



IOT AND OT HACKING

Module-18

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 - Perform Activity Using ZoomEye
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-

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 - What is FOFA Used For?
 - Perform Activity Using FOFA
 - Explore IoT, SCADA, and server exposure
-

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 - How Exploit-DB Is Used in IoT and OT Hacking
 - Perform Activity Using Exploit-DB
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-

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IoT And OT Hacking

The significant development of the paradigm of the Internet of Things (IoT) is contributing to the proliferation of devices in daily life. From smart homes to automated healthcare applications, IoT is ubiquitous. However, despite the potential of IoT to make our lives easier and more comfortable, we cannot underestimate its vulnerability to cyber-attacks. IoT devices lack basic security, which makes them prone to various cyber-attacks.

The objective of a hacker in exploiting IoT devices is to gain unauthorized access to users' devices and data. A hacker can use compromised IoT devices to build an army of botnets, which, in turn, is used to launch DDoS attacks.

Owing to a lack of security policies, smart devices are easy targets for hackers who can compromise these devices to spy on users' activities, misuse sensitive information (such as patients' health records, etc.), install ransomware to block access to the devices, monitor victims' activities using CCTV cameras, commit credit-card-related fraud, gain access to users' homes, or recruit the devices in an army of botnets to carry out DDoS attacks.

As an ethical hacker and penetration tester, you must have sound knowledge of hacking IoT and OT platforms using various tools and techniques. The labs in this module will provide you with real-time experience in performing footprinting and analyzing traffic between IoT and OT devices

Internet Of Things

1. What is IoT?

IoT (Internet of Things) refers to the network of physical objects (devices, vehicles, appliances, etc.) that are embedded with sensors, software, and connectivity to collect and exchange data over the internet.

2. Key Concepts

- **Smart Devices:** Devices that can collect and share data.
 - **Sensors & Actuators:** Collect real-world data (e.g., temperature, motion).
 - **Connectivity:** Communication via Wi-Fi, Bluetooth, Zigbee, LTE, etc.
 - **Data Processing:** Local (Edge) or Cloud-based analysis.
 - **Automation & Control:** Devices can perform tasks automatically based on data.
-

3. Architecture of IoT

1. **Perception Layer (Device Layer):** Sensors, RFID, actuators.
 2. **Network Layer:** Transfers data – Wi-Fi, 5G, Zigbee, etc.
 3. **Processing Layer:** Data processing – cloud or edge.
 4. **Application Layer:** Services for users (e.g., Smart Home app).
-

4. IoT Communication Protocols

a. Network Protocols

- **IPv6, 6LoWPAN:** IP for low-power devices
- **Wi-Fi / Ethernet / Cellular / LPWAN**

b. Messaging Protocols

- **MQTT (Message Queuing Telemetry Transport)**
 - **CoAP (Constrained Application Protocol)**
 - **AMQP (Advanced Message Queuing Protocol)**
 - **HTTP/HTTPS (For REST APIs)**
-

5. IoT Applications

a. Consumer:

- Smart Home (lights, thermostats, locks)
- Wearables (fitness bands, smartwatches)

b. Industrial (IIoT):

- Predictive maintenance
- Smart factories

c. Healthcare:

- Remote patient monitoring
- Smart medical devices

d. Agriculture:

- Soil monitoring
- Automated irrigation

e. Smart Cities:

- Smart traffic lights
 - Waste management systems
-

6. IoT Security

Security is one of the most critical parts of IoT due to the massive number of connected devices.

Common Threats:

- Weak/default credentials
- Unpatched firmware
- Insecure communication

Security Measures:

- Device authentication
 - Secure boot and firmware
 - Data encryption
 - Regular updates
-

7. Tools and Platforms

a. Hardware Platforms:

- Raspberry Pi
- Arduino
- ESP32
- Intel Edison

b. Software Platforms:

- **Google Cloud IoT Core**
 - **AWS IoT**
 - **Microsoft Azure IoT Hub**
 - **ThingsBoard**
 - **Node-RED** (Visual programming tool)
-

8. Cloud & Edge Computing in IoT

- **Cloud Computing:** Centralized data storage and analytics.
 - **Edge Computing:** Data is processed near the source (low latency, high speed).
-

9. IoT and AI

- Predictive analytics
 - Smart automation
 - Anomaly detection using ML
-

10. Data Flow in IoT

Device → Gateway → Cloud Platform → Application

11. IoT Protocol Stack

Layer	Protocol Examples
Application	MQTT, CoAP, HTTP
Transport	TCP, UDP
Network	IPv6, 6LoWPAN
Data Link	IEEE 802.15.4, LoRa
Physical	Bluetooth, Wi-Fi, Zigbee, LTE

12. IoT Career Scope

Roles:

- IoT Developer
- Embedded Systems Engineer
- IoT Security Analyst
- Firmware Developer
- IoT Data Analyst

Skills Required:

- Embedded C/C++
- Python/JavaScript for scripting

- Networking fundamentals
 - Cloud platforms
 - Security concepts
-



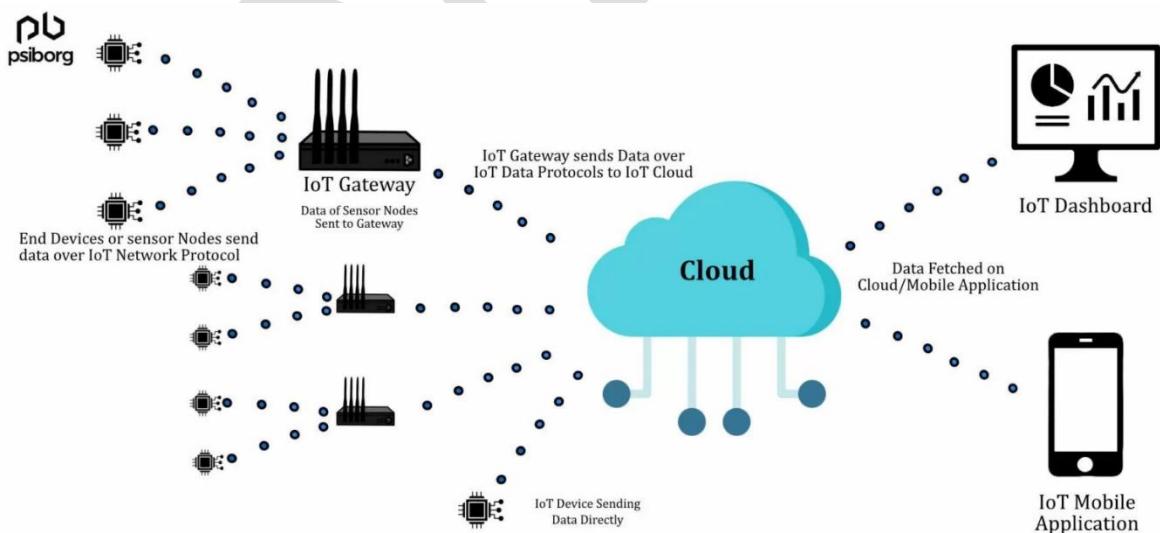
13. Practical Projects to Learn

- Smart Home Automation with NodeMCU
 - IoT Temperature & Humidity Monitor
 - IoT-based Smart Dustbin
 - GPS Tracker with GSM module
 - Smart Street Lighting System
-



IoT Communication Model – Explained with Diagram

The **IoT Communication Model** defines **how devices in an IoT system communicate** with each other, cloud platforms, and users. It involves data collection, transmission, processing, and action.



IoT Communication Model

10 OWASP Top 10 IoT Threats

No.	Threat Category	Description
1	 Weak, Guessable, or Hardcoded Passwords	Use of default or easy-to-guess credentials, or hardcoded passwords in firmware.
2	 Insecure Network Services	Services running on the device that are vulnerable, exposed to the internet, or not needed.
3	 Insecure Ecosystem Interfaces	Insecure web, backend, cloud, or mobile interfaces (e.g., weak authentication, lack of encryption).
4	 Lack of Secure Update Mechanism	Insecure or no firmware/software updates, no signing or verification process.
5	 Use of Insecure or Outdated Components	Using libraries or components with known vulnerabilities or unsupported versions.
6	 Insufficient Privacy Protection	Poor handling of personal data, such as logging without consent, or insecure data storage.
7	 Insecure Data Transfer and Storage	Data is sent or stored without encryption, or in an easily accessible format.
8	 Lack of Device Management	No way to securely manage, update, or monitor devices once deployed.
9	 Insecure Default Settings	Devices ship with insecure settings (e.g., open ports, remote access enabled).
10	 Lack of Physical Hardening	Devices can be physically tampered with, allowing firmware extraction, USB access, or debugging.

Comprehensive IoT Security Threats Table

No.	Threat Name	Description
1	Weak/Hardcoded Passwords	Default or hardcoded credentials, often unchangeable.
2	Insecure Network Services	Services exposed unnecessarily, exploitable remotely (e.g., Telnet, FTP).
3	Insecure Web Interfaces	Web UIs vulnerable to XSS, CSRF, SQLi, and weak login protections.
4	Lack of Secure Update Mechanism	No firmware validation or OTA update capability.
5	Use of Insecure/Outdated Components	Libraries and OS versions with known CVEs.
6	Insufficient Privacy Protection	Data collected without consent or poor data protection.
7	Insecure Data Storage and Transmission	Plaintext storage or lack of TLS/HTTPS encryption.
8	Lack of Device Management	No control over deployed device settings, patches, or status.
9	Insecure Default Settings	Open ports, admin panels, or debug interfaces enabled by default.
10	Lack of Physical Hardening	Easy physical access to device internals (e.g., JTAG, UART).
11	Insecure APIs	No rate limits, exposed endpoints, missing auth tokens.
12	Poor Authorization Controls	No role-based access control or privilege separation.
13	Botnet Infections (e.g., Mirai)	Devices hijacked for DDoS or mining attacks.

No.	Threat Name	Description
14	Bluetooth/NFC/RF Vulnerabilities	BLE spoofing, jamming, or unauthorized access via proximity protocols.
15	Supply Chain Attacks	Vulnerable firmware loaded during manufacturing or shipping.
16	Denial of Service (DoS)	Devices overwhelmed via traffic floods or malformed packets.
17	Remote Code Execution (RCE)	Exploits like buffer overflow enabling attacker control.
18	Lack of Logging and Monitoring	No audit trail or alerts for suspicious activity.
19	Improper Device Decommissioning	Devices sold/disposed with intact sensitive data.
20	Cloud/Mobile App Vulnerabilities	Insecure IoT companion apps or cloud APIs (e.g., token leakage).
21	Eavesdropping & Traffic Analysis	Attackers intercept MQTT/CoAP or analyze patterns for intel.
22	IT/OT Network Integration Risks	IoT exposure allows attackers to pivot to critical infrastructure (ICS/SCADA).
23	Geo-Tracking & Location Leaks	GPS data leakage from IoT tracking systems or wearables.

Operational Technology

Operational Technology (OT) refers to the **hardware and software systems** that monitor and control **physical devices, processes, and events** in industrial environments. These devices are essential in industries like **manufacturing, energy, water, oil & gas, and transportation**.

💡 OT vs IT – Key Difference

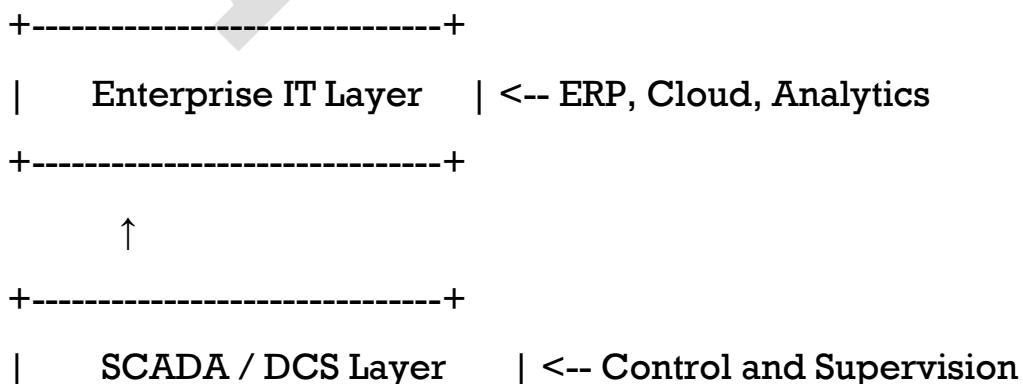
Category	OT (Operational Technology)	IT (Information Technology)
Focus	Physical process control	Data processing, storage, communication
Devices	PLCs, RTUs, HMIs, SCADA	Computers, servers, routers, switches
Availability	High availability is critical	Security and confidentiality are key
Protocols	MODBUS, DNP3, PROFIBUS, OPC-UA	TCP/IP, HTTP, FTP
Updates	Rarely updated, stable systems	Frequent updates and patches

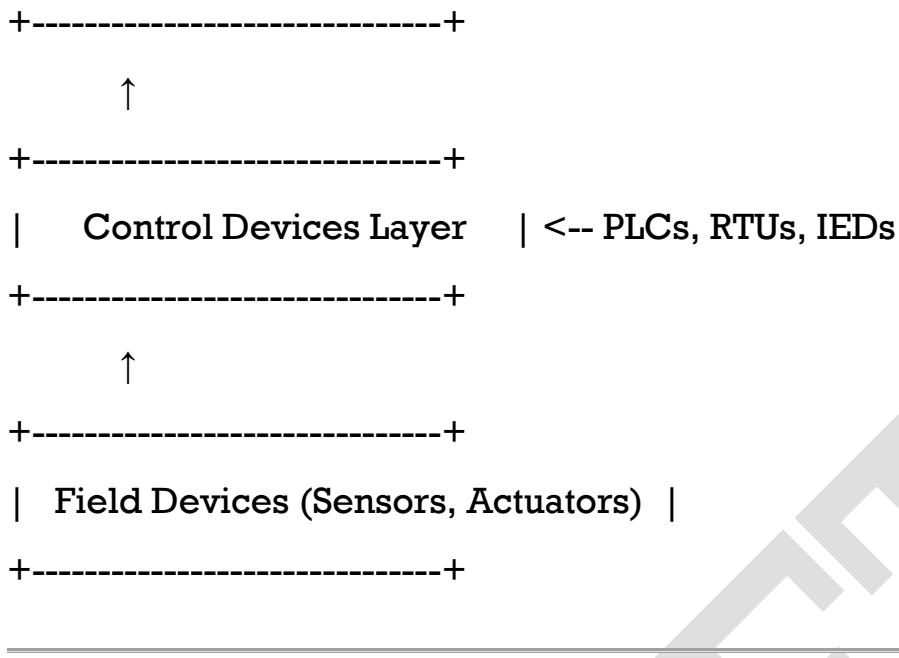
💡 Common OT Devices and Their Functions

Device	Full Form / Type	Description
PLC	Programmable Logic Controller	Brain of the industrial system; executes logic in real time
RTU	Remote Terminal Unit	Sends sensor data to SCADA over long distances

Device	Full Form / Type	Description
HMI	Human Machine Interface	Interface for operators to monitor and control industrial processes
DCS	Distributed Control System	Control system with local processing units; often used in refineries
SCADA	Supervisory Control and Data Acquisition	Software/hardware to control and monitor OT devices across locations
Sensors	(Analog/Digital)	Detect temperature, pressure, vibration, etc.
Actuators	(Motors/Valves)	Take physical action (open valve, rotate motor)
IED	Intelligent Electronic Devices	Used in electrical substations for protection and monitoring
Data Historian		Stores time-series data from OT devices for long-term analysis
Industrial Gateways		Converts OT protocols to IT-compatible ones (e.g., MODBUS to MQTT)

🔧 OT Architecture Overview (Simplified)





Common OT Protocols

Protocol	Purpose	Transport
MODBUS	Communication between PLCs	TCP/RS-485
DNP3	Substation automation	Serial/TCP
OPC-UA	Interoperability and standardization	TCP/IP
PROFIBUS	Factory automation	Fieldbus
EtherCAT	Real-time communication	Ethernet
BACnet	Building automation	Ethernet/IP

Security Challenges in OT Devices

Risk	Description
Outdated Systems	Many OT systems run legacy Windows or embedded OS
No Encryption	Protocols like MODBUS are plaintext
No Authentication	Devices trust any command sent to them

Risk	Description
Physical Access Risks	Devices may be in remote, unguarded locations
Lack of Patching	Downtime is unacceptable, so updates are avoided
Air-Gapped Assumption	Many believe OT networks are isolated (not true anymore)

Securing OT Devices – Best Practices

1. Network Segmentation (IT/OT separation)
2. Firewall and Deep Packet Inspection (DPI)
3. Regular Vulnerability Assessment
4. Access Control & Role-Based Access
5. Disable Unused Services/Ports
6. Patch Management Plan
7. Use of Security Gateways
8. Monitor with SIEM/SOC tools
9. Asset Inventory & Logging
10. Zero Trust Architecture for OT

Use Cases of OT Devices by Industry

Industry	OT Devices Used	Purpose
Manufacturing	PLC, HMI, SCADA	Assembly line automation
Energy (Grid)	RTU, IED, DNP3, SCADA	Grid monitoring, load control
Oil & Gas	DCS, RTU, Sensors	Pipeline monitoring and safety

Industry	OT Devices Used	Purpose
Water Management	SCADA, Sensors, Actuators	Water treatment and flow regulation
Transportation	PLC, HMI	Train control systems, signaling

⚠️ Top Challenges of OT (Operational Technology)

Category	Challenge	Explanation
1. Legacy Systems	Outdated hardware and software	Many OT systems are 10–20+ years old and lack modern security features.
2. Security Risks	Vulnerable to cyberattacks	Weak authentication, no encryption, and exposed protocols like MODBUS.
3. Lack of Updates	Rare or no patching	Systems must run continuously — making downtime for patching difficult.
4. IT-OT Integration	Convergence creates new attack surfaces	Blending IT networks with OT exposes sensitive OT devices to internet threats.
5. Limited Visibility	Poor monitoring and logging	Many OT systems don't log events or support real-time alerts.
6. Vendor Dependency	Closed/proprietary ecosystems	Updating or customizing systems may require vendor assistance or approval.

Category	Challenge	Explanation
7. Insecure Protocols	Legacy fieldbus protocols (e.g., MODBUS, DNP3)	These are unauthenticated and unencrypted, easy targets for interception.
8. Physical Access	Devices in remote/unsafe locations	Attackers may tamper with devices physically (e.g., USB, JTAG, UART access).
9. Lack of Security Awareness	Operational teams lack cybersecurity training	OT staff focus on uptime, not cyber hygiene — risky default settings remain.
10. Compliance Pressure	Increasing regulatory requirements	Standards like NERC-CIP, IEC 62443, or ISO 27019 demand strict controls.
11. Poor Asset Inventory	Incomplete device and software listing	Hard to secure what you don't know exists in your network.
12. No Role-Based Access	Same login for all operators	No separation of duties; increases risk of misuse or insider threats.

💡 Common OT Vulnerabilities

No.	Vulnerability	Description
1	Default or Hardcoded Credentials	Factory-set usernames/passwords often never changed (e.g., admin/admin).
2	Lack of Authentication/Authorization	Devices like PLCs/RTUs trust any command — no access control or session auth.

No.	Vulnerability	Description
3	Insecure Protocols (MODBUS, DNP3, etc.)	These protocols send data in plaintext and lack authentication.
4	No Data Encryption	Data in transit is not encrypted (no TLS, SSL, or VPN).
5	Buffer Overflow Vulnerabilities	Poor input validation in firmware allows RCE (Remote Code Execution).
6	Outdated Firmware/OS	Devices run old, unsupported systems with known CVEs (e.g., Windows XP, VxWorks).
7	Lack of Secure Boot	Firmware tampering possible if there's no integrity check during boot.
8	Physical Access Ports Open	JTAG, UART, USB ports accessible and unprotected in remote/plant devices.
9	No Logging or Monitoring	No visibility of changes, tampering, or malicious activity.
10	Improper Input Validation	Malicious commands accepted by PLCs/RTUs due to poor input sanitization.
1 1	Remote Access Services Enabled	Telnet, SSH, RDP, or VNC exposed to external networks without proper security.

No.	Vulnerability	Description
1 2	Lack of Network Segmentation	OT and IT networks mixed; attack on one compromises both.
1 3	Weak or No Patch Management	Vendors may not provide regular updates, or patching causes downtime.
1 4	Firmware Extraction or Tampering	Attackers dump firmware using tools like Binwalk, JTAGulator, etc.
1 5	Misconfigured Services/Devices	Open services, unnecessary features, and default configurations left unchanged.

HANNAH

Practical IoT & OT Hacking: Simulating Attacks with ICSim

ICSim (Industrial Control System Simulation) is an open-source training environment created by **Digital Bond** to simulate **ICS/SCADA environments**, specifically **CAN Bus** systems used in industrial and automotive settings.

ICSim emulates a simple industrial setup (like a water plant or traffic light control system) using CAN protocol, allowing ethical hackers to test **OT/ICS vulnerabilities** safely.

⌚ 2. Objectives of Using ICSim

- Understand **Industrial Control Systems (ICS)** and **Operational Technology (OT)**.
 - Learn about **CAN Bus communication**.
 - Practice **passive and active attacks** on ICS systems.
 - Train on **realistic but virtual environments** without causing damage.
 - Explore **packet sniffing, replay attacks, and message injection**.
-

🛠 3. Key Features

1. Simulates a Real ICS System

- Shows how industrial systems like traffic lights work using a virtual setup.

2. Uses CAN Protocol

- Based on the same communication used in cars and factories (CAN Bus).

3. No Physical Devices Needed

- Runs completely on your computer using virtual interfaces.

4. Hands-on Hacking Practice

- Lets you try sniffing, replaying, and injecting fake messages.

5. Includes GUI (Graphical Interface)

- Visual simulation of traffic lights and controls – easy to see what's happening.

6. Safe Learning Environment

- You can perform attacks without harming any real system.

7. Works with Real CAN Tools

- Uses tools like `candump`, `cansend`, `canplayer` to simulate real scenarios.

8. Open Source & Free

- Available for everyone to download, use, and modify.
-

4. Components of ICSim

- **icsim** – Main GUI traffic light simulator
 - **candump**, **cansniffer**, **canplayer** – CAN utilities (from **can-utils**)
 - **vcan** – Virtual CAN interface (no hardware required)
 - **controls.py** – Send fake CAN messages (for attacks)
 - **can-utils** – Open-source set of CAN network tools
-

5. ICSim for IoT/OT Hacking Learning

- Realistic simulation of industrial/automotive networks.
 - Practice **red teaming** on OT environments.
 - Learn **protocol weaknesses** of legacy ICS.
-

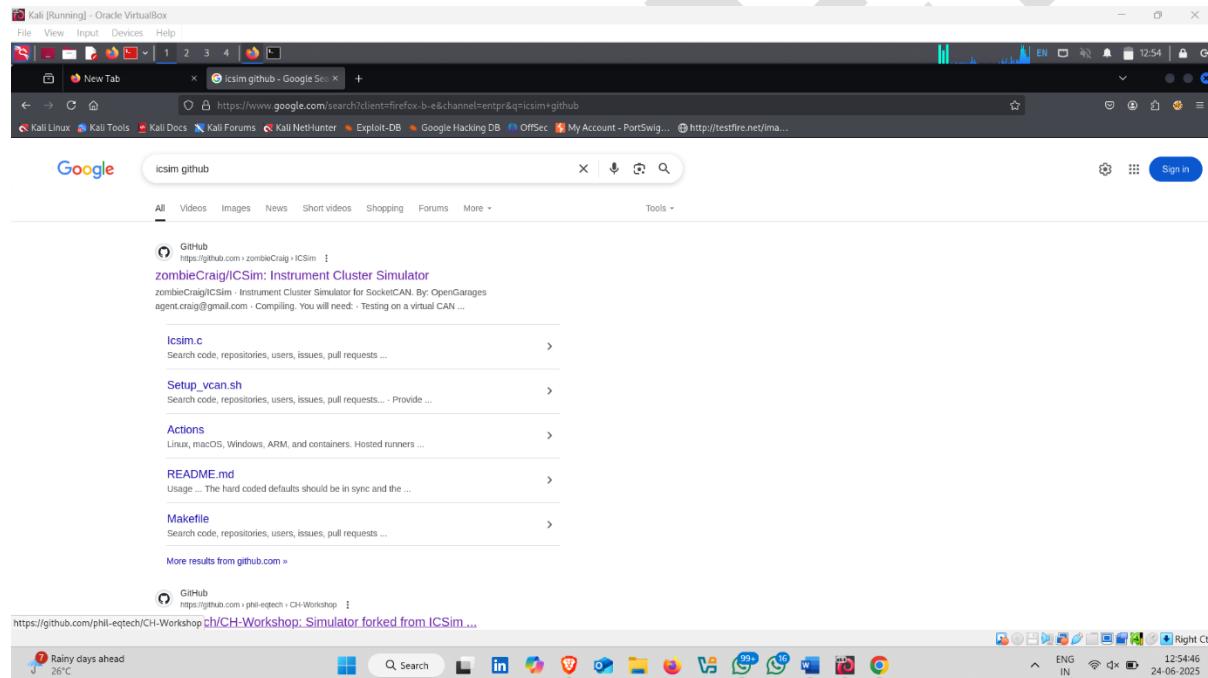
6. Learning Outcomes

By the end of the module using ICSim, learners should be able to:

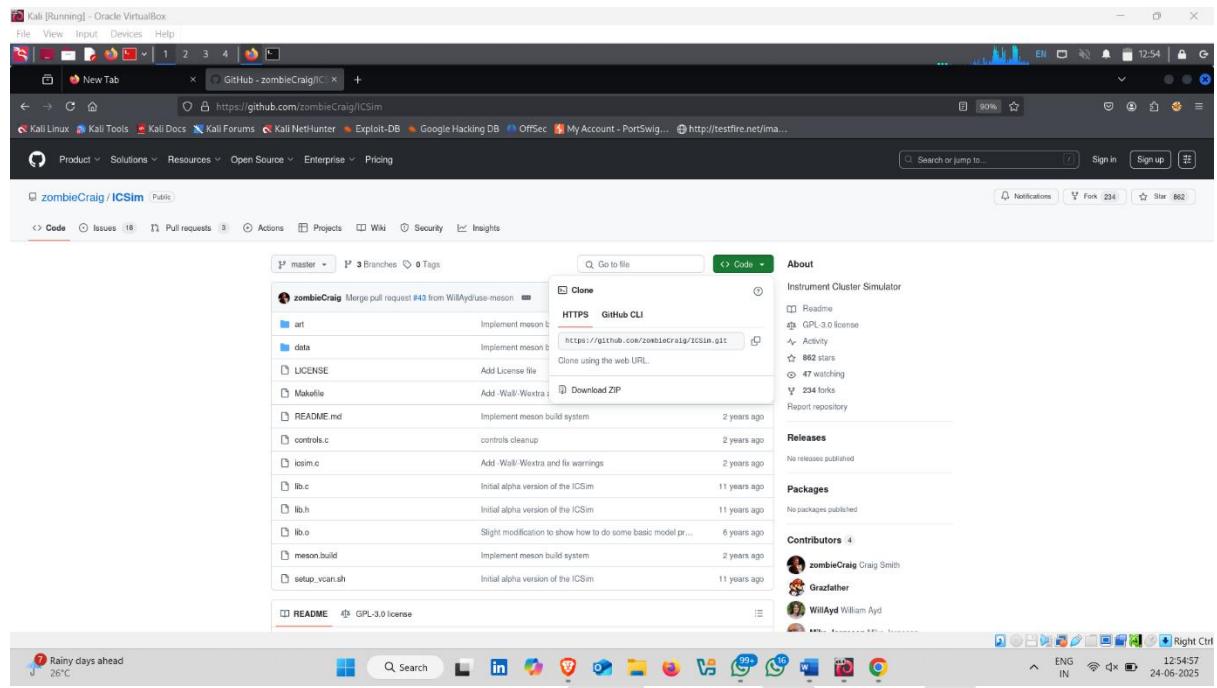
- Understand basic ICS/SCADA architecture.
- Demonstrate packet sniffing and injection on CAN bus.
- Explain and simulate OT threats in critical systems.
- Perform ethical hacking on industrial protocols.

How to use it :-

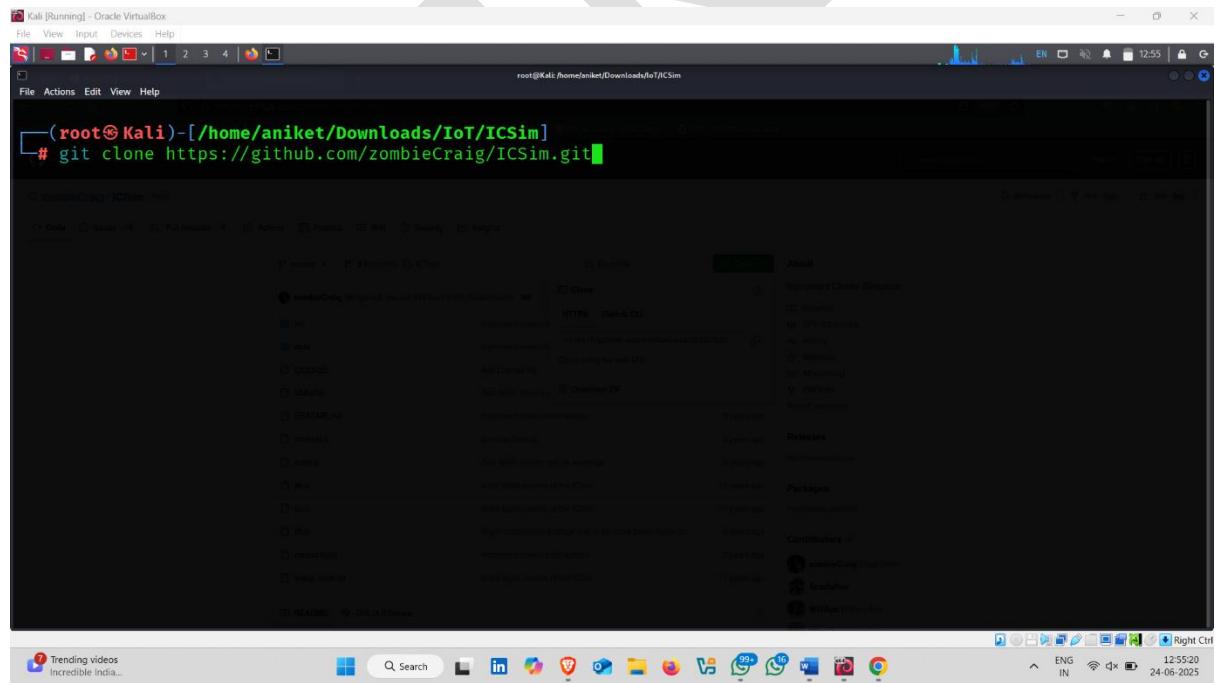
- Open kali linux/parrot Os and search **Icsim git hub**.
- Click on first website



- Click on **Green code** button and **copy HTTPS Url**



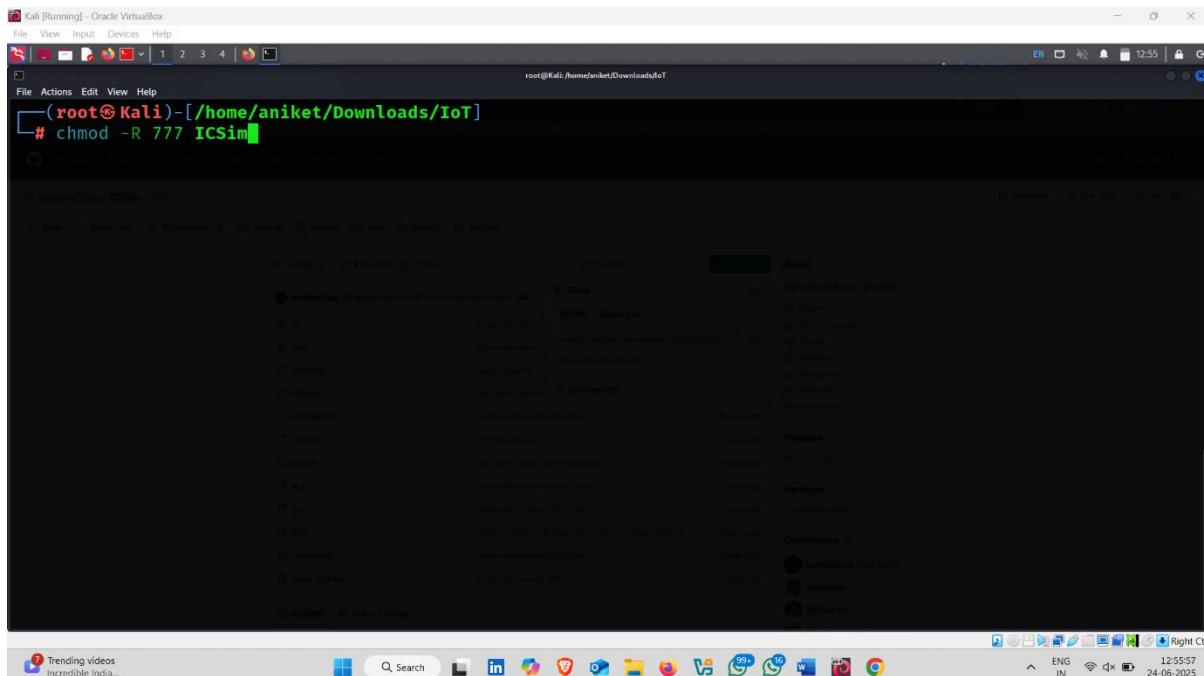
- Open kali linux terminal and **paste HTTPS url with git clone**



- After downloading Icsim change folder permission

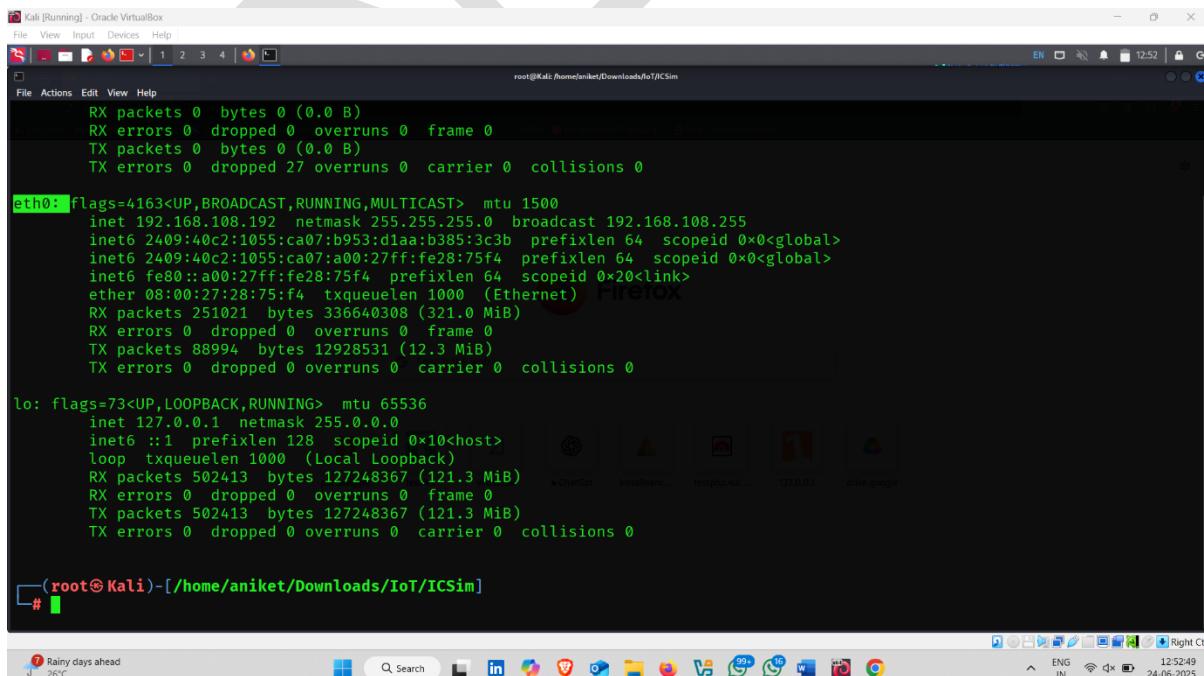
Command :-: chmod -R 777 ICSim

Explanation:- Gives full permission to everyone for the ICSim folder and everything inside it.



```
root@Kali:[/home/aniket/Downloads/IoT]
# chmod -R 777 ICSim
```

- Now use ifconfig to check network interface



```
root@Kali:[/home/aniket/Downloads/IoT/ICSim]
# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.108.192 netmask 255.255.255.0 broadcast 192.168.108.255
        inet6 2409:40c2:1055:ca07:b953:d1aa:b385:3c3b prefixlen 64 scopeid 0x0<global>
        inet6 2409:40c2:1055:ca07:a00:27ff:fe28:75f4 prefixlen 64 scopeid 0x0<global>
        inet6 fe80::a00:27ff:fe28:75f4 prefixlen 64 scopeid 0x20<link>
            ether 08:00:27:28:75:f4 txqueuelen 1000 (Ethernet)
            RX packets 251021 bytes 336640308 (321.0 MiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 88994 bytes 12928531 (12.3 MiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

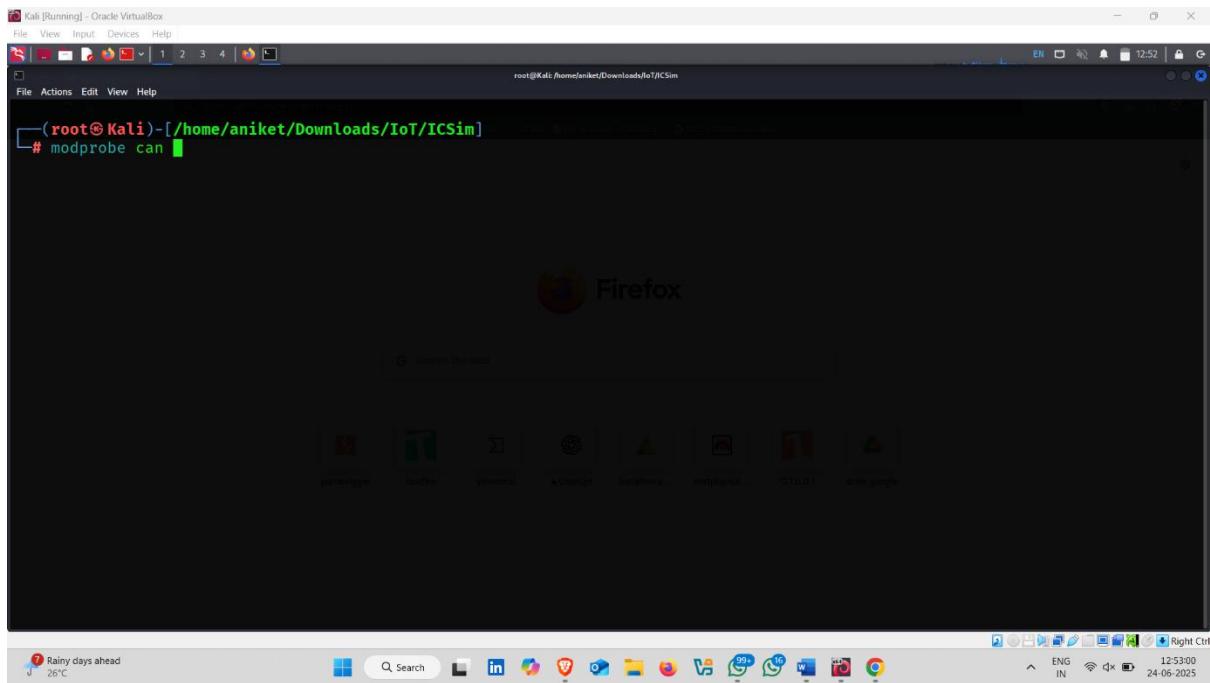
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
            loop txqueuelen 1000 (Local Loopback)
            RX packets 502413 bytes 127248367 (121.3 MiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 502413 bytes 127248367 (121.3 MiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

(root@Kali)-[/home/aniket/Downloads/IoT/ICSim]
#
```

- Now go to ICSim Directory and type following command

Command :-: modprobe can

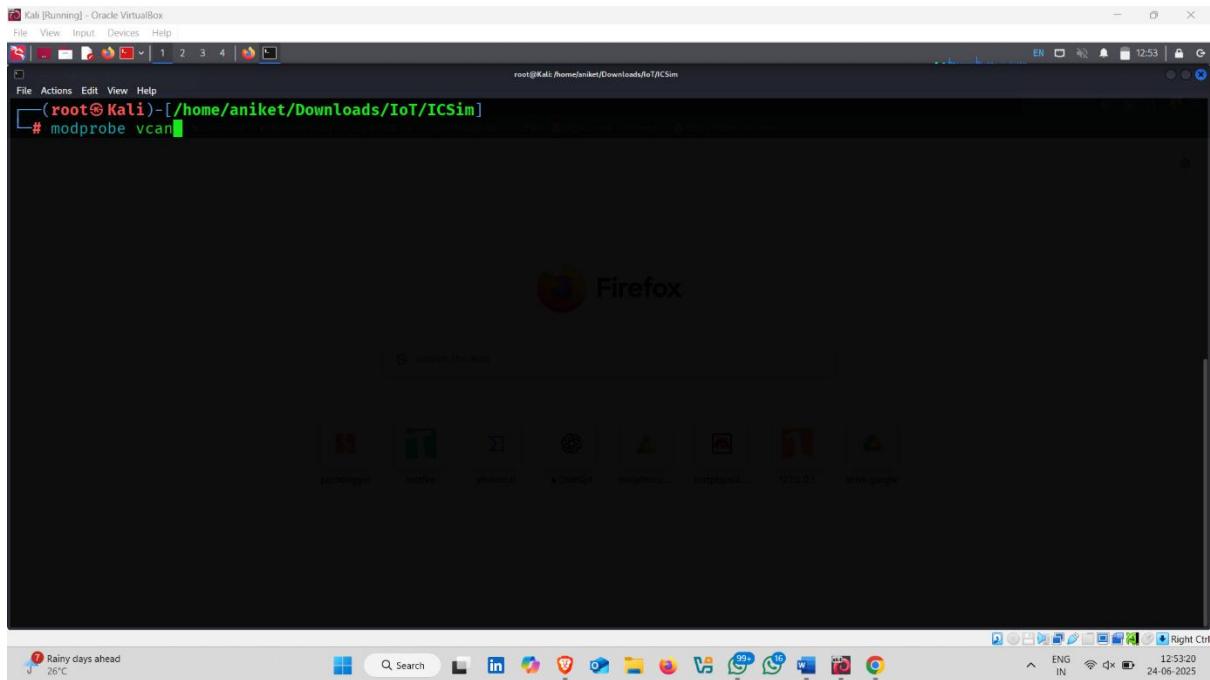
Explanation :-: This command **loads the CAN (Controller Area Network) kernel module** in Linux.



- Now type following command

Command :-: modprobe vcan

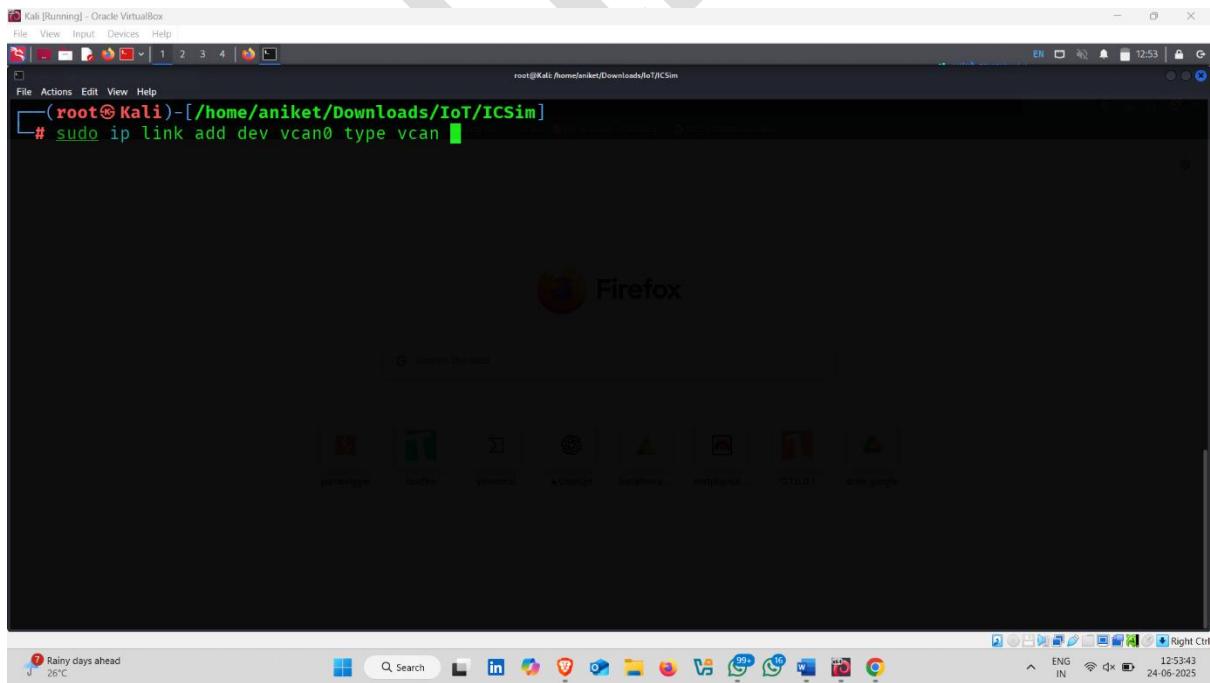
Explanation :-: This command **loads the "vcan" (Virtual CAN) module** into the Linux kernel.



- Next command

Command :- sudo ip link add dev vcan0 type vcan

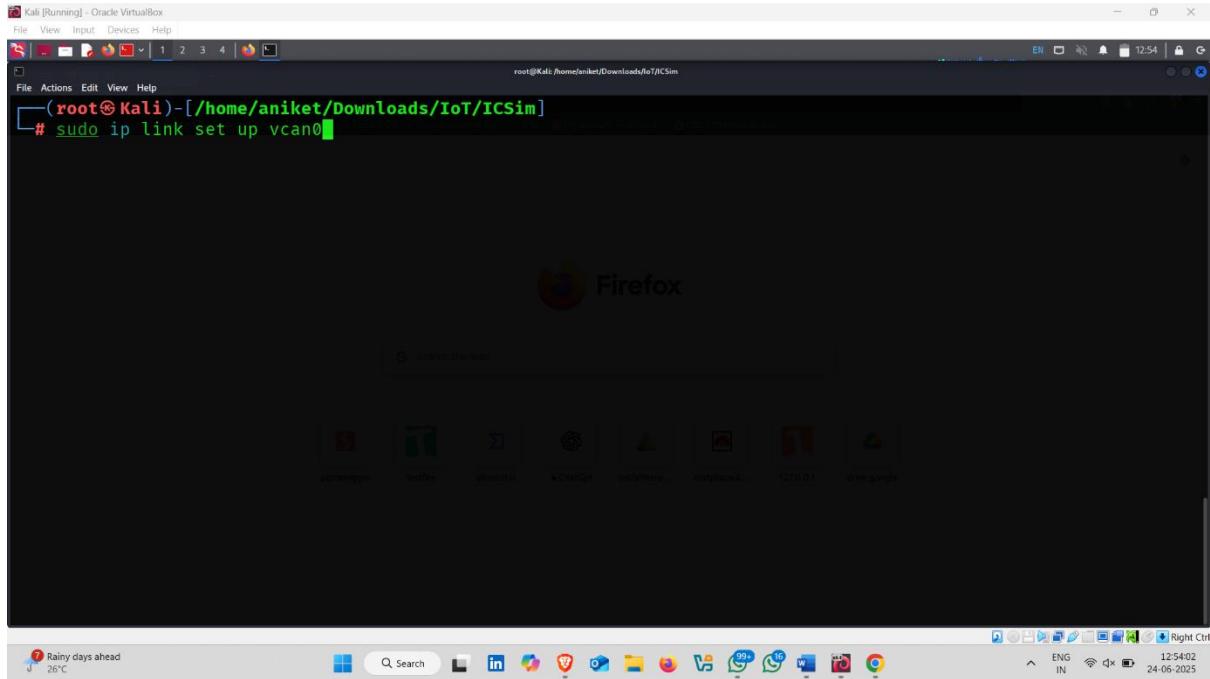
Explanation :- This command **creates a virtual CAN network interface** called vcan0.



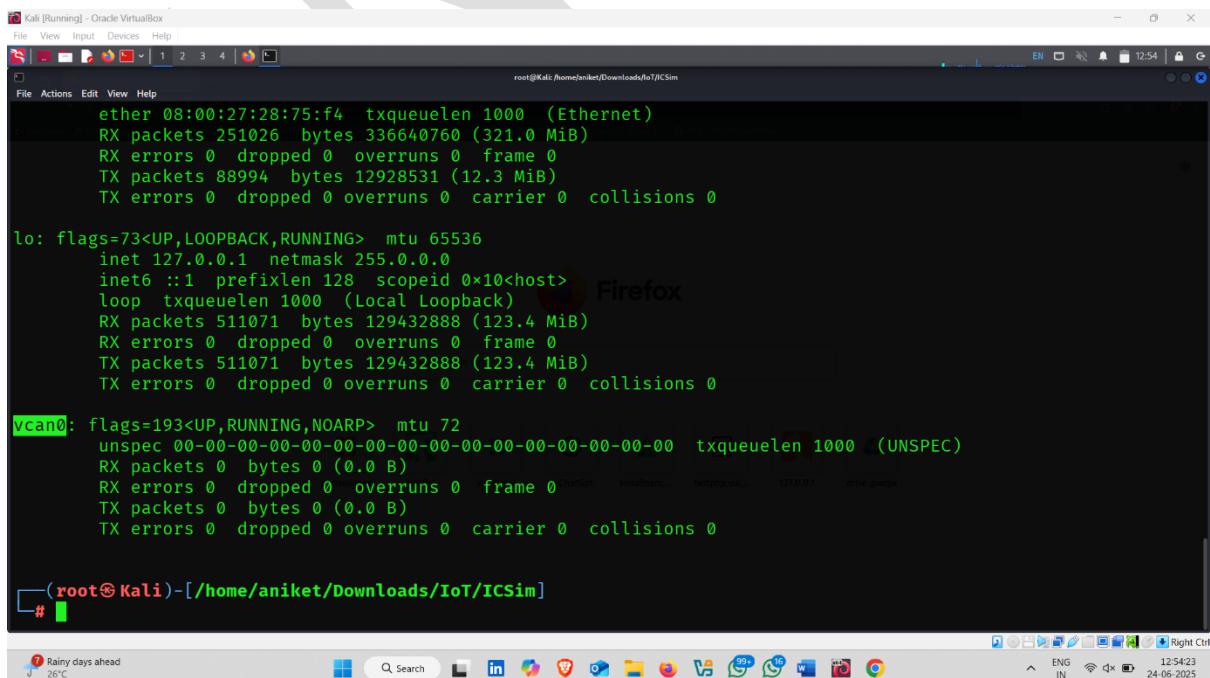
- Next command

Command :-: sudo ip link set up vcan0

Explanation :-: This command activates or starts the virtual CAN interface named vcan0.



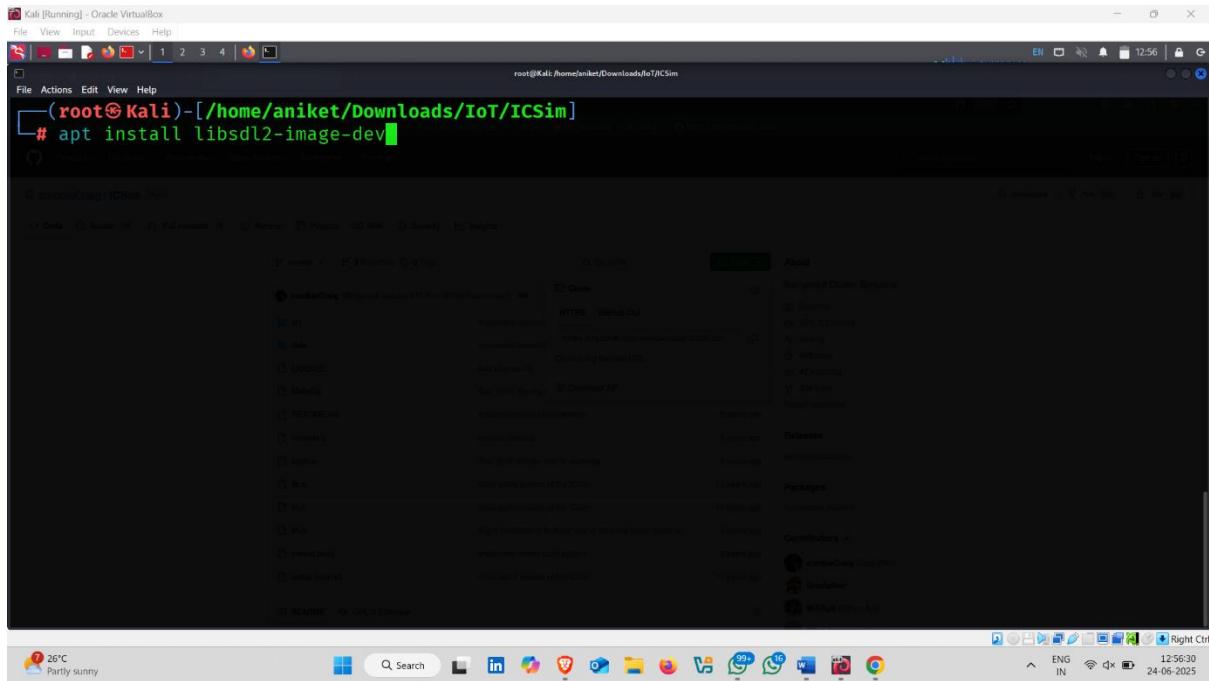
- Now type ifconfig to check our virtual network create or not
- Virtual interface created



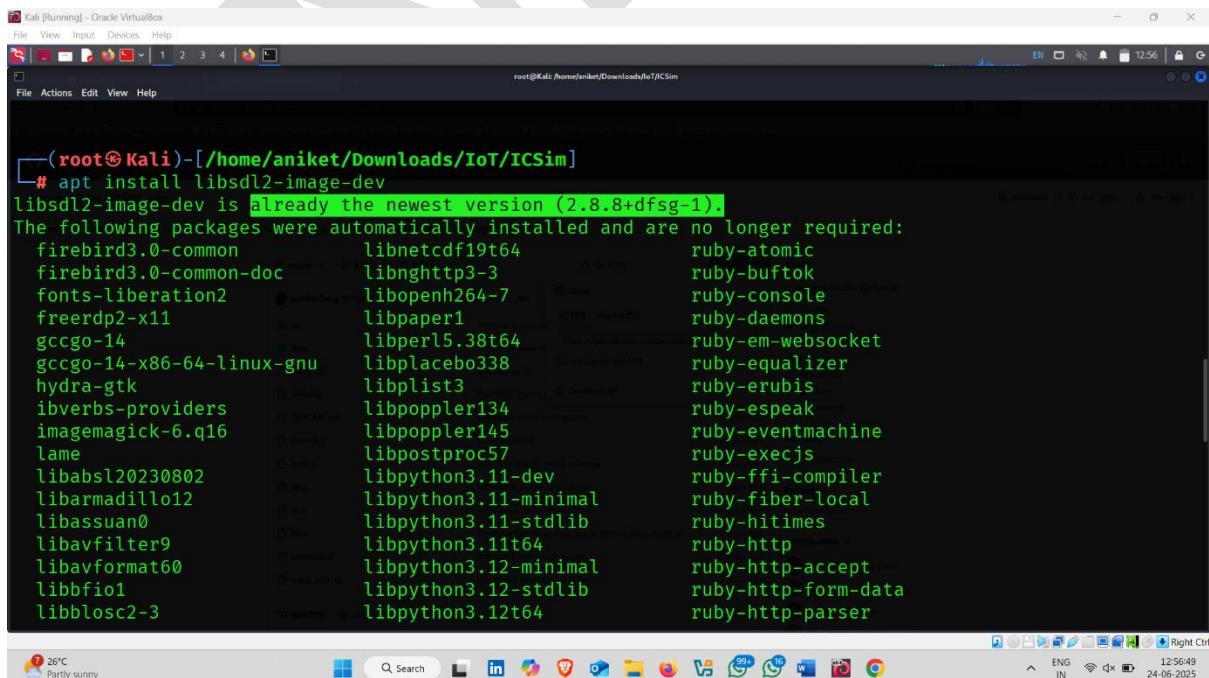
- Now type next command

Command:- apt install libsdl2-image-dev

Explanation :- his command installs the SDL2 image development library on your Linux system.



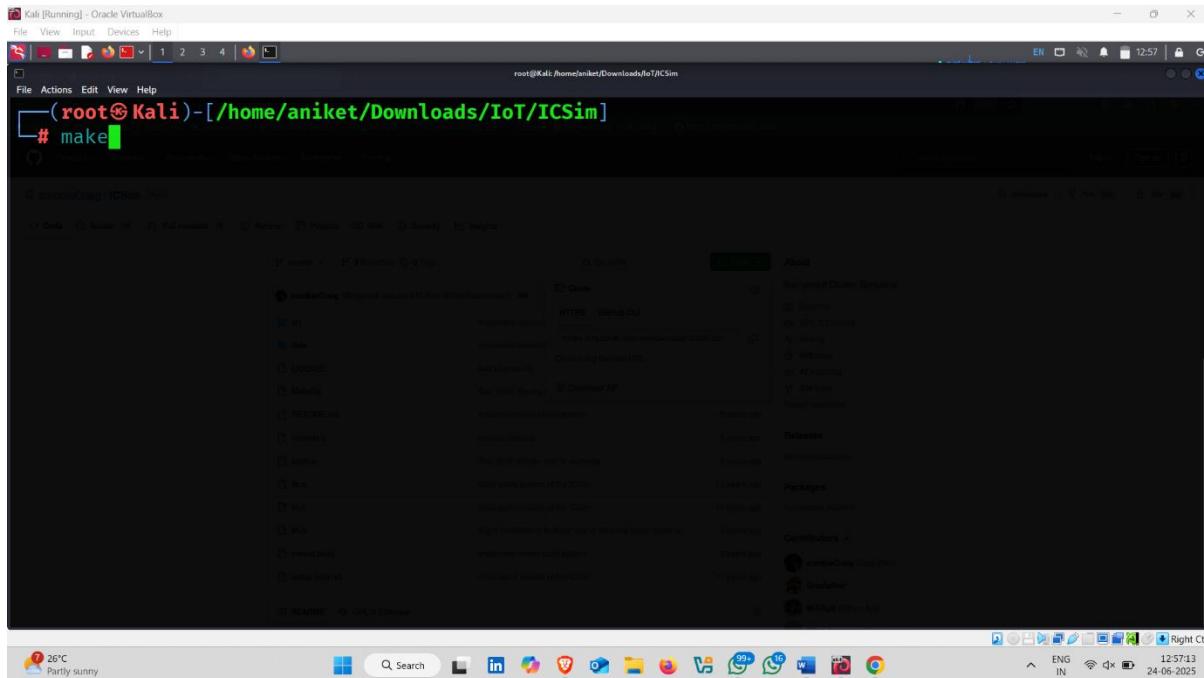
- I have already newest version of SDL2 image



- Next command

Command :-: make

Explanation :-: The make command **compiles source code** into an executable program by reading instructions from a file called **Makefile**.



The screenshot shows a terminal window titled 'Kali [Running] - Oracle VM VirtualBox'. The terminal prompt is '(root㉿Kali)-[/home/aniket/Downloads/IoT/ICSim]'. The user has typed '# make' at the prompt. The background shows a desktop environment with various icons and a system tray at the bottom.

```
(root㉿Kali)-[/home/aniket/Downloads/IoT/ICSim]
# make
```

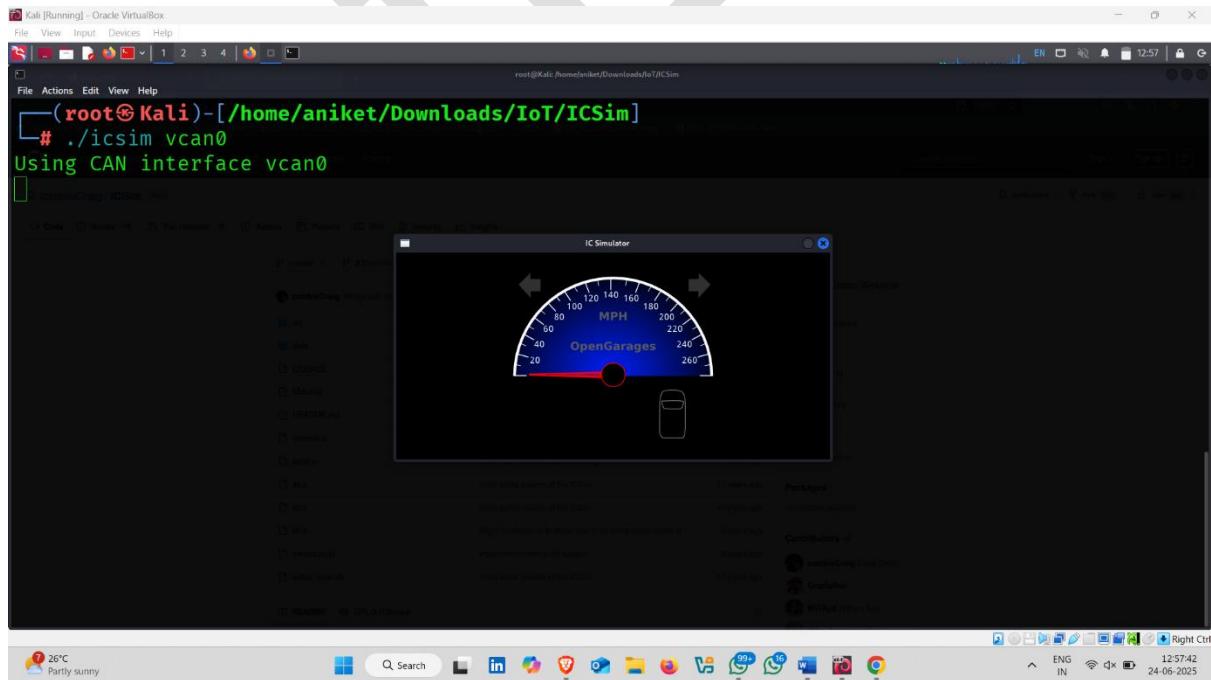
- Next command

Command :-: ./ICSim vcan 0

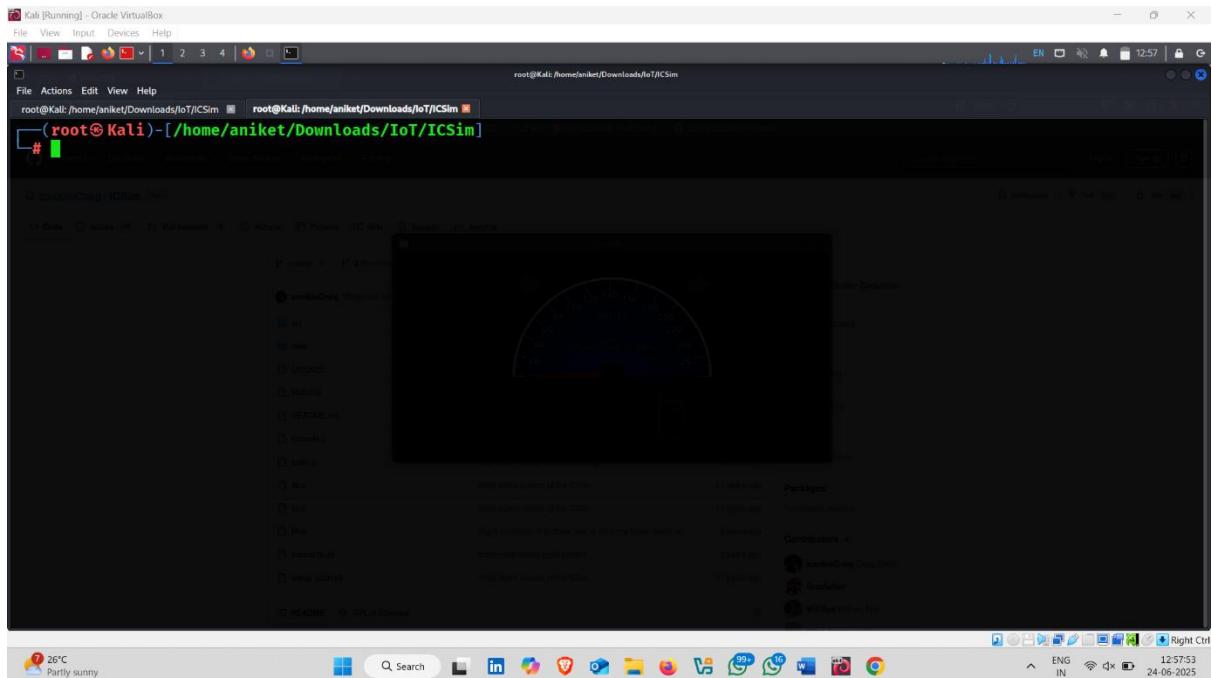
Explanation:- is used to **start the ICSim (Instrument Cluster Simulator)** and connect it to a virtual CAN (Controller Area Network) interface named vcan0.

```
(root㉿Kali)-[/home/aniket/Downloads/IoT/ICSim]
# ./icsim vcan0
```

- This shows you successfully ran the **ICSim simulator** using the virtual CAN interface vcan0.
- The message Using CAN interface vcan0 confirms that ICSim is connected and listening on that virtual network.



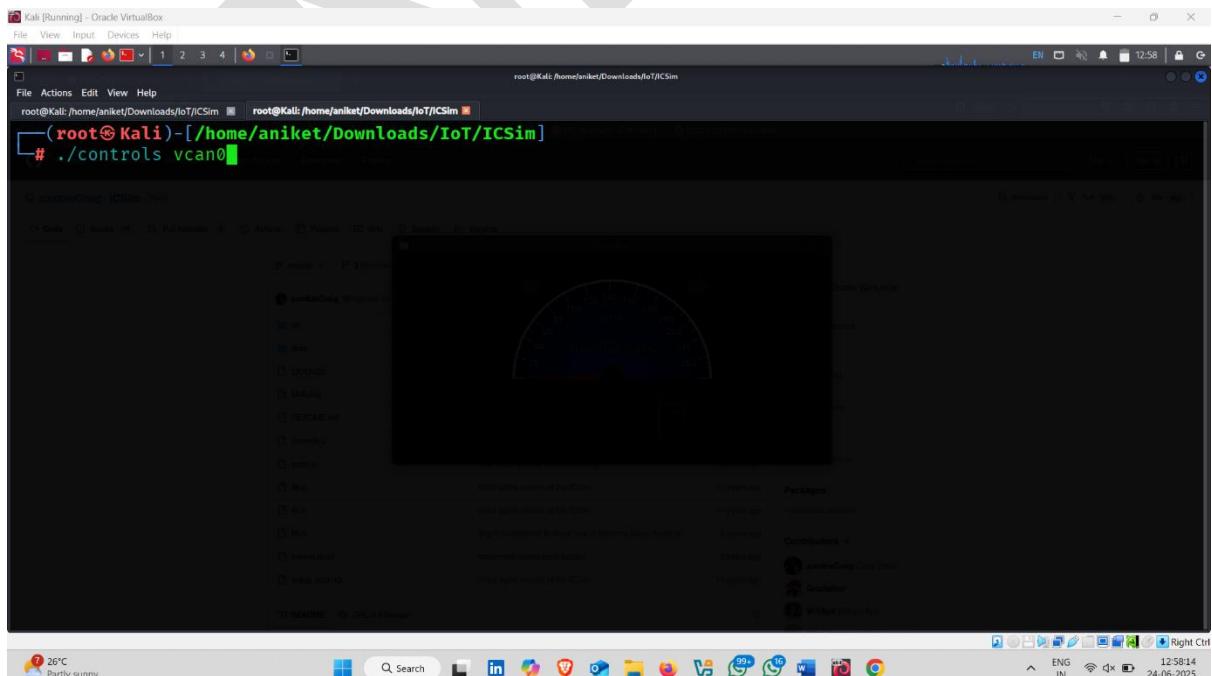
- Now open new terminal



- Type following command

Command :- `./ controls vcan0`

Explanation:- This command launches the ICSim controller interface and connects it to the virtual CAN interface vcan0.



- You ran the controller interface for ICSim using the vcan0 virtual CAN network.
 - The "**No joysticks connected**" message is just a warning — it's fine! It just means you're using a keyboard, not a game controller.
-

How it Works:

- When you press a key (e.g., **Up Arrow**), it sends a **CAN message over vcan0**.
 - The **ICSim dashboard** (previous window) receives this and **updates the speedometer or lights** accordingly.
-

Controller Window (CANBus Control Panel) – Simple Explanation

This window is a **virtual controller** that lets you control the ICSim simulator using your **keyboard**. It sends commands as **CAN messages** through the virtual network (vcan0).

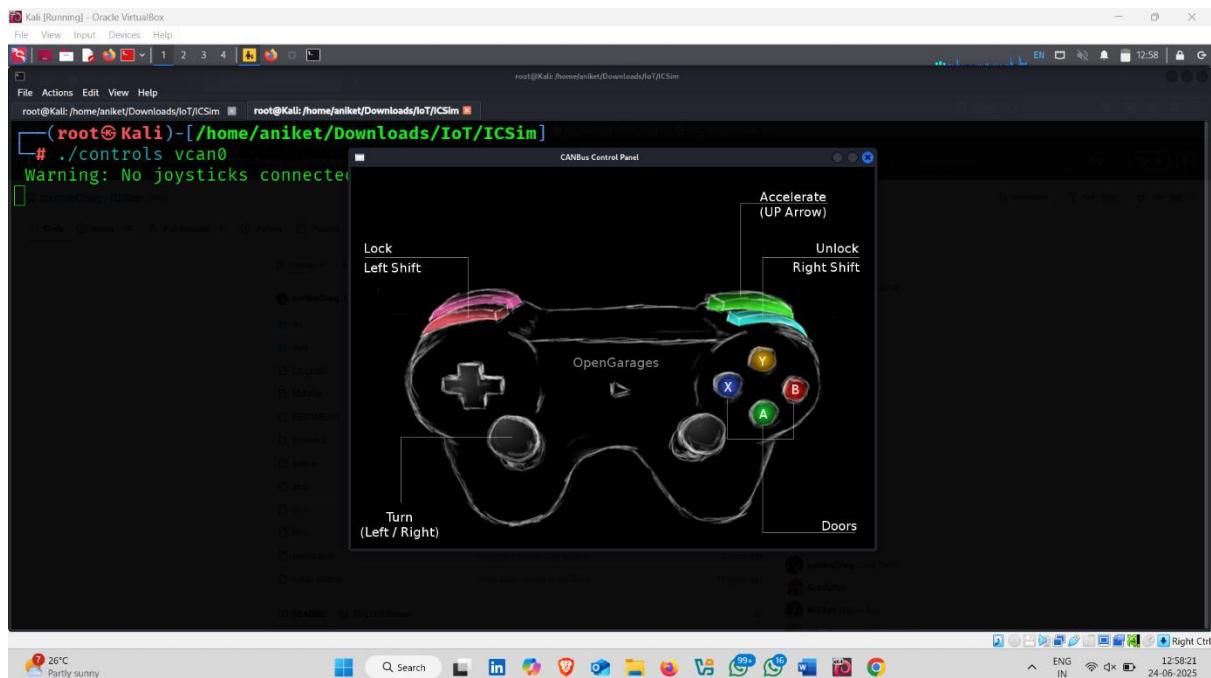
You can press different keys on your keyboard to control the vehicle:

- Press the **Up Arrow** key to **accelerate** (increase the speed).
- Use the **Left Arrow** or **Right Arrow** keys to **turn left or right**, which simulates the **blinkers**.
- Press **Left Shift** to **lock the doors**.
- Press **Right Shift** to **unlock the doors**.
- Press keys like **A**, **B**, **X**, or **Y** to **control the doors** (open or close them).

As you press these keys, the ICSim dashboard will react — the speed will go up, lights will blink, and door status may change.

In short:

The controller window helps you **send commands to the ICSim dashboard** just like you're **driving or controlling a smart car** — all from your keyboard.



- Now open another terminal
- Type following command on new terminal

Command :- cansniffer vcan0

Explanation :- This command **sniffs (monitors) live CAN messages** on the vcan0 interface and shows them in **real time**.

What happens when you run it:

- You'll see **CAN IDs** and **data bytes** changing on the screen.
- It **updates automatically** when new CAN messages are sent (e.g., from controls).

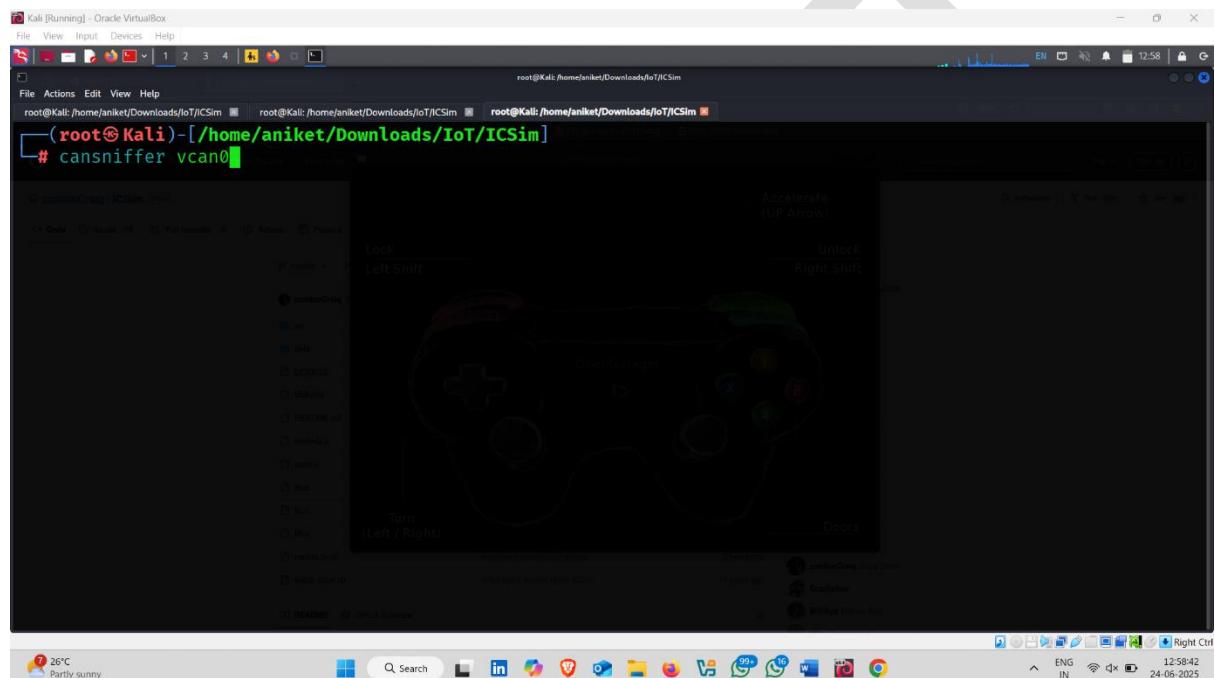
Why it's useful:

- Helps you **analyze which CAN IDs are active**

- Useful for **reverse engineering** and identifying which message controls what
 - Can help you spot messages for **speed, blinkers, locks**, etc.
-

✓ In simple words:

cansniffer vcan0 lets you **watch live CAN messages** being sent over your virtual CAN bus — like a **live monitor for the car's brain**.



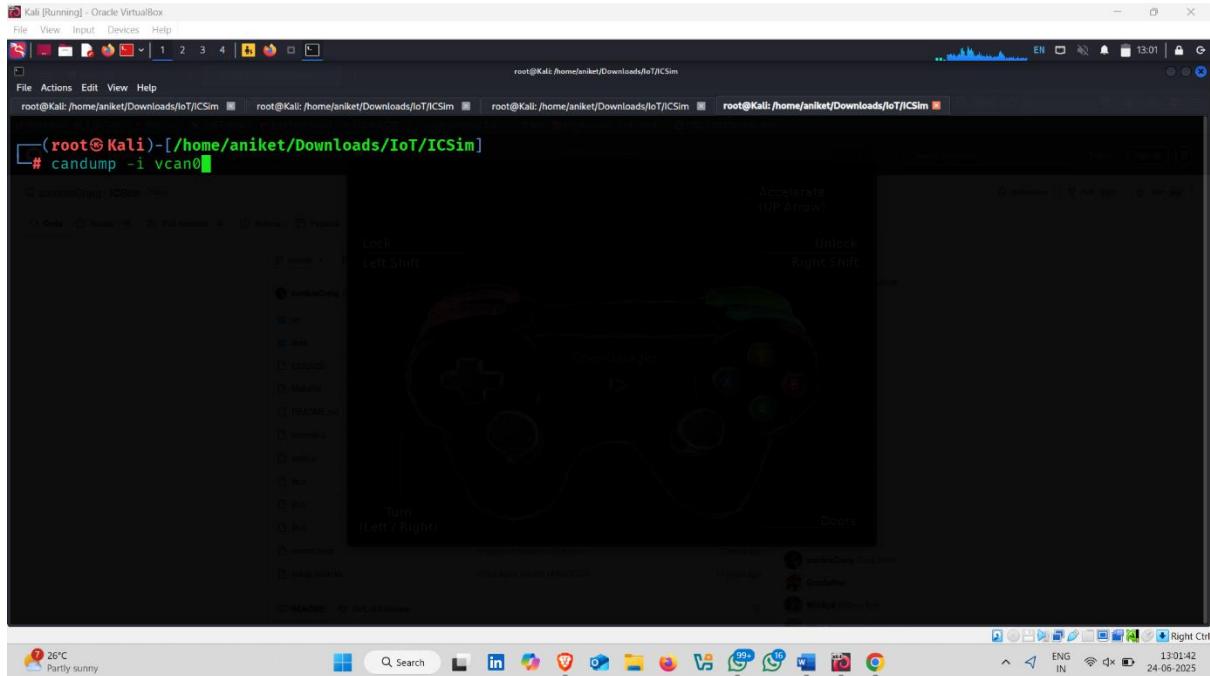
```
Kali [Running] - Oracle VirtualBox
File View Input Devices Help
root@Kali: /home/aniket/Downloads/IoT/ICSim root@Kali: /home/aniket/Downloads/IoT/ICSim root@Kali: /home/aniket/Downloads/IoT/ICSim
00009 | 164 | 00 00 C0 1A A8 00 00 13 ..... .
00009 | 166 | D0 32 00 27 ..... .
00009 | 17C | 00 00 00 00 10 00 00 30 ..... 0
00008 | 183 | 00 00 00 06 00 00 10 32 ..... 2
00009 | 324 | 74 65 00 00 00 00 0E 1A te.....
00009 | 18E | 00 00 7A ..... .
00011 | 191 | 01 00 90 A1 41 00 12 ..... A...
00020 | 1A4 | 00 00 00 08 00 00 00 3E ..... >
00019 | 1AA | 7F FF 00 00 00 00 67 3F ..... g?
00019 | 1B0 | 00 0F 00 00 00 01 75 ..... u
00018 | 1CF | 80 05 00 00 00 1E ..... .
00018 | 1DC | 02 00 00 1B ..... .
00039 | 21E | 03 E8 37 45 22 06 3E ..... 7E" >
00013 | 244 | 00 00 00 01 46 ..... F
00040 | 294 | 04 0B 00 02 CF 5A 00 3B ..... Z;.
00103 | 305 | 80 08 .. .
00100 | 309 | 00 00 00 00 00 00 00 84 ..... .
00100 | 320 | 00 00 30 ..... 0
00099 | 324 | 74 65 00 00 00 00 0E 38 te.....
00100 | 333 | 00 00 00 00 00 00 3C ..... <
00099 | 37C | FD 00 FD 00 09 7F 00 38 ..... 8
```

```
Kali [Running] - Oracle VirtualBox
File View Input Devices Help
root@Kali: /home/aniket/Downloads/IoT/ICSim root@Kali: /home/aniket/Downloads/IoT/ICSim root@Kali: /home/aniket/Downloads/IoT/ICSim root@Kali: /home/aniket/Downloads/IoT/ICSim
vcanc0 1CF [6] 10000000 00000101 00000000 00000000 00000000 00011101
vcanc0 1DC [4] 00000010 00000000 00000000 00011011
vcanc0 320 [3] 00000000 00000000 00000000 00010010
vcanc0 324 [8] 01110100 01100101 00000000 00000000 00000000 00001110 00011010
vcanc0 183 [8] 00000000 00000000 00000000 00000000 00000000 00010000 00100100
vcanc0 37C [8] 11111101 00000000 11111101 00000000 00000000 00010001 01111111 00000000 00011010
vcanc0 143 [4] 01101011 01101011 00000000 11100000 ..... .
vcanc0 305 [2] 10000000 00100010
vcanc0 244 [5] 00000000 00000000 00000000 00000001 00100011
vcanc0 095 [8] 10000000 00000000 00000011 11110100 00000000 00000000 00000000 00010111
vcanc0 1A4 [8] 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00111110
vcanc0 1AA [8] 01111111 11111111 00000000 00000000 00000000 01100111 00111111
vcanc0 1B0 [7] 00000000 00000000 00000000 00000000 00000000 00000001 01110101
vcanc0 1D0 [8] 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00001010
vcanc0 166 [4] 11010000 00110010 00000000 00100111
vcanc0 158 [8] 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00101000
vcanc0 161 [8] 00000000 00000000 00000000 00000001 01010000 00000001 00010100 00001011
vcanc0 191 [7] 00000001 00000001 10010000 10100001 01000001 00000000 00010010
vcanc0 18E [3] 00000000 00000000 01110101
vcanc0 133 [5] 00000000 00000000 00000000 10110110
vcanc0 136 [8] 00000000 00000010 00000000 00000000 00000000 00000000 00000000 00111001
vcanc0 13A [8] 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00110111
vcanc0 13F [8] 00000000 00000000 00000000 00000001 00000000 00000000 00000000 00111101
vcanc0 164 [8] 00000000 11000000 00011010 10101000 00000000 00000000 00010001
vcanc0 17C [8] 00000000 00000000 00000000 00000000 00010000 00000000 00000000 00110000
vcanc0 294 [8] 00000100 00000101 00000000 00000010 11001111 01011010 00000000 00111011
vcanc0 21E [7] 00000011 11101000 00110111 01000101 00100010 00000110 00111110
vcanc0 039 [2] 00000000 00011011
vcanc0 183 [8] 00000000 00000000 00000011 00000000 00000000 00000000 00010000 00111101
vcanc0 143 [4] 01101011 01101011 00000000 11111111
vcanc0 095 [8] 10000000 00000000 00000011 11101000 00000000 00000000 00000000 00100110
vcanc0 244 [5] 00000000 00000000 00000001 00100111
```

- Open another new terminal
- Type following command

Command :- `candump -I vcan0`

Explanation:- This command **monitors and displays all CAN messages** on the vcan0 interface.



- You have successfully set up a **simulated car dashboard (ICSIM)** and are **controlling it using a virtual controller**. Both the dashboard and the controller communicate over a **virtual CAN interface (vcan0)**.

By pressing keys like the **Up Arrow**, **Left/Right Arrow**, **Shift**, or **A/B/X/Y**, you're sending **CAN messages** through vcan0. These messages control the virtual vehicle's **speed**, **blinkers**, **locks**, and **doors**, just like in a real automotive CAN network.

This setup is commonly used for:

- **Learning CAN protocols**
- **Practicing car hacking**
- **Reverse engineering CAN traffic**

It's a safe and offline lab environment to simulate real-world vehicle systems and test various security concepts.



HACK

Exploring IoT and OT Device Exposure Using Shodan

Shodan is a search engine for internet-connected devices.

Unlike Google, which searches websites, **Shodan searches devices** like:

- **Webcams**
 - **Routers**
 - **Smart TVs**
 - **Industrial Control Systems (ICS/OT)**
 - **SCADA systems**
 - **Traffic lights, printers, servers, etc.**
-

💡 What does it do?

Shodan scans the internet and collects information such as:

- **Open ports**
 - **Running services**
 - **Software versions**
 - **Location**
 - **Security vulnerabilities**
-

✅ Why it's used:

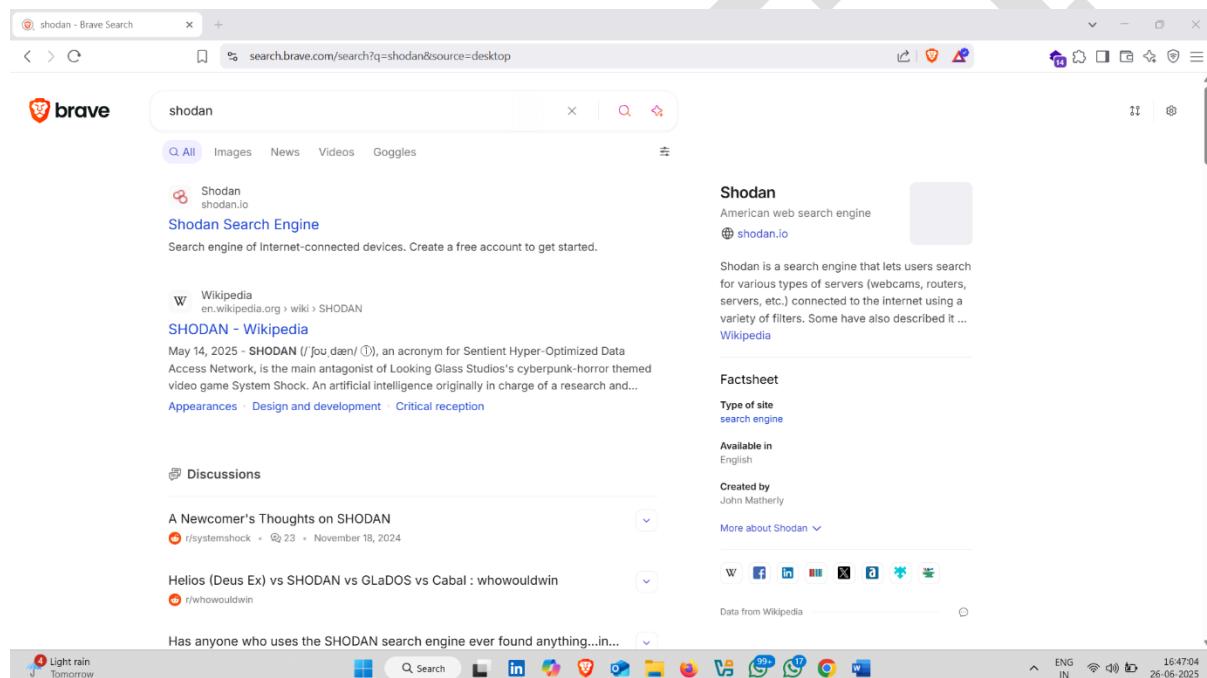
- **To discover exposed IoT or OT devices**
 - **For security research and ethical hacking**
 - **To perform footprinting and reconnaissance**
 - **To check what your own devices are exposing**
-

Example Use Cases:

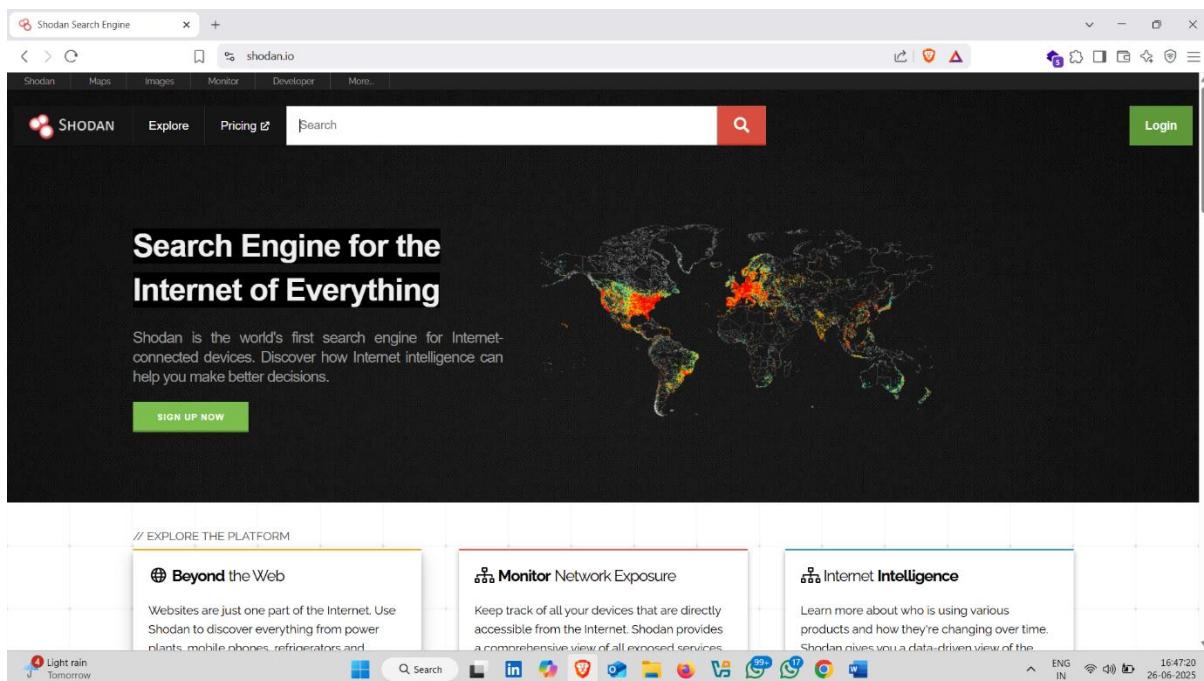
- Find **cameras or traffic systems** with no passwords
- Discover **ICS devices running Modbus or Siemens S7**
- Search for **routers with outdated firmware**
- Help companies fix **exposed or vulnerable devices**

How to use it :-

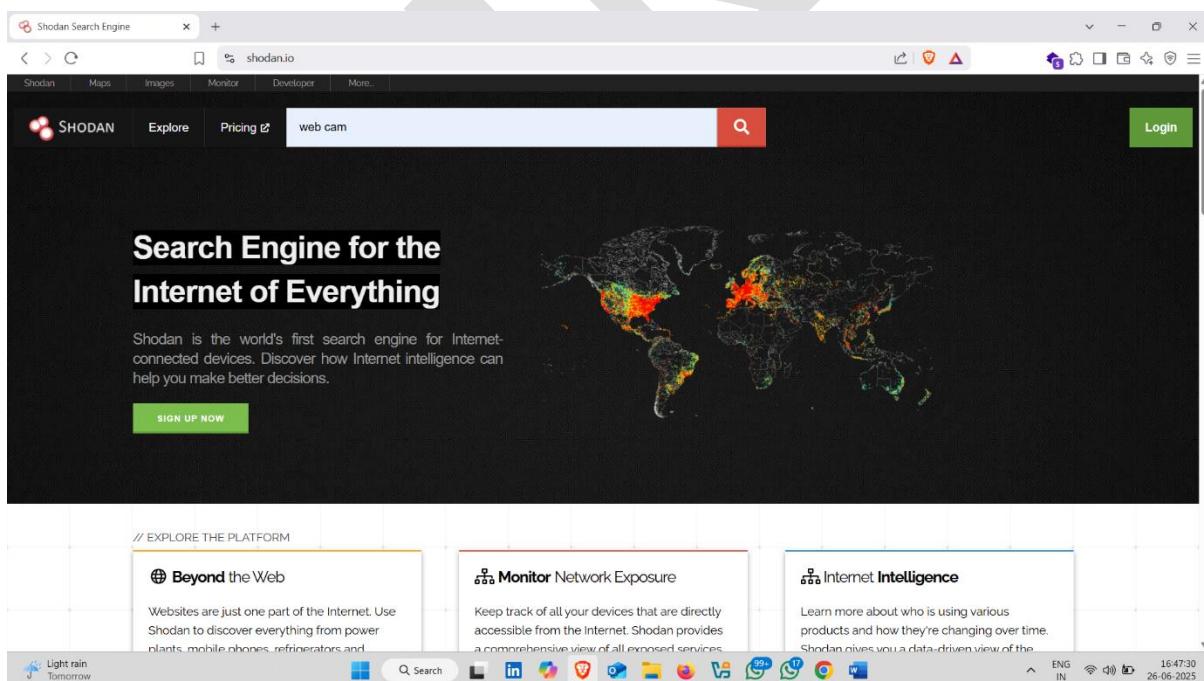
- Open browser and search **shodan**
- Click on first website **shodan.io**



- Now search web cam



- Click on search icon



- Here , it finds many webcam devices

TOTAL RESULTS 64,258

TOP COUNTRIES

Country	Count
Viet Nam	9,748
Brazil	8,001
Spain	6,932
United States	5,490
Mexico	4,490
More...	

TOP PORTS

Port	Count
80	17,225
443	15,672
81	2,772

Product Spotlight: We've Launched a new API for Fast Vulnerability Lookups. Check out [CVEDB](#)

WEB SERVICE 46.116.28.206

HTTP/1.1 200 OK
Connection: close
Date: Thu, 26 Jun 2025 05:34:33 GHT
Last-Modified: Mon, 06 Jun 2016 07:28:40 GHT
Etag: "1465198120:35ab"
Content-Length: 13736
P3P: CP=CAO PSA OUR
Content-Type: text/html

Dahua HCVR:
Web Version: 3.2.7.65498
Plugin:
Version: 3.1.8.330019
Ma...

SSL Certificate 46.157.149.26

HTTP/1.1 200 OK
Connection: close
Date: Thu, 26 Jun 2025 15:03:31 GHT
Last-Modified: Wed, 27 Apr 2016 04:28:00 GHT
Etag: "1461731280:3593"
Content-Length: 13715
P3P: CP=CAO PSA OUR
Content-Type: text/html

Issued By:
- Common Name: Product Root CA
- Organization: DahuaTech
Issued To:
- Common Name:

- Now click on any web services to get detailed information

TOTAL RESULTS 64,258

TOP COUNTRIES

Country	Count
Viet Nam	9,748
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Content-Type: text/html

Issued By:
- Common Name: Product Root CA
- Organization: DahuaTech
Issued To:
- Common Name:

- Detailed information

The screenshot shows a Shodan search result for the IP address 93.118.128.208. The interface includes a map of Shiraz, Iran, with the target IP highlighted. Below the map are several sections of information:

- General Information:**
 - Country: Iran, Islamic Republic of
 - City: Shiraz
 - Organization: Telecommunication Company of Tehran
 - ISP: Iran Telecommunication Company PJS
 - ASN: AS58224
- Open Ports:** A list of open ports: 80, 123, 443, 554, 5000, 8686, 37777, 49152.
- Dahua HCVR**
 - WEB SERVICE:**

```
HTTP/1.1 200 OK
CONNECTED: 2/2
Date: Thu, 06 Jun 2025 05:34:33 GMT
Last-Modified: Mon, 06 Jun 2016 07:28:46 GMT
Etag: "1465198126:3548"
Content-Length: 13736
P3P: CP=ACD PSA OUR
Content-Type: text/html
```

At the bottom of the browser window, there is a toolbar with various icons and a status bar indicating the date and time (26-06-2025) and network connection details.

EXTRA ACTIVITY

Additional Search Engines

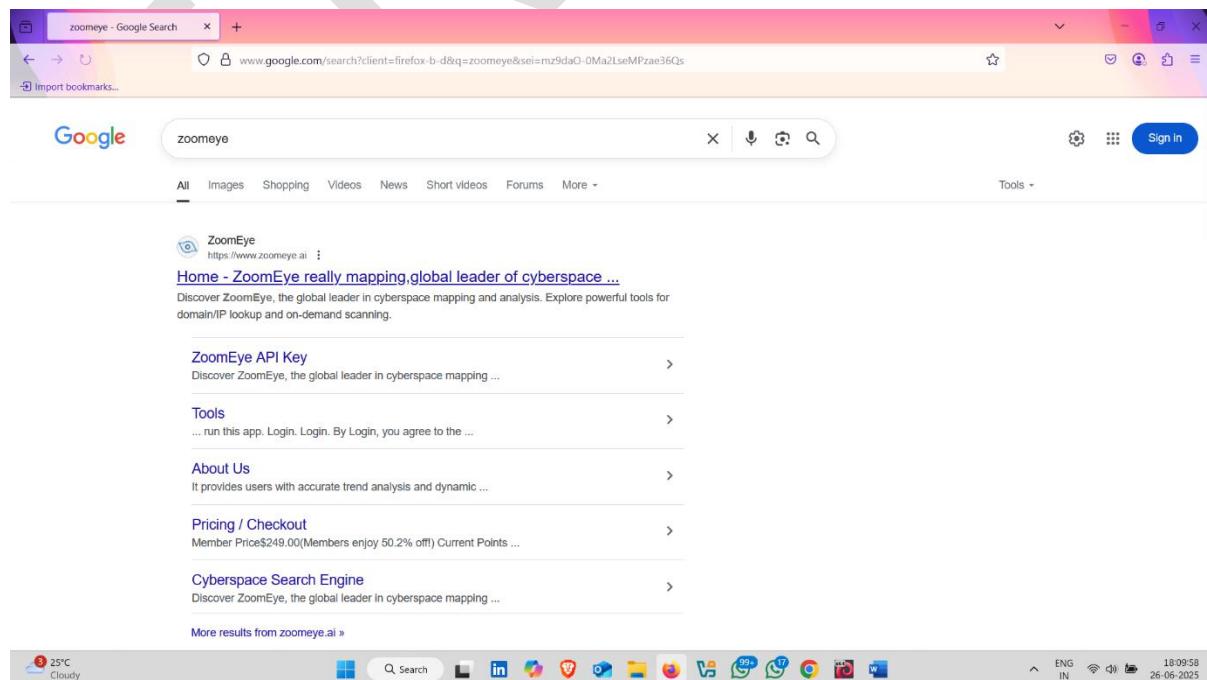
1. ZoomEye search Engines

ZoomEye is a **cybersecurity search engine** developed by **360 Netlab** (a Chinese cybersecurity firm). It scans the entire internet for **connected devices and services**, helping security professionals find:

- **IoT devices** (like webcams, DVRs, routers)
- **Web servers**
- **Databases**
- **Industrial control systems (ICS/SCADA)**
- **Vulnerable systems**

How to use it :-

- Open Browser and search **ZoomEye**
- Click on first official website  



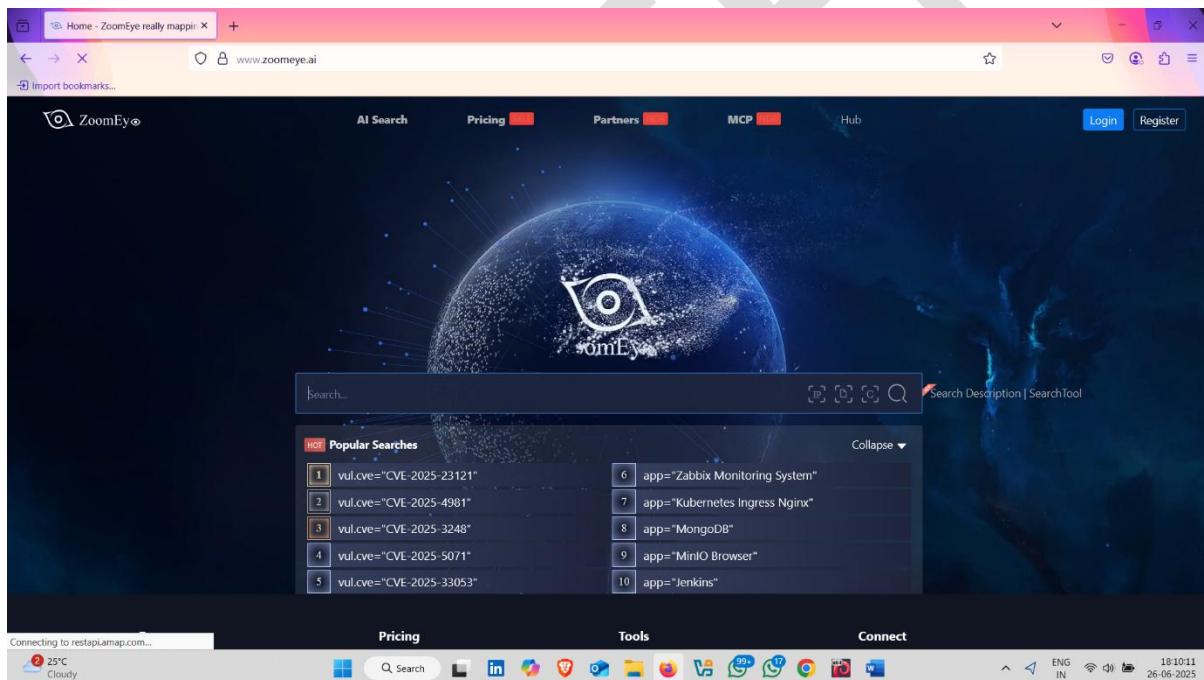
- Here it also shows popular vulnerabilities searches
- Search scada

SCADA (Supervisory Control and Data Acquisition) is a system used to monitor, control, and collect data from industrial processes in real time, often from remote locations.

Example:

SCADA helps manage systems like:

- Power grids ⚡
- Water treatment 💧
- Factory machinery 🏭



- Click on search

The screenshot shows the ZoomEye homepage with a search bar containing 'scada'. Below the search bar, a list of results is displayed, including:

- Certec advise SCADA control httpd | System Controller | app="Certec advise SCADA control httpd"
- ClearSCADA | Software Platform | app="ClearSCADA"
- VTScada | Manager Platform | app="VTScada"
- Gas SCADA system | Monitor System | app="燃气SCADA系统"
- vul.cve=CVE-2025-3448
- vul.cve=CVE-2025-5071*
- vul.cve=CVE-2025-33053*
- app=mongous*
- app="MiniIO Browser"
- app="Jenkins"

The interface includes a navigation bar with 'AI Search', 'Pricing', 'Partners', 'MCP', 'Hub', 'Login', and 'Register'. A status bar at the bottom shows 'Connecting to restapiamap.com...', the date '26-06-2025', and the time '18:10:20'.

- Here it shows all publically available results ✓ 👍

The screenshot shows the search results for 'app="Certec advise SCADA control httpd"'. The results table includes columns for IP/Host, Port, Status, and Type. One result is highlighted:

IP/Host	Port	Status	Type
62.79.147.6:443	443	https	Device

Details for the highlighted result:

- IP: 62.79.147.6
- Port: 443
- Type: Device
- Organization: Telenor Norge AS
- ASN: AS9158
- Title: Blue Control
- Date: 2025-06-26 19:38

The right side of the screen displays a world map, search type filters (Devices: 6,128, IPv4: 6,128, IPv6: 0), and a year filter (YEAR).

2.FOFA Search Engines

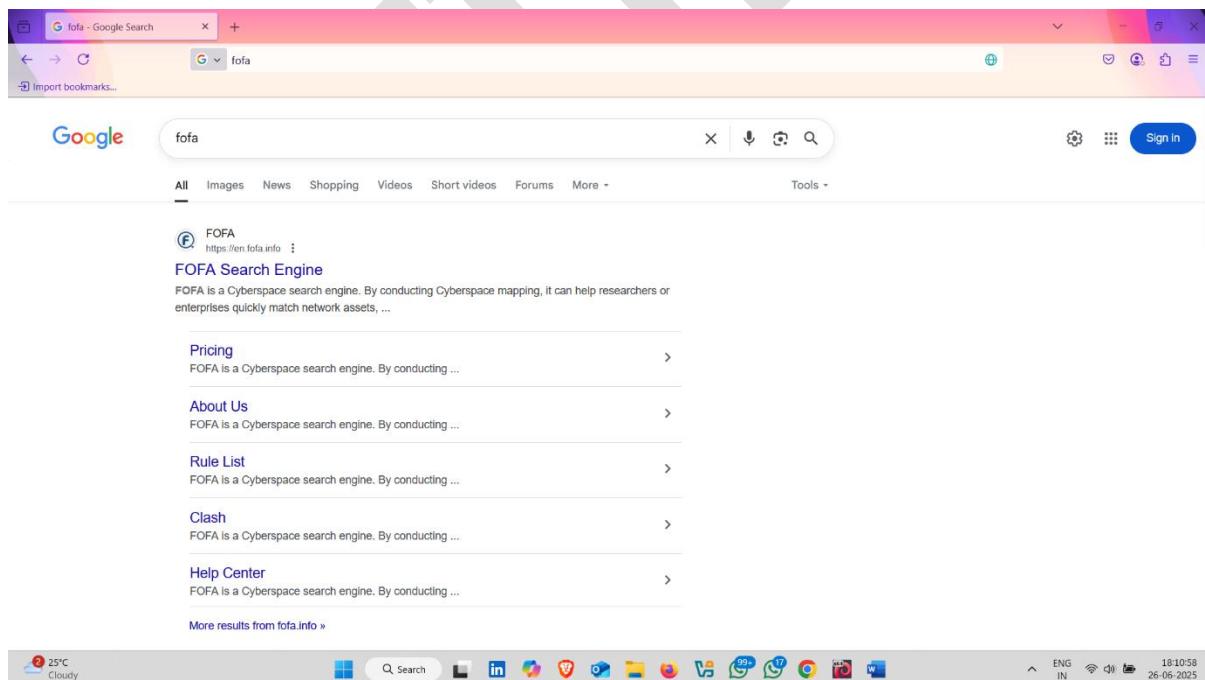
FOFA is a cyber intelligence platform that helps find IoT/OT devices, servers, webcams, industrial systems, and more by scanning the internet for open ports, services, protocols, and digital fingerprints.

🔍 What FOFA is used for:

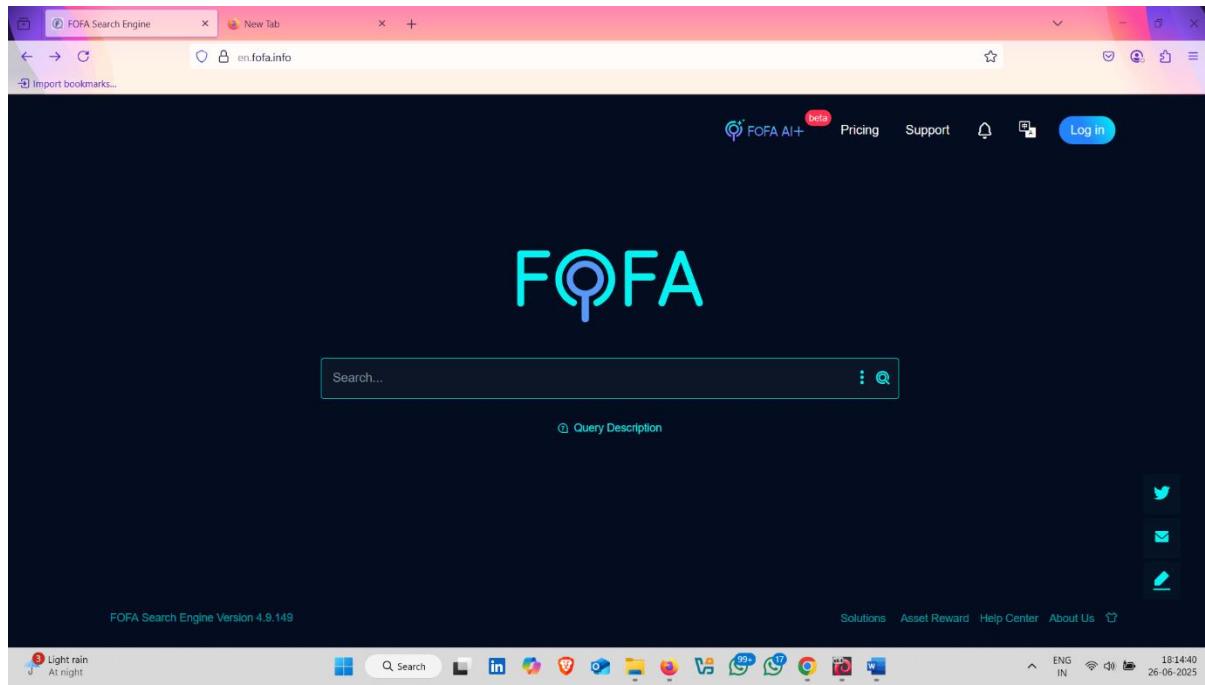
- Finding **vulnerable devices** online
- Collecting **cyber threat intelligence**
- Performing **IoT/OT asset discovery**
- Assisting in **bug bounty** and **red teaming**
- Tracking **exposed APIs, ports, or services**

How to use it :-

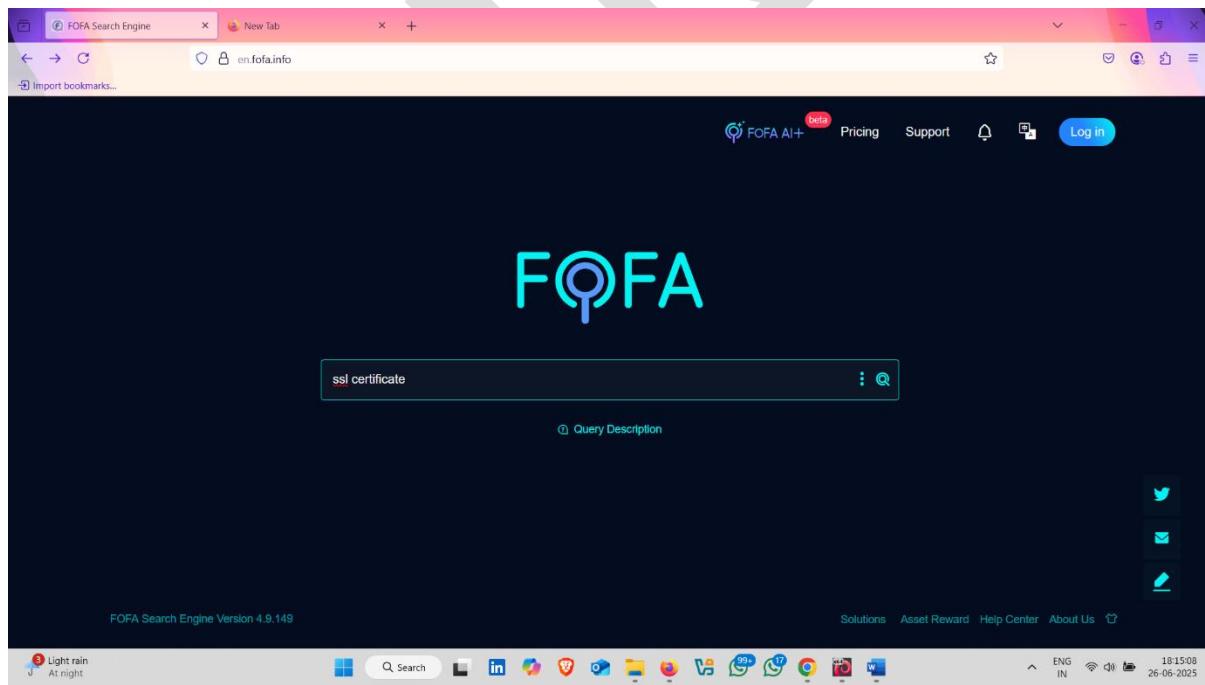
- Open browser and search **FOFA**



- Now search SSL Certificate



- Click on search button



- Here it shows all publically available SSL Certificate details



Search results "ssl certificate" - × + en.fofa.info/result?qbase64=c3NslGNlcRpZmjjYXRl Import bookmarks...

FQFA

"ssl certificate"

NL 166,384

TOP OPEN PORTS

443	3,563,835
80	1,351,229
8443	135,943
4444	89,204
2053	59,863

TOP SERVERS

nginx	1,622,628
Apache	1,515,995
cloudflare	228,705
nginx/1.18.0 (Ubuntu)	162,756

TOP PROTOCOLS

Rainy days ahead 25°C

https://95.216.49.183:8843

95.216.49.183 Finland / Uusimaa / Helsinki ASN: 24940 Organization: Hetzner Online GmbH 2025-06-26 Kere Connect 0.0.5

Header Products (-14351...)

HTTP/1.1 200 OK Connection: close Content-Length: 5485 Cache-Control: no-store, no-cache, must-revalidate, post-check=0, pre-check=0 Content-Security-Policy: default-src 'self' 'unsafe-eval' 'unsafe-inline' *.kerio.com wss: ws: https: http: *.microsoft.com login.microsoftonline.com; img-src https: http: data: *.kerio.com; Content-Type: text/html; charset=utf-8 Date: Thu, 26 Jun 2025 12:40:07 GMT Expires: Wed, 4 Jun 1980 06:02:09 GMT

103.109.206.30:465

103.109.206.30

465 tmpls

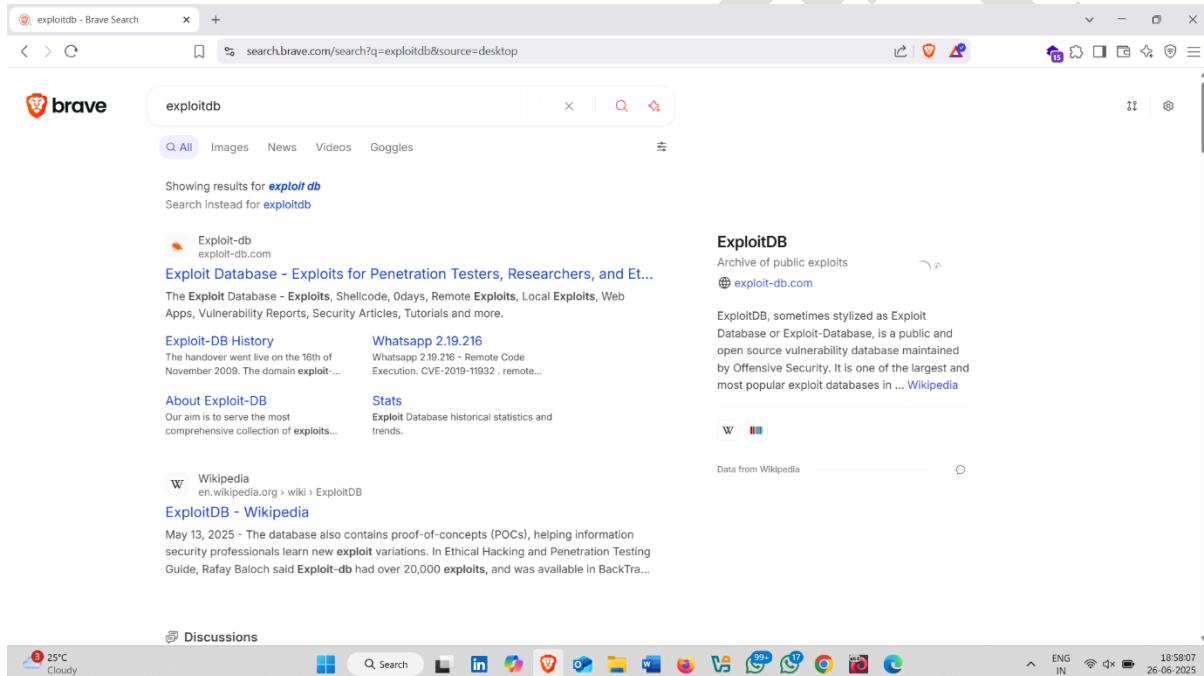
475c9 TLS 1.3 21d19... 8843 15aff7 2adDa... 18:13:56 ENG IN 26-06-2025

3. Exploit DB

Exploit-DB is a public repository of known exploits and vulnerabilities. In the context of **IoT (Internet of Things)** and **OT (Operational Technology)**, security researchers and penetration testers use Exploit-DB to find **existing vulnerabilities** in smart devices, industrial systems, and their software/firmware.

How to use it :-

- Open browser and search **exploit-DB** and click on first website



- Click on GHDB

The screenshot shows the Exploit Database homepage with the "GHDB" option selected in the sidebar. The main content area displays a table of exploit entries from the Google Hacking Database. The columns include Date, Author, Title, Type, Platform, and Author. The table lists various vulnerabilities such as Microsoft Excel 2024 Use after free - Remote Code Execution (RCE), freeSSHd 1.0.9 - Denial of Service (DoS), and Pterodactyl Panel 1.11.11 - Remote Code Execution (RCE). The interface includes a search bar, filters, and a date range selector.

D	A	V	Title	Type	Platform	Author
			Microsoft Excel 2024 Use after free - Remote Code Execution (RCE)	Remote	Windows	nu11secur1ty
			freeSSHd 1.0.9 - Denial of Service (DoS)	Remote	Windows	Fernando Mengali
			Pterodactyl Panel 1.11.11 - Remote Code Execution (RCE)	WebApps	Multiple	Zen-kun04
			OneTrust SDK 6.33.0 - Denial Of Service (DoS)	Remote	Linux	Alameen Karim Merali
			PX4 Military UAV Autopilot 1.12.3 - Denial of Service (DoS)	Remote	Multiple	Mohammed Idrees Banyamer
			Ingress-NGINX 4.11.0 - Remote Code Execution (RCE)	Remote	Multiple	Likhith Appalaneni
			Microsoft Excel LTSC 2024 - Remote Code Execution (RCE)	Local	Windows	nu11secur1ty
			FortiOS SSL-VPN 7.4.4 - Insufficient Session Expiration & Cookie Reuse	Remote	Multiple	Shahid Hakim
			Skyvern 0.1.85 - Remote Code Execution (RCE) via SSTI	WebApps	Multiple	Cristian Branet
			WebDAV Windows 10 - Remote Code Execution (RCE)	Remote	Windows	Dev Bui Hieu
			AirKeyboard iOS App 1.0.5 - Remote Input Injection	Remote	iOS	Chokri Hammedi
			Microsoft Excel Use After Free - Local Code Execution	Local	Windows	nu11secur1ty

- Search for webcam

The screenshot shows the Exploit Database homepage with the "GHDB" option selected in the sidebar. The main content area displays a table of exploit entries from the Google Hacking Database, filtered by the search term "webcam". The columns include Date Added, Category, and Author. The table lists various vulnerabilities such as site:github.com "BEGIN OPENSSH PRIVATE KEY", extnix "BEGIN OPENSSH PRIVATE KEY", and inurl:home.htm intitle:1766. The interface includes a search bar, filters, and a date range selector.

Date Added	Category	Author
2024-08-23	Files Containing Passwords	kstrawn0
2024-08-23	Files Containing Passwords	kstrawn0
2024-07-26	Various Online Devices	Kishoraram
2024-07-04	Vulnerable Servers	Everton Hydd3n
2024-07-04	Vulnerable Servers	Kishoraram
2024-07-04	Vulnerable Servers	Gurudatt Choudhary
2024-07-04	Vulnerable Servers	Hilary Soita
2024-07-04	Files Containing Passwords	Joel Indra
2024-07-04	Files Containing Juicy Info	Fernando Mengali
2024-07-04	Files Containing Juicy Info	defaltredmode
2024-07-04	Files Containing Passwords	Shivam Dhingra
2024-05-13	Files Containing Usernames	Nadir Boulacheb (RubX)
2024-05-13	Files Containing Usernames	Nadir Boulacheb (RubX)
2024-05-01	Files Containing Juicy Info	Prathamesh Waldande

- All webcam related results 👇, click on any link

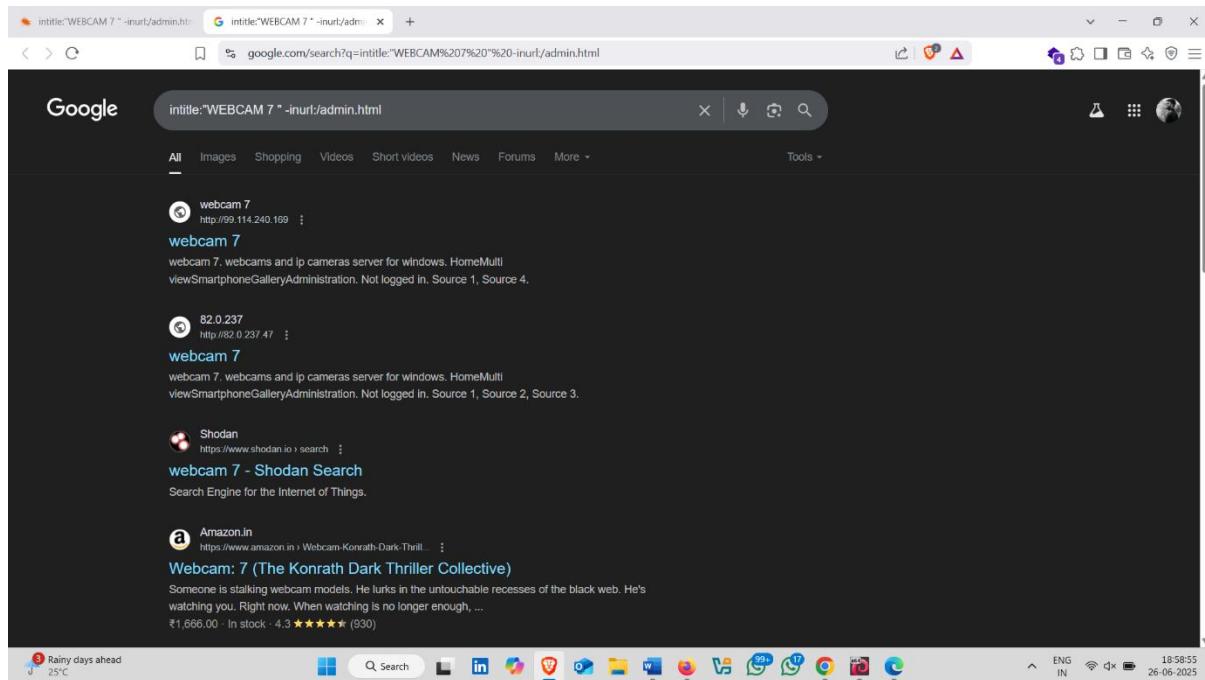
The screenshot shows the Google Hacking Database (GHD) interface. The search bar at the top contains the query "web cam". Below the search bar, there are filters and a "Quick Search" button. The main area displays a list of search results with columns for Date Added, Dork, Category, and Author. The results are ordered by Date Added, with the most recent entries at the top. The interface has a dark header and a light-colored body. On the left, there is a vertical sidebar with various icons. At the bottom, there is a taskbar with weather information ("Rainy days ahead 25°C") and system status indicators.

Date Added	Dork	Category	Author
2023-11-07	intitle:"Webcam" inurl:WebCam.htm	Various Online Devices	s Thakur
2023-01-31	intitle:"Index of /webcam"	Files Containing Juicy Info	Shuvrosayar Das
2022-06-17	inurl:webcam site:skylinewebcams.com inurl:roma	Various Online Devices	Simone Gasparato
2021-11-09	intitle:"webcamXP" inurl:8080	Various Online Devices	Krishna Agarwal
2021-10-19	intitle:"webcamXP 5" inurl:admin.htm	Various Online Devices	César Hernández Obispo
2021-09-29	intitle:"webcam" "login"	Pages Containing Login Portals	Yash Singh
2021-09-15	intitle:"yawcam" "It's a webcam!" "user" "pass"	Various Online Devices	Mugdha Peter Bansode
2021-08-20	inurl:/multi.html intitle:webcam	Various Online Devices	Anmol K Sachan
2021-05-28	intitle:"webcamp" "Flash JPEG Stream"	Various Online Devices	Anmol K Sachan
2021-05-25	inurl:mobile.html intitle:webcamXP	Various Online Devices	Anmol K Sachan
2021-04-30	intitle:"Web Client" inurl:webcamera.html"	Various Online Devices	J. Igor Melo
2021-03-19	intitle:"webcamp S" intext: "live stream"	Various Online Devices	Hitesh Parmar
2021-02-08	intitle:"IP Webcam" inurl:/greet.html"	Various Online Devices	J. Igor Melo
2020-08-06	intitle:"webcam" inurl:login	Various Online Devices	Aditya Rana

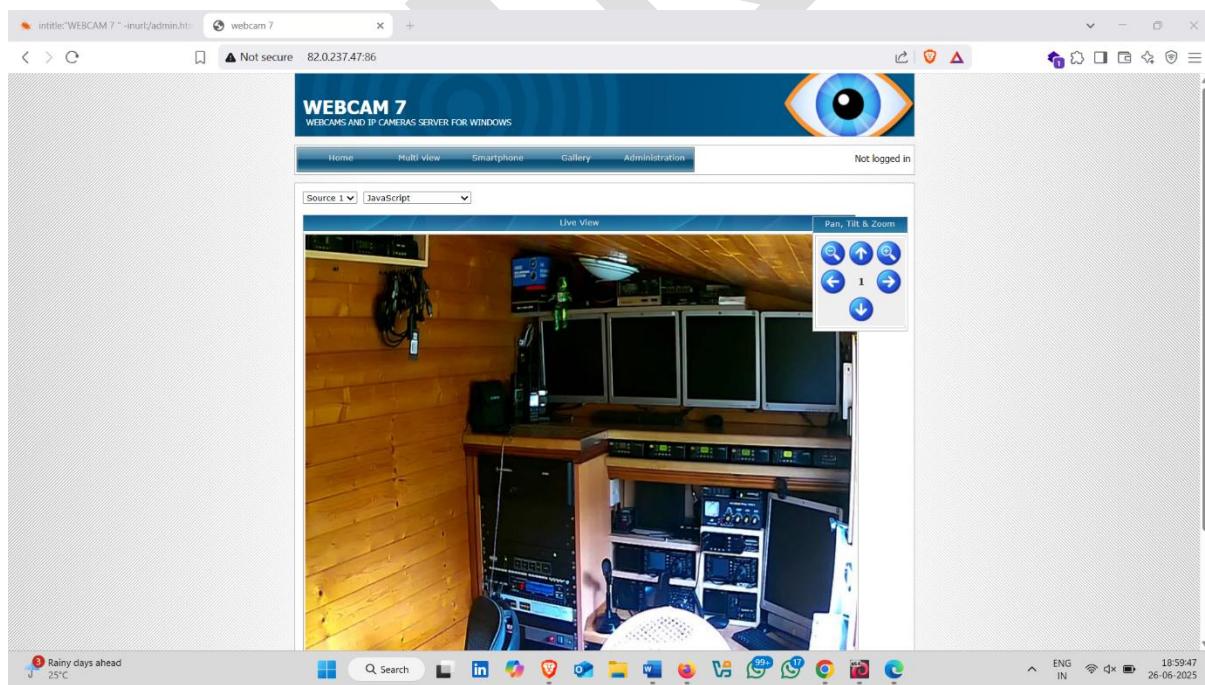
- Open this URL 👇

The screenshot shows a detailed view of a search result from the Google Hacking Database (GHD). The search term is "intitle:"WEBCAM 7" -inurl:/admin.html". The result is identified by GHDB-ID: 6088, authored by NISANKH ACHARJYA, and published on 2020-05-18. The "Google Dork Description" is "intitle:"WEBCAM 7" -inurl:/admin.html". The "Google Search" link leads to the same query on Google. The page also includes a "Google Dork" section with the code "intitle:"WEBCAM 7" -inurl:/admin.html" and "intitle:"WEBCAM 7" -site:.com". The author's name, Nisankh Acharjya, is mentioned. The interface is similar to the previous screenshot, with a dark header and a light-colored body. The taskbar at the bottom shows the URL of the current page and other system status indicators.

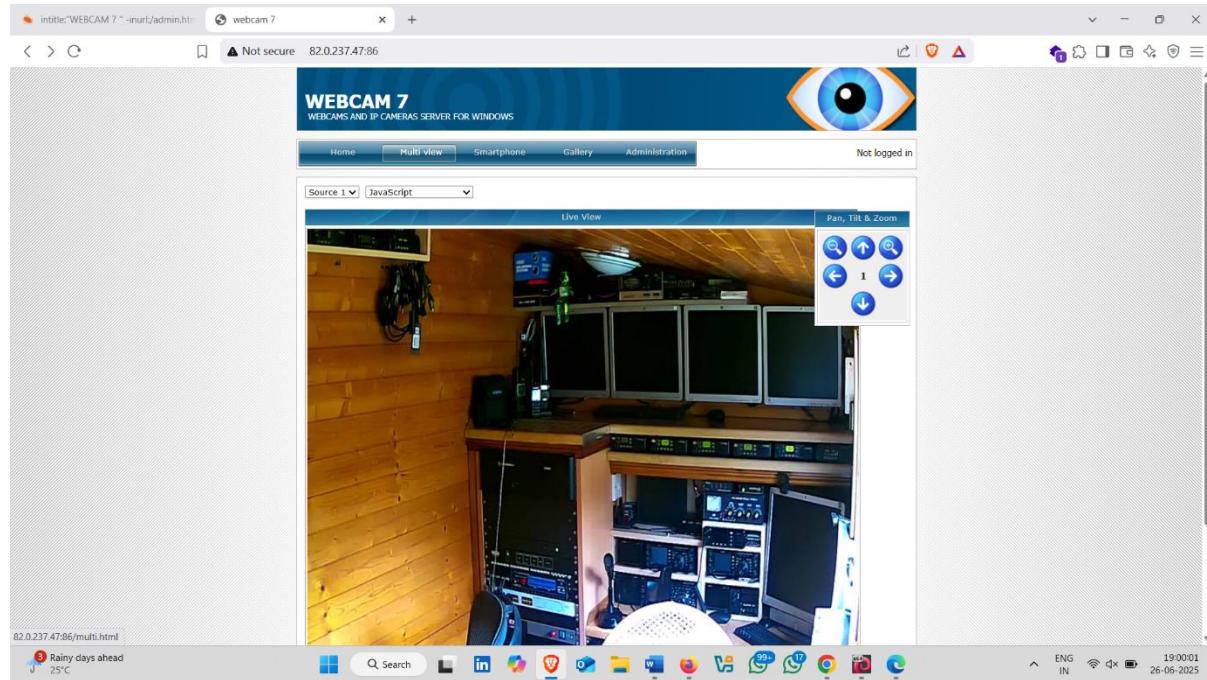
- Now open any website



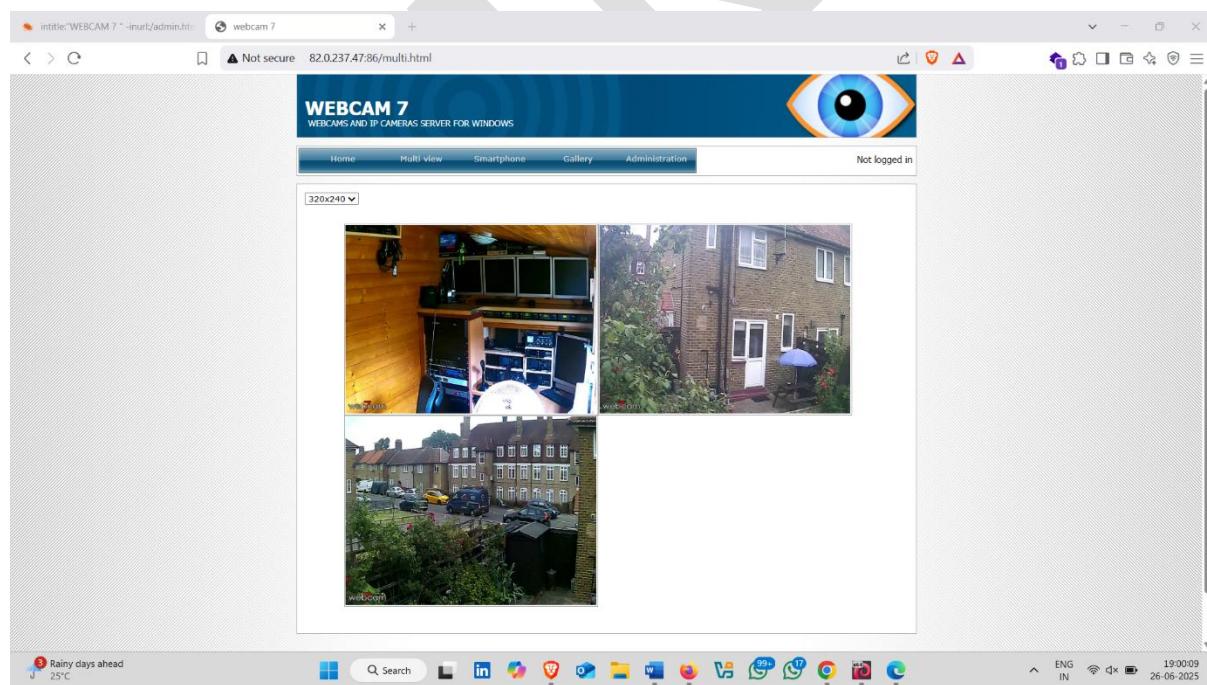
- Live camera monitoring 🤝 ✅



- Click on **multi view** – can access multiple camera



- **Multiple camera access**



- Now back to Exploit-DB database
- Search Scada ✓ ⏪

The screenshot shows the Exploit Database interface with a search bar containing 'scada'. Below the search bar is a table of exploit entries. The columns include Date, D, A, V, Title, Type, Platform, and Author. The table lists various SCADA-related vulnerabilities such as 'PnPSCADA v2.x - Unauthenticated PostgreSQL Injection', 'ICL ScadaFlex II SCADA Controllers SC-1/SC-2 1.03.07 - Remote File CRUD', and 'ScadaBR 1.0 - Arbitrary File Upload (Authenticated) (2)'. The interface has an orange sidebar on the left and a header with weather information ('Rainy days ahead 25°C').

Date	D	A	V	Title	Type	Platform	Author
2023-05-23	⬇️	✗		PnPSCADA v2.x - Unauthenticated PostgreSQL Injection	WebApps	Hardware	Momen Eldawakhly
2022-02-23	⬇️	✗		ICL ScadaFlex II SCADA Controllers SC-1/SC-2 1.03.07 - Remote File CRUD	Remote	Hardware	LiquidWorm
2021-04-01	⬇️	✓		ScadaBR 1.0 - Arbitrary File Upload (Authenticated) (2)	WebApps	Linux	Fellipe Oliveira
2021-04-01	⬇️	✗		ScadaBR 1.0 - Arbitrary File Upload (Authenticated) (1)	WebApps	Windows	Fellipe Oliveira
2020-08-20	⬇️	✗		PNPSCADA 2.200816204020 - 'interf' SQL Injection (Authenticated)	WebApps	Hardware	İsmail ERKEK
2020-06-25	⬇️	✗		mySCADA myPRO 7 - Hardcoded Credentials	Remote	Hardware	Emre ÖVÜNÇ
2020-03-23	⬇️	✗		ProficySCADA for iOS 5.0.25920 - 'Password' Denial of Service (PoC)	DoS	iOS	Ivan Marmolejo
2019-11-19	⬇️	✗		scadaApp for iOS 1.1.4.0 - 'Servename' Denial of Service (PoC)	DoS	iOS	Luis Martínez
2019-11-18	⬇️	✗		Open Proficy HMI-SCADA 5.0.0.25920 - 'Password' Denial of Service (PoC)	DoS	iOS	Luis Martínez
2018-11-05	⬇️	✗		Advantech WebAccess SCADA 8.3.2 - Remote Code Execution	WebApps	ASP	Chris Lyne
2018-09-12	⬇️	✗		CirCarLife SCADA 4.3.0 - Credential Disclosure	WebApps	Hardware	SadFud
2018-08-19	⬇️	✗		SEIG SCADA System 9 - Remote Code Execution	Remote	Windows_x86	Alejandro Parodi

- Scada related result ⏪ ✓

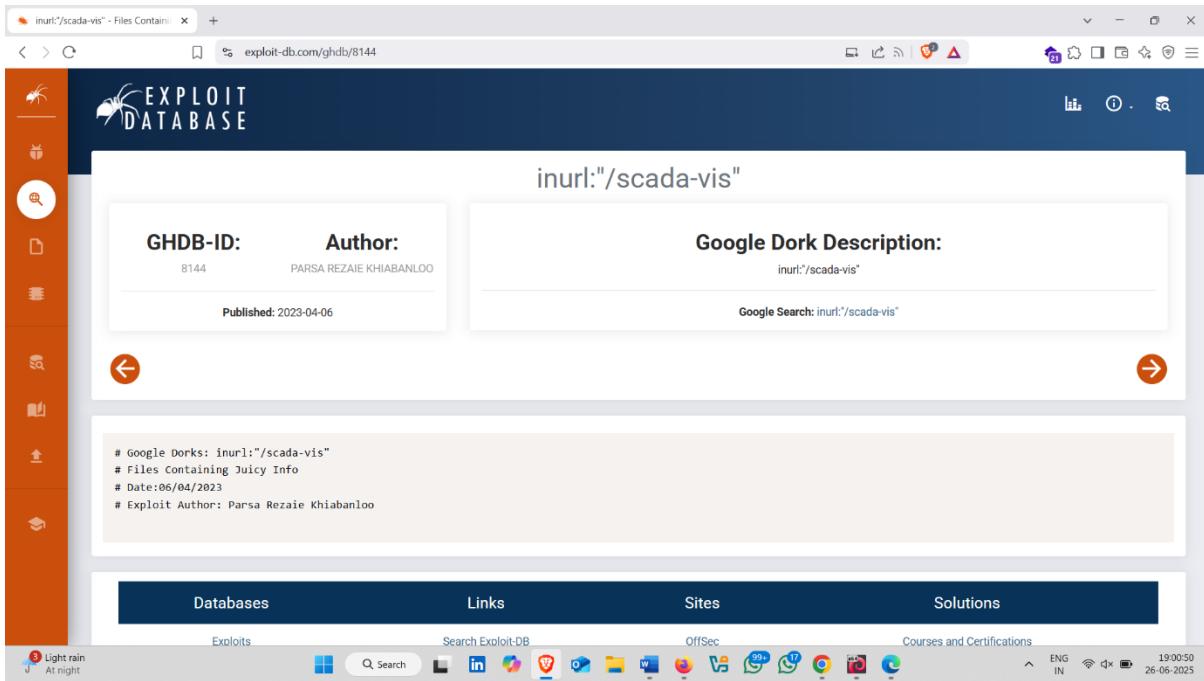
The screenshot shows the Google Hacking Database interface with a search bar containing 'scada'. Below the search bar is a table of dork entries. The columns include Date Added, Dork, Category, and Author. The table lists various SCADA-related dorks such as 'inurl:/scada-vis', 'intitle:"index of SCADA"', and 'intitle:inurl:"SCADA login"'. The interface has an orange sidebar on the left and a header with weather information ('Light rain At night').

Date Added	Dork	Category	Author
2023-04-06	inurl:/scada-vis"	Files Containing Juicy Info	Parسا Rezaie Khiabanloo
2021-10-04	intitle:"index of SCADA"	Sensitive Directories	Romell Marin Cordoba
2021-09-20	intitle:inurl:"SCADA login"	Pages Containing Login Portals	Cyber Shelby
2021-09-16	intitle:"CirCarLife Scada" inurl:/html/index.html	Various Online Devices	Alexandros Pappas
2020-05-28	"login" intitle:"scada login"	Pages Containing Login Portals	Alexandros Pappas
2019-04-22	intitle:"index of" scada	Sensitive Directories	Aman Bhardwaj
2019-04-06	"login" intitle:scada login"	Pages Containing Login Portals	Bruno Schmid

Showing 1 to 7 of 7 entries (filtered from 7,944 total entries)

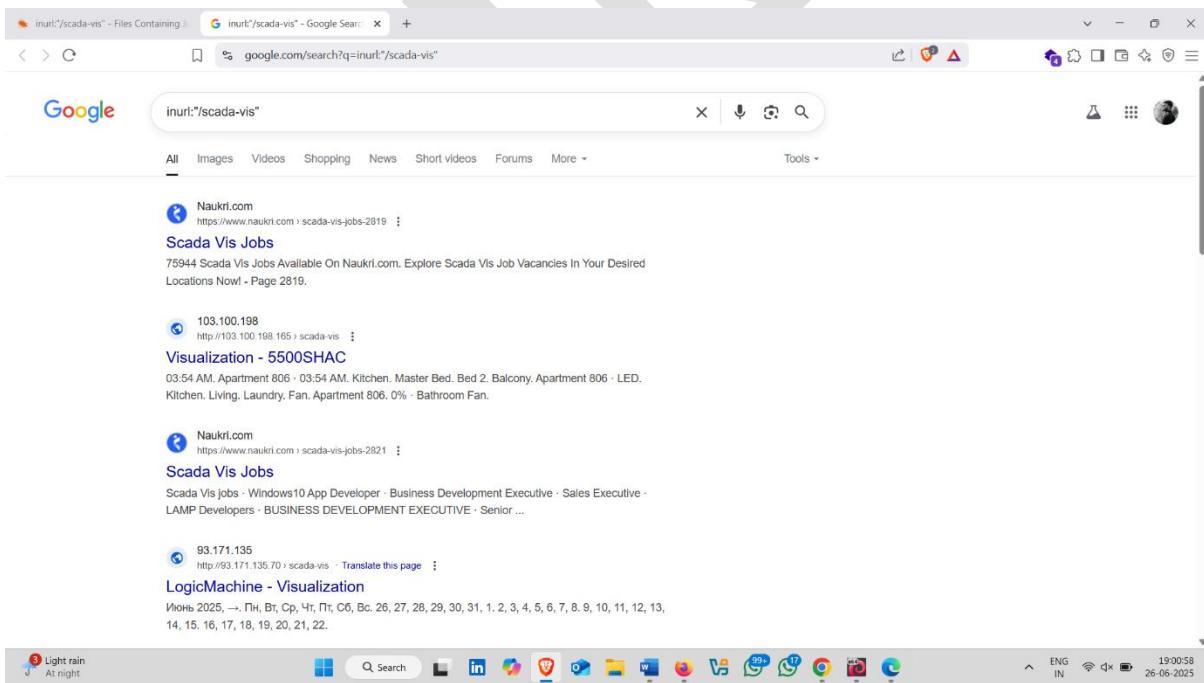
Databases	Links	Sites	Solutions
Exploits	Search Exploit-DB	OffSec	Courses and Certifications
Google Hacking	Submit Entry	Kali Linux	Learn Subscriptions

- Open this url ✅ 



The screenshot shows a web browser window with the URL `exploit-db.com/ghdb/8144`. The page title is "EXPLOIT DATABASE". The main content area displays search results for the query `inurl:/scada-vis`. It includes details like GHDB-ID (8144), Author (PARSA REZAEI KHIABANLOO), and a Google Dork Description. Below the search results, there are tabs for Databases, Links, Sites, and Solutions, along with various navigation and search tools.

- Click on second website



The screenshot shows a web browser window with the URL `google.com/search?q=inurl:/scada-vis`. The search results page displays several links related to "Scada Vis Jobs" and "Visualization". The first result is from Naukri.com, followed by a link to a visualization page at 103.100.198. The results also include links from 93.171.135.70 and LogicMachine. The browser interface includes a toolbar with various icons and a status bar at the bottom.

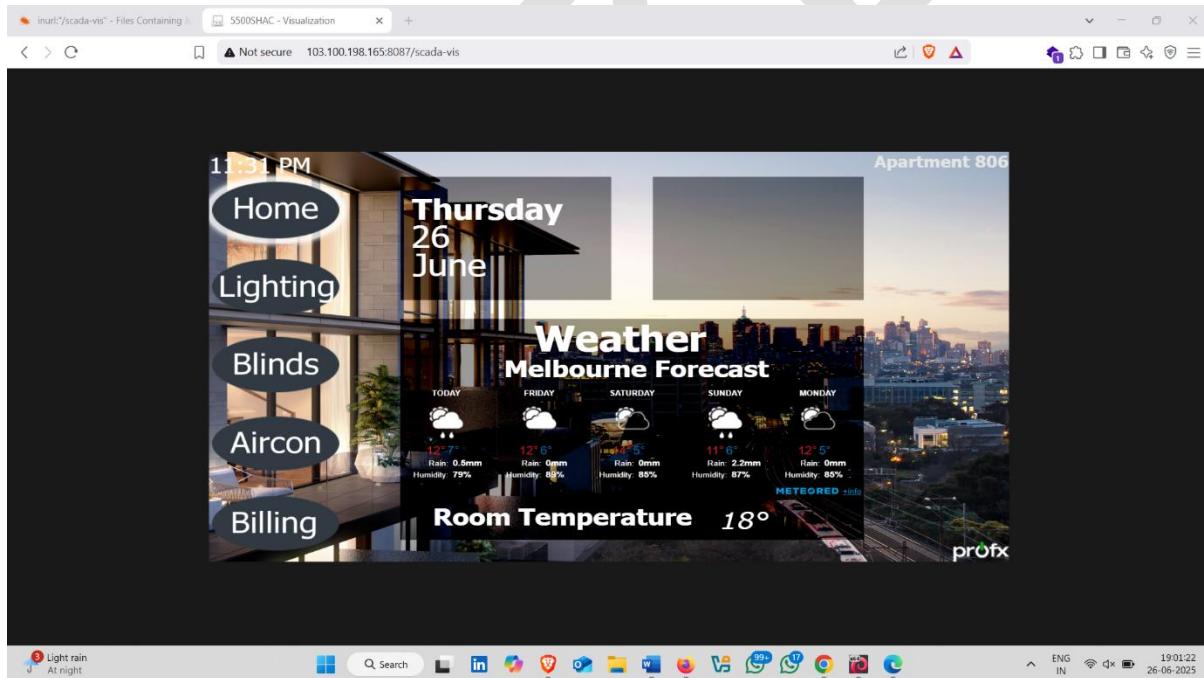
- Result ✓ 👍

📱 Control Panel Interface

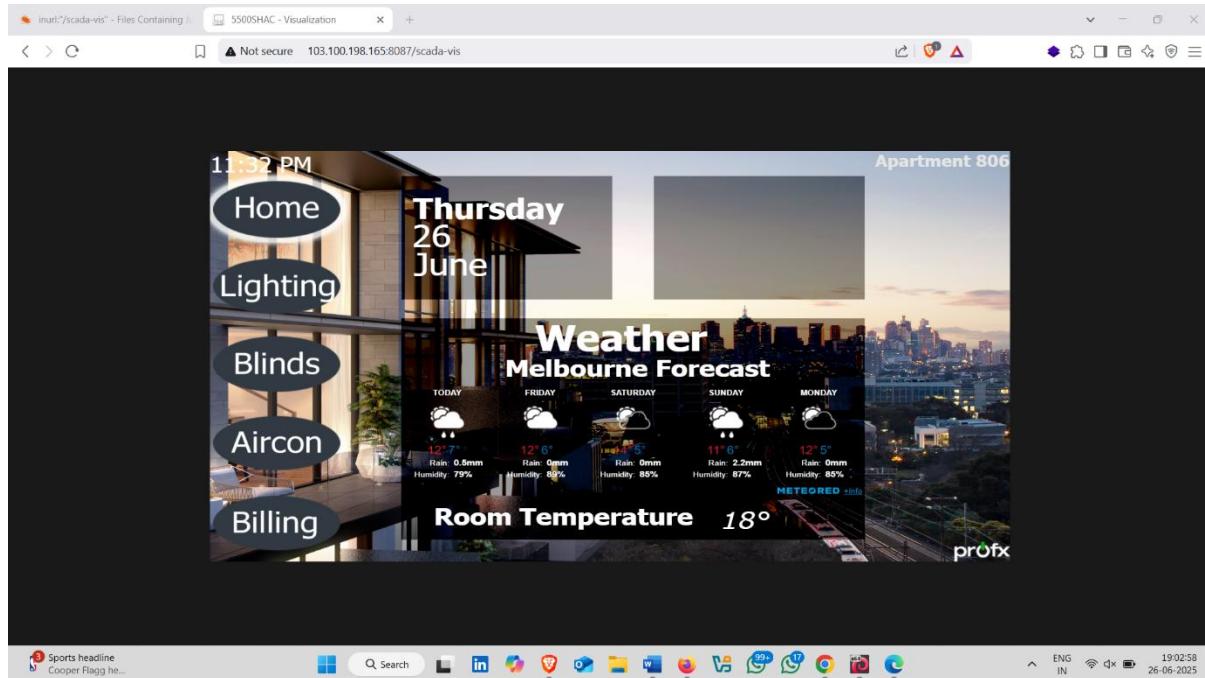
This is a **home automation or smart building SCADA dashboard**, used for **monitoring and controlling apartment utilities remotely**. Here's what's visible:

- **Sidebar Menu Options:**

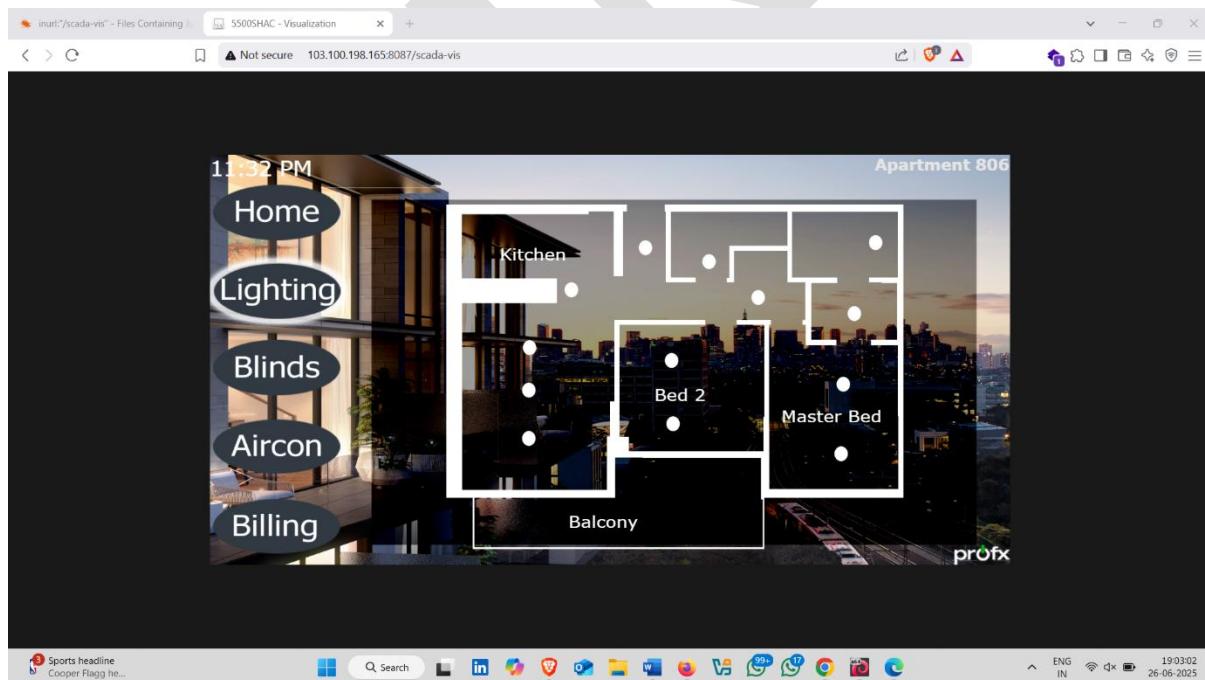
- Home: Dashboard overview
- Lighting: Control room/apartment lights
- Blinds: Control window blinds
- Aircon: Control air conditioning (AC)
- Billing: Possibly shows electricity or HVAC billing info



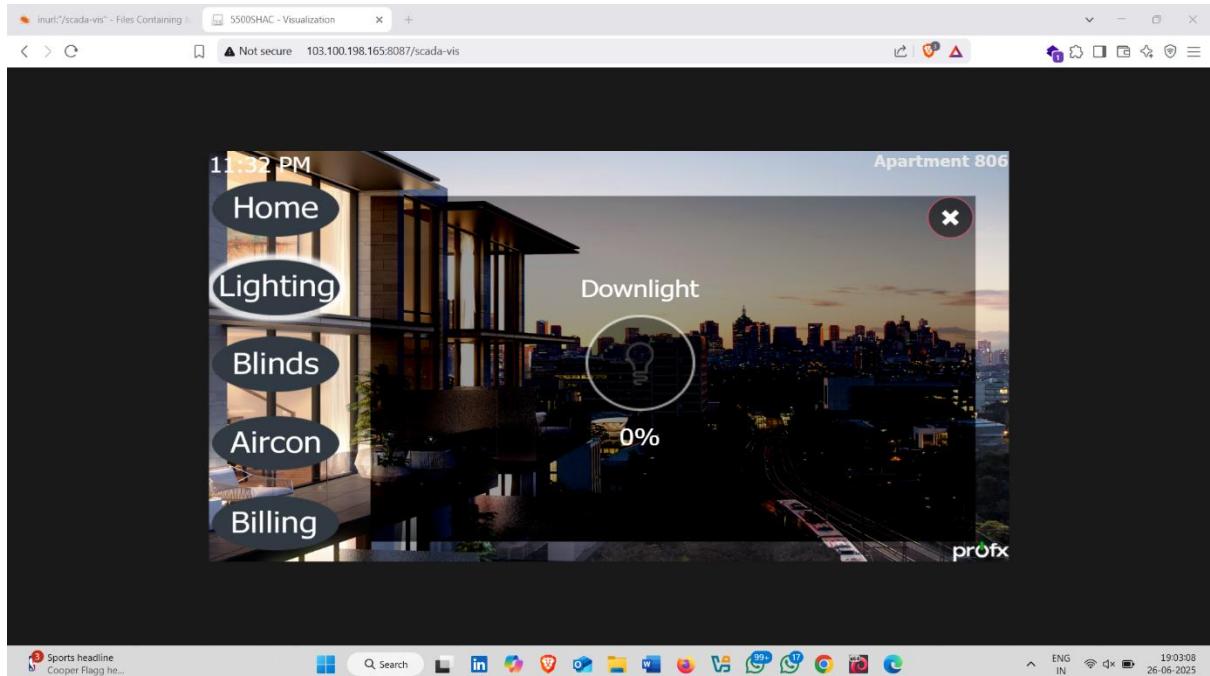
- Click on Lighting



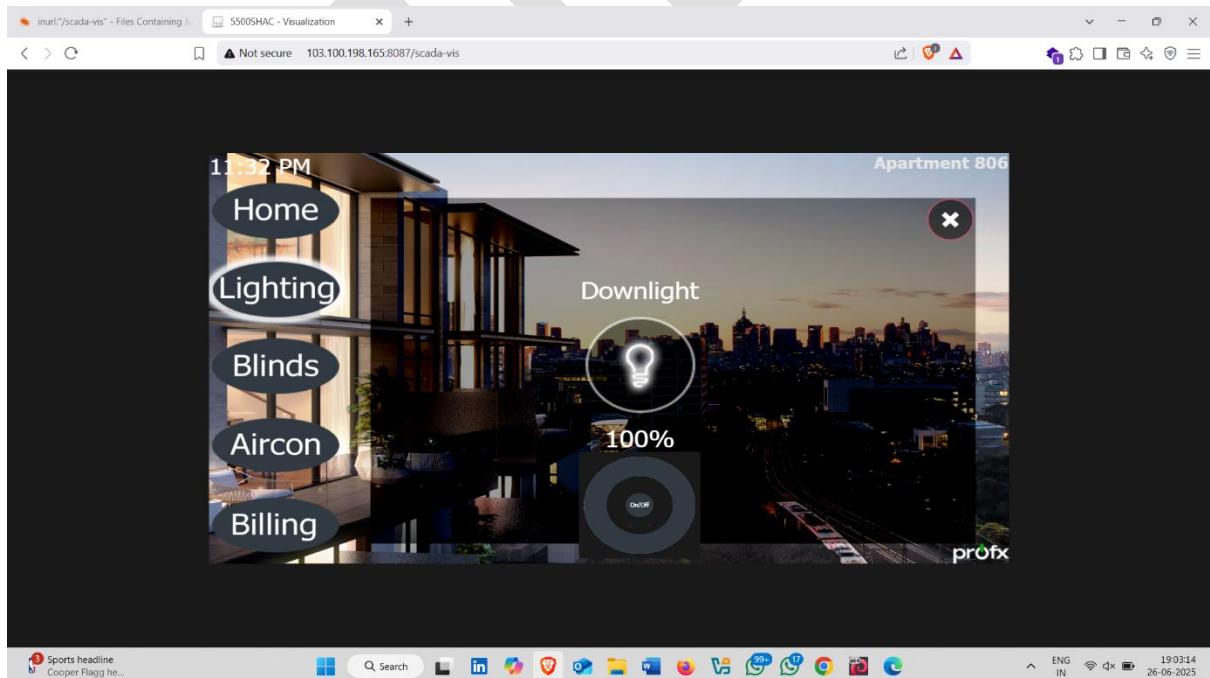
- Click on any section like -kitchen , bedroom etc



- Click on downlight options



- Result – lights turn on  



4. Criminal Ip

Criminal IP is a **cyber threat intelligence (CTI) search engine and platform** designed to **identify malicious or vulnerable IP addresses**, domains, and assets across the internet. It is commonly used for **OSINT (Open Source Intelligence)** in cybersecurity operations, red teaming, vulnerability research, and risk assessment.

It allows researchers and security professionals to analyze:

- IP reputations
- Vulnerable systems (IoT/OT devices)
- Exposed ports and services
- Domains linked to malware or phishing campaigns

➔ Developed by **AI SPERA**, it is often used alongside platforms like **Shodan**, **ZoomEye**, and **Censys**.

⚙️ Features for OSINT and Threat Intelligence

Feature	Description
IP Reputation Search	Shows malicious history, malware associations, CVEs, and geographic information about an IP address.
Device Fingerprinting	Identifies web servers, IoT/SCADA systems, open ports, services, and SSL certificates.
Vulnerability Info	Shows CVEs tied to discovered devices (e.g., outdated camera firmware, ICS/PLC vulnerabilities).
Subdomain Enumeration	Reveals subdomains associated with a domain for surface area analysis.
Domain Intelligence	Gives details about phishing domains, C2 servers, or malware-distributing hosts.

Feature	Description
Malicious URL & Domain Feed	Provides real-time indicators of compromise (IOCs) for threat hunting.
Geolocation	Maps IPs and devices to countries, cities, and ASN numbers.
Export & API Integration	Integrate with SIEM/SOAR tools for automation and advanced analysis.

Use Cases in IoT and OT Hacking / Security

Use Case	How Criminal IP Helps
IoT Device Exposure Mapping	Detects publicly exposed IoT cameras, routers, sensors, and gateways with open ports or default credentials.
Reputation Checking	Identifies if an IP is blacklisted or known for malicious activity (e.g., used in botnets or DDoS attacks).
Reconnaissance for Red Team	Collects OSINT about ICS/SCADA environments before penetration testing or simulations.
Zero-Day and CVE Research	Finds devices affected by recent vulnerabilities (e.g., Hikvision CVEs, MQTT protocol flaws).
Network Hygiene Audit	Organizations use it to monitor their own IP ranges for unintended exposure.
Mapping OT Infrastructure	SCADA or HMI devices accidentally exposed online can be flagged and reported.
MITRE ATT&CK Alignment	Helps match findings with threat tactics, techniques, and procedures (TTPs).

Example Searches on Criminal IP:

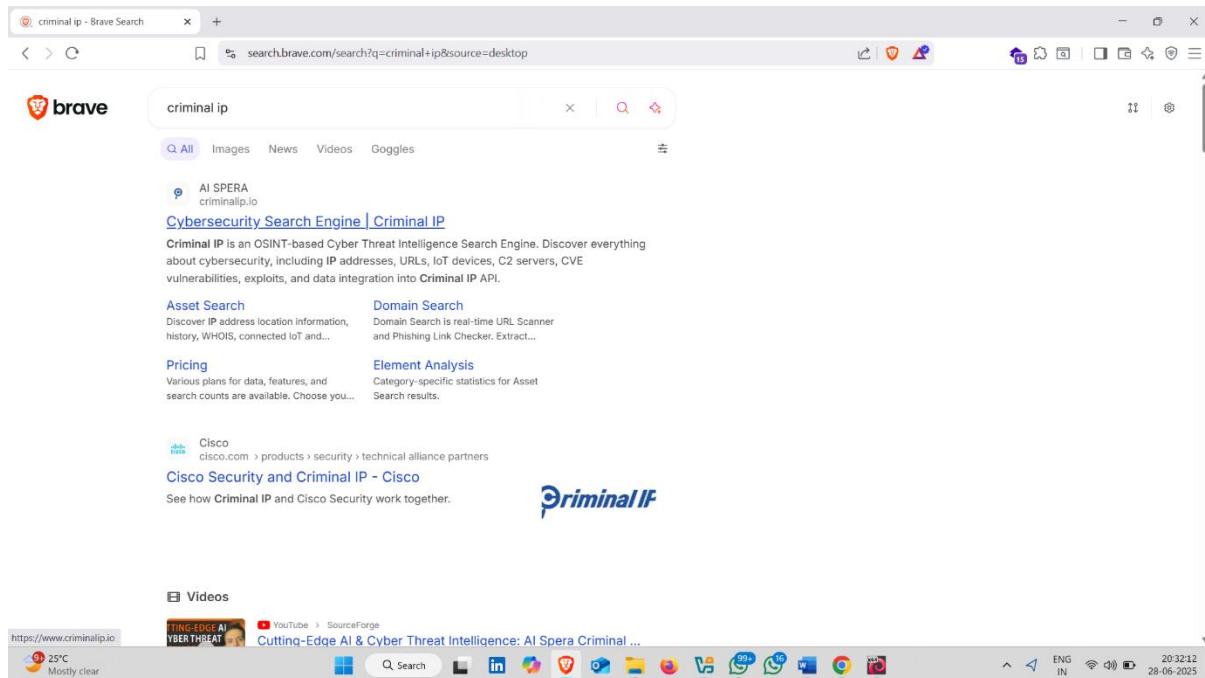
1. port:502 AND modbus → Find exposed industrial Modbus devices
 2. title:"SCADA" OR title:"HMI" → List of exposed OT interfaces
 3. ssl.cert.issuer:"Dahua" → Find Dahua IP cameras with known SSL certs
 4. cve:CVE-2021-36260 → Hikvision RCE vulnerability exposure
 5. country:IN service:http → HTTP-based devices located in India
-

Why Use Criminal IP Alongside Shodan and ZoomEye?

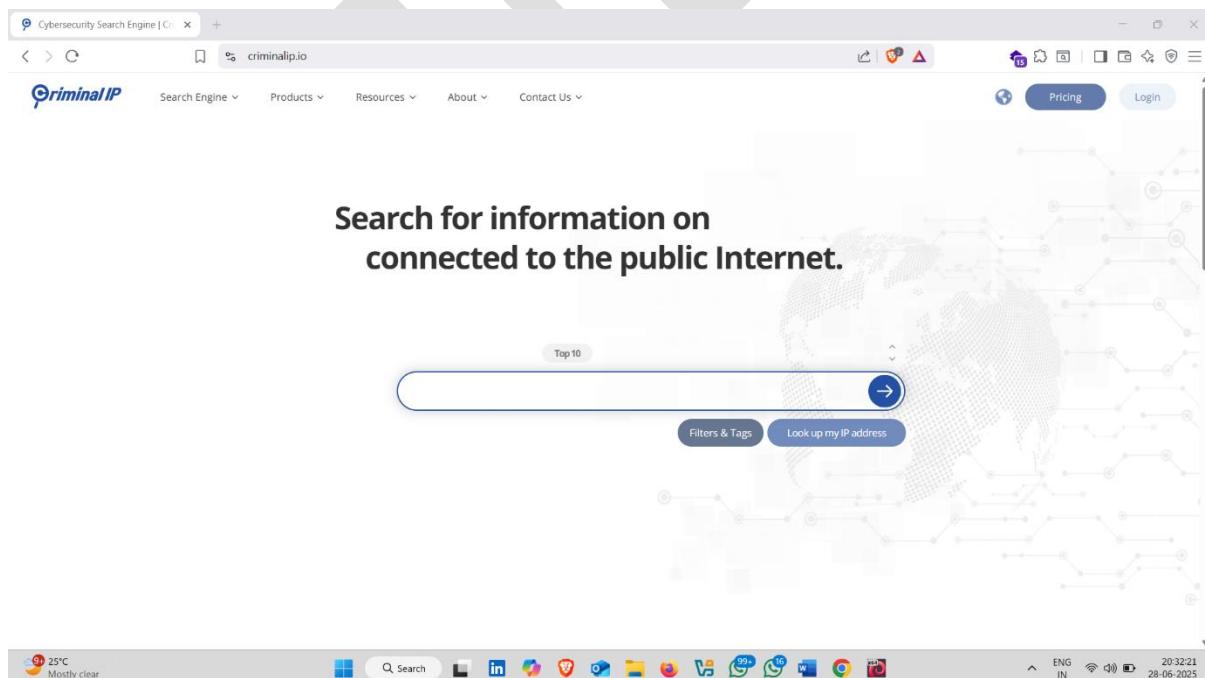
Tool	Strength
Shodan	Fastest for exposed device detection and basic filtering
ZoomEye	Detailed fingerprinting and Chinese network coverage
FOFA	Advanced logic-based asset enumeration
Criminal IP	Best for threat correlation, IP reputation scoring, and dark web linkage

How to use it :-

- Open browser and search criminal ip and click on first website



- Enter ip address



- Lets try on one of this ip address 👍 ✅

Cybersecurity Search Engine | CriminalIP | Webcam - Shodan Search

shodan.io/search?query=webcam

Product Spotlight: Keep track of what you have connected to the Internet. Check out [Shodan Monitor](#)

3,653

TOP COUNTRIES

Country	Count
United States	956
China	466
Germany	331
United Kingdom	180
Japan	170

More...

TOP PORTS

Port	Count
8080	206
8081	205
443	92
80	86
81	53

More...

TOP ORGANIZATIONS

Organization	Count
Linode	872
Allwin Computing Co., LTD	315

TC-Group - LuCI

HTTP/1.1 200 OK
Content-Length: 119291
Content-Type: text/html
Server: SQ-WEBCAM
Date: Sat, 28 Jun 2025 12:33:38 GMT

AirTies

HTTP/1.1 200 OK
Content-Length: 119278
Content-Type: text/html
Server: SQ-WEBCAM
Date: Sat, 28 Jun 2025 12:31:01 GMT

CloudDriveWasm

SSL Certificate

HTTP/1.1 200 OK
Issued By:
- Common Name: localhost
- Organization: XOXOHEPL
Issued To:
- Common Name: localhost
- Organization: XOXOHEPL
Supported SSL Versions: TLSv1.2

Aliyun Camera

24°C Mostly clear

ENG IN 20:32:38 28-06-2025

- Now search

Cybersecurity Search Engine | CriminalIP | Webcam - Shodan Search

criminalip.io

Search for information on certificates connected to the public Internet.

Hacking Group
Exploit
Image
Domain

Asset 23.92.18.46

Top 10 2 Keyword "English (Unl... 2 IP 65.21.61.245

Filters & Tags Look up my IP address

24°C Mostly clear

ENG IN 20:32:49 28-06-2025

• Result 🤝 ✅

The screenshot shows a web browser displaying the CriminalIP asset report for the IP address 23.92.18.46. The interface includes a navigation bar with links for Search Engine, Products, Resources, About, and Contact Us, along with Pricing and Login buttons. The main content area features several sections:

- Summary**: Shows connection details like Representative Domain (N/A), SSL Certificate (Self-Signed, 458), IP Address Owner (Akamai Connected Cloud), Hostname (23-92-18-46.ip.linodeusercontent.com), Connected Domains (0), and Country (United States). It also lists detection findings such as Proxy IP (True), VPN IP (False), Tor IP (False), Hosting IP (True), Mobile IP (False), CDN IP (False), Scanner IP (False), and Special Issue (1 ICS). Buttons for "Sign Up for Free" and "Upgrade Your Plan" are present.
- Connection**: Lists Representative Domain (N/A), SSL Certificate (Self-Signed, 458), IP Address Owner (Akamai Connected Cloud), Hostname (23-92-18-46.ip.linodeusercontent.com), Connected Domains (0), and Country (United States).
- Detection**: Lists Proxy IP (True), VPN IP (False), Tor IP (False), Hosting IP (True), Mobile IP (False), CDN IP (False), Scanner IP (False), and Special Issue (1 ICS). Buttons for "Sign Up for Free" and "Upgrade Your Plan" are present.
- Security**: Shows Abuse Record (0) and Open Ports (765).
- Intelligence**: Shows Real IP and Hacking Group (both with "Upgrade Your Plan" buttons).
- Current Open Ports**: A section showing a list of open ports.

A large, semi-transparent watermark reading "HACKED" is overlaid diagonally across the bottom half of the page.