Sep 2025 19:52:57 GMT  
Server: Varnish  
X-Varnish: 838639123  
Content-Type: text/html; charset=utf-8  
Retry-After: 5

2025-09-10T19:52:57.671Z

Shodan Maps Images Monitor Developer More...

SHODAN Explore Downloads Pricing org:"www.tesla.com" Search

Account

TOTAL RESULTS

**1,965**

TOP COUNTRIES



United States 625

India 171

Japan 121

Germany 111

United Kingdom 62

More...

TOP PORTS

443 1,964

8443 1

TOP ORGANIZATIONS

View ReportDownload ResultsHistorical TrendView on MapAdvanced Search**Product Spotlight:** Keep track of what you have connected to the Internet. Check out [Shodan Monitor](#)

2025-09-10T20:11:45.158Z

Invalid URL ☒

2.55.168.64

www.tesla.com

mfs-supplier-eng.m...tesla.cn

www.teslamotors.com

mfs-supplier.m...tesla.cn

teslamotors.com

Akamai Technologies, Inc.

United Kingdom, London

cdn

SSL Certificate

Issued By:

j- Common Name:

GeoTrust TLS RSA CA G1

j- Organization:

DigiCert Inc

Issued To:

j- Common Name:

www.teslamotors.com

j- Organization:

TESLA, INC.

Supported SSL Versions:

TLSv1.2

HTTP/1.0 400 Bad Request

Server: AkamaiGHost

Mime-Version: 1.0

Content-Type: text/html

Content-Length: 308

Expires: Wed, 10 Sep 2025 20:11:21 GHT

Date: Wed, 10 Sep 2025 20:11:21 GHT

Connection: close

2025-09-10T20:11:45.158Z

Invalid URL ☒

23.220.124.144

www.tesla.com

mfs-supplier-eng.m...tesla.cn

www.teslamotors.com

mfs-supplier.m...tesla.cn

teslamotors.com

Akamai Technologies, Inc.

United States, Ashburn

SSL Certificate

Issued By:

j- Common Name:

GeoTrust TLS RSA CA G1

j- Organization:

DigiCert Inc

Issued To:

j- Common Name:

www.teslamotors.com

j- Organization:

TESLA, INC.

Supported SSL Versions:

TLSv1.2

HTTP/1.0 400 Bad Request

Server: AkamaiGHost

Mime-Version: 1.0

Content-Type: text/html

Content-Length: 310

Expires: Wed, 10 Sep 2025 20:04:53 GHT

Date: Wed, 10 Sep 2025 20:04:53 GHT

Connection: close

2025-09-10T20:04:53.544Z

2.19.168.64

Regular View Raw Data Timeline

// TAGS: cdn

LAST SEEN: 2025-09-10

**General Information**

a2-19-168-64.deploy.static.akamaitechnologies.com  
events.tesla.cn  
mfs-suppliermo.tesla.cn  
mfs-supplier-eng.mo.tesla.cn  
static-assets.tesla.cn  
www.tesla.cn  
serviceapp.tesla.com  
www.tesla.com  
teslaautomation.de  
www.teslaautomation.de  
teslamotors.com  
www.teslamotors.com  
ts.la  
www.ts.la

Domains

akamaitechnologies.com tesla.cn tesla.com  
teslaautomation.de teslamotors.com ts.la

Country United Kingdom

**Open Ports**

80 443

// 80 / TCP ☒ -1399398257 | 2025-09-10T19:33:12.470862

**AkamaiGHost**

**Invalid URL**

HTTP/1.0 400 Bad Request  
Server: AkamaiGHost  
Mime-Version: 1.0  
Content-Type: text/html  
Content-Length: 308  
Expires: Wed, 10 Sep 2025 19:33:44 GHT  
Date: Wed, 10 Sep 2025 19:33:44 GHT  
Connection: Close

// 443 / TCP ☒ -810724997 | 2025-09-10T20:11:45.158233

**AkamaiGHost**

## Filtros útiles:

- ❖ port:22
- ❖ country:"ES"
- ❖ http.title:"Login"
- ❖ product:"Apache"
- ❖ ssl:"expired"

Shodan | Maps | Images | Monitor | Developer | More...

 Shodan | Explore | Downloads | Pricing ↗ | port:22 | Search | Account

TOTAL RESULTS: 20,977,892

TOP COUNTRIES:



United States	5,977,187
China	2,321,852
Germany	2,141,717
Netherlands	773,081
Russian Federation	750,223
More...	

TOP ORGANIZATIONS:

Google LLC	2,311,333
DigitalOcean, LLC	1,229,386
...	

View Report | Download Results | Historical Trend | Browse Images | View on Map | Advanced Search

**Product Spotlight:** Free, Fast IP Lookups for Open Ports and Vulnerabilities using [InternetDB](#)

**154.201.87.86**  
 High Family Technology Co., Limited  
 Hong Kong, Tseung Kwan O

SSH-2.0-OpenSSH\_8.2p1 Ubuntu-4ubuntu0.13  
 Key type: ssh-rsa  
 Key: AAAAB3nzaC1yc2EAAQABAAQABAC651z0yg2/P3vngKm0HpvFx/Pte8mHZ1AS2Xk1Jyx/61  
 am0uHcJKxVp01LSV24oeib2drtrBf8SGz745/C8z75fKPvHK/wg2SGDfpuw65uL2X7+1uX0QC  
 x57mlh5ylybxFz1StkgbVv1GvY/BapRfC19M5j97cvNrA/he165AE6ZFdhlLK7jHKA2Hm@sc0gDS  
 Va...

**45.33.32.128**  
 8962-128.members.linode.com  
 Linode  
 United States, Fremont  
 cloud

SSH-2.0-OpenSSH\_8.2p1 Ubuntu-4ubuntu0.13  
 Key type: ssh-rsa  
 Key: AAAAB3nzaC1yc2EAAQABAAQABAC651z0yg2/P3vngKm0HpvFx/Pte8mHZ1AS2Xk1Jyx/61  
 am0uHcJKxVp01LSV24oeib2drtrBf8SGz745/C8z75fKPvHK/wg2SGDfpuw65uL2X7+1uX0QC  
 x57mlh5ylybxFz1StkgbVv1GvY/BapRfC19M5j97cvNrA/he165AE6ZFdhlLK7jHKA2Hm@sc0gDS  
 Va...

**20.46.180.43**  
 Microsoft Corporation  
 Japan, Tokyo  
 cloud

SSH-2.0-OpenSSH\_8.2p1 Ubuntu-4ubuntu0.13  
 Key type: ssh-rsa  
 Key: AAAAB3nzaC1yc2EAAQABAAQABAC651z0yg2/P3vngKm0HpvFx/Pte8mHZ1AS2Xk1Jyx/61  
 am0uHcJKxVp01LSV24oeib2drtrBf8SGz745/C8z75fKPvHK/wg2SGDfpuw65uL2X7+1uX0QC  
 x57mlh5ylybxFz1StkgbVv1GvY/BapRfC19M5j97cvNrA/he165AE6ZFdhlLK7jHKA2Hm@sc0gDS  
 Va...

2025-09-10T20:37:36.735300  
 2025-09-10T20:37:35.337800  
 2025-09-10T20:37:29.958122

## 2 - Búsqueda por CLI

```
# Buscar servidores SSH en la red simulada
shodan search "port:22 org:'tesla'"
```

```
# Buscar cámaras IP (IoT)
shodan search "netcam" --fields ip_str,port,org,os
```

120.79.16.132	9696	Aliyun Computing Co., LTD
121.43.109.88	447	Aliyun Computing Co., LTD
101.200.156.251	8112	Aliyun Computing Co., LTD
8.138.125.130	9026	Aliyun Computing Co.LTD
47.90.204.194	10083	Alibaba Cloud - US
8.213.222.157	9205	Alibaba Cloud (Singapore) Private Limited
124.70.205.56	9002	Huawei Public Cloud Service (Huawei Software Technologies Ltd.Co)
47.237.113.119	21317	Alibaba Cloud LLC
39.102.208.149	12229	Aliyun Computing Co., LTD
110.238.109.146	8086	Huawei Cloud Singapore Region
47.109.52.147	8556	Aliyun Computing Co., LTD
47.252.27.174	8086	Alibaba Cloud - US
8.134.157.2	5229	Aliyun Computing Co.LTD
8.215.59.238	12229	Alibaba Cloud (Singapore) Private Limited
115.29.151.41	9026	Aliyun Computing Co., LTD
39.102.210.222	17778	Aliyun Computing Co., LTD
119.13.103.211	9943	Huawei Cloud Singapore Region
39.104.71.183	8385	Aliyun Computing Co., LTD
47.254.153.78	17778	Alibaba Cloud - DE
119.13.103.211	44303	Huawei Cloud Singapore Region
95.85.77.33	9943	G-Core Labs Customer assignment
45.82.102.43	9002	G-Core Labs Customer assignment
8.220.135.123	30007	Alibaba Cloud (Singapore) Private Limited
47.112.15.44	5083	Aliyun Computing Co., LTD
47.121.129.129	5083	Aliyun Computing Co., LTD
8.208.85.34	8475	Aliyun Computing Co.LTD
8.213.195.191	2058	Alibaba Cloud (Singapore) Private Limited
95.85.77.33	9002	G-Core Labs Customer assignment
8.134.140.97	9026	Aliyun Computing Co.LTD
123.57.1.78	646	Aliyun Computing Co., LTD
198.11.175.192	646	Alibaba Cloud LLC
47.238.134.126	9529	Alibaba Cloud LLC
114.55.144.85	44303	Aliyun Computing Co., LTD

## 3 - Extraer resultados

```
shodan download tesla-ssh "org:'tesla' port:22"
```

```
└─(osint-venv)-(kali㉿kali)-[~]
$ shodan download tesla-ssh "org:'tesla' port:22"
/home/kali/osint-venv/lib/python3.13/site-packages/shodan/_main_.py:33: UserWarning: pkg_resources is deprecated as an API.
See https://setuptools.pypa.io/en/latest/pkg_resources.html. The pkg_resources package is slated for removal as early as 2025-11-30. Refrain from using this package or pin to Setuptools<81.
    import pkg_resources
Search query:           org:'tesla' port:22
Total number of results: 10
Query credits left:     100
Output file:             tesla-ssh.json.gz
[#####] 100%
Notice: fewer results were saved than requested
Saved 4 results into file tesla-ssh.json.gz

└─(osint-venv)-(kali㉿kali)-[~]
$
```

```
shodan parse tesla-ssh.json.gz
```

## 4. ZOOMEYE

1 - Web UI

Ir a <https://www.zoomeye.org/> y probar estas queries:

- ❖ "app:OpenSSH"
- ❖ port=80 && country="ES"
- ❖ service:ftp

**ZoomEye** AI Search Pricing NEW Partners BugBounty Radar NEW MCP NEW Hub rfuente2002@gmail.com

"app:OpenSSH" × Not satisfied with the search, try ZoomEyeGPT

About 3 results (Nearly year: 3 results) 1.435 seconds

Result Report Maps Only \$10 Download All Subscribe Tokenizer Collection

**111.175.166.217:18...** 1880 http

111.175.166.2... Data update Header Body Hash

111.175.166.2... China, Hubei, Wuhan OS: U... Organization: China Telecom ASN: AS41... Title: 马春辉的网... 2025-07-01 00:51

HTTP/1.1 200 OK Date: Mon, 30 Jun 2025 16:51:30 GMT Server: Apache/2.4.62 (Unix) Last-Modified: Thu, 22 May 2025 23:03:12 GMT Etag: "14f5-635c17c61ac00" Accept-Ranges: bytes Content-Length: 5365 Connection: close Content-Type: text/html

**111.175.164.43:18...** 1880 http

111.175.164... Data update Header Body Hash

World Map

FILTER Hide Honeypot

SEARCH TYPE Devices 3 ▾ IPv4 3 IPv6 0

**111.175.166.217**

Basic Information Component details

**Basic Information**

IP Address	111.175.166.217
City	Wuhan
Province / State	Hubei
Country	China
Location	30.670029, 114.571357
Organization	CHINANET
ISP	
ASN	AS4134

**Ports / Service** 3 Whois DNS Analysis 2 User Tags 0

21/ftp 1880/http 4443/pharos

**21/ftp**

Device	FTP server
Product	bftpd
Version	

Banner

ZoomEye® AI Search Pricing NEW Partners BugBounty Radar NEW MCP NEW Hub rfuente2002@gmail.com

vul.cve="CVE-2025-54236"

**9.1 CRITICAL**

**CVE-2025-54236**  
Adobe Commerce | Improper Input Validation (CWE-20)

Description

Adobe Commerce versions 2.4.9-alpha2, 2.4.8-p2, 2.4.7-p7, 2.4.6-p12, 2.4.5-p14, 2.4.4-p15 and earlier are affected by an Improper Input Validation vulnerability. A successful attacker can abuse this to achieve session takeover, increasing the confidentiality, and integrity impact to high. Exploitation of this issue does not require user interaction.

Show More Details ▾

vul.cve = "CVE-2025-54236" × Not satisfied with the search, try [ZoomEyeGPT](#)

About 134.140 results (Nearly year: 56.927 results) 3.561 seconds

Icon(99):  More Select All

Result Report Maps Only \$134.15 Download All Subscribe Tokenizer Collection

ZoomEye® AI Search Pricing NEW Partners BugBounty Radar NEW MCP NEW Hub rfuente2002@gmail.com

port="80" && country="ES"

port = "80" × && country = "ES" × Not satisfied with the search, try [ZoomEyeGPT](#)

About 7.005.540 results (Nearly year: 646.350 results) 1.018 seconds

Icon(99):  More Select All

Result Report Maps Only 500 Download All Subscribe Tokenizer Collection

trovit.ae:80	
trovit.ae	<a href="#">Data update</a>
Spain, Madrid, Comunidad d...	Header
Organization: COLT Technology S...	Body
ASN: AS8220	Hash
Title: Trovit - A classified search e...	
⌚ 2025-09-11 04:56	

80 http

campusadministraciondejusticia.com:80	
campusadministraciondejusticia.com:80	<a href="#">Data update</a>
	80 http

80 http

**FILTER**  
 Hide Honeypot

**SEARCH TYPE**

Devices	6.907.982
Ipv4	6.582.708
Ipv6	325.274

## 2 - CLI

```
# Buscar hosts en España con HTTP
zoomeyeai search 'port:80 && country:ES'
```

```
# Buscar dispositivos con SSL expuesto
zoomeyeai search 'ssl:expired'
```

```
(osint-venv)-(kali㉿kali)-[~]
$ zoomeyeai search 'ssl:expired'
Traceback (most recent call last):
  File "/home/kali/osint-venv/bin/zoomeyeai", line 7, in <module>
    sys.exit(main())
  ~~~^A
  File "/home/kali/osint-venv/lib/python3.13/site-packages/zoomeyeai/cli.py", line 106, in main
    args.func(args)
  ~~~~~^A
  File "/home/kali/osint-venv/lib/python3.13/site-packages/zoomeyeai/core.py", line 95, in search
    data = zm.search(dork, page=page, pagesize=pagesize, facets=facets, fields=fields, sub_type=sub_type)
  File "/home/kali/osint-venv/lib/python3.13/site-packages/zoomeyeai/sdk.py", line 156, in search
    resp = self._request(self.search_api,
                          method='POST',
                          params=params,
                          headers=headers)
  File "/home/kali/osint-venv/lib/python3.13/site-packages/zoomeyeai/sdk.py", line 88, in _request
    raise ValueError(resp.json().get('message'))
ValueError: resource credits is insufficient

(osint-venv)-(kali㉿kali)-[~]
$
```

Es posible que si no disponemos de créditos (plan Free) sólo podamos utilizar las búsquedas a través de la web

## 5. Actividades de evaluación

Actividad	Detalle
Captura de datos de Shodan	Lista de IPs, servicios, versiones
Captura de datos de Zoomeye	Certificados, metadatos SSL/TLS
Informe de riesgos	Análisis de posibles vectores de ataque
Recomendaciones	Qué servicios deberían ocultarse o reforzarse

## 6. Dominio simulado sugerido

- vpn.example-corp.com
- mail.example-corp.com
- camera.example-corp.com (IoT simulado)

Puedes simular IPs o configurar máquinas locales y exponer servicios en una red controlada (por ejemplo, con **VirtualBox Host-only Adapter**), aunque para búsquedas reales se usará el entorno público.