SERVER-SERVICE STEP-BY-STEP

1 Install Ubuntu dependencies

server_machine:~# apt-get update

server_machine:~# apt-get upgrade

1.1 git

server_machine:~# apt-get install git

server_machine:~# git --version

```
root@ubuntu-desktop:~# git --version
git version 2.34.1
```

1.2 Java version 11

server_machine:~# apt install openjdk-11-jdk

server_machine:~# java -version

```
root@ubuntu-desktop:~# java -version
openjdk version "11.0.19" 2023-04-18
OpenJDK Runtime Environment (build 11.0.19+7-post-Ubuntu-0ubuntu122.04.1)
OpenJDK 64-Bit Server VM (build 11.0.19+7-post-Ubuntu-0ubuntu122.04.1, mixed mode, sharing)
root@ubuntu-desktop:~#
```

1.3 Install snapd

server_machine:~# apt install snapd

1.4 Install net-tools

server_machine:~# apt-get install net-tools

2 Install MITM Proxy Server (on server)

server_machine:~# cd /usr/local/bin/

server_machine:/usr/local/bin# wget https://downloads.mitmproxy.org/9.0.1/mitmproxy-9.0.1-linux.tar.gz

server_machine:/usr/local/bin# tar -xzvf mitmproxy-9.0.1-linux.tar.gz

```
root@ubuntu-desktop:/usr/local/bin# tar -xzvf mitmproxy-9.0.1-linux.tar.gz
mitmproxy
mitmdump
mitmweb
```

server_machine:/usr/local/bin# chmod -R 777 *

server_machine:/usr/local/bin# chown -R root:root *

```
root@distarossi-ttln:/usr/local/bin# ls -al
total 226644
drwxr-xr-x  2 root root      4096 giu  8 10:46 .
drwxr-xr-x 10 root root      4096 ago  9  2022 ..
-rwxrwxrwx  1 root root  37776632 nov  2  2022 mitmdump
-rwxrwxrwx  1 root root  39072432 nov  2  2022 mitmproxy
-rwxrwxrwx  1 root root 115498760 apr  4 18:36 mitmproxy-9.0.1-linux.tar.gz
-rwxrwxrwx  1 root root  39722528 nov  2  2022 mitmweb
root@distarossi-ttln:/usr/local/bin#
```

Config

server_machine:~# cd .mitmproxy/

server_machine:~/.mitmproxy# nano config.yml

ADD

block_global: false

```
  GNU nano 6.2                                                    config.yml
block_global: false
```

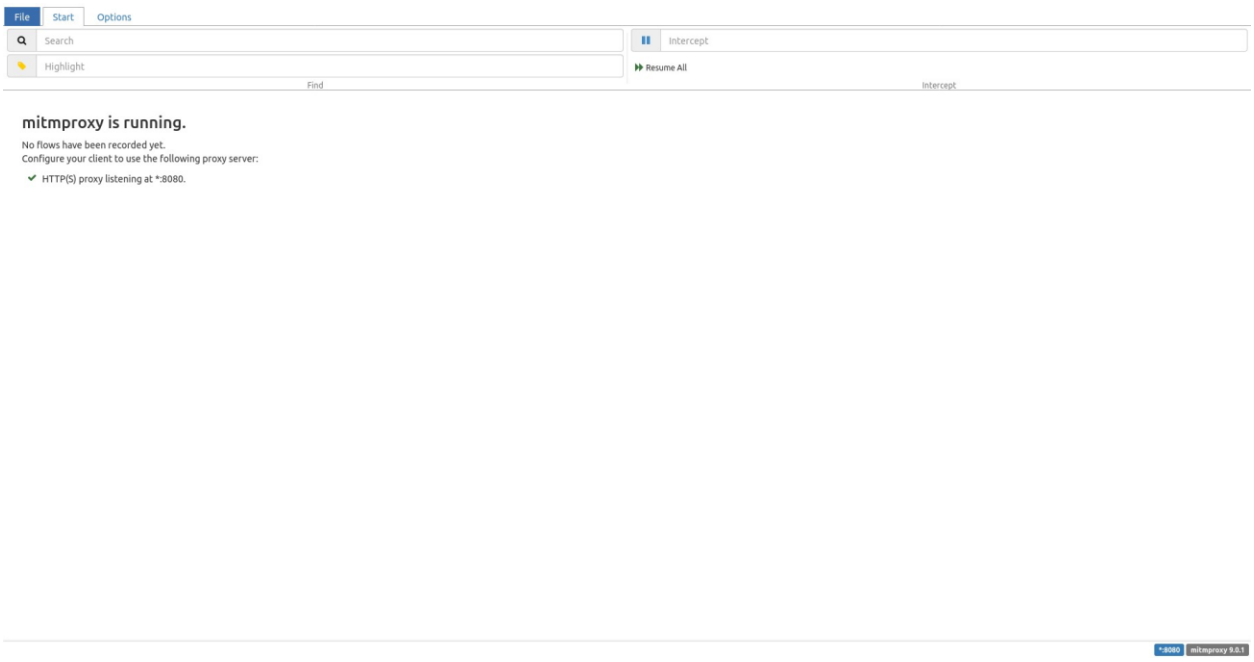
Check

server_machine:~# mitmweb --web-host 0.0.0.0 --web-port 8081

```
root@lamexp:~# mitmweb --web-host 0.0.0.0 --web-port 8081
[14:12:56.000] HTTP(S) proxy listening at *:8080.
[14:12:56.000] Web server listening at http://0.0.0.0:8081/
[14:12:56.364] No web browser found. Please open a browser and point it to http://0.0.0.0:8081/
```

From the client browser, we can access the MITM Proxy Server webpage

http://**SERVER_IP**:8081/#/flows



3 Install Kafka Message Queue (on server)

root@server-machine:~# apt-get install net-tools

root@server-machine:~# apt install default-jdk

root@server-machine:~# java --version

```
root@server-machine:~# java --version
openjdk 11.0.19 2023-04-18
OpenJDK Runtime Environment (build 11.0.19+7-post-Ubuntu-0ubuntu122.04.1)
OpenJDK 64-Bit Server VM (build 11.0.19+7-post-Ubuntu-0ubuntu122.04.1, mixed mode, sharing)
root@server-machine:~#
```

root@server-machine:~# wget https://downloads.apache.org/kafka/3.5.0/kafka_2.13-3.5.0.tgz

```
root@server-machine:~# wget https://downloads.apache.org/kafka/3.5.0/kafka_2.13-3.5.0.tgz
--2023-07-05 15:13:49--  https://downloads.apache.org/kafka/3.5.0/kafka_2.13-3.5.0.tgz
Resolving proxy.uninsubria.it (proxy.uninsubria.it)... 10.183.1.18, 10.183.1.10
Connecting to proxy.uninsubria.it (proxy.uninsubria.it)|10.183.1.18|:3128... connected.
Proxy request sent, awaiting response... 200 OK
Length: 106792776 (102M) [application/x-gzip]
Saving to: 'kafka_2.13-3.5.0.tgz'

kafka_2.13-3.5.0.tgz                100%[=============================================================================>] 101.84M  1.43MB/s    in 60s

2023-07-05 15:14:50 (1.70 MB/s) - 'kafka_2.13-3.5.0.tgz' saved [106792776/106792776]

root@server-machine:~#
```

root@server-machine:~# tar -xzvf kafka_2.13-3.5.0.tgz

root@server-machine:~# mv kafka_2.13-3.5.0 /opt/kafka

root@server-machine:~# cd /opt/

root@server-machine:/opt# ls -al

```
root@server-machine:/opt# ls -al
total 12
drwxr-xr-x  3 root root 4096 Jul  5 15:15 .
drwxr-xr-x 19 root root 4096 Jul  4 18:07 ..
drwxr-xr-x  7 root root 4096 Jun  5 11:08 kafka
```

root@server-machine:/opt# chmod -R 777 kafka/

root@server-machine:/opt# chmod -R 777 kafka/*

Create zookeeper.service

root@server-machine:/opt# nano /etc/systemd/system/zookeeper.service

ADD

[Unit]
Description=Apache Zookeeper server
Documentation=http://zookeeper.apache.org
Requires=network.target remote-fs.target
After=network.target remote-fs.target
[Service]
Type=simple
ExecStart=/opt/kafka/bin/zookeeper-server-start.sh /opt/kafka/config/zookeeper.properties
ExecStop=/opt/kafka/bin/zookeeper-server-stop.sh
Restart=on-abnormal
[Install]
WantedBy=multi-user.target

```
  GNU nano 6.2                                                /etc/systemd/system/zookeeper.service *
[Unit]
Description=Apache Zookeeper server
Documentation=http://zookeeper.apache.org
Requires=network.target remote-fs.target
After=network.target remote-fs.target
[Service]
Type=simple
ExecStart=/opt/kafka/bin/zookeeper-server-start.sh /opt/kafka/config/zookeeper.properties
ExecStop=/opt/kafka/bin/zookeeper-server-stop.sh
Restart=on-abnormal
[Install]
WantedBy=multi-user.target
```

Create kafka.service

root@server-machine:/opt# nano /etc/systemd/system/kafka.service

ADD

[Unit]
Description=Apache Kafka Server
Documentation=http://kafka.apache.org/documentation.html
Requires=zookeeper.service
[Service]
Type=simple
Environment="JAVA_HOME=/usr/lib/jvm/java-11-openjdk-amd64"
ExecStart=/opt/kafka/bin/kafka-server-start.sh /opt/kafka/config/server.properties
ExecStop=/opt/kafka/bin/kafka-server-stop.sh
Restart=on-abnormal
[Install]
WantedBy=multi-user.target

```
  GNU nano 6.2                                                /etc/systemd/system/kafka.service *
[Unit]
Description=Apache Kafka Server
Documentation=http://kafka.apache.org/documentation.html
Requires=zookeeper.service
[Service]
Type=simple
Environment="JAVA_HOME=/usr/lib/jvm/java-11-openjdk-amd64"
ExecStart=/opt/kafka/bin/kafka-server-start.sh /opt/kafka/config/server.properties
ExecStop=/opt/kafka/bin/kafka-server-stop.sh
Restart=on-abnormal
[Install]
WantedBy=multi-user.target
```

root@server-machine:/opt# systemctl daemon-reload

root@server-machine:/opt# systemctl enable zookeeper

root@server-machine:/opt# systemctl start zookeeper

root@server-machine:/opt# service zookeeper status

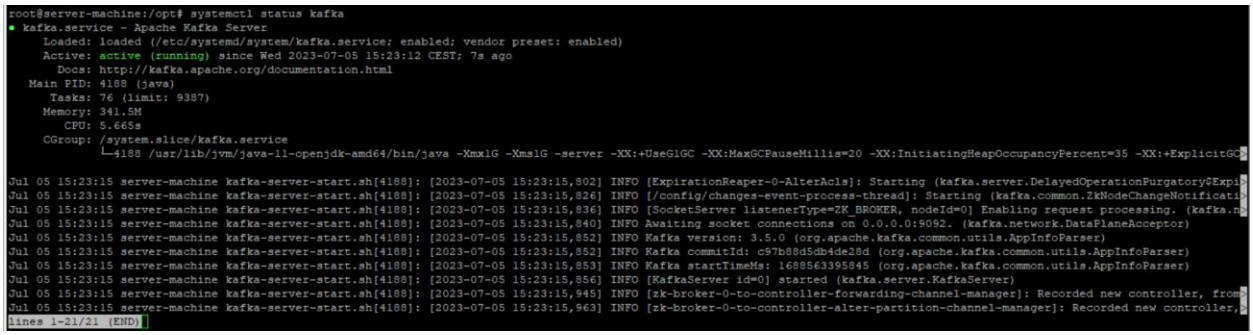
```
root@server-machine:/opt# service zookeeper status
● zookeeper.service - Apache Zookeeper server
     Loaded: loaded (/etc/systemd/system/zookeeper.service; enabled; vendor preset: enabled)
     Active: active (running) since Wed 2023-07-05 15:22:15 CEST; 8s ago
       Docs: http://zookeeper.apache.org
   Main PID: 3767 (java)
      Tasks: 35 (limit: 9387)
     Memory: 66.1M
        CPU: 2.165s
     CGroup: /system.slice/zookeeper.service
             └─3767 java -Xmx512M -Xms512M -server -XX:+UseG1GC -XX:MaxGCPauseMillis=20 -XX:InitiatingHeapOccupancyPercent=35 -XX:+ExplicitGCInvokesConcurrent -XX:MaxInlineLeve

Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,730] INFO zookeeper.commitLogCount=500 (org.apache.zookeeper.server.ZKDatabase)
Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,734] INFO zookeeper.snapshot.compression.method = CHECKED (org.apache.zookeeper.server.pers
Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,735] INFO Snapshotting: 0x0 to /tmp/zookeeper/version-2/snapshot.0 (org.apache.zookeeper.se
Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,737] INFO Snapshot loaded in 7 ms, highest zxid is 0x0, digest is 1371985504 (org.apache.zo
Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,737] INFO Snapshotting: 0x0 to /tmp/zookeeper/version-2/snapshot.0 (org.apache.zookeeper.se
Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,738] INFO Snapshot taken in 0 ms (org.apache.zookeeper.server.ZooKeeperServer)
Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,746] INFO zookeeper.request_throttler.shutdownTimeout = 10000 (org.apache.zookeeper.server.
Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,746] INFO PrepRequestProcessor (sid:0) started, reconfigEnabled=false (org.apache.zookeeper
Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,777] INFO Using checkIntervalMs=60000 maxPerMinute=10000 maxNeverUsedIntervalMs=0 (org.apac
Jul 05 15:22:16 server-machine zookeeper-server-start.sh[3767]: [2023-07-05 15:22:16,777] INFO ZooKeeper audit is disabled. (org.apache.zookeeper.audit.ZKAuditProvider)
lines 1-21/21 (END)
```

root@server-machine:/opt# systemctl enable kafka

root@server-machine:/opt# systemctl start kafka

root@server-machine:/opt# systemctl status kafka



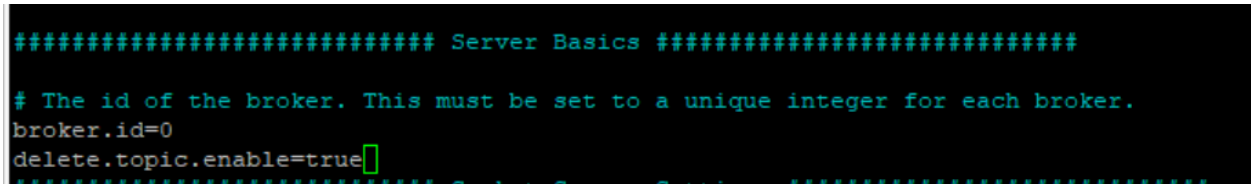
Config Kafka

root@server-machine:/opt# cd kafka/config/

root@server-machine:/opt/kafka/config# nano server.properties

ADD

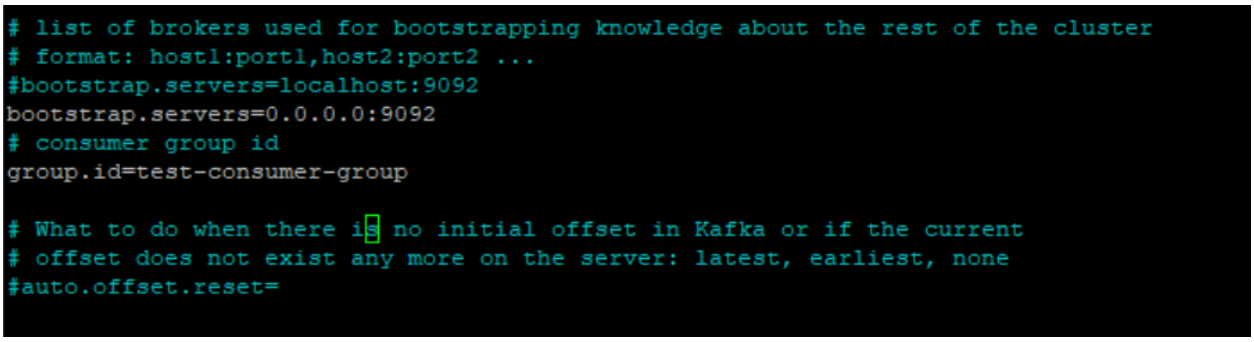
delete.topic.enable=true



root@server-machine:/opt/kafka/config# nano consumer.properties

EDIT

#bootstrap.servers=localhost:9092 →bootstrap.servers=0.0.0.0:9092



root@server-machine:/opt/kafka/config# service kafka restart

TEST

Kafka run on default port 9092 and zookeeper run on default port 2181

```
root@server-machine:~# netstat -antlp
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 127.0.0.53:53           0.0.0.0:*               LISTEN      678/systemd-resolve
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN      958/sshd: /usr/sbin
tcp        0      0 192.168.183.144:41774   10.183.1.18:3128        TIME_WAIT   -
tcp        0      0 192.168.183.144:40996   192.168.183.151:514     ESTABLISHED 701/rsyslogd
tcp        0     64 192.168.183.144:22      10.23.11.244:58638      ESTABLISHED 966/sshd: lamn [pri
tcp6       0      0 :::2181                 :::*                    LISTEN      3767/java
tcp6       0      0 :::9092                 :::*                    LISTEN      4675/java
tcp6       0      0 :::22                   :::*                    LISTEN      958/sshd: /usr/sbin
tcp6       0      0 :::46089                :::*                    LISTEN      3767/java
tcp6       0      0 :::46177                :::*                    LISTEN      4675/java
tcp6       0      0 192.168.183.144:9092    192.168.183.144:44606   ESTABLISHED 4675/java
tcp6       0      0 127.0.0.1:56452         127.0.0.1:2181          ESTABLISHED 4675/java
tcp6       0      0 127.0.0.1:2181          127.0.0.1:56452         ESTABLISHED 3767/java
tcp6       0      0 192.168.183.144:44606   192.168.183.144:9092    ESTABLISHED 4675/java
root@server-machine:~#
```

CHECK REMOTE CONNECTION

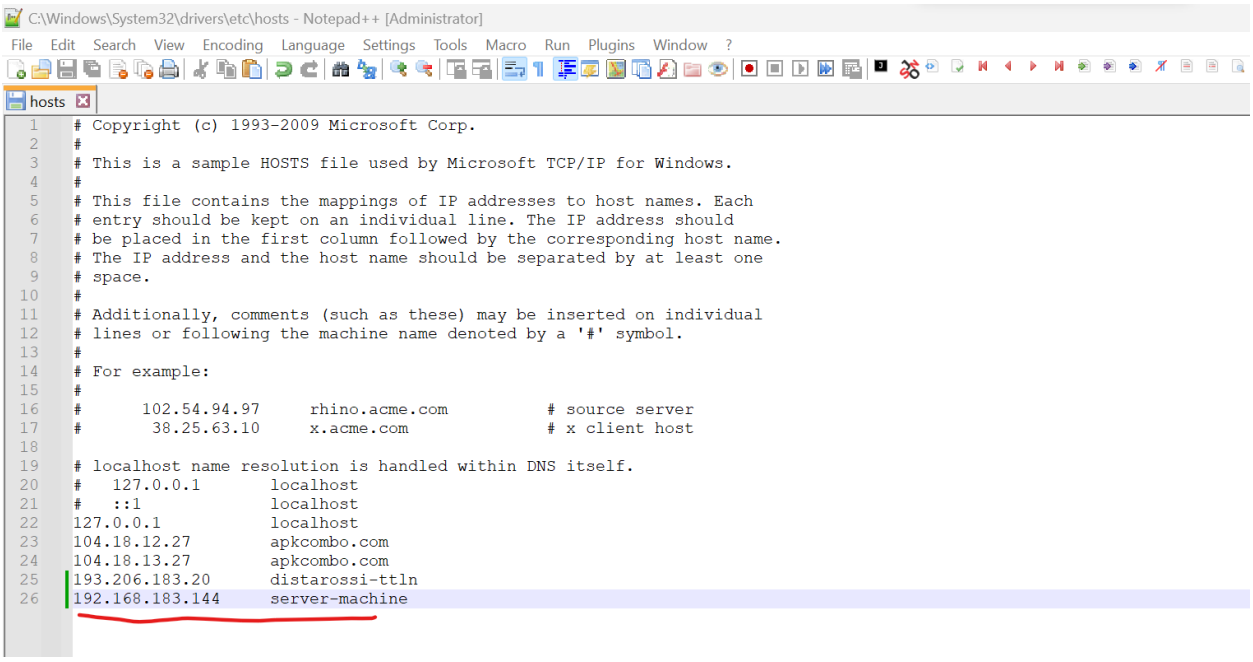
On the client

root@distarossi-ttln:~# telnet 192.168.183.144 9092

```
root@distarossi-ttln:~# telnet 192.168.183.144 9092
Trying 192.168.183.144...
Connected to 192.168.183.144.
Escape character is '^]'.
```

Note:

In some case, when you connect the kafka message queue from a Windows OS client, you should edit the host file (C:\Windows\System32\drivers\etc\hosts) if there is any connection error:



4 Install Running-Script Environment (on Server)

Check python version

server_machine:~# python3 --version

```
root@distarossi-ttln:~# python3 --version
Python 3.10.6
```

apt install python3-pip

server_machine:~# pip3 install mitmproxy

server_machine:~# pip3 show mitmproxy

```
root@distarossi-ttln:~# pip3 show mitmproxy
Name: mitmproxy
Version: 9.0.1
Summary: An interactive, SSL/TLS-capable intercepting proxy for HTTP/1, HTTP/2, and WebSockets.
Home-page: http://mitmproxy.org
Author: Aldo Cortesi
Author-email: aldo@corte.si
License: MIT
Location: /usr/local/lib/python3.10/dist-packages
Requires: asgiref, Brotli, certifi, cryptography, flask, h11, h2, hyperframe, kaitaistruct, ldap3, mitmproxy-wireguard, msgpack, passlib, protobuf, publicsuffix2, pyOpenSSL, pyp
arsing, pyperclip, ruamel.yaml, sortedcontainers, tornado, urwid, wsproto, zstandard
Required-by:
root@distarossi-ttln:~#
```

server_machine:~# pip3 install pillow

server_machine:~# pip3 show pillow

```
root@distarossi-ttln:~# pip3 show pillow
Name: Pillow
Version: 9.0.1
Summary: Python Imaging Library (Fork)
Home-page: https://python-pillow.org
Author: Alex Clark (PIL Fork Author)
Author-email: aclark@python-pillow.org
License: HPND
Location: /usr/lib/python3/dist-packages
Requires:
Required-by: droidbot, matplotlib
root@distarossi-ttln:~#
```

pip install confluent-kafka

```
root@mitm-proxy-1:~/metadata-gdpr-server-lam# pip install confluent-kafka
Collecting confluent-kafka
  Downloading confluent_kafka-2.2.0-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (4.0 MB)
     ---------------------------------------- 4.0/4.0 MB 36.5 MB/s eta 0:00:00
Installing collected packages: confluent-kafka
Successfully installed confluent-kafka-2.2.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with
nings/venv
root@mitm-proxy-1:~/metadata-gdpr-server-lam# pip show confluent-kafka
Name: confluent-kafka
Version: 2.2.0
Summary: Confluent's Python client for Apache Kafka
Home-page: https://github.com/confluentinc/confluent-kafka-python
Author: Confluent Inc
Author-email: support@confluent.io
License:
Location: /usr/local/lib/python3.10/dist-packages
Requires:
Required-by:
root@mitm-proxy-1:~/metadata-gdpr-server-lam#
```

pip install psutil

```
root@mitm-proxy-1:~/metadata-gdpr-server-lam# pip show psutil
Name: psutil
Version: 5.9.5
Summary: Cross-platform lib for process and system monitoring in Python.
Home-page: https://github.com/giampaolo/psutil
Author: Giampaolo Rodola
Author-email: g.rodola@gmail.com
License: BSD-3-Clause
Location: /usr/local/lib/python3.10/dist-packages
Requires:
Required-by:
root@mitm-proxy-1:~/metadata-gdpr-server-lam#
```