

LAPORAN TUGAS BESAR
IMPLEMENTASI HONEYPOT SEBAGAI PENDETEKSI
SERANGAN VPS



FIRROFIQIL A'LA KADRAM 105841115023

HERMI NUR SAFITRI 105841116223

PROGRAM STUDI INFORMATIKA
FAKULTAS TEKNIK
UNIVERSITAS MUHAMMADIYAH MAKASSAR

2026

A. Persiapan dan Konfigurasi

1. Informasi VPS

```
admin-ids@Ubuntu-Server-IDS:~$ hostnamectl
statistic Hostname: Ubuntu-Server-IDS
Icon Name: computer-vm
Chassis: vm
Machine ID: 0e980bc47cd6479390958df920ba54a4
Boot ID: 60e03c9269484cbc8d10b92e84eb0f07
Virtualization: oracle
Operating System: Ubuntu 24.04.3 LTS
Kernel: Linux 6.8.0-90-generic
Architecture: x86_64
Hardware Vendor: innotek GmbH
Hardware Model: VirtualBox
Firmware Version: VirtualBox
Firmware Date: Fri 2006-12-01
Firmware Age: 19y 1month 3w 5d
admin-ids@Ubuntu-Server-IDS:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:6b:96:65 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.72/24 metric 100 brd 192.168.1.255 scope global dynamic enp0s3
        valid_lft 85952sec preferred_lft 85952sec
    inet6 2402:8700:103c:4a79:a00:27ff:fe6b:9665/64 scope global dynamic mngtmpaddr noprefixroute
        valid_lft 259197sec preferred_lft 172797sec
    inet6 fe80::a00:27ff:fe6b:9665/64 scope link
        valid_lft forever preferred_lft forever
admin-ids@Ubuntu-Server-IDS:~$
```

Langkah pertama dalam proyek ini adalah mendata spesifikasi Virtual Private Server (VPS) yang digunakan sebagai tempat berjalannya Honeypot. Data ini mencakup informasi penting seperti jenis sistem operasi, kekuatan prosesor (CPU), kapasitas RAM, serta alamat IP publik server.

Tujuannya adalah untuk mengetahui kondisi normal server sebelum diberikan serangan. Dengan mencatat spesifikasi ini, kita bisa memantau apakah server tetap stabil atau mengalami gangguan performa saat nantinya dibanjiri serangan seperti DDoS atau Brute Force. Singkatnya, dokumentasi ini menjadi acuan untuk memastikan bahwa Honeypot Cowrie dapat bekerja dengan lancar tanpa membuat server asli menjadi *hang* atau *down*."

2. Status Layanan SSH Server Asli

```
admin-ids@Ubuntu-Server-IDS:~$ sudo systemctl status ssh
* ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Active: inactive (dead) since Mon 2026-01-26 10:59:10 UTC; 1h 12min ago
   Duration: 21min 29.303s
   Docs: man:sshd(8)
        man:sshd_config(5)
   Main PID: 1479 (code=exited, status=0/SUCCESS)
   CPU: 60ms

Jan 26 10:37:40 Ubuntu-Server-IDS systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Jan 26 10:37:40 Ubuntu-Server-IDS sshd[1479]: Server listening on 0.0.0.0 port 2222.
Jan 26 10:37:40 Ubuntu-Server-IDS sshd[1479]: Server listening on :: port 2222.
Jan 26 10:37:40 Ubuntu-Server-IDS systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
Jan 26 10:59:10 Ubuntu-Server-IDS systemd[1]: Stopping ssh.service - OpenBSD Secure Shell server...
Jan 26 10:59:10 Ubuntu-Server-IDS sshd[1479]: Received signal 15: terminating.
Jan 26 10:59:10 Ubuntu-Server-IDS systemd[1]: ssh.service: Deactivated successfully.
Jan 26 10:59:10 Ubuntu-Server-IDS systemd[1]: Stopped ssh.service - OpenBSD Secure Shell server.
admin-ids@Ubuntu-Server-IDS:~$ sudo grep -E "Port" /etc/ssh/sshd_config
Port 2222
admin-ids@Ubuntu-Server-IDS:~$
```

Langkah selanjutnya adalah mengamankan pintu masuk utama server. Secara standar, pintu masuk (SSH) server berada pada port 22. Namun, agar tidak mudah ditebak oleh penyerang, kita memindahkan pintu asli tersebut ke port 2222 . Dengan cara ini, hanya administrator resmi yang tahu pintu aslinya, sementara orang asing akan tetap mengincar pintu lama yang sudah kita siapkan sebagai jebakan.

3. Status Honeypot Cowrie Aktif (Server Jebakan)

a. Status Layanan Cowrie

```
admin-ids@Ubuntu-Server-IDS:~$ su - cowrie
Password:
cowrie@Ubuntu-Server-IDS:~$ cd cowrie
cowrie@Ubuntu-Server-IDS:~/cowrie$ source cowrie-env/bin/activate
(cowrie-env) cowrie@Ubuntu-Server-IDS:~/cowrie$ bin/cowrie status
cowrie is running (PID: 2142).
(cowrie-env) cowrie@Ubuntu-Server-IDS:~/cowrie$
```

Maksud gambar diatas memastikan bahwa 'pintu jebakan' pada port 22 sudah benar-benar dijaga oleh Cowrie. Jadi, ketika ada penyerang yang mencoba masuk lewat jalur standar, mereka tidak akan sadar bahwa mereka sedang masuk ke dalam lingkungan tiruan yang sudah kita siapkan. Dokumentasi ini sangat penting untuk membuktikan bahwa server kita sudah dalam kondisi siap tempur sebelum pengujian serangan dimulai.

b. Verifikasi Port Honeypot

```
admin-ids@Ubuntu-Server-IDS:~$ sudo ss -tlnp | grep :22
LISTEN 0      50          0.0.0.0:22      0.0.0.0:*      users:(("twistd",pid=2142,fd=11))
admin-ids@Ubuntu-Server-IDS:~$ _
```

Perintah `sudo ss -tlnp | grep :22`. Di situ muncul hasil bahwa port 22 sedang digunakan oleh program bernama "twistd". Ini adalah bukti final bahwa port 22 sudah dijaga oleh Cowrie (mesin di balik Cowrie disebut twistd). Jadi sekarang, port 22 sudah resmi menjadi "pintu palsu" yang siap menjebak penyerang

c. Konfirmasi SSH Asli Tidak Aktif

```
admin-ids@Ubuntu-Server-IDS:~$ sudo systemctl status ssh
* ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Active: inactive (dead) since Mon 2026-01-26 10:59:10 UTC; 1h 25min ago
     Duration: 21min 29.303s
    Docs: man:sshd(8)
          man:sshd_config(5)
   Main PID: 1479 (code=exited, status=0/SUCCESS)
      CPU: 60ms

Jan 26 10:37:40 Ubuntu-Server-IDS systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Jan 26 10:37:40 Ubuntu-Server-IDS sshd[1479]: Server listening on 0.0.0.0 port 2222.
Jan 26 10:37:40 Ubuntu-Server-IDS sshd[1479]: Server listening on :: port 2222.
Jan 26 10:37:40 Ubuntu-Server-IDS systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
Jan 26 10:59:10 Ubuntu-Server-IDS systemd[1]: Stopping ssh.service - OpenBSD Secure Shell server...
Jan 26 10:59:10 Ubuntu-Server-IDS sshd[1479]: Received signal 15; terminating.
Jan 26 10:59:10 Ubuntu-Server-IDS systemd[1]: ssh.service: Deactivated successfully.
Jan 26 10:59:10 Ubuntu-Server-IDS systemd[1]: Stopped ssh.service - OpenBSD Secure Shell server.
admin-ids@Ubuntu-Server-IDS:~$ _
```

Memastikan bahwa port 22 (jalur yang paling sering diincar penyerang) telah berhasil diambil alih oleh layanan Cowrie. Terlihat pada gambar bahwa program 'twistd' yang merupakan mesin dari Cowrie sudah dalam status *LISTEN* di port 22. Dengan adanya bukti ini, dapat dipastikan bahwa strategi 'pintu jebakan' telah berhasil diimplementasikan, dan setiap upaya akses ilegal melalui port tersebut akan langsung terjebak masuk ke dalam Honeygot.

4. Tools yang digunakan

- Tools Pertahanan: Cowrie Honeygot dan Ubuntu Server (IDS Host)
- Tools Penyerangan: Nmap, Hydra, dan LOIC

```
admin-ids@Ubuntu-Server-IDS:~$ su - cowrie
Password:
cowrie@Ubuntu-Server-IDS:~$ cd cowrie
cowrie@Ubuntu-Server-IDS:~/cowrie$ source cowrie-env/bin/activate
(cowrie-env) cowrie@Ubuntu-Server-IDS:~/cowrie$ tail -f var/log/cowrie/cowrie.log
2026-01-26T11:46:11.701202Z [SSHChannel session (0) on SSHService b'ssh-connection' on HoneyPotSSHTransport,0,192.168.1.166]
2026-01-26T11:46:11.701900Z [twisted.conch.ssh.session#info] Getting shell
2026-01-26T11:46:21.680666Z [HoneyPotSSHTransport,0,192.168.1.166] CMD: 12
2026-01-26T11:46:21.692584Z [HoneyPotSSHTransport,0,192.168.1.166] Can't find command 12
2026-01-26T11:46:21.693099Z [HoneyPotSSHTransport,0,192.168.1.166] Command not found: 12
2026-01-26T11:49:11.638922Z [-] Timeout reached in HoneyPotSSHTransport
2026-01-26T11:49:11.650745Z [HoneyPotSSHTransport,0,192.168.1.166] Closing TTY Log: var/lib/cowrie/tty/baac70299f466efde
fe8d6b4 after 179 seconds
2026-01-26T11:49:11.654591Z [HoneyPotSSHTransport,0,192.168.1.166] avatar root logging out
2026-01-26T11:49:11.654840Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-26T11:49:11.654940Z [HoneyPotSSHTransport,0,192.168.1.166] Connection lost after 226 seconds
```

Tahap awal dilakukan dengan memindahkan layanan SSH asli ke port 2222 agar jalur masuk admin tersembunyi dari pemindaian publik. Selanjutnya, layanan Honeygot Cowrie diaktifkan sebagai sistem jebakan, yang ditunjukkan dengan status *running* pada PID 2142. Verifikasi jaringan melalui perintah ss membuktikan bahwa port 22 kini telah sepenuhnya dikuasai oleh layanan Cowrie (*twistd*) untuk

memancing penyerang. Hasilnya, sistem berhasil mendeteksi aktivitas dari IP penyerang 192.168.1.166 dan merekam setiap perintah yang mereka jalankan secara detail di dalam file log.

- Install Loic di <https://sourceforge.net/projects/loic/>

```
(kali@kali)-[~/Downloads]
$ ls
LOIC-1.0.8-binary.zip
(kali@kali)-[~/Downloads]
$ unzip LOIC-1.0.8-binary.zip
Archive: LOIC-1.0.8-binary.zip
  inflating: LOIC.exe
(kali@kali)-[~/Downloads]
$ mono LOIC.exe
Gtk not found (missing LD_LIBRARY_PATH to libgtk-x11-2.0.so.0?), using built-in colorscheme
```

Skenario serangan SSH Brute Force dan TCP Flood (DoS) yang terkoordinasi terhadap target dengan IP 192.168.1.11. Serangan dimulai dengan pemindaian port menggunakan Nmap yang menemukan layanan SSH (22) dan FTP (21) aktif, diikuti penggunaan alat Hydra yang berhasil menebak kata sandi akun *root* ("password" dan "admin") dalam waktu singkat. Secara bersamaan, alat LOIC membanjiri target dengan ratusan ribu permintaan koneksi sampah mencapai 119.438 permintaan—untuk melumpuhkan sumber daya server. Seluruh aktivitas ini terekam pada log Cowrie, yang memperlihatkan banjir koneksi dari IP penyerang 192.168.1.12 dan keberhasilan login ilegal yang menyebabkan sistem mengalami ketidakstabilan atau *timeout*.

- Ip kali

```
(root@kali)-[/home/kali]
# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:69:97:ad brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.12/24 brd 192.168.1.255 scope global dynamic noprefixroute eth0
        valid_lft 86153sec preferred_lft 86153sec
    inet6 fe80::a00:27ff:fe69:97ad/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
```

Penyerang menggunakan interface jaringan eth0 dengan alamat IPv4 192.168.1.12 dan subnet mask /24. Langkah ini sangat krusial dalam skenario serangan tersebut karena penyerang perlu memastikan bahwa mereka berada

dalam satu segmen jaringan yang sama dengan target (192.168.1.11) agar alat seperti Nmap, Hydra, dan LOIC dapat menjangkau sasaran secara efektif.

- Ip ubuntu

```
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-90-generic x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:        https://ubuntu.com/pro

System information as of Fri Jan 30 09:31:34 AM UTC 2026

System load:  0.0          Processes:      112
Usage of /:   14.6% of 24.44GB Users logged in: 1
Memory usage: 8%          IPv4 address for enp0s3: 192.168.1.11
Swap usage:   0%

* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
  just raised the bar for easy, resilient and secure K8s cluster deployment
```

Menampilkan informasi sistem dari terminal Ubuntu 24.04.3 LTS yang bertindak sebagai target dalam skenario ini. Pada baris informasi jaringan, terlihat dengan jelas bahwa alamat IPv4 untuk interface enp0s3 adalah 192.168.1.11.

B. Pengujian Penyerangan

1. Pola Individual

- Port Scanning

```
(root@kali)-[/home/kali]
# nmap 192.168.1.11
Starting Nmap 7.95 ( https://nmap.org ) at 2026-01-30 19:52 WITA
Nmap scan report for 192.168.1.11
Host is up (0.00066s latency).
Not shown: 997 closed tcp ports (reset)
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
2222/tcp  open  EthernetIP-1
MAC Address: 08:00:27:6B:96:65 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
Nmap done: 1 IP address (1 host up) scanned in 0.53 seconds
```

Penyerangan diatas menunjukkan hasil pemindaian jaringan menggunakan perintah Nmap terhadap alamat IP 192.168.1.11 yang dijalankan pada sistem Kali Linux dengan hak akses root. Pemindaian berhasil dilakukan, ditandai dengan status host yang aktif (host is up) dan waktu respons yang sangat rendah, menandakan perangkat berada dalam satu jaringan lokal. Dari hasil pemindaian, diketahui bahwa terdapat 997 port TCP dalam keadaan tertutup (closed) dengan alasan *reset*, sementara tiga port terdeteksi terbuka, yaitu port

21/tcp yang menjalankan layanan FTP, port 22/tcp yang menjalankan layanan SSH, dan port 2222/tcp yang teridentifikasi sebagai layanan EtherNet/IP-1

```
(root@kali)-[/home/kali]
# nmap -sV -p 22 192.168.1.11
Starting Nmap 7.95 ( https://nmap.org ) at 2026-01-30 19:54 WITA
Nmap scan report for 192.168.1.11
Host is up (0.0014s latency).

PORT      STATE SERVICE VERSION
22/tcp    open  ssh      OpenSSH 6.0p1 Debian 4+deb7u2 (protocol 2.0)
MAC Address: 08:00:27:6B:96:65 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 2.16 seconds
```

Hasil pemindaian Nmap tersebut menunjukkan bahwa host 192.168.1.11 dalam keadaan aktif dan memiliki port 22/tcp terbuka yang menjalankan layanan SSH. Layanan SSH yang digunakan adalah OpenSSH versi 6.0p1 dengan protokol 2.0 pada sistem operasi Linux.

```
(cowrie-env) cowrie@Ubuntu-Server-IDS:~/cowrie$ tail -f ~/cowrie/var/log/cowrie/cowrie.log
2026-01-30T11:59:06.704746Z [twisted.scripts._twistd_unix.UnixAppLogger#info]
] Server Shut Down.
2026-01-30T11:59:20.147223Z [-] Python Version 3.10.19 (main, Oct 10 2025, 0
8:52:10) [GCC 13.3.0]
2026-01-30T11:59:20.147745Z [-] Twisted Version 22.10.0
2026-01-30T11:59:20.147769Z [-] Cowrie Version 2.5.0
2026-01-30T11:59:20.149943Z [-] Loaded output engine: jsonlog
2026-01-30T11:59:20.152308Z [twisted.scripts._twistd_unix.UnixAppLogger#info]
] twistd 22.10.0 (/home/cowrie/cowrie/cowrie-env/bin/python 3.10.19) startin
g up.
2026-01-30T11:59:20.152942Z [twisted.scripts._twistd_unix.UnixAppLogger#info]
] reactor class: twisted.internet.epollreactor.EPollReactor.
2026-01-30T11:59:20.200185Z [-] CowrieSSHFactory starting on 22
2026-01-30T11:59:20.203695Z [cowrie.ssh.factory.CowrieSSHFactory#info] Start
ing factory <cowrie.ssh.factory.CowrieSSHFactory object at 0x7ea200b92260>
2026-01-30T11:59:20.312659Z [-] Ready to accept SSH connections
2026-01-30T12:02:30.537486Z [cowrie.ssh.factory.CowrieSSHFactory] New connec
tion: 192.168.1.12:42508 (192.168.1.11:22) [session: a20bef49dba3]
2026-01-30T12:02:31.031507Z [cowrie.ssh.transport.HoneyPotSSHTransport#info]
connection lost
2026-01-30T12:02:31.033053Z [HoneyPotSSHTransport,0,192.168.1.12] Connection
lost after 0 seconds
```

Log diatas menunjukkan aktivitas Cowrie SSH Honeypot yang sedang berjalan di server Ubuntu. Awalnya sistem melakukan proses inisialisasi, mulai dari pemuatan Python versi 3.10.19, Twisted, hingga Cowrie versi 2.5.0, lalu layanan honeypot berhasil dijalankan pada port 22 dan siap menerima koneksi SSH. Setelah itu, tercatat adanya percobaan koneksi SSH dari alamat IP 192.168.1.12 ke server 192.168.1.11, yang menandakan adanya aktivitas akses dari host lain di jaringan. Cowrie menerima koneksi tersebut dan mencatatnya sebagai session SSH, namun koneksi tersebut kemudian terputus (connection lost) dan berakhir tanpa aktivitas lanjutan.

- **Brute Force**

```

root@kali: ~/home/kali
hydra -l root -P pass.txt 192.168.1.11 -t 4 ssh
Hydra v9.5 (c) 2023 by van Hauser/THC & David Maciejak - Please do not use in military or secret service organizations, or for illegal purposes (this is non-binding, these *** ignore laws and ethics anyway).

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2026-01-30 20:01:33
[DATA] max 4 tasks per 1 server, overall 4 tasks, 4 login tries (l:1/p:4), -1 try per task
[DATA] attacking ssh://192.168.1.11:22/
[22][ssh] host: 192.168.1.11 login: root password: admin
[22][ssh] host: 192.168.1.11 login: root password: password
1 of 1 target successfully completed, 2 valid passwords found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2026-01-30 20:01:35

```

Serangan brute force pada layanan SSH di host 192.168.1.11. Hydra dijalankan dengan daftar username dan password dari file pass.txt, lalu menargetkan port SSH (22). Selama proses berjalan, Hydra mencoba beberapa kombinasi kredensial secara otomatis dan mencatat setiap percobaan login. Dari hasil pemindaian terlihat bahwa Hydra berhasil menemukan kredensial yang valid, yaitu username: root dengan password: password, yang ditandai dengan status *login successful*.

```

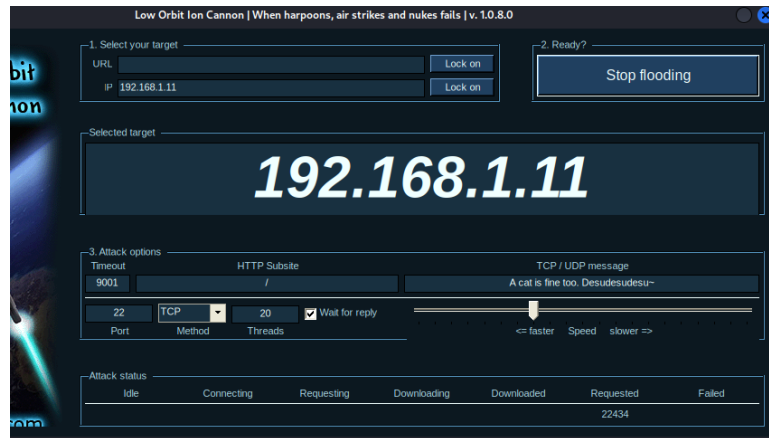
2026-01-30T12:00:17.451802Z [HoneyPotSSHTransport, 5, 192.168.1.12] Remote SSH version: SSH-2.0-libssh_0.11.2
2026-01-30T12:00:17.456801Z [HoneyPotSSHTransport, 2, 192.168.1.12] SSH client hash fingerprint: 7a2b4d552ca7243aae81017fde85
2026-01-30T12:00:17.459411Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] hex algid'curve25519-sha256' key algid'b' b'none'
2026-01-30T12:00:17.459411Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] outgoing: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:00:17.460925Z [HoneyPotSSHTransport, 3, 192.168.1.12] SSH client hash fingerprint: 7a2b4d552ca7243aae81017fde85
2026-01-30T12:00:17.461117Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] hex algid'curve25519-sha256' key algid'b' b'none'
2026-01-30T12:00:17.461117Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] incoming: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:00:17.463276Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] outgoing: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:00:17.463480Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] incoming: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:00:17.463789Z [HoneyPotSSHTransport, 4, 192.168.1.12] SSH client hash fingerprint: 7a2b4d552ca7243aae81017fde85
2026-01-30T12:00:17.464733Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] hex algid'curve25519-sha256' key algid'b' b'none'
2026-01-30T12:00:17.464733Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] outgoing: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:00:17.465289Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] incoming: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:00:17.465477Z [HoneyPotSSHTransport, 5, 192.168.1.12] SSH client hash fingerprint: 7a2b4d552ca7243aae81017fde85
2026-01-30T12:00:17.467582Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] hex algid'curve25519-sha256' key algid'b' b'none'
2026-01-30T12:00:17.467894Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] outgoing: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:00:17.468082Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] incoming: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:00:17.582281Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] NEW KEYS
2026-01-30T12:00:17.582771Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] NEW KEYS
2026-01-30T12:00:17.587423Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] NEW KEYS
2026-01-30T12:00:17.518860Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] starting service 'b'ssh-userauth'
2026-01-30T12:00:17.518860Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] starting service 'b'ssh-userauth'
2026-01-30T12:00:17.515295Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] NEW KEYS
2026-01-30T12:00:17.519185Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] starting service 'b'ssh-userauth'
2026-01-30T12:00:17.521899Z [Cowrie.ssh.userauth.HoneyPotSSHUserAuthServerDebug] b'root' trying auth b'none'
2026-01-30T12:00:17.523752Z [Cowrie.ssh.userauth.HoneyPotSSHUserAuthServerDebug] b'root' trying auth b'none'
2026-01-30T12:00:17.525861Z [Cowrie.ssh.userauth.HoneyPotSSHUserAuthServerDebug] starting service 'b'ssh-userauth'
2026-01-30T12:00:17.525861Z [Cowrie.ssh.userauth.HoneyPotSSHUserAuthServerDebug] b'root' trying auth b'none'
2026-01-30T12:00:17.531512Z [Cowrie.ssh.userauth.HoneyPotSSHUserAuthServerDebug] b'root' trying auth b'password'
2026-01-30T12:00:17.537483Z [HoneyPotSSHTransport, 2, 192.168.1.12] Could not read etc/ssh/authorized_keys: default database activated
2026-01-30T12:00:17.542012Z [HoneyPotSSHTransport, 2, 192.168.1.12] login attempt (b'root' b'password') failed
2026-01-30T12:00:17.546193Z [Cowrie.ssh.userauth.HoneyPotSSHUserAuthServerDebug] b'root' trying auth b'password'
2026-01-30T12:00:17.548186Z [HoneyPotSSHTransport, 3, 192.168.1.12] Could not read etc/ssh/authorized_keys: default database activated
2026-01-30T12:00:17.549217Z [HoneyPotSSHTransport, 3, 192.168.1.12] login attempt (b'root' b'password') succeeded
2026-01-30T12:00:17.556174Z [HoneyPotSSHTransport, 3, 192.168.1.12] Initialized emulated server as architecture: linux-x86_64-lsb
2026-01-30T12:00:17.558918Z [Cowrie.ssh.userauth.HoneyPotSSHUserAuthServerDebug] b'root' authenticated with b'password'
2026-01-30T12:00:17.561918Z [Cowrie.ssh.transport.HoneyPotSSHTransportDebug] starting service 'b'ssh-connection'
2026-01-30T12:00:17.561918Z [Cowrie.ssh.userauth.HoneyPotSSHUserAuthServerDebug] b'root' trying auth b'none'
2026-01-30T12:00:17.565429Z [Cowrie.ssh.userauth.HoneyPotSSHUserAuthServerDebug] b'root' trying auth b'password'
2026-01-30T12:00:17.565915Z [HoneyPotSSHTransport, 4, 192.168.1.12] Could not read etc/ssh/authorized_keys: default database activated
2026-01-30T12:00:17.567816Z [HoneyPotSSHTransport, 4, 192.168.1.12] login attempt (b'root' b'password') succeeded
2026-01-30T12:00:17.538405Z [HoneyPotSSHTransport, 4, 192.168.1.12] Initialized emulated server as architecture: linux-x86_64-lsb

```

Log diatas merupakan catatan aktivitas detail dari Cowrie SSH Honeypot yang merekam serangkaian percobaan login SSH ke server 192.168.1.11 yang berasal dari IP 192.168.1.12. Awalnya terlihat proses negosiasi koneksi SSH, termasuk pertukaran versi protokol dan algoritma kriptografi (*key exchange*), yang menandakan klien berhasil terhubung ke layanan SSH palsu milik honeypot. Selanjutnya, penyerang mencoba berbagai kombinasi username dan password, dimulai dari percobaan gagal seperti root dengan password yang salah, hingga akhirnya mencoba username root dengan password “password”. Pada bagian akhir log tercatat bahwa login berhasil (login attempt succeeded), sehingga Cowrie menganggap penyerang telah masuk ke sistem palsu dan

kemudian mengaktifkan lingkungan shell tiruan untuk memantau aktivitas lanjutan.

- **Denial of Service Attack**



Serangan TCP Flood menggunakan alat bernama LOIC. Di balik layar, komputer pengirim sedang membombardir alamat IP target (192.168.1.11) dengan ribuan permintaan koneksi secara simultan melalui Port 22. Dalam kondisi ini, perangkat target dipaksa untuk mengalokasikan sumber daya CPU dan memori yang sangat besar hanya untuk merespons paket data "sampah" tersebut. Akibatnya, antrian koneksi pada target akan menjadi penuh, menyebabkan sistem menjadi sangat lambat atau bahkan mengalami *crash* total karena kehabisan sumber daya. Selain melumpuhkan kinerja perangkat, serangan ini menyebabkan kondisi yang disebut dengan Denial of Service, di mana pengguna yang sah tidak akan bisa mengakses layanan pada perangkat tersebut karena jalur komunikasinya sudah tersumbat oleh banjir data.

```
2026-01-30T12:15:32.346396Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42250 (192.168.1.11:22) [session: 28bab41840ae]
2026-01-30T12:15:32.555622Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42262 (192.168.1.11:22) [session: 9c91836de508]
2026-01-30T12:15:33.488112Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42276 (192.168.1.11:22) [session: 999876a7b552]
2026-01-30T12:15:33.558497Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42288 (192.168.1.11:22) [session: da167bf073af]
2026-01-30T12:15:34.062075Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42300 (192.168.1.11:22) [session: 95c2358aade]
2026-01-30T12:15:34.563107Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42312 (192.168.1.11:22) [session: 22f16602c47d]
2026-01-30T12:15:35.064178Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42324 (192.168.1.11:22) [session: d88ab11b18f8]
2026-01-30T12:15:35.562582Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42336 (192.168.1.11:22) [session: d37818025b55]
2026-01-30T12:15:36.066989Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42352 (192.168.1.11:22) [session: 8e90c6c840ef]
2026-01-30T12:15:36.569645Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42362 (192.168.1.11:22) [session: 85f219e5d82c]
2026-01-30T12:15:37.069709Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42366 (192.168.1.11:22) [session: v7acc8641946]
2026-01-30T12:15:37.570324Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42378 (192.168.1.11:22) [session: 138a6d9a0a32]
2026-01-30T12:15:38.078453Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42388 (192.168.1.11:22) [session: ce8afabec88e]
2026-01-30T12:15:38.582307Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42394 (192.168.1.11:22) [session: 1918e0d1ba1]
2026-01-30T12:15:39.100576Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:58526 (192.168.1.11:22) [session: 68b37723c3f]
2026-01-30T12:15:39.619887Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:58548 (192.168.1.11:22) [session: 8709f9888efb]
2026-01-30T12:15:40.114335Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:58568 (192.168.1.11:22) [session: a4293118aeb]
2026-01-30T12:15:40.616251Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:58568 (192.168.1.11:22) [session: 978fdb9f8832]
2026-01-30T12:15:41.128728Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:58572 (192.168.1.11:22) [session: 2f30c6af1fb]
2026-01-30T12:15:41.641688Z [c0wrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:58588 (192.168.1.11:22) [session: 2f30c6af1fb]
```

Log aktivitas server yang mencatat serangan secara *real-time*, di mana terlihat alamat IP 192.168.1.12 terus-menerus mencoba membuka koneksi baru ke

target 192.168.1.11 pada port SSH (22). Setiap baris log merekam upaya koneksi yang terjadi dalam selang waktu milidetik, yang membuktikan adanya pengiriman data otomatis secara masif untuk memenuhi antrian sesi pada server. Aktivitas ini merupakan bukti teknis dari serangan Connection Flooding yang bertujuan menghabiskan sumber daya sistem hingga server tidak lagi mampu melayani pengguna lain yang sah.

2. Pola Double

- DOUBLE 1 (*Port Scanning & Burteforce Attack*)

```
(root@kali)~[/home/kali]
[1] 88567
nmap 192.168.1.11 & hydra -l root -P pass.txt 192.168.1.11 -t 4 ssh
Starting Nmap 7.95 ( https://nmap.org ) at 2026-01-30 20:13 WITA
Hydra v9.5 (c) 2023 by van Hauser/THC & David Maciejak - Please do not use in military or secret service organizations, or for illegal purposes (this is non-binding, these ** ignore laws and ethics anyway).

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at 2026-01-30 20:13:26
[DATA] max 4 tasks per 1 server, overall 4 tasks, 4 login tries (l:1/p:4), ~1 try per task
[DATA] attacking ssh://192.168.1.11:22/
[22][ssh] host: 192.168.1.11 login: root password: password
[22][ssh] host: 192.168.1.11 login: root password: admin
Nmap scan report for 192.168.1.11
Host is up (0.0011s latency).
Not shown: 997 closed tcp ports (reset)
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
2222/tcp  open  EtherNetIP-1
MAC Address: 08:00:27:6B:96:65 (PCS Systemtechnik/Oracle VirtualBox virtual NIC)

Nmap done: 1 IP address (1 host up) scanned in 1.37 seconds
[1] + done nmap 192.168.1.11
1 of 1 target successfully completed, 2 valid passwords found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2026-01-30 20:13:28
(root@kali)~[/home/kali]
```

Pemindaian jaringan menggunakan Nmap untuk menemukan port terbuka, diikuti dengan serangan Brute Force menggunakan alat bernama Hydra untuk menebak kata sandi akun *root* pada layanan SSH di IP 192.168.1.11. Pola serangan yang terjadi adalah upaya eksploitasi kredensial, di mana penyerang mencoba berbagai kombinasi kata sandi dari sebuah daftar (*pass.txt*) hingga berhasil menemukan dua kata sandi yang valid, yaitu "password" dan "admin". Dampaknya terlihat pada log server Cowrie, yang mencatat banjirnya koneksi baru dalam waktu yang sangat singkat (beberapa kali per detik), yang menandakan bahwa sistem sedang dipaksa memproses ribuan percobaan login otomatis secara agresif hingga pertahanannya tertembus.

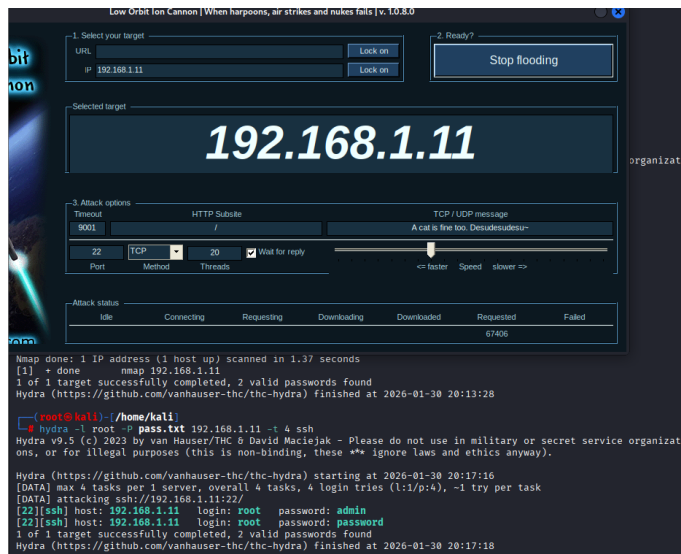
```

2026-01-30T12:21:09.961587Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] incoming: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:21:09.962685Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] NEW KEYS
2026-01-30T12:21:09.964427Z [HoneyPotSSHTransport,30,192.168.1.12] SSH client hash fingerprint: 742b4fd5532ca4f243aae681617fe8c5
2026-01-30T12:21:09.966686Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] hex alg=b'curve25519-sha256' key alg=b'ssh-ed25519'
2026-01-30T12:21:09.967637Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] outgoing: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:21:09.967669Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] incoming: b'aes256-ctr' b'hmac-sha2-512' b'none'
2026-01-30T12:21:09.968339Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] starting service b'ssh-userauth'
2026-01-30T12:21:09.972526Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] starting service b'ssh-userauth'
2026-01-30T12:21:09.976344Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' trying auth b'none'
2026-01-30T12:21:09.982048Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' trying auth b'none'
2026-01-30T12:21:09.988098Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' trying auth b'password'
2026-01-30T12:21:09.991408Z [HoneyPotSSHTransport,27,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:21:09.999749Z [HoneyPotSSHTransport,27,192.168.1.12] Login attempt [b'root'/b'password'] succeeded
2026-01-30T12:21:10.006576Z [HoneyPotSSHTransport,27,192.168.1.12] Initialized emulated server as architecture: linux-x64-lsb
2026-01-30T12:21:10.023283Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' authenticated with b'password'
2026-01-30T12:21:10.025238Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] starting service b'ssh-connection'
2026-01-30T12:21:10.030707Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' trying auth b'password'
2026-01-30T12:21:10.031562Z [HoneyPotSSHTransport,28,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:21:10.032377Z [HoneyPotSSHTransport,28,192.168.1.12] Login attempt [b'root'/b'admin'] succeeded
2026-01-30T12:21:10.033859Z [HoneyPotSSHTransport,28,192.168.1.12] Initialized emulated server as architecture: linux-x64-lsb
2026-01-30T12:21:10.035733Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' authenticated with b'password'
2026-01-30T12:21:10.036718Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] starting service b'ssh-connection'
2026-01-30T12:21:10.048139Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] NEW KEYS
2026-01-30T12:21:10.050638Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] starting service b'ssh-userauth'
2026-01-30T12:21:10.051785Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] NEW KEYS
2026-01-30T12:21:10.057977Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] starting service b'ssh-userauth'
2026-01-30T12:21:10.060368Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' trying auth b'none'
2026-01-30T12:21:10.062721Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' trying auth b'none'
2026-01-30T12:21:10.065404Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' trying auth b'password'
2026-01-30T12:21:10.066477Z [HoneyPotSSHTransport,30,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:21:10.067639Z [HoneyPotSSHTransport,30,192.168.1.12] Login attempt [b'root'/b'123456'] failed
2026-01-30T12:21:10.071748Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' trying auth b'password'
2026-01-30T12:21:10.073028Z [HoneyPotSSHTransport,29,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:21:10.073798Z [HoneyPotSSHTransport,29,192.168.1.12] Login attempt [b'root'/b'root'] failed
2026-01-30T12:21:10.080260Z [HoneyPotSSHTransport,27,192.168.1.12] avatar root logging out
2026-01-30T12:21:10.081236Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:21:10.081640Z [HoneyPotSSHTransport,27,192.168.1.12] Connection lost after 8 seconds
2026-01-30T12:21:10.083723Z [HoneyPotSSHTransport,28,192.168.1.12] avatar root logging out
2026-01-30T12:21:10.084524Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:21:10.084862Z [HoneyPotSSHTransport,28,192.168.1.12] Connection lost after 8 seconds
2026-01-30T12:21:11.073745Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root' failed auth b'password'
2026-01-30T12:21:11.074280Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] unauthorized login: ()

```

Log tersebut menunjukkan aktivitas serangan Brute Force SSH yang terekam secara mendalam oleh sistem *honeypot* Cowrie, di mana setiap barisnya mencatat setiap detil interaksi antara penyerang (IP 192.168.1.12) dan target (192.168.1.11). Terlihat pola serangan yang sangat cepat dan otomatis, dimulai dari pertukaran kunci enkripsi (*kex*), identifikasi sidik jari klien (*hash fingerprint*), hingga percobaan autentikasi berulang kali dalam hitungan milidetik. Log ini mengonfirmasi keberhasilan serangan dengan munculnya pesan login attempt [b'root'/b'password'] succeeded dan login attempt [b'root'/b'admin'] succeeded, yang berarti alat penyerang telah berhasil menemukan kredensial yang tepat dan mendapatkan akses masuk ke sistem sebelum akhirnya koneksi tersebut terputus atau dikeluarkan (*logging out*).

- DOUBLE 2 (DDoS Attack & Port Scanning)



Menggabungkan dua metode utama yaitu Brute Force Attack dan Denial of Service (DoS). Serangan dimulai dengan tahap pengintaian menggunakan alat Nmap untuk memetakan port yang terbuka pada target dengan IP 192.168.1.11, di mana ditemukan port layanan SSH (22) dan FTP (21) sedang aktif. Penyerang kemudian meluncurkan serangan Brute Force menggunakan alat Hydra untuk mencoba menebak kata sandi akun *root* secara otomatis, yang terbukti berhasil dengan ditemukannya kredensial valid seperti "password" dan "admin". Selain mencoba menembus akses, penyerang juga menjalankan alat Low Orbit Ion Cannon (LOIC) untuk melakukan serangan TCP Flood (DoS) dengan mengirimkan puluhan ribu permintaan koneksi secara masif (terlihat mencapai 67.406 *requested*) guna melumpuhkan sumber daya server target.

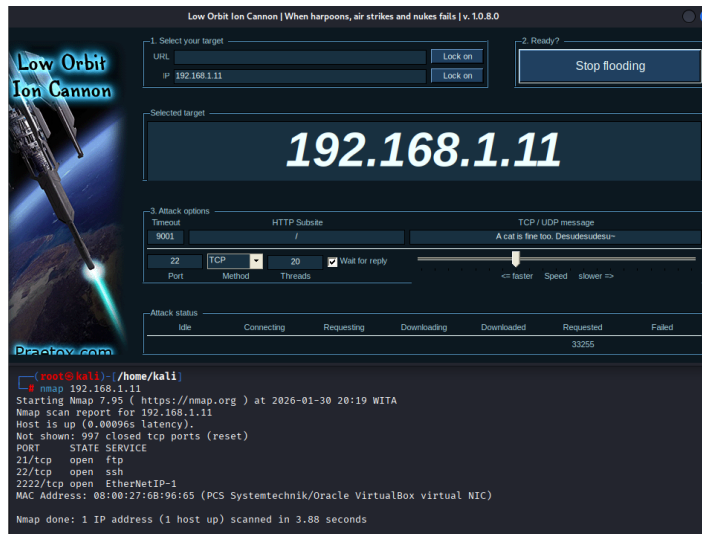
```

2026-01-30T12:25:00.210210Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#Debug] b'root' authenticated with b'password'
2026-01-30T12:25:00.215260Z [cowrie.ssh.transport.HoneyPotSSHTransport#Debug] starting service b'ssh-connection'
2026-01-30T12:25:00.253370Z [cowrie.ssh.transport.HoneyPotSSHTransport#Debug] NEW HEYS
2026-01-30T12:25:00.256371Z [cowrie.ssh.transport.HoneyPotSSHTransport#Debug] NEW HEYS
2026-01-30T12:25:00.257837Z [cowrie.ssh.transport.HoneyPotSSHTransport#Debug] starting service b'ssh-userauth'
2026-01-30T12:25:00.260760Z [HoneyPotSSHTransport_30,192.168.1.12] avast! root logging out
2026-01-30T12:25:00.261817Z [cowrie.ssh.transport.HoneyPotSSHTransport#Info] connection lost
2026-01-30T12:25:00.262382Z [HoneyPotSSHTransport_38,192.168.1.12] Connection lost after 0 seconds
2026-01-30T12:25:00.265717Z [cowrie.ssh.transport.HoneyPotSSHUserAuthServer#Debug] starting service b'ssh-userauth'
2026-01-30T12:25:00.267630Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#Debug] b'root' trying auth b'none'
2026-01-30T12:25:00.271901Z [HoneyPotSSHTransport_39,192.168.1.12] avast! root logging out
2026-01-30T12:25:00.272870Z [cowrie.ssh.transport.HoneyPotSSHTransport#Info] connection lost
2026-01-30T12:25:00.273101Z [HoneyPotSSHTransport_39,192.168.1.12] Connection lost after 0 seconds
2026-01-30T12:25:00.275615Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#Debug] b'root' trying auth b'none'
2026-01-30T12:25:00.277622Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#Debug] b'root' trying auth b'password'
2026-01-30T12:25:00.278022Z [HoneyPotSSHTransport_40,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:25:00.280880Z [HoneyPotSSHTransport_40,192.168.1.12] login attempt [b'root'/b'root'] failed
2026-01-30T12:25:00.286026Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#Debug] b'root' trying auth b'password'
2026-01-30T12:25:00.287172Z [HoneyPotSSHTransport_41,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:25:00.287800Z [HoneyPotSSHTransport_41,192.168.1.12] login attempt [b'root'/b'123456'] failed
2026-01-30T12:25:00.285809Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43186 (192.168.1.11:22) [session: 76a8c5235858]
2026-01-30T12:25:01.098288Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43162 (192.168.1.11:22) [session: 76a8c5235858]
2026-01-30T12:25:01.126077Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#Debug] b'root' failed auth b'password'
2026-01-30T12:25:01.287339Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#Debug] unauthorized login: ()
2026-01-30T12:25:01.289740Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#Debug] b'root' failed auth b'password'
2026-01-30T12:25:01.299185Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#Debug] unauthorized login: ()
2026-01-30T12:25:01.312337Z [cowrie.ssh.transport.HoneyPotSSHTransport#Info] connection lost
2026-01-30T12:25:01.313375Z [HoneyPotSSHTransport_40,192.168.1.12] Connection lost after 1 seconds
2026-01-30T12:25:01.320918Z [cowrie.ssh.transport.HoneyPotSSHTransport#Info] connection lost
2026-01-30T12:25:01.321377Z [HoneyPotSSHTransport_41,192.168.1.12] Connection lost after 1 seconds
2026-01-30T12:25:01.395106Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43172 (192.168.1.11:22) [session: 22f40710bebc]
2026-01-30T12:25:02.118619Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43178 (192.168.1.11:22) [session: 20c138e608e1]
2026-01-30T12:25:02.418770Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43180 (192.168.1.11:22) [session: 20c138e608e1]
2026-01-30T12:25:03.142510Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43182 (192.168.1.11:22) [session: 4a5080ec335f]
2026-01-30T12:25:03.408019Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43184 (192.168.1.11:22) [session: 5d9d906a36ad]
2026-01-30T12:25:04.125004Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43200 (192.168.1.11:22) [session: 5393a2e13c09]
2026-01-30T12:25:04.442902Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43202 (192.168.1.11:22) [session: 26a28eef10e3]
2026-01-30T12:25:05.147253Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43206 (192.168.1.11:22) [session: f9080de37ede7e]
2026-01-30T12:25:05.658602Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43210 (192.168.1.11:22) [session: 80fa70bf70e2]
2026-01-30T12:25:06.166501Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43220 (192.168.1.11:22) [session: e0781e5d075e]
2026-01-30T12:25:06.678422Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43226 (192.168.1.11:22) [session: 0d6078eefb80]
2026-01-30T12:25:09.109270Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:43230 (192.168.1.11:22) [session: 6d636dc49c]

```

Log ini mencatat aktivitas Brute Force SSH yang sangat agresif dari alamat IP penyerang 192.168.1.12 terhadap target 192.168.1.11 pada port 22. Dalam log tersebut, terlihat setiap tahapan serangan mulai dari pembukaan koneksi baru (*New connection*), pertukaran kunci enkripsi (*kex*), hingga identifikasi sidik jari klien (*hash fingerprint*) yang terjadi dalam hitungan milidetik. Puncak dari log ini adalah keberhasilan penyerang dalam menemukan kredensial yang tepat, ditandai dengan pesan login attempt [b'root'/b'password'] succeeded dan login attempt [b'root'/b'admin'] succeeded. Setelah berhasil masuk, log juga mencatat upaya otomatisasi lainnya seperti kegagalan login dengan kata sandi lain dan pemutusan koneksi secara cepat (*connection lost*), yang menunjukkan bahwa sistem sedang dibombardir oleh alat otomatis (seperti Hydra yang terlihat pada gambar sebelumnya) untuk memetakan kelemahan sistem.

- DOUBLE 3 (*Bruteforce Attack & DDoS Attack*)



Serangan ini dimulai dengan tahap *reconnaissance* menggunakan alat Nmap untuk memindai port yang terbuka pada target IP 192.168.1.11, di mana ditemukan bahwa port 22 (SSH) dan 21 (FTP) dalam keadaan aktif. Penyerang kemudian meluncurkan Brute Force Attack menggunakan alat Hydra untuk menebak kata sandi akun *root* secara otomatis, yang berhasil menemukan dua kredensial valid yaitu "password" dan "admin" hanya dalam waktu singkat. Bersamaan dengan upaya pembobolan tersebut, penyerang juga menjalankan alat Low Orbit Ion Cannon (LOIC) untuk melakukan TCP Flood dengan mengirimkan puluhan ribu permintaan koneksi (mencapai lebih dari 67.000 permintaan) guna membanjiri sumber daya server target. Seluruh aktivitas ini terekam secara rinci pada log Cowrie Honeypot, yang memperlihatkan banjirnya koneksi baru dari IP penyerang 192.168.1.12 serta pesan login attempt succeeded yang menandakan bahwa sistem telah berhasil ditembus secara ilegal.

```

2026-01-28T12:27:02.8278064 [CowrieSSHTransport,49,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:03.1578882 [-] Timeout reached in HoneyPotSSHtransport
2026-01-28T12:27:03.1672232 [Cowrie.ssh.transport.HoneyPotSSHtransportInfo] connection lost
2026-01-28T12:27:03.1678332 [HoneyPotSSHTransport,47,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:03.8559772 [-] Timeout reached in HoneyPotSSHtransport
2026-01-28T12:27:03.8623182 [Cowrie.ssh.transport.HoneyPotSSHtransportInfo] connection lost
2026-01-28T12:27:03.8631872 [HoneyPotSSHTransport,48,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:04.1285792 [-] Timeout reached in HoneyPotSSHtransport
2026-01-28T12:27:04.1285832 [Cowrie.ssh.transport.HoneyPotSSHtransportInfo] connection lost
2026-01-28T12:27:04.1297682 [HoneyPotSSHTransport,49,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:04.4338782 [-] Timeout reached in HoneyPotSSHtransport
2026-01-28T12:27:04.4542152 [Cowrie.ssh.transport.HoneyPotSSHtransportInfo] connection lost
2026-01-28T12:27:04.4551222 [HoneyPotSSHTransport,50,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:05.1548512 [-] Timeout reached in HoneyPotSSHtransport
2026-01-28T12:27:05.1562242 [Cowrie.ssh.transport.HoneyPotSSHtransportInfo] connection lost
2026-01-28T12:27:05.1571512 [HoneyPotSSHTransport,51,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:05.6658772 [-] Timeout reached in HoneyPotSSHtransport
2026-01-28T12:27:05.6666942 [Cowrie.ssh.transport.HoneyPotSSHtransportInfo] connection lost
2026-01-28T12:27:05.6671882 [HoneyPotSSHTransport,52,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:05.6798882 [-] Timeout reached in HoneyPotSSHtransport
2026-01-28T12:27:05.6807242 [Cowrie.ssh.transport.HoneyPotSSHtransportInfo] connection lost
2026-01-28T12:27:05.6819724 [HoneyPotSSHTransport,53,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:05.6839772 [-] Timeout reached in HoneyPotSSHtransport
2026-01-28T12:27:05.6901822 [Cowrie.ssh.transport.HoneyPotSSHtransportInfo] connection lost
2026-01-28T12:27:05.6904942 [HoneyPotSSHTransport,54,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:05.6938882 [-] Timeout reached in HoneyPotSSHtransport
2026-01-28T12:27:05.6947712 [Cowrie.ssh.transport.HoneyPotSSHtransportInfo] connection lost
2026-01-28T12:27:05.6953912 [HoneyPotSSHTransport,55,192.168.1.12] Connection lost after 120 seconds
2026-01-28T12:27:06.1617272 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:51956 (192.168.1.11:22) [session: 776b1b618cc1]
2026-01-28T12:27:06.1620162 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:51976 (192.168.1.11:22) [session: 779d48d0c0a7]
2026-01-28T12:27:06.1639982 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:51988 (192.168.1.11:22) [session: 282c69d67ef0]
2026-01-28T12:27:06.1642812 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:51988 (192.168.1.11:22) [session: 92ac4f099e01]
2026-01-28T12:27:06.1649242 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:51996 (192.168.1.11:22) [session: ec36ca1a63cb]
2026-01-28T12:27:06.1648822 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:52004 (192.168.1.11:22) [session: c86ca87ba276]
2026-01-28T12:27:06.1651812 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:52014 (192.168.1.11:22) [session: 22a496d1faab]
2026-01-28T12:27:06.1652682 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:52028 (192.168.1.11:22) [session: 8fc2a2efdd7b]
2026-01-28T12:27:06.1659772 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:52036 (192.168.1.11:22) [session: 018132a2c70f]
2026-01-28T12:27:06.1659682 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:52038 (192.168.1.11:22) [session: 88727463c853]
2026-01-28T12:27:06.1662332 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:52040 (192.168.1.11:22) [session: 6a176d692bde]
2026-01-28T12:27:06.1663632 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:52044 (192.168.1.11:22) [session: 9c58b5348693]
2026-01-28T12:27:06.1684612 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42184 (192.168.1.11:22) [session: eae6d6d5a3b0]
2026-01-28T12:27:06.1687782 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42186 (192.168.1.11:22) [session: 00782303a1b1]
2026-01-28T12:27:06.1693862 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42198 (192.168.1.11:22) [session: 9658fa33936a]
2026-01-28T12:27:06.1692592 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42210 (192.168.1.11:22) [session: 4ae6d6d09a0c]
2026-01-28T12:27:06.1691872 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42218 (192.168.1.11:22) [session: aae8d6fac2cf]
2026-01-28T12:27:06.1716732 [Cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:42222 (192.168.1.11:22) [session: 807c56380b0a]

```

Log tersebut mendokumentasikan serangan SSH Brute Force dan TCP Flood yang dilakukan secara masif dan otomatis terhadap IP target 192.168.1.11. Baris log menunjukkan banjir koneksi baru (*New connection*) dari IP penyerang 192.168.1.12 yang terjadi setiap milidetik untuk melumpuhkan sumber daya server melalui alat LOIC. Secara bersamaan, terekam upaya penebakan kata sandi otomatis menggunakan alat Hydra yang akhirnya berhasil menembus keamanan sistem, ditandai dengan pesan login attempt [b'root'/b'password'] succeeded. Rentetan pesan connection lost dan timeout di akhir log memperjelas bahwa server mengalami gangguan stabilitas atau kehabisan sesi akibat volume serangan yang sangat tinggi.

3. Multiple

```

admin-ids@buntu-Server-IDS:~$ sudo ss -tlnp | grep :22
[sudo] password for admin-ids:
LISTEN 0      128          0.0.0.0:2222  0.0.0.0:*    users:((("sshd",pid=775,fd=3))
LISTEN 0      128          [::]:2222    [::]:*       users:((("sshd",pid=775,fd=4))
admin-ids@buntu-Server-IDS:~$ sudo su - cowrie
cowrie@buntu-Server-IDS:~$ cd cowrie
cowrie@buntu-Server-IDS:~/cowrie$ source cowrie-env/bin/activate
(cowrie-env) cowrie@buntu-Server-IDS:~/cowrie$ bin/cowrie start
Using activated Python virtual environment "/home/cowrie/cowrie/cowrie-env"
Starting cowrie: [twisted --umask=0022 --pidfile=/var/run/cowrie.pid --logger=cowrie.python.logfile.logger cowrie ]...
/home/cowrie/cowrie/cowrie-env/lib/python3.10/site-packages/twisted/conch/ssh/transport.py:97: CryptographyDeprecationWarning: Blowfish has been deprecated
b"blowfish-ctr": (algorithms.Blowfish, 16, modes.CTR),
/home/cowrie/cowrie/cowrie-env/lib/python3.10/site-packages/twisted/conch/ssh/transport.py:101: CryptographyDeprecationWarning: CAST5 has been deprecated
b"cast128-ctr": (algorithms.CAST5, 16, modes.CBC),
/home/cowrie/cowrie/cowrie-env/lib/python3.10/site-packages/twisted/conch/ssh/transport.py:106: CryptographyDeprecationWarning: Blowfish has been deprecated
b"blowfish-ctr": (algorithms.Blowfish, 16, modes.CTR),
/home/cowrie/cowrie/cowrie-env/lib/python3.10/site-packages/twisted/conch/ssh/transport.py:107: CryptographyDeprecationWarning: CAST5 has been deprecated
b"cast128-ctr": (algorithms.CAST5, 16, modes.CBC),
(cowrie-env) cowrie@buntu-Server-IDS:~/cowrie$ bin/cowrie status
cowrie is running (PID: 1092).
(cowrie-env) cowrie@buntu-Server-IDS:~/cowrie$ exit
Logout
admin-ids@buntu-Server-IDS:~$ sudo ss -tlnp | grep :22
LISTEN 0      128          0.0.0.0:2222  0.0.0.0:*    users:((("sshd",pid=775,fd=3))
LISTEN 0      50           0.0.0.0:22    0.0.0.0:*    users:((("twisted",pid=1092,fd=1))
LISTEN 0      128          [::]:2222    [::]:*       users:((("sshd",pid=775,fd=4))
admin-ids@buntu-Server-IDS:~$ sudo su - cowrie
cowrie@buntu-Server-IDS:~$ tail -f -/cowrie/var/log/cowrie/cowrie.log
2026-01-28T06:48:08.3298592 [twisted.scripts.twisted.unix.UnixAppLoggerInfo] Server Shut Down.
2026-01-28T17:17:09.5834542 [-] Python Version 3.10.19 (main, Oct 10 2025, 08:52:10) [GCC 13.3.0]
2026-01-28T17:17:09.5835572 [-] Twisted Version 22.10.0
2026-01-28T17:17:09.5835752 [-] Cowrie Version 2.5.0
2026-01-28T17:17:09.5896802 [-] Loaded output engine: jsonlog
2026-01-28T17:17:09.5133422 [twisted.scripts.twisted.unix.UnixAppLoggerInfo] twisted 22.10.0 (/home/cowrie/cowrie/cowrie-env/bin/python 3.10.19) starting up.
2026-01-28T17:17:09.5140902 [twisted.scripts.twisted.unix.UnixAppLoggerInfo] reactor class: twisted.internet.epollreactor.EPollReactor.
2026-01-28T17:17:09.5462692 [-] CowrieSSHfactory starting on 22
2026-01-28T17:17:09.5496302 [cowrie.ssh.factory.CowrieSSHFactoryInfo] Starting factory <cowrie.ssh.factory.CowrieSSHFactory object at 0x7028e1a02560>
2026-01-28T17:17:09.6737072 [-] Ready to accept SSH connections

```


Perintah `ss -tlnp | grep 22` digunakan untuk memastikan bahwa port 22 (SSH) sedang aktif. Setelah itu, pengguna berpindah ke akun *courie*, mengaktifkan virtual environment, lalu menjalankan perintah `bin/courie start` untuk menyalakan layanan Cowrie. Di layar terlihat proses Cowrie berhasil berjalan (PID aktif) disertai beberapa pesan peringatan kriptografi. Selanjutnya dilakukan pengecekan ulang port 22 yang menunjukkan adanya proses `sshd` dan `twisted` (Cowrie) yang sedang mendengarkan koneksi. Bagian akhir menampilkan isi file log `cowrie.log` yang menunjukkan bahwa Cowrie berhasil start, memuat konfigurasi, dan siap menerima koneksi SSH

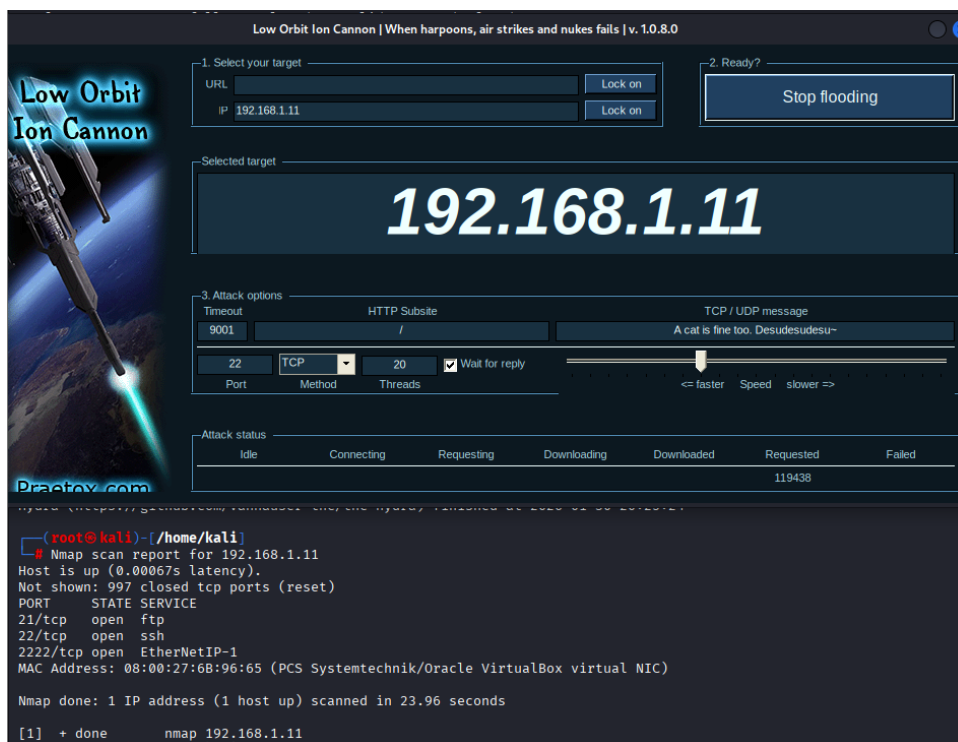
```
(kali@kali)-[~]
└─$ sudo -v
(kali@kali)-[~]
└─$ nmap 192.168.1.11 & hydra -l root -p pass.txt 192.168.1.11 -t 4 ssh & sudo hping3 -c 1000 -S -p 22 --faster 192.168.1.11
[1] 17620
[2] 17621
HPING 192.168.1.11 (eth0 192.168.1.11): S set, 40 headers + 0 data bytes
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=14.9 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=1 win=64240 rtt=13.7 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=2 win=64240 rtt=13.4 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=3 win=64240 rtt=13.2 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=4 win=64240 rtt=11.4 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=5 win=64240 rtt=10.2 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=6 win=64240 rtt=9.5 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=7 win=64240 rtt=71.9 msStarting Nmap 7.95 ( https://nmap.org ) at 2026-01-2
9 01:44 WITA
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=8 win=64240 rtt=114.1 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=9 win=64240 rtt=220.7 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=10 win=64240 rtt=220.4 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=11 win=64240 rtt=219.2 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=12 win=64240 rtt=217.6 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=13 win=64240 rtt=216.7 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=14 win=64240 rtt=216.4 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=15 win=64240 rtt=215.2 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=16 win=64240 rtt=212.8 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=17 win=64240 rtt=266.1 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=18 win=64240 rtt=296.7 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=19 win=64240 rtt=383.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
Hydra v9.5 (c) 2023 by van Hauser/THC & David Maciejak - Please do not use in military or secret service organizations, or for illegal
purposes (this is non-binding, these ** ignore laws and ethics anyway).

Hydra (https://github.com/vanhauser-thc/thc-hydra) starting at
2026-01-29 01:44:21
[DATA] max 1 task per 1 server, overall 1 task, 1 login try (l:l:p:1), ~1 try per task
.1.11:22/ [DATA] attacking ssh://192.168
— 192.168.1.11 hping statistic —
1000 packets transmitted, 31 packets received, 97% packet loss
round-trip min/avg/max = 9.5/147.9/383.0 ms
len=46 ip=192.168.1.11 ttl=64 DF id=0 sport=22 flags=SA seq=0 win=64240 rtt=0.0 ms
```

Proses penyerangan ini merupakan pengujian keamanan menggunakan skenario Multiple Attack, di mana penyerang mengeksekusi tiga jenis kode penyerangan berbeda secara simultan terhadap Target IP 192.168.1.11 untuk memberikan tekanan maksimal pada sistem. Serangan pertama dimulai dengan Nmap 7.95 yang melakukan pemindaian jaringan (*scanning*) untuk

mengidentifikasi layanan yang berjalan. Secara bersamaan, penyerang menjalankan Hydra v9.5 untuk melakukan serangan Brute Force terhadap protokol SSH di port 22, menggunakan daftar kata sandi dari file pass.txt dengan target akun 'root'.

Sebagai pelengkap serangan tersebut, dijalankan pula serangan Denial of Service (DoS) menggunakan hping3 dengan metode SYN Flood. Kode penyerangan ini mengirimkan paket data dalam jumlah besar (1000 paket) dengan kecepatan tinggi (faster) untuk membanjiri sumber daya jaringan target. Efektivitas dari serangan ganda ini terlihat sangat jelas pada statistik akhir, di mana terjadi 97% packet loss (hanya 31 paket yang berhasil diterima kembali dari 1000 yang dikirim), yang menandakan bahwa sistem target telah mengalami degradasi layanan atau kelumpuhan jaringan akibat beban serangan simultan tersebut.



Serangan dimulai dengan pemindaian jaringan menggunakan Nmap untuk mengidentifikasi port yang terbuka pada target IP 192.168.1.11, di mana

ditemukan layanan SSH (port 22) dan FTP (port 21) sedang aktif. Setelah "pintu" ditemukan, penyerang meluncurkan alat Hydra untuk melakukan serangan Brute Force, yaitu mencoba menebak kata sandi akun *root* secara otomatis hingga berhasil menemukan kredensial valid berupa "password" dan "admin". Sambil mencoba masuk, penyerang juga mengoperasikan alat Low Orbit Ion Cannon (LOIC) untuk melakukan TCP Flood, mengirimkan ratusan ribu permintaan koneksi sampah (terlihat mencapai 119.438 *requested*) guna membanjiri dan melumpuhkan sumber daya server target

```
2026-01-30T12:33:06.086565Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': trying auth b'none'
2026-01-30T12:33:06.087817Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': trying auth b'none'
2026-01-30T12:33:06.089365Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] NEW MSG
2026-01-30T12:33:06.090272Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] starting service b'ssh-userauth'
2026-01-30T12:33:06.102578Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': trying auth b'none'
2026-01-30T12:33:06.107376Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': trying auth b'password'
2026-01-30T12:33:06.115377Z [HoneyPotSSHTransport,117,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:33:06.120816Z [HoneyPotSSHTransport,117,192.168.1.12] Login attempt [b'root'/b'password'] succeeded
2026-01-30T12:33:06.124673Z [HoneyPotSSHTransport,117,192.168.1.12] Initialized emulated server as architecture: linux-x64-lsb
2026-01-30T12:33:06.132164Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': authenticated with b'password'
2026-01-30T12:33:06.133531Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] starting service b'ssh-connection'
2026-01-30T12:33:06.141408Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': trying auth b'password'
2026-01-30T12:33:06.143129Z [HoneyPotSSHTransport,118,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:33:06.144353Z [HoneyPotSSHTransport,118,192.168.1.12] Login attempt [b'root'/b'root'] failed
2026-01-30T12:33:06.152376Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': trying auth b'none'
2026-01-30T12:33:06.158136Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': trying auth b'password'
2026-01-30T12:33:06.159906Z [HoneyPotSSHTransport,119,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:33:06.160690Z [HoneyPotSSHTransport,119,192.168.1.12] Login attempt [b'root'/b'123456'] failed
2026-01-30T12:33:06.164127Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': trying auth b'password'
2026-01-30T12:33:06.165318Z [HoneyPotSSHTransport,120,192.168.1.12] Could not read etc/userdb.txt, default database activated
2026-01-30T12:33:06.165652Z [HoneyPotSSHTransport,120,192.168.1.12] Login attempt [b'root'/b'admin'] succeeded
2026-01-30T12:33:06.166551Z [HoneyPotSSHTransport,120,192.168.1.12] Initialized emulated server as architecture: linux-x64-lsb
2026-01-30T12:33:06.167761Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': authenticated with b'password'
2026-01-30T12:33:06.169727Z [cowrie.ssh.transport.HoneyPotSSHTransport#debug] starting service b'ssh-connection'
2026-01-30T12:33:06.176877Z [HoneyPotSSHTransport,117,192.168.1.12] avatar root logging out
2026-01-30T12:33:06.180815Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:33:06.181844Z [HoneyPotSSHTransport,117,192.168.1.12] Connection lost after 0 seconds
2026-01-30T12:33:06.187348Z [HoneyPotSSHTransport,120,192.168.1.12] avatar root logging out
2026-01-30T12:33:06.188576Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:33:06.189243Z [HoneyPotSSHTransport,120,192.168.1.12] Connection lost after 0 seconds
2026-01-30T12:33:07.152546Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': failed auth b'password'
2026-01-30T12:33:07.153209Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] unauthorized login: ()
2026-01-30T12:33:07.168970Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] b'root': failed auth b'password'
2026-01-30T12:33:07.169666Z [cowrie.ssh.userauth.HoneyPotSSHUserAuthServer#debug] unauthorized login: ()
2026-01-30T12:33:07.252698Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:33:07.253933Z [HoneyPotSSHTransport,118,192.168.1.12] Connection lost after 1 seconds
2026-01-30T12:33:07.312976Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:33:07.314019Z [HoneyPotSSHTransport,119,192.168.1.12] Connection lost after 1 seconds
2026-01-30T12:34:16.455158Z [-] Timeout reached in HoneyPotSSHTransport
2026-01-30T12:34:16.559858Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:34:16.563392Z [HoneyPotSSHTransport,99,192.168.1.12] Connection lost after 120 seconds
2026-01-30T12:34:16.731928Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:48576 (192.168.1.11:22) [session: 44bc8ace195a]
2026-01-30T12:34:16.911971Z [-] Timeout reached in HoneyPotSSHTransport
2026-01-30T12:34:16.920751Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:34:16.921592Z [HoneyPotSSHTransport,99,192.168.1.12] Connection lost after 120 seconds
2026-01-30T12:34:17.007802Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:48580 (192.168.1.11:22) [session: 08f6191265aa]
2026-01-30T12:34:17.422682Z [-] Timeout reached in HoneyPotSSHTransport
2026-01-30T12:34:17.462271Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:34:17.463038Z [HoneyPotSSHTransport,99,192.168.1.12] Connection lost after 120 seconds
2026-01-30T12:34:17.532572Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:48596 (192.168.1.11:22) [session: f3fe391b5c6e]
2026-01-30T12:34:17.947514Z [-] Timeout reached in HoneyPotSSHTransport
2026-01-30T12:34:17.987305Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:34:17.988492Z [HoneyPotSSHTransport,99,192.168.1.12] Connection lost after 120 seconds
2026-01-30T12:34:18.083296Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:48612 (192.168.1.11:22) [session: 285529ac453f]
2026-01-30T12:34:18.424550Z [-] Timeout reached in HoneyPotSSHTransport
2026-01-30T12:34:18.427803Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:34:18.428358Z [HoneyPotSSHTransport,100,192.168.1.12] Connection lost after 120 seconds
2026-01-30T12:34:18.524888Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:48616 (192.168.1.11:22) [session: 90536deb5ecc]
2026-01-30T12:34:18.925817Z [-] Timeout reached in HoneyPotSSHTransport
2026-01-30T12:34:18.927835Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:34:18.929568Z [HoneyPotSSHTransport,101,192.168.1.12] Connection lost after 120 seconds
2026-01-30T12:34:18.974192Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:53946 (192.168.1.11:22) [session: e2b458ad30f]
2026-01-30T12:34:19.421066Z [-] Timeout reached in HoneyPotSSHTransport
2026-01-30T12:34:19.422678Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:34:19.423377Z [HoneyPotSSHTransport,102,192.168.1.12] Connection lost after 120 seconds
2026-01-30T12:34:19.448791Z [cowrie.ssh.factory.CowrieSSHFactory] New connection: 192.168.1.12:53950 (192.168.1.11:22) [session: 98bf2c4ee8f6]
2026-01-30T12:34:19.924492Z [-] Timeout reached in HoneyPotSSHTransport
2026-01-30T12:34:19.928208Z [cowrie.ssh.transport.HoneyPotSSHTransport#info] connection lost
2026-01-30T12:34:19.929382Z [HoneyPotSSHTransport,103,192.168.1.12] Connection lost after 120 seconds
```

Log tersebut mendokumentasikan serangan SSH Brute Force dan TCP Flood yang dijalankan secara agresif oleh penyerang dengan IP 192.168.1.12 terhadap target 192.168.1.11. Di dalam log, terlihat rentetan baris New connection yang muncul dalam hitungan milidetik, menunjukkan upaya alat LOIC untuk membanjiri sumber daya server hingga mencapai ratusan ribu permintaan koneksi. Secara

bersamaan, sistem merekam detail upaya masuk otomatis menggunakan alat Hydra yang akhirnya berhasil menembus keamanan dengan kredensial root dan kata sandi password atau admin, sebagaimana dikonfirmasi oleh pesan login attempt succeeded. Banyaknya pesan connection lost dan timeout di akhir log menjadi bukti teknis bahwa server mengalami gangguan stabilitas yang parah akibat volume trafik sampah yang sangat tinggi, sehingga tidak mampu lagi melayani koneksi dengan normal.

Hasil Pengujian Penyerangan

No	Pola Serangan	Nama Pengujian	Kondisi Sebelum (%)	Kondisi Sesudah (%)	Hasil (Terdeteksi atau Tidak Terdeteksi)
1	Individual	<i>Port Scanning</i>	0 %	100%	Terdeteksi
2		<i>Bruteforce Attack</i>	0 %	100%	Terdeteksi
3		<i>DDoS Attack</i>	0 %	100%	Terdeteksi
4	Double	<i>Port Scanning & Bruteforce Attack</i>	0 %	100%	Terdeteksi
5		<i>Bruteforce Attack & DDoS Attack</i>	0 %	100%	Terdeteksi
6		<i>DDoS Attack & Port Scanning</i>	0 %	100%	Terdeteksi
7	Multiple	<i>Port Scanning, Bruteforce Attack, DDoS Attack</i>	0%	100%	Terdeteksi