Professor Messer

Professor Messer's Quick Reference Guide to NMAP

Contributed By:
shravansofts2011@gmail.com

SCAN OPTION SUMMARY

Scan Name	Command Syntax	Requires Privileged Access	Identifies TCP Ports	Identifies UDP Ports
TCP SYN Scan	-sS	YES	YES	NO
TCP connect() Scan	-sT	NO	YES	NO
FIN Stealth Scan	-sF	YES	YES	NO
Xmas Tree Stealth Scan	-sX	YES	YES	NO
Null Stealth Scan	-sN	YES	YES	NO
Ping Scan	-sP	NO	NO	NO
Version Detection	-sV	NO	NO	NO
UDP Scan	-sU	YES	NO	YES
IP Protocol Scan	-sO	YES	NO	NO
ACK Scan	-sA	YES	YES	NO
Window Scan	-sW	YES	YES	NO
RPC Scan	-sR	NO	NO	NO
List Scan	-sL	NO	NO	NO
Idlescan	-sI	YES	YES	NO
FTP Bounce Attack	-b	NO	YES	NO

HOST AND PORT OPTIONS

Exclude Targets	--exclude <host1 [,host2],...>
Exclude Targets in File	--excludefile <exclude_file>
Read Targets from File	-iL <inputfilename>
Pick Random Numbers for Targets	-iR <num_hosts>
Randomize Hosts	--randomize_hosts, -rH
No Random Ports	-r
Source Port	--source-port <portnumber>
Specify Protocol or Port Numbers	-p <port_range>
Fast Scan Mode	-F
Create Decoys	-D <decoy1 [,decoy2][,ME],...>
Source Address	-S <IP_address>
Interface	-e <interface>
List Interfaces	--iflist

TUNING AND TIMING OPTIONS

Time to Live	--ttl
Use Fragmented IP Packets	-f, -ff
Maximum Transmission Unit	--mtu <databytes>
Data Length	--data-length <databytes>
Host Timeout	--host-timeout <milliseconds>
Initial Round Trip Timeout	--initial-rtt-timeout <milliseconds>
Minimum Round Trip Timeout	--min-rtt-timeout <milliseconds>
Maximum Round Trip Timeout	--max-rtt-timeout <milliseconds>
Maximum Parallel Hosts per Scan	--max-hostgroup <number>
Minimum Parallel Hosts per Scan	--min-hostgroup <number>
Maximum Parallel Port Scans	--max-parallelism <number>
Minimum Parallel Port Scans	--min-parallelism <number>
Minimum Delay Between Probes	--scan-delay <milliseconds>
Maximum Delay Between Probes	--max-scan-delay
Timing Policies	--timing, -T<0|1|2|3|4|5>

PING OPTIONS

ICMP Echo Request Ping	-PE, -PI
TCP ACK Ping	-PA[portlist], -PT[portlist]
TCP SYN Ping	-PS[portlist]
UDP Ping	-PU[portlist]
ICMP Timestamp Ping	-PP
ICMP Address Mask Ping	-PM
Don't Ping	-P0, -PN, -PD
Require Reverse	-R
Disable Reverse DNS	-n
Specify DNS Servers	--dns-servers

REAL-TIME INFORMATION OPTIONS

Verbose Mode	--verbose, -v
Version Trace	--version-trace
Packet Trace	--packet-trace
Debug Mode	--debug, -d
Interactive Mode	--interactive
Noninteractive Mode	--noninteractive

OPERATING SYSTEM FINGERPRINTING

OS Fingerprinting	-O
Limit System Scanning	--osscan-limit
More Guessing Flexibility	--osscan-guess, --fuzzy
Additional, Advanced, and Aggressive	-A

VERSION DETECTION

Version Scan	-sV
Don't Exclude Any Ports	--allports
Set Version Intensity	--version-intensity
Enable Version Scanning Light	--version-light
Enable Version Scan All	--version-all

RUN-TIME INTERACTIONS

Display Run-Time Help	?
Increase / Decrease Verbosity	v / V
Increase / Decrease Debugging	d / D
Increase / Decrease Packet Tracing	p / P
Any Other Key	Print Status

LOGGING OPTIONS

Normal Format	-oN <logfilename>
XML Format	-oX <logfilename>
Grepable Format	-oG <logfilename>
All Formats	-oA <basefilename>
Script Kiddie Format	-oS <logfilename>
Resume Scan	--resume <logfilename>
Append Output	--append-output

MISCELLANEOUS OPTIONS

Quick Reference Screen	--help, -h
Nmap Version	--version, -V
Data Directory	--datadir <directory_name>
Quash Argument Vector	-q
Define Custom Scan Flags	--scanflags <flagval>
(Uriel) Maimon Scan	-sM
IPv6 Support	-6
Send Bad TCP or UDP Checksum	--badsum

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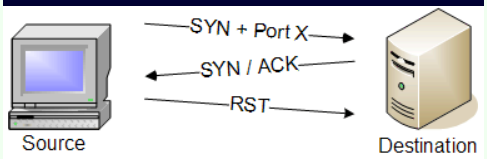
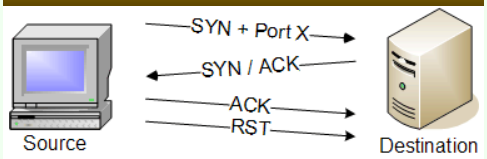
Identifying Open Ports with Nmap

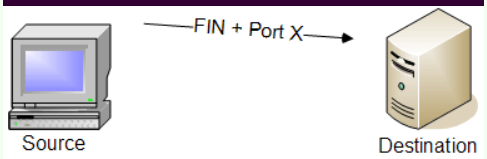
TCP SYN SCAN (-sS)



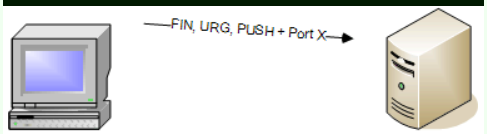
TCP connect() SCAN (-sT)



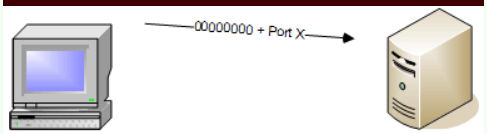
TCP FIN SCAN (-sF)



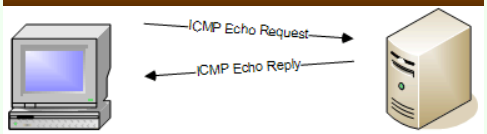
TCP XMAS TREE SCAN (-sX)



TCP NULL SCAN (-sN)

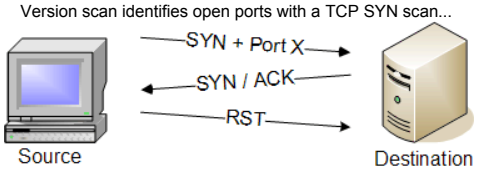


TCP PING SCAN (-sP)

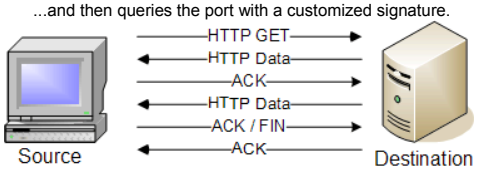


VERSION DETECTION SCAN (-sV)

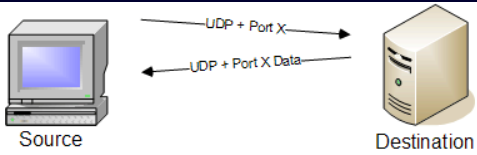
Version scan identifies open ports with a TCP SYN scan...



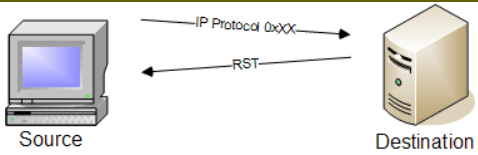
...and then queries the port with a customized signature.



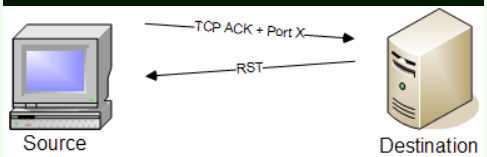
UDP SCAN (-sU)



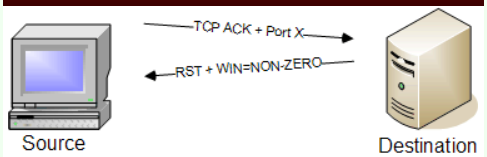
IP PROTOCOL SCAN (-sO)



TCP ACK SCAN (-sA)

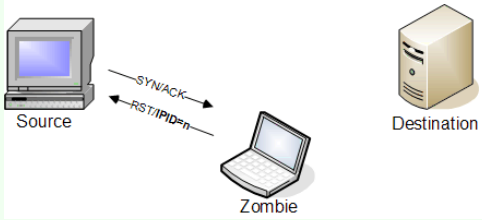


TCP WINDOW SCAN (-sW)

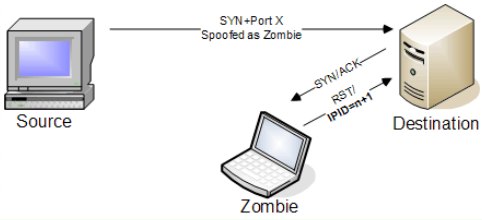


IDLESCAN (-sI <zombie host:[probeport]>)

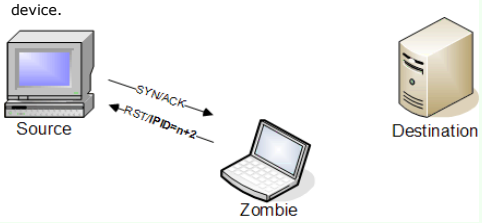
Step 1: Nmap sends a SYN/ACK to the zombie workstation to induce a RST in return. This RST frame contains the initial IPID that nmap will remember for later.



Step 2: Nmap sends a SYN frame to the destination address, but nmap spoofs the IP address to make it seem as if the SYN frame was sent from the zombie workstation.

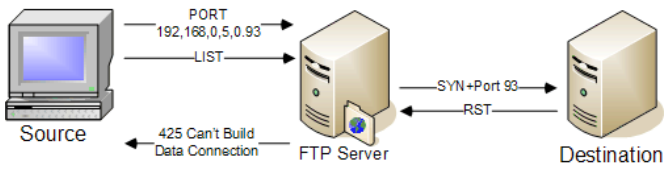


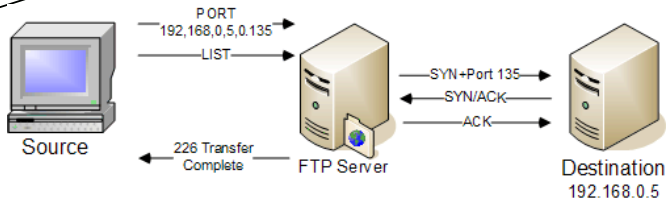
Step 3: Nmap repeats the original SYN/ACK probe of the zombie station. If the IPID has incremented, then the port that was spoofed in the original SYN frame is open on the destination device.



FTP BOUNCE ATTACK (-b <ftp_relay_host>)

A closed port will result with the FTP server informing the source station that the FTP server can't build the connection.





An open port completes the transfer over the specified connection.