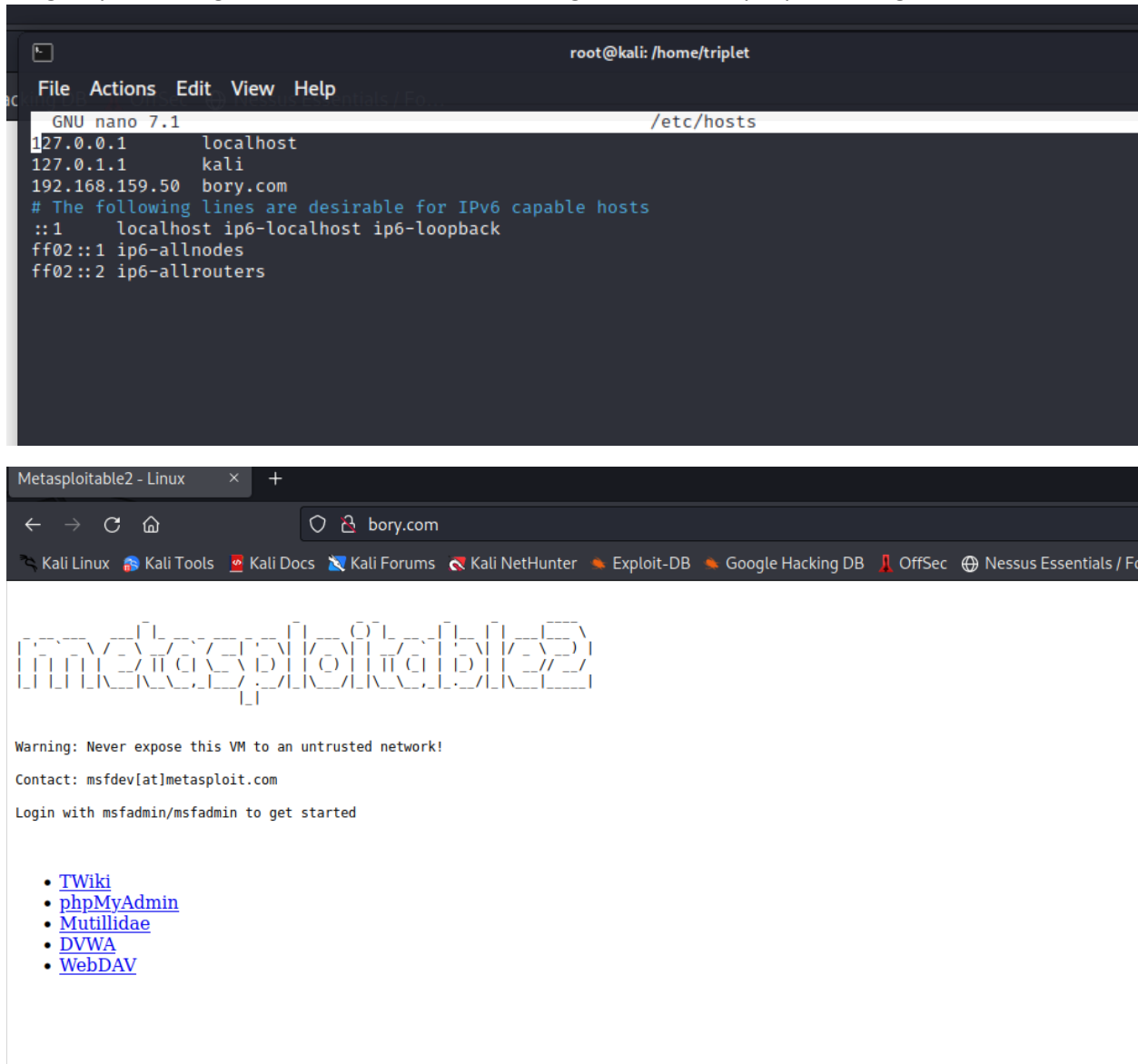


Trần Minh Triết

SE172241

Đầu tiên ta tiến hành cài máy metasploitable config địa chỉ IP về thành 192.168.159.50

Sang máy kali config lại file /etc/hosts để có thể dùng domain để truy cập vào trnag web



Vào làm lab thôi

## Finding vulnerabilities with OpenVAS

Tiến hành update hệ thống

```
root@kali: /home/triplet
File Actions Edit View Help
Get:450 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libbrv1e0 amd64 0.5.1-6 [763 kB]
Get:451 http://mirror.aktkn.sg/kali kali-rolling/main i386 libbrv1e0 i386 0.5.1-6 [615 kB]
Get:452 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libsnappy1v5 amd64 1.1.9-3 [26.0 kB]
Get:453 http://mirror.aktkn.sg/kali kali-rolling/main i386 libsnappy1v5 i386 1.1.9-3 [27.7 kB]
Get:454 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libhwyl amd64 1.0.3-3 [348 kB]
Get:455 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libjxl0.7 amd64 0.7.0-10 [1,046 kB]
Get:456 http://http.kali.org/kali kali-rolling/main amd64 freerdp2-x11 amd64 2.10.0+dfsg1-1 [106 kB]
Get:457 http://http.kali.org/kali kali-rolling/main amd64 libfreerdp-client2-2 amd64 2.10.0+dfsg1-1 [270 kB]
Get:458 http://http.kali.org/kali kali-rolling/main amd64 libfreerdp2-2 amd64 2.10.0+dfsg1-1 [542 kB]
Get:459 http://http.kali.org/kali kali-rolling/main amd64 libwinpr2-2 amd64 2.10.0+dfsg1-1 [352 kB]
Get:460 http://http.kali.org/kali kali-rolling/main amd64 freetds-common all 1.3.17+ds-2 [28.9 kB]
Get:461 http://mirror.aktkn.sg/kali kali-rolling/main amd64 galera-4 amd64 26.4.13-1 [825 kB]
Get:462 http://http.kali.org/kali kali-rolling/main amd64 gdal-data all 3.6.2+dfsg-1 [518 kB]
Get:463 http://http.kali.org/kali kali-rolling/main amd64 gdal-plugins amd64 3.6.2+dfsg-1+b2 [312 kB]
Get:464 http://mirror.aktkn.sg/kali kali-rolling/main amd64 gdb-minimal amd64 13.1-2 [3,254 kB]
Get:465 http://mirror.aktkn.sg/kali kali-rolling/main amd64 gedit amd64 44.2-1 [362 kB]
Get:466 http://mirror.aktkn.sg/kali kali-rolling/main amd64 gedit-common all 44.2-1 [1,366 kB]
Get:467 http://mirror.aktkn.sg/kali kali-rolling/main amd64 gir1.2-atk-1.0 amd64 2.46.0-5 [23.7 kB]
Get:468 http://http.kali.org/kali kali-rolling/main amd64 gir1.2-gdkpixbuf-2.0 amd64 2.42.10+dfsg-1+b1 [13.5 kB]
Get:469 http://http.kali.org/kali kali-rolling/main amd64 gir1.2-gtk-3.0 amd64 3.24.36-4 [219 kB]
Get:470 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libgtksourceview-4-common all 4.8.4-4 [532 kB]
Get:471 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libgtksourceview-4-0 amd64 4.8.4-4 [216 kB]
Get:472 http://mirror.aktkn.sg/kali kali-rolling/main amd64 gir1.2-gtksource-4 amd64 4.8.4-4 [19.9 kB]
Get:473 http://http.kali.org/kali kali-rolling/main amd64 libpeas-1.0-0 amd64 1.34.0-1+b1 [60.8 kB]
Get:474 http://http.kali.org/kali kali-rolling/main amd64 gir1.2-peas-1.0 amd64 1.34.0-1+b1 [7,900 B]
Get:475 http://mirror.aktkn.sg/kali kali-rolling/main amd64 python3.11 amd64 3.11.2-4 [572 kB]
Get:476 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libatmk-5-common all 5.6.1-2 [20.8 kB]
Get:477 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libatmk-5-0 amd64 5.6.1-2 [24.4 kB]
Get:478 http://http.kali.org/kali kali-rolling/main amd64 libgspell-1-2 amd64 1.12.0-1+b1 [52.5 kB]
Get:479 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libtepl-common all 6.4.0-7 [35.3 kB]
Get:480 http://mirror.aktkn.sg/kali kali-rolling/main amd64 libtepl-6-2 amd64 6.4.0-7 [90.8 kB]
Get:481 http://mirror.aktkn.sg/kali kali-rolling/main amd64 geopip-database all 20230203-1 [2,222 kB]
Get:482 http://http.kali.org/kali kali-rolling/main amd64 openjdk-17-jdk-headless amd64 17.0.6+10-1 [230 MB]
Get:483 http://http.kali.org/kali kali-rolling/main amd64 openjdk-17-jdk amd64 17.0.6+10-1 [4,577 kB]
Get:484 http://mirror.aktkn.sg/kali kali-rolling/main amd64 ghidra amd64 10.2.2-0kali2 [294 MB]
Get:485 http://mirror.aktkn.sg/kali kali-rolling/main amd64 ghidra-data all 9.2-0kali4 [79.1 MB]
60% [485 ghidra-data 9,949 kB/79.1 MB 13%] 1,176 kB/s 19min 21s
```

Successfully update and upgrade

```
root@kali: /home/triplet
File Actions Edit View Help
(triplet@kali) [~]
$ sudo su
[sudo] password for triplet:
(triplet@kali) [~]
$ sudo apt update
Hit:2 https://download.sublimetext.com/apt/dev/ InRelease
Hit:1 http://kali.cs.nyu.edu.tw/kali kali-rolling InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
130 packages can be upgraded. Run 'apt list --upgradable' to see them.
W: https://download.sublimetext.com/apt/dev/InRelease: Key is stored in legacy trusted.gpg keyring (/etc/apt/trusted.gpg)
, see the DEPRECATION section in apt-key(8) for details.
(triplet@kali) [~]
$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
catfish dh-elpa-helper docutils-common gir1.2-xfconf-0 libfaudio0 libfaudio0:i386 libgeos3.11.0 libicu71:i386
liblvm14:i386 libnginx-mod-http-geoip libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter libnginx-mod-mail
libnginx-mod-stream libnginx-mod-stream-geoip libopenal1:i386 libsndio7.0:i386 libstb0:i386 libtiff5:i386
libunifont1:i386 libvkd3d-shader1:i386 libvkd3d1 libvkd3d1:i386 libxslt1.1:i386 libzmqcore1
linux-image-5.18.0-kali5-amd64 nginx-common nginx-core php8.1-mysql python-pastedeploy-tpl python3-alabaster
python3-commonmark python3-docutils python3-imagesize python3-roman python3-snowballstemmer python3-speaklater
python3-sphinx ruby3.0-dev ruby3.0-doc sphinx-common tex-common tex-gyre vkd3d-compiler:i386
Use 'sudo apt autoremove' to remove them.
The following packages have been kept back:
audacity audacity-data bluewin crackmapexec cython3 default-mysql-server eog evince faraday ghostscript gimp
gimp-data gnome-desktop3-data gobject-introspection libevdocument3-4 libevview3-3 libgimp2.0 libgirepository-1.0-1
libgs9-common libltd2 libnew0.52 libpython3-all-dev libpython3-dev libpython3-stdlib libsemanage-common libsmclient
libspectre1 libtalloc2 libtdb1 libtevent0 libvkd3d1 libvkd3d1:i386 nfs-common onboard passwd pccli php-common
powershell-empire python-tables-data python3 python3-aihttp python3-all python3-all-dev python3-apt
python3-bottleneck python3-brlapi python3-brotli python3-cairo python3-cbor python3-cffi-backend python3-dbus
```

Chạy thành công câu lệnh apt dist-upgrade

```
root@kali: /home/triplet

File Actions Edit View Help

Running mktexlsr. This may take some time... done.
Running updmap-sys. This may take some time... done.
Running mktexlsr /var/lib/texmf ... done.
Building format(s) --all.
    This may take some time... done.
Processing triggers for dbus (1.14.6-1) ...
Processing triggers for shared-mime-info (2.2-1) ...
Processing triggers for postgresql-common (247) ...
supported-versions: WARNING! Unknown distribution ID in /etc/os-release: kali
debian found in ID_LIKE, treating as Debian
Building PostgreSQL dictionaries from installed myspell/hunspell packages ...
    en_us
Removing obsolete dictionary files:
Processing triggers for mailcap (3.70+nmu1) ...
Processing triggers for mariadb-server (1:10.11.2-1) ...
mariadb.service is a disabled or a static unit, not starting it.
Scanning processes...
Scanning candidates...
Scanning processor microcode...
Scanning linux images...

Running kernel seems to be up-to-date.

Failed to check for processor microcode upgrades.

No services need to be restarted.

No containers need to be restarted.

User sessions running outdated binaries:
triplet @ session #2: qterminal[1623], xfce4-session[1073]
triplet @ user manager service: systemd[1044]

No VM guests are running outdated hypervisor (qemu) binaries on this host.

(root@kali)~[/home/triplet]
```



Warning: Your session is running obsolete binaries. Please consider a relogin or restart of the session.

Then install `apt install openvas`

```
root@kali: /home/triplet
File Actions Edit View Help
Selecting previously unselected package gvm.
Preparing to unpack .../3-gvm_22.4.1_all.deb ...
Unpacking gvm (22.4.1) ...
Selecting previously unselected package gvm-tools.
Preparing to unpack .../4-gvm-tools_23.2.0-0kali1_all.deb ...
Unpacking gvm-tools (23.2.0-0kali1) ...
Selecting previously unselected package openvas.
Preparing to unpack .../5-openvas_22.4.1_all.deb ...
Unpacking openvas (22.4.1) ...
Setting up greenbone-security-assistant (22.4.1-1) ...
Setting up libmicrohttpd12:amd64 (0.9.75-5) ...
Setting up gvm-tools (23.2.0-0kali1) ...
Setting up gsad (22.4.1-1) ...
gsad.service is a disabled or a static unit, not starting it.
Setting up gvm (22.4.1) ...
Setting up openvas (22.4.1) ...
Processing triggers for libc-bin (2.36-8) ...
Processing triggers for man-db (2.11.2-1) ...
Processing triggers for kali-menu (2023.1.7) ...
Scanning processes ...
Scanning processor microcode ...
Scanning linux images ...

Running kernel seems to be up-to-date.

Failed to check for processor microcode upgrades.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

(root@kali)~[/home/triplet]
```

Setup database cho open-vas

☆

root@kali: /home/triplet

File Actions Edit View Help

4,415,663	100%	511.53kB/s	0:00:08 (xfr#3, to-chk=42/46)
nvdCVE-2.0-2004.xml			
9,085,319	100%	396.78kB/s	0:00:22 (xfr#4, to-chk=41/46)
nvdCVE-2.0-2005.xml			
14,636,165	100%	637.94kB/s	0:00:22 (xfr#5, to-chk=40/46)
nvdCVE-2.0-2006.xml			
23,991,868	100%	564.36kB/s	0:00:41 (xfr#6, to-chk=39/46)
nvdCVE-2.0-2007.xml			
23,106,606	100%	543.96kB/s	0:00:41 (xfr#7, to-chk=38/46)
nvdCVE-2.0-2008.xml			
24,677,010	100%	495.85kB/s	0:00:48 (xfr#8, to-chk=37/46)
nvdCVE-2.0-2009.xml			
21,655,222	100%	555.41kB/s	0:00:38 (xfr#9, to-chk=36/46)
nvdCVE-2.0-2010.xml			
22,559,083	100%	610.12kB/s	0:00:36 (xfr#10, to-chk=35/46)
nvdCVE-2.0-2011.xml			
22,480,253	100%	759.29kB/s	0:00:28 (xfr#11, to-chk=34/46)
nvdCVE-2.0-2012.xml			
25,143,466	100%	616.64kB/s	0:00:39 (xfr#12, to-chk=33/46)
nvdCVE-2.0-2013.xml			
28,531,770	100%	623.01kB/s	0:00:44 (xfr#13, to-chk=32/46)
nvdCVE-2.0-2014.xml			
30,313,348	100%	525.03kB/s	0:00:56 (xfr#14, to-chk=31/46)
nvdCVE-2.0-2015.xml			
32,574,071	100%	402.90kB/s	0:01:18 (xfr#15, to-chk=30/46)
nvdCVE-2.0-2016.xml			
44,082,674	100%	555.18kB/s	0:01:17 (xfr#16, to-chk=29/46)
nvdCVE-2.0-2017.xml			
64,153,299	100%	619.76kB/s	0:01:41 (xfr#17, to-chk=28/46)
nvdCVE-2.0-2018.xml			
76,462,208	100%	737.87kB/s	0:01:41 (xfr#18, to-chk=27/46)
nvdCVE-2.0-2019.xml			
93,279,024	100%	606.84kB/s	0:02:30 (xfr#19, to-chk=26/46)
nvdCVE-2.0-2020.xml			
93,170,785	100%	662.56kB/s	0:02:17 (xfr#20, to-chk=25/46)
nvdCVE-2.0-2021.xml			
39,550,976	38%	833.89kB/s	0:01:16 █



```
root@kali: /home/triplet

File Actions Edit View Help
dfn-cert-2017.xml
  3,128,215 100% 542.13kB/s 0:00:05 (xfr#23, to-chk=9/33)
dfn-cert-2018.xml
  3,535,507 100% 482.55kB/s 0:00:07 (xfr#24, to-chk=8/33)
dfn-cert-2019.xml
  3,552,101 100% 366.38kB/s 0:00:09 (xfr#25, to-chk=7/33)
dfn-cert-2020.xml
  3,662,073 100% 882.37kB/s 0:00:04 (xfr#26, to-chk=6/33)
dfn-cert-2021.xml
  3,615,352 100% 631.03kB/s 0:00:05 (xfr#27, to-chk=5/33)
dfn-cert-2022.xml
  4,219,618 100% 498.82kB/s 0:00:08 (xfr#28, to-chk=4/33)
dfn-cert-2023.xml
  725,031 100% 326.59kB/s 0:00:02 (xfr#29, to-chk=3/33)
sha256sums
  2,509 100% 2.39MB/s 0:00:00 (xfr#30, to-chk=2/33)
sha256sums.asc
  833 100% 813.48kB/s 0:00:00 (xfr#31, to-chk=1/33)
timestamp
  13 100% 12.70kB/s 0:00:00 (xfr#32, to-chk=0/33)

sent 771 bytes received 100,611,771 bytes 600,671.89 bytes/sec
total size is 100,567,827 speedup is 1.00

[+] GVM feeds updated
[*] Checking Default scanner
[*] Modifying Default Scanner
Scanner modified.

[+] Done
[*] Please note the password for the admin user
[*] User created with password '0a511e02-176b-4560-a59a-d680d71de4d4'.

[>] You can now run gvm-check-setup to make sure everything is correctly configured

(root@kali)-[/home/triplet]
#
```

We finally finish the installation.

```
[>] You can now run gvm-check-setup to make sure everything is correctly configured

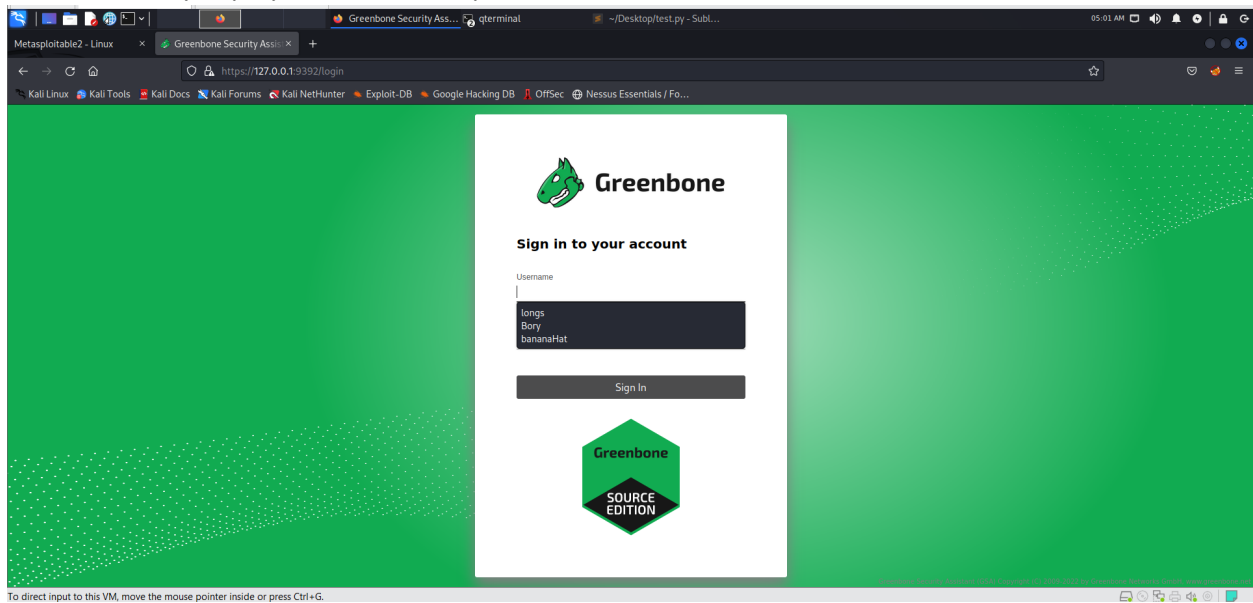
(root@kali)-[/home/triplet]
# gvm-start
[>] Please wait for the GVM services to start.
[>]
[>] You might need to refresh your browser once it opens.
[>]
[>] Web UI (Greenbone Security Assistant): https://127.0.0.1:9392

● gsad.service - Greenbone Security Assistant daemon (gsad)
   Loaded: loaded (/lib/systemd/system/gsad.service; disabled; preset: disabled)
   Active: active (running) since Mon 2023-03-13 04:58:34 EDT; 10ms ago
     Docs: man:gsad(8)
           https://www.greenbone.net
   Main PID: 5466 (gsad)
     Tasks: 1 (limit: 4553)
    Memory: 188.0K
         CPU: 1ms
    CGroup: /system.slice/gsad.service
           └─5466 /usr/sbin/gsad --foreground --listen 127.0.0.1 --port 9392

Mar 13 04:58:34 kali systemd[1]: Starting gsad.service - Greenbone Security Assistant daemon (gsad)...
Mar 13 04:58:34 kali systemd[1]: Started gsad.service - Greenbone Security Assistant daemon (gsad).

● gvmd.service - Greenbone Vulnerability Manager daemon (gvmd)
   Loaded: loaded (/lib/systemd/system/gvmd.service; disabled; preset: disabled)
   Active: active (running) since Mon 2023-03-13 04:58:29 EDT; 5s ago
     Docs: man:gvmd(8)
   Process: 5422 ExecStart=/usr/sbin/gvmd --osp-vt-update=/run/ospd/ospd.sock --listen-group=_gvm (code=exited, status=0/SUCCESS)
   Main PID: 5423 (gvmd)
     Tasks: 6 (limit: 4553)
    Memory: 481.7M
         CPU: 5.587s
```

We successfully deploy the web UI of openvas



Check the config of openvas

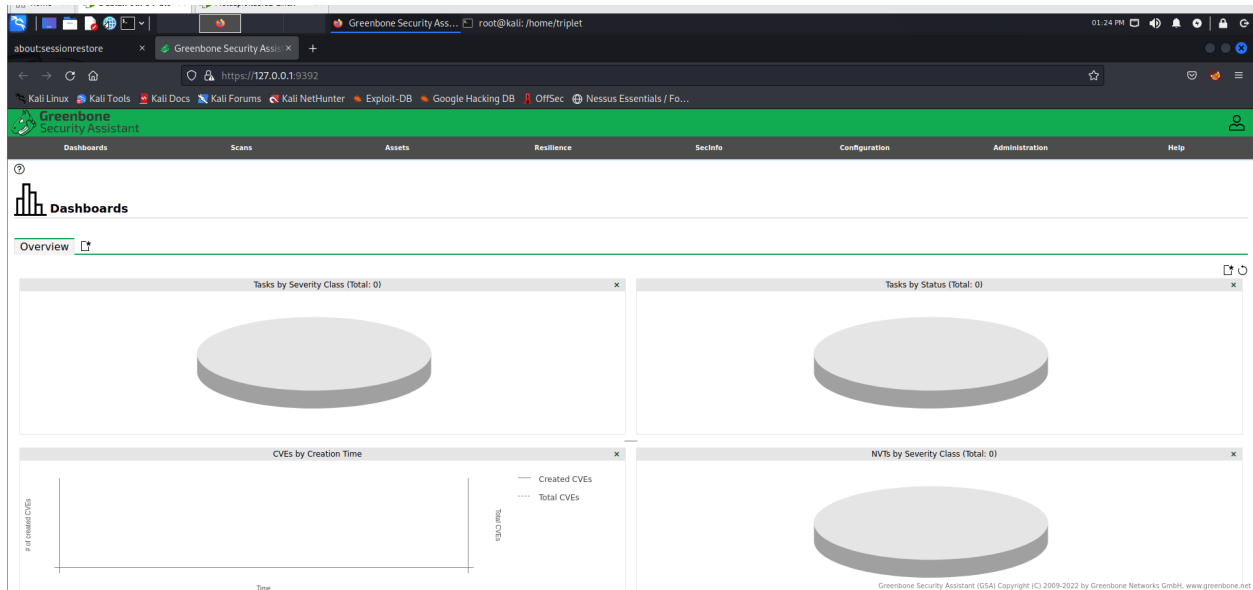
```
root@kali: /home/triplet/Desktop
File Actions Edit View Help

OK: Server CA Certificate is present as /var/lib/gvm/CA/servercert.pem.
Checking permissions of /var/lib/openvas/gnupg/*
OK: _gvm owns all files in /var/lib/openvas/gnupg
OK: redis-server is present.
OK: scanner (db_address setting) is configured properly using the redis-server socket: /var/run/redis-openvas/redis-server.sock
OK: redis-server is running and listening on socket: /var/run/redis-openvas/redis-server.sock.
OK: redis-server configuration is OK and redis-server is running.
OK: the mqtt_server_uri is defined in /etc/openvas/openvas.conf
OK: _gvm owns all files in /var/lib/openvas/plugins
OK: NVT collection in /var/lib/openvas/plugins contains 84653 NVTs.
OK: The notus directory /var/lib/notus/products contains 397 NVTs.
Checking that the obsolete redis database has been removed
OK: No old Redis DB
OK: ospd-OpenVAS is present in version 22.4.6.
Step 2: Checking GVMD Manager ...
OK: GVM Manager (gvmd) is present in version 22.4.2.
Step 3: Checking Certificates ...
OK: GVM client certificate is valid and present as /var/lib/gvm/CA/clientcert.pem.
OK: Your GVM certificate infrastructure passed validation.
Step 4: Checking data ...
OK: SCAP data found in /var/lib/gvm/scap-data.
OK: CERT data found in /var/lib/gvm/cert-data.
Step 5: Checking PostgreSQL DB and user ...
OK: PostgreSQL version and default port are OK.
psql: error: connection to server on socket "/var/run/postgresql/.s.PGSQL.5432" failed: FATAL: could not write init file
ERROR: The PostgreSQL DB does not exist.
FIX: Run 'sudo runuser -u postgres -- /usr/share/gvm/create-postgresql-database'

ERROR: Your GVM-22.4.1 installation is not yet complete!

Please follow the instructions marked with FIX above and run this
script again.
```

Login success into this interface



## Create new task

Ta define địa chỉ IP sẽ tấn công là địa chỉ máy metasploitable



New Target

Name

Test

Comment

Hosts

Manual

192.168.159.50

From file

Browse...

No file selected.

Exclude Hosts

Manual

From file

Browse...

No file selected.

Allow simultaneous scanning via multiple IPs

Yes

No

Port List

OpenVAS Default

Alive Test

Scan Config Default

Credentials for authenticated checks

SSH

--

on port

22

SMB

--

Cancel

Save

## Web server scanning with Nikto

```
triplet@kali: ~/Desktop
File Actions Edit View Help
NIKTO(1) NIKTO(1)

NAME
    nikto - Scan web server for known vulnerabilities

SYNOPSIS
    nikto [options...]

DESCRIPTION
    Examine a web server to find potential problems and security vulnerabilities, including:

    • Server and software misconfigurations
    • Default files and programs
    • Insecure files and programs
    • Outdated servers and programs

    Nikto is built on LibWhisker (by RFP) and can run on any platform which has a Perl environment. It supports
    SSL, proxies, host authentication, IDS evasion and more. It can be updated automatically from the
    command-line, and supports the optional submission of updated version data back to the maintainers.

OPTIONS
    Below are all of the Nikto command line options and explanations. A brief version of this text is available by
    running Nikto with the -h (-help) option.

    -Cgidirs
        Scan these CGI directories. Special words "none" or "all" may be used to scan all CGI directories or none,
        (respectively). A literal value for a CGI directory such as "/cgi-test/" may be specified (must include
        trailing slash). If this is option is not specified, all CGI directories listed in config.txt will be
        tested.

    -config
        Specify an alternative config file to use instead of the config.txt located in the install directory.

Manual page nikto(1) line 1 (press h for help or q to quit)
```

```
triplet@kali: ~/Desktop
File Actions Edit View Help

(triplet@kali)-[~/Desktop]
$ nikto -h https://lab.fptufia.me/
- Nikto v2.5.0

+ Multiple IPs found: 172.67.171.16, 104.21.63.164, 2606:4700:3037::6815:3fa4, 2606:4700:3036::ac43:ab10
+ Target IP: 172.67.171.16
+ Target Hostname: lab.fptufia.me
+ Target Port: 443

+ SSL Info: Subject: /C=US/ST=California/L=San Francisco/O=Cloudflare, Inc./CN=sni.cloudflaressl.com
            Ciphers: TLS_AES_256_GCM_SHA384
            Issuer: /C=US/O=Cloudflare, Inc./CN=Cloudflare Inc ECC CA-3
+ Start Time: 2023-03-14 09:40:04 (GMT-4)

+ Server: cloudflare
+ /: The anti-clickjacking X-Frame-Options header is not present. See: https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/X-Frame-Options
+ /: An alt-svc header was found which is advertising HTTP/3. The endpoint is: ':443'. Nikto cannot test HTTP/3 over QUIC
. See: https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/alt-svc
+ /: The X-Content-Type-Options header is not set. This could allow the user agent to render the content of the site in a
different fashion to the MIME type. See: https://www.netsparker.com/web-vulnerability-scanner/vulnerabilities/missing-co
ntent-type-header/
+ No CGI Directories found (use '-C all' to force check all possible dirs)
+ Hostname 'lab.fptufia.me' does not match certificate's names: sni.cloudflaressl.com. See: https://cwe.mitre.org/data/de
finitions/297.html
+ ERROR: Error limit (20) reached for host, giving up. Last error: opening stream: can't connect: SSL negotiation failed:
error:0A000410:SSL routines::ssl3 alert handshake failure at /var/lib/nikto/plugins/LW2.pm line 5254.
; at /var/lib/nikto/plugins/LW2.pm line 5254.
+ Scan terminated: 20 error(s) and 4 item(s) reported on remote host
+ End Time: 2023-03-14 09:42:56 (GMT-4) (172 seconds)

+ 1 host(s) tested

(triplet@kali)-[~/Desktop]
$
```

