Global Information Assurance Certification Paper

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GCIA Practical
v2.9 By

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Assignment One – Network Detects

1-1 Network Detect One

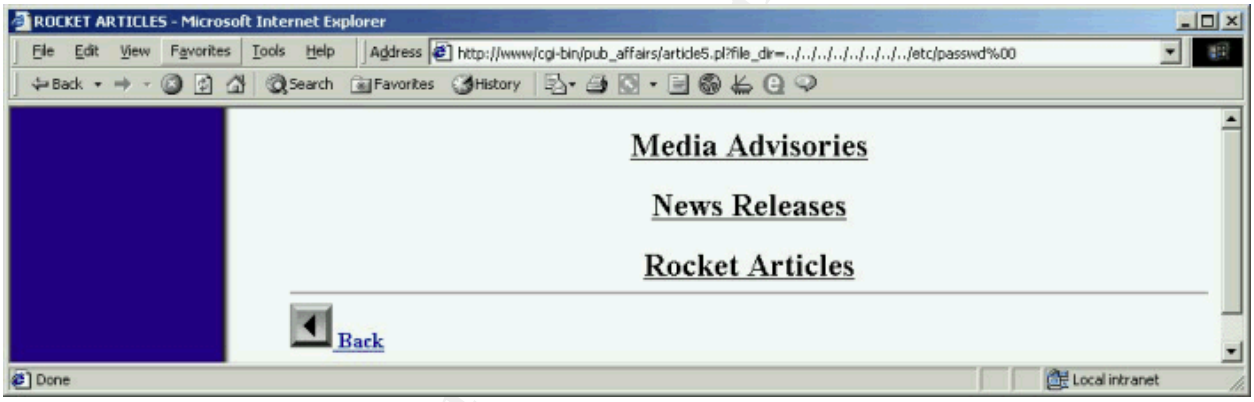
'HTTP_Unix_Passwords' event detected by the RealSecure sensor at 'INTERNALSENSOR'.
Details:

Source Address: 216.177.16.64
Source Port: 1946
Source MAC Address: 00:E0:FE:7C:30:A0
Destination Address: my.net.6.5
Destination Port: HTTP (80)
Destination MAC Address: 00:10:83:36:04:70
Time: Thursday, July 05, 2001 02:48:34
Protocol: TCP (6)
Priority: high
Actions mask: 0x244
Event Specific Information:
URL:
/cgi-bin/pub_affairs/article5.pl?file_dir=../../../../../../../../etc/pa
sswd
OBJECT: /cgi-bin/pub_affairs/article5.pl
QUERY: file_dir=../../../../../../../../etc/passwd

02:48:29.447596 my.net.6.5.80 > 216.177.16.64.1941: FP 410966647:410967571(924) ack
1267379385 win 32768 (DF)

64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:06 -0500]
"GET /cgi-bin/pub_affairs/article5.pl?file_dir=05May2001 HTTP/1.0" 200 6764
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:07 -0500]
"GET /pub_affairs/new_background.jpg HTTP/1.0" 200 6497
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:07 -0500]
"GET /pub_affairs/images/bullet.gif HTTP/1.0" 200 971

64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:08 -0500]
"GET /pub_affairs/images/backbtn.gif HTTP/1.0" 200 326
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:25 -0500]
"GET /cgi-bin/pub_affairs/article5.pl?file_dir=../../../../../../../../etc HTTP/1.0" 200 683
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:26 -0500]
"GET /pub_affairs/new_background.jpg HTTP/1.0" 304 0
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:26 -0500]
"GET /pub_affairs/new_background.jpg HTTP/1.0" 206 657
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:31 -0500]
"GET /cgi-bin/pub_affairs/article5.pl?file_dir=../../../../../../../../etc/passwd HTTP/1.0" 200 683
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:36 -0500]
"GET /cgi-bin/pub_affairs/article5.pl?file_dir=../../../../../../../../etc/passwd%00 HTTP/1.0" 200 683
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:42 -0500]
"GET /pub_affairs/archive/pub_affairs/images/graybkg.gif HTTP/1.0" 404 370
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:42 -0500]
"GET /pub_affairs/archive/2001/05May2001/news/0516101142347.html HTTP/1.0" 200 2713



1-1-1 Source of Trace:

This alert/trace is from an internal sensor on my employers network. It has been used with the permission of the Local Computer Incident Response Team (LCIRT).

1-1-2 Detect was generated by:

A. Internet Security Systems, Inc. RealSecure.

B. The second piece of the trace is from a Shadow sensor in the DMZ. It shows the connection back to the attacker and how much data was sent.

C. The third piece of the trace is the log from the web server where we see the HTTP/1.0 200 in response to the GET ("GET - an entity corresponding to the requested resource is sent in the response" per RFC1945[1]

[1] RFC 1945, Hypertext Transfer Protocol -- HTTP/1.0, Network Working Group, May 1976. ftp://ftp.isi.edu/in-

1-1-3 Probability the source address was spoofed:

The source address is not spoofed. The attacker is attempting to gain access to the password file of a UNIX host in order to obtain ROOT access on the system. The attacker must use a real IP Address or be located somewhere along the path of the response from the web server using a sniffer which is unlikely. The NSLookup and Whois information indicate this is an ISP Domain which supports an assumption that this is a real IP Address.

NSLOOKUP Information:

07/05/01 13:14:24 dns 64.sun5.dialup.G4.NET
Canonical name: 64.sun5.dialup.G4.NET
Addresses: 216.177.16.64

Whois Information:

whois 64.sun5.dialup.G4.NET .net is a domain of Network services
Searches for .net can be run at http://www.crsnic.net/
whois -h whois.crsnic.net g4.net ... Redirecting to TUCOWS, INC.
whois -h whois.opensrs.net g4.net ...

Registrant:	G4 Communications Corp 1 Sundial Avenue Manchester, NH 03103 US
Domain Name:	G4.NET
Administrative Contact:	Cav, Cent domreg@cav.net 1 Sundial Avenue Manchester, NH 03103 US 603-647-2004
Technical Contact:	Domain, Administration domreg@g4.net 1 Sundial Avenue, Suite# 114 Manchester, NH 03103 US 603-623-2002
Billing Contact:	Cav, Cent domreg@cav.net 1 Sundial Avenue Manchester, NH 03103 US 603-647-2004
Record last updated on	05-Jul-2001.
Record expires on	18-Oct-2001.

notes/rfc1945.txt

Record Created on	19-Oct-1998.
Domain servers in listed order:	NS2.METRO2000.NET 216.177.0.16
	NS1.METRO2000.NET 216.177.0.15
	NS3.G4.NET 140.186.53.8

1-1-4 Description of the attack:

The attacker is looking for CGI/Perl scripts that are written without consideration to the exploits they provide or the security environment in which they operate. This particular attack is an attempt to exploit a Directory Traversal condition to obtain the /etc/passwd file of the system and eventual control of the system itself. Please note that the amount of data returned as a result of the request for "/etc" and "/etc/passwd" are the same size of 683 bytes. This is a small indication that the attacker may not have gotten what he was looking for and is confirmed when you try the exploit itself with a web browser. The Real Secure alert is just the alarm.

"Vulnerable CGI programs present a particularly attractive target to intruders because they are relatively easy to locate, and they operate with the privileges and power of the web server software itself. Intruders are known to have exploited vulnerable CGI programs to vandalize web pages, steal credit card information, and set up back doors to enable future intrusions, even if the CGI programs are secured.[2]"

There have been several CVE's released in the past years and continue to be released. Here are a few:

CVE-1999-0146	CVE-1999-0149	CVE-1999-0174	CVE-1999-0264
CVE-1999-0744	CVE-1999-0853	CVE-2000-0023	CVE-2000-0731

1-1-5 Attack mechanism:

This is a response, the web server is being targeted, this service has known vulnerabilities and the attacker is trying to exploit a known vulnerability. (Cooper, Page28).

From Network Ice[3]:

> A common bug with web servers is when a hacker specifies a URL that looks something like **/../../../foo/bar.txt**. The contents of the website are usually in a subdirectory. The series of "../.." go *up* the directory structure, then *down* to the desired file.
>
> The reason this attack works is because the programmer doesn't double-check the URL to see if it is a valid file in the website.

If successful then the attacker would have a list of accounts and account information. Once obtained, a copy of "John the Ripper: Password Cracker [4]" could be used to crack the passwords

[2] SANS Top Ten Vulnerabilities, "2. Vulnerable CGI programs and application extensions (e.g., ColdFusion) installed on web servers", http://www.sans.org/topten.htm
[3] Network Ice, HTTP URL directory traversal/climbing. http://www.networkice.com/Advice/Intrusions/2000603

in the /etc/passwd file which would provide him with the root password and allow him to access and use the system for any purpose he chooses. If the /etc/passwd file is shadowed, then he would at least have a list of all accounts and account information which may include names and phone numbers. A brute force attack could gain him access in this case or some Social Engineering and a couple of phone calls using names and information from the password file may allow him to simply ask for and receive the password he needs to gain access to the system.

1-1-6 Correlations:

We see this type of attack on a weekly basis on my employers network. There are several on the SANS Incidents.Org site:

http://www.incidents.org/archives/intrusions/msg00009.html (Directory traversal).
http://www.incidents.org/archives/y2k/051400.htm (cgi-bin and /etc/passwd).

1-1-7 Evidence of active targeting:

Yes this is evidence of active targeting. This attacker was targeting a specific host.

1-1-8 Severity:

This is a public web server, setting in the DMZ. All system patches are applied and the /etc/passwwd file is shadowed. The network is protected by a firewall but it allows port 80 through. The DMZ Router is using Router Access Control Lists (ACLs). Multiple Intrusion Detection Systems (IDS) are in place.

(3 + 5) – (5 + 7) = 1

Criticality of host:	3	Web Server
Lethality of attack:	5	Attacker can eventually gain Root Access
Host Countermeasures:	5	Patched and password file shadowed
Network Countermeasures:	2	Permissive firewall and IDS sensors

Despite what the log files and the IDS traces above show, the attacker did NOT get a copy of the /etc/passwd file. He was returned a web page telling him that the requested file was unavailable. The web server reported a "200 OK" in response to the GET because the CGI-BIN/ARTICLE5.PL file denies access to it. I could have shown you the alert from six weeks ago where this was not the case, here is what the attacker received in exchange for his request:

1-1-9 Defensive recommendation:

If Perl scripts are not used then do not allow them to run on the web server, if they do run then

[4] John The Ripper is a password cracker, currently available for UNIX, DOS, Win32. Its intended purpose is to detect weak UNIX passwords. http://www.openwall.com/john

insist on some basic directory and file name checks that check for and deny access to requested critical system directories and files. Use the principal of least privilege whenever possible. The programmer has implemented some simple security in his script. Requests for the /etc/passwd return the user to the main page where a selection must be made. The script reads a list of authorized from a file and provides a simple menu for the user to choose from. If the script is ran by itself it produces the web page that allows the user to make his selection from. Unfortunately, without knowing this, the Intrusion Analyst will (and actually did in this case) go nuts because everything says that the attacker got exactly what he asked for. This demonstrates one method of securing a script, by using static file listings and ignoring all input that does not match the static data provided.

1-1-10 Multiple Choice test Question:

'HTTP_Unix_Passwords' event detected by the RealSecure sensor at 'INTERNALSENSOR'.
Details:
Source Address: 216.177.16.64
Source Port: 1946
Source MAC Address: 00:E0:FE:7C:30:A0
Destination Address: my.net.6.5
Destination Port: HTTP (80)
Destination MAC Address: 00:10:83:36:04:70
Time: Thursday, July 05, 2001 02:48:34
Protocol: TCP (6)
Priority: high
Actions mask: 0x244
Event Specific Information:
URL:
/cgi-bin/pub_affairs/article5.pl?file_dir=../../../../../../../../etc/pa
sswd
OBJECT: /cgi-bin/pub_affairs/article5.pl
QUERY: file_dir=../../../../../../../../etc/passwd

64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:25 -0500]
"GET /cgi-bin/pub_affairs/article5.pl?file_dir=../../../../../../../../etc HTTP/1.0" 200 683
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:26 -0500]
"GET /pub_affairs/new_background.jpg HTTP/1.0" 304 0
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:26 -0500]
"GET /pub_affairs/new_background.jpg HTTP/1.0" 206 657
64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:31 -0500]
"GET /cgi-bin/pub_affairs/article5.pl?file_dir=../../../../../../../../etc/passwd HTTP/1.0" 200 683

The above Real Secure alert and web server log indicate that an attacker obtained what information?

A. A directory listing of the /etc directory
B. A copy of the /etc/passwd file
C. Both A and B
D. None of the above

ANSWER: D. While both indicate that an attempt was made to access the "/etc" directory and obtain a copy of the "/etc/passwd" file, neither proves this happened. Trying the exploit itself proves that the attacker did not obtain either item requested.

1-2 Network Detect Two

```
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS278/dns_named-probe-version [**]
07/16-07:05:21.934644 195.117.228.81:3506 -> MY.NET.62.129:53
UDP TTL:47 TOS:0x0 ID:35333 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
0x0010: 00 3A 8A 05 00 00 2F 11 95 17 C3 75 E4 51 XX XX  .:..../....u.Qxx
0x0020: 3E 81 0D B2 00 35 00 26 50 CB 12 34 00 80 00 01  >....5.&P..4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS278/dns_named-probe-version [**]
07/16-07:08:39.707309 209.128.96.7:1854 -> MY.NET.60.54:53
UDP TTL:52 TOS:0x0 ID:56939 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
0x0010: 00 3A DE 6B 00 00 34 11 B4 3B D1 80 60 07 XX XX  .:.k..4..;..`.xx
0x0020: 3C 36 07 3E 00 35 00 26 CF C9 12 34 00 80 00 01  <6.>.5.&...4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS278/dns_named-probe-version [**]
07/16-10:02:09.248945 194.228.83.58:1231 -> MY.NET.136.228:53
UDP TTL:48 TOS:0x0 ID:54698 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
0x0010: 00 3A D5 AA 00 00 30 11 8F B7 C2 E4 53 3A XX XX  .:.....0.....S:xx
0x0020: 88 E4 04 CF 00 35 00 26 A0 F3 12 34 00 80 00 01  .....5.&...4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS278/dns_named-probe-version [**]
07/16-10:08:57.897824 63.174.214.200:1918 -> MY.NET.126.201:53
UDP TTL:51 TOS:0x0 ID:49605 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
0x0010: 00 3A C1 C5 00 00 33 11 AA 5F 3F AE D6 C8 XX XX  .:.....3.._?...xx
0x0020: 7E C9 07 7E 00 35 00 26 A8 07 12 34 00 80 00 01  ~..~.5.&...4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS278/dns_named-probe-version [**]
07/16-10:39:06.029818 64.160.110.1:4624 -> MY.NET.135.58:53
UDP TTL:51 TOS:0x0 ID:32232 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
0x0010: 00 3A 7D E8 00 00 33 11 4D A1 40 A0 6E 01 XX XX  .:}...3.M.@.n.xx
0x0020: 87 3A 12 10 00 35 00 26 FC D9 12 34 00 80 00 01  .:...5.&...4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

```
[**] IDS278/dns_named-probe-version [**]
07/16-10:40:15.614253 209.128.96.7:2880 -> MY.NET.156.10:53
UDP TTL:51 TOS:0x0 ID:10250 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
0x0010: 00 3A 28 0A 00 00 33 11 0B C9 D1 80 60 07 XX XX  .:(...3.....`.xx
0x0020: 9C 0A 0B 40 00 35 00 26 6B F3 12 34 00 80 00 01  ...@.5.&k..4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS278/dns_named-probe-version [**]
07/16-10:40:15.614567 209.128.96.7:2880 -> MY.NET.156.10:53
UDP TTL:50 TOS:0x0 ID:10250 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 10 07 17 38 C0 00 E0 FE 7C 30 A0 08 00 45 00  ....8....|0...E.
0x0010: 00 3A 28 0A 00 00 32 11 0C C9 D1 80 60 07 XX XX  .:(...2.....`.xx
0x0020: 9C 0A 0B 40 00 35 00 26 6B F3 12 34 00 80 00 01  ...@.5.&k..4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS278/dns_named-probe-version [**]
07/16-10:41:12.895110 194.228.57.189:3260 -> MY.NET.181.103:53
UDP TTL:47 TOS:0x0 ID:47528 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
0x0010: 00 3A B9 A8 00 00 2F 11 99 B3 C2 E4 39 BD XX XX  .:..../.....9.xx
0x0020: B5 67 0C BC 00 35 00 26 86 00 12 34 00 80 00 01  .g...5.&...4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS278/dns_named-probe-version [**]
07/16-10:41:12.895625 194.228.57.189:3260 -> MY.NET.181.103:53
UDP TTL:46 TOS:0x0 ID:47528 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 10 07 17 38 C0 00 E0 FE 7C 30 A0 08 00 45 00  ....8....|0...E.
0x0010: 00 3A B9 A8 00 00 2E 11 9A B3 C2 E4 39 BD XX XX  .:..........9.xx
0x0020: B5 67 0C BC 00 35 00 26 86 00 12 34 00 80 00 01  .g...5.&...4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS278/dns_named-probe-version [**]
07/16-10:59:27.595816 157.92.15.198:1555 -> MY.NET.63.203:53
UDP TTL:48 TOS:0x0 ID:4682 IpLen:20 DgmLen:58
Len: 38
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
0x0010: 00 3A 12 4A 00 00 30 11 05 2E 9D 5C 0F C6 XX XX  .:.J..0....\..xx
0x0020: 3F CB 06 13 00 35 00 26 51 C5 12 34 00 80 00 01  ?....5.&Q..4....
0x0030: 00 00 00 00 00 00 07 76 65 72 73 69 6F 6E 04 62  .......version.b
0x0040: 69 6E 64 00 00 10 00 03                          ind.....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

1-2-1 Source of Trace:

This alert/trace is from an internal sensor on my employers network. It has been used with the permission of the Local Computer Incident Response Team (LCIRT).

1-2-2 Detect was generated by:

Snort v1.7 on Windows NT 4, using the following rule from Whitehats.com

alert UDP $EXTERNAL any -> $INTERNAL 53 (msg: "IDS278/dns_named-probe-version"; content: "|07|version"; offset: 12; nocase; content: "|04|bind"; offset: 12; nocase;)

1-2-3 Probability the source address was spoofed:

The source address is probably not spoofed. This event was logged as a DNS Named Probe. Probes are active reconnaissance. The person conducting the probe needs to either see the response or be on the subnet of the machine receiving the response to see (hear) the results of his probe.

NSLookup and Whois information on the hosts performing the probe follows:

```
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
Trying 195.117.228.81 at ARIN
Trying 195.117.228 at ARIN
Redirecting to RIPE ...
Trying 195.117.228.81 at RIPE
Trying 195.117.228 at RIPE
% This is the RIPE Whois server.
% The objects are in RPSL format.
% Please visit http://www.ripe.net/rpsl for more information.
% Rights restricted by copyright.
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum:     195.117.228.0 - 195.117.228.31
netname:     TFI-PZU
descr:       Towarzystwo Funduszy Inwestycyjnych PZU S.A. Warszawa
country:     PL
admin-c:     AK6009-RIPE
tech-c:      BS1071-RIPE
status:      ASSIGNED PA
mnt-by:      AS5617-MNT
changed:     tkielb@cst.tpsa.pl 19991005
source:      RIPE

route:       195.117.0.0/16
descr:       TPNET (PL)
descr:       Provider Local Registry
origin:      AS5617
notify:      konradpl@zt.piotrkow.tpsa.pl
mnt-by:      AS5617-MNT
changed:     konradpl@zt.piotrkow.tpsa.pl 19970303
source:      RIPE
```

```
person:      Andrzej Kurzejamski
address:     Towarzystwo Funduszy Inwestycyjnych PZU S.A.
address:     00-844 Warszawa
address:     ul. Grzybowska 77
phone:       +48 501 178959
fax-no:      +48 22 6615052
e-mail:      a.kurzejmski@tfipzu.com.pl
nic-hdl:     AK6009-RIPE
mnt-by:      AS5617-MNT
changed:     tkielb@cst.tpsa.pl 19991005
source:      RIPE

person:      Barbara Sarnacka
address:     TP S.A.
address:     ul. Nowogrodzka 47a
address:     00-695 Warszawa
address:     POLAND
phone:       +48 22 6252063
e-mail:      sarna@cst.tpsa.pl
nic-hdl:     BS1071-RIPE
mnt-by:      AS5617-MNT
changed:     wmalek@cst.tpsa.pl 19980225
source:      RIPE
```

=+

nslookup 209.128.96.7

Canonical name: 209-128-96-007.bayarea.net
Addresses:
 209.128.96.7

=+

Trying 194.228.83.58 at ARIN
Trying 194.228.83 at ARIN
Redirecting to RIPE ...
Trying 194.228.83.58 at RIPE
Trying 194.228.83 at RIPE
Trying 194.228 at RIPE

```
% This is the RIPE Whois server.
% The objects are in RPSL format.
% Please visit http://www.ripe.net/rpsl for more information.
% Rights restricted by copyright.
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum:     194.228.0.0 - 194.228.0.255
netname:     HENNLICH-NET
descr:       Hennlich Industrietechnik s.r.o.
descr:       Litomerice
country:     CZ
admin-c:     PS1950-RIPE
tech-c:      PS1950-RIPE
status:      ASSIGNED PA
notify:      hostmaster@iol.cz
mnt-by:      AS5610-MTN
changed:     hostmaster@iol.cz 20000321
source:      RIPE
```

```
route:       194.228.0.0/17
descr:       CZ.CZNET
origin:      AS5610
notify:      hostmaster@iol.cz
mnt-by:      AS5610-MTN
changed:     vogel@nex.tel.cz 19981120
source:      RIPE

person:      Pavel Sumera
address:     HENNLICH INDUSTRIETECHNIK, spol. s r.o.
address:     Turgenevova 19
address:     Litomerice
address:     412 01
address:     Czech Republic
phone:       +420 416 711111
fax-no:      +420 416 711999
e-mail:      hen.ltm@unl.pvtnet.cz
nic-hdl:     PS1950-RIPE
changed:     kabelova@pvt.cz 19980406
source:      RIPE
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

Trying 63.174.214.200 at ARIN
Trying 63.174.214 at ARIN

```
Sprint (NETBLK-SPRN-BLKS) SPRN-BLKS    63.160.0.0 - 63.175.255.255
LOWESTFARE.COM (NETBLK-FON-106842265658042) FON-106842265658042
      63.174.214.0 - 63.174.214.127
EPHONES (NETBLK-FON-106842278458103) FON-106842278458103
           63.174.214.128 - 63.174.214.255
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

Trying 64.160.110.1 at ARIN
Trying 64.160.110 at ARIN

```
Pacific Bell Internet Services,Inc. (NETBLK-PBI-NET-8)
  268 Bush St. #5000
  San Francisco, CA 94104
  US

  Netname: PBI-NET-8
  Netblock: 64.160.0.0 - 64.175.255.255
  Maintainer: PACB

  Coordinator:
    Pacific Bell Internet  (PIA2-ORG-ARIN)  ip-admin@PBIxxET
    888-212-5411

  Domain System inverse mapping provided by:

  NS1.PBIxxET   206.13.28.11
  NS2.PBIxxET   206.13.29.11

  ADDRESSES WITHIN THIS BLOCK ARE NON-PORTABLE

  please send all abuse issue e-mails to abuse@pbi.net
```

```
  Record last updated on 26-Feb-2001.
  Database last updated on 17-Jul-2001 23:04:49 EDT.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

nslookup 194.228.57.189

```
Canonical name: pha-189.eridan.cz
Addresses:
 194.228.57.189
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

Trying 157.92.15.198 at ARIN
Trying 157.92.15 at ARIN

```
Universidad Nacional de Buenos Aires (NET-REDUBA)
  Ciudad Universitaria
  Pabellon, I
  AR

  Netname: REDUBA
  Netblock: 157.92.0.0 - 157.92.255.255

  Coordinator:
    RED-UBA  (ZR38-ARIN)  ombu@mail.com
    4783-0729

  Domain System inverse mapping provided by:

  NS1.UBA.AR   157.92.1.1
  NS2.UBA.AR   157.92.4.1

  Record last updated on 28-Mar-2001.
  Database last updated on 17-Jul-2001 23:04:49 EDT.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

1-2-4 Description of the attack:

This is an attempt by seven hosts to scan eight systems to determine the version of BIND they are running.

1-2-5 Attack mechanism:

Once you know the version of BIND, then you can determine if the version is vulnerable and what those vulnerabilities are. Known vulnerabilities are listed at:

MITRE.ORG: CVE-1999-0835, CVE-1999-0848, CVE-1999-0849, CVE-1999-0851, CVE-2000-0887, CVE-2000-0888.

CERT.ORG: CA-1998-05, CA-1999-14 and CA-2001-02 (Multiple Vulnerabilities in BIND),

1-2-6 Correlations:

This detect is not new. Several GCIA Practicals contain an analysis of this exploit:

Maria Bianchi GCIA (286) http://www.sans.org/y2k/practical/Maria_Bianchi_GCIA.doc
Jeff Dell GCIA (312) http://www.sans.org/y2k/practical/Jeff_Dell_GCIA.doc
Brian Varine (345) http://www.sans.org/y2k/practical/Brian_Varine_GCIA.doc

It is also discussed in Chapter 3, The Most Critical Internet Security Threats (Part 1), pages 42 thru 46 of the book Intrusion Signatures and Analysis[5].

1-2-7 Evidence of active targeting:

This is activite targeting. Seven Hosts scanned eight systems specifically for the version of BIND they were running.

1-2-8 Severity (See Appendix B):

None of the scanned systems are DNS servers. Had these been DNS Servers, then the formula below would have been (5 + 4) + (4 + 2) = +3

(2 + 1) – (3 + 2) = -2

Criticality of host: 2 (None of the system were DNS Servers).
Lethality of attack: 1 (Because they were not DNS, the attack would not succeed).
Host Countermeasures: 3 (Modern Operating systems with minimum patches)
Network Countermeasures: 2 (Firewall allowed this one to get through).

1-2-9 Defensive recommendation:

There is a firewall in place and it should be configured to block version bind requests. Use Router ACL's to restrict access to port 53 on specific hosts in the Internal Network. To reduce the possibility of a successful exploit you should keep the version of BIND current and patched. Keep the number of systems running BIND to the minimum.

1-2-10 Multiple Choice test Question:

The previous log entries demonstrate:

A. Nothing, they are all mistakes.
B. Active Targeting
C. Active reconnaissance
D. None of the above.

ANSWER: B. One indication of Active Targeting is the "one-to-one" relationship between the

[5] Cooper, Fearnow, Frederick and Northcutt "Intrusion Signatures and Analysis". Reading: New Riders Publishing 2001

attacker and the intended victum. The clincher is the fact that a specific vulnerability, exploit or piece of information is being used or looked for. This is a prelude to the real attack.

1-3 Network Detect Three

```
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS259/web-misc_http-alibaba-overflow [**]
07/16-07:08:21.702853 138.145.200.42:3553 -> MY.NET.6.211:80
TCP TTL:57 TOS:0x0 ID:21751 IpLen:20 DgmLen:1500 DF
***A**** Seq: 0x6DE1AB96  Ack: 0x3DC10DC3  Win: 0x4470  TcpLen: 20
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS259/web-misc_http-alibaba-overflow [**]
07/16-07:08:21.703223 138.145.200.42:3553 -> MY.NET.6.211:80
TCP TTL:56 TOS:0x0 ID:21751 IpLen:20 DgmLen:1500 DF
***A**** Seq: 0x6DE1AB96  Ack: 0x3DC10DC3  Win: 0x4470  TcpLen: 20
0x0000: 00 10 83 95 CA 00 00 E0 FE 7C 30 A0 08 00 45 00  .........|0...E.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS259/web-misc_http-alibaba-overflow [**]
07/16-07:09:27.060762 138.145.200.42:3606 -> MY.NET.6.211:80
TCP TTL:57 TOS:0x0 ID:23289 IpLen:20 DgmLen:1500 DF
***A**** Seq: 0x6F810989  Ack: 0x3E11EF68  Win: 0x4470  TcpLen: 20
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 00  ...|0..`...h..E.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+ [**]
IDS259/web-misc_http-alibaba-overflow [**]
07/16-07:09:27.061149 138.145.200.42:3606 -> MY.NET.6.211:80
TCP TTL:56 TOS:0x0 ID:23289 IpLen:20 DgmLen:1500 DF
***A**** Seq: 0x6F810989  Ack: 0x3E11EF68  Win: 0x4470  TcpLen: 20
0x0000: 00 10 83 95 CA 00 00 E0 FE 7C 30 A0 08 00 45 00  .........|0...E.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

1-3-1 Source of Trace:

This alert/trace is from an internal sensor on my employers network. It has been used with the permission of the Local Computer Incident Response Team (LCIRT).

1-3-2 Detect was generated by:

Snort v1.7 on Windows NT 4, using the following rule from Whitehats.com

alert TCP $EXTERNAL any -> $INTERNAL 80 (msg: "IDS259/web-misc_http-alibaba-overflow"; dsize: >1400; flags: A+; content: "POST";)

1-3-3 Probability the source address was spoofed:

It is unlikely that the source address was spoofed. According to the arachNIDS database at Whitehats.com[6]:

> The packet that caused this event is normally a part of an established TCP session, indicating that the source IP address has not been spoofed. If you are using a firewall that

[6] Whitehats.com archNIDS entry for IDS259 Snort Rule, http://whitehats.com/info/IDS259

> supports stateful inspection, and are not vulnerable to sequence number prediction attacks, then you can be fairly certain that the source IP address of the event is accurate. Also, it has been noted that the due to the nature of this event the attacker does not normally require response traffic. In most cases this means that the event should be analyzed along with other supporting data before acting on the event.

1-3-4 Description of the attack:

Snort flagged this as an attacker attempting to exploite a known buffer overflow on a freeware web server called Alibaba[7]. The web server is designed to run on Windows 95/98/NT4/2000. The attacker must send a packet with a data payload greater than 1400 Bytes in size (a description of the data packet is in paragraph 1-3-5 below).. The description in CAN-2000-0626[8] states:

> Buffer overflow in Alibaba web server allows remote attackers to cause a denial of server via a long GET request.

A comment on the CVE page states that "this is a relatively old Nessus[9] plugin, though the exploit uses POST instead of GET".

A post to the Neohapsis archives concerning the Whitehats.com Snort rule[10] that detects this exploit states that a POST or a GET can be used.

The data packet displayed along with the packet is all Snort captured, we don't see the remainder of the data packet (if there even is a remainder). I believe the DgmLen is what set Snort Off, the DgmLen is set to 1500, yet we only have 16 bits of payload. It's not fragmentation because the Don't fragment flag is set. Any Ideas?

1-3-5 Attack mechanism:

This attack was unsuccessful even though it was tried twice. Something is going on, but it is not an Alibaba exploit, because the contents of the data packet contain characters that make this exploit fail as described in the Neohapsis archive below. Even if this were a valid exploit attempt it would have failed since it was attempted against a Unix Web server and not an Alibaba Web Server. This was flagged by Snort as a buffer overflow exploit for the Alibaba web server. A search of the Neohapsis archives produced a very good explanation[11] of the exploit:

> Tried a little freeware webserver named Alibaba 2.0 today
> and found an exploitable overflow. I telnetted to 127.0.0.1:80
> and crashed it using

[7] Web Developer.com Review, http://www.webdeveloper.com/servers/servers_reviews_alibaba.html
[8] CVE.MITRE.ORG CANN-2000-0626, http://cve.mitre.org/cgi-bin/cvename.cgi?name=CAN-2000-0626
[9] Nessus, **http://www.nessus.org**
[10] Neohapsis Archive Search for IDS259, http://archives.neohapsis.com/archives/snort/2001-01/0493.html
[11] Neohapsis Archives Search for Alibaba, http://archives.neohapsis.com/archives/vuln-dev/1999-q4/0144.html

POST [enter 1028 'x'] / HTTP/1.0

scanf("%s %s %s", szName, szFile, szSomething);

where szFile is a local variable of 0x400 (=1024) bytes on the stack directly above the return address. Coding an exploit for this is going to be a little tricky as it mustn't have any 0x20, 0x00, 0x61-0x7A in it since these bytes are changes by the foregoing function that converts everything into uppercase.

The attacker sends his packet to the Alibaba server causing the Buffer overflow which will him to run his own code on the server and possibly gain administrator access.

1-3-6 Correlations:

I was unable to find an reported incidents of a compromised Alibaba web server.

Security Focus issued BugTraq[12] ID 1482 on July 18, 2000. The previous reference to the Neohapsis Archive post was dated q4 1999.

1-3-7 Evidence of active targeting:

This would be considered active targeting - A single host trying an exploit on another host. Although Snort detected this as an Alibaba Buffer Overflow exploit, the data packet we captured does not support this. What are the chances of one host sending two packets with the same data to the same source over a minute apart and they both triggering the same IDS Alert. Two packets with a DgmLen of 1500 but only 16 Bytes of payload.

1-3-8 Severity:

The flagged exploit was designed to work on a Alibaba Web server which is written for the Windows Operating System only, this web server is on a Unix Platform. The Web server is fully patched as is the OS of the machine the web server is hosted on and additional security measures are in use.

(4 + 1) – (4 + 2) = -1

Criticality of host: 4 (Web server).
Lethality of attack: 1 (Attack not likely to succeed).
Host Countermeasures: 4 (Moden OS, all patches)
Network Countermeasures: 2 (Permissive Firewall)

1-3-9 Defensive recommendation:

[12] SecurityFocus BugTraq ID 1482, http://www.securityfocus.com/bid/1482

If this were an Alibaba web server, I would take the advice of the folks at Nessus.ORG and get another web server. Apache is good and while Alibaba used to be free, it now costs $99.00 to get a copy of Alibaba. The vendor has not supplied a fix to this problem and the product has not been updated in over a year.

1-3-10 Multiple Choice test Question:

The above trace could be considered an example of?

A. Reconnaissance.
B. Probing
C. Active targeting
E. Wrong number.

ANSWER: C. One attacker, one target.

1-4 Network Detect Four

```
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS204/netbios_netbios-nt-null-session [**]
07/16-10:06:18.479588 131.66.108.224:3500 -> MY.NET.108.229:139
TCP TTL:118 TOS:0x4C ID:36702 IpLen:20 DgmLen:223 DF
***AP*** Seq: 0x21FB8  Ack: 0x7A79C923  Win: 0x21D7  TcpLen: 20
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 4C  ...|0..`...h..EL
0x0010: 00 DF 8F 5E 40 00 76 06 8E 99 83 42 6C E0 XX XX  ...^@.v....Bl.xx
0x0020: 6C E5 0D AC 00 8B 00 02 1F B8 7A 79 C9 23 50 18  l.........zy.#P.
0x0030: 21 D7 77 4F 00 00 00 00 00 B3 FF 53 4D 42 73 00  !.wO.......SMBs.
0x0040: 00 00 00 18 03 80 00 00 F5 D2 DF 72 CC D5 90 0C  ...........r....
0x0050: 00 00 00 00 FE CA 00 00 00 00 0D 75 00 84 00 04  ...........u....
0x0060: 11 32 00 00 00 00 00 00 00 01 00 00 00 00 00 00  .2..............
0x0070: 00 D4 00 00 00 47 00 00 00 00 00 00 57 00 69 00  .....G......W.i.
0x0080: 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00 54 00  n.d.o.w.s. .N.T.
0x0090: 20 00 31 00 33 00 38 00 31 00 00 00 00 00 57 00   .1.3.8.1.....W.
0x00A0: 69 00 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00  i.n.d.o.w.s. .N.
0x00B0: 54 00 20 00 34 00 2E 00 30 00 00 00 00 00 04 FF  T. .4...0.......
0x00C0: 00 00 00 00 00 01 00 24 00 00 5C 00 5C 00 41 00  .......$..\.\.A.
0x00D0: 4C 00 42 00 49 00 52 00 48 00 31 00 5C 00 53 00  L.B.I.R.H.1.\.S.
0x00E0: 48 00 41 00 52 00 45 00 00 00 41 3A 00           H.A.R.E...A:.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS204/netbios_netbios-nt-null-session [**]
07/16-10:06:18.479851 131.66.108.224:3500 -> MY.NET.108.229:139
TCP TTL:117 TOS:0x4C ID:36702 IpLen:20 DgmLen:223 DF
***AP*** Seq: 0x21FB8  Ack: 0x7A79C923  Win: 0x21D7  TcpLen: 20
0x0000: 00 10 07 17 38 C0 00 E0 FE 7C 30 A0 08 00 45 4C  ....8....|0...EL
0x0010: 00 DF 8F 5E 40 00 75 06 8F 99 83 42 6C E0 XX XX  ...^@.u....Bl.xx
0x0020: 6C E5 0D AC 00 8B 00 02 1F B8 7A 79 C9 23 50 18  l.........zy.#P.
0x0030: 21 D7 77 4F 00 00 00 00 00 B3 FF 53 4D 42 73 00  !.wO.......SMBs.
0x0040: 00 00 00 18 03 80 00 00 F5 D2 DF 72 CC D5 90 0C  ...........r....
0x0050: 00 00 00 00 FE CA 00 00 00 00 0D 75 00 84 00 04  ...........u....
0x0060: 11 32 00 00 00 00 00 00 00 01 00 00 00 00 00 00  .2..............
0x0070: 00 D4 00 00 00 47 00 00 00 00 00 00 57 00 69 00  .....G......W.i.
0x0080: 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00 54 00  n.d.o.w.s. .N.T.
0x0090: 20 00 31 00 33 00 38 00 31 00 00 00 00 00 57 00   .1.3.8.1.....W.
0x00A0: 69 00 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00  i.n.d.o.w.s. .N.
0x00B0: 54 00 20 00 34 00 2E 00 30 00 00 00 00 00 04 FF  T. .4...0.......
0x00C0: 00 00 00 00 00 01 00 24 00 00 5C 00 5C 00 41 00  .......$..\.\.A.
0x00D0: 4C 00 42 00 49 00 52 00 48 00 31 00 5C 00 53 00  L.B.I.R.H.1.\.S.
0x00E0: 48 00 41 00 52 00 45 00 00 00 41 3A 00           H.A.R.E...A:.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS204/netbios_netbios-nt-null-session [**]
07/16-10:06:19.126885 131.66.108.224:3504 -> MY.NET.108.229:139
TCP TTL:118 TOS:0x34 ID:44894 IpLen:20 DgmLen:229 DF
***AP*** Seq: 0x21FE0  Ack: 0x7A79CB69  Win: 0x21D7  TcpLen: 20
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 34  ...|0..`...h..E4
0x0010: 00 E5 AF 5E 40 00 76 06 6E AB 83 42 6C E0 XX XX  ...^@.v.n..Bl.xx
0x0020: 6C E5 0D B0 00 8B 00 02 1F E0 7A 79 CB 69 50 18  l.........zy.iP.
0x0030: 21 D7 93 74 00 00 00 00 00 B9 FF 53 4D 42 73 00  !..t.......SMBs.
0x0040: 00 00 00 18 03 80 00 00 65 1A 19 4E C5 31 D8 E3  ........e..N.1..
0x0050: 00 00 00 00 FE CA 00 00 00 00 0D 75 00 84 00 04  ...........u....
```

```
0x0060: 11 32 00 00 00 00 00 00 00 01 00 00 00 00 00 00  .2..............
0x0070: 00 D4 00 00 00 47 00 00 00 00 00 00 57 00 69 00  .....G......W.i.
0x0080: 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00 54 00  n.d.o.w.s. .N.T.
0x0090: 20 00 31 00 33 00 38 00 31 00 00 00 00 00 57 00   .1.3.8.1.....W.
0x00A0: 69 00 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00  i.n.d.o.w.s. .N.
0x00B0: 54 00 20 00 34 00 2E 00 30 00 00 00 00 00 04 FF  T. .4...0.......
0x00C0: 00 00 00 00 00 01 00 2A 00 00 5C 00 5C 00 41 00  .......*..\.\.A.
0x00D0: 4C 00 42 00 49 00 52 00 48 00 31 00 5C 00 49 00  L.B.I.R.H.1.\.I.
0x00E0: 4E 00 53 00 54 00 41 00 4C 00 4C 00 53 00 00 00  N.S.T.A.L.L.S...
0x00F0: 41 3A 00                                         A:.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS204/netbios_netbios-nt-null-session [**]
07/16-10:06:19.127412 131.66.108.224:3504 -> MY.NET.108.229:139
TCP TTL:117 TOS:0x34 ID:44894 IpLen:20 DgmLen:229 DF
***AP*** Seq: 0x21FE0  Ack: 0x7A79CB69  Win: 0x21D7  TcpLen: 20
0x0000: 00 10 07 17 38 C0 00 E0 FE 7C 30 A0 08 00 45 34  ....8....|0...E4
0x0010: 00 E5 AF 5E 40 00 75 06 6F AB 83 42 6C E0 XX XX  ...^@.u.o..Bl.xx
0x0020: 6C E5 0D B0 00 8B 00 02 1F E0 7A 79 CB 69 50 18  l.........zy.iP.
0x0030: 21 D7 93 74 00 00 00 00 00 B9 FF 53 4D 42 73 00  !..t.......SMBs.
0x0040: 00 00 00 18 03 80 00 00 65 1A 19 4E C5 31 D8 E3  ........e..N.1..
0x0050: 00 00 00 00 FE CA 00 00 00 00 0D 75 00 84 00 04  ...........u....
0x0060: 11 32 00 00 00 00 00 00 00 01 00 00 00 00 00 00  .2..............
0x0070: 00 D4 00 00 00 47 00 00 00 00 00 00 57 00 69 00  .....G......W.i.
0x0080: 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00 54 00  n.d.o.w.s. .N.T.
0x0090: 20 00 31 00 33 00 38 00 31 00 00 00 00 00 57 00   .1.3.8.1.....W.
0x00A0: 69 00 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00  i.n.d.o.w.s. .N.
0x00B0: 54 00 20 00 34 00 2E 00 30 00 00 00 00 00 04 FF  T. .4...0.......
0x00C0: 00 00 00 00 00 01 00 2A 00 00 5C 00 5C 00 41 00  .......*..\.\.A.
0x00D0: 4C 00 42 00 49 00 52 00 48 00 31 00 5C 00 49 00  L.B.I.R.H.1.\.I.
0x00E0: 4E 00 53 00 54 00 41 00 4C 00 4C 00 53 00 00 00  N.S.T.A.L.L.S...
0x00F0: 41 3A 00                                         A:.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS204/netbios_netbios-nt-null-session [**]
07/16-10:06:19.811984 131.66.108.224:3506 -> MY.NET.108.229:139
TCP TTL:118 TOS:0x34 ID:49758 IpLen:20 DgmLen:223 DF
***AP*** Seq: 0x21FE8  Ack: 0x7A79CE04  Win: 0x21D7  TcpLen: 20
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 34  ...|0..`...h..E4
0x0010: 00 DF C2 5E 40 00 76 06 5B B1 83 42 6C E0 XX XX  ...^@.v.[..Bl.xx
0x0020: 6C E5 0D B2 00 8B 00 02 1F E8 7A 79 CE 04 50 18  l.........zy..P.
0x0030: 21 D7 E3 4D 00 00 00 00 00 B3 FF 53 4D 42 73 00  !..M.......SMBs.
0x0040: 00 00 00 18 03 80 00 00 83 E5 F0 DC 4C 06 00 4A  ............L..J
0x0050: 00 00 00 00 FE CA 00 00 00 00 0D 75 00 84 00 04  ...........u....
0x0060: 11 32 00 00 00 00 00 00 00 01 00 00 00 00 00 00  .2..............
0x0070: 00 D4 00 00 00 47 00 00 00 00 00 00 57 00 69 00  .....G......W.i.
0x0080: 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00 54 00  n.d.o.w.s. .N.T.
0x0090: 20 00 31 00 33 00 38 00 31 00 00 00 00 00 57 00   .1.3.8.1.....W.
0x00A0: 69 00 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00  i.n.d.o.w.s. .N.
0x00B0: 54 00 20 00 34 00 2E 00 30 00 00 00 00 00 04 FF  T. .4...0.......
0x00C0: 00 00 00 00 00 01 00 24 00 00 5C 00 5C 00 41 00  .......$..\.\.A.
0x00D0: 4C 00 42 00 49 00 52 00 48 00 31 00 5C 00 53 00  L.B.I.R.H.1.\.S.
0x00E0: 48 00 41 00 52 00 45 00 00 00 41 3A 00           H.A.R.E...A:.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS204/netbios_netbios-nt-null-session [**]
07/16-10:06:19.812139 131.66.108.224:3506 -> MY.NET.108.229:139
```

```
TCP TTL:117 TOS:0x34 ID:49758 IpLen:20 DgmLen:223 DF
***AP*** Seq: 0x21FE8  Ack: 0x7A79CE04  Win: 0x21D7  TcpLen: 20
0x0000: 00 10 07 17 38 C0 00 E0 FE 7C 30 A0 08 00 45 34  ....8....|0...E4
0x0010: 00 DF C2 5E 40 00 75 06 5C B1 83 42 6C E0 XX XX  ...^@.u.\..Bl.xx
0x0020: 6C E5 0D B2 00 8B 00 02 1F E8 7A 79 CE 04 50 18  l.........zy..P.
0x0030: 21 D7 E3 4D 00 00 00 00 00 B3 FF 53 4D 42 73 00  !..M.......SMBs.
0x0040: 00 00 00 18 03 80 00 00 83 E5 F0 DC 4C 06 00 4A  ............L..J
0x0050: 00 00 00 00 FE CA 00 00 00 00 0D 75 00 84 00 04  ...........u....
0x0060: 11 32 00 00 00 00 00 00 00 01 00 00 00 00 00 00  .2..............
0x0070: 00 D4 00 00 00 47 00 00 00 00 00 00 57 00 69 00  .....G......W.i.
0x0080: 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00 54 00  n.d.o.w.s. .N.T.
0x0090: 20 00 31 00 33 00 38 00 31 00 00 00 00 00 57 00   .1.3.8.1.....W.
0x00A0: 69 00 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00  i.n.d.o.w.s. .N.
0x00B0: 54 00 20 00 34 00 2E 00 30 00 00 00 00 00 04 FF  T. .4...0.......
0x00C0: 00 00 00 00 00 01 00 24 00 00 5C 00 5C 00 41 00  .......$..\.\.A.
0x00D0: 4C 00 42 00 49 00 52 00 48 00 31 00 5C 00 53 00  L.B.I.R.H.1.\.S.
0x00E0: 48 00 41 00 52 00 45 00 00 00 41 3A 00           H.A.R.E...A:.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS204/netbios_netbios-nt-null-session [**]
07/16-10:06:21.013624 131.66.108.224:3512 -> MY.NET.108.229:139
TCP TTL:118 TOS:0x34 ID:62814 IpLen:20 DgmLen:223 DF
***AP*** Seq: 0x22024  Ack: 0x7A79D30C  Win: 0x21D7  TcpLen: 20
0x0000: 00 E0 FE 7C 30 A0 00 60 83 95 19 68 08 00 45 34  ...|0..`...h..E4
0x0010: 00 DF F5 5E 40 00 76 06 28 B1 83 42 6C E0 XX XX  ...^@.v.(..Bl.xx
0x0020: 6C E5 0D B8 00 8B 00 02 20 24 7A 79 D3 0C 50 18  l....... $zy..P.
0x0030: 21 D7 78 5E 00 00 00 00 00 B3 FF 53 4D 42 73 00  !.x^.......SMBs.
0x0040: 00 00 00 18 03 80 00 00 B9 AB C4 F8 EE 88 B9 8A  ................
0x0050: 00 00 00 00 FE CA 00 00 00 00 0D 75 00 84 00 04  ...........u....
0x0060: 11 32 00 00 00 00 00 00 00 01 00 00 00 00 00 00  .2..............
0x0070: 00 D4 00 00 00 47 00 00 00 00 00 00 57 00 69 00  .....G......W.i.
0x0080: 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00 54 00  n.d.o.w.s. .N.T.
0x0090: 20 00 31 00 33 00 38 00 31 00 00 00 00 00 57 00   .1.3.8.1.....W.
0x00A0: 69 00 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00  i.n.d.o.w.s. .N.
0x00B0: 54 00 20 00 34 00 2E 00 30 00 00 00 00 00 04 FF  T. .4...0.......
0x00C0: 00 00 00 00 00 01 00 24 00 00 5C 00 5C 00 41 00  .......$..\.\.A.
0x00D0: 4C 00 42 00 49 00 52 00 48 00 31 00 5C 00 53 00  L.B.I.R.H.1.\.S.
0x00E0: 48 00 41 00 52 00 45 00 00 00 41 3A 00           H.A.R.E...A:.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
[**] IDS204/netbios_netbios-nt-null-session [**]
07/16-10:06:21.013739 131.66.108.224:3512 -> MY.NET.108.229:139
TCP TTL:117 TOS:0x34 ID:62814 IpLen:20 DgmLen:223 DF
***AP*** Seq: 0x22024  Ack: 0x7A79D30C  Win: 0x21D7  TcpLen: 20
0x0000: 00 10 07 17 38 C0 00 E0 FE 7C 30 A0 08 00 45 34  ....8....|0...E4
0x0010: 00 DF F5 5E 40 00 75 06 29 B1 83 42 6C E0 XX XX  ...^@.u.)..Bl.xx
0x0020: 6C E5 0D B8 00 8B 00 02 20 24 7A 79 D3 0C 50 18  l....... $zy..P.
0x0030: 21 D7 78 5E 00 00 00 00 00 B3 FF 53 4D 42 73 00  !.x^.......SMBs.
0x0040: 00 00 00 18 03 80 00 00 B9 AB C4 F8 EE 88 B9 8A  ................
0x0050: 00 00 00 00 FE CA 00 00 00 00 0D 75 00 84 00 04  ...........u....
0x0060: 11 32 00 00 00 00 00 00 00 01 00 00 00 00 00 00  .2..............
0x0070: 00 D4 00 00 00 47 00 00 00 00 00 00 57 00 69 00  .....G......W.i.
0x0080: 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00 54 00  n.d.o.w.s. .N.T.
0x0090: 20 00 31 00 33 00 38 00 31 00 00 00 00 00 57 00   .1.3.8.1.....W.
0x00A0: 69 00 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00  i.n.d.o.w.s. .N.
0x00B0: 54 00 20 00 34 00 2E 00 30 00 00 00 00 00 04 FF  T. .4...0.......
```

```
0x00C0: 00 00 00 00 00 01 00 24 00 00 5C 00 5C 00 41 00  .......$..\.\.A.
0x00D0: 4C 00 42 00 49 00 52 00 48 00 31 00 5C 00 53 00  L.B.I.R.H.1.\.S.
0x00E0: 48 00 41 00 52 00 45 00 00 00 41 3A 00           H.A.R.E...A:.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

1-4-1 Source of Trace:

This alert/trace is from an internal sensor on my employers network. It has been used with the permission of the Local Computer Incident Response Team (LCIRT).

1-4-2 Detect was generated by:

Snort v1.7 on Windows NT 4, using the following rule from Whitehats.com

alert TCP $EXTERNAL any -> $INTERNAL 139 (msg: "IDS204/netbios_netbios-nt-null-session"; flags: A+; content: "|00 00 00 00 57 00 69 00 6E 00 64 00 6F 00 77 00 73 00 20 00 4E 00 54 00 20 00 31 00 33 00 38 00 31|";)

1-4-3 Probability the source address was spoofed:

The source is probably not spoofed. The purpose of the NT NetBios Null Session is to enumerate shares and local users on an NT system. This is data mining at its finest when it comes to NT.

1-4-4 Description of the attack:

NetBIOS services on NT allow users to connect without any username and password (the NULL session). This is accomplished by: Once connected they can interrogate the machine with any number of tools such as Dumpsec and Legion. These tools allow their user to obtain a list of shares, users, groups and their members, and policy information. This will also open the door to allow tools like lOphtCrack (A Password cracker) to be used to obtain user passwords.

1-4-5 Attack mechanism:

The attack is started with the following command:

NET USE \\MY.NET.108.229\IPC$ “” /u:””

This command will establish a session with the IPC$ share(the hidden Interprocess Communication share that allows machines to communicate) on the target machine (IP MY.NET.102.229) without providing a username and password! Once a session is established, then the target can be interrogated.

To obtain a list of shares on the target machine, you could type:

NET VIEW \\MY.NET.108.229

Tools like Dumpsec or Legion can be used to get Registry information, user and group lists, volume and directory information and security settings, policy settings.

1-4-6 Correlations:
Andrew Windsor GCIA[13] (349) in his Practical wrote "Anatomy of a Windows 2000 Enumeration" that covers the subject very well.

Al Evans[14], GCIA (298) analyzed an NT Null Session as his first Detect for his practical.

Marc Gregoire[15] GCIA (249) as his second Detect in his practical analyzed a NetBios Scan on his network and went on to demonstrate a Null Session compromise.

Karen Frederick[16] GCIA (248) evaluated a tool called WinFingerprint in her practical. This tool can be used to establish a Null Session and interrogate a target.

Mitre.org published a CVE on the subject. http://cve.mitre.org/cgi-bin/cvename.cgi?name=CAN-1999-0519

1-4-7 Evidence of active targeting:

This is active targeting. One attacker and one host. A tool like Legion and even ShareSniffer can assist you in scanning for NT hosts that allow Null Sessions but a connection or repeated attempts to connect to a single machine is active targeting.

1-4-8 Severity:

There is no evidence in the IDS logs that our host responded.

(1 + 5) – (4 + 2) = 0
Criticality of host: 1 (This is Windows Desktop system with all patches).
Lethality of attack: 5 (Successful connection can lead to administrtor access).
Host Countermeasures: 4 (Modern operating system with all patches).
Network Countermeasures: 2 (Firewall allowed the attack to go through).

1-4-9 Defensive recommendation:

Microsoft provides guidance in a Knowledgebase article on how to restrict the amount of information an Anonymous user can access on NT Systems. It is http://support.microsoft.com/support/kb/articles/Q143/4/74.asp. I highly recommend that you read and apply its settings and recommendations to all NT Systems.

[13] Andrew Windsor, GCIA (349) SANS, http://www.sans.org/y2k/practical/Andrew_Windsor_GCIA.doc
[14] All Evans, GCIA (298), SANS, http://www.sans.org/y2k/practical/Al_Evans_GCIA.doc
[15] Marc Gregoire GCIA (249) SANS, http://www.sans.org/y2k/practical/marc_gregoire.doc
[16] Karen Frederick GCIA (248), SANS, http://www.sans.org/y2k/practical/Karen_Frederick_GIAC.doc

You should also consider blocking Ports 135 through 139 at your border Routers. Blocking these ports at your border routers is your best defense. If you cannot block the port, then at least consider putting an ACL in place to restrict access to specific systems and then monitor them very closely.

1-4-10 Multiple Choice test Question:

What is the command line used to make a Null Session connection to a Microsoft NT host?

A. NET LOGON \\MY.NET.NT.PC \IPC$ “” /U:””
B. NET START \\MY.NET.NT.PC \IPC$ “” /U:””
C. NET USE \\MY.NET.NT.PC \IPC$ “” /U:””
D. NET VIEW \\MY.NET.NT.PC \IPC$ “” /U:””

ANSWER: D. NET VIEW \\MY.NET.NT.PC \IPC$ “” /U:”” is the correct command. While A, B and D are valid commands, the syntax fo reach of those commands is not correct.

1-5 Network Detect Five

07/16-06:56:04 64.124.157.16:8245 -> MY.NET.65.83:17952 UDP
07/16-06:56:04 64.124.157.16:8293 -> MY.NET.65.83:28717 UDP
07/16-06:56:05 64.124.157.16:13600 -> MY.NET.65.83:13362 UDP
07/16-06:56:06 64.124.157.16:8247 -> MY.NET.65.83:13088 UDP
07/16-06:56:06 64.124.157.16:8303 -> MY.NET.65.83:27706 UDP
07/16-06:56:11 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:17 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:23 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:19 64.124.157.16:18824 -> MY.NET.65.83:48 UDP
07/16-06:56:22 64.124.157.16:14901 -> MY.NET.65.83:13882 UDP
07/16-06:56:21 64.124.157.16:13365 -> MY.NET.65.83:8245 UDP
07/16-06:56:23 64.124.157.16:47175 -> MY.NET.65.83:49032 UDP
07/16-06:56:29 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:25 64.124.157.16:14901 -> MY.NET.65.83:13882 UDP
07/16-06:56:27 64.124.157.16:8240 -> MY.NET.65.83:12320 UDP
07/16-06:56:28 64.124.157.16:12337 -> MY.NET.65.83:12592 UDP
07/16-06:56:35 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:31 64.124.157.16:14901 -> MY.NET.65.83:13882 UDP
07/16-06:56:35 64.124.157.16:8240 -> MY.NET.65.83:12320 UDP
07/16-06:56:41 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:41 64.124.157.16:14901 -> MY.NET.65.83:13882 UDP
07/16-06:56:45 64.124.157.16:14901 -> MY.NET.65.83:13882 UDP
07/16-06:56:47 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:47 64.124.157.16:13365 -> MY.NET.65.83:8245 UDP
07/16-06:56:47 64.124.157.16:13108 -> MY.NET.65.83:8243 UDP
07/16-06:56:48 64.124.157.16:13365 -> MY.NET.65.83:8245 UDP
07/16-06:56:53 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:49 64.124.157.16:8244 -> MY.NET.65.83:13856 UDP
07/16-06:56:49 64.124.157.16:12576 -> MY.NET.65.83:13122 UDP
07/16-06:56:52 64.124.157.16:14901 -> MY.NET.65.83:13882 UDP
07/16-06:56:59 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:55 64.124.157.16:14901 -> MY.NET.65.83:13882 UDP
07/16-06:57:00 64.124.157.16:15659 -> MY.NET.65.83:15659 UDP
07/16-06:57:06 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:05 64.124.157.16:8245 -> MY.NET.65.83:12320 UDP
07/16-06:57:11 64.124.157.16:8245 -> MY.NET.65.83:12320 UDP
07/16-06:57:11 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:09 64.124.157.16:8293 -> MY.NET.65.83:29811 UDP
07/16-06:57:10 64.124.157.16:12832 -> MY.NET.65.83:12853 UDP
07/16-06:57:17 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:17 64.124.157.16:1894 -> MY.NET.65.83:1203 UDP
07/16-06:57:17 64.124.157.16:36471 -> MY.NET.65.83:56747 UDP
07/16-06:57:18 64.124.157.16:36471 -> MY.NET.65.83:56747 UDP
07/16-06:57:23 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:19 64.124.157.16:15659 -> MY.NET.65.83:15659 UDP
07/16-06:57:20 64.124.157.16:8240 -> MY.NET.65.83:12320 UDP
07/16-06:57:22 64.124.157.16:13880 -> MY.NET.65.83:8246 UDP
07/16-06:57:23 64.124.157.16:513 -> MY.NET.65.83:21843 UDP
07/16-06:57:29 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:26 64.124.157.16:513 -> MY.NET.65.83:21843 UDP
07/16-06:57:27 64.124.157.16:13088 -> MY.NET.65.83:13873 UDP

07/16-06:57:29 64.124.157.16:15659 -> MY.NET.65.83:15659 UDP
07/16-06:57:35 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:32 64.124.157.16:15659 -> MY.NET.65.83:15659 UDP
07/16-06:57:33 64.124.157.16:8243 -> MY.NET.65.83:12832 UDP
07/16-06:57:33 64.124.157.16:8246 -> MY.NET.65.83:13088 UDP
07/16-06:57:35 64.124.157.16:14901 -> MY.NET.65.83:14138 UDP
07/16-06:57:41 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:47 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:47 64.124.157.16:8240 -> MY.NET.65.83:12320 UDP
07/16-06:57:50 64.124.157.16:14901 -> MY.NET.65.83:14138 UDP
07/16-06:57:53 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:48 64.124.157.16:18953 -> MY.NET.65.83:11625 UDP
07/16-06:57:49 64.124.157.16:9522 -> MY.NET.65.83:17482 UDP
07/16-06:57:52 64.124.157.16:0 -> MY.NET.65.83:45158 UDP
07/16-06:57:52 64.124.157.16:2048 -> MY.NET.65.83:25455 UDP
07/16-06:57:59 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:56 64.124.157.16:2048 -> MY.NET.65.83:57015 UDP
07/16-06:57:58 64.124.157.16:2048 -> MY.NET.65.83:21153 UDP
07/16-06:57:58 64.124.157.16:2048 -> MY.NET.65.83:27543 UDP
07/16-06:57:59 64.124.157.16:2048 -> MY.NET.65.83:7880 UDP
07/16-06:58:01 64.124.157.16:14901 -> MY.NET.65.83:14394 UDP
07/16-06:58:05 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:02 64.124.157.16:1894 -> MY.NET.65.83:1203 UDP
07/16-06:58:03 64.124.157.16:2048 -> MY.NET.65.83:59118 UDP
07/16-06:58:05 64.124.157.16:0 -> MY.NET.65.83:43728 UDP
07/16-06:58:05 64.124.157.16:46184 -> MY.NET.65.83:35792 UDP
07/16-06:58:06 64.124.157.16:46184 -> MY.NET.65.83:35792 UDP
07/16-06:58:11 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:07 64.124.157.16:12336 -> MY.NET.65.83:8240 UDP
07/16-06:58:07 64.124.157.16:13365 -> MY.NET.65.83:8245 UDP
07/16-06:58:08 64.124.157.16:14901 -> MY.NET.65.83:14394 UDP
07/16-06:58:11 64.124.157.16:8240 -> MY.NET.65.83:11603 UDP
07/16-06:58:11 64.124.157.16:8224 -> MY.NET.65.83:8224 UDP
07/16-06:58:12 64.124.157.16:13365 -> MY.NET.65.83:8245 UDP
07/16-06:58:17 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:14 64.124.157.16:9350 -> MY.NET.65.83:50712 UDP
07/16-06:58:15 64.124.157.16:12343 -> MY.NET.65.83:12346 UDP
07/16-06:58:17 64.124.157.16:14901 -> MY.NET.65.83:14394 UDP
07/16-06:58:23 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:29 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:35 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:35 64.124.157.16:324 -> MY.NET.65.83:52434 UDP
07/16-06:58:37 64.124.157.16:324 -> MY.NET.65.83:52434 UDP
07/16-06:58:41 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:38 64.124.157.16:1894 -> MY.NET.65.83:1203 UDP
07/16-06:58:39 64.124.157.16:13365 -> MY.NET.65.83:8245 UDP
07/16-06:58:47 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:45 64.124.157.16:14901 -> MY.NET.65.83:14394 UDP
07/16-06:58:47 64.124.157.16:14136 -> MY.NET.65.83:14644 UDP
07/16-06:58:48 64.124.157.16:14136 -> MY.NET.65.83:14644 UDP
07/16-06:58:53 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:52 64.124.157.16:8240 -> MY.NET.65.83:12320 UDP
07/16-06:58:53 64.124.157.16:13365 -> MY.NET.65.83:8245 UDP
07/16-06:58:55 64.124.157.16:14901 -> MY.NET.65.83:14394 UDP

07/16-06:58:59 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:57 64.124.157.16:15659 -> MY.NET.65.83:15659 UDP
07/16-06:58:59 64.124.157.16:41552 -> MY.NET.65.83:2591 UDP

Here is the same data as above but only the Port Zero to Port Zero traffic and sorted by time. See the six second pattern. There is an occasional deviation from this, but not very often and since we don't have the milliseconds I can only attribute it to the occasional network delay.

07/16-06:56:11 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:17 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:23 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:29 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:35 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:41 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:47 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:53 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:56:59 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:06 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:11 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:17 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:23 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:29 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:35 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:41 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:47 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:53 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:57:59 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:05 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:11 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:17 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:23 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:29 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:35 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:41 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:47 64.124.157.16:0 -> MY.NET.65.83:0 UDP
07/16-06:58:53 64.124.157.16:0 -> MY.NET.65.83:0 UDP

1-5-1 Source of Trace:

This alert/trace is from an internal sensor on my employers network. It has been used with the permission of the Local Computer Incident Response Team (LCIRT).

1-5-2 Detect was generated by:

Snort v1.7 on Windows NT 4. This a portion of the Portscan log showing multiple UDP connection attempts from 64.124.157.16 to MY.NET.65.83 between 06:56:04 to 06:58:59 on 16 Jul 2001. The scan continues on until 07:19:39 and looks just like the three minute portion I have shown above. The second portion of the trace shows a pattern that also continues. The Snort sensor locked up at 07:19 is the only reason I have no other data on this at the moment.

1-5-3 Probability the source address was spoofed:

The chances are very good that this source address is spoofed. The protocol being used is UDP so no the sender is not looking for a response.

1-5-4 Description of the attack:

Port zero is sometimes used by routers to exchange information. It is a reserved IANA Port as well. The sender is using port zero to bypass firewalls, routers and some IDS sytems. It is an attempt to send control signals to systems that have been compromised by Trojans listening to traffic on the net work. The original Red Worm (Now the Adore Worm) was rumored to configure itself to listen on port 65535 for a UDP packet of 77 bytes in length that contained commands for it.

1-5-5 Attack mechanism:

This could be a Trojan or a Denial Of Service. We see no outbound connection to the host sending the data at present. We have only seen this one incident. A virus scan of all files and all drives shows nothing is infected. MSN Messenger is installed on the PC, but until I can confirm that MSN Messenger is causing the problem is still under investigation.

1-5-6 Correlations:

I was able to find one article to substantiate my MSN Messenger theory in the Neohapsis Archives. http://archives.neohapsis.com/archives/firewalls/2001-q1/0567.html. Until I can prove otherwise, this all I have to go on.

1-5-7 Evidence of active targeting:

If this is a Denial of Service or a Trojan then this is Active Targeting. Everything is being directed at this one machine on the network.

1-5-8 Severity:

The machine being target is a Windows 95 desktop (It is being replaced, they just haven't gotten to it yet). All security patches for the OS are applied. All Browser patches are installed and it has current Anti-virus software and signatures.

$$(1 + 4) – (3 + 2) = 0$$

Criticality of host: 1 (Windows 95 Desktop with patches and Antivirus software)
Lethality of attack: 4 (Denial of Service or Trojan)
Host Countermeasures: (3 (Older operating system, patched with Antivirus software)
Network Countermeasures: (2) Firewall allowed it through.

1-5-9 Defensive recommendation:

At present I have to wait for the user to return from vacation to check on the MSN Messenger option. Until then the machine is off and will remain off until she returns. I booted up the PC and did not see the suspicious activity on the IDS Sensor which adds more support to the MSN Messenager theory.

1-5-10 Multiple Choice test Question:

Using the above network trace.

UDP Port zero to UDP Port Zero traffic logged at regular intervals by an IDS is and indication of?

A. Routers exchanging OSPF Data
B. Updates between Windows 2000 Dynamic DNS servers
C. Possible Denial Of Service or Trojan activity
D. None of the above

Assignment Two – Describe the State of Intrusion Detection

NT Event Log Consolidation: A Solution for Centralized Reporting on Windows Based Snort Sensors

Introduction

Why consolidate NT Event Logging? Page 214 and 215 of Hacking Exposed[17], Second Edition, talks about Disabling Auditing and Clearing the Event Log. Centralized logging will not help us with disabling logging other than let us know when logging stopped and started, but it can help us with monitoring the clearing of the Event Log. They will have to hack the syslog server and clear it as well to cover their tracks if NT Events are mirrored to a Syslog server. What good is Event Logging if a hacked system doesn't have any records to indicate it was hacked. What good is a host based IDS system that records events to the Windows NT Event Log if those logs are erased. As an Intrusion Detection Analyst, you should encourage the use of Centralized NT Event Logging as an aid in gathering correlation data for your detects.

This paper is being presented as a possible solution for Centralized NT Event Logging, for use in setting up a centralized reporting system for Windows Based Snort Sensors. This system along with a script(Like SnortLog[18]) to monitor Snort Events written to Syslogs can provide you with a Near Real Time Notification Intrusion Detection Network. This is an option to adding Windows Based IDS Sensors with Centralized reporting to your network and an addition to SnortNet[19]

Why Windows?

Why not Windows? I know everyone thinks it has more holes than Swiss Cheese, but if you think about it, while everyone is busy protecting all of those Unix, Sun and HP systems from attackers; who is protecting the machines being used by your users to access those systems. Most of those users are Windows Operating Systems. You don't have to hack the big machines, just those of the users. Administrators desktops are probably the most neglected. Why, because they are so busy patching the big boxes, they haven't had time to patch their own desktops. I believe this is one reason for the increase in Worms, Trojans and port scans. Most users synchronize passwords (and a lot of those are weak according to the SANS Top Vulnerabilities List[20]) on every machine they login to. For a hacker it's like one stop shopping. You hack one machine and you have access to everything that user has access to, it's even better if that user is a Unix Administrator or an NT Domain Administrator.

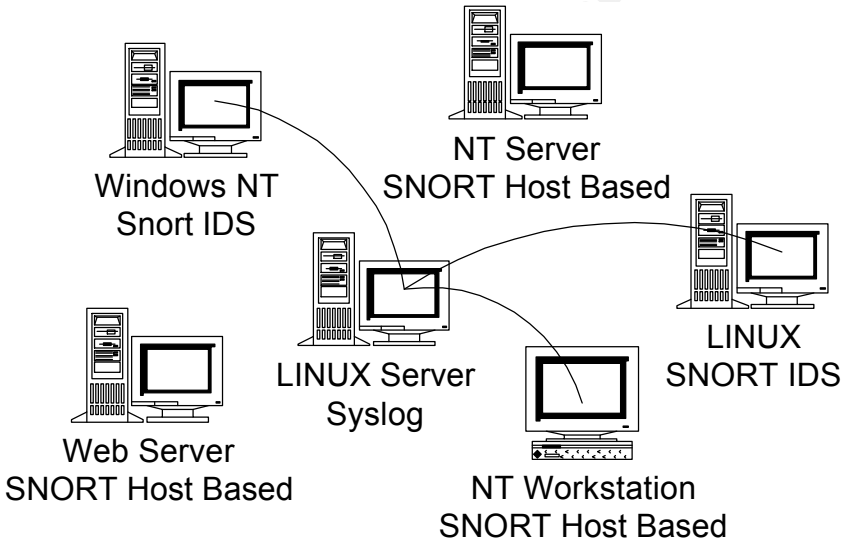
What about Snort on Windows? It has an option to write alerts to the NT Event Log. Problem is, you have to access each machine independently to see the alerts. This may be fine for a host based IDS, but what if you want to deploy Windows based Intrusion Detection Sensors and

[17] Covering Tracks, Hacking Exposed: Network Security Secrets and Solutions 2d Ed., 2001, Joel Scambray, Stuart McClure, George Klutz, McGraw Hill, Reading.
[18] SnortLog, Syslog Analysis Script by Angelos Karageorgiou, http://www.snort.org/Files/snortlog
[19] SnortNet, Distributed Logging for Snort by Fyodor Yarochkin, http://www.snort.org/Files/snortnet.tar.gz
[20] The Ten Most Critical Internet Security Threats, SANS, http://www.sans.org/topten.htm

consolidate the alerts. For this you would need a lot of scripts and batch files. Snort as a Host based IDS would be nice for correlation. It would be nice if you could consolidate the NT Event Logs from Windows based IDS systems in one spot. Maybe setup some automated scripts in the central location to check for alerts.

Let's say you see a Snort alert for a workstation on your network. You know that the machine has Snort as a host based IDS and logs everything to the NT Event Log. You open up your Event Viewer and change your connection to that workstation and see what it has written down. Alternatively, you map a drive to the Snort Log Share and view the detailed event record of the alert.

Below is a drawing that shows the major pieces of the NT Event Log Consolidation System.. The system I will describe will not require any serious programming efforts and is best setup with the cooperation of the Unix Adminstrator. This system can be implemented as a whole or in parts. Do not forward NT Event Logs from a workstation with a network printer attached!



What resources do we have to setup this system?

There are several books on the subject of NT Event Logging and loads of information on the internet on the subject. O'Reilly & Associates, Windows NT Event Logging[21] covers the process very well. It covers the NT Event service, NT Event Viewer, Security Auditing, the Event Logging API, and programming using C/C++, Visual Basic, and Perl (among others). I also used a copy of the Microsoft Windows NT Server Resource Kit[22].

Software to perform the task is everywhere, but most of it costs quite a bit of money. For a small business money can be a big issue. We have a very limited budget so we won't be purchasing

[21] Windows NT Event Logging, 1st Ed Sep 1998, James D. Murray, O'Reilly & Associates, Reading.
[22] Microsoft NT Server Resource Kit, Useful Resource Kit for Domain Administrators, Contents list, http://support.microsoft.com/support/kb/articles/Q158/3/88.asp

any software. We have the Windows NT Resource Kit and it contains the Dumpel (Dump Event Log) utility. We will also be using a free utility from Intersect Alliance[23] called Backlog. From their web page:

> BackLog is currently configured to deliver audit information to a SYSLOG server running on a remote (or local) machine. A configuration utility allows you to set the appropriate syslog categories, as well as the target server that should receive the audit information.

You will need to configure the Linux Syslog service to receive the log entries being forwarded from the NT servers when we install the software. We would like all the NT Event logs routed to a separate log file if at all possible. For this I worked with my local Unix adminstrator and with a little tweaking, we have all Syslog entries from NT Servers going to a separate directory. I have also setup my workstation with Snort as a Host Based IDS (Or a network segment IDS if I turn permiscuous mode on), installed BackLog and set the reporting category to Local6 and Information. I use a Linux based Syslog system because Windows based Syslog Utilities at the right price are few and far between.

OK, we have the tools. Now we have to decide what we want to consolidate or what we can afford to consolidate.

NOTE: One weird item about BackLog is that what you configure during setup is not exactly what you get on the Syslog server. I will give you the settings I used when I setup the system I have in place for my Windows 2000 Host Based IDS.

Configuring the Syslog process on the Syslog server:

You will have to talk to the Syslog server administrator and ask him to configure the Syslog Local2 Category to log to a separate file and directory. This is what I selected as the Category for all NT Event Logs to be filed under.

Installing and configuring BackLog

We know that we want to consolidate the NT Events from Snort Sensors in one location, but what category settings do we need to set?

WARNING! Do NOT use these settings on a server if you are forwarding NT Events to a Syslog server. Trust me, you don't have enough disk space.

BackLog comes with its own setup routine. Download a copy from the link in the footnotes and run the program. It will install itself and then start the configuration program. You will need the following information to complete the install:

[23] Intersect Alliance, http://www.intersectalliance.com/projects/#BackLog

Targethost: syslogserver.my.net
Syslog Category: Local6
Change Notice to Information.

Syslog Category: Local6. Yes, I know I told you to set the Syslog process on the Syslog server to Local2, but here I am telling you to set the category on the NT server to Local6. During my initial testing and working with my Syslog administrator we found that if you set both to Local2 then events did not get logged. If they are both set to Local6 they still don't get logged. Through experimentation, we found that the combination I have given you here works fine. This is only a bug with the Local categories, all other categories work just fine. For free we were willing to live with that until we could come up with something better.

Change Notice to Information. This is the only setting you can use with the Static Version of Snort for Windows when writing to the NT Event Log.

Snort send all alerts to the NT Event Log as Information. If you have the time you could download the Windows Source Code and change this to write it to the NT Event Log as an alert. Setting this as an Alert would allow Snort to be used as a Host Based IDS and NT Event Log to Syslog consolidation to be an acceptable option for servers as well. As an alert, you could configure BackLog to forward all Warnings and higher to the Syslog server.

Why not servers? In my first attempt at setting up BackLog, I had installed it on fifteen NT 4/2000 servers and set BackLog up to send all Syslog Category Information and Higher events to the Syslog server (I did this at 7:00 P.M at night). The next morning at 06:30 I checked and only had about 3.5 Mb of log files. This wasn'too bad, but I would have to turn it down some if I was

going to add more servers to the system. I checked an hour and a half later and the Syslog file had grown to 8 Mb in size! I had installed BackLog on an NT File and Print server and printing generates tons of Event Log entries. This was not good, even with Network Attached Storage I was going to fill things up fast. I switched everything to Warnings and higher and things settled down. If you are just starting out I would recommend that you start with Alerts and higher and witch to Warnings later, just to see what your disk space requirements are going to be.

What if I want to archive the NT Event Logs?

Unless you configure BackLog to Debug mode (Not recommended at all), you will have everything you need for a Host Based IDS on the Syslog server. You will have to manually clean up the local Alert files periodically, but you can use the Task Scheduler to schedule to archive the files and remove them periodically if you want, or jus delete them if the machine is being backed up regularly.

If you want to archive the NT Event Logs, then I recommend the DumpEL (Dump Event Log) utility that is included in the Microsoft NT Server 4.0 Resource Kit. It is a Command Line utility that dumps the contents of the local or remote event log into a text file. It has many command line options and supports both tab and comman delimited file formats. It works with Windows 2000 and Windows NT 4. It can also be used to search for specific events and export them if needed. An additional tool that I would recommend is DumpEvt from Somarsoft[24]. Their utility allows you to specify which Event Log you want to export and the format and location you want it saved in. It supports the Windows 2000 Directory Service, DNS and File Replication Service log formats as well.

Using either of the tools mentioned above or both if you have the space. You can create a batch file with the following command(s):

For comma separated format using DumpEL:

```
DumpEL –l Application –s RAS.MY.NET –c –f APPLICATION.CSV
DumpEL –l Security –s RAS.MY.NET –c –f SECURITY.CSV
DumpEL –l Event –s RAS.MY.NET –c –f EVENT.CSV
```

For Native Event Log format Using DumpEL

```
DumpEL –l Application –s RAS.MY.NET –b –f APPLICATION.EVT
DumpEL –l Security –s RAS.MY.NET –b –f SECURITY.EVT
DumpEL –l Event –s RAS.MY.NET –b –f EVENT.EVT
```

If you are just archiving then I would recommend using the Native Event Log format. You can always open the log up later with the Event Viewer and save it as text. Here is what I do:

[24] Somarsoft Utilities, DumpEvt – Dump Event Log Utility, http://www.somarsoft.com/somarsoft_main.htm

DumpEL –l Application –s RAS.MY.NET –b –f APPLICATION.EVT
DumpEL –l Security –s RAS.MY.NET –b –f SECURITY.EVT
DumpEL –l Event –s RAS.MY.NET –b –f EVENT.EVT

DumpEVT /computer=RAS.MY.NET /logfile=sec /outfile=C:\sec.dev /reg=local_machine
DumpEVT /computer=RAS.MY.NET /logfile=app /outfile=C:\app.dev /reg=local_machine
DumpEVT /computer=RAS.MY.NET /logfile=sys /outfile=C:\sys.dev /reg=local_machine

The above options export each event log in its native format using DumpEL and again with DumpEVT so I can open it with a text editor. You can modify the export format of DumpEVT to any format (your favorite database if you want) which allows for even greater flexibility in archiving.

Final Step:

Download a copy of the static version of the Win32[25] Port of Snort from the link in the footnotes. Setup your configuration and start it up, if you have problems with the configuration please refer to the FAQ on the Snort web site. You will also need a copy of the Windows NT Server Resource Kit. You will have to install Snort as a service on NT if you are using this as a Network Based IDS Sensor. Instructions for installing and configuring Snort as a Service can be found in the Snort FAQ[26], Question 45. You should also download a current copy of the Snort Rule set from Snort.org or Whitehats.com.

Summary

I have shown you an NT Event Log consolidation process that works. It is simple and easy to install. Except for the Windows Operating System software and Windows NT Server Resource Kit, it uses OpenSource software and freeware utilities. It allows you to deploy Snort on Windows as a Host Based IDS system using NT Event Logging while allowing you to forward these alerts to a Syslog server for centralized reporting. It is an alternative to Snort and ACID on Windows. There are needed improvements, but if you want something quick and easy then I recommend the above procedure.

In addition to a Windows Host Based IDS, this paper provides you with the beginnings of a Centralized NT Event Log reporting system. There is a need for such a system and several companies are trying to fulfill that need. I have provided a simple solution for small businesses and even home networks.

Finally, I wanted to provide a solution for what I think is a need, an addition to some of other great ideas that abound on the Internet. The need for centralized reporting is there. Fyodor Yarochkin saw it and wrote SnortNet. Marty Roesch saw a need and founded SourceFire[27].

[25] Win32 Port of Snort, http://www.datanerds.net/~mike/snort.html
[26] How to run Snort as a Service on Win32, Snort Faq #45, http://www.snort.org/FAQ.html#q45
[27] SourceFire, Inc. Developing appliance-based network security infrastructure systems with Snort as their core. http://www.sourcefire.com

Michael Steele[28] has written a couple of papers on the use of Snort and SnortSnarf as a front end for Snort in a Windows Environment, they are available in the documents section of the Snort.org web site. Jon Bull[29] makes the following comment in his artricle on Installing Snort on a Win 2000 Environment:

> If you plan on doing a decent job of securing your network, you'll want to keep historical records of all your logs. I suggest Snort2HTML to hand keep logs. This use doesn't scale well however and so large outfits may look towards the MySQL

Here he mentions historical records. NT Event Logs while not very portable are compact and somewhat easy to use. The DumpEVT utility provides another option to be used in place of Snort2HTML or MySQL or as convenient way to support MySQL if needed.

[28] Installing Snort on a Win 2000 System - A walkthrough and Snort on Windows 98/ME/NT4/2000 using Snortsnarf to view alerts by Michael Steele from Silicon Defense
[29] Jon Bull, Snort's Place in a Windows 2000 Environment

Assignment Three – "Analyze This" Scenario

3-1 Data Description:

File Type: SNORT Alert Logs.
Number of Files: Seven.
Number of Alerts: 17,057
Date of Log Entries: 10, 11, 12, 13, 14, 15 and 16 April 2001.

File Type: SNORT Portscan Logs.
Number of Files: Seven.
Number of scan lines: 193,148.
Date of Log Entries: 10, 11, 12, 13, 14, 15 and 16 April 2001.

File Type: SNORT Out Of Spec (OOS) Logs.
Number of Files: Six
Number of OOS Entries: 905.
Date of Log Entries: 10, 11, 12, 13, 14 and 16 April 2001.

A one week period was examined, Tuesday thru Monday. One day (Sunday, 15 APR 2001) of Out-Of-Spec (OOS) logs was not available and is therefore not included in the analysis.

A description of the Snort fields is in Appendix A of this practical.

3-2 List Of Detects, Descriptions, Correlations and Defensive Recommendations:

Table 1- Alerts By Category

2655	Attempted Sun RPC high port access/ SUN RPC highport access
268	Connect to 515 from inside/outside the network
250	250 External RPC call
746	High port 65535 TCP/UDP - Possible Red Worm - traffic
8	ICMP SRC and DST outside network
9	NMAP TCP Ping
2	Probable NMAP fingerprint attempt
1006	Possible trojan server activity
142	Queso fingerprint
1735	Russia Dynamo
138	SMB Name Wildcard
1	STATDX UDP Attack
4	SYN-FIN scan
50	TCP SRC and DST outside network

20 Tiny Fragments
2094 UDP SRC and DST outside network
7562 Watchlist 000220
158 Watchlist 000222
165 WINGATE 1080 Attempt
24 Null Scan
20 Port 55850 tcp - possible myserver activity

Please note that some alerts are later grouped together for analysis.

Table 2- Alerts By Category and Day

	01	02	04	05	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4/10	0	159	0	29	0	3	0	14	14	1725	25	1	1	5	2	222	131	55	25	5	7
4/11	1	2	22	275	2	2	0	10	19	9	11	0	1	10	1	136	2263	55	18	6	3
4/12	22	1	1	351	4	2	0	11	57	0	7	0	2	4	0	239	423	19	17	2	2
4/13	4	0	0	64	0	0	2	18	7	0	28	0	0	11	1	286	783	3	46	4	2
4/14	1	1	205	9	1	0	0	34	5	0	31	0	0	5	14	656	2968	1	24	3	6
4/15	0	0	0	6	0	1	0	904	9	0	14	0	0	7	2	229	400	3	18	2	0
4/16	2627	105	22	12	1	1	0	15	31	1	22	0	0	8	0	326	594	22	17	2	0
	2655	268	250	746	8	9	2	1006	142	1735	138	1	4	50	20	2094	7562	158	165	24	20

1	2655	Attempted Sun RPC high port access and SUNRPC highport access
2	268	Connect to 515 from inside / Connect to 515 from outside
4	250	250 External RPC call
5	746	High port 65535 TCP/UDP - Possible Red Worm - traffic
7	8	ICMP SRC and DST outside network
8	9	NMAP TCP Ping
9	2	Probable NMAP fingerprint attempt
10	1006	Possible trojan server activity
11	142	Queso fingerprint
12	1735	Russia Dynamo
13	138	SMB Name Wildcard
14	1	STATDX UDP Attack
15	4	SYN-FIN scan
16	50	TCP SRC and DST outside network
17	20	Tiny Fragments
18	2094	UDP SRC and DST outside network
19	7562	Watchlist 000220
20	158	Watchlist 000222
21	165	WINGATE 1080 Attempt
22	24	Null Scan
23	20	Port 55850 tcp - possible myserver activity

3-2-1 Attempted Sun RPC high port access / SUNRPC highport access

During the period 04/10/2001 to 04/16/2001, there were 2,628 attempts to access Port 32771 recorded in the IDS logs. While a Top Ten Talkers table is provided, the emphasis is placed on the exploit itself since 91 systems on the MY.NET.132, 46 on MY.NET.133, 42 on MY.NET.135 and 3 on MY.NET.137 were scanned during this time period.

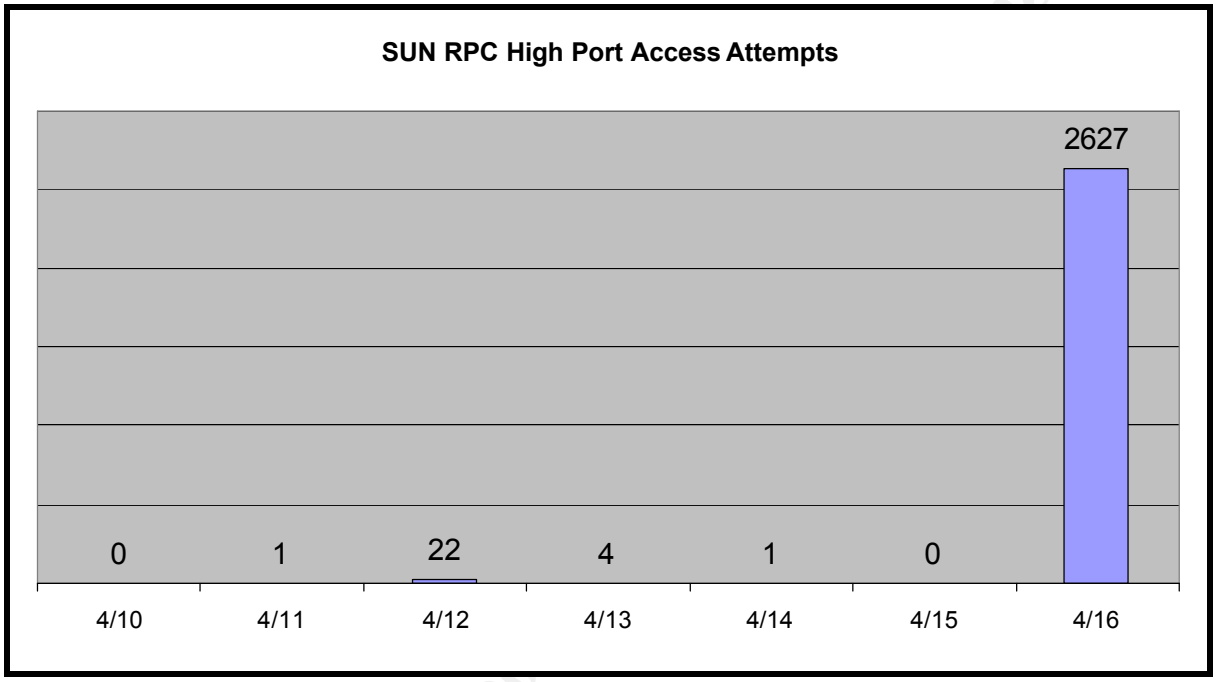


Table 3 - Top Ten Talkers (SUN RPC)

Count	Source IP	Destination IP
1508	24.248.185.123	MY.NET.219.34
1118	172.135.241.112	MY.NET.219.34
8	198.186.203.77	MY.NET.209.10
8	64.12.25.115	MY.NET.208.86
6	64.12.163.199	MY.NET.209.10
4	199.244.218.40	MY.NET.209.10
2	163.29.211.66	MY.NET.132.193
2	210.179.201.196	MY.NET.135.29
2	210.179.201.196	MY.NET.135.31
1	128.175.133.84	MY.NET.223.122

3-2-1-1 Description/Discussion:

Attempts to access RPC ports are of a concern because there are several well-known buffer overflow vulnerabilities in various RPC programs. Port map is usually consulted to determine what programs are running on the host before attempting to exploit a vulnerability in one of the programs that is reported (Dell, GCIA Practical). There were 2,628 attempts with a destination

port of 32771. This would indicate that the intruders were attempting to connect to this high port, which is normally used by "yppasswd" to transfer NIS passwords. Source ports include 21 (FTP), 443 (SSL), 4000 (ICQ), 5190, 8080 (Proxy), 9898, 27960, and 32768. Almost all of the activity occurring on 4/16/2001 was from 32768 to 32771.

It appears that there were one of three different rules used, or data from three sensors has been merged into one alert file. A search of the current Whitehats.com and Snort.org current SNORT Rules show that this may be one of the rules that caused this activity to be logged:

alert tcp $EXTERNAL_NET any -> $HOME_NET 32771 (msg:"MISC-Attempted Sun RPC high port access";)

This is not a scan. Of the 2,655 alerts, 2,628 were for MY.NET.219.34. A check of the Portscan Logs show that this host also generated 9,789 return packets with a destination port of 32778 (source port of 327xx). This is a known game port, and the time period in which the activity occurred supports the game conclusion.

3-2-1-2 Correlation(s):

A Keyword ('RPC") search of the Security Focus Vulnerabilities database reveals that this problem has been around since early 1992. Multiple RPC Services (NIS, ToolTalk, SMB, and Portmapper to name a few) on several Operating Systems are affected. Several CERT Advisories warn of problems in specific RPC Services as well.

- Cert Advisory - http://www.cert.org/advisories/CA-1998-11.html
- Cert Advisory - http://www.cert.org/advisories/CA-2001-05.html

3-2-1-3 Defenseive Recommendations:

First, if you don't need the service, then remove or disable it. Second, install ALL patches for the RPC Services you are running. Third, continue to monitor access to all RPC Services ports.

3-2-2 Connect to 515 from inside and Connect to 515 from outside

During the period 04/10/2001 to 04/16/2001, there were 268 attempts to access Port 515 recorded in the IDS logs. The table below shows the number of attempts made by every external host attempting to connect to port 515. There were four attempts by MY.NET hosts to connect to port 515 outside the MY.NET network.

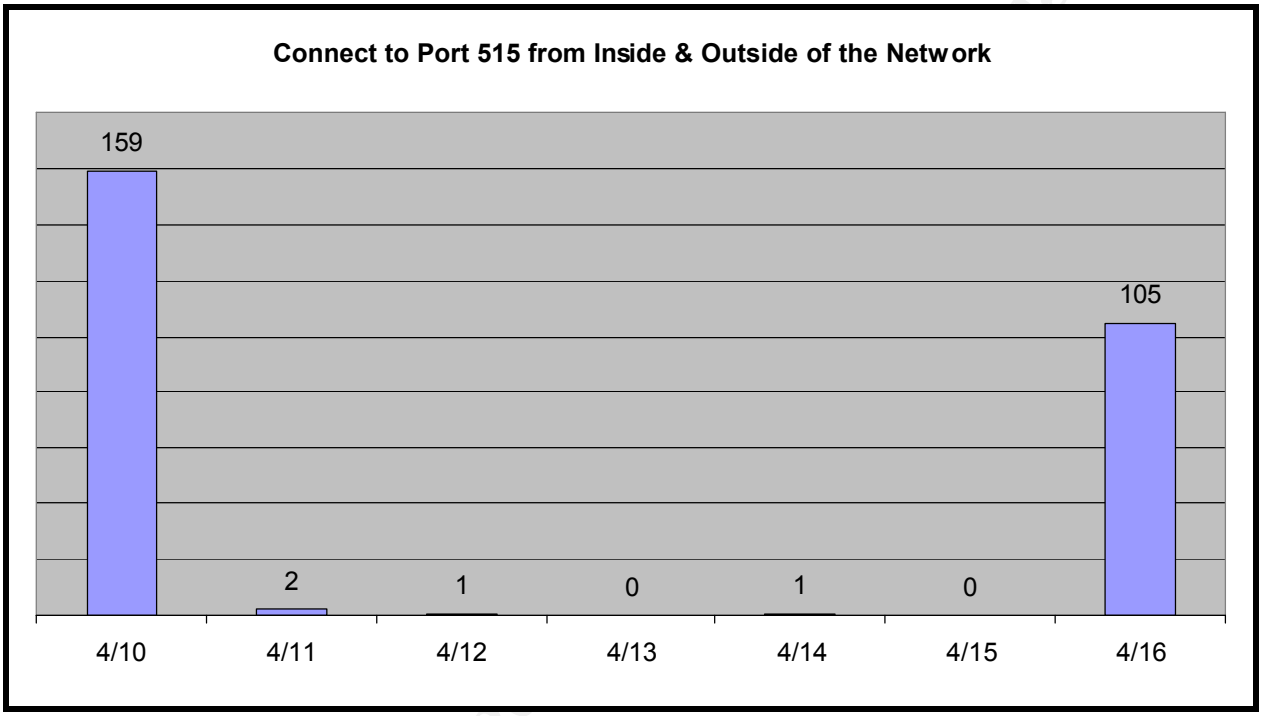


Table 4 - Top Talkers (Connect to 515)

Count	Source IP
141	63.195.112.230
53	65.1.158.27
39	130.183.51.62
11	24.170.117.247
8	199.34.68.4
2	65.1.190.220
1	130.183.51.62
1	210.61.82.20

3-2-2-1 Description/Discussion:

This is a scan of port 515 on systems on the MY.NET.133.0/32, MY.NET.134.0/32, MY.NET.135.0/32, and MY.NET.137.0/32 subnets.

This is looking for any connections to port 515 which is the Line Printer Daemon (LPD) or Print Spooler. This is an alert for a possible Denial Of Service (DoS) attack. This problem also exists in

HP JetDirect Firmware x.08.20 and earlier (CAN-2000-1064). It is not restricted to any one operating system.

From the Vigilante WinCom LPD Advisory[30]:

"A continuous stream of LPD options, sent to the LPD port (default TCP port 515) on the host running WinCOM, will eventually consume all the memory on that host"

A search of the current Whitehats.com and Snort.org SNORT Rule Sets did not reveal an exact match to a rule for these events. These are probably the rules for this event:

alert tcp $EXTERNAL any -> $INTERNAL 515 (msg:"Connect to 515 from outside";)
alert tcp $INTERNAL any -> $INTERNAL 515 (msg:"Connect to 515 from inside";)

3-2-2-2 Correlation(s):

A search of the Consensus Intrusion Database[31] (CID) at Incidents org for the time period covered by this analysis shows 34 reported incidents of attempted access to port 515. On 6 July 2001, the All Destination Ports Sorted by How Many in the Past 30 Days Chart[32] at Incidents.org showed there were 946,830 reported attempts to access port 515 in the past 30 days.

There are several Computer Vulnerabilities and Exposures (CVE), CVE Candidates (CAN), and Cert Advisories providing information on Port 515 Line Printer Daemon (LPD) vulnerabilities.

- CAN-1999-0061 http://cve.mitre.org/cgi-bin/cvename.cgi?name=CAN-1999-0061
- CAN-2000-0839 http://archives.neohapsis.com/archives/bugtraq/2000-09/0212.html
- CAN-2000-1064 http://cve.mitre.org/cgi-bin/cvename.cgi?name=CAN-2000-1064
- CVE-1999-0299 http://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-1999-0299
- Cert Advisory - http://www.cert.org/advisories/CA-2001-15.html
- Box Network - http://neworder.box.sk/showme.php3?id=5025
- Box Network - http://neworder.box.sk/showme.php3?id=2846

3-2-2-3 Defenseive Recommendations:

First, install ALL patches for the RPC Services you are running. Most Port 515 vulnerabilities and exploits are linked to an RPC Service which can be used to compromise systems. Second, unless you must leave this port open, block it at your border Routers or use Router Access Control Lists to control access to this Port from outside your Intranet. Third, continue to monitor access to all RPC Services ports.

[30] WinCOM LPD DoS http://www.vigilante.com/inetsecurity/advisories/VIGILANTE-20000013.htm
[31] WWW.INCIDENTS.ORG, Search the Consensus Intrusion Database (CID) http://www.incidents.org/cid/search.php
[32] WWW.INCIDENTS.ORG, All Destination Ports Sorted by How Many for past 30 days http://www.incidents.org/cid/query/top_port_numc_30.php

3-2-3 External RPC Call

During the period 04/10/2001 to 04/16/2001, there were 250 External RPC Call attempts recorded in the IDS logs.

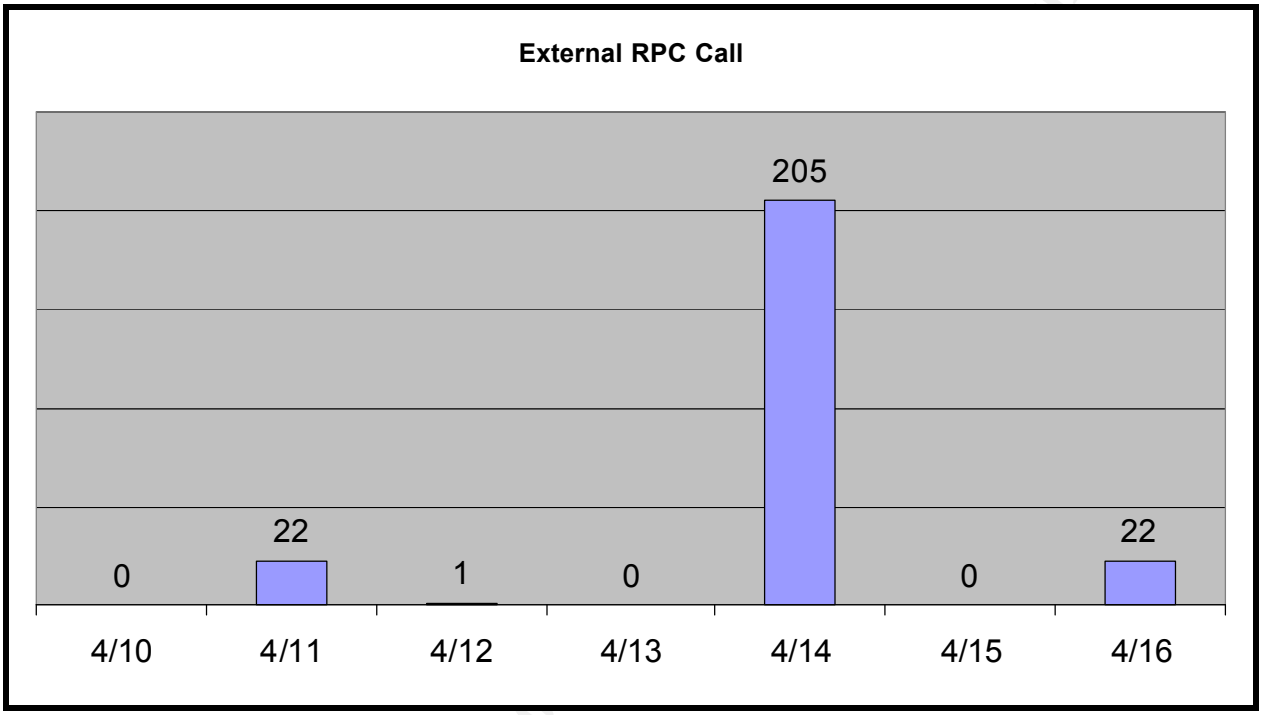


Table 5 - External Sources

Count	Source IP
122	210.179.201.196
64	216.36.36.29
22	209.247.201.144
19	200.230.39.5
15	163.29.211.66
7	211.46.206.9
1	24.50.67.77

3-2-3-1 Description/Discussion:

The Remote Procedure Call (RPC) protocol (RFC1831[33]) is a means by which a host can execute code on a remote host. This appears to be a scan for the SUN Portmapper RPC Service. All RPC Services must register with the Portmapper Service and scanning for this service can provide valuable reconnaissance data, such as a list of the RPC Services registered on the system. Once this list is obtained, an attacker can just pick his favorite exploit to compromise the host. Hosts on the MY.NET.132.0/32, MY.NET.133.0/32, MY.NET.134.0/32, MY.NET.135.0/32, and

[33] RFC1381, RPC: Remote Procedure Call Protocol Specification Version 2 http://www.rfc-editor.org/rfc/rfc1831.txt

MY.NET.137.0/32 subnets were all scanned for port 111 by seven separate hosts. There was one odd connection to MY.NET.5.5 from 216.36.36.29 which occurred 09:55:00. This same external host started to scan 61 hosts on the MY.NET.134.0/32 and MY.NET.135.0/32 subnets in one second at 09:55:12. A reply from any host on the MY.NET network was not detected.

Table 5 shows the number of hosts scanned by each external host causing this alert. A total of 231 MY.NET hosts were scanned 250 times by these seven hosts. This is active reconnaissance.

A search of the Whitehats.com and Snort.org current rule set did not find an exact match for this event. The following rules will produce the log entries we are seeing here:

alert tcp $EXTERNAL any -> $INTERNAL 111 (msg:"External RPC Call";)
alert udp $EXTERNAL any -> $INTERNAL 111 (msg:"External RPC Call";)

3-2-3-2 Correlation(s):

A search of the Consensus Intrusion Database[34] (CID) at Incidents org for the time period covered by this analysis shows 289 reported incidents of attempted access to port 111. A search of the Consensus Intrusion Database (CID[35]) for any Source IP and Port to any Destination IP and Port 111 between 01 July 2001 and 06 July 2001 yielded 118,155 matches. Also on 7 July 2001, the All Destination Ports Sorted by How Many in the Past 30 Days Chart[36] at Incidents.org showed there were 854,867 reported attempts to access port 111 in the past 30 days.

Again this vulnerability has been around since 1992. There are several CVE's, CAN's, CERT Alerts, and vendor advisories about this exploit and patches for them. Here are a couple.

- Security Focus, 2001-05-14: Allied Telesyn AT-AR220E Portmapper Unauthorized Port Access Vulnerability. http://www.securityfocus.com/vdb/bottom.html?vid=2722
- CERT Advisory, CA-2001-05: Exploitation of snmpXdmid. http://www.cert.org/advisories/CA-2001-05.html

3-2-3-3 Defensive Recommendations:

First, install ALL patches for the RPC Services you are running. Portmapper is a free ticket to a complete list of all RPC Services registered on a host if not properly patched. Once compromised, you no longer own the system. Second, unless you must leave this port open, block it at your border Routers or use Router Access Control Lists to control access to this Port from outside your Intranet. Third, continue to monitor access to all hosts with the Portmapper service active.

[34] WWW.INCIDENTS.ORG, Search the Consensus Intrusion Database (CID) http://www.incidents.org/cid/search.php
[35] Consensus Intrusion Database (CID) Search page at www.incidents.org, http://www.incidents.org/cid/search.php
[36] WWW.INCIDENTS.ORG, All Destination Ports Sorted by How Many for past 30 days http://www.incidents.org/cid/query/top_port_numc_30.php

3-2-4 High port 65535 TCP/UDP – Possible Red Worm – traffic

During the period 04/10/2001 to 04/16/2001, there were 746 attempts to access port 65535 recorded in the IDS logs.

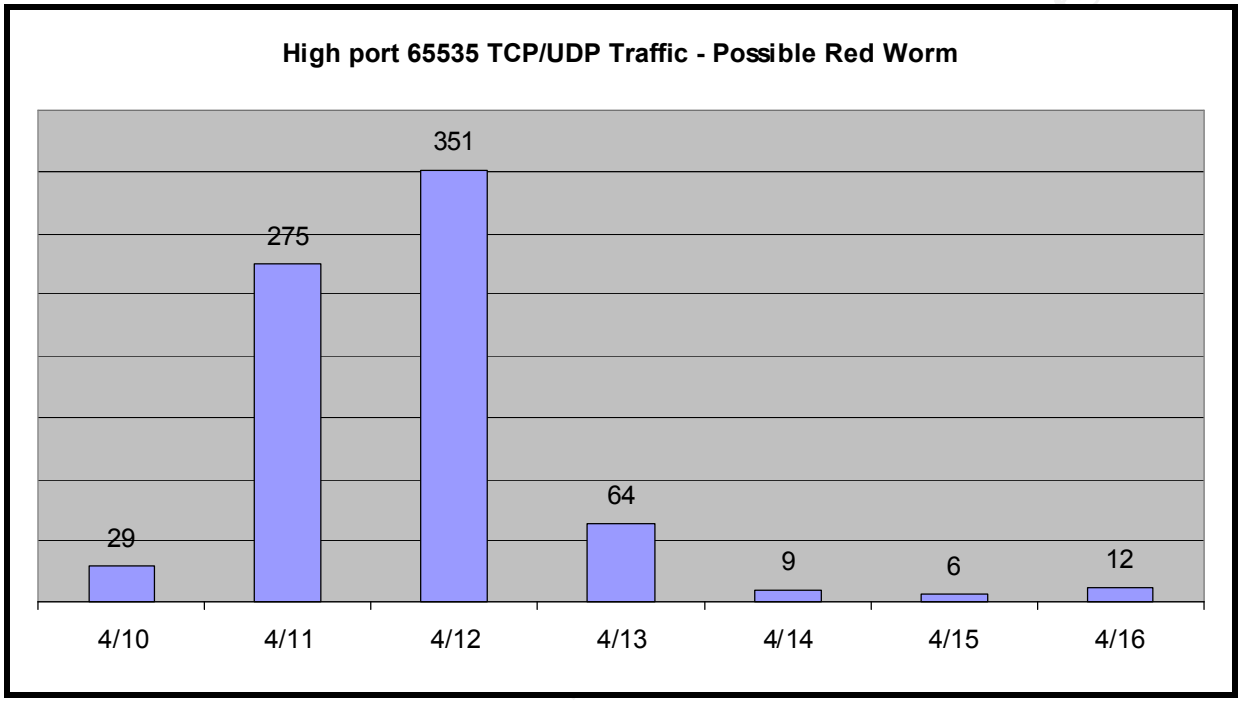


Table 6 - High Port 65535 TCP/UDP Top Five Talkers

Count	Source IP	Destination IP
139	12.13.129.141	MY.NET.97.175
70	198.111.138.20	MY.NET.207.118
44	129.59.51.185	MY.NET.207.54
17	129.59.51.185	MY.NET.210.130
14	129.59.51.185	MY.NET.204.66

3-2-4-1 Description:

Research revealed a message[37] posted by the Emory University Security Office from the Computer Security Office at Dartmouth University to UNISOG at SANS.ORG, here is an excerpt from that posting:

> A trojan'd klogd is compiled and set running on port 65535 waiting for an incoming packet with a data size of 77 bytes

.

Both SANS[38] and Dartmouth University[39] describe the exploit as:

[37] Theory Group, Adore/Red Worm Message Posted 03 April 2001
http://theorygroup.com/Archive/Unisog/2001/msg00492.html

Adore worm replaces only one system binary (ps), with a trojaned version and moves the original to /usr/bin/adore. It installs the files in /usr/lib/lib . It then sends an email to the following addresses: adore9000@21cn.com, adore9000@sina.com, adore9001@21cn.com, adore9001@sina.com
Attempts have been made to get these addresses taken offline, but no response so far from the provider. It attempts to send the following information:

/etc/ftpusers
ifconfig
ps -aux (using the original binary in /usr/bin/adore)
/root/.bash_history
/etc/hosts
/etc/shadow

Adore then runs a package called icmp. With the options provided with the tarball, it by default sets the port to listen too, and the packet length to watch for. When it sees this information it then sets a rootshell to allow connections. It also sets up a cronjob in cron daily (which runs at 04:02 am local time) to run and remove all traces of its existence and then reboots your system. However, it does not remove the backdoor.

I only found one reference to the phrase "Red Worm", but it is most often referred to by its new name 'Adore Worm'. Everyone agrees that the current Snort Rule set will detect this worm, this alert seems to be one that logs all traffic on port 65535/TCP and 65535/UDP.

Date	Time	Source IP	SRC Port	Destination IP	DST Port
04/12	12:48:05.147886	MY.NET.253.53	65535	209.36.43.131	25
04/12	12:48:05.321355	MY.NET.253.53	65535	209.36.43.131	25
04/14	16:50:54.688686	MY.NET.253.24	65535	206.106.64.12	25
04/14	16:50:54.859779	MY.NET.253.24	65535	206.106.64.12	25
04/14	16:50:54.884658	MY.NET.253.24	65535	206.106.64.12	25
04/14	16:50:54.938349	MY.NET.253.24	65535	206.106.64.12	25
04/11	18:47:11.274075	MY.NET.100.230	65535	12.6.145.21	25
04/11	18:47:11.309983	MY.NET.100.230	65535	12.6.145.21	25

There were 371 entries for the TCP Protocol and 376 for the UDP Protocol. Since the Trojan sends email and then listens on port 65535 we should first check for inbound packets to any MY.NET Host with a destination port of 65535. None of the captured packets met that criteria. There were a lot of packets from port 65535. There were no inbouund packets to port 65535. A check of outbound Port 25/TCP (SMTP) packets from hosts on the MY.NET network reveals two hosts that each sent two packets each and one

[38] INCIDENTS.ORG, Adore Worm 0.8 12 April 2001. http://www.incidents.org/react/adore.php
[39] Dartmouth University, Institute for Security Technologies, Adorefind tool. http://www.ists.dartmouth.edu/IRIA/knowledge_base/tools/adorefind.htm

host that sent four packets.

A NSLookup showed that none of the destination hosts were in the 21cn.com or sina.com domains.

Trying 209.36.43 at ARIN
AT&T (NETBLK-WORLDNET-MIS2) WORLDNET-MIS2 209.36.0.0 - 209.37.255.255
Giant Food Inc (NETBLK-GIANTFOOD-43) GIANTFOOD-43 209.36.43.0 - 209.36.43.255

Trying 206.106.64 at ARIN
US Sprint (NETBLK-NETBLK-SPRINT-BLKG) NETBLK-SPRINT-BLKG
206.104.0.0 - 206.107.255.255
Hoosiers Net, Inc. (NETBLK-SPRINT-CE6A7F) SPRINT-CE6A7F
206.106.64.0 - 206.106.127.255

Trying 12.6.145 at ARIN
AT&T ITS (NET-ATT) ATT 12.0.0.0 - 12.255.255.255
CONCERT GLOBAL NETWORKS (NETBLK-CONCERT-145) CONCERT-145
12.6.145.0 - 12.6.145.255

There seems to be some ToolTalk activity between MY.NET.97.175 and 12.13.129.141. Host 12.13.129.141 used port 6112 (Registered to the dtspcd service according to the IANA port list[40]) to communicate to port 65535 on MY.NET.97.175. A dtspcd vulnerability was reported as part of a Common Desktop Environment (CDE) in CERT Advisory CA-1999-11[41].

Trying 12.13.129 at ARIN
AT&T ITS (NET-ATT) ATT 12.0.0.0 - 12.255.255.255
MULTIPRO NETWORK (NETBLK-MULTIPRO50-129) MULTIPRO50-129
12.13.129.0 - 12.13.129.255

The second host (198.111.138.20, registered as part of Alma College network) listed appears is using ort 4443 (registed to pharos according to the IANA port list) to communicate to port 65535 on MY.NET.207.118. Other than a link to a distributed printing management package manufactured by Pharos (http://www.pharos.com) I could find no other information on this. If the Pharos distributed printing management system is in use on this system, then there should be more traffic than just this one host. Investigate this host further.

Trying 198.111.138 at ARIN

[40] IANA Port List, http://www.iana.org/assignments/port-numbers
[41] CERT Advisory CA-1999-11, Four Vulnerabilities in the Common Desktop Environment. http://archives.neohapsis.com/archives/cc/1999-q4/0012.html

Merit Network Inc. (NETBLK-MICHNET198) NETBLK-MICHNET198
198.108.0.0 - 198.111.255.255
Alma College (NETBLK-MICH-251) MICH-251 198.111.136.0 -
198.111.143.255

The third host (129.59.51.185, registered as part of the Vanderbilt University network) is listed three times showing communications to three differenct hosts on the MY.NET network. Multiple ports are used to send data to port 65535 on all three MY.NET hosts.

Trying 129.59.51 at ARIN
Vanderbilt University (NET-VANDERBILT)
Computer Center
Box 1577, Station B
Nashville, TN 37235
US

Netname: VANDERBILT
Netblock: 129.59.0.0 - 129.59.255.255
Coordinator:
Zafar, Esfandiar (EZ8-ARIN) zafar@CTRVAX.VANDERBILT.EDU
(615) 343-1610

Domain System inverse mapping provided by:
IP-SRV1.VANDERBILT.EDU 129.59.1.10
IP-SRV2.VANDERBILT.EDU 129.59.2.10
PUNCH.UTCC.UTK.EDU 128.169.201.2

Record last updated on 12-Dec-1996.
Database last updated on 14-Jul-2001 23:02:13 EDT.

3-2-4-2 Correlation(s):

A search of the Consensus Intrusion Database[42] (CID) at Incidents org for the time period covered by this analysis shows 1 reported incident of attempted access to port 65535. A search of the Consensus Intrusion Database (CID[43]) for any Source IP and Port to any Destination IP and Port 65535 between 01 July 2001 and 06 July 2001 yielded 27 matches.

As stated on the SANS and Dartmouth web sites, a more detailed analysis of the Adore package was done by Michael Reiter, GCIH[44] in his practical entitled Exploting Loadable Kernel Modules.

.Links to related CVE's, CAN's and CERT bulletins can be found on the SANS and Dartmouth

[42] WWW.INCIDENTS.ORG, Search the Consensus Intrusion Database (CID) http://www.incidents.org/cid/search.php
[43] Consensus Intrusion Database (CID) Search page at http://www.incidents.org/cid/search.php
[44] Reiter, Michael, GCIH Practical, Exploiting Loadable Kernel Modules.
http://www.sans.org/y2k/practical/Michael_Reiter_GCIH.zip.

University web sites as well. A variant was reported to SANS by Lance Dillon[45] on 04/10/2001.

3-2-4-3 Defensive Recommendations:

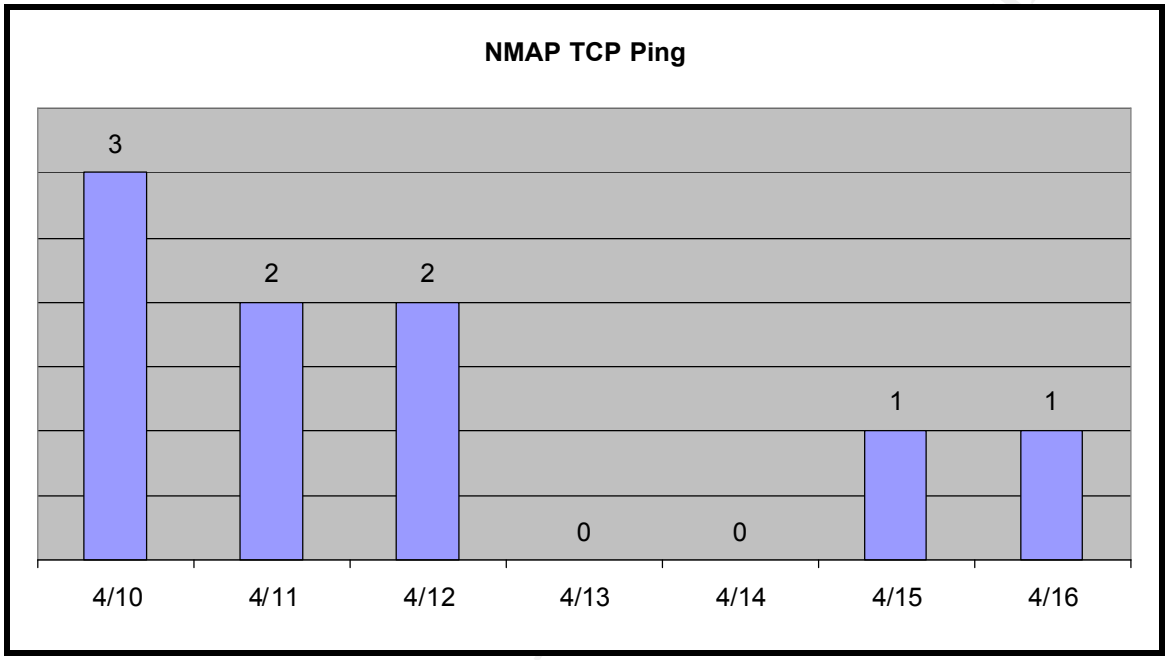
Applying all recommended BIND patches from your vendor is the recommended of defense against this threat. Blocking all outbound e-mail to the four e-mail addresses should also be done if possible. Use the information on the SANS web site concerning the Lion Worm[46] protection measures to protect a host that cannot be updated or patched. This appears to be a detect for the original Red Worm.

A lot has changed since Red Worm (now called the Adore Worm) first appeared and while this detect will alert you of a possible compromise by the original Red Worm, the current Snort Rules available at Whitehats.com and Snort.org provide more refined detection capabilities for this and the new variants of the Adore Worm. The current rule provides a lot of data. Re-evaluate your current Snort Rules Set and consider replacing this rule or dropping it if the new rules set will provide better and more efficient coverage.

[45] Red Worm Variants Reported, Daily Incidents Analyzed, SANS. http://www.sans.org/y2k/041001.htm
[46] Lion Worm v0.1, Chris Benton, SANS, 26 Mar 2001. http://www.sans.org/y2k/lion_protection.htm

3-2-5 NMAP TCP Ping

During the period 04/10/2001 to 04/16/2001, there were 9 *NMAP TCP Ping* events recorded in the IDS Logs.



3-2-5-1 Description/Discussion:

From the NMAP[47] Manpage:

> "Nmap is designed to allow system administrators and curious individuals to scan large networks to determine which hosts are up and what services they are offering. nmap supports a large number of scanning techniques such as: UDP, TCP connect(), TCP SYN (half open), ftp proxy (bounce attack), Reverse-ident, ICMP (ping sweep), FIN, ACK sweep, Xmas Tree, SYN sweep, IP Protocol, and Null scan. nmap also offers a number of advanced features such as remote OS detection via TCP/IP fingerprinting, stealth scanning, dynamic delay and retransmission calculations, parallel scanning, detection of down hosts via parallel pings, decoy scanning, port filtering detection, direct (non-portmapper) RPC scanning, fragmentation scanning, and flexible target and port specification."

There were nine recorded alerts from six external hosts to six internal hosts on the MY.NET Network. All were incoming packets. No one responded to the packets. All packets had a source port of 80. Five packets had a destination port of 53, the remaining packets had a destination port of 80. The alert log entries do not indicate that any flags were set. There was no

[47] NMAP, Network exploration tool and security scanner. http://www.insecure.org/nmap/nmap_manpage.html

other traffic from or to the six originating hosts found in the alerts or portscan logs.

Table 7 - NMAP TCP Ping Connections

Source IP	Port	NSLookup	Destination IP	Port
194.133.58.129	80	bestroute2-t.alcatel.fr	MY.NET.1.4	53
194.133.58.129	80	bestroute2-t.alcatel.fr	MY.NET.1.3	53
194.133.58.129	80	bestroute2-t.alcatel.fr	MY.NET.1.5	53
202.187.24.3	80	No reverse DNS	MY.NET.253.125	80
202.187.24.3	80	No reverse DNS	MY.NET.1.3	53
12.40.36.194	80	No reverse DNS	MY.NET.1.5	53
199.197.130.21	80	No reverse DNS	MY.NET.253.125	80
63.117.235.7	80	No reverse DNS	MY.NET.100.165	80
207.30.174.254	80	No reverse DNS	MY.NET.157.150	80

Trying 194.133.58 at RIPE

% This is the RIPE Whois server.
% The objects are in RPSL format.
% Please visit http://www.ripe.net/rpsl for more information.
% Rights restricted by copyright.
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum: 194.133.0.0 - 194.133.255.255
netname: EU-GLOBALONE-OTHER-970109
descr: ALLOCATED BLOCK
descr: Provider Local Registry
descr: this allocation was transfered from eu.sprint
country: EU
admin-c: PW269-RIPE
tech-c: CC3641-RIPE
status: ALLOCATED PA
mnt-by: RIPE-NCC-HM-MNT
mnt-lower: AS4000-MNT
changed: hostmaster@ripe.net 19970109
changed: hostmaster@ripe.net 19980615
changed: hostmaster@ripe.net 19990510
changed: hostmaster@ripe.net 19990826
changed: hostmaster@ripe.net 20000919
source: RIPE

route: 194.133.58.0/24
descr: Alcanet
origin: AS2917
mnt-by: OLEANE-NOC
changed: hostmaster@oleane.net 20000302
source: RIPE

person: Peter Wilmot
address: Equant
address: 13775 McLearen Road
address: Oak Hill, VA 20171
address: USA
phone: +01 703 471-2633
fax-no: +01 703 471-3380
e-mail: peter.wilmot@equant.com
nic-hdl: PW269-RIPE
mnt-by: AS4000-MNT
changed: castelli@hq.si.net 19990408
changed: richard.obengmarnu@globalone.net 19991015
changed: tfischer@rain.fr 20010709
source: RIPE

person: Carrie Costa
address: Equant
address: 13775 McLearen Road
address: Oak Hill, VA 20171
address: USA
phone: +01 703 471-3366
fax-no: +01 703 478-7852
e-mail: Carrie.Costa@equant.com
nic-hdl: CC3641-RIPE
mnt-by: AS4000-MNT
changed: richard.obengmarnu@globalone.net 20000420
changed: tfischer@rain.fr 20010709
source: RIPE

whois -h whois.apnic.net 202.187.24.3 ...

% Rights restricted by copyright. See http://www.apnic.net/db/dbcopyright.html
% (whois6.apnic.net)

inetnum: 202.187.24.0 - 202.187.24.255
netname: JARING-UNITAR2
descr: Universiti Tun Abdul Razak
descr: Plaza CCL, Jalan SS 6/12
descr: Kelana Jaya Urban Centre
descr: 47300 Petaling Jaya Selangor
country: MY
admin-c: AR28-AP
tech-c: AR28-AP
notify: dbmon@apnic.net

notify: ip-request@jaring.my
mnt-by: MAINT-JARING-AP
changed: ip-request@jaring.my 20000509
source: APNIC

person: Abdul Razal
address: Universiti Tun Abdul Razak(410764-P)
address: Plaza CCL, Jalan SS 6/12
address: Kelana Jaya Urban Centre
address: 47300 Petaling Jaya Selangor
country: MY
phone: +60-3-709-2009
fax-no: +60-3-704-4421
e-mail: razal@unitar.edu.my
nic-hdl: AR28-AP
remarks: jaring-unitar2
notify: ip-request@jaring.my
mnt-by: MAINT-JARING-AP
changed: ip-request@jaring.my 20000508
source: APNIC

Trying 12.40.36 at ARIN
AT&T ITS (NET-ATT) ATT 12.0.0.0 - 12.255.255.255
FAIRBANKS SCALES (NETBLK-FANCOR-36-0) FANCOR-36-0 12.40.36.0 - 12.40.36.63
EZIAZ, INC. (NETBLK-SL411-36-64)SL411-36-64 12.40.36.64 - 12.40.36.79
MULTIVAC INC (NETBLK-ATT-MULTIVAC722-36-80) ATT-MULTIVAC722-36-80
12.40.36.80 - 12.40.36.95
DUNBROOKE INC (NETBLK-ATT-36-96)ATT-36-96 12.40.36.96 - 12.40.36.111
CENTRAL STATES THERMAL KING (NETBLK-ATT194154-36-112) ATT194154-36-112
12.40.36.112 - 12.40.36.127
R&D TOOL & ENGINEERING (NETBLK-RDTOOL-36-128) RDTOOL-36-128
12.40.36.128 - 12.40.36.159
WHITE INDUSTRIES (NETBLK-ATT21216-36-160) ATT21216-36-160
12.40.36.160 - 12.40.36.191
HELZBERG DIAMONDS (NETBLK-ATT547-36-192) ATT547-36-192
12.40.36.192 - 12.40.36.199
FARMERS INSURANCE GROUP (NETBLK-FARMERS-IN950-36-200) FARMERS-IN950-36-200
12.40.36.200 - 12.40.36.207
THE MANAGEMENT NETWORK GROUP (NETBLK-A740-36-208) A740-36-208
12.40.36.208 - 12.40.36.223
NETPULSE (NETBLK-NETPULSE-36-224) NETPULSE-36-224 12.40.36.224 - 12.40.36.255

To single out one record, look it up with "!xxx", where xxx is the
handle, shown in parenthesis following the name, which comes first.

Trying 199.197.130 at ARIN
Corning Incorporated (NETBLK-CORNING-CBLK)
Corning Incorporated
SP-WW-01-1
Corning, NY 14831
US

Netname: CORNING-CBLK
Netblock: 199.197.128.0 - 199.197.255.255

Coordinator:
Corning Incorporated (ZC107-ARIN) dnsadmin@CORNING.COM
607-974-9000

Domain System inverse mapping provided by:

NS1.CORNING.COM 199.197.130.3
NS2.CORNING.COM 199.197.135.4
NS3.CORNING.COM 199.197.135.3
NS4.CORNING.COM 199.197.130.4

Record last updated on 29-Jan-2001.
Database last updated on 14-Jul-2001 23:02:13 EDT.

Trying 63.117.235 at ARIN
UUNET Technologies, Inc. (NETBLK-UUNET63) UUNET63 63.64.0.0 - 63.127.255.255
Manpower International (NETBLK-UU-63-117-235) UU-63-117-235
63.117.235.0 - 63.117.235.63
EON Communications (NETBLK-UU-63-117-235-64) UU-63-117-235-64
63.117.235.64 - 63.117.235.79
American Ink and Coa (NETBLK-UU-63-117-235-80) UU-63-117-235-80
63.117.235.80 - 63.117.235.95
Ibrite, Inc. (NETBLK-UU-63-117-235-96) UU-63-117-235-96
63.117.235.96 - 63.117.235.103
Ibrite, Inc. (NETBLK-UU-63-117-235-112) UU-63-117-235-112
63.117.235.112 - 63.117.235.119

To single out one record, look it up with "!xxx", where xxx is the
handle, shown in parenthesis following the name, which comes first.

Trying 207.30.174 at ARIN

Sprint/United Telephone of Florida (NETBLK-UTELFLA-DOM) UTELFLA-DOM
207.30.0.0 - 207.30.255.255
Rollins College (NETBLK-ROLLINS2) ROLLINS2 207.30.174.0 - 207.30.174.255

To single out one record, look it up with "!xxx", where xxx is the
handle, shown in parenthesis following the name, which comes first.

It appears that MY.NET.1.3, MY.NET.1.4 and MY.NET.1.5 are DNS Servers. The remaining three hosts MY.NET.253.125, MY.NET.100.165 and MY.NET.157.150 may be web servers. This traffic appears to be load-balancing queries.

3-2-5-2 Correlation(s):

This appears to be Load-balancing. Additional information is required to completely confirm this. A search at google.com yielded these links that discuss the type of traffic you see here.

http://archives.neohapsis.com/archives/snort/2001-02/0289.html
http://archives.neohapsis.com/archives/snort/2000-08/0040.html
http://archives.neohapsis.com/archives/snort/2000-08/0043.html

A search of the Consensus Intrusion Database (CID[48]) for any Source IP and Source Port 80 to any Destination IP and Port 53 between 01 July 2001 and 06 July 2001 yielded 8 matches. Of these 8 matches, one of them (199.197.130.21) is included in our list above. A search for any Source IP and Source Port 80 to any Destination IP and Destination Source Port 80 produced 12 matches. Two of those twelve matches were from a single host (202.187.24.3) also contained in our list above. This further supports the fact that what we are seeing is Load-balancing.

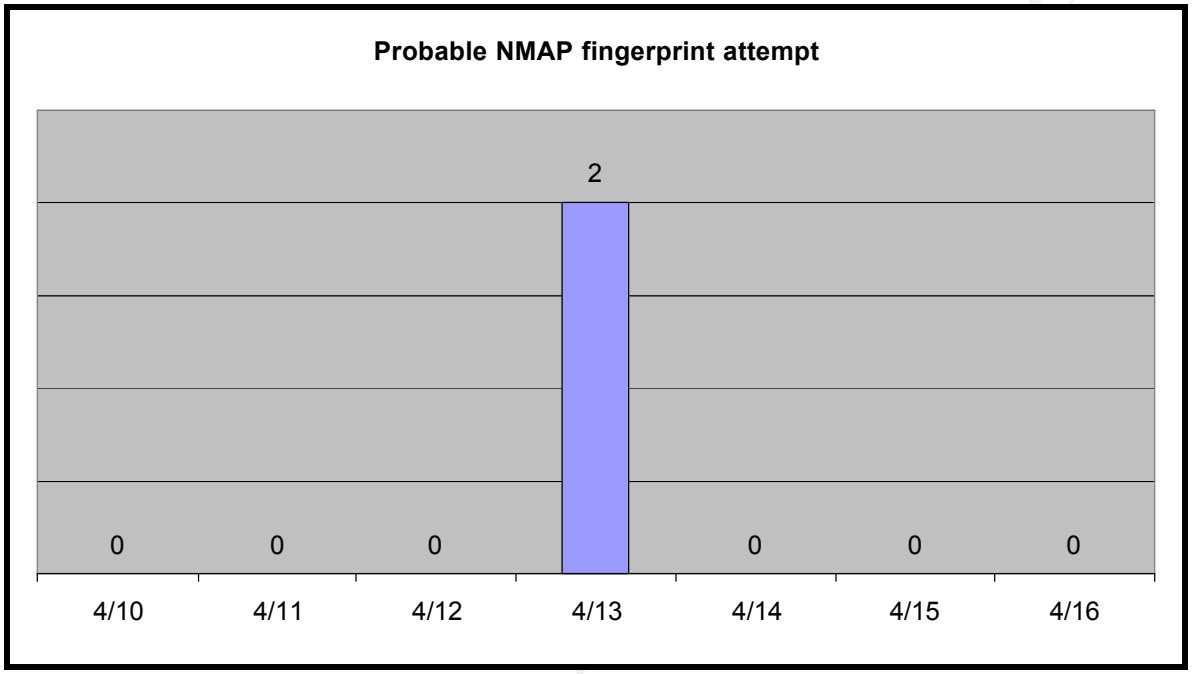
3-2-5-3 Defensive Recommendations:

Countermeasures for Load-balancing include steps to secure your Domain Name Servers and your Web Servers. Load-balancing is not malicious, but the fact that load balancing traffic is difficult to distinguish from other malicious traffic and the fact that Load-balancing developers are continuously developing ways to by pass firewalls in an effort to enhance their products performance and reliability means you should always be on your guard when you see this type of traffic on your network. Countermeasures for NMAP include blocking all outbound ICMP Unreachable messages at your border routers.

[48] Consensus Intrusion Database (CID) Search page at http://www.incidents.org/cid/search.php

3-2-6 Probable NMAP fingerprint activity

During the period 04/10/2001 to 04/16/2001, there were 2 recorded events of *Probable NMAP fingerprint activity* in the IDS Logs. Both of these events occurred on 4/13/2001.



3-2-6-1 Description/Discussion:

From the NMAP[49] Manpage:

> "Nmap is designed to allow system administrators and curious individuals to scan large networks to determine which hosts are up and what services they are offering. nmap supports a large number of scanning techniques such as: UDP, TCP connect(), TCP SYN (half open), ftp proxy (bounce attack), Reverse-ident, ICMP (ping sweep), FIN, ACK sweep, Xmas Tree, SYN sweep, IP Protocol, and Null scan. nmap also offers a number of advanced features such as remote OS detection via TCP/IP fingerprinting, stealth scanning, dynamic delay and retransmission calculations, parallel scanning, detection of down hosts via parallel pings, decoy scanning, port filtering detection, direct (non-portmapper) RPC scanning, fragmentation scanning, and flexible target and port specification."

Table 8 - Probable NMAP Finderprint Connections

Source IP	Port	NSLookup	Destination IP	Port	Protocol
200.42.5.159	2055	cable005159.ciudad.com.ar	MY.NET.221.134	6346	Gnutella
212.171.49.18	958	See whois information below	MY.NET.223.206	57575	No-Record

[49] NMAP, Network exploration tool and security scanner. http://www.insecure.org/nmap/nmap_manpage.html

The connection data is shown in the previous table, NSLookups follow. The first connection listed is probably a Gnutella user. You may want to check the MY.NET.221.134 for Gnutella software. The second connection shown is from port 958 to 57575. The reverse lookup on the IP Address failed, but the Whois lookup revealed that this IP is owned by an Italion ADSL Company.

Trying 200.42.5 at ARIN
Prima S.A. (NETBLK-PRIMA-BLK-1) PRIMA-BLK-1 200.42.0.0 - 200.42.127.255
MultiCanal S.A. (NETBLK-PRIMA-BLK-134) PRIMA-BLK-134 200.42.5.0 - 200.42.5.255

To single out one record, look it up with "!xxx", where xxx is the handle, shown in parenthesis following the name, which comes first.

Trying 212.171.49 at RIPE
% This is the RIPE Whois server.
% The objects are in RPSL format.
% Please visit http://www.ripe.net/rpsl for more information.
% Rights restricted by copyright.
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum: 212.171.48.0 - 212.171.49.255
netname: TIN
descr: Telecom Italia Net
descr: TIN ADSL service in OSPF Area 06
descr: PROVIDER
country: IT
admin-c: TAS10-RIPE
tech-c: TAS10-RIPE
status: ASSIGNED PA
remarks: Please send abuse notification to abuse@tin.it
notify: nettin@tin.it
mnt-by: TIN-MNT
changed: cgiadmin@cgi.interbusiness.it 19991215
changed: nettin@tin.it 20010212
source: RIPE

route: 212.171.0.0/16
descr: INTERBUSINESS
origin: AS3269
mnt-by: INTERB-MNT
changed: cgiadmin@cgi.interbusiness.it 19990524
source: RIPE

```
role:        TIN-Network Administration Staff
address:     TIN - Telecom Italia Network
address:     Via di Val Cannuta,182
address:     00166 Roma
address:     Italy
phone:       +39 06 3688 4139
fax-no:      +39 06 3688 4167
e-mail:      cmontechiarini@intin.it
trouble:     Please report spam/abuse notification to abuse@tin.it
admin-c:     EB339-RIPE
tech-c:      CC297-RIPE
tech-c:      CM1426-RIPE
tech-c:      VS4572-RIPE
nic-hdl:     TAS10-RIPE
notify:      claudio.ciotola@telecomitalia.it
notify:      cmontechiarini@intin.it
notify:      vincenzo.scoppa@telecomitalia.it
mnt-by:      TIN-MNT
changed:     nettin@tin.it 20010307
source:      RIPE

inetnum:     212.171.48.0 - 212.171.49.255
netname:     TIN
descr:       Telecom Italia Net
descr:       TIN ADSL service in OSPF Area 06
descr:       PROVIDER
country:     IT
admin-c:     TAS10-RIPE
tech-c:      TAS10-RIPE
status:      ASSIGNED PA
remarks:     Please send abuse notification to abuse@tin.it
notify:      nettin@tin.it
mnt-by:      TIN-MNT
changed:     cgiadmin@cgi.interbusiness.it 19991215
changed:     nettin@tin.it 20010212
source:      RIPE
route:       212.171.0.0/16
descr:       INTERBUSINESS
origin:      AS3269
mnt-by:      INTERB-MNT
changed:     cgiadmin@cgi.interbusiness.it 19990524
source:      RIPE
```

This host also shows up in the Portscan logs talking to the same MY.NET.223.206 host. Here is the log entry:

Apr 13 05:32:42 212.171.49.18:32878 -> MY.NET.223.206:25157 NOACK *1**R**U RESERVEDBITS

He shows up three times in the Out-Of-Spec logs as well:

```
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/13-06:17:31.071408 212.171.49.18:33589 -> MY.NET.223.206:38469
TCP TTL:47 TOS:0x0 ID:1387  DF
*1SFR*** Seq: 0x2465EF4B   Ack: 0x80184401   Win: 0x0
F4 4E                                  .N
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/13-06:21:52.565063 212.171.49.18:964 -> MY.NET.223.206:16105
TCP TTL:47 TOS:0x0 ID:13460  DF
2*SFRP*U Seq: 0xC0D5215   Ack: 0x501821CC   Win: 0x0
CE B8 00 00 FE D1 5A CC A2 92 BE 41 80 2F 16 28  ......Z....A./.(
C4 87                                  ..
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/13-07:41:46.798578 212.171.49.18:958 -> MY.NET.223.206:57575
TCP TTL:47 TOS:0x0 ID:60351  DF
**SF*P*U Seq: 0xE5C8DA13   Ack: 0x50181EEC   Win: 0x0
50 18 1E EC 23 2B 00 00 F5 7D 00 00 76 3F DC 92  P...#+...}..v?..
59 2F D5 11 91 EA 00 B0 D0 24                  Y/.......$
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

This last entry is the packet from our NMAP Alert. This confirms that active targeting is taking place since this host is only sending packets to a single MY.NET host. The flags set do not conform to any normal combination of IP flags. The source and destination ports remain the same during all of these transactions that occur over an approximate two hour time period (No machine is that slow).

3-2-6-2 Correlation(s):

A search of the Consensus Intrusion Database (CID[50]) for any Source IP and Source Port 958 to any Destination IP and Port between 01 July 2001 and 06 July 2001 yields 63 matches. None of these were to port 57575, and they all had the SIN flag only set. None of them were from the 212.171 subnet.

Scans with similar patterns were analyzed by:

Asadoorian, Paul GCIA (337) http://www.sans.org/y2k/practical/Paul_Asadoorian_GIAC.doc

http://www.sans.org/y2k/061000.htm

[50] Consensus Intrusion Database (CID) Search page at http://www.incidents.org/cid/search.php

"...[**] IDS005 - SCAN-Possible NMAP Fingerprint attempt [**]
06/06-22:56:36.131002 213.6.15.254:38265 -> z.y.w.34:21 TCP
TTL:35 TOS:0x0 ID:30007 **SF*P*U Seq: 0x84E28727 Ack: 0x0 Win:
0xC00 TCP Options => WS: 10 NOP MSS: 265 TS: 1061109567 0 EOL EOL…"

Goodwin, P.J. GCIA (305) http://www.sans.org/y2k/practical/PJ_Goodwin_GCIA.doc

Example of potential source port 1 scanning
http://www.sans.org/y2k/110900-1300.htm
Nov 6 18:41:15 hostre in.telnetd[14093]: refused connect from
sweetness.tamu.edu
Nov 6 18:41:15 hostre in.telnetd[14094]: refused connect from
sweetness.tamu.edu
Nov 6 18:41:17 hostbe in.telnetd[29543]: refused connect from
sweetness.tamu.edu
Nov 6 18:41:17 hostbe in.telnetd[29544]: refused connect from
sweetness.tamu.edu
Nov 6 18:41:22 hostp portsentry[542]: attackalert: Connect from host:
sweetness.tamu.edu/165.95.63.130 to TCP port: 1
Nov 6 18:41:22 hostp portsentry[542]: attackalert: Connect from host:
sweetness.tamu.edu/165.95.63.130 to TCP port: 1
Nov 6 18:41:23 hostre portsentry[423]: attackalert: Connect from host:
sweetness.tamu.edu/165.95.63.130 to TCP port: 1
Nov 6 18:41:24 hostre rpcbind: refused connect from 165.95.63.130 to dump()
Nov 6 18:41:26 hostbe rpcbind: refused connect from 165.95.63.130 to dump()
Nov 6 18:41:26 hostbe portsentry[26278]: attackalert: Connect from host:
sweetness.tamu.edu/165.95.63.130 to TCP port: 1
Nov 6 18:48:36 hostcr telnetd[19024]: refused connect from sweetness.tamu.edu
Nov 6 18:48:36 hostcr telnetd[6926]: refused connect from sweetness.tamu.edu
Nov 6 18:48:45 hostcr portsentry[17814]: attackalert: Connect from host:
sweetness.tamu.edu/165.95.63.130 to TCP port: 1
Nov 6 18:55:27 hostmau snort[63106]: SCAN-SYN FIN: 165.95.63.130:4 ->
z.y.x.28:111
Nov 6 18:55:33 hostmau snort[63106]: RPC Info Query: 165.95.63.130:1005 ->
z.y.x.28:111

3-2-6-3 Defensive Recommendations:

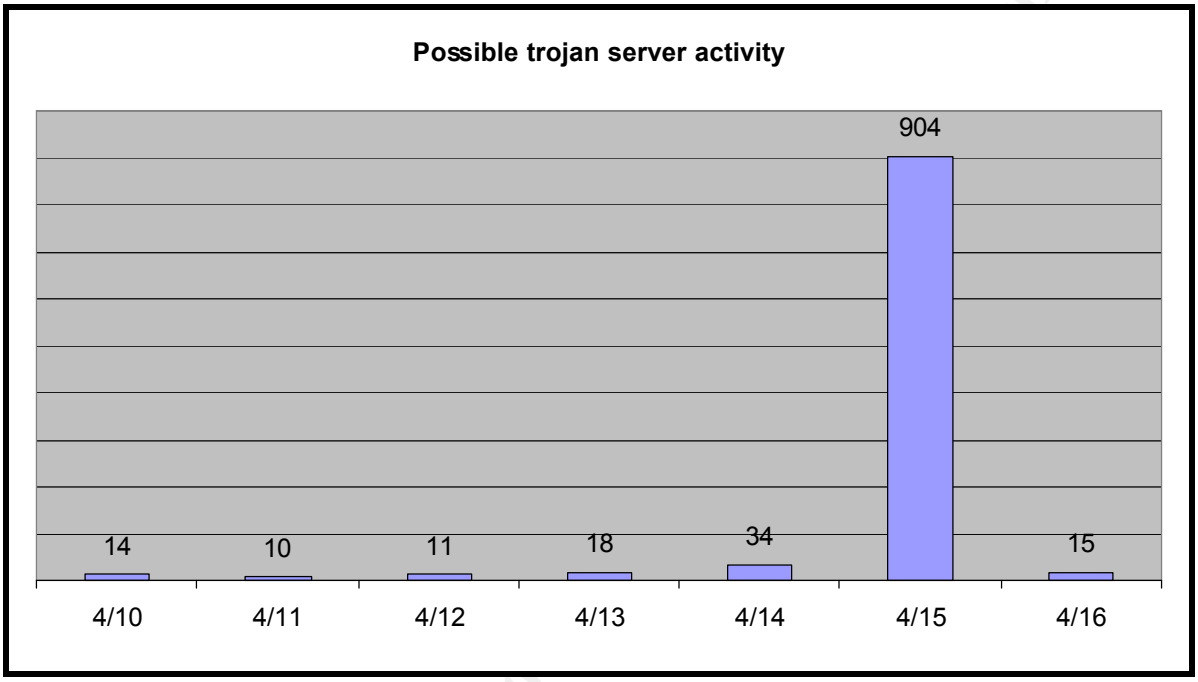
Basic security requirements are all that is required to reduce the chances of your being fingerprinted using NMAP. Ensure that all of the latest patches have been applied to your system. Uninstall applications that are not necessary. Close or block all unneeded ports on your perimeter routers and firewalls.

If you are really worried about fingerprint scanning then consider installing NMAP and/or HPING2 on your own critical systems. You canscan them yourself so you know what the response will be and use that to fine tune your Snort rules or to tweak your border router Access Control Lists some. SnortSnarf from Silcon Defense[51] can even automate this process for you

[51] Silicon Defense, IDS Research and Commercial Snort Support. http://www.silicondefense.com

3-2-7 Possible Trojan server activity

During the period 04/10/2001 to 04/16/2001, there were 1006 recorded alerts of *Possible Trojan server activity* in the IDS Logs. An analysis of the twenty four MY.NET systems originating outbound traffic from port 27374 is below.



3-2-7-1 Description/Discussion:

Of the twenty-four MY.NET systems showing outbound connections from port 27374, eleven of these were in response to outside stimulus. A possible compromise is indicated when a system responds to a simulus on port 27374. These eleven should be investigated immediately. Each of the twenty-four hosts is discussed below.

This alert appears to be monitoring inbound and outbound traffic from Port 27374 (Probable SubSeven[52]). This port is associated with several other Trojans as well. According to the Simovits Consulting Trojan Ports List[53] The list includes: Bad Blood, Ramen, Seeker, SubSeven, SubSeven 2.1 Gold, Subseven 2.1.4 DefCon 8, SubSeven Muie, and Ttfloader. All of these Trojans are remote control or backdoor Trojans. Once a host is infected with one of these it will advertise its presence to a controlling host and then wait for instructions. This port has become a very popular open port to scan for. A host should not respond since this port is closed, if it does respond then check it for possible infection. A response does not necessarily mean that a Trojan has compromised the host, it could just be that one port was randomly selected for that particular connection; but it should be checked any. If a host originates a connection from 27374, then this is a very good indication that this host has a Trojan installed on it. Comparing the alert entries

[52] SubSeven Homepage. http://subseven.slak.org (Site was in transition of 07/10/2001).
[53] Simovits Consulting, Ports Used By Trojans (2001-03-08). http://www.simovits.com/nyheter9902.html

with the Alert, Out-Of-Spec and Portscan logs shows that twenty-four hosts originated a connection to another host with a source port of 27374. If the logs show that a host responded to a stimulus I would recommend that these hosts be immediately checked for a Trojan or at least be more closely monitored.

The results of a search of the Alert, Out-Of-Spec, and Portscan logs for the twenty-four hosts showing outbound connections from port 27374 follow:

my.net.15.178:27374

There is no stimulus recorded, so this is not a response to a stimulus. But, an attempt should be made to determine why this host tried to send data to a host outside of the MY.NET network from port 27374.

04/16-15:18:51.426973 [**] Possible trojan server activity [**] MY.NET.15.178:27374 -> 64.229.171.112:1379
04/16-15:20:55.210506 [**] Possible trojan server activity [**] MY.NET.15.178:27374 -> 64.229.171.112:1418
Portscan Log entries.
Apr 10 11:38:34 63.163.94.13:1066 -> MY.NET.15.178:53 SYN **S*****
Apr 15 11:04:43 210.52.214.15:21 -> MY.NET.15.178:21 SYN **S*****

my.net.202.34

MY.NET.202.34 responded to an outside connection to port 27374, this is an indication of possible compromise and should be investigated immediately. Port 1214 was used 576 times by MY.NET.202.34 while communicating with 207.55.74.26 on port 27374. MY.NET.202.34 sent 288 packets in reply. According to the alert log files, this transaction was originated by 207.55.74.56. This is definitely a response to a stimulus and should be investigated immediately.

my.net.204.142:27374

MY.NET.204.142 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately. In addition MY.NET.204.142 originated the first transmission from port 27374. A transmission on 4/12/2001 to 62.11.130.144 did not receive a response. The first transmission from 64.230.147.166 and one transmission from 24.42.34.74 on 4/13/2001 was not replied to. A second attempt from 63.230.147.166 however was replied to, but no further communications took place that day. Another transmission on 4/14/2001 went unanswered. This host did not respond to Out-Of-Spec packets received on 4/13/2001.

04/12-18:16:07.203024 [**] Possible trojan server activity [**] MY.NET.204.142:27374 -> 62.11.130.144:2566
04/13-02:24:47.991665 [**] Possible trojan server activity [**] 64.230.147.166:1447 -> MY.NET.204.142:27374
04/13-02:24:48.533305 [**] Possible trojan server activity [**] 24.42.34.74:3139 ->

MY.NET.204.142:27374
04/13-02:24:49.202871 [**] Possible trojan server activity [**] 64.230.147.166:1447 -> MY.NET.204.142:27374
04/13-02:24:49.202920 [**] Possible trojan server activity [**] MY.NET.204.142:27374 -> 64.230.147.166:1447
04/14-01:02:21.947127 [**] Possible trojan server activity [**] MY.NET.204.142:27374 -> 154.5.97.117:1468
04/14-07:46:47.355047 [**] WinGate 1080 Attempt [**] 212.199.47.90:3877 -> MY.NET.204.142:1080
04/14-07:46:48.072615 [**] WinGate 1080 Attempt [**] 212.199.47.90:3877 -> MY.NET.204.142:1080
04/14-07:46:48.776169 [**] WinGate 1080 Attempt [**] 212.199.47.90:3877 -> MY.NET.204.142:1080
Out-Of-Spec Log
04/13-18:06:04.365007 24.66.25.78:2946 -> MY.NET.204.142:2465
04/13-20:11:21.473878 24.66.25.78:2946 -> MY.NET.204.142:2465
Portscan Log entries.
Apr 10 05:30:16 210.220.73.117:3473 -> MY.NET.204.142:21 SYN **S*****
Apr 13 18:53:08 24.66.25.78:2946 -> MY.NET.204.142:2465 VECNA 2****P*U RESERVEDBITS
Apr 13 20:11:26 24.66.25.78:2946 -> MY.NET.204.142:2465 INVALIDACK 21**RPAU RESERVEDBITS

my.net.205.218:27374

No compromise is indicated at this time. But, I do recommend further investigation of this host to determine why it is sending data from port 27374 to a host outside the MY.NET network. Two packets were sent from this host on 4/14/2001 from port 27374 and no response was received. Three queries to this host on 4/15/2001 and one on 4/16/2001 to see if port 27374 was open went unanswered. On 4/16/2001 there was another transmission to a host outside the MY.NET network that went unanswered. This host made at least three attempts to send a packet originating from port 27374 to a host outside the MY.NET network and did not receive a response.

04/14-12:34:01.020119 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.205.218 (THRESHOLD 7 connections in 2 seconds) [**]
04/14-12:34:03.090038 [**] spp_portscan: portscan status from MY.NET.205.218: 13 connections across 10 hosts: TCP(0), UDP(13) [**]
04/14-12:34:04.788364 [**] spp_portscan: End of portscan from MY.NET.205.218 (TOTAL HOSTS:11 TCP:0 UDP:13) [**]
04/14-20:29:59.386806 [**] Possible trojan server activity [**] MY.NET.205.218:27374 -> 164.77.118.15:2413
04/14-20:30:00.571231 [**] Possible trojan server activity [**] MY.NET.205.218:27374 -> 164.77.118.15:2413
04/15-15:24:51.085985 [**] Possible trojan server activity [**] 213.46.196.72:1407 ->

MY.NET.205.218:27374
04/15-19:11:37.629277 [**] Possible trojan server activity [**] 65.199.129.116:3600 -> MY.NET.205.218:27374
04/15-19:11:39.064042 [**] Possible trojan server activity [**] 213.46.196.72:4386 -> MY.NET.205.218:27374
04/16-03:12:30.760175 [**] Possible trojan server activity [**] 216.114.16.40:2118 -> MY.NET.205.218:27374
04/16-05:50:03.514106 [**] Possible trojan server activity [**] MY.NET.205.218:27374 -> 194.126.58.37:1601
Portscan Log entries.
Apr 10 05:30:26 210.220.73.117:3805 -> MY.NET.205.218:21 SYN **S*****
Apr 14 12:18:38 MY.NET.205.218:1421 -> 64.91.13.11:50181 UDP
Apr 14 12:18:38 MY.NET.205.218:1427 -> 64.89.143.5:27018 UDP
Apr 14 12:18:38 MY.NET.205.218:1444 -> 64.81.70.193:443 UDP
Apr 14 12:18:38 MY.NET.205.218:1448 -> 64.81.64.197:27011 UDP
Apr 14 12:18:38 MY.NET.205.218:1498 -> 64.78.201.17:27040 UDP
Apr 14 12:18:38 MY.NET.205.218:1505 -> 64.74.59.7:23117 UDP
Apr 14 12:18:39 MY.NET.205.218:1539 -> 64.7.27.99:61526 UDP
Apr 14 12:18:39 MY.NET.205.218:1540 -> 64.7.27.99:61525 UDP
Apr 14 12:18:39 MY.NET.205.218:1541 -> 64.7.27.99:61519 UDP
Apr 14 12:18:41 MY.NET.205.218:1544 -> 64.7.27.99:61512 UDP
Apr 14 12:18:40 MY.NET.205.218:1636 -> 64.34.31.245:64844 UDP
Apr 14 12:18:40 MY.NET.205.218:1653 -> 64.249.6.250:45075 UDP
Apr 14 12:18:41 MY.NET.205.218:1352 -> 65.2.228.82:62964 UDP

my.net.206.106:27374

No compromise is indicated at this time. There is no stimulus recorded, so this is not a response to a stimulus. I recommend further investigation to determine why this host is trying to send data to a host outside the MY.NET network using a source port of 27374.

04/10-22:19:05.747452 [**] Possible trojan server activity [**] MY.NET.206.106:27374 -> 202.163.100.126:64434
04/10-22:25:28.709541 [**] Possible trojan server activity [**] MY.NET.206.106:27374 -> 202.5.131.54:2907
Portscan log entries.
Apr 14 07:40:59 209.178.22.233:1397 -> MY.NET.206.106:53 SYN **S*****

my.net.206.230:27374

No compromise is indicated at this time. There is no stimulus recorded, so this is not a response to a stimulus. No other activity on this port is indicated in the logs.

04/10-23:00:42.223806 [**] Possible trojan server activity [**] MY.NET.206.230:27374 -> 200.60.6.169:1872

my.net.100.82:27374

MY.NET.100.82 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately. The log entries show a response to a stimulus. On 4/15/2001, host 198.248.172.184 attempted a connection to this host on port 27374 and it received a reply. One such attempt is suspicious, but this host responded to two such attempts from the same host. No other suspicious activity was indicated. Since it responded twice to external stimulus on a known Trojan port, I would investigate further to determine why this host is responding to queries on this port. Hopefully all that it requires are some patches or that a service be turned off. If there is a service using this port, then every attempt should be made to move the service to another port.

04/15-08:02:25.553259 [**] Possible trojan server activity [**] 198.248.172.184:1699 -> MY.NET.100.182:27374
04/15-08:02:25.553403 [**] Possible trojan server activity [**] MY.NET.100.182:27374 -> 198.248.172.184:1699
04/15-08:02:26.084222 [**] Possible trojan server activity [**] 198.248.172.184:1699 -> MY.NET.100.182:27374
04/15-08:02:26.087304 [**] Possible trojan server activity [**] MY.NET.100.182:27374 -> 198.248.172.184:1699

my.net.146.51:27374

MY.NET.146.51 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately. This is a response to an external stimulus. This one shows a second reply sent approximately 1.5 seconds after the first reply. There was no visible stimulus causing this second reply, but it did originate from a know Trojan port. It probably was a retry. I would investigate further to determine why this host is responding to queries on this port. If this is not a normal data exchange, then all that may be required is an operating system patch or a service be turned off. Every attempt should be made to move a service on this port to another port if one is present.

04/14-12:46:35.609896 [**] Possible trojan server activity [**] 211.56.113.59:3526 -> MY.NET.146.51:27374
04/14-12:46:35.621345 [**] Possible trojan server activity [**] MY.NET.146.51:27374 -> 211.56.113.59:3526
04/14-12:46:37.226993 [**] Possible trojan server activity [**] MY.NET.146.51:27374 -> 211.56.113.59:3526

my.net.215.34:27374

MY.NET.215.34 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately, although the gaming activity on this host may be what triggered the alert. This is a response to a stimulus. There is only one exchange on 4/12/2001,

where it sent a packet from port 27374 to 65.199.131.33 port 1512 and received an instantaneous response (a 0.000094 millisecond delay). The pattern of port scans occurring before and after this transaction does not appear to change. The UDP portscans in the 7777 to 7797 range may be Game Traffic (According to a Neohapsis posting[54] on SNORT Game Ports this may be a game called Unreal Tournament[55]). If this is not a normal data exchange, then all that may be required is an operating system patch or a service be turned off. Every attempt should be made to move a service on this port to another port if one is present.

04/11-00:00:08.871925 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.215.34 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/11-00:00:49.503436 [**] spp_portscan: End of portscan from MY.NET.215.34 (TOTAL HOSTS:31 TCP:0 UDP:38) [**]
04/12-22:00:45.182579 [**] Possible trojan server activity [**] 65.199.131.33:1512 -> MY.NET.215.34:27374
04/12-22:00:45.182673 [**] Possible trojan server activity [**] MY.NET.215.34:27374 -> 65.199.131.33:1512
04/16-19:23:07.459517 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.215.34 (THRESHOLD 7 connections in 2 seconds) [**]
04/16-19:23:09.955906 [**] spp_portscan: portscan status from MY.NET.215.34: 26 connections across 24 hosts: TCP(0), UDP(26) [**]
04/16-19:23:12.197960 [**] spp_portscan: portscan status from MY.NET.215.34: 2 connections across 2 hosts: TCP(0), UDP(2) [**]
04/16-19:23:14.234513 [**] spp_portscan: End of portscan from MY.NET.215.34 (TOTAL HOSTS:25 TCP:0 UDP:28) [**]
Portscan Logs entries.
Apr 10 23:43:51 MY.NET.215.34:2011 -> 216.181.254.216:7778 UDP
Apr 10 23:43:52 MY.NET.215.34:2006 -> 195.149.21.26:7898 UDP
Apr 10 23:43:52 MY.NET.215.34:2010 -> 194.185.88.46:8201 UDP
Apr 10 23:43:52 MY.NET.215.34:2006 -> 194.185.88.32:8401 UDP
Apr 10 23:43:52 MY.NET.215.34:2008 -> 194.185.88.48:8701 UDP
Apr 10 23:43:52 MY.NET.215.34:2009 -> 194.134.233.79:7778 UDP
Apr 10 23:43:52 MY.NET.215.34:2006 -> 195.149.21.72:7848 UDP
Apr 10 23:43:53 MY.NET.215.34:2006 -> 202.42.122.128:7978 UDP
Apr 10 23:43:53 MY.NET.215.34:2008 -> 199.29.202.1:7778 UDP
Apr 10 23:43:54 MY.NET.215.34:2007 -> 194.185.88.49:8601 UDP
Apr 10 23:43:56 MY.NET.215.34:2005 -> 212.224.25.206:31601 UDP
Apr 10 23:43:56 MY.NET.215.34:2009 -> 212.122.148.65:7734 UDP
Apr 10 23:43:56 MY.NET.215.34:2010 -> 212.122.148.77:7723 UDP
Apr 10 23:43:57 MY.NET.215.34:2010 -> 216.52.151.37:7778 UDP
Apr 10 23:43:58 MY.NET.215.34:2005 -> 212.55.8.92:7778 UDP
Apr 10 23:43:59 MY.NET.215.34:2006 -> 194.185.88.31:8601 UDP

[54] [SNORT] RE: Games?, 25 JAN 2000. http://archives.neohapsis.com/archives/snort/2000-01/0334.html
[55] Unreal Tournament, http://www.unrealtournament.com/

Apr 10 23:44:00 MY.NET.215.34:2006 -> 24.162.170.143:7778 UDP
Apr 10 23:44:00 MY.NET.215.34:2001 -> 212.224.25.206:26301 UDP
Apr 10 23:44:01 MY.NET.215.34:2003 -> 166.70.135.173:7778 UDP
Apr 10 23:44:02 MY.NET.215.34:2004 -> 24.51.80.160:7778 UDP
Apr 10 23:44:02 MY.NET.215.34:2010 -> 128.2.153.13:7778 UDP
Apr 10 23:44:02 MY.NET.215.34:2008 -> 209.247.165.214:7778 UDP
Apr 10 23:44:02 MY.NET.215.34:2009 -> 130.89.238.28:7778 UDP
Apr 10 23:44:02 MY.NET.215.34:2010 -> 195.88.134.249:7578 UDP
Apr 10 23:44:03 MY.NET.215.34:2006 -> 194.185.88.28:8501 UDP
Apr 10 23:44:04 MY.NET.215.34:2001 -> 195.149.21.106:7838 UDP
Apr 10 23:44:06 MY.NET.215.34:2001 -> 194.213.72.20:7778 UDP
Apr 10 23:44:07 MY.NET.215.34:2009 -> 212.115.192.204:7778 UDP
Apr 10 23:44:07 MY.NET.215.34:2009 -> 24.29.3.200:7778 UDP
Apr 10 23:44:07 MY.NET.215.34:2006 -> 208.163.74.51:7778 UDP
Apr 10 23:44:09 MY.NET.215.34:2008 -> 148.122.161.77:7798 UDP
Apr 10 23:44:09 MY.NET.215.34:2009 -> 216.39.174.131:7778 UDP
Apr 10 23:44:10 MY.NET.215.34:2005 -> 206.74.82.109:7778 UDP
Apr 10 23:44:11 MY.NET.215.34:2003 -> 216.125.250.54:7778 UDP
Apr 10 23:44:12 MY.NET.215.34:2005 -> 208.206.167.37:7778 UDP
Apr 10 23:44:13 MY.NET.215.34:2003 -> 212.69.243.251:7778 UDP
Apr 10 23:44:13 MY.NET.215.34:2009 -> 131.155.193.38:7778 UDP
Apr 10 23:44:16 MY.NET.215.34:1070 -> 166.70.135.172:7777 UDP
Apr 14 07:41:08 209.178.22.233:3621 -> MY.NET.215.34:53 SYN **S*****
Apr 16 19:09:49 MY.NET.215.34:1327 -> 212.137.72.40:7807 UDP
Apr 16 19:09:46 MY.NET.215.34:2003 -> 216.181.254.215:7778 UDP
Apr 16 19:09:46 MY.NET.215.34:2016 -> 151.23.31.22:20004 UDP
Apr 16 19:09:46 MY.NET.215.34:2017 -> 216.39.165.128:7778 UDP
Apr 16 19:09:46 MY.NET.215.34:2007 -> 165.234.215.11:7778 UDP
Apr 16 19:09:47 MY.NET.215.34:2016 -> 216.196.148.9:7778 UDP
Apr 16 19:09:47 MY.NET.215.34:2018 -> 195.227.83.163:7778 UDP
Apr 16 19:09:47 MY.NET.215.34:2010 -> 130.89.238.28:10778 UDP
Apr 16 19:09:47 MY.NET.215.34:2018 -> 212.122.148.71:7734 UDP
Apr 16 19:09:49 MY.NET.215.34:2019 -> 212.122.148.71:7745 UDP
Apr 16 19:09:47 MY.NET.215.34:2003 -> 212.137.72.48:7798 UDP
Apr 16 19:09:47 MY.NET.215.34:2007 -> 195.149.21.27:7818 UDP
Apr 16 19:09:47 MY.NET.215.34:2019 -> 161.184.66.110:7778 UDP
Apr 16 19:09:48 MY.NET.215.34:2006 -> 212.224.24.106:30801 UDP
Apr 16 19:09:48 MY.NET.215.34:2007 -> 212.224.24.106:21001 UDP
Apr 16 19:09:48 MY.NET.215.34:2009 -> 212.224.24.110:27501 UDP
Apr 16 19:09:48 MY.NET.215.34:2010 -> 66.66.50.46:7778 UDP
Apr 16 19:09:48 MY.NET.215.34:2012 -> 12.32.76.126:7778 UDP
Apr 16 19:09:48 MY.NET.215.34:2017 -> 64.208.161.13:7778 UDP
Apr 16 19:09:48 MY.NET.215.34:2013 -> 204.26.91.40:7778 UDP
Apr 16 19:09:49 MY.NET.215.34:2005 -> 195.149.21.106:7858 UDP
Apr 16 19:09:49 MY.NET.215.34:2011 -> 213.140.4.75:8201 UDP

Apr 16 19:09:49 MY.NET.215.34:2014 -> 212.137.72.49:7868 UDP
Apr 16 19:09:49 MY.NET.215.34:2013 -> 166.90.134.42:7778 UDP
Apr 16 19:09:49 MY.NET.215.34:2017 -> 208.232.170.90:7778 UDP
Apr 16 19:09:50 MY.NET.215.34:2015 -> 64.163.148.6:7778 UDP
Apr 16 19:09:50 MY.NET.215.34:2001 -> 206.109.87.99:7778 UDP
Apr 16 19:09:50 MY.NET.215.34:1332 -> 212.137.72.40:7807 UDP

my.net.217.198:27374

No compromise is indicated at this time. He tried sending packets to two different hosts within the space of four seconds on 04/10/2001 @ 11:36 and received no response. The remainder of the entries in the Alerts Log are portscan entries. A link between the two outbound transmissions and the port scans is not indicated. The Portscan Logs show this host is scanning port 59 on external hosts which is listed as "Any Private File Service" in the port listing on the IANA.ORG Port List web page[56]. As a minimum, there is probably some type of File Share service installed that should be investigated.

04/10-11:36:50.358961 [**] Possible trojan server activity [**] MY.NET.217.198:27374 -> 62.7.107.166:2966
04/10-11:36:54.425972 [**] Possible trojan server activity [**] MY.NET.217.198:27374 -> 216.252.185.108:2493
04/10-13:50:55.060834 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.217.198 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/10-13:51:11.374798 [**] spp_portscan: End of portscan from MY.NET.217.198 (TOTAL HOSTS:14 TCP:21 UDP:0) [**]
04/10-21:33:11.272624 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.217.198 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/10-21:34:05.198203 [**] spp_portscan: End of portscan from MY.NET.217.198 (TOTAL HOSTS:45 TCP:64 UDP:0) [**]
Portscan Log entries.

NOTE: There are 87 total entries in the Portscan Log file for this host. Only a portion of those entries are here, but this small portion show the format and destination port listed in all but one entry of the Portscan Log entries for this host. The first and last entry are included in this extract since they are the only two entries that are inbound to port 21 from a host outside the MY.NET network and they are the only two inbound connections to this host. All other entries in the Portscan log are outbound connections to port 59 on hosts outside the MY.NET network.

Apr 10 05:32:14 210.220.73.117:4852 -> MY.NET.217.198:21 SYN **S*****
Apr 10 13:36:16 MY.NET.217.198:34416 -> 141.219.84.107:59 SYN **S*****
Apr 10 13:36:17 MY.NET.217.198:55438 -> 65.10.192.102:59 SYN **S*****
Apr 10 13:36:17 MY.NET.217.198:27538 -> 62.254.57.169:59 SYN **S*****

[56] IANA Port List, http://www.iana.org/assignments/port-numbers

Apr 10 13:36:22 MY.NET.217.198:44054 -> 144.132.18.100:59 SYN **S*****
Apr 10 13:36:25 MY.NET.217.198:59266 -> 213.243.128.9:59 SYN **S*****
Apr 10 13:36:26 MY.NET.217.198:48232 -> 134.198.246.136:59 SYN **S*****
Apr 10 13:36:28 MY.NET.217.198:26093 -> 194.236.103.99:59 SYN **S*****
Apr 10 13:36:28 MY.NET.217.198:28088 -> 203.164.141.131:59 SYN **S*****
Apr 10 21:17:07 MY.NET.217.198:5433 -> 209.15.87.204:59 SYN **S*****
Apr 10 21:17:07 MY.NET.217.198:31871 -> 64.231.171.81:59 SYN **S*****
Apr 10 21:17:15 MY.NET.217.198:11637 -> 63.22.11.197:59 SYN **S*****
Apr 10 21:17:16 MY.NET.217.198:52941 -> 161.108.185.101:59 SYN **S*****
Apr 10 21:18:00 MY.NET.217.198:5980 -> 64.229.179.165:59 SYN **S*****
Apr 10 21:18:00 MY.NET.217.198:20783 -> 62.155.188.172:59 SYN **S*****
Apr 10 21:18:00 MY.NET.217.198:19899 -> 216.62.157.213:59 SYN **S*****
Apr 10 21:18:01 MY.NET.217.198:19457 -> 216.222.64.63:59 SYN **S*****
Apr 10 21:18:02 MY.NET.217.198:62234 -> 62.108.31.66:59 SYN **S*****
Apr 10 21:18:04 MY.NET.217.198:50853 -> 141.154.48.8:59 SYN **S*****
Apr 10 21:18:06 MY.NET.217.198:47744 -> 130.64.4.153:59 SYN **S*****
Apr 10 21:18:06 MY.NET.217.198:49279 -> 128.151.143.186:59 SYN **S*****
Apr 10 21:18:06 MY.NET.217.198:5980 -> 64.229.179.165:59 SYN **S*****
Apr 10 21:18:06 MY.NET.217.198:21861 -> 141.154.49.151:59 SYN **S*****
Apr 12 05:38:53 24.165.162.34:4626 -> MY.NET.217.198:21 SYN **S*****

my.net.222.226:27374

MY.NET.222.226 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately. One incoming transmission on 4/12/2001 was not replied to. At 06:31 on 4/13/2001 the Portscan logs indicate a large amount of traffic originating from this host to port 6346 on several external hosts outside the MY.NET network. Ports 6346 and 6347 are registered as the Gnutella[57] service on the IANA Port List web page. Another incoming transmission to port 27374 on this host was replied to on 4/14/2001 (the day after the Gnutella traffic started). If compromised, I would investigate the possibility of the compromise occurring as a result of the use of Gnutella.

04/12-22:51:25.078523 [**] Possible trojan server activity [**] 142.177.94.46:2755 -> MY.NET.222.226:27374
04/13-06:47:31.525569 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.226 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/13-06:47:42.963083 [**] spp_portscan: End of portscan from MY.NET.222.226 (TOTAL HOSTS:16 TCP:17 UDP:2) [**]
04/14-18:49:29.117566 [**] Possible trojan server activity [**] 63.20.223.197:2953 -> MY.NET.222.226:27374
04/14-18:49:29.117656 [**] Possible trojan server activity [**] MY.NET.222.226:27374 ->

[57] Gnutella, Information can be obtained at http://www.gnutellanews.com. An explanation can also be found on this site at http://www.gnutellanews.com/information/what_is_gnutella.shtml

63.20.223.197:2953
Out-Of-Spec Log entries.
04/13-07:19:17.642293 24.132.40.104:1220 -> MY.NET.222.226:6346
Portscan Log entries.
Apr 13 02:52:11 24.160.2.229:3841 -> MY.NET.222.226:6346 NOACK *1*FR**U
RESERVEDBITS
Apr 13 06:31:22 MY.NET.222.226:4796 -> 137.204.135.46:6346 SYN **S*****
Apr 13 06:31:22 MY.NET.222.226:4793 -> 146.172.80.3:6346 SYN **S*****
Apr 13 06:31:22 MY.NET.222.226:4799 -> 211.241.52.38:6346 SYN **S*****
Apr 13 06:31:23 MY.NET.222.226:4801 -> 24.131.254.66:6346 SYN **S*****
Apr 13 06:31:23 MY.NET.222.226:4802 -> 200.221.60.61:6346 SYN **S*****
Apr 13 06:31:23 MY.NET.222.226:4803 -> 24.163.142.188:6346 SYN **S*****
Apr 13 06:31:23 MY.NET.222.226:4804 -> 128.101.58.160:6346 SYN **S*****
Apr 13 06:31:23 MY.NET.222.226:4805 -> 217.80.94.29:6347 SYN **S*****
Apr 13 06:31:23 MY.NET.222.226:4783 -> 24.22.137.115:6346 SYN **S*****
Apr 13 06:31:24 MY.NET.222.226:4806 -> 64.217.95.173:6346 SYN **S*****
Apr 13 06:31:24 MY.NET.222.226:4807 -> 24.113.125.113:6346 SYN **S*****
Apr 13 06:31:25 MY.NET.222.226:137 -> 139.67.61.250:137 UDP
Apr 13 06:31:26 MY.NET.222.226:4810 -> 139.67.61.250:6346 SYN **S*****
Apr 13 06:31:26 MY.NET.222.226:4814 -> 130.64.150.101:6346 SYN **S*****
Apr 13 06:31:26 MY.NET.222.226:4817 -> 24.165.245.19:6346 SYN **S*****
Apr 13 06:31:26 MY.NET.222.226:137 -> 139.67.61.250:137 UDP
Apr 13 06:31:27 MY.NET.222.226:4821 -> 24.26.44.166:6346 SYN **S*****
Apr 13 06:31:30 MY.NET.222.226:4825 -> 64.219.254.187:6347 SYN **S*****
Apr 13 06:31:34 MY.NET.222.226:4838 -> 200.221.33.202:6346 SYN **S*****
Apr 14 07:41:15 209.178.22.233:1632 -> MY.NET.222.226:53 SYN **S*****

my.net.222.50:27374

MY.NET.222.50 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately. This host demonstrates similar behavior as the MY.NET.217.198 host that was discussed previously. There were several individual outbound transmissions from port 27374 on this host to external hosts outside the MY.NET network, but none of them were replied to. There was one inbound packet at 15:59:51.683303 on 4/13/2001 from 210.186.22.114 to port 27374 on this host that was not replied to. On 4/15/2001 beginning at 11:52:07 and ending at 11:52:36 there were four attempts from four hosts outside the MY.NET network to connect to port 27374 on this host. A single reply was sent to 210.186.40.161 on 4/15/2001 at 11:52:12. There were no further communications to or from this host that day or the next. This single reply on 4/15/2001 to 210.186.40.161 was a response to a stimulus.

Because of the one unsolicited transmission from port 27374 on 4/11/2001 and the single response to a query on port 27374 on 4/15/2001, along with the Gnutella traffic; I recommend further investigation to rule out the presence of a trojan.

04/11-11:17:58.122065 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50

(THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/11-11:18:32.336696 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:38 TCP:49 UDP:0) [**]
04/11-11:05:04.808014 [**] Possible trojan server activity [**] MY.NET.222.50:27374 -> 193.227.62.21:1901
04/11-18:51:40.069125 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/11-18:52:46.872557 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:75 TCP:101 UDP:0) [**]
04/12-17:40:20.207228 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/12-17:40:31.276330 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:20 TCP:23 UDP:0) [**]
04/12-20:34:31.211450 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/12-20:34:35.652357 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:15 TCP:10 UDP:0) [**]
04/13-11:46:18.404262 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/13-11:46:37.528364 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:30 TCP:34 UDP:0) [**]
04/13-15:59:51.683303 [**] Possible trojan server activity [**] 210.186.22.114:1426 -> MY.NET.222.50:27374
04/13-16:16:30.044612 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/13-16:17:06.513809 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:30 TCP:44 UDP:0) [**]
04/13-16:26:29.471558 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/13-16:27:09.442191 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:77 TCP:88 UDP:0) [**]
04/13-18:01:49.486130 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/13-18:02:10.163775 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:39 TCP:47 UDP:0) [**]
04/15-11:52:07.274179 [**] Possible trojan server activity [**] 203.106.156.31:1516 -> MY.NET.222.50:27374

04/15-11:52:09.274696 [**] Possible trojan server activity [**] 203.54.156.181:3842 -> MY.NET.222.50:27374
04/15-11:52:12.626430 [**] Possible trojan server activity [**] 210.186.40.161:1485 -> MY.NET.222.50:27374
04/15-11:52:12.626478 [**] Possible trojan server activity [**] MY.NET.222.50:27374 -> 210.186.40.161:1485
04/15-11:52:36.215538 [**] Possible trojan server activity [**] 193.227.62.67:1738 -> MY.NET.222.50:27374
04/15-12:07:46.589185 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/15-12:08:25.498020 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:70 TCP:84 UDP:0) [**]
04/15-12:08:46.357444 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/15-12:09:07.047627 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:41 TCP:33 UDP:0) [**]
04/15-13:16:44.539476 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/15-13:17:01.629187 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:19 TCP:18 UDP:0) [**]
04/15-18:38:48.143142 [**] Possible trojan server activity [**] 65.199.129.116:2803 -> MY.NET.222.50:27374
04/15-18:53:20.185574 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.222.50 (THRESHOLD 7 connections in 2 seconds) [**]
<- SNIP! Portscan entries removed from this Alert Log extract by Harvey Lange ->
04/15-18:53:55.617003 [**] spp_portscan: End of portscan from MY.NET.222.50 (TOTAL HOSTS:107 TCP:109 UDP:0) [**]
Portscan Log

NOTE: There are 641 total entries in the Portscan Log file. Only a portion of those entries are here, but this small portion show the format and destination port listed in all but one entry of the Portscan Log entries for this host. The one odd entry is from an external host using a source port of 59 to port 38309 on this host with improper flag settings.

Apr 11 11:01:57 MY.NET.222.50:26524 -> 203.103.135.162:59 SYN **S*****
Apr 11 11:01:58 MY.NET.222.50:22791 -> 216.122.40.6:59 SYN **S*****
Apr 11 11:01:58 MY.NET.222.50:38926 -> 202.67.105.229:59 SYN **S*****
Apr 11 11:01:58 MY.NET.222.50:25774 -> 141.164.72.229:59 SYN **S*****
Apr 11 11:01:57 MY.NET.222.50:13488 -> 216.3.114.65:59 SYN **S*****
Apr 11 11:01:57 MY.NET.222.50:43467 -> 216.47.42.228:59 SYN **S*****
Apr 11 11:01:57 MY.NET.222.50:60465 -> 63.225.43.228:59 SYN **S*****
Apr 11 11:01:57 MY.NET.222.50:8097 -> 202.79.126.61:59 SYN **S*****

Apr 11 11:01:57 MY.NET.222.50:12973 -> 204.196.220.215:59 SYN **S*****
Apr 11 11:01:58 MY.NET.222.50:54832 -> 65.195.195.200:59 SYN **S*****
Apr 11 11:01:58 MY.NET.222.50:37080 -> 12.36.68.130:59 SYN **S*****
Apr 11 11:01:58 MY.NET.222.50:9323 -> 148.78.255.42:59 SYN **S*****
Apr 11 11:01:59 MY.NET.222.50:30280 -> 213.237.47.41:59 SYN **S*****
Apr 11 11:02:00 MY.NET.222.50:54260 -> 63.105.23.182:59 SYN **S*****
Apr 11 11:02:00 MY.NET.222.50:24195 -> 129.171.57.160:59 SYN **S*****
Apr 11 11:02:00 MY.NET.222.50:29899 -> 216.175.92.206:59 SYN **S*****
Apr 11 11:02:00 MY.NET.222.50:34390 -> 193.227.62.21:59 SYN **S*****
Apr 11 11:02:00 MY.NET.222.50:39778 -> 212.179.58.214:59 SYN **S*****
Apr 11 11:02:00 MY.NET.222.50:30280 -> 213.237.47.41:59 SYN **S*****
Apr 11 11:02:01 MY.NET.222.50:53562 -> 63.248.120.245:59 SYN **S*****
Apr 11 11:02:01 MY.NET.222.50:28415 -> 216.36.84.91:59 SYN **S*****
Apr 11 11:02:02 MY.NET.222.50:6840 -> 213.105.4.110:59 SYN **S*****
Apr 11 11:02:02 MY.NET.222.50:9423 -> 63.205.64.226:59 SYN **S*****
Apr 11 11:02:02 MY.NET.222.50:11757 -> 65.0.207.244:59 SYN **S*****
Apr 11 11:02:02 MY.NET.222.50:46270 -> 213.123.141.43:59 SYN **S*****
Apr 11 11:02:04 MY.NET.222.50:49244 -> 129.100.208.151:59 SYN **S*****
Apr 11 11:02:04 MY.NET.222.50:12662 -> 216.191.61.83:59 SYN **S*****
Apr 11 11:02:07 MY.NET.222.50:42482 -> 12.96.190.173:59 SYN **S*****
Apr 11 11:02:09 MY.NET.222.50:47121 -> 64.217.233.190:59 SYN **S*****
Apr 11 11:02:11 MY.NET.222.50:28019 -> 212.83.79.67:59 SYN **S*****
Apr 11 18:36:19 MY.NET.222.50:6771 -> 32.101.209.200:59 SYN **S*****
Apr 11 18:36:19 MY.NET.222.50:44671 -> 128.54.143.164:59 SYN **S*****
Apr 11 18:36:19 MY.NET.222.50:34901 -> 64.108.104.227:59 SYN **S*****
Apr 11 18:36:19 MY.NET.222.50:9982 -> 64.230.144.44:59 SYN **S*****
Apr 11 18:36:19 MY.NET.222.50:12022 -> 138.23.67.48:59 SYN **S*****
Apr 11 18:36:20 MY.NET.222.50:15032 -> 64.231.207.53:59 SYN **S*****
Apr 11 18:36:21 MY.NET.222.50:38712 -> 216.109.141.177:59 SYN **S*****
Apr 11 18:36:21 MY.NET.222.50:38494 -> 64.230.28.178:59 SYN **S*****
Apr 11 18:36:23 MY.NET.222.50:46832 -> 209.149.49.74:59 SYN **S*****
Apr 11 18:36:23 MY.NET.222.50:58015 -> 144.132.0.167:59 SYN **S*****
Apr 11 18:36:23 MY.NET.222.50:22327 -> 64.231.67.226:59 SYN **S*****
Apr 11 18:36:26 MY.NET.222.50:14435 -> 212.83.79.67:59 SYN **S*****
Apr 11 18:36:29 MY.NET.222.50:11888 -> 206.158.29.194:59 SYN **S*****
Apr 11 18:36:29 MY.NET.222.50:33515 -> 64.230.37.203:59 SYN **S*****
Apr 11 18:36:30 MY.NET.222.50:43823 -> 129.118.170.68:59 SYN **S*****
Apr 11 18:36:32 MY.NET.222.50:50871 -> 216.109.141.150:59 SYN **S*****
Apr 11 18:36:32 MY.NET.222.50:64326 -> 64.108.91.128:59 SYN **S*****
Apr 11 18:36:33 MY.NET.222.50:14622 -> 193.2.132.74:59 SYN **S*****

my.net.223.50:27374

No compromise is indicated at this time. On 4/15/2001 at 19:52:29 we see one attempt from 213.46.196.72 to contact this host on port 27374 which went unanswered. At 21:33:51 and

21:33:52 that same day we see two unsolicited transmissions from port 27374 to 65.199.134.83. We can only assume that these packets originated from this host since there is no incoming stimulus recorded. Because of the unsolicited transmissions from port 27374, I recommend additional investigation to rule out the presence of a trojan.

04/15-19:52:29.433803 [**] Possible trojan server activity [**] 213.46.196.72:1384 -> MY.NET.223.50:27374
04/15-21:33:51.315721 [**] Possible trojan server activity [**] MY.NET.223.50:27374 -> 65.199.134.83:3448
04/15-21:33:52.866761 [**] Possible trojan server activity [**] MY.NET.223.50:27374 -> 65.199.134.83:3448
04/16-10:53:28.336152 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.223.50 (STEALTH) [**]
04/16-10:53:30.377442 [**] spp_portscan: portscan status from MY.NET.223.50: 1 connections across 1 hosts: TCP(1), UDP(0) STEALTH [**]
04/16-10:53:33.034806 [**] spp_portscan: End of portscan from MY.NET.223.50 (TOTAL HOSTS:1 TCP:1 UDP:0) [**]
04/16-13:19:28.544533 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.223.50 (STEALTH) [**]
04/16-13:19:30.298356 [**] spp_portscan: portscan status from MY.NET.223.50: 1 connections across 1 hosts: TCP(1), UDP(0) STEALTH [**]
04/16-13:19:32.127082 [**] spp_portscan: End of portscan from MY.NET.223.50 (TOTAL HOSTS:1 TCP:1 UDP:0) [**]
Portscan Log
Apr 16 10:39:16 MY.NET.223.50:1348 -> 64.4.44.7:443 INVALIDACK *1S**PA* RESERVEDBITS
Apr 16 13:04:11 MY.NET.223.50:1851 -> 64.4.53.7:443 NULL ********

my.net.225.117:27374

No compromise is indicated at this time. Shows one outbound connection attempt from port 27374 to port 4950 on 211.56.113.59 with no response received. Since this host originated this packet and it was not a response to a stimulus, I recommend additional investigation to rule out the presence of a trojan.

04/14-05:58:40.441578 [**] Possible trojan server activity [**] MY.NET.225.117:27374 -> 211.56.113.59:4950

my.net.229.54:27374

MY.NET.229.54 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately. This is a response to a stimulus. We see no further activity on this port for this system, but a response to a stimulus of port 27374 should be investigated.

04/13-19:53:11.655654 [**] Possible trojan server activity [**] 211.58.164.38:1961 -> MY.NET.229.54:27374
04/13-19:53:11.657026 [**] Possible trojan server activity [**] MY.NET.229.54:27374 -> 211.58.164.38:1961
Portscan Log entries.
Apr 10 02:50:04 216.40.195.72:4273 -> MY.NET.229.54:53 SYN **S*****
Apr 10 05:34:05 210.220.73.117:3862 -> MY.NET.229.54:21 SYN **S*****

my.net.208.6:27374

No compromise is indicated at this time. On 4/12/2001 there was one packet sent which received no response. On 4/16/2001 here was a probe on port 27374 that was not replied to. There was also a Queso Fingerprint scan on 4/12/2001 recorded that was not replied to. The Queso fingerprint scan may have been a scan for Gnutella since it was directed at port 6346. I recommend further investigation of this host because of the one unsolicited transmission from a known Trojan port.

04/12-20:58:03.791382 [**] Possible trojan server activity [**] MY.NET.208.6:27374 -> 164.138.47.185:21194
04/13-07:03:18.715481 [**] Queso fingerprint [**] 213.76.185.130:1822 -> MY.NET.208.6:6346
04/16-01:28:39.260584 [**] Possible trojan server activity [**] 211.219.138.146:1113 -> MY.NET.208.63:27374
Out-Of-Spec Log entries.
04/12-00:28:15.479440 134.96.56.245:37524 -> MY.NET.208.6:6346
04/13-07:03:08.596420 213.76.185.130:1822 -> MY.NET.208.6:6346
Portscan Log entries.
Apr 10 01:16:30 24.27.205.152:1765 -> MY.NET.208.64:53 SYN **S*****
Apr 10 01:16:30 24.27.205.152:1768 -> MY.NET.208.67:53 SYN **S*****
Apr 10 02:49:07 216.40.195.72:2857 -> MY.NET.208.60:53 SYN **S*****
Apr 10 02:49:07 216.40.195.72:2861 -> MY.NET.208.64:53 SYN **S*****
Apr 10 05:30:51 210.220.73.117:4411 -> MY.NET.208.60:21 SYN **S*****
Apr 10 05:30:52 210.220.73.117:4413 -> MY.NET.208.62:21 SYN **S*****
Apr 10 05:30:52 210.220.73.117:4420 -> MY.NET.208.69:21 SYN **S*****
Apr 10 10:37:21 211.21.104.118:2714 -> MY.NET.208.68:53 SYN **S*****
Apr 12 05:37:04 24.165.162.34:2207 -> MY.NET.208.68:21 SYN **S*****
Apr 12 09:06:30 163.18.176.2:4822 -> MY.NET.208.69:53 SYN **S*****
Apr 13 07:03:18 213.76.185.130:1822 -> MY.NET.208.6:6346 SYN 21S***** RESERVEDBITS
Apr 13 19:06:22 24.18.27.219:2473 -> MY.NET.208.65:21 SYN **S*****
Apr 16 05:04:48 194.98.201.22:9704 -> MY.NET.208.65:9704 SYN **S*****
Apr 16 05:04:48 194.98.201.22:9704 -> MY.NET.208.60:9704 SYN **S*****

my.net.210.185:27374

No compromise is indicated at this time. Shows one outbound connection attempt from port 27374 to port 4950 on 211.56.112.59 with no response received. I recommend further

investigation of this host because of the one unsolicited transmission from a known Trojan port.

04/13-07:56:11.744242 [**] Possible trojan server activity [**] MY.NET.210.185:27374 -> 211.57.55.134:4236
Portscan Log entries.
Apr 10 05:31:10 210.220.73.117:3050 -> MY.NET.210.185:21 SYN **S*****

my.net.204.214:27374

MY.NET.204.214 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately. This is a response to a stimulus. It has the appearance of two successful probes on port 27374. Host 208.162.229.120 queries port 27374 and receives a reply. It tries again to verify that it received a connection. Finally it terminates the connection. Because of the final push (the paranoid part of me wants to use the word instructions) from the external host with no reply sent and the portscans of port 6112 on hosts outside the MY.NET network that started approximately thirty-six hours after this transaction, I recommend further investigation of this host to determine what data was exchanged during this connection.

04/14-12:42:53.230766 [**] Possible trojan server activity [**] 208.162.229.120:1341 -> MY.NET.204.214:27374
04/14-12:42:53.231165 [**] Possible trojan server activity [**] MY.NET.204.214:27374 -> 208.162.229.120:1341
04/14-12:42:54.125075 [**] Possible trojan server activity [**] 208.162.229.120:1341 -> MY.NET.204.214:27374
04/14-12:42:54.125210 [**] Possible trojan server activity [**] MY.NET.204.214:27374 -> 208.162.229.120:1341
04/14-12:42:55.321893 [**] Possible trojan server activity [**] 208.162.229.120:1341 -> MY.NET.204.214:27374
04/15-23:36:23.484863 [**] spp_portscan: PORTSCAN DETECTED from MY.NET.204.214 (THRESHOLD 7 connections in 2 seconds) [**]
04/15-23:36:26.002962 [**] spp_portscan: portscan status from MY.NET.204.214: 8 connections across 8 hosts: TCP(0), UDP(8) [**]
04/15-23:36:28.097476 [**] spp_portscan: End of portscan from MY.NET.204.214 (TOTAL HOSTS:8 TCP:0 UDP:8) [**]
Portscan Log entries.
Apr 10 01:06:27 64.48.141.163:4923 -> MY.NET.204.214:53 SYN **S*****
Apr 12 05:36:19 24.165.162.34:1335 -> MY.NET.204.214:21 SYN **S*****
Apr 15 23:21:37 MY.NET.204.214:6112 -> 24.112.248.21:6112 UDP
Apr 15 23:21:37 MY.NET.204.214:6112 -> 24.11.51.97:6112 UDP
Apr 15 23:21:37 MY.NET.204.214:6112 -> 63.27.117.199:6112 UDP
Apr 15 23:21:37 MY.NET.204.214:6112 -> 66.6.102.146:6112 UDP
Apr 15 23:21:37 MY.NET.204.214:6112 -> 63.11.60.77:6112 UDP
Apr 15 23:21:37 MY.NET.204.214:6112 -> 24.9.25.52:6112 UDP
Apr 15 23:21:37 MY.NET.204.214:6112 -> 64.243.70.233:6112 UDP
Apr 15 23:21:37 MY.NET.204.214:6112 -> 139.142.118.100:6112 UDP

my.net.98.1193:27374

No compromise is indicated at this time. Shows two outbound connection attempt from port 27374 to port 4058 on 160.79.161.215 with no response received. Since this host originated this packet and it was not a response to a stimulus, I recommend additional investigation to rule out the presence of a trojan.

04/12-20:05:35.229321 [**] Possible trojan server activity [**] MY.NET.98.193:27374 -> 160.79.161.215:4058
04/12-20:05:36.414853 [**] Possible trojan server activity [**] MY.NET.98.193:27374 -> 160.79.161.215:4058

my.net.163.94:27374

No compromise is indicated at this time. Shows one outbound connection attempt from port 27374 to port 4058 on 202.97.219.158 with no response received. Since this host originated this packet and it was not a response to a stimulus, I recommend additional investigation to rule out the presence of a trojan. Also, almost twenty-five hours later a packet is sent to this same host from my.net.217.113 with the same results (no reply).

04/12-06:43:55.439462 [**] Possible trojan server activity [**] MY.NET.163.94:27374 -> 202.97.219.158:3326

my.net.217.113:27374

No compromise is indicated at this time. Shows one outbound connection attempt from port 27374 to port 2239 on 202.97.219.158 with no response received. Since this host originated this packet and it was not a response to a stimulus, I recommend additional investigation to rule out the presence of a trojan. Also, why is this host sending to the same host as my.net.163.94? Further investigation is required.

04/13-07:43:21.119172 [**] Possible trojan server activity [**] MY.NET.217.113:27374 -> 202.97.219.158:2239

my.net.60.152:27374

MY.NET.60.152 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately. This is a response to a stimulus sent by 202.7.184.182. Three packets were received at one second intervals before a reply was sent. There was time to reply between each packet sent, why did our host wait so long to reply? It should not have replied at all if this was a probe. If it was a probe, was the final packet received crafted in such a manner as to prompt the reply? If the answer to the last question is yes, then we may have a victum of a buffer overflow or some other exploit. In any case, further investigation is warranted.

04/15-16:45:51.980592 [**] Possible trojan server activity [**] 202.7.184.182:4652 -> MY.NET.60.152:27374
04/15-16:45:52.876160 [**] Possible trojan server activity [**] 202.7.184.182:4652 -> MY.NET.60.152:27374
04/15-16:45:53.775691 [**] Possible trojan server activity [**] 202.7.184.182:4652 -> MY.NET.60.152:27374
04/15-16:45:53.775877 [**] Possible trojan server activity [**] MY.NET.60.152:27374 -> 202.7.184.182:4652

my.net.60.17:27374

No compromise is indicated at this time. Shows one outbound connection attempt from port 27374 to port 113 on 207.46.186.184 with no response received. This may be an attempt to connect to the ident[58] port on 207.46.186.184. RFC 1413 indicates states that invalid queries may be dropped by the receiving host without sending a response and this may be the case. It is better if we are cautious and investigate this host a little more.

04/14-12:31:04.991511 [**] Possible trojan server activity [**] MY.NET.60.17:27374 -> 207.46.186.184:113

my.net.97.147:27374

MY.NET.97.147 responded to a direct connection to port, this indicates a possible compromise and should be investigated immediately. This is a response to a stimulus. We see no other activity on this port, but this is a response to stimulus and should be investigated.

04/10-21:13:23.696519 [**] WinGate 1080 Attempt [**] 217.10.143.54:2390 -> MY.NET.97.147:1080
04/10-21:13:34.766933 [**] Possible trojan server activity [**] 194.105.9.178:4018 -> MY.NET.97.147:27374
04/10-21:13:38.050887 [**] Possible trojan server activity [**] MY.NET.97.147:27374 -> 194.105.9.178:4018

my.net.97.191:27374

No compromise is indicated at this time. Shows one outbound connection attempt from port 27374 to port 1237 on 64.78.235.14 with no response received. Since this host originated this packet and it was not a response to a stimulus, I recommend additional investigation to rule out the presence of a Trojan

04/15-22:40:35.038480 [**] Possible trojan server activity [**] MY.NET.97.191:27374 -> 64.228.253.43:1237

[58] RFC 1413, Identification Protocol. http://www.rfc-editor.org/rfc/rfc1413.txt

my.net.99.15:27374

No compromise is indicated at this time. Shows one outbound connection attempt from port 27374 to port 2665 on 211.234.149.52 with no response received. Since this host originated this packet and it was not a response to a stimulus, I recommend additional investigation to rule out the presence of a Trojan

04/15-13:06:44.331538 [**] Possible trojan server activity [**] MY.NET.99.15:27374 -> 211.234.149.52:2665

3-2-7-2 Correlation(s):

CERT[59] has been sending alerts about Trojan Horses for years. CERT bulletin 1999-02 (http://www.cert.org/advisories/CA-1999-02.html) contains a short list and protective measures for each.

Here is a link from a search of the Neohapsis Archives[60]:
http://archives.neohapsis.com/archives/incidents/2000-12/0049.html

A search of the Consensus Intrusion Database (CID[61]) for any Source IP and Source Port to any Destination IP and Destination Port 27374 between 10 April 2001 and 16 July 2001 yields 52 matches. On 9 July 2001, the thirty chart of top ten ports showed that the number of reported Port 27374 scans was 4048423.

3-2-7-3 Defensive Recommendations:

An unsolicited transmission from source port 27374 can be an indication of a possible SubSeven Trojan. SubSeven infects Windows based hosts only at the present. Until a better detection rule or method for the SubSeven Trojan is found, I recommend that every incidence of an unsolicited transmission from source port 27374 from a Windows operating system be investigated and all other operating systems be closely monitored if not investigated. For those instances where one or two packets are sent and no reply is received I remember a line from the movie "Hunt for Red October[62]" where Commander Marko Ramius is answering a question from the Commander of the USS Dallas and gives the following instruction to his Sonar Operator (I apologize if I spelled the name wrong). *"Give me a single ping Vassili. One ping only."* In this case he was signaling that he was willing to do what the Commander of the USS Dallas was asking him to do.

Scripts to scan for and clean some of the Trojans mentioned above and for detecting the SubSeven Trojan are available on the SANS web site and from Antivirus vendors such as Symantec[63] and Network Associates[64]. Please check one or all of these web sites for the latest

[59] Computer Emergency Response Team, http://www.cert.org
[60] Neohapsis Archives, http://archives.neohapsis.com
[61] Consensus Intrusion Database (CID) Search page at http://www.incidents.org/cid/search.php
[62] The Hunt For Red October, Paramount Pictures 1989.
[63] Symantec, Norton Antivirus Software. http://www.sarc.com

information, tools, and instructions on how to detect and clean these Trojans if found on your system.

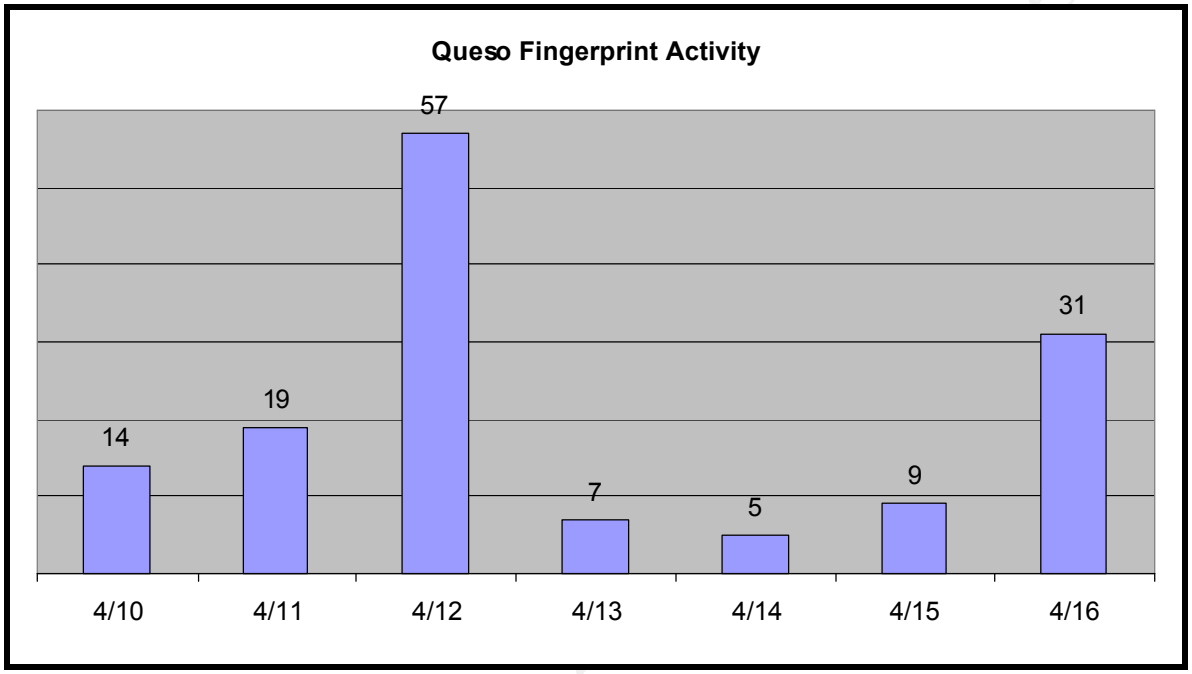
Invest in a good Trojan scanner to be used to investigate for possible Trojan infections. Encourage your users to avoid downloading and running executables from sites or persons they are not familiar with. Require the use of a good Antivirus package on all your organizations systems and make sure they keep the signatures updated.

You should update your Snort rule set to the newer versions of the Trojan rules. This may reduce the number of false positives.

[64] Network Associates Inc, McAfee vShield Antivirus Software, http://vil.nai.com

3-2-8 Queso Fingerprint

During the period 04/10/2001 to 04/16/2001, there were 142 recorded alerts for *QUESO Fingerprint activity* in the IDS Logs.



3-2-8-1 Description/Discussion:

Queso[65] is a Fingerprinting program similar to NMAP, used for reconnaissance and not for attacks. Julie Lefebvre[66] states in her practical that "Queso correctly determines the operating system to be Linux or Windows". Information concerning the program and its capabilities is available at Matarese.com[67]. From the Matarese web site, "QueSO means cheese in spanish, but does also mean que-SO or what-OS"
"

While searching for a description of Queso, I ran across a whitepaper by Toby Miller[68] on the SANS website that raises the question of whether these Queso fingerprint packets are in fact Queso fingerprinting or are they ECN packets. An incoming ECN packet will have the two reserved flags plus the SYN Flag set. A reply to this should have the reserved flag and the SYN-ACK flag combination. In our logs we only see one incoming packet and no reply which would rule out ECN. The following is an extract from RFC 2884[69], ECN and IP Networks

> In the connection setup phase, the source and destination TCPs have to exchange information about their desire and/or capability to use ECN.

[65] Queso, OS Fingerprinting, Source Code. http://packetstorm.securify.com/UNIX/scanners/queso-980922.tar.gz
[66] Levebvre, Julie, GCIA, SANS Practical. http://www.sans.org/y2k/practical/Julie_lefebvre.doc
[67] Matarese.com, Queso Analysis of Queso Performance. http://www.matarese.com/queso.html
[68] Miller, Toby, ECN and It's Impact on Intrusion Detection, SANS, 1999. http://www.sans.org/y2k/ecn.htm
[69] RFC 2884, ECN and IP Networks. http://www.ietf.org/rfc/rfc2884.txt?number=2884

> This is done by setting both the ECN-Echo flag and the CWR flag in the SYN packet of the initial connection phase by the sender; on receipt of this SYN packet, the receiver will set the ECN-Echo flag in the SYN-ACK response. Once this agreement has been reached, the sender will thereon set the ECT bit in the IP header of data packets for that flow, to indicate to the network that it is capable and willing to participate in ECN. The ECT bit is set on all packets other than pure ACK's.

A search of the current Snort Rule sets from Whitehats.com and Snort.org revealed the following rules:

Whitehats - alert TCP $EXTERNAL any -> $INTERNAL any (msg: "IDS29/scan_probe-Queso Fingerprint attempt"; ttl: >225; flags: S12;)
SNORT - alert tcp any any -> $HOME_NET any (msg:"Possible Queso Fingerprint attempt"; flags: S12;)
SNORT - alert tcp $EXTERNAL_NET any -> $HOME_NET any (msg:"IDS029 - SCAN-Possible Queso Fingerprint attempt";flags:S12;)

Of the 142 recorded alerts:

Eighty-Seven were to port 6346 on various hosts in the MY.NET Network from multiple hosts outside the MY.NET network - This port along with port 6347 are registered to the Gnutella service. This is a file sharing utility that was originally intended to replace Napster. Unlike Napster, this service is capable of sharing more than just MP3 audio files.

Ten were to port 6347 on various hosts in the MY.NET Network - This port along with port 6346 are registered to the Gnutella service. This is a file sharing utility that was originally intended to replace Napster. Unlike Napster, this service is capable of sharing more than just MP3 audio files.

Seven were to port 110 to MY.NET.6.39 & MY.NET.6.44 from 209.150.104.78 – This port is registered as the POP3 port.

Four were to port 113 to MY.NET.202.106, MY.NET.219.42 and MY.NET.219.194 from 209.85.37.71 – According to RFC 1413[70], Port 113 is used by the Identification Protocol:

> The Identification Protocol (a.k.a., "ident", a.k.a., "the Ident Protocol") provides a means to determine the identity of a user of a particular TCP connection. Given a TCP port number pair, it returns a character string which identifies the owner of that connection on the server's system.

209.85.37.71 is definitely sending crafted packets. Here is an extract from the Out-Of-Spec and Portscan Log files:

[70] RFC 1413, Identification Protocol. http://www.rfc-editor.org/rfc/rfc1413.txt

Checking Alert Log for [209.85.37.71]'s data!
04/13-22:31:23.478525 [**] Queso fingerprint [**] 209.85.37.71:38719 -> MY.NET.202.106:113
04/13-22:47:36.613555 [**] spp_portscan: portscan status from 209.85.37.71: 1 connections across 1 hosts: TCP(1), UDP(0) STEALTH [**]
04/14-07:27:24.053471 [**] Queso fingerprint [**] 209.85.37.71:42952 -> MY.NET.202.106:113
04/14-07:39:49.642207 [**] spp_portscan: portscan status from 209.85.37.71: 1 connections across 1 hosts: TCP(1), UDP(0) STEALTH [**]
04/15-00:55:58.444724 [**] Queso fingerprint [**] 209.85.37.71:52251 -> MY.NET.219.42:113
04/15-01:09:54.419888 [**] spp_portscan: portscan status from 209.85.37.71: 1 connections across 1 hosts: TCP(1), UDP(0) STEALTH [**]
04/15-01:01:28.595554 [**] Queso fingerprint [**] 209.85.37.71:52302 -> MY.NET.219.194:113
04/15-01:17:25.969483 [**] spp_portscan: portscan status from 209.85.37.71: 1 connections across 1 hosts: TCP(1), UDP(0) STEALTH [**]
##
Checking OOS Log for [209.85.37.71]'s data!
04/13-22:31:19.118137 209.85.37.71:38719 -> MY.NET.202.106:113
04/14-07:27:14.074883 209.85.37.71:42952 -> MY.NET.202.106:113
##
Checking Portscan Log for [209.85.37.71]'s data!
Apr 13 22:31:23 209.85.37.71:38719 -> MY.NET.202.106:113 SYN 21S***** RESERVEDBITS
Apr 14 07:27:24 209.85.37.71:42952 -> MY.NET.202.106:113 SYN 21S***** RESERVEDBITS
Apr 15 00:55:58 209.85.37.71:52251 -> MY.NET.219.42:113 SYN 21S***** RESERVEDBITS
Apr 15 01:01:28 209.85.37.71:52302 -> MY.NET.219.194:113 SYN 21S***** RESERVEDBITS

Trying 209.85.37 at ARIN
SoftAware, Inc. (NETBLK-SOFTAWARE-BLK3) SOFTAWARE-BLK3
209.85.0.0 - 209.85.255.255
A&S Capital Group, Inc. (NETBLK-ASCAPIT-209-85-37) ASCAPIT-209-85-37
209.85.37.0 - 209.85.37.255

MY.NET.219.194 appears to be the victum of a legitimate Queso Fingerprint scan. As you can see, both reserved flags and the SYN flag are set in the packet sent to MY.NET.219.194. This is not normal, but a further check of the log files indicates that there was no record of a reply.

Unfortunately, it looks like MY.NET.219.42 and MY.NET.202.106 are being used for gaming. A search of the Portscan and OOS logs show that both 219.42 and 219.194 are broadcasting UDP Traffic on several well known[71] game ports.

Table 9 - Game Ports

Popular Game Ports
Quake 1/QW : 27500 (27500->27600)
Quake 2 : 27910 (27900->27930)

[71] Neohapsis Archives Search for Game Ports, http://archives.neohapsis.com/archives/snort/2000-01/0334.html

Quake 3 : 27960 (27960->27980)
halfLife : 27015 (27010 -> 27050)
Unreal tournament 7777 (7777->7797)
Kingpin : 31510 (31500->31550)
shogo : 27888
starsiege stribe : 28000 (28001 & 2 often too)

A check of the log files shows that MY.NET.219.42 and MY.NET.202.106 did not reply to this fingerprint scan so we don't have to worry about them being fingerprinted. They have probably already given most of their host information away on the game networks anyway.

27 were to various ports between 1798 and 3386 on MY.NET.225.134 from port 706 on 66.31.48.7 – Except for the changing times and destination ports, they all looked like this:

Apr 16 05:15:40 66.31.48.7:706 -> MY.NET.225.134:1798 SYN 21S***** RESERVEDBITS

There were no replies to any of the packets sent during this scan. Every one of these twenty-seven alerts also showed up in the Out-Of-Spec logs. Remember this host IP and source port, you will see it used again and again.

Two were to ports 2953, 2957, & 2965 on MY.NET.225.134 from 194.182.79.67 ports 1710 – 1712 – As before, except for the changing times and destination ports, they all looked like this:

Apr 11 17:22:28 194.182.79.67:1710 -> MY.NET.225.134:2953 SYN 21S***** RESERVEDBITS

Notice that this scan took place on 4/11/2001 and the previous scan took place on 4/16/2001. The source port of this scanning host has remained the same. There were no replies to any of these incoming packets logged.

One was to port 2504 on MY.NET.219.134 from port 706 on 66.31.48.7 –Same packet signature as before:

Apr 10 09:15:06 66.31.48.7:706 -> MY.NET.219.134:2504 SYN 21S***** RESERVEDBITS

Another different date but the same source port and IP address. Since the source port is not changing, this adds further weight to the fact that this is some type of fingerprint scan. There were no replies to any of these incoming packets logged.

The remaining three are in the table below:

Table 10 - QUESO Fingerprint Scan Entries

Date	Time	Source IP	SRC Port	Destination IP	DST Port
04/16	09:44:41.556110	158.75.57.4	52947	MY.NET.206.250	6355
04/11	12:16:15.861042	63.224.52.208	61942	MY.NET.208.54	6700

04/12 00:18:28.493437 216.5.180.10 1006 MY.NET.60.11 22

Notice that the flags never change. The two reserved flags are set as well as the SYN Flag.

Apr 16 09:44:41 158.75.57.4:52947 -> MY.NET.206.250:6355 SYN 21S***** RESERVEDBITS
Apr 11 12:16:15 63.224.52.208:61942 -> MY.NET.208.54:6700 SYN 21S***** RESERVEDBITS
Apr 12 00:18:28 216.5.180.10:1006 -> MY.NET.60.11:22 SYN 21S***** RESERVEDBITS

Of the three, I would worry about the last connection. There is only the one connection from this host and this port, but this is to port 22 (Registered to Secure Shell according to the IANA Port Number list[72]) and it originates from port 1006 instead of the usual port 1023 (the default source port for most SSH Clients). There is no record of a reply recorded, but a compromise of SSH would be disastrous.

Trying 216.5.180 at ARIN
Business Internet, Inc. (NET-ICIX-MD-BLK17)
3625 Queen Palm Drive
Tampa, FL 33619
US

Netname: ICIX-MD-BLK17
Netblock: 216.0.0.0 - 216.5.255.255
Maintainer: IMBI

Coordinator:
Business Internet, Inc. (ZI44-ARIN) ipreq@icix.net
240-616-2000

Domain System inverse mapping provided by:
NS.DIGEX.NET 164.109.1.3
NS2.DIGEX.NET 64.245.43.14

Record last updated on 02-Jan-2001.
Database last updated on 14-Jul-2001 23:02:13 EDT.

3-2-8-2 Correlation(s):

Mark Scott[73] compares NMAP and Queso alerts in his practical, but he does not mention the ECN question.

A rather large snort log from a company that was shutdown because of reported queso fingerprinting can be found at Neohapsis – http://archives.neohapsis.com/archives/postfix/2001-

[72] IANA Port List, http://www.iana.org/assignments/port-numbers
[73] Scott, Mark GCIA 253, SANS Practical. http://www.sans.org/y2k/practical/Mark_Scott.doc

03/0583.html.

I found this on Security Focus - http://www.securityfocus.com/frames/?content=/templates/archive.pike%3Flist%3D75%26mid%3D178231

I found a SnortSnaf[74] sample from the University of Heidelberg while performing a search with WebFerret[75] - http://www.gs.uni-heidelberg.de/~malsburg/files/snfout.snort.alert/sig/sig13.html

3-2-8-3 Defensive Recommendations:

How do you defend against a reconnaissance probe? Move all critical servers behind a firewall and use proxy servers whenever possible. You should apply Security patches as operations permit and after careful testing. Install and use Intrusion Detection Systems both network and host based IDS systems are recommended. Monitor your Firewall and IDS logs daily. Check your Syslogs daily. You will never be able to prevent all reconnaissance from being successful, but you can take steps to reduce the amount and type of data obtained from reconnaissance.

You should consider adding the following rule to your rules list as well (Found on the Snort.org[76] web page, latest news page one):

New SSH rule from Chris Kuethe, and a new paper on Snort and Win2k - by Jim Forster @ 14:05:06

This rule will detect SSH traffic on ports other than the standard, port 22.

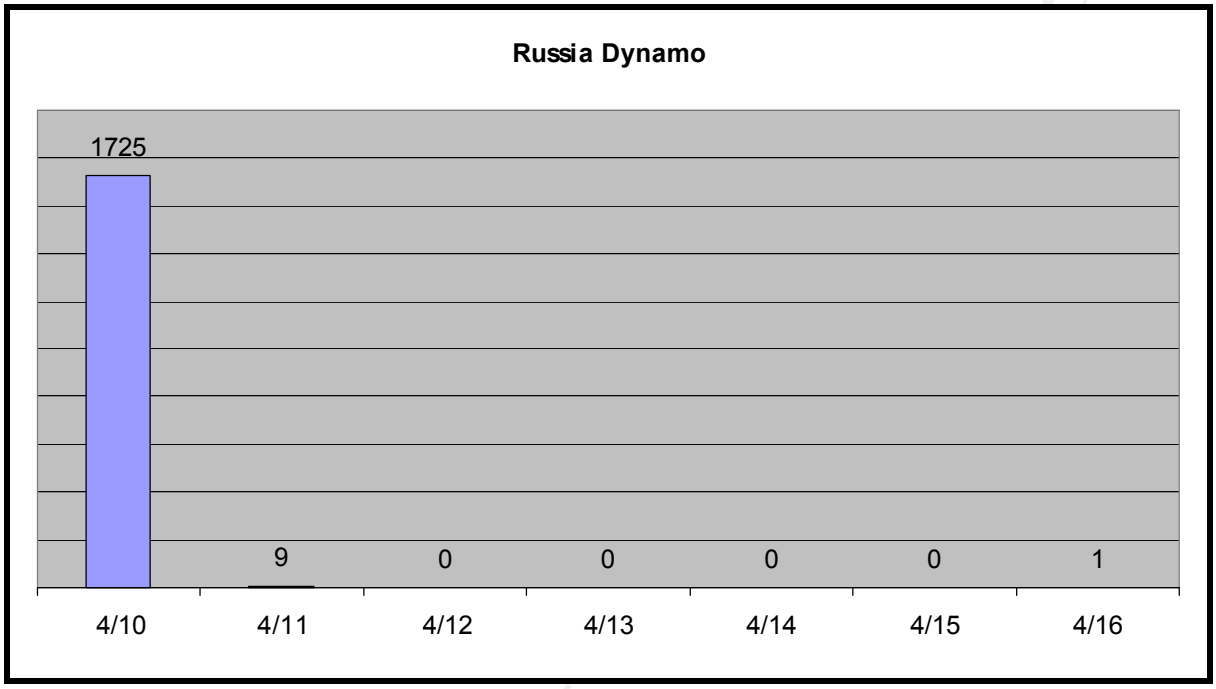
```
alert tcp $EXTERNAL_NET !22 -> $HOME_NET !22 (flags:AP+; msg:"SSH not on port 22";
content:"SSH-"; offset:0; depth:8;)
```

Thanks Chris

[74] SnortSnarf, A Snort Log Analyzer from Silicon Defense. http://www.silcondefense.com
[75] WebFerret, A web search utility from FerreteSoft, a subsidiary of ZD Net. http://www.zdnet.com/ferret/download.htm
[76] Snort.org, Latest News, 07/16/2001. http://www.snort.org

3-2-9 Russia Dynamo

During the period 04/10/2001 to 04/16/2001, there were 1735 recorded alerts for *Russia Dynamo activity* in the IDS Logs.



3-2-9-1 Description/Discussion:

This appears to be a rule watching all traffic from 194.87.6.xx. The original flash from sans on 7/28/2000[77] recommended that if you see a machine transmitting data from or to 194.87.6.X you should pull if from the network immediately. It also recommended that you block traffic to and from 194.87.6.X. The cause for the traffic was given as most likely a Trojan. It was changed shortly after to just watch traffic on ports 80, 8080, and 3128. A reply from the Russian ISP was printed by SANS in the 7/31/00[78] Issue of Detects Analyzed stating that the ISP had caught and shutdown the person responsible for the attacks. The Trojan was described by Dan Wangler[79] as looking like RingZero.

> **Trying 194.87.6 at RIPE**
> **Trying 194.87 at RIPE**
> % This is the RIPE Whois server.
> % The objects are in RPSL format.
> % Please visit http://www.ripe.net/rpsl for more information.
> % Rights restricted by copyright.

[77] SANS Flash: New Trojan Sending Data to Russia, dtd 7/28/00. http://archives.Neohapsis.com/archives/sans/2000/0068.html
[78] SANS GIAC Detects Analyzed - 7/31/00. http://www.sans.org/y2k/073100-1030.htm
[79] Wangler, Dan GCIA 0328 SANS Practical. http://www.sans.org/y2k/practical/Dan_Wangler_GCIA.doc

```
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum:      194.87.0.0 - 194.87.3.255
netname:      DEMOS-CORP
descr:        DEMOS Corporate Network
descr:        Demos Plus Co. Ltd.
descr:        Moscow, Russia
country:      RU
admin-c:      DNOC-ORG
tech-c:       DNOC-ORG
status:       ASSIGNED PA
mnt-by:       AS2578-MNT
changed:      eugen@demos.net 19970313
changed:      galka@demos.net 19990804
changed:      galka@demos.net 20000802
source:       RIPE

route:        194.87.0.0/19
descr:        DEMOS
origin:       AS2578
notify:       noc@demos.net
mnt-by:       AS2578-MNT
changed:      noc@demos.net 20000927
source:       RIPE

role:         Demos Internet NOC
address:      Demos Company Ltd.
address:      6-1 Ovchinnikovskaya nab.
address:      Moscow 113035
address:      Russia
phone:        +7 095 737 0436
phone:        +7 095 737 0400
fax-no:       +7 095 956 5042
e-mail:       ncc@demos.net
admin-c:      KEV6-RIPE
admin-c:      RVP18-RIPE
admin-c:      GK41-RIPE
tech-c:       KEV6-RIPE
tech-c:       RVP18-RIPE
tech-c:       GK41-RIPE
nic-hdl:      DNOC-ORG
notify:       hm-dbm-msgs@ripe.net
notify:       ncc@demos.net
notify:       ip-reg@ripn.net
mnt-by:       AS2578-MNT
```

changed: noc@demos.net 20010413
changed: evgeny@demos.su 20010607
source: RIPE

This rule appears to be left over from that incident, since it only identifies traffic sent to and from 194.87.6.X. This rule generated 1725 alerts on 4/10/2001. There were nine more generated on 4/11/2001 and one final alert on 4/16/2001. During these three time periods there were two hosts outside the MY.NET network talking to MY.NET.178.42:

Table 11 - Russia Dynamo Connections

Count	Source IP	Destination IP
308	194.87.6.106	MY.NET.178.42
138	194.87.6.201	MY.NET.178.42

Ports used by the MY.NET host include 316, 317, 3146 (x1), 3251 (x2), and 3252 (x2). The source ports on the two destination hosts (94.87.67.201 and 194.87.6.106) started out at 1804 for most of the day on 4/10/2001 and changed to 1802, back to 1030 and then increased somewhat sequentially from then on (1030, 1031 1054, 1057, 1063, 1064, 1065, 1066, 1069, etc). None of the recommended ports to watch were used in this connection.

3-2-9-2 Correlation(s):

I have found very little information on this alert. Besides the sources quoted in the description, I found one article in the Neohapsis Archives. A search[80] of the GCIA Practicals[81] greater than 209 provided me with a list of twenty practicals (not counting HTML formatted or zipped archives) that contained the words "Russia Dynamo"

Mark Evans, GCIA 350[82]:

Alert Description	Number of Alerts	Number of Source Systems	Number of Destination Systems
Russia Dynamo - SANS Flash 28-jul-00	546	2	2

Loras Even, GCIA 325[83]:

Source	# Alerts (sig)	Destinations	# Alerts (sig)
MY.NET.205.138	442	194.87.6.38	442

[80] I downloaded them to my hard drive and used the Windows Find tool to search all documents in the folder.
[81] SANS GIAC Certified Intrusion Analyst (GCIA) Practicals, http://www.sans.org/giactc/gcia.htm
[82] Evans, Mark GCIA 350, SANS. http://www.sans.org/y2k/practical/Mark_Evans_GCIA.doc
[83] Even, Loras, GCIA 325, SANS. http://www.sans.org/y2k/practical/Loras_Even_GCIA.doc

194.87.6.38	104	MY.NET.205.138	104

A search of the SANS Detects Analyzed web page provided the one article with the reply from the Russian ISP which was quoted above.

Neohapsis - http://archives.neohapsis.com/archives/sans/2000/0068.html

3-2-9-3 Defensive Recommendations:

CHECK THIS MACHINE OUT! Go over it with a magnifying glass. I believe that something automated was in control during these time periods. A large number of alerts were generated by MY.NET.178.42 on the MY.NET network and the source ports were limited to 316 and 317 for the majority of the connect time. The connection on 4/10/2001 lasted for one hour early in the morning (00:07 to 01:01) and again for 2.5 hours (1800 to 2035) that evening. While the evening connection is not exactly, the early morning one is. Either the user on this system never sleeps, or something automated (Trojan?) is doing a lot of work.

3-2-10 SMB Name Wildcard

During the period 04/10/2001 to 04/16/2001, there were 138 recorded alerts for *SMB Name Wildcard* in the IDS Logs. A top ten talkers list is provided, but only to show that a more serious problem is 'In the weeds' and did not show up on the top talkers list.

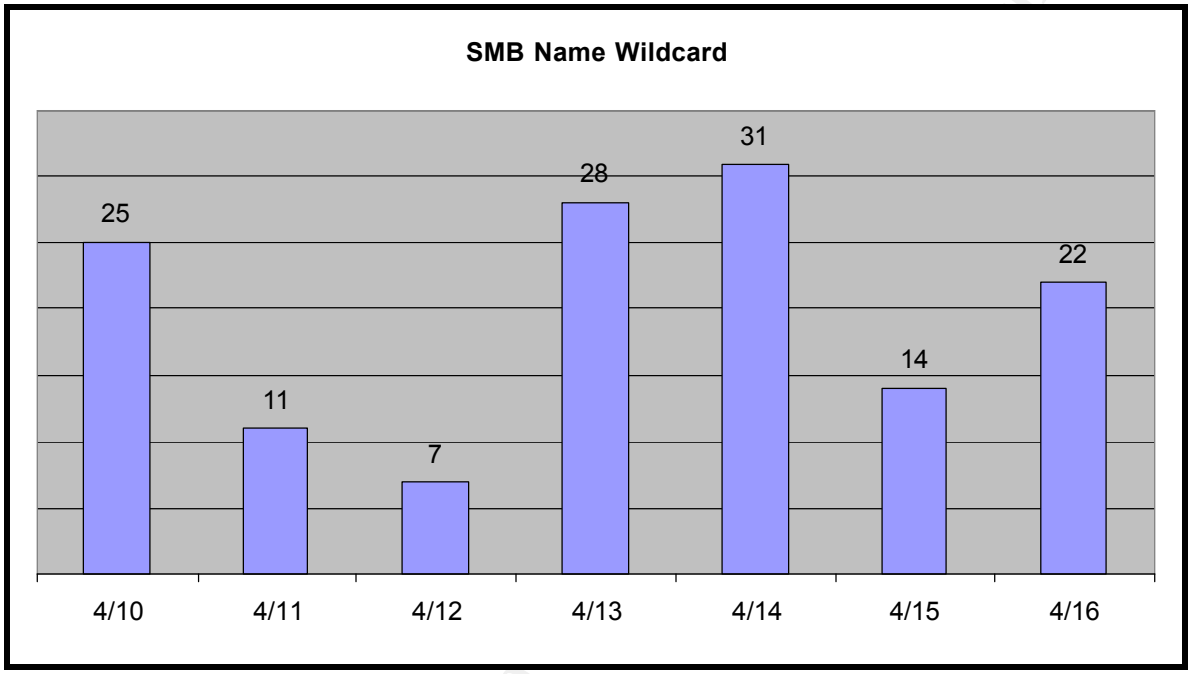


Table 12 - SMB Name Wildcard Top Ten Talkers

Count	Source IP	Destination IP
6	66.74.68.29	MY.NET.134.57
4	24.93.44.178	MY.NET.134.144
4	MY.NET.111.156	MY.NET.125.41
3	130.13.103.236	MY.NET.135.60
3	130.157.148.70	MY.NET.134.76
3	130.67.82.251	MY.NET.132.36
3	169.254.106.79	MY.NET.135.67
3	208.190.216.9	MY.NET.135.209
3	211.106.45.141	MY.NET.134.227
2	130.13.120.130	MY.NET.133.103

3-2-10-1 Description/Discussion:

Here is a short description from Robert Graham's web site[84]

> NetBIOS requests to UDP port 137 are the most common item you will see in your

[84] Robert Graham, FAQ: Firewall Forensics (What Am I Seeing?). http://www.robertgraham.com/pubs/firewall-seen.html

> firewall reject logs. This comes about from a *feature* in Microsoft's Windows: when a program resolves an **IP address** into a **name**, it *may* send a NetBIOS query to IP address. This is part of the *background radiation* of the Internet, and is nothing to be concerned about.

The third paragraph of this section should also be quoted here as well.

> Note that you will see NetBIOS scans, such as from hackers running the *Legion* NetBIOS scanner or other scanners. In this case, you'll likely see a scan of your entire address range. The important thing to remember is that few NetBIOS packets are from hostile intent.

Mr. Graham even tells us what normal traffic should look like, so I will include that section of his paper as well.

> Windows machines use both a source port of 137 as well as a destination port of 137. In contrast, if UNIX machines attempt to resolve NetBIOS names (via SAMBA), they will use dynamic ports above 1024.
>
> If the Windows box is trying to find the name for the IP address 192.0.2.21, it will do the following steps:
>
> - Lookup the DNS "PTR" record for 21.2.0.192.in-addr.arpa; this request is sent to the local DNS server, which recursively forwards the query to the appropriate DNS server as required.
> - If the DNS answer comes back, it *won't* query NetBIOS. If a negative response comes back, it will immediately query NetBIOS. If the DNS server times-out, it will wait 14-seconds, then query NetBIOS.
> - When resolving with NetBIOS, it will send out a "NodeStatus" query that is sent to the 192.0.2.12:137 from x.x.x.x:137. (I.e. the query is sent to the IP address being resolved to its port 137, and is sent from the Windows machine port 137).
> - The NetBIOS request is a "NodeStatus" query that looks up the name "*". It is 50 bytes worth of data (58 including the UDP header, 78 including the IP header, 92 including an Ethernet header).
> - Three NetBIOS queries are sent with a 1.5 second timeout.

There is no evidence of any major subnet scanning from hosts outside the MY.NET network. In those cases where you only see one or two incoming packets, you could be seeing a very slow scan. There are two instances of Private Network Addreses showing up in the scans and one of them indicates the presence of the network.vbs worm. Information on this can be found in the SANS Intrusion Detection FAQ on Port 137 Scans[85]. I have extracted the appropriate paragraph

[85] Intrusion Detection FAQ, Port 137 Scans, Bryce Alexander, May 2000, SANS.
http://www.sans.org/newlook/resources/IDFAQ/port_137.htm

here:

> An interesting side effect of this worm has been a rather strange pattern that periodically shows up in the scans for port 137. This pattern shows simultanious scanning from two addresses, one a legitimate address and one a private (RFC1918[86]) address. It is my speculation that this is caused by systems that are providing proxy services on cable modems in order to share a single IP address on a cable modem. The internal (private) address is leaking out onto the network, most likely due to sharing a single ethernet hub for both internal and external interfaces.

Here is the indicator (notice that none of these are in the Top Ten Talkers list):

Table 13 - Indication of Network.VBS Worm

04/16	04:11:41.006419	192.168.1.1	137	MY.NET.134.155	137
04/16	04:11:44.015855	61.119.188.138	137	MY.NET.134.155	137

MY.NET.134.155 is probably infected with the Network.VBS Worm. Disconnect this machine from the network and clean it immediately.

The second instance of a Private Network address showing up does not show the network.vbs signature and can probably be dropped for now. Keep an eye out for 10.0.0.1, and you may want to add the '-e' switch to your snort command line if it looks like it is becoming a problem.

3-2-10-2 Correlation(s):

A short search of the Neohapsis archive reveals these links, there are more.

http://archives.neohapsis.com/archives/incidents/2000-03/0273.html
http://archives.neohapsis.com/archives/incidents/2000-03/0270.html

CERT has an incident note on the subject http://www.cert.org/incident_notes/IN-2000-02.html

Secure Point has a couple of articles of interest.

http://msgs.securepoint.com/cgi-bin/get/ids-0003/35/1.html
http://msgs.securepoint.com/cgi-bin/get/ids-0003/35.html

3-2-10-3 Defensive Recommendations:

The best defense is to block ports 135 through 139 at the perimeter routers. You may be able to get by with just blocking 135-138.

You should install anti-virus software on all hosts and keep the virus signatures current. Perform

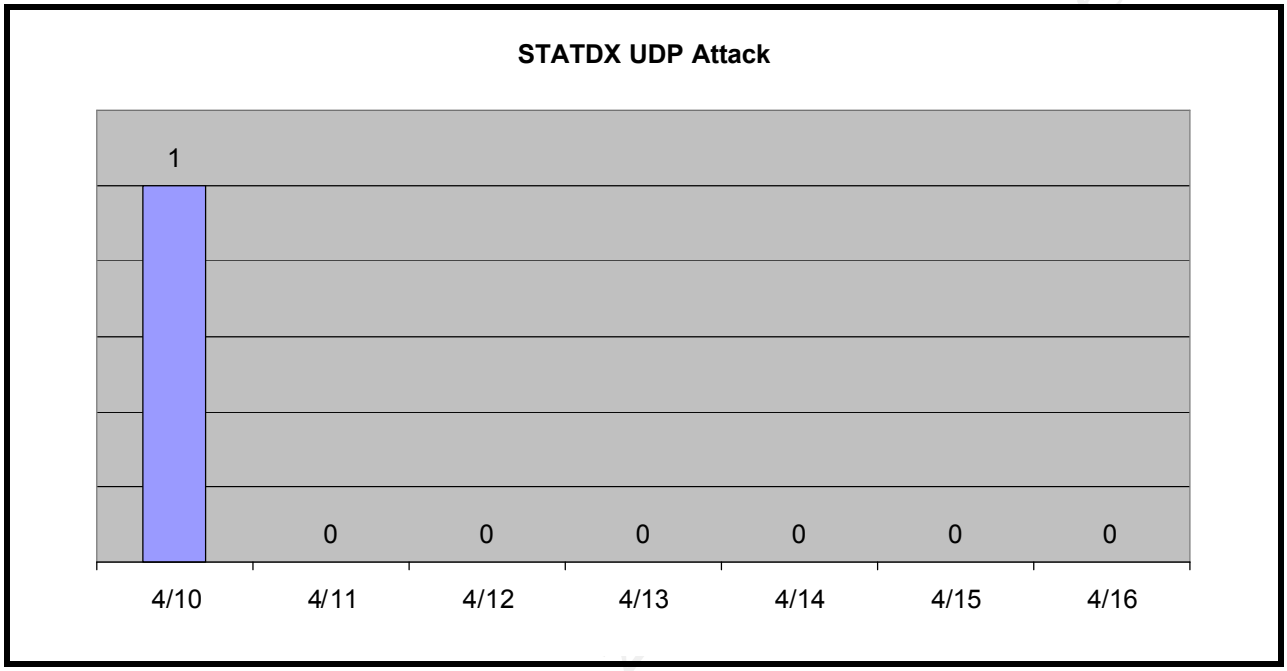
[86] RFC 1918, Address Allocation for Private Internets. http://www.rfc-editor.org/rfc/rfc1918.txt

a full scan of the servers Bi-weekly. Experience has taught me that having anti-virus software and keeping it current is not enough anymore. I have experienced first-hand that if I update my anti-virus signatures weekly you can still have viruses on the system, they were put on your system before a virus signature was found to detect them. You will not detect these viruses unless you periodically perform a full scan of all files on your systems. You will not detect these older viruses until you access the infected files, which may be months after you acquired them. This is especially true for Macro viruses. I would recommend twice weekly anti-virus signature updates for servers and weekly anti-virus signature updates for desktops if they are available. Apply all recommended security patches to the Microsoft Windows© Operating System platforms. Purchase a Trojan scanner that you can use to scan your hosts periodically and keep it updated as well.

If you can scan incoming electronic mail for attachments, then I would highly recommend that you block all .VBS (VB Script) and .WSH (Windows Script Host) files as well. This has nothing with Port 137 scans, but if you block port 137 at your border routers, then someone will more than likely receive an e-mail message with the network.vbs worm attached to it and then spread it internally.

3-2-11 STATDX UDP Attack

During the period 04/10/2001 to 04/16/2001, there was 1 incidence of a *STATDX UDP Attack* recorded in the IDS Logs.



3-2-11-1 Description/Discussion:

The description of this exploit comes from George Bakos[87], GCIA 228 practical:

> The rpc.statd is the NFS file lock status reporter. Its function is to track NFS connections with requests to the rpc.lockd. In the event of a server going down, the rpc.statd will attempt to reestablish those locks by communicating the server's status to the NFS client's lock manager.
>
> There is a process of the rpc.statd which passes logging information using the syslog() function. The format string passed is user supplied data, with a UID:GID of 0:0, without any proper bounds checking. It is possible, and proven, that this buffer could be overflowed, placing executable code into the process address space and overwriting the process return address, forcing the execution of that code. This is commonly known as "smashing the stack".

The Alert and Portscan logs for this host are here:

04/10-02:44:07.761846 [**] STATDX UDP attack [**] 24.43.176.96:2099 -> MY.NET.6.15:32776
##
Checking Portscan Log for [MY.NET.6.15]'s data!

[87] SANS, George Bakos GCIA 228 Practical. http://www.sans.org/y2k/practical/George_Bakos.html

Apr 10 04:59:40 210.220.73.117:4604 -> MY.NET.6.15:21 SYN **S*****
Apr 10 04:59:41 210.220.73.117:4604 -> MY.NET.6.15:21 SYN **S*****

The alert show us that something was tried, but we see no replies or acknowledgements. We cannot tell from this one packet that anything really happened. We can assume, based on the two ignored SYN packets sent to this host a little over two hours later that nothing appears to have happened.

3-2-11-2 Correlation(s):

Here is a note from the author of the shellcode exploit that was sent to Bugtraq explaining his reasoning behind releasing the exploit - http://msgs.securepoint.com/cgi-bin/get/bugtraq0008/75.html.

I have only included two or three links from three search engines, but you can find more.

Bugtraq search for 'rpc.statd' on Secure Point:

http://msgs.securepoint.com/cgi-bin/get/bugtraq0007/209.html
http://msgs.securepoint.com/cgi-bin/get/bugtraq0007/158.html

CERT Advisories, Bulletins and Incident Notes:

Widespread Compromises via "ramen" Toolkit –
http://www.cert.org/incident_notes/IN-2001-01.html
Problem in rpc.statd –
http://www.cert.org/advisories/CA-2000-17.html
Widespread Exploitation of rpc.statd and wu-ftpd Vulnerabilities –
http://www.cert.org/incident_notes/IN-2000-10.html

Neohapsis Archives search for 'rpc.statd' results:

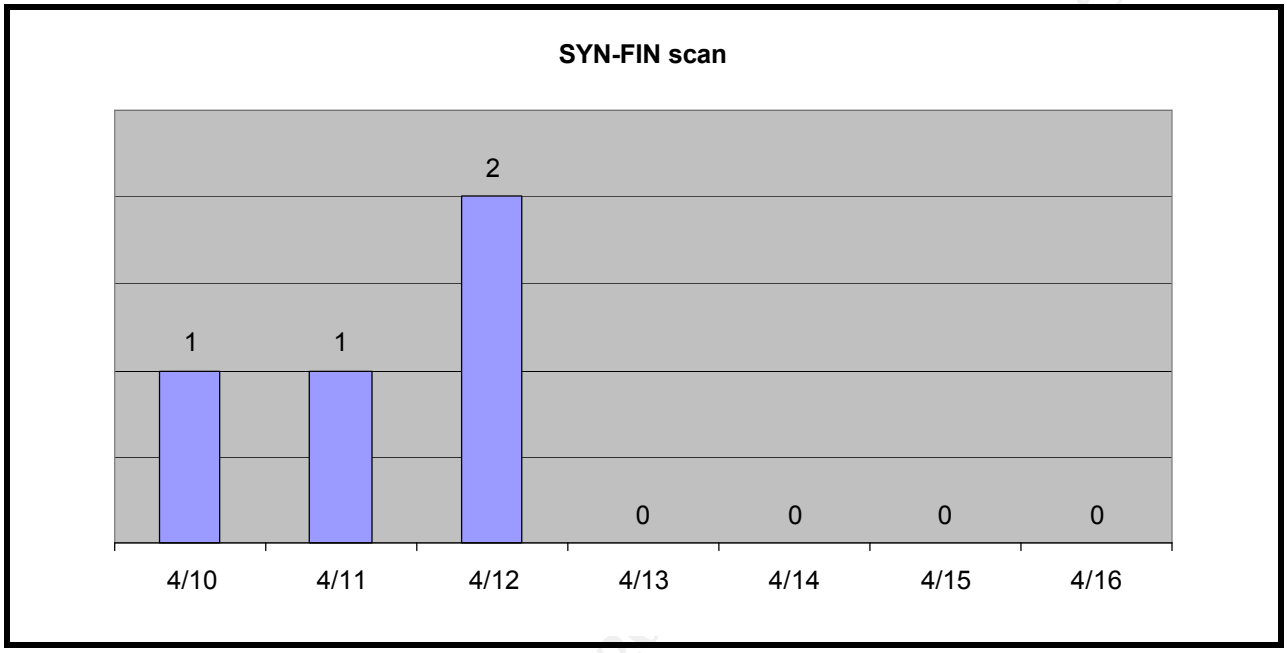
http://archives.neohapsis.com/archives/incidents/2000-11/0022.html
http://archives.neohapsis.com/archives/sf/linux/2001-q1/0168.html

3-2-11-3 Defensive Recommendations:

As a minimum you should apply all rpc patches. Read the Cert Advisories and Incident notes for advice and information on securing those systems that cannot be patched.

3-2-12 SYN-FIN Scan

During the period 04/10/2001 to 04/16/2001, there were 4 *SYN-FIN Scans* recorded in the IDS Logs. A discussion of all four hosts involved is included.



3-2-12-1 Description/Discussion:

From Page 345, Intrusion Signatures and Analysis[88]:

> The purpose of the SYN-FIN seems to be twofold, or at least that was the case in 1997. First, because some systems allow FINs to pass through, the attacker uses this technique for network mapping. Second, because FINs tear down connections, some systems do not log these types of packets. Today, every analyst knows to look for SYN-FIN; so why do we still see these packets? Part of the reason is OS fingerprinting. Other forms of Out-Of-Spec are not so obvious.

There are four alerts recorded, each one is shown and examined below.

MY.NET.222.134

We see a lot of packets destined for port 6699 (NAPSTER). We don't see the replies. OS Fingerprinting maybe, corrupted packets probably. Because of the timing, I would say corrupted packets, it appears that a large file transfer may be going on here which is consistent with the use of Napster.

---

[88] Cooper, Fearnow, Frederick and Northcutt "Intrusion Signatures and Analysis". Reading: New Riders Publishing 2001

04/10-14:01:07.799338 [**] SYN-FIN scan! [**] 141.30.222.116:1280 -> MY.NET.212.134:6699

```
##########################################
Checking Portscan Log for [MY.NET.212.134]'s data!
Apr 10 02:49:19 216.40.195.72:3952 -> MY.NET.212.134:53 SYN **S*****
Apr 10 14:01:07 141.30.222.116:1280 -> MY.NET.212.134:6699 SYNFIN **SF****
Apr 10 14:19:07 141.30.222.116:1307 -> MY.NET.212.134:6699 FULLXMAS 21SFRPAU
RESERVEDBITS
Apr 10 14:21:36 141.30.222.116:44 -> MY.NET.212.134:1307 UNKNOWN *1***PAU
RESERVEDBITS

##########################################
Checking Out-Of-Spec Logs for [MY.NET.212.134]'s data!
04/10-14:01:00.308471 141.30.222.116:1280 -> MY.NET.212.134:6699
04/10-14:07:10.185490 141.30.222.116:1295 -> MY.NET.212.134:6699
04/10-14:16:13.737501 141.30.222.116:1304 -> MY.NET.212.134:6699
04/10-14:19:00.125190 141.30.222.116:1307 -> MY.NET.212.134:6699

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-14:01:00.308471 141.30.222.116:1280 -> MY.NET.212.134:6699
TCP TTL:115 TOS:0x0 ID:21067 DF
**SF**** Seq: 0xAA0033   Ack: 0xE68244F6   Win: 0x5010
TCP Options => EOL EOL EOL EOL EOL EOL SackOK
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-14:07:10.185490 141.30.222.116:1295 -> MY.NET.212.134:6699
TCP TTL:115 TOS:0x0 ID:61809 DF
21*F**AU Seq: 0x37   Ack: 0xDB1948F2   Win: 0x8010
TCP Options => EOL EOL NOP NOP Sack: 18674@46329 EOL EOL EOL EOL
EOL EOL
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-14:16:13.737501 141.30.222.116:1304 -> MY.NET.212.134:6699
TCP TTL:115 TOS:0x0 ID:17092 DF
21**RP*U Seq: 0x2C003F   Ack: 0x402F503F   Win: 0x5010
TCP Options => EOL EOL EOL EOL EOL EOL SackOK NOP NOP TS: 2031616
0 EOL EOL EOL EOL EOL EOL EOL EOL EOL EOL EOL EOL EOL EOL EOL EOL
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

<u>MY.NET.222.170</u>

Gnutella traffic maybe with some corrupted packets. If we look at the Portscan logs however we see that the sending host has also sent a NULL Packet approximately thirty minutes before sending the SYN-FIN packet, and an Out-OF-Spec packet with the SYN-FIN flags that was not logged as a SYN-FIN Scan is present as well. Further analysis of Gnutella traffic indicates that there are a large number of Portscan alerts are generated. Because of the two Out-Of-Spec Packets and the NULL packet occurring in a single thirty time period from port 6346 on one host, I would say this is OS Fingerprinting.

04/11-14:19:29.889612 [**] SYN-FIN scan! [**] 24.64.111.247:6346 -> MY.NET.222.170:2813

##
Checking Portscan Log for [MY.NET.222.170]'s data!
Apr 10 10:38:43 211.21.104.118:1997 -> MY.NET.222.170:53 SYN **S*****
Apr 10 11:59:26 63.163.94.13:2177 -> MY.NET.222.170:53 SYN **S*****
*Apr 11 13:49:10 24.64.111.247:6346 -> MY.NET.222.170:2813 NULL ********
*Apr 11 14:19:29 24.64.111.247:6346 -> MY.NET.222.170:2813 SYNFIN **SF****
Apr 14 07:41:15 209.178.22.233:1576 -> MY.NET.222.170:53 SYN **S*****
Apr 14 07:41:20 209.178.22.233:1576 -> MY.NET.222.170:53 SYN **S*****

##
Checking Out-Of-Spec Logs for [MY.NET.222.170]'s data!
04/11-13:52:15.628288 24.64.111.247:6346 -> MY.NET.222.170:2813
04/11-14:19:22.504419 24.64.111.247:6346 -> MY.NET.222.170:2813

=+
04/11-13:52:15.628288 24.64.111.247:6346 -> MY.NET.222.170:2813
TCP TTL:110 TOS:0x0 ID:10331 DF
SF** Seq: 0xA6040C Ack: 0x5A6F03F4 Win: 0x5018
TCP Options => EOL EOL
=+
04/11-14:19:22.504419 24.64.111.247:6346 -> MY.NET.222.170:2813
TCP TTL:110 TOS:0x0 ID:54153 DF
SF** Seq: 0x69BE9CF Ack: 0x3F4 Win: 0x5018
TCP Options => EOL EOL
=+

<u>MY.NET.70.27</u>

Looks like some more Gnutella. This SYN-FIN packet is probably OS Fingerprinting. NOT, take a look at the Out-Of-Spec logs at 12:58 that same day. We see the 63.196.167.131 host is sending what appear to be crafted packets with strange flag settings (21**R*** & 21*FRPA*) to MY.NET.70.27. Looks like he found something at 11:23 and came back for more at 12:58.

04/12-11:23:36.405020 [**] SYN-FIN scan! [**] 63.196.167.131:4168 -> MY.NET.70.27:6346

##
Checking Portscan Log for [MY.NET.70.27]'s data!
Apr 11 15:37:37 MY.NET.70.27:4617 -> 132.248.188.137:6346 SYN **S*****
Apr 11 15:37:37 MY.NET.70.27:4618 -> 193.158.170.57:6346 SYN **S*****
Apr 11 15:37:37 MY.NET.70.27:4619 -> 156.17.213.8:6346 SYN **S*****
Apr 11 15:37:37 MY.NET.70.27:4620 -> 146.201.32.254:6346 SYN **S*****
Apr 11 15:37:37 MY.NET.70.27:4621 -> 61.9.169.135:6346 SYN **S*****

Apr 11 15:37:38 MY.NET.70.27:4613 -> 64.61.25.139:6346 SYN **S*****
Apr 11 15:37:39 MY.NET.70.27:4637 -> 130.231.6.106:6346 SYN **S*****
Apr 11 15:37:39 MY.NET.70.27:4638 -> 65.26.218.244:6346 SYN **S*****
Apr 11 15:37:39 MY.NET.70.27:137 -> 63.148.194.216:137 UDP
Apr 11 15:37:42 MY.NET.70.27:4643 -> 213.65.167.241:17711 SYN **S*****
Apr 11 15:37:44 MY.NET.70.27:4657 -> 149.159.23.34:6346 SYN **S*****
Apr 11 22:05:10 217.136.56.13:3161 -> MY.NET.70.27:21 SYN **S*****
*Apr 12 11:23:36 63.196.167.131:4168 -> MY.NET.70.27:6346 SYNFIN **SF*****
Apr 14 07:38:38 209.178.22.233:2312 -> MY.NET.70.27:53 SYN **S*****
Apr 15 06:40:16 62.59.129.0:1685 -> MY.NET.70.27:6347 SYN **S*****
Apr 15 06:40:16 62.59.129.0:18254 -> MY.NET.70.27:21844 NOACK 2**FR***
RESERVEDBITS

###
Checking Out-Of-Spec Logs for [MY.NET.70.27]'s data!
04/12-11:19:38.362549 213.97.79.237:107 -> MY.NET.70.27:39801
04/12-11:23:27.916784 63.196.167.131:4168 -> MY.NET.70.27:6346
04/12-12:58:26.985188 63.196.167.131:4168 -> MY.NET.70.27:6346
04/12-12:58:35.516313 63.196.167.131:4168 -> MY.NET.70.27:6346
04/13-17:45:58.681625 213.64.56.9:6346 -> MY.NET.70.27:4515
04/14-03:50:25.717627 194.236.50.60:11743 -> MY.NET.70.27:6347
04/16-00:51:59.922740 61.200.27.90:43962 -> MY.NET.70.27:6347
04/16-05:37:16.637323 192.117.120.140:62584 -> MY.NET.70.27:6347

```
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/12-11:23:27.916784 63.196.167.131:4168 -> MY.NET.70.27:6346
TCP TTL:49 TOS:0x0 ID:49236  DF
**SF**** Seq: 0xD8A4ED8D   Ack: 0x1F5E2F   Win: 0x3DA0
34 03 3D A0 4E B5 63 B1 23 20 EE DE EA 28        4.=.N.c.# ...(
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/12-12:58:26.985188 63.196.167.131:4168 -> MY.NET.70.27:6346
TCP TTL:49 TOS:0x0 ID:6105  DF
21**R*** Seq: 0xD8C85BAA   Ack: 0x45459A   Win: 0xD102
10 48 18 CA D8 C8 5B AA 00 45 45 9A 04 C4 D1 02  .H....[..EE.....
82 00 00 48 5D C9 02 00 50 B2                    ...H]...P.
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/12-12:58:35.516313 63.196.167.131:4168 -> MY.NET.70.27:6346
TCP TTL:49 TOS:0x0 ID:6369  DF
21*FRPA* Seq: 0xD8C8627A   Ack: 0x454DD7   Win: 0xD102
10 48 18 CA D8 C8 62 7A 00 45 4D D7 04 DD D1 02  .H....bz.EM.....
82 00 00 48 5D C9 02 00 A1 D3                    ...H].....
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

<u>MY.NET.97.227</u>

SSL Port to port 1258. One SYN-FIN packet. No other anamolies seen. This alert can be filed.

04/12-13:41:48.636563 [**] SYN-FIN scan! [**] 208.240.240.136:443 -> MY.NET.97.227:1258

```
##########################################
Checking Portscan Log for [MY.NET.97.227]'s data!
Apr 12 13:41:48 208.240.240.136:443 -> MY.NET.97.227:1258 SYNFIN **SF****

##########################################
Checking Out-Of-Spec Logs for [MY.NET.97.227]'s data!
04/12-13:41:41.005450 208.240.240.136:443 -> MY.NET.97.227:1258

+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/12-13:41:41.005450 208.240.240.136:443 -> MY.NET.97.227:1258
TCP TTL:113 TOS:0x0 ID:7919  DF
**SF**** Seq: 0x3E10C83   Ack: 0x7AD4FC   Win: 0x7B7C
34 03 7B 7C 9E 41 D1 5B 74 AB F9 12 76 34       4.{|.A.[t...v4
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

3-2-12-3 Correlation(s):

107 GCIA Practicals contain detects of SYN-FIN scans or discuss them. A few of them are listed here:

Terry Bidwell (267), GCIA Practical, Detect #4 –
http://www.sans.org/y2k/practical/Teri_Bidwell_GCIA.doc

Guy Bruneau, (255), GCIA Practical, Detect #1 -
http://www.sans.org/y2k/practical/Guy_Bruneau.doc

David Singer (353), GCIA Practical, Page 32 –
http://www.sans.org/y2k/practical/David_Singer_GCIA.doc

A search of the Neohapsis Archives for "SF Scan" provides the following links:

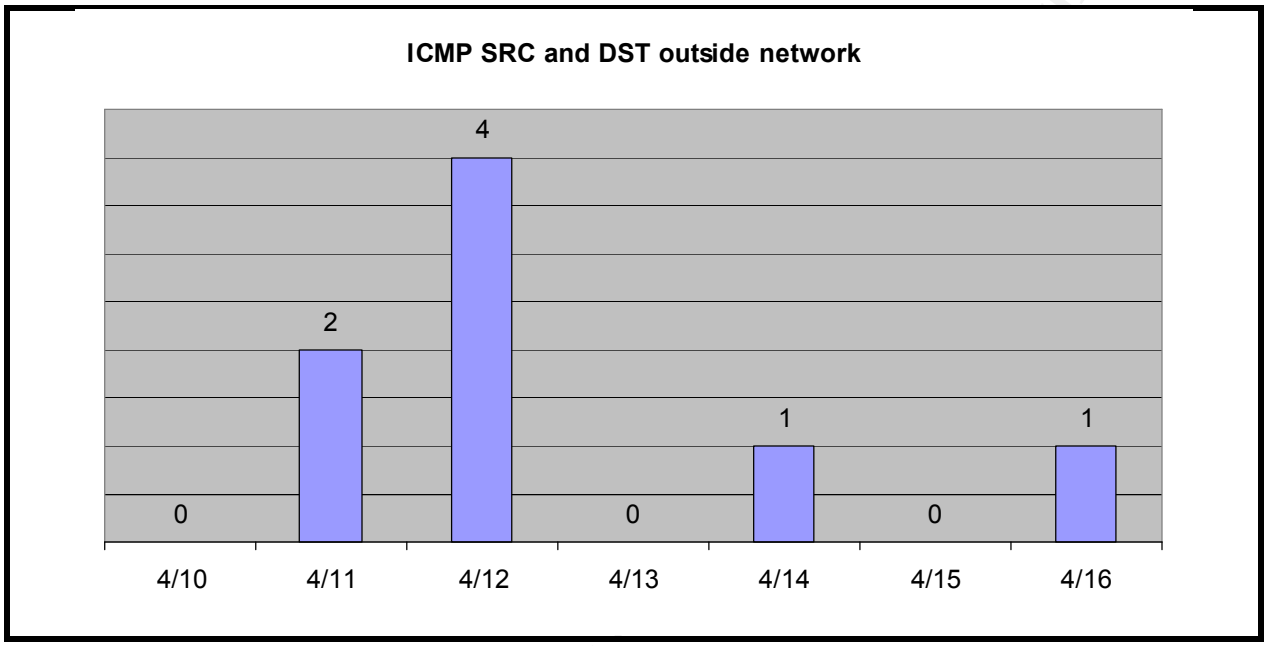
http://archives.neohapsis.com/archives/vuln-dev/2000-q4/0443.html
http://certworks.net/ids/data/snfout.snort_portscan.log/sig/sig59.html
http://komura.net/snort/sig/sig1.html
http://www.ajlc.waterloo.on.ca/snort/sig/sig18.html

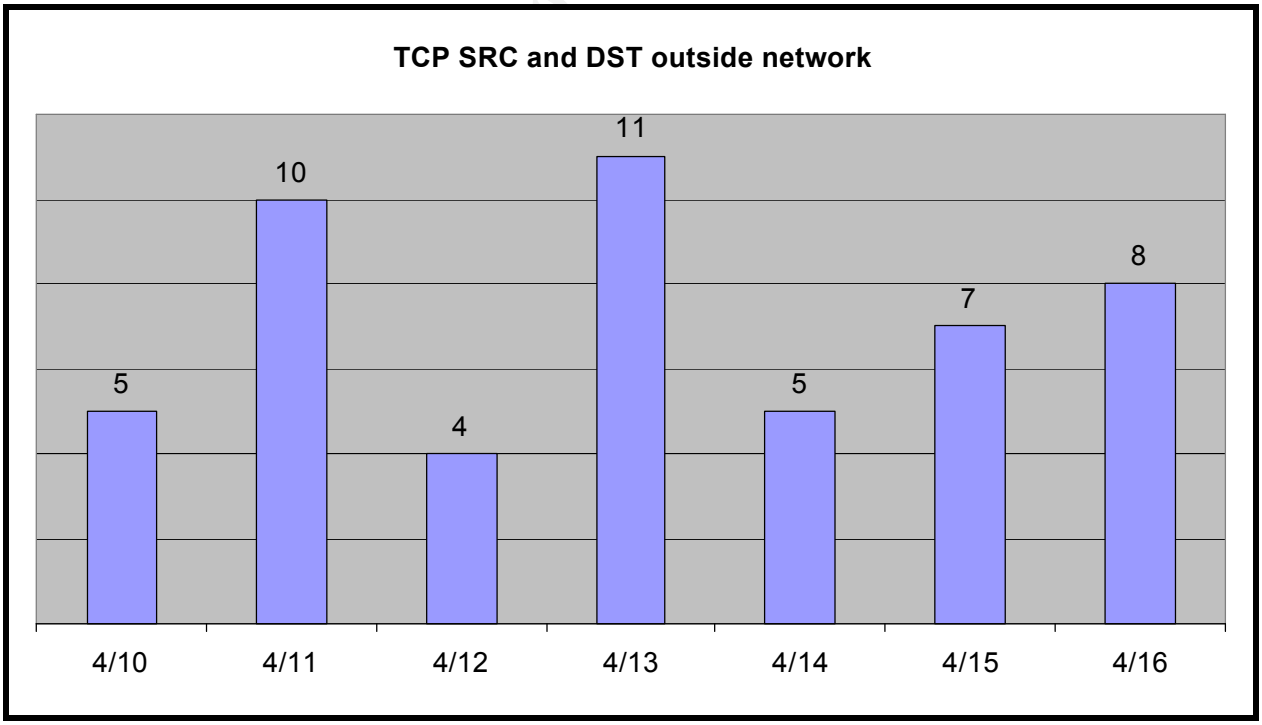
3-2-12-3 Defensive Recommendations:

The best defense against a SYN-FIN scan is to apply all patches. Close all non-needed ports and only run services that are absolutely necessary. Keep your drivers current as well.

3-2-13 SRC and DST outside network

NOTE: I have merged the TCP SRC and DST outside network, UDP SRC and DST outside network and ICMP SRC and DST network alerts into one section. There is a separate chart for each alert, but the narrative is combined.





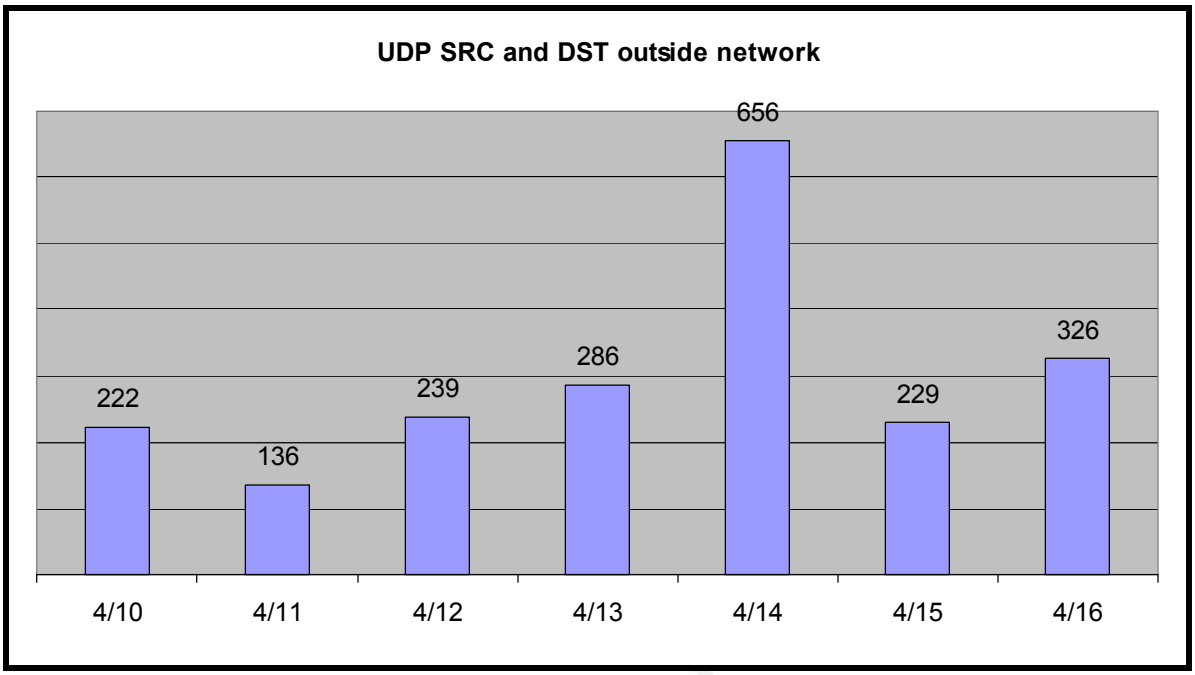


Table 14 - Type and Number of Alerts

Alert	Number
ICMP SRC and DST outside network	8
TCP SRC and DST outside network	50
UDP SRC and DST outside network	2094

Table 15 - Top Ten Talkers

Count	Source IP
1399	192.168.0.53 10.10.10.50
43	134.192.134.112 134.192.148.14
27	169.254.228.120 204.74.114.93
7	204.62.41.254 204.62.32.194
6	169.254.107.122 208.49.12.143

3-2-13-1 Description:

Seeing addresses originating from inside your network with source addresses outside your network is Source Address Spoofing. Page 134 of the book Intrusion Signatures and Analysis[89] contains several uses for spoofed source addresses; an attacker wanting to hide his activities or his identity or he may be conducting a Denial Of Service (DoS) attack. We are dealing with three protocols. The Intrusion Signatures and Analysis book covers this exploit very well. I will

[89] Cooper, Fearnow, Frederick and Northcutt "Intrusion Signatures and Analysis". Reading: New Riders Publishing 2001

borrow the description of these protocols from the book:

> ICMP and UDP are connectionless and stateless protocols. It is often impossible to determine whether a received UDP or ICMP packet has been forged just by looking at the received packet. Pg 137, Intrusion Signatures and Analysis, New Riders Publishing 2001.
>
> Recall that TCP is a connection-oriented protocol that maintains state. If an attacker spoofs the source address in a TCP-SYN packet, how will the attacker be able to respond to the SYN-ACK packet returned? Pg 137, Intrusion Signatures and Analysis, New Riders Publishing 2001.

For more on this subject, you should read Chapter 7 of Intrusion Signatures and Analysis[90]. It goes into much more detail on the subject of source address spoofing.

This is Source Address Spoofing on the MY.NET network. These packets are originating from inside our network with source addresses outside our network. We should not see packets of this nature inbound to our network for obvious reasons (they are not addressed to us). There are several causes for this, some natural and some not-so natural, they include; improperly configured routers, defective/broken routers, or one or more compromised machines on the MY.NET network (Drones/Slaves/Agents).

What services are being attacked? I am not going to list them all, but the biggest were Port 53 (Domain Name Service), 137 (NETBIOS Name Service), and 5190 (AOL). A little over 1400 of the spoofed address packets were UDP packets that had a destination address of 10.10.10.50 and a source address of 192.168.0.53 (or some other private address), and all of them had the same source and destination port of 137. Again, I take an explanation from the book Intrusion Signatures and Analysis:

> If a host is using the spoofed IP address, that host silently discards this unexpected ICMP message. If no host is using the spoofed IP address, a router silently discards the ICMP message. Pg 138, Intrusion Signatures and Analysis, New Riders Publishing 2001.

The 169.254.xxx.xxx traffic (623 packets) is best explained by this excerpt from a post[91] found in the Neohapsis archives:

> *> For last week i sent 4 or 5 complains about UDP scan (138 port). I have*
> *> one answer from iana.org,they wrote: "It is legal traffic and do not*
> *> worry about it and contact to your ISP for more information".It was 2*

[90] Cooper, Fearnow, Frederick and Northcutt "Intrusion Signatures and Analysis". Reading: New Riders Publishing 2001

[91] Re: UDP port 137 packets sent to 70.255.224.194 (and to other hosts/nets as well), dated 30 AUG 2000. http://archives.neohapsis.com/archives/incidents/2000-08/0267.html

> day to go.Today i sent him a next complain about new scan....
>
> In first: I am the ISP myself ;)
> In second: This traffic just has been directed not to one host,in the
> log i saw this:
>
> Aug-30-01:37:02 UDP from 169.254.100.72:137 to XXX.XX.XXX.16:137
> Aug-30-01:37:06 UDP from 169.254.100.72:137 to XXX.XXX.XXX.17:137

169.254.0.0/16 is reserved for auto-configuration of local addresses in networks where no DHCP server is found[1]. That block is not (or at least should not) be routed over the internet backbones[2]. Any traffic from 169.254.0.0/16 is either from your local network, or forged--and either way, complaining to IANA or ISI is a waste of their time.

[1] http://search.ietf.org/internet-drafts/draft-manning-dsua-03.txt

[2] Try a traceroute--you should run into a no-route in a short number of hops:

```
% traceroute 169.254.100.72
traceroute to 169.254.100.72 (169.254.100.72), 30 hops max, 40 byte packets
 1 lnsfw (128.84.44.1) 3 ms 3 ms 3 ms
 2 ccc1-8540-vl669.cit.cornell.edu (128.253.147.4) 9 ms 14 ms 10 ms
 3 cornellnet4-gig1-0-0.cit.cornell.edu (128.253.222.162) 6 ms !H 5 ms !H 9 ms !H
```

Maybe someone is using Network Address Translation and it is not configured correctly. An improperly configured NAT would explain the first 1399 packets we see logged.

This could be a Denial of Service attempt against another network, originating from within your network. Why are the private IP Addresses showing up in the IDS Logs, are the routers not properly configured to block outbound private IP Addresses?

3-2-13-2 Correlation(s):

Below are the search results a search on CERT, Neohapsis, and Security Focus Bugtraq.

CERT Advisories/Incident Notes/Bulletins -
http://www.cert.org/incident_notes/IN-99-07.html
http://www.cert.org/advisories/CA-1998-13.html
http://www.cert.org/advisories/CA-1997-28.html

Neohapsis Search results -
http://archives.neohapsis.com/archives/snort/2000-12/0279.html
http://archives.neohapsis.com/archives/incidents/2000-05/0002.html

Security Focus Search results -
http://www.securityfocus.com/frames/?content=/templates/archive.pike%3Flist%3D1%26mid%3

D57854
http://www.securityfocus.com/frames/?content=/templates/archive.pike%3Flist%3D1%26mid%3D8123

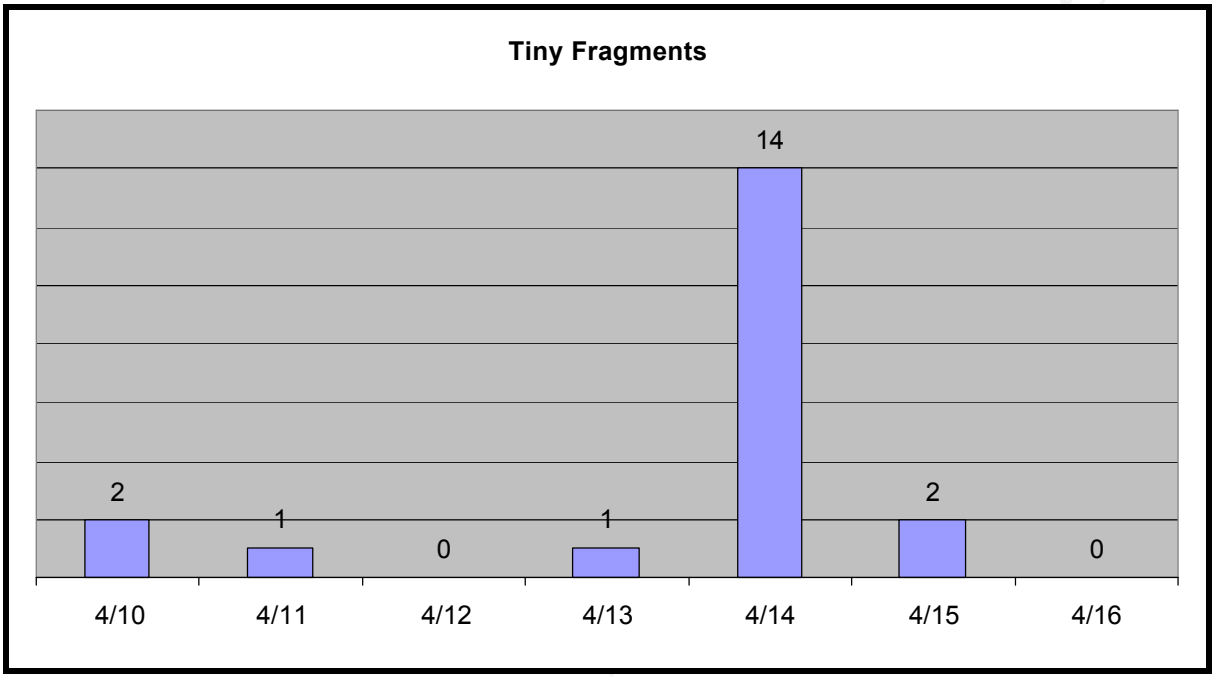
3-2-13-3 Defensive Recommendations:

To prevent your network from being used in this manner you should configure your routers IAW the guidance contained in RFC2267[92]. Block private IP addresses[93] from leaving your network. To prevent your machines from being used for this type of attack you should install Anti-virus software and update the anti-virus signatures often. Perform routine scans of all files for viruses. Get a good Trojan scanner and scan your systems regularly for Trojans. RFC2267 will also help you setup your Router ACL's to prevent spoofed addresses from entering or leaving your network as well.

[92] RFC 2267, Network Ingress Filtering: Defeating Denial of Service Attacks which employ IP Source Address Spoofing. http://info.internet.isi.edu/in-notes/rfc/files/rfc2267.txt
[93] RFC 1918, Address Allocation for Private Internets. http://info.internet.isi.edu/in-notes/rfc/files/rfc1918.txt

3-2-14 Tiny Fragments

During the period 04/10/2001 to 04/16/2001, there were 20 recorded alerts for Tiny Fragments in the IDS Logs.



3-2-14-1 Description/Discussion:

Fragmentation happens when a packet crosses a network that has a Maximum Transmission Unit (MTU) smaller than the size of the packet being transmitted. We have a total of three hosts sending fragmented packets to hosts on the MY.NET network. The following table shows the addresses.

Table 16 - Tiny Fragment Connections

Source IP	Destination IP	Packets
202.39.78.124	MY.NET.217.134 **	2
	MY.NET.228.54 **	2
	MY.NET.202.86 **	1
	MY.NET.201.6 **	2
	MY.NET.211.114 **	3
	MY.NET.219.126 **	1
	MY.NET.203.246 **	2
63.227.41.165	MY.NET.217.166	2
	MY.NET.202.106 **	1
	MY.NET.212.198 **	2
	MY.NET.204.90	1

64.168.20.124 MY.NET.205.82 ** 1

Table 17 – Popular Game Ports

Quake 1/QW : 27500 (27500->27600)
Quake 2 : 27910 (27900->27930)
Quake 3 : 27960 (27960->27980)
halfLife : 27015 (27010 -> 27050)
Unreal tournament 7777 (7777->7797)
Kingpin : 31510 (31500->31550)
shogo : 27888
starsiege stribe : 28000 (28001 & 2 often too)

** Some of destination hosts appear to have GameSpy[94] installed as well. This is an application that probes game servers in order to provide you with the status of available servers for game playing over the internet. It uses UDP Pings on port 13139[95] to check the status and round trijp time to servers.

A search of the Out-Of-Spec logs shows that the three source hosts have not sent any Out-Of-Spec packets to the MY.NET network. There is no port or protocol information contained in the IDS logs. A check of the Portscan Logs reveals that some of the destination hosts are definitely into gaming. They have used almost every port in the following list of popular network games and their standard ports.

The small number of single fragmented packets is an indication of possible malicious activity. It will difficult to determine that fact with all the game traffic going to and coming from the MY.NET hosts. We don't have port numbers or data packets in the alert log so the only option is to investigate machine individually for signs of compromise.

3-2-14-2 Correlation(s):

Below are links to related IP Fragmentation problems reported by Snort and Firewall-1 users.

Neohapsis Archives search –
http://archives.neohapsis.com/archives/snort/2000-02/0196.html
http://archives.neohapsis.com/archives/snort/2000-05/0115.html
http://archives.neohapsis.com/archives/snort/2000-10/0157.html
http://archives.neohapsis.com/archives/snort/2001-04/0790.html

Secure Point Archive search –
http://msgs.securepoint.com/cgi-bin/get/fw1arch97/333.html
http://msgs.securepoint.com/cgi-bin/get/fw1-0005/1037.html

[94] GameSpy , http://www.gamespy.com
[95] MultiPlayer Total Annihilation behind a firewall, http://www.estrella.demon.nl/mpfw.htm

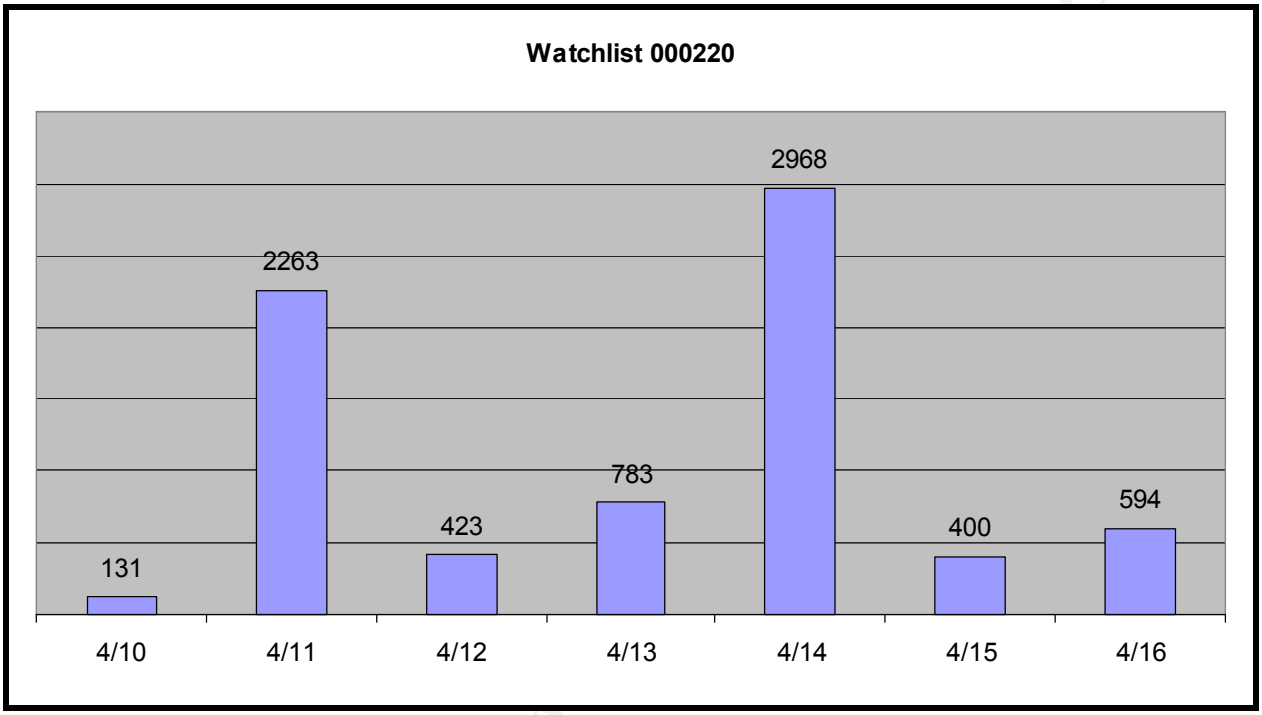
http://msgs.securepoint.com/cgi-bin/get/fw1-0006/248.html

3-2-14-3 Defensive Recommendations:

Apply all system patches. The use of stateful firewalls will reduce but not completely stop fragmented packets from getting into your network. A stateful IDS will reduce false alarms for fragments and will complement a firewall by catching what is missed by the firewall if the right combination of firewall and IDS are used.

3-2-15 Watchlist 000220

During the period 04/10/2001 to 04/16/2001, there were 7562 recorded alerts for Watchlist 000220 in the IDS Logs.



3-2-15-1 Description/Discussion:

The complete title of this Alert is "Watchlist 000220 IL-ISDNNET-990517". It appears to be monitoring the 212.179.0.0 subnet. A quick check of whois shows that most some of this subnet is divided up but the divisions are registered to the same individuals. I have only provided a whois lookup on two of the IP addresses in this list. Please note that the first (212.179.7.2) address lookup contains an entry entitled "Napster Info"; this will play a big part in the analysis.

Trying 212.179.79.2 at ARIN

Trying 212.179.79 at ARIN
Redirecting to RIPE ...
Trying 212.179.79.2 at RIPE
Trying 212.179.79 at RIPE
% This is the RIPE Whois server.
% The objects are in RPSL format.
% Please visit http://www.ripe.net/rpsl for more information.
% Rights restricted by copyright.
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum: 212.179.79.0 - 212.179.79.63
netname: CREOSCITEX
descr: CREOSCITEX-SIFRA
country: IL
admin-c: ZV140-RIPE
tech-c: NP469-RIPE
status: ASSIGNED PA
notify: hostmaster@isdn.net.il
mnt-by: RIPE-NCC-NONE-MNT
changed: hostmaster@isdn.net.il 20001109

source: RIPE

route: 212.179.0.0/17
descr: ISDN Net Ltd.
origin: AS8551
notify: hostmaster@isdn.net.il
mnt-by: AS8551-MNT
changed: hostmaster@isdn.net.il 19990610
source: RIPE

person: Zehavit Vigder
address: bezeq-international
address: 40 hashacham
address: petach tikva 49170 Israel
phone: +972 52 770145
fax-no: +972 9 8940763
e-mail: hostmaster@bezeqint.net
nic-hdl: ZV140-RIPE
changed: zehavitv@bezeqint.net 20000528
source: RIPE

person: Nati Pinko
address: Bezeq International
address: 40 Hashacham St.
address: Petach Tikvah Israel
phone: +972 3 9257761
e-mail: hostmaster@isdn.net.il
nic-hdl: NP469-RIPE
changed: registrar@ns.il 19990902
source: RIPE

Trying 212.179.7.2 at ARIN
Trying 212.179.7 at ARIN
Redirecting to RIPE ...
Trying 212.179.7.2 at RIPE
% This is the RIPE Whois server.
% The objects are in RPSL format.
% Please visit http://www.ripe.net/rpsl for more information.
% Rights restricted by copyright.
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum: 212.179.7.0 - 212.179.7.255
netname: FIX-IP-BEZEQINT
descr: CUSTOMERS
country: IL
admin-c: ES4966-RIPE
tech-c: NP469-RIPE
status: ASSIGNED PA
notify: hostmaster@isdn.net.il
mnt-by: RIPE-NCC-NONE-MNT
changed: hostmaster@isdn.net.il 20001003
source: RIPE

route: 212.179.0.0/17
descr: ISDN Net Ltd.
origin: AS8551
notify: hostmaster@isdn.net.il
mnt-by: AS8551-MNT
changed: hostmaster@isdn.net.il 19990610
source: RIPE

person: Eran Shchori
address: BEZEQ INTERNATIONAL
address: 40 Hashacham Street
address: Petach-Tikva 49170 Israel
phone: +972 3 9257710
fax-no: +972 3 9257726
e-mail: hostmaster@bezeqint.net
nic-hdl: ES4966-RIPE
changed: registrar@ns.il 20000309
source: RIPE

person: Nati Pinko
address: Bezeq International
address: 40 Hashacham St.
address: Petach Tikvah Israel
phone: +972 3 9257761
e-mail: hostmaster@isdn.net.il
nic-hdl: NP469-RIPE
changed: registrar@ns.il 19990902
source: RIPE

As you can see in the chart above, there are 7,562 alerts. Of this I have provided a list of the source hosts and number of connections from each. There are three tables, the first shows incoming Gnutella (Port 6346 & 6347) connections, the second shows incoming Napster (Port 6688, 6699 & 6700), the third has what is left over. I included the destination host that received the majority of the connections as well. NOTE: Most of the senders communicated with more than one host, but I included the single host receiving the most connections.

Table 18 - Watchlist Gnutella Senders

Source IP	Destination IP	Connections
212.179.95.5	MY.NET.217.186	1905
212.179.83.137	MY.NET.227.90	145
212.179.5.184	MY.NET.209.42	101
212.179.27.6	MY.NET.209.130	14
212.179.21.185	MY.NET.225.74	4
212.179.5.184	MY.NET.225.138	1
212.179.81.254	MY.NET.227.38	1

Gnutella[96] clients and servers use registered Ports 6346 & 6347[97]. Apply ALL system patches and install Anti-Virus software.

Table 19 - Watchlist Napster Senders

Source IP	Destination IP	Connections
212.179.21.187	MY.NET.218.30	1580
212.179.80.3	MY.NET.222.2	664
212.179.7.12	MY.NET.225.102	463
212.179.77.53	MY.NET.224.230	414
212.179.81.2	MY.NET.218.218	328
212.179.17.4	MY.NET.205.242	247
212.179.81.110	MY.NET.219.218	68

Napster clients and serves communicate on three un-registered ports 6688, 6700[98] & 6699[99]. Apply all patches and use Anti-virus software.

Table 20 - Watchlist Top Senders (Excluding Gnutella & Napster)

Source IP	Destination IP	Conections
212.179.80.30	MY.NET.219.38	1010
212.179.82.119	MY.NET.97.204	317
212.179.33.168	MY.NET.219.38	106
212.179.79.2	MY.NET.229.6	71
212.179.27.6	MY.NET.225.138	31
212.179.7.182	MY.NET.97.193	22
212.179.67.192	MY.NET.219.38	16
212.179.7.10	MY.NET.219.38	11
212.179.82.68	MY.NET.219.38	8
212.179.7.41	MY.NET.219.38	6
212.179.16.228	MY.NET.219.38	6
212.179.80.60	MY.NET.202.110	4
212.179.34.215	MY.NET.219.38	4
212.179.84.121	MY.NET.219.38	3
212.179.82.225	MY.NET.219.38	3
212.179.82.30	MY.NET.219.38	2
212.179.80.20	MY.NET.219.38	2
212.179.68.226	MY.NET.222.202	2
212.179.95.5	MY.NET.225.138	1
212.179.82.55	MY.NET.223.66	1
212.179.80.38	MY.NET.202.226	1
212.179.80.102	MY.NET.219.38	1
212.179.7.230	MY.NET.212.106	1
212.179.56.5	MY.NET.213.218	1
212.179.5.92	MY.NET.227.158	1
212.179.5.184	MY.NET.225.138	1
212.179.41.141	MY.NET.219.38	1
212.179.36.68	MY.NET.213.218	1
212.179.25.27	MY.NET.219.38	1

Table 13 shows us that there are a lot of folks talking to MY.NET.219.38. Check that host for possible compromise, apply all patches, close un-needed services, enforce use of Anti-Virus software on this host.

[96] Matt Scarborough, Information About Gnutella, SANS, 5/24/2000. http://www.sans.org/y2k/gnutella.htm
[97] IANA Port Numbers, http://www.iana.org/assignments/port-numbers

3-2-15-2 Correlation(s):

Seventy-three GCIA practicals (minus html and zip archives) contain references to Watchlist 000220 IL-ISDNET[100]

From SANS Detects Analyzed –

NOTE: On 5/20/2000, John Green (SANS Handler on duty) starts the days Detects Analyzed, 5/20/00 with a statement about Gnutella/Napster and the desensitization of analysts towards this type of traffic. I agree with Mr. Green and would like to add Network games (Quake, Total Anihilation, Doom, etc..) to that list things we have gotten used to.

http://www.sans.org/y2k/033000-2300.htm
http://www.sans.org/y2k/051900.htm
http://www.sans.org/y2k/052000.htm
http://www.sans.org/y2k/090500-1200.htm
http://www.sans.org/y2k/112600.htm

3-2-15-3 Defensive Recommendations:

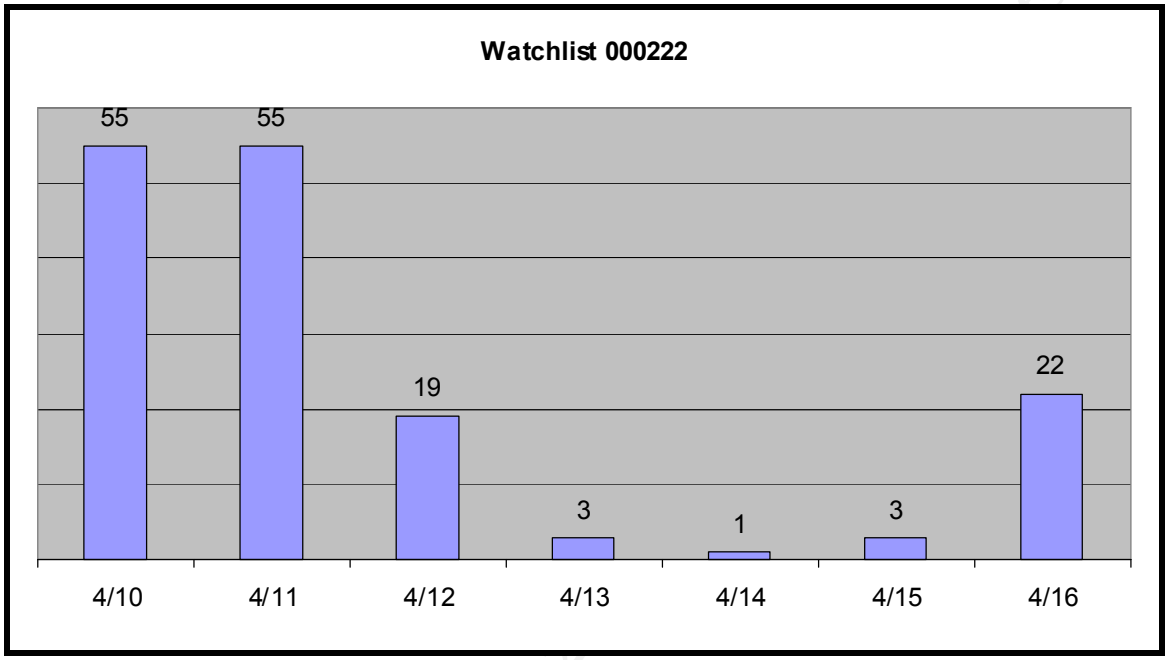
Check the systems that have the high receive counts to ensure that they have all of the latest system patches. With the heavy use of Gnutella/Napster, I would recommend calling the users and warning them of the dangers involved with Gnutella/Napster. Every host that sent data to a system on the MY.HOST network is listed in the tables above. I would recommend that you check the Router logs for additional correlation of traffic from these hosts.

Apply all operating system patches on all systems communicating with this domain (You should do this to all systems and not just these). Remove un-needed services. Install Anti-Virus software and keep it current. On Unix based systems, you may want to install Tripwire to monitor file activity. Review the syslogs regularly.

[98] Napster Ports 6688 & 6700, - http://archives.neohapsis.com/archives/incidents/2001-05/0013.html
[99] Napster Port 6699, - http://archives.neohapsis.com/archives/snort/2000-06/0245.html
[100] RIPE Registry Information on ISDNet, Ltd. http://www.ripe.net/ripencc/mem-services/general/indices/data/il.isdnnet.html

3-2-16 Watchlist 000222

During the period 04/10/2001 to 04/16/2001, there were 158 recorded alerts for Watchlist 000222 in the IDS Logs.



3-2-16-1 Description:

From the practical of Miika Turkia[101]

> These are connections from the Computer Network Center Chinese Academy of Sciences. These are alerted since they belong to a watchlist.

MY.NET.253.43, MY.NET.4.3 and MY.NET.6.25 show SMTP connections.

Port 8765 was targeted seven times on MY.NET.70.33. A check of the IANA Port Numbers web site shows that this is registered to the Ultraseek-HTTP service. Checking for exploits on Neohapsis shows that that there have been at least three Buffer Overflow Exploits reported (Jan 1999[102], Dec 1999[103], Oct 2000[104]).

The FTP (20 & 21) port on MY.NET.144.54 was accessed 40 times.

MY.NET.6.7 was accessed 52 times on the Telnet port from the same host on 4/10/2001 and

[101] Miika Turkia GCIA Practical, SANS. http://www.sans.org/y2k/practical/Miika_Turkia_GCIA.html
[102] UltraSeek Exploit, JAN 1999. http://archives.neohapsis.com/archives/technotronic/1999/0107.html
[103] UltraSeek Exploit, DEC 1999. http://archives.neohapsis.com/archives/ntbugtraq/1999-q4/0068.html
[104] UltraSeek Exploit, OCT 2000. http://archives.neohapsis.com/archives/win2ksecadvice/2000-q4/0058.html

4/12/2001.

Telnet sessions to ports 21776 and 21817 on MY.NET.110.164 were made on 4/11/2001. There were two sessions that lasted five minutes each between 13:14 – 13:19 and 13:32 – 13:37. Neither of the destination ports is for a registered service. I would investigate this machine to see what happened during those two five minute telnet sessions.

Table 21 - Watchlist 000222 Port and Host Information

DST PORTS	HITS	SRC PORTS	HITS	Destination IPSOURCE IP
23	52	62100	43	MY.NET.100.230159.226.120.14
21776	21	21	37	MY.NET.110.164159.226.194.26
21817	13	23	34	MY.NET.144.54159.226.21.20
113	9	63099	9	MY.NET.253.43159.226.228.1
8765	7	20	3	MY.NET.253.51159.226.252.11
				2
1580	4	1081	2	MY.NET.253.52159.226.41.166
25	4	113	2	MY.NET.4.3159.226.42.180
1553	3	1243	2	MY.NET.6.35159.226.45.3
3176	3	2548	2	MY.NET.6.7159.226.47.195
3679	3	4269	2	MY.NET.70.33159.226.47.5
4352	3	63931	2	159.226.47.56
1165	2	1295	1	159.226.5.222
1227	2	15055	1	159.226.63.200
1321	2	1987	1	159.226.92.9
1698	2	2599	1	
2581	2	26312	1	
4337	2	2943	1	
4373	2	3113	1	
4391	2	32072	1	
1587	1	32903	1	
1707	1	36602	1	
2569	1	37778	1	
3078	1	38161	1	
4295	1	38858	1	
4311	1	3894	1	
4401	1	62893	1	
49670	1	63887	1	
50849	1	63888	1	
		63889	1	
		63898	1	
		63935	1	

3-2-16-2 Correlation(s):

Seventy-seven GCIA Practicals mention “Watchlist 000222. NET-NCFC”.

From the SANS Detects Analyzed –

http://www.sans.org/y2k/032200-1700.htm
http://www.sans.org/y2k/043000.htm
http://www.sans.org/y2k/052800-1100.htm
http://www.sans.org/y2k/070800.htm

3-2-16-3 Defensive Recommendations:

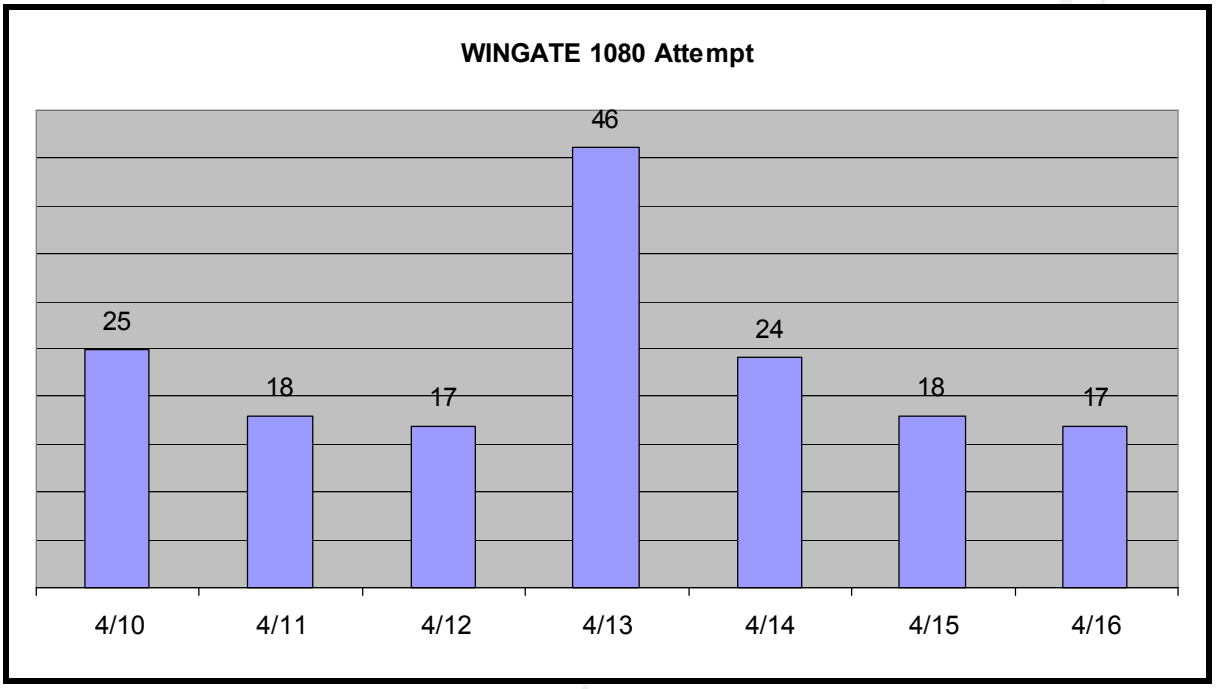
Check your Router logs for additional correlation of traffic from these hosts.

Investigate each machine involved in this watchlist, because of the heavy use of Telnet, FTP, SMTP and UltraSeek. Any or all of them could be compromised. You should install the lastest versions of Sendmail, and FTP on each of these machines. Disable Telnet and install Secure Shell.

Apply all operating system patches on all systems communicating with this domain (You should do this to all systems and not just these). Remove un-needed services. Patch those third party services that are installed (Ultraseek-HTTP service on MY.NET.70.33). Install Anti-Virus software and keep it current. On Unix based systems, you may want to install Tripwire to monitor file activity. Review the syslogs regularly.

3-2-17 WINGATE 1080 Attempt

During the period 04/10/2001 to 04/16/2001, there were 165 recorded alerts for *WINGATE 1080 Attempt* in the IDS Logs.



3-2-17-1 Description/Discussion:

From page 479 of Hacking Exposed: Network Security Secrets & Solutions, 2d Edition[105]:

> The popular Windows proxy firewall WinGate (http://wingate.deerfield.com) has been know to have a couple of vulnerabilities. Most of these stem from the lax default parameters including unauthenticated telnet, SOCKS, and Web. While access to these services can be restricted by user (and interface), many simply install the product as is to get it up and running – forgetting about security.
>
> Like many misconfigured proxies, certain WinGate versions (Specifically 2.1d for NT) allow outsiders to browse the Internet completely anonymously. This is important for attackers who target web server applications in particular, as then can hack to their heart's content with little risk of getting caught.
>
> Also vulnerable in the default configuration is the unauthenticated SOCKS proxy (TCP 1080). As with open Web proxy (TCP 80), an attacker can browse the Internet, remaining almost completely anonymous (especially if logging is turned off).

[105] Scambray, McClure and Kurtz, Hacking Exposed: Network Security Secrets & Solutions, 2d Edition, Osdborne/McGraw-Hill, 2001.

There were systems on the MY.NET network probed by sixty systems outside the MY.NET network. The top five MY.NET systems and the number of times each was probed along with the top five probers are listed in the following table:

Table 22 - WINGATE 1080 Top Five

Destination IP	Hits	Probers IP	Hits
MY.NET.53.89	31	204.117.70.5	24
MY.NET.98.189	6	217.10.143.54	16
MY.NET.204.102	5	63.102.227.48	9
MY.NET.53.99	5	216.179.0.32	7
MY.NET.202.150	4	195.66.170.8	6

I will concentrate on the top three most active MY.NET hosts and the top three most active probers.

MY.NET.53.89 was probed 31 times. Eight hosts accessed this system from outside the MY.NET network a minimum of twice. Two hosts accessed this system six times each. A check of the Alerts Logs also finds alerts for Possible Trojan Server Activity as well. 213.51.32.67 attempted to access port 27374 on 4/13/2001. All of the Wingate 1080 alerts occurred on that day as well. All of these alerts (Wingate 1080 and Trojan Server Activity) occurred between 09:13 and 10:01 on 4/13/2001. I would investigate this machine in more detail.

MY.NET.98.189 was probed six times. All the probes occurred at various times between 01:43 and 080:10 on 04/10/2001. Five of the six attempts were from 63.102.227.48 (our number three top prober). There are two packets logged in the Portscan Logs from hosts that are not listed in the probers list.

MY.NET.204.102 was probed five times 205.167.47.146. Three times on 04/10/2001 and once on 4/11/2001. There is one entry in the Portscan Log where someone tried to access 5555.

204.117.70.5 (Owned by US Sprint) probed the MY.NET network 24 times. A check of the Alerts Logs show that the Wingate 1080 probe is the only activity recorded on him. Twelve MY.NET hosts were probed.

nslookup 204.117.70.5
Canonical name: 204.117.70.5
Addresses:
204.117.70.5

Trying 204.117.70 at ARIN
US Sprint (NETBLK-SPRINT-BLKB) SPRINT-BLKB 204.117.0.0 - 204.120.255.255
TELE-TECH COMPANY (NETBLK-FON-343023769634089) FON-343023769634089
204.117.70.0 - 204.117.70.255

217.10.143.54 (UKSolutions Network Operations Centre) probed the MY.NET network sixteen times. A check of the Alerts Logs show that the Wingate 1080 probe is the only activity recorded from this host. Fifteen MY.NET hosts were probed.

nslookup 217.10.143.54
Canonical name: 217.10.143.54
Addresses:
217.10.143.54

Trying 217.10.143.54 at RIPE
Trying 217.10.143 at RIPE
% This is the RIPE Whois server.
% The objects are in RPSL format.
% Please visit http://www.ripe.net/rpsl for more information.
% Rights restricted by copyright.
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum: 217.10.143.0 - 217.10.143.3
netname: UKSOLUTIONS-CORE
descr: Network routing devices
country: GB
admin-c: US5708-RIPE
tech-c: US5708-RIPE
rev-srv: ns0.uksolutions.co.uk
rev-srv: ns1.uksolutions.co.uk
status: ASSIGNED PA
notify: ripe@uksolutions.co.uk
mnt-by: UKS-MNT
changed: ripe@uksolutions.co.uk 20000928
source: RIPE

route: 217.10.128.0/20
descr: UKSOLUTIONS-217.10.128/20
origin: AS20547
notify: ripe@uksolutions.co.uk
mnt-by: UKS-MNT
changed: ripe@uksolutions.co.uk 20010405
source: RIPE

role: UKSolutions Support
address: UKSolutions Network Operations Centre
address: CAD Building
address: Birmingham Road
address: Studley
address: Warwickshire

address: B80 7BG
address: UNITED KINGDOM
e-mail: support@uksolutions.co.uk
trouble: ----------
trouble: Please do NOT e-mail abuse to the contacts given
trouble: here, e-mail them to abuse@uksolutions.co.uk.
trouble: ----------
trouble: Information: http://www.uksolutions.co.uk/
trouble: ----------
trouble: ** Contact by E-Mail ONLY. ***
trouble: ----------
admin-c: DWL1-RIPE
tech-c: DWL1-RIPE
tech-c: DCJ1-RIPE
tech-c: RA1697-RIPE
nic-hdl: US5708-RIPE
notify: hm-dbm-msgs@ripe.net
notify: ripe@uksolutions.co.uk
mnt-by: UKS-MNT
changed: ripe@uksolutions.co.uk 20000802
source: RIPE

63.102.227.48 (chatspace.com) probed the MY.NET network nine times. Five of those probes are already accounted for above. The remaining four were split evenly between MY.NET.98.186 and MY.NET.98.141.

Trying 63.102.227.48 at ARIN
Trying 63.102.227 at ARIN
UUNET Technologies, Inc. (NETBLK-UUNET63) UUNET63 63.64.0.0 - 63.127.255.255
Inflow (NETBLK-UU-63-102-224) UU-63-102-224 63.102.224.0 - 63.102.227.255
chatspace.com (NETBLK-INFLOW-CHT2) INFLOW-CHT2 63.102.226.0 - 63.102.227.255

To single out one record, look it up with "!xxx", where xxx is the handle, shown in parenthesis following the name, which comes first.

This is reconnaissance. We didn't see any suspicious outbound connections logged.

3-2-17-2 Correlation(s):

Several CVE's and CAN's are provided.

CVE-1999-0290 -
http://www.cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-1999-0290
The WinGate telnet proxy allows remote attackers to cause a denial of service via a large number

of connections to localhost.

CVE-1999-0291 -
http://www.cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-1999-02901
The WinGate proxy is installed without a password, which allows remote attackers to redirect connections without authentication.

CVE-1999-0441 -
http://www.cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-1999-0441
Remote attackers can perform a denial of service in WinGate machines using a buffer overflow in the Winsock Redirector Service.

CVE-1999-0494 -
http://www.cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-1999-0494
Denial of service in WinGate proxy through a buffer overflow in POP3.

CAN-1999-0657 -
http://www.cve.mitre.org/cgi-bin/cvename.cgi?name=CAN-1999-0657
WinGate is being used. (Proposed).

CAN-2000-1048
http://www.cve.mitre.org/cgi-bin/cvename.cgi?name=CAN-2000-1048
Directory traversal vulnerability in the logfile service of Wingate 4.1 Beta A and earlier allows remote attackers to read arbitrary files via a .. (dot dot) attack via an HTTP GET request that uses encoded characters in the URL.

A Neohapsis Archives search provided four pages of links from 1998 to present, here are several.

http://archives.neohapsis.com/archives/incidents/2001-01/0297.html
http://archives.neohapsis.com/archives/snort/2000-10/0181.html
http://archives.neohapsis.com/archives/snort/2000-10/0130.html
http://archives.neohapsis.com/archives/incidents/2001-01/0297.html

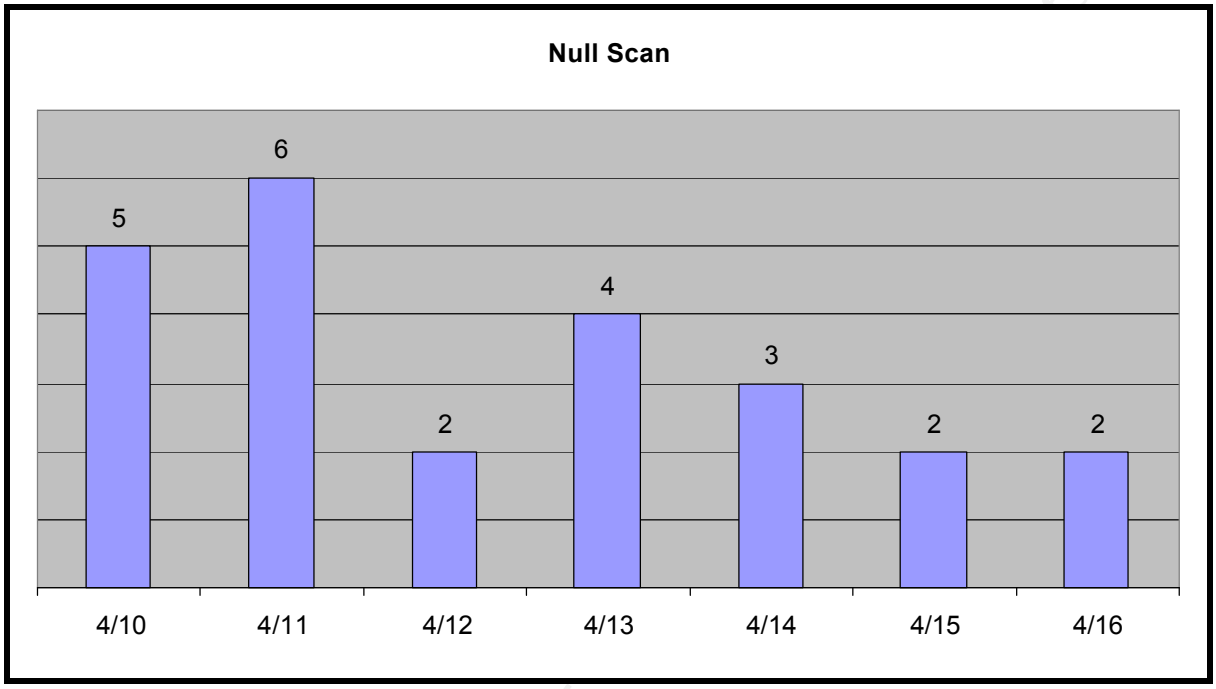
3-2-17-3 Defensive Recommendations:

You may want to run a port scan on your own to see how many systems have port 1080 or 8080 open. If you find any, configure the security, enable logging and apply all vendor patches to all of them. After this is done, shutdown or disable what you don't need. Remove the software/service if possible.. In case someone turns one of them on again they will at least be patched and properly configured.

Apply all patches on the Operating Systems. Enforce the use of Anti-virus software and keep it updated. Run periodic Anti-virus scans of all files.

3-2-18 Null Scan

During the period 04/10/2001 to 04/16/2001, there were 24 *NULL Scans* recorded in the IDS Logs.



3-2-18-1 Description/Discussion:

From the NMAP[106] Manpage:

> The Null scan turns off all flags. Unfortunately Microsoft (like usual) decided to completely ignore the standard and do things their own way. Thus this scan type will not work against systems running Windows95/NT. On the positive side, this is a good way to distinguish between the two platforms. If the scan finds open ports, you know the machine is not a Windows box.

A search of the current Whitehats.com and Snort.org rules finds one rule:

alert tcp $EXTERNAL_NET any -> $HOME_NET any (msg:"IDS004 - SCAN-NULL Scan";flags:0; seq:0; ack:0;)

There were 24 different hosts scanned from twenty-four different IP Addresses. I have compiled a list of all of the ports scanned, the number of times each port was scanned and the service that is registered or known to use that port. Of all the ports scanned, one of them is associated with four Trojans. Known Trojan ports were found on the The Trojan List[107]

[106] NMAP Network Security Scanner, http://www.insecure.org/nmap/nmap_manpage.html
[107] The Trojan Port List - http://www.simovits.com/sve/nyhetsarkiv/1999/nyheter9902.html

Table 23 - NULL Scan Ports Scanned List

DST Port	Hits	Service
6346	4	Gnutella
6969	1	Unassigned - (GateCrasher, IRC 3, Net Controller, Priority)
6688	1	Napster
6699	2	Napster
6347	1	Gnutella
62821	1	Dynamic-Private Port Range
49631	1	Dynamic-Private Port Range
4850	1	Unassigned
4831	1	Unassigned
4453	1	NSS Alert Manager
4355	1	Unassigned
4036	1	WAP Push OTA-HTTP secure
3619	1	Unassigned
3004	1	Csoft Agent
2813	1	llm-pass
2696	1	Unify Admin
1790	1	Narrative Media Streaming Protocol
1556	1	AshWin CI Tecnologies
1518	1	Virtual Places Video data
1147	1	Unassigned

Other than the one scan directed at Port 6969, the only other major scan activity was for Gnutella/Napster. The top source port was 6346 and was used six times. Fifty percent of the NULL Scans had a source or destination port associated with Gnutella/Napster. MY.NET.221.14 was probed on port 6969 and should be investigated at the earliest possible moment.

3-2-18-2 Correlation(s):

From a search of SANS.ORG:

http://www.sans.org/y2k/011900.htm
http://www.sans.org/y2k/020800-2300.htm
http://www.sans.org/y2k/032200-1700.htm
http://www.sans.org/y2k/053100-1100.htm

A Neohapsis Archives search:

http://archives.neohapsis.com/archives/incidents/2000-11/0187.html
http://archives.neohapsis.com/archives/nmap/2000/0045.html
http://archives.neohapsis.com/archives/sf/ids/2001-q2/0312.html

3-2-18-3 Defensive Recommendations:

For starters I recommend blocking all Gnutella/Napster ports. Otherwise, apply all operating system patches, close all unneeded ports and shutoff all unneeded services. Install Antivirus software and keep it current.

3-2-19 Port 55850 TCP – possible myserver activity

During the period 04/10/2001 to 04/16/2001, there were 20 alerts for *Port 55850 TCP – Possible myserver activity* recorded in the IDS Logs.

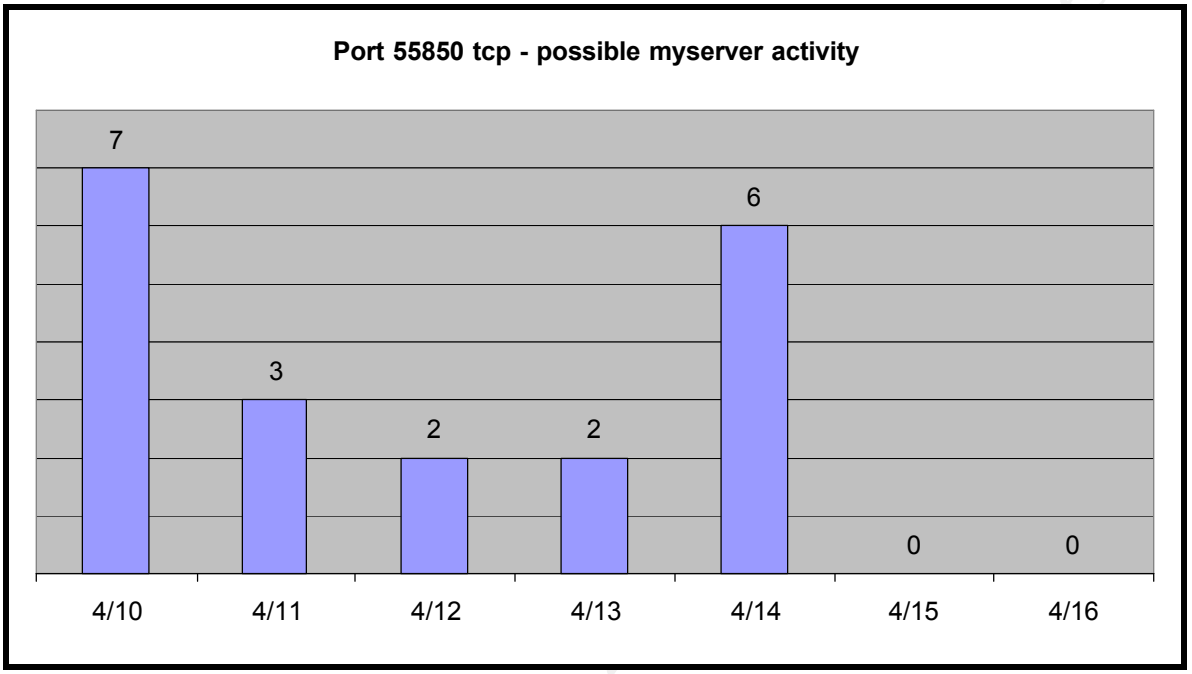


Table 24 - Port 55850 TCP Connections

Count	Source IP	Destination IP	
4	MY.NET.6.34	55850165.251.8.76	25
3	207.217.120.22	55850MY.NET.253.43	25
3	MY.NET.253.43	25207.217.120.22	55850
2	64.232.129.197	55850MY.NET.253.53	25
2	MY.NET.253.24	55850195.241.48.134	25
1	165.251.8.76	25MY.NET.6.34	55850
1	MY.NET.100.201	8080MY.NET.101.140	55850
1	MY.NET.227.90	6346194.237.76.4	55850
1	MY.NET.253.24	55850134.220.1.46	25
1	MY.NET.253.51	55850204.255.212.10	25
1	MY.NET.253.53	5585064.4.56.199	25

3-2-19-1 Description/Discussion:

This appears to be a rule to alert the possibility of a MyServer exploit. I believe it is a bit broad since the exploit is actually implemented via an RPC exploit. If this triggers, then a simple check of rpc activity to the same host would further indicate that a check of the host in question is needed.

In addition to 55850, you can also use the information in the SANS Detects Analyzed for

082200[108] (Extracted portion here) and monitor/check ports 9704 and 111 as well:

> The following note was sent to us in response to our telling them about an attack originating from their site. I've been in contact with the netadmins at UMass and they saw something similar. They're sending intrusion@sans.org what they found. Anyway, seems like we have a new variant floating around the net these days. The Umass guys found a Trinoo-style tool called MyServer on their linux box. Randy Marchany
>
> >===== Original Message From Joakim Bergkvist <Joakim.F.Bergkvist@telia.se>
>
> Hi Just for your information the status is as follows. We've had (have ??) a hacker in some of our lab servers. The hacker has targeted Linux redhat6.x machines using the RPC stat exploit. Essentially this exploit allows the hacker to send shell commands via the portmapper which will be executed with root privileges. **The hacker first scans a list of target addresses watching for the response on port 23 and 25 to try to discern which OS and distribution it is.. The scan script makes another list with all redhat machines and batch runs the exploit on these sending commands to append a line to inetd.conf for starting a shell on port 9704 and restarting inetd**. -- When you've seen the RPC info query in your trace watch out for the shell -- On some of the machines the hacker has the entered through the shell and patched some files in the distribution. typically 'ps', 'netstat' and 'ls' to filter out the shell and some given file locations and of course 'login'

From a portion of a post[109] found by doing a search of the Neohapsis Archives:

> MyServer is a little known DDOS agent that was running around late in the summer. It binds to UDP 55850, and the rootkit installs trojans of ls and ps, so you won't see it running. You WILL see it with netstat though. The rootkit and ddos tools are stored in "/lib/ "

With the exception of one connection from port 6346 to 55850 and another from 8080 to 55850, the remaining eighteen alerts use ports 25 and 55850. I did a search of the Portscan Logs and found 145 scans for port 9704, none of which contained IP Addresses alerted on in the Port 55850 alert. The same is true for a port 111 search. All of the alerts concern hosts MY.NET.253.43, MY.NET.253.24, MY.NET.253.53, MY.NET.253.51, and MY.NET.6.34.

> MY.NET 253.43 has nine Watchlist 000222 alerts and six port 55850 alerts between 04/10/2001 and 04/16/2001.
>
> MY.NET.253.24 has 3 port 55850 and four possible redworm alerts between 04/10/2001 and 04/14/2001.
>
> MY.NET.253.53 has four port 55850 and two possible redworm alerts on 04/11/2001 and 04/12/2001.

[108] SANS Detects Analyzed for 082200 http://www.sans.org/082200.htm
[109] Neohapsis Archives Message, Subj: Connection From Unknown
http://archives.neohapsis.com/archives/incidents/2000-10/0136.html

MY.NET.253.51 has one port 55850 and one watchlist 000222 alert on 04/13/2001 and 04/16/2001.

MY.NET.6.34 has five port 55850 alerts on 04/14/2001.

e see no portmapper activity to any of these hosts, so this ends the discussionl.

3-2-19-2 Correlation(s):

A search of the Consensus Intrusion Database[110] (CID) at Incidents org shows 1 reported incident of attempted access to port 55850

A search of SecurityFocus found a copy of the message that was sent to SANS (from above) and the following additional link - http://www.securityfocus.com/archive/75/139765.

3-2-19-3 Defensive Recommendations:

Apply all patches. I was not able to find any additional detailed information on this exploit other than the two mentioned in the description above. I would consider dropping this rule and replacing it with a more specific rule that checks for content. It may be you could drop this one completely and update your snort rule set. The current RPC rules may be all that you need.

[110] WWW.INCIDENTS.ORG, Search the Consensus Intrusion Database (CID) http://www.incidents.org/cid/search.php

3-3 Port scans:

3-3-1 Who's scanning' who and the Type of scans performed:

Table 25 - Number of Hosts Performing Scans

Date	Total Scanners	MY.NET	External
04/10	92	69	23
04/11	86	66	20
04/12	95	73	22
04/13	82	63	19
04/14	89	47	42
04/15	70	56	14
04/16	79	60	19
Totals	593	434	159

Seventy-Three percent of the 593 hosts performing scans were from inside the MY.NET network. If you take into account the repeat offenders on the MY.NET network, then the total number of hosts is 576 and the total number of MY.NET hosts is 417. Repeat offenders are hosts that appear in the top ten port scanners more than once in a week.

Table 26 - Number & Types of Scans

Number	Type of Scan
151171	UDP
41594	SYN
143	INVALIDACK
137	NOACK
109	NULL
47	UNKNOWN
40	VECNA
18	FULLXMAS
11	NMAPID
11	FIN
7	XMAS
1	SPAU
193289	Total Scans

3-3-2 The Top Five:

The Overall Top Five is taken from the merged scan logs for the reporting period. The overall Top Five scanning hosts list is comprised almost entirely of systems from inside the MY.NET network. This is primarily due to the high number of UDP scans reported, which originated entirely from MY.NET hosts. The large amount of UDP scans is due almost entirely to game traffic. Ports 27xxx and 28xxx accounts for 63,493. Port 13139 appears 23,931 times. Ports 7777 & 7778 appear 7,185 times. That alone totals 94,609 entries for games. And those are only the games we know about.

Table 27 - Overall Top Five Scanning Hosts

Packets	IP Adderss	Date
7936	MY.NET.220.66	04/15
7137	MY.NET.228.50	04/12
7039	MY.NET.224.106	04/11
6932	MY.NET.211.114	04/16
6329	210.220.73.117	04/10

Table 28 - Popular Game Ports

Quake 1/QW : 27500 (27500->27600)
Quake 2 : 27910 (27900->27930)
Quake 3 : 27960 (27960->27980)
halfLife : 27015 (27010 -> 27050)
Unreal tournament 7777 (7777->7797)
Kingpin : 31510 (31500->31550)
Shogo : 27888
starsiege stribe : 28000 (28001 & 2 often too)

** Some of the MY.NET hosts appear to have GameSpy[111] installed as well. This is an application that probes game servers in order to provide you with the status of available servers for game playing over the internet. It uses UDP Pings on port 13139[112] to check the status and round trijp time to servers.

3-3-3 Repeat Offenders:

The repeat offenders are those hosts that appear in the daily top five lists that wee merged into a single list and sorted again on number of packets generated. All duplicates entries were then removed. Three MY.NET hosts that appear in the repeat offenders list below also appear in the top five list above.

Table 29 - Top Five MY.NET Scanners

Packets	IP Adderss	Date
7936	MY.NET.220.66	04/15
7137	MY.NET.228.50	04/12
7039	MY.NET.224.106	04/11
6932	MY.NET.211.114	04/16
4590	MY.NET.219.34	04/16

3-3-4 Top Five External Scanners:

[111] GameSpy , http://www.gamespy.com
[112] MultiPlayer Total Annihilation behind a firewall, http://www.estrella.demon.nl/mpfw.htm

Table 30 - Top Five External Scanners

Packets	IP Adderss	Date
6329	210.220.73.117	04/10
3972	209.178.22.233	04/14
3349	63.163.94.13	04/10
2499	210.52.214.15	04/15
2346	216.40.195.72	04/10

There are no repeat offenders in the External Scanners data. Each one of the five hosts listed above performed a scan for FTP or DNS Servers. 210.220.73.117, 210.52.214.15 performed SYN scans for FTP servers. 209.178.22.233, 63.163.94.13, and 216.40.195.72 performed SYN scans for DNS servers. Whois lookup information (Using Sam Spade[113]) on each external host is provided below.

Trying 210.220.73.117 at APNIC
Trying 210.220.73 at APNIC
Trying 210.220 at APNIC

% Rights restricted by copyright. See http://www.apnic.net/db/dbcopyright.html
% (whois6.apnic.net)

inetnum: 210.220.0.0 - 210.223.255.255
netname: KRNIC-KR
descr: KRNIC
descr: Korea Network Information Center
country: KR
admin-c: HM127-AP
tech-c: HM127-AP
remarks: **
remarks: KRNIC is the National Internet Registry
remarks: in Korea under APNIC. If you would like to
remarks: find assignment information in detail
remarks: please refer to the KRNIC Whois DB
remarks: http://whois.nic.or.kr/english/index.html
remarks: **
mnt-by: APNIC-HM
mnt-lower: MNT-KRNIC-AP
changed: seungmin@nic.or.kr 19991112
changed: hostmaster@apnic.net 20010606
source: APNIC

person: Host Master
address: Korea Network Information Center

[113] Sam Spade for Windows, Freeware, http://samspade.org/ssw/

address: Narajongkeum B/D 14F, 1328-3, Seocho-dong, Seocho-ku, Seoul, 137-070, Republic of Korea
country: KR
phone: +82-2-2186-4500
fax-no: +82-2-2186-4496
e-mail: hostmaster@nic.or.kr
nic-hdl: HM127-AP
mnt-by: MNT-KRNIC-AP
changed: hostmaster@nic.or.kr 20010514
source: APNIC

Trying 209.178.22.233 at ARIN
Trying 209.178.22 at ARIN
EarthLink Network, Inc. (NETBLK-EARTHLINK-NET) EARTHLINK-NET
209.178.0.0 - 209.178.191.255
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0030) CBLPASLAN-USER0030
209.178.22.8 - 209.178.22.15
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0031) CBLPASLAN-USER0031
209.178.22.16 - 209.178.22.23
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0032) CBLPASLAN-USER0032
209.178.22.24 - 209.178.22.31
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0033) CBLPASLAN-USER0033
209.178.22.32 - 209.178.22.39
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0034) CBLPASLAN-USER0034
209.178.22.40 - 209.178.22.47
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0035) CBLPASLAN-USER0035
209.178.22.48 - 209.178.22.55
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0036) CBLPASLAN-USER0036
209.178.22.56 - 209.178.22.63
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0037) CBLPASLAN-USER0037
209.178.22.64 - 209.178.22.71
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0038) CBLPASLAN-USER0038
209.178.22.72 - 209.178.22.79
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0039) CBLPASLAN-USER0039
209.178.22.80 - 209.178.22.88

Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0040) CBLPASLAN-USER0040
209.178.22.89 - 209.178.22.96
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0041) CBLPASLAN-USER0041
209.178.22.97 - 209.178.22.104
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0042) CBLPASLAN-USER0042
209.178.22.105 - 209.178.22.112
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0043) CBLPASLAN-USER0043
209.178.22.113 - 209.178.22.120
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0044) CBLPASLAN-USER0044
209.178.22.121 - 209.178.22.128
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0045) CBLPASLAN-USER0045
209.178.22.129 - 209.178.22.136
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0046) CBLPASLAN-USER0046
209.178.22.137 - 209.178.22.144
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0047) CBLPASLAN-USER0047
209.178.22.145 - 209.178.22.152
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0048) CBLPASLAN-USER0048
209.178.22.153 - 209.178.22.160
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0049) CBLPASLAN-USER0049
209.178.22.161 - 209.178.22.168
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0050) CBLPASLAN-USER0050
209.178.22.169 - 209.178.22.176
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0051) CBLPASLAN-USER0051
209.178.22.177 - 209.178.22.184
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0052) CBLPASLAN-USER0052
209.178.22.185 - 209.178.22.192
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0053) CBLPASLAN-USER0053
209.178.22.193 - 209.178.22.200
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0054) CBLPASLAN-USER0054
209.178.22.201 - 209.178.22.208

Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0055) CBLPASLAN-USER0055
209.178.22.209 - 209.178.22.216
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0056) CBLPASLAN-USER0056
209.178.22.217 - 209.178.22.224
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0057) CBLPASLAN-USER0057
209.178.22.225 - 209.178.22.232
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0058) CBLPASLAN-USER0058
209.178.22.233 - 209.178.22.240
Charter Cable/Pasadena LAN (NETBLK-CBLPASLAN-USER0059) CBLPASLAN-USER0059
209.178.22.241 - 209.178.22.248

To single out one record, look it up with "!xxx", where xxx is the
handle, shown in parenthesis following the name, which comes first.

Trying 63.163.94 at ARIN
Sprint (NETBLK-SPRN-BLKS) SPRN-BLKS 63.160.0.0 - 63.175.255.255
RAF/AMERICAN FRONTEER (NETBLK-FON-106767104042275) FON-106767104042275
63.163.94.0 - 63.163.94.255

To single out one record, look it up with "!xxx", where xxx is the
handle, shown in parenthesis following the name, which comes first.

Trying 210.52.214.15 at APNIC
Trying 210.52.214 at APNIC
Trying 210.52 at APNIC

% Rights restricted by copyright. See http://www.apnic.net/db/dbcopyright.html
% (whois5.apnic.net)

inetnum: 210.52.0.0 - 210.52.0.63
netname: BAODING-CABLE-TV
descr: Baoding Cable TV Network
descr: No.3 Shidai Road, Baoding
descr: Hebei Province
country: CN
admin-c: ZM28-AP
tech-c: ZM28-AP
mnt-by: MAINT-CN-ZM28
changed: zhaomq@china-netcom.com 20010716

```
source:     APNIC

person:     Zhao Mingqun
address:    9/F, Building A, Corporate Square, No. 35 Financial Street,
address:    Xicheng District, Beijing 100032, P.R.China
country:    CN
phone:      +86-10-86011588
fax-no:     +86-10-88091446
e-mail:     zhaomq@china-netcom.com
nic-hdl:    ZM28-AP
mnt-by:     MAINT-CN-ZM28
changed:    zhaomq@china-netcom.com 20010712
source:     APNIC


Trying 216.40.195.72 at ARIN
Trying 216.40.195 at ARIN
Everyones Internet, Inc. (NETBLK-EVRY-BLK-6)
  2600 Southwest Frwy Suite 500
  Houston, TX 77098
  US

  Netname: EVRY-BLK-6
  Netblock: 216.40.192.0 - 216.40.223.255
  Maintainer: EVRY

  Coordinator:
    Williams, Randy  (RW172-ARIN)  admin@ev1.net
    (713) 400-5400 x255

  Domain System inverse mapping provided by:

  NS1.EV1.NET   216.88.76.6
  NS2.EV1.NET   216.88.77.7

  ADDRESSES WITHIN THIS BLOCK ARE NON-PORTABLE

  Record last updated on 07-Feb-2001.
  Database last updated on 14-Jul-2001 23:02:13 EDT.
```

I did a top ten for each day of the week and then merged each daily top ten list into a single list to see how many hosts showed up in the top on two or more days in the week and found the following “Repeat Offenders”. These ten hosts account for twenty-two percent of the port scan traffic for the week 04/10/2001 to 04/16/2001.

Table 31 - Repeat Offenders

Packets	IP Adderss	Days
10158	MY.NET.224.106	2
10043	MY.NET.220.66	2
6542	MY.NET.228.54	5
4143	MY.NET.217.230	3
3676	MY.NET.202.86	4
3361	MY.NET.219.222	3
2567	MY.NET.203.150	3
1981	MY.NET.209.218	2
518	MY.NET.211.114	2

3-3-5 Defensive Recommendations:

Configure your routers using RFC2267[114], Network Ingress Filtering. Use ACL's on your perimeter routers to restrict inbound access to ports 1-1023 whenever possible. Port scans are active reconnaissance. If you cannot block or restrict access, then employ Firewalls and Proxy servers when possible. You have already deployed perimeter IDS sensors, but you may want to (if you have not already done so) develop and use a host based IDS system.

Keep all systems patched and employ Tripwire on Unix/Solaris systems, IPChains on the latest Linux systems. Check your syslogs regularly.

Check out the top traffic generators, especially those that appear in the repeat offenders list.

[114] RFC 2267, Network Ingress Filtering: Defeating Denial of Service Attacks which employ IP Source Address Spoofing. http://info.internet.isi.edu/in-notes/rfc/files/rfc2267.txt

3-4 Out-Of-Spec (OOS) Log Entries:

There are 905 Out-Of-Spec (OOS) Log entries. The top five MY.NET OOS talkers and external OOS talkers are in the table below. These ten systems account for 521 of the 905 OOS alerts logged.

Table 32 - Top Five MY.NET & External Out-Of-Spec Packet Generators (Talkers)

Connections	MY.NET Host
126	MY.NET.227.130
108	MY.NET.217.182
7	MY.NET.210.90
5	MY.NET.225.42
2	MY.NET.222.250
Connections	**External Host**
124	217.80.7.48
68	66.31.48.7
37	209.221.200.17
25	158.75.57.4
22	150.135.245.171

Whois lookups for each of the external hosts is provided here:

Trying 217.80.7.48 at RIPE
Trying 217.80.7 at RIPE
Trying 217.80 at RIPE
% This is the RIPE Whois server.
% The objects are in RPSL format.
% Please visit http://www.ripe.net/rpsl for more information.
% Rights restricted by copyright.
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum: 217.80.0.0 - 217.89.31.255
netname: DTAG-DIAL14
descr: Deutsche Telekom AG
country: DE
admin-c: RH2086-RIPE
tech-c: AH12705-RIPE
tech-c: ST5359-RIPE
status: ASSIGNED PA
remarks:
****
remarks: * ABUSE CONTACT: abuse@t-ipnet.de IN CASE OF HACK ATTACKS, *
remarks: * ILLEGAL ACTIVITY, VIOLATION, SCANS, PROBES, SPAM, ETC. *
remarks:
****

```
notify:      auftrag@nic.telekom.de
notify:      dbd@nic.dtag.de
mnt-by:       DTAG-NIC
changed:      auftrag@nic.telekom.de 20010321
source:      RIPE

route:       217.80.0.0/12
descr:       Deutsche Telekom AG, Internet service provider
origin:      AS3320
mnt-by:       DTAG-RR
changed:      rv@NIC.DTAG.DE 20001027
source:      RIPE

person:      Reinhard Hausdorf
address:     Deutsche Telekom AG
address:     Am Kavalleriesand 3
address:     D-64295 Darmstadt
address:     Germany
phone:       +49
nic-hdl:     RH2086-RIPE
notify:      auftrag@nic.telekom.de
notify:      dbd@nic.dtag.de
mnt-by:       DTAG-NIC
changed:      auftrag@nic.telekom.de 20010321
source:      RIPE
% This is the RIPE Whois server.
% The objects are in RPSL format.
% Please visit http://www.ripe.net/rpsl for more information.

person:      Andreas Hengl
address:     Deutsche Telekom AG
address:     Internetplanung Nuernberg
address:     Suedwestpark 26
address:     90449 Nuernberg
address:     Germany
phone:       +49 911
e-mail:      ripe-contact.Darmstadt@telekom.de
nic-hdl:     AH12705-RIPE
notify:      auftrag@nic.telekom.de
notify:      dbd@nic.dtag.de
mnt-by:       DTAG-NIC
changed:      auftrag@nic.telekom.de 20010528
source:      RIPE

person:      Security Team
```

address: Deutsche Telekom AG
address: Technikniederlassung Schwaebisch Hall
address: D-89070 Ulm
address: Germany
phone: +49 731 100 84055
fax-no: +49 731 100 84150
e-mail: abuse@t-ipnet.de
nic-hdl: ST5359-RIPE
notify: auftrag@nic.telekom.de
notify: dbd@nic.dtag.de
mnt-by: DTAG-NIC
changed: auftrag@nic.telekom.de 20010321
source: RIPE

% Rights restricted by copyright.
% See http://www.ripe.net/ripencc/pub-services/db/copyright.html

inetnum: 217.80.0.0 - 217.89.31.255
netname: DTAG-DIAL14
descr: Deutsche Telekom AG
country: DE
admin-c: RH2086-RIPE
tech-c: AH12705-RIPE
tech-c: ST5359-RIPE
status: ASSIGNED PA
remarks:
****
remarks: * ABUSE CONTACT: abuse@t-ipnet.de IN CASE OF HACK ATTACKS, *
remarks: * ILLEGAL ACTIVITY, VIOLATION, SCANS, PROBES, SPAM, ETC. *
remarks:
****
notify: auftrag@nic.telekom.de
notify: dbd@nic.dtag.de
mnt-by: DTAG-NIC
changed: auftrag@nic.telekom.de 20010321
source: RIPE

route: 217.80.0.0/12
descr: Deutsche Telekom AG, Internet service provider
origin: AS3320
mnt-by: DTAG-RR
changed: rv@NIC.DTAG.DE 20001027
source: RIPE

person: Reinhard Hausdorf

address: Deutsche Telekom AG
address: Am Kavalleriesand 3
address: D-64295 Darmstadt
address: Germany
phone: +49
nic-hdl: RH2086-RIPE
notify: auftrag@nic.telekom.de
notify: dbd@nic.dtag.de
mnt-by: DTAG-NIC
changed: auftrag@nic.telekom.de 20010321
source: RIPE

Trying 66.31.48.7 at ARIN
Trying 66.31.48 at ARIN
ROADRUNNER-NORTHEAST (NETBLK-ROADRUNNER-NORTHEAST)
13241 Woodland Park Road
Herndon, VA 20171
US

Netname: ROADRUNNER-NORTHEAST
Netblock: 66.30.0.0 - 66.31.255.255
Maintainer: RRNE

Coordinator:
ServiceCo LLC (ZS30-ARIN) abuse@rr.com
1-703-345-3416

Domain System inverse mapping provided by:
DNS1.RR.COM 24.30.200.3
DNS2.RR.COM 24.30.201.3
DNS3.RR.COM 24.30.199.7
DNS4.RR.COM 65.24.0.172

ADDRESSES WITHIN THIS BLOCK ARE NON-PORTABLE

Record last updated on 14-Jun-2001.
Database last updated on 14-Jul-2001 23:02:13 EDT.

Trying 209.221.200.17 at ARIN
Trying 209.221.200 at ARIN
Quantum Networking Solutions, Inc. (NETBLK-QNET-0)
1529 E Palmdale Blvd Ste 200
Palmdale, CA 93550
US

Netname: QNET-0
Netblock: 209.221.192.0 - 209.221.223.255
Maintainer: QNSI

Coordinator:
Linstruth, Chris (CL38-ARIN) cjl@QNET.COM
+1-805-538-2028 (FAX) +1-805-538-2859

Domain System inverse mapping provided by:
NS2.QNET.COM 207.155.33.10
NS1.QNET.COM 207.155.38.11

ADDRESSES WITHIN THIS BLOCK ARE NON-PORTABLE

Record last updated on 07-Mar-2001.
Database last updated on 14-Jul-2001 23:02:13 EDT.

Trying 158.75.57.4 at ARIN
Trying 158.75.57 at ARIN
POLIP (NET-TORUNPOLIP2)
Computer Centre, Nicolaus Copernicus University
ul. Chopina 12/18, 87-100 Torun, Poland
PL

Netname: TORUNPOLIP2
Netblock: 158.75.0.0 - 158.75.255.255

Coordinator:
Szewczak, Zbigniew S. (ZSS-ARIN) zssz@TORUN.PL
(56) 260-17 ext. 70

Domain System inverse mapping provided by:
ALFA.CS.TORUN.PL 158.75.10.75
BILBO.NASK.ORG.PL 148.81.16.51

Record last updated on 11-Oct-1995.
Database last updated on 14-Jul-2001 23:02:13 EDT.

Trying 150.135.245.171 at ARIN
Trying 150.135.245 at ARIN
University of Arizona (NET-UA-STU-NET)
CCIT - Telecommunications
Tucson, AZ 85721
US

Netname: UA-STU-NET
Netblock: 150.135.0.0 - 150.135.255.255

Coordinator:
De Young, Chris H (CD503-ARIN) chd@ARIZONA.EDU
(520) 626-3213 (FAX) (520) 621-9222

Domain System inverse mapping provided by:
MAGGIE.TELCOM.ARIZONA.EDU 128.196.128.233
NS1.ACES.COM 192.195.240.1
UAZHE0.PHYSICS.ARIZONA.EDU 128.196.188.248
NS1.SUNQUEST.COM 149.138.1.32

Record last updated on 23-Jul-1999.
Database last updated on 14-Jul-2001 23:02:13 EDT.

The following table also shows the Top Ten source and destination ports used. This shows us that the majority of the 905 OOS alerts were going to or coming from ports commonly used by Gnutella or Napster. That accounts for almost two-thirds of our OOS alerts. One frightening fact to note is that and additional 104 (approximately eleven percent) OOS alerts had a source port of zero. This accounts for seventy-seven percent of the OOS Alerts.

Table 33 - Top Ten Source and Destination Ports Used

Count	SRC Port	Count	DST Port
168	6346	329	6346
104	0	37	21536
68	706	33	80
38	18245	31	6347
18	6688	21	6688
14	2055	19	20
10	1	19	6699
7	6699	16	110
4	1061	6	2554
4	1107	5	22

125 of the OOS Packets from or to MY.NET.227.130 used port 6346 (Gnutella).

All OOS packets from MY.NET.217.182 were to or from port 6346 (Gnutella).

All of MY.NET.225.42 OOS packets were from or to port 6688 (Napster).

Gnutella/Napster related ports were not shown in the OOS packets for MY.NET.210.90 or MY.NET.222.250.

ALL OOS packets from 217.80.7 48 were to port 6346 on MY.NET.227.90 and were all transmitted between 08:30 and 09:01 on 04/12/2001.

All OOS packets from 66.31.48.7 originated from port 706 to sequential ports on MY.NET.225.134.

All OOS packets from 209.221.200.17 were sent to one of two hosts (MY.NET.225.210 and MY.NET.217.134).

All OOS Packets from 158.75.57.4 were sent to port 6346 or 6347 (Gnutella) on multiple MY.NET systems.

ALL OOS Packets from 150.135.245.171 were sent to port 6346 on MY.NET.217.178 and were all transmitted on 04/11/2001 between 17:35 and 17:37.

3-4-1 Gnutella/Napster (The MY.NET network Boom Box):

This section will actually cover the alerts produced by six of the top ten systems listed in Table 23 above.

Gnutella/Napster traffic accounts for 595 (the table above shows 593) OOS alerts. Sorry, but the two alerts with a destination port of 6700 didn't make the top ten. I will concentrate my analysis on this area since it is in my opinion (and the numbers above support this) the loudest. Related to the Gnutella/Napster 'noise' is the fact that a source port of **ZERO** was used 104 times. The relation shows up when you check the destination ports on those 104 alerts and find that the destination port is again Gnutella/Napster for 85 of the source port zero OOS alerts.

Comparing the OOS packets involved in this I found that 404 out of the 595 Gnutella/Napster OOS that had a Gnutella destination port only also had a TTL between 43 and 53, a Type Of Service of 0x0, both urgent flags and the SYN flag were set, the Don't Fragment flag was set and they had an ID of Zero. They also had the following additional contents in common (highlighted in RED):

TCP TTL:49 TOS:0x0 ID:0 DF
21S***** Seq: 0x110FA1C1 Ack: 0x0 Win: 0x16D0
TCP Options => MSS: 1460 SackOK TS: 408013240 0 EOL EOL EOL EOL

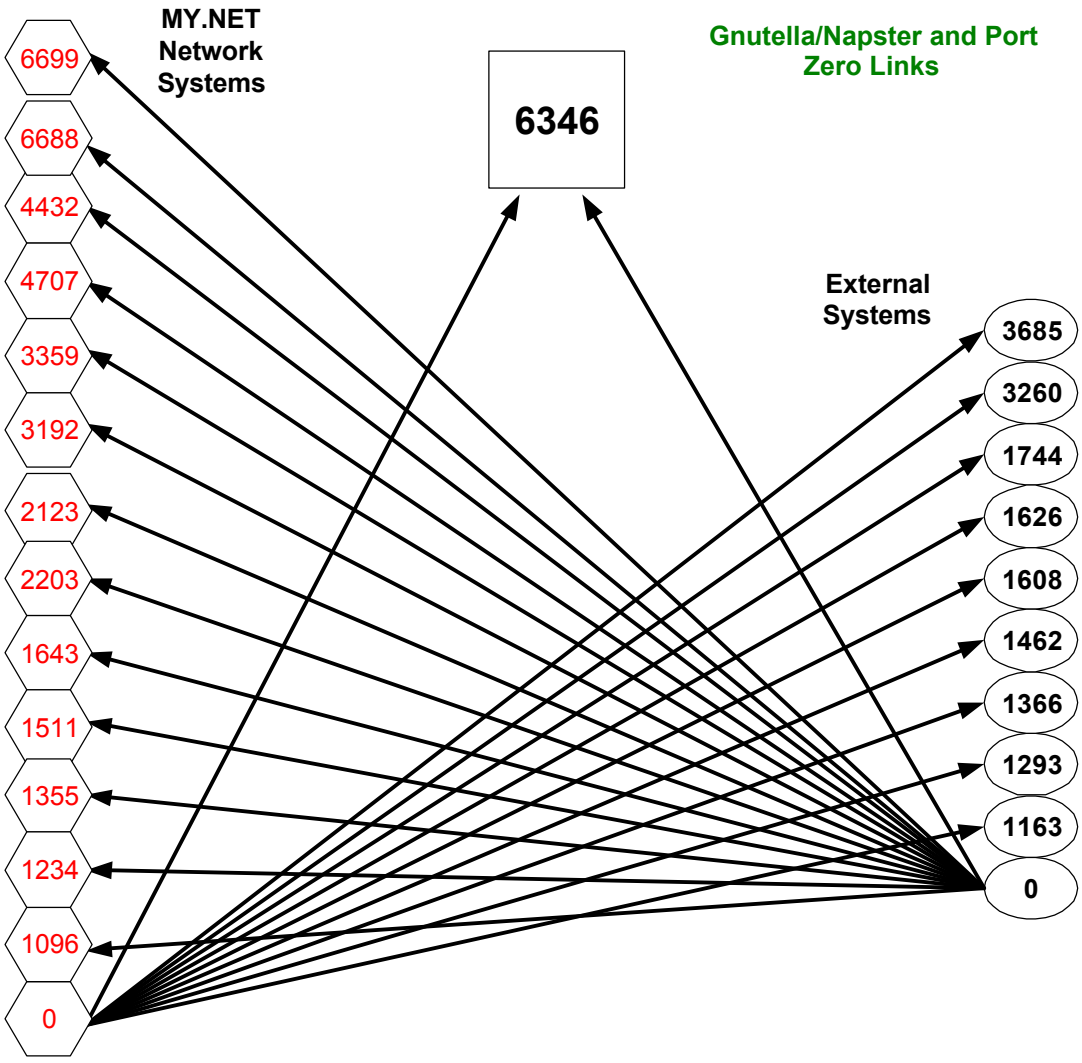
None of these 'similar' alerts had a source port of zero or one. The 595 Gnutella/Napster OOS alerts had source or destination ports of 6346 (Gnutella), 6347 (Gnutella), or 6688/6699/6700 (Napster). Here is a list of the Top Five (Or all the talkers if less than five) Gnutella/Napster talkers.

Table 34 - Top Five Gnutella/Napster Talkers

Connections	MY.NET Host
125	MY.NET.227.130
108	MY.NET.217.182

5	MY.NET.225.42
1	MY.NET.223.142
Connections	**External Host**
124	217.80.7.48
24	158.75.57.4
22	150.135.245.171
20	213.76.185.130
15	207.210.120.215

Here is a diagram of all Source Port Zero traffic, it depicts all destination ports when the source port is zero. It includes both Internal and External Hosts using a Source Port of Zero. While it shows the number of connections to Source Port Zero. There are three tables below. Table 35 lists all outbound Source and Destination Port Combinations while the tables 36 and 37 depict all inbound source and destination port combinations. These charts cover Gnutella/Napster related traffic only which makes up two-thirds of the total numbe of Out-Of-Spec packets logged from 04/10/2001 to 04/16/2001.



According to the IANA Port Numbers web page[115], Port 0/TCP and 0/UDP is Reserved. All Port Zero OOS Log entries look like the examples below (NOTE: 87 have a TTL of 126 and 88 have one or more reserved flags set). All port Zero packets are TCP packets, they have a Type Of Service of 0x0, and the Don't Fragment flag is set.

```
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-00:48:20.500669 MY.NET.211.130:0 -> 209.11.34.136:1744
TCP TTL:126 TOS:0x0 ID:19224  DF
21*FR*** Seq: 0x50003C   Ack: 0xB167D9BA   Win: 0x5018
TCP Options => EOL EOL
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-01:09:09.617654 MY.NET.227.130:0 -> 64.230.75.39:1626
TCP TTL:126 TOS:0x0 ID:814  DF
*1SF*PAU Seq: 0x18CA0CD5   Ack: 0xC3F9026A   Win: 0x5010
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-01:12:10.578255 MY.NET.227.130:0 -> 130.113.48.61:6346
TCP TTL:126 TOS:0x0 ID:32119  DF
**SFRPAU Seq: 0xB120CE0   Ack: 0x78440066   Win: 0x5010
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-02:52:30.354660 MY.NET.227.130:0 -> 132.177.66.198:1163
TCP TTL:126 TOS:0x0 ID:45649  DF
2*SFR*AU Seq: 0x18CA0D3A   Ack: 0xA91E069A   Win: 0x8010
TCP Options => EOL EOL NOP NOP
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-03:30:32.771571 MY.NET.227.130:0 -> 211.132.49.100:6346
TCP TTL:126 TOS:0x0 ID:41484  DF
21S***** Seq: 0x4C60D5C   Ack: 0x933F000A   Win: 0x5018
38 C2 50 18 1F B5 D6 1D 00 00 34 5B 34 FC B5 79  8.P.......4[4..y
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-03:56:07.065768 MY.NET.227.130:0 -> 206.102.239.5:6346
TCP TTL:126 TOS:0x0 ID:11854  DF
21SF**AU Seq: 0x92C50D65   Ack: 0x40310338   Win: 0x5018
TCP Options => EOL EOL
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-04:00:33.595298 MY.NET.227.130:0 -> 65.5.197.86:6346
TCP TTL:126 TOS:0x0 ID:31171  DF
**SFRPA* Seq: 0x136B0D7F   Ack: 0x82556EB5   Win: 0x5018
TCP Options => EOL EOL
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-04:09:53.161004 24.114.20.146:0 -> MY.NET.218.42:4432
TCP TTL:113 TOS:0x0 ID:41203  DF
*1SF*PA* Seq: 0x9F416B1   Ack: 0xE7F50097   Win: 0x5004
```

115 IANA Port List, http://www.iana.org/assignments/port-numbers

TCP Options => Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63
Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63
Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63
Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63
Opt 63 Opt 63 Opt 63 Opt 63 Opt 63 Opt 63
=+
04/10-04:22:15.852504 MY.NET.227.130:0 -> 132.177.66.198:3685
TCP TTL:126 TOS:0x0 ID:31491 DF
21**R**U Seq: 0x18CA0D8B Ack: 0xC8530713 Win: 0x5010
=+

What ports did the remainder of the Gnutella/Napster OOS alerts use? They were spread across the spectrum from port one on up. Here are three tables showing the various source/destination port combinations and the number of times each was used.

Table 35 - Outgoing Source Port to Destination Port Combinations

SRC	DST	Counts	SRC	DST	Counts	SRC	DST	Counts	SRC	DST	Counts
0	6346	78	6346	16578	1	6346	2594	1	6346	4516	1
2370	6346	1	6346	1663	1	6346	2633	1	6346	4551	1
2954	6688	1	6346	1729	1	6346	27171	1	6346	4568	1
3685	6346	2	6346	17338	1	6346	3041	1	6346	4586	1
3812	6346	1	6346	18178	1	6346	3081	3	6346	46359	1
6346	1025	3	6346	1835	2	6346	3100	2	6346	4653	1
6346	1047	1	6346	1879	1	6346	32032	1	6346	4685	3
6346	1061	1	6346	19203	1	6346	3209	1	6346	4699	1
6346	1068	4	6346	1923	1	6346	3222	1	6346	4833	1
6346	10943	1	6346	1961	1	6346	3226	1	6346	4870	1
6346	10996	1	6346	20177	1	6346	3320	2	6346	49168	1
6346	1105	2	6346	2067	1	6346	3328	1	6346	49207	1
6346	1114	1	6346	2091	1	6346	33499	1	6346	4971	1
6346	1122	1	6346	21044	1	6346	3408	2	6346	49955	1
6346	11418	1	6346	21069	1	6346	3449	2	6346	50244	1
6346	1142	2	6346	21245	1	6346	3488	2	6346	51446	1
6346	1147	1	6346	21415	1	6346	3493	2	6346	52512	1
6346	1208	1	6346	2142	1	6346	3513	1	6346	59481	1
6346	1213	1	6346	21813	1	6346	3527	1	6346	60506	1
6346	1232	1	6346	2186	1	6346	3655	1	6346	61538	4
6346	1240	1	6346	2200	2	6346	37390	1	6346	62351	1
6346	1259	1	6346	2258	2	6346	3768	4	6346	62568	1
6346	1263	2	6346	2279	1	6346	3789	1	6346	62783	1
6346	1266	1	6346	2292	1	6346	3909	1	6346	62875	1
6346	1309	2	6346	2297	1	6346	4030	1	6346	63633	1
6346	1382	1	6346	2372	1	6346	4032	1	6346	64181	1
6346	1448	1	6346	2372	1	6346	4154	1	6346	65308	1
6346	1485	1	6346	2388	3	6346	4170	1	6688	1528	1
6346	1505	1	6346	2429	1	6346	4197	1	6688	1595	1
6346	1517	1	6346	2442	1	6346	42133	1	6688	24581	1
6346	1533	1	6346	2492	2	6346	4316	1	6688	3694	1

6346 1578 1 [redacted] 6346 2576 1 [redacted] 6346 4501 1 [redacted] 6699 1558 1 [redacted]

Table 36 - Incoming Source Port to Destination Port (Part 1 of 2)

SRC	DST	Counts	SRC	DST	Counts	SRC	DST	Counts	SRC	DST	Counts
0	6346	2	1822	6346	1	35149	6346	1	4681	6346	1
0	6688	2	1827	6346	1	35151	6346	1	4745	6347	2
0	6699	1	1863	6347	1	35159	6346	1	48892	6346	1
1	6346	1	2055	6346	14	35164	6346	1	49424	6346	1
1	6699	1	2056	6347	1	35166	6346	1	4973	6346	1
1052	6699	1	208	6346	1	35172	6346	1	51903	6347	1
1115	6699	1	2096	6346	2	35182	6346	1	52373	6346	1
1123	6699	1	21037	6346	1	35190	6346	1	52666	6346	1
1126	6346	2	2297	6346	1	35194	6346	1	52829	6346	1
1156	6699	1	2372	6346	1	35355	6346	1	53641	6347	1
1165	6699	1	2412	6699	1	35505	6346	1	55193	6347	1
11743	6347	1	2420	6346	1	35863	6346	2	55921	6347	1
1186	6347	1	2486	6346	1	3598	6346	1	56120	6346	1
1220	6346	1	2637	6347	1	36124	6347	1	56352	6346	1
1245	6699	2	2651	6347	1	3678	6346	1	56820	6346	1
1280	6699	1	2705	6346	3	3704	6688	1	56906	6347	1
1295	6699	1	2787	6346	1	3739	6347	1	57995	6346	1
13	6699	1	2883	6347	1	3744	6347	1	59623	6346	2
1304	6699	1	3019	6346	1	37524	6346	1	61013	6346	1
1307	6699	1	3032	6347	2	37532	6346	1	61029	6346	1
1320	6688	1	3041	6347	2	38858	6346	1	61046	6346	1
1323	6699	1	3125	6346	1	39168	6346	1	61053	6346	1
1348	6688	1	33450	6346	1	39577	6346	1	61066	6346	1
1349	6347	1	3346	6346	3	41186	6346	1	61181	6346	1
1355	6688	1	3354	6346	1	4146	6346	1	61197	6346	1
1358	6688	1	33774	6346	1	41486	6346	1	61215	6346	1
1419	6346	2	33863	6346	1	41509	6346	1	61224	6346	1
1425	6699	1	34272	6346	1	4168	6346	3	61231	6346	1
1507	6347	1	3502	6346	1	4195	6346	1	61232	6346	1
1516	6346	2	35060	6346	1	4227	6346	1	61323	6346	1
1517	6346	1	35067	6346	1	42936	6346	1	61351	6346	1
1524	6700	1	35108	6346	1	43612	6346	1	61390	6346	1
1561	6699	1	35113	6346	1	43703	6347	2	61414	6346	1
1565	6346	1	35114	6346	1	4375	6346	1	61422	6346	1
1574	6346	1	35118	6346	1	43873	6346	2	61437	6346	1
1580	6346	1	35120	6346	1	43962	6347	1	61455	6346	1
1599	6346	1	35130	6346	1	44423	6346	2	61482	6346	1
1697	6346	1	35133	6346	1	4535	6346	1	61504	6346	1
1784	6688	1	35135	6346	1	45926	6346	1	61539	6346	1
1792	6688	1	35142	6346	1	46257	6688	4	61541	6346	1
1792	6688	1	35145	6346	1	46615	6347	3	61576	6346	1
1795	6346	1	35148	6346	1	4665	6347	1	61635	6346	1

Table 37 - Incoming Source Port to Destination Port (Part 2 of 2)

SRC	DST	Counts	SRC	DST	Counts	SRC	DST	Counts	SRC	DST	Counts
61702	6346	1	6346	2596	4	64432	6346	1	6688	2557	1
61870	6346	1	6346	2813	2	64459	6346	1	6688	2559	1
61917	6346	1	6346	2813	1	64481	6346	1	6699	1360	1
61942	6700	1	6346	3855	1	64488	6346	1	6699	1542	1
61947	6346	1	6346	4453	1	64518	6346	1	6699	1586	1
61993	6346	1	6346	4515	1	64528	6346	1	6699	2285	1
62174	6346	1	63481	6346	1	64566	6346	1	6699	3516	1
62205	6346	1	63494	6346	1	64624	6346	1	6699	3586	1
62300	6346	1	63525	6346	1	64637	6346	1	9	6688	1
62383	6346	1	63573	6346	1	64658	6346	1			
62491	6346	1	63608	6346	1	64735	6346	1			
62523	6346	1	63674	6346	1	64744	6346	1			
62584	6347	1	63703	6346	1	64745	6346	1			
62639	6346	1	63737	6346	1	64760	6346	1			
62653	6346	1	63767	6346	1	64767	6346	1			
62730	6346	1	63783	6346	1	64794	6346	1			
62777	6346	1	63786	6346	1	64800	6346	1			
62799	6346	1	63801	6346	1	64804	6688	1			
62834	6346	1	63819	6346	1	64809	6346	1			
62908	6346	1	63845	6346	1	64820	6346	1			
62921	6346	1	63877	6346	1	64835	6346	1			
62941	6346	1	63931	6346	1	64866	6346	1			
62964	6346	1	64006	6346	1	64881	6346	1			
63074	6346	1	64031	6346	1	64908	6346	1			
63105	6346	1	64105	6346	1	64921	6346	1			
63137	6346	1	64118	6346	1	64929	6346	1			
63166	6346	1	64137	6346	1	64938	6346	1			
63180	6346	1	64167	6346	1	64945	6346	1			
63193	6699	1	64189	6346	1	64958	6346	1			
63234	6346	1	64205	6346	1	64966	6346	1			
63320	6346	1	64214	6346	1	64982	6346	1			
63400	6346	1	64247	6346	1	64989	6346	1			
63435	6346	1	64252	6346	1	65005	6346	1			
63446	6346	1	64290	6346	1	65047	6346	1			
63457	6346	1	64307	6346	1	65054	6346	1			
6346	1188	1	64338	6346	1	65092	6346	1			
6346	1195	1	64374	6346	1	6688	1712	1			
6346	1522	2	64393	6346	1	6688	1763	1			
6346	1746	2	64399	6346	1	6688	2552	1			
6346	2244	1	64411	6346	1	6688	2552	2			
6346	2417	2	64421	6346	1	6688	2554	6			
6346	2499	1	64427	6346	1	6688	2557	2			

3-4-2 MY.NET.210.90

This system is sending data from Port zero, and all the packets have un-natural flag settings. The Portscan log also show in incoming SYN to port 53 on 04/10/2001 and has two outgoing NULL Scans that are not shown in the OOS alerts. None of the ports used are known Trojan ports and the system may not be compromised. The user on this system may be doing things he is not supposed to, or someone else wants us to think this user is doing things he is not supposed to.

Here are the OOS Log and Portscan Log entries:

```
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-19:13:26.440433 MY.NET.210.90:0 -> 199.74.81.124:1293
TCP TTL:126 TOS:0x0 ID:12946  DF
2*SFR**U Seq: 0xA1430016   Ack: 0x9CF4037F   Win: 0x5010
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-19:20:05.257885 MY.NET.210.90:1366 -> 129.32.112.160:41003
TCP TTL:126 TOS:0x0 ID:58036  DF
*1SF**** Seq: 0x1C   Ack: 0xED5600FD   Win: 0x5010
33 83 50 10 41 44 60 AB 20 20 20 20 20 00        3.P.AD`.     .
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-19:21:03.097680 MY.NET.210.90:1366 -> 129.32.112.160:41003
TCP TTL:126 TOS:0x0 ID:52921  DF
2*SFRPAU Seq: 0x1C   Ack: 0xED560113   Win: 0x5010
05 56 A0 2B 00 00 00 1C ED 56 01 13 08 7F 50 10  .V.+.....V....P.
80 00 4C DD 20 20 20 20 20 00                    ..L.     .
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-19:21:20.463264 MY.NET.210.90:1366 -> 129.32.112.160:41003
TCP TTL:126 TOS:0x0 ID:2751  DF
*1SFRPAU Seq: 0x1C   Ack: 0xED56012D   Win: 0x5010
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-19:21:44.963471 MY.NET.210.90:0 -> 129.32.112.160:1366
TCP TTL:126 TOS:0x0 ID:21446  DF
**SF*PA* Seq: 0xA02B001C   Ack: 0xED560152   Win: 0x5010
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/11-17:55:35.022868 MY.NET.210.90:1608 -> 134.126.217.97:41069
TCP TTL:126 TOS:0x0 ID:18114  DF
21*F*P** Seq: 0x437   Ack: 0xF04701D5   Win: 0x5010
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/11-17:59:01.447424 MY.NET.210.90:0 -> 134.126.217.97:1608
TCP TTL:126 TOS:0x0 ID:9193  DF
21*F**AU Seq: 0xA06D0437   Ack: 0xF047024B   Win: 0x8010
TCP Options => EOL EOL NOP NOP Sack: 587@51621 EOL EOL EOL EOL
EOL EOL EOL EOL EOL EOL EOL EOL EOL EOL
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

###########################################
Checking Portscan Log for [MY.NET.210.90]'s data!
```

Apr 10 01:16:46 24.27.205.152:1481 -> MY.NET.210.90:53 SYN **S*****
Apr 10 19:13:31 MY.NET.210.90:0 -> 199.74.81.124:1293 NOACK 2*SFR**U RESERVEDBITS
Apr 10 19:21:26 MY.NET.210.90:0 -> 129.32.49.25:1365 NOACK 2***RP** RESERVEDBITS
Apr 10 19:21:30 MY.NET.210.90:1366 -> 129.32.112.160:41003 NULL ********
Apr 11 17:58:53 MY.NET.210.90:1608 -> 134.126.217.97:41069 NULL ********
Apr 11 17:59:07 MY.NET.210.90:0 -> 134.126.217.97:1608 UNKNOWN 21*F**AU RESERVEDBITS
##

3-4-3 MY.NET.222.250

The first packet is to an SSL Port, Encrypted data is present. We have the reserved flags set on both OOS alerts. The second packet is from port 240 (A reserved port) to Port 1092 (not a known Trojan port), but again the flags almost look like a christmas tree. Each packet occurred on different days. He received two FTP scans and a DNS scan this week as well. Finally, he sent another packet with a reserved flag set to 209.10.169.37 on 04/15/2001 at 22:38.

Globix Corporation (NETBLK-GLOBIXBLK3)
295 Lafayette St- 3rd Fl
NY, NY 10012
US

Netname: GLOBIXBLK3
Netblock: 209.10.0.0 - 209.11.223.255
Maintainer: PFMC

The 209.10.169.58 address is registered as members.blackplanet.com while the 209.10.169.37 address is unregistered (unregistered.blackplanet.com).

Packet corruption is a very good possibility.

```
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/10-21:30:27.642279 MY.NET.222.250:4376 -> 209.184.201.36:443
TCP TTL:126 TOS:0x0 ID:12346  DF
21*F**AU Seq: 0xD246730   Ack: 0x126F3   Win: 0x5010
0D 24 67 30 00 01 26 F3 1E F1 50 10 22 38 C4 63  .$g0..&...P."8.c
20 20 20 20 20 00                                .
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
04/13-18:31:41.378812 MY.NET.222.250:240 -> 209.10.169.58:1092
TCP TTL:126 TOS:0x0 ID:53250  DF
2*SFR*AU Seq: 0x500003   Ack: 0x3AD982F9   Win: 0x5010
00 F0 04 44 00 50 00 03 3A D9 82 F9 06 77 50 10  ...D.P..:....wP.
16 D0 F4 8E 00 00 00 00 00 00                    ..........
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

##
Checking Portscan Log for [MY.NET.222.250]'s data!
Apr 10 05:33:01 210.220.73.117:4253 -> MY.NET.222.250:21 SYN **S*****
Apr 12 05:39:52 24.165.162.34:2135 -> MY.NET.222.250:21 SYN **S*****
Apr 14 16:51:33 24.148.30.123:3868 -> MY.NET.222.250:53 SYN **S*****
Apr 15 22:38:42 MY.NET.222.250:217 -> 209.10.169.37:2899 NOACK 2***RP** RESERVEDBITS
##

3-4-4 External Host 66.31.48.7

The alert log entries alone for this host gives me every reason to suspect he is up to no good. The pattern shows a Queso Fingerprint alert followed no later than fourteen to sixteen minutes by an spp_Portscan. All Queso Fingerprint alerts originated from port 706 to port 17989 or higher, had both reserved flags and the SYN flag set. There are twenty-seven entries like this on 04/16/2001 and one on 04/10/2001 being transmitted to MY.NET.225.134. There are sixty-eight OOS packets logged. Except for the TOS: 0x8, these packets have a similar pattern to the one I showed you earlier when examining the Gnutella/Napster traffic. The source port never changes but the destination port is constantly changing and it is directed at a single system on the MY.NET network. This is an indication of active targeting. Take a close look at the destination machine to ensure all patches are in place and if this guy has not broken in yet, then you might want to install a Host based IDS and do some extensive packet logging to attempt to gain information on the type of tools being used the exploits. Only the OOS packets are available and they for all intents and purposes all look the same.

Example Port Scan Log Entry (one of 28 for this report period). Except for the destination port and time stamps, they all looked like this:

Apr 16 05:15:40 66.31.48.7:706 -> MY.NET.225.134:1798 SYN 21S***** RESERVEDBITS

Example OOS Alert logged. Again except for the time stamp, destination port and ACK Number, they all looked like this:

=+
04/10-09:14:56.866168 66.31.48.7:706 -> MY.NET.219.134:2504
TCP TTL:44 TOS:0x8 ID:0 DF
21S***** Seq: 0xE8922086 Ack: 0x0 Win: 0x16D0
TCP Options => MSS: 1460 SackOK TS: 96560875 0 EOL EOL EOL EOL
=+
04/10-09:19:01.889147 66.31.48.7:706 -> MY.NET.219.134:2545
TCP TTL:44 TOS:0x8 ID:0 DF
21S***** Seq: 0xF84349A7 Ack: 0x0 Win: 0x16D0
TCP Options => MSS: 1460 SackOK TS: 96585435 0 EOL EOL EOL EOL
=+
04/11-22:48:32.263777 66.31.48.7:706 -> MY.NET.225.134:1477

TCP TTL:44 TOS:0x8 ID:0 DF
21S***** Seq: 0x26288D38 Ack: 0x0 Win: 0x16D0
TCP Options => MSS: 1460 SackOK TS: 110082814 0 EOL EOL EOL EOL
=+
04/11-23:27:44.584846 66.31.48.7:706 -> MY.NET.225.134:1741
TCP TTL:44 TOS:0x8 ID:0 DF
21S***** Seq: 0xBA687C57 Ack: 0x0 Win: 0x16D0
TCP Options => MSS: 1460 SackOK TS: 110318048 0 EOL EOL EOL EOL
=+
04/16-05:15:29.281634 66.31.48.7:706 -> MY.NET.225.134:1798
TCP TTL:46 TOS:0x8 ID:0 DF
21S***** Seq: 0xD48C19B9 Ack: 0x0 Win: 0x16D0
TCP Options => MSS: 1460 SackOK TS: 146967708 0 EOL EOL EOL EOL
=+

3-4-5 External Host 209.221.200.17

This host generated thirty-seven Out-Of-Spec alerts. Fourteen of them were directed against MY.NET.225.134, the remaining twenty-three were directed at MY.NET.225.210.

This is not the first time that MY.NET.217.134 has appeared. This is a rare case where someone has tried to break in to this machine however. A quick check of the logs gives us 190 alert log entries (all portscans), fourteen OOS alerts (all inbound), and 2168 Portscan alerts.(only twenty of which are inbound). Most of the port scan traffic was explained as 'Game' traffic earlier in this report. Check out MY.NET.217.134 the game traffic seems to have made it an active target. If the host is not compromised then I recommend you take advantage of the situation and use a host based IDS to do some information gathering of your own.

MY.NET.225.210 is another gamer. The OOS traffic is not game related however, it looks like a breakin attempt and a pretty serious one at that. Check out the machine for possible compromise, the gaming has advertised this host as a possible easy target. Again, if the host is not compromised then I recommend you take advantage of the situation and use a host based IDS to do some information gathering of your own.

##
Checking Out-Of-Spec Logs for [209.221.200.17]'s data!
37
04/12-14:38:41.880865 209.221.200.17:1634 -> MY.NET.217.134:55482
04/12-14:44:32.297474 209.221.200.17:1645 -> MY.NET.217.134:2422
04/12-14:46:40.010715 209.221.200.17:1652 -> MY.NET.217.134:50986
04/12-14:48:19.501194 209.221.200.17:1 -> MY.NET.217.134:1652
04/12-14:51:36.428197 209.221.200.17:1660 -> MY.NET.217.134:14315
04/12-15:04:18.076725 209.221.200.17:1693 -> MY.NET.217.134:62515
04/13-11:53:37.033565 209.221.200.17:1214 -> MY.NET.217.134:20099
04/13-11:56:43.984215 209.221.200.17:1233 -> MY.NET.217.134:50847

```
04/13-11:57:17.865369 209.221.200.17:195 -> MY.NET.217.134:1233
04/13-11:57:18.042634 209.221.200.17:1233 -> MY.NET.217.134:50847
04/13-11:57:33.353506 209.221.200.17:195 -> MY.NET.217.134:1233
04/13-11:58:29.988651 209.221.200.17:1233 -> MY.NET.217.134:50847
04/13-11:58:57.415728 209.221.200.17:1233 -> MY.NET.217.134:50847
04/13-12:02:44.759755 209.221.200.17:19 -> MY.NET.217.134:1256
04/16-11:24:53.868327 209.221.200.17:1061 -> MY.NET.225.210:20
04/16-11:25:03.158244 209.221.200.17:1061 -> MY.NET.225.210:20
04/16-11:25:28.070534 209.221.200.17:1061 -> MY.NET.225.210:20
04/16-11:27:13.955318 209.221.200.17:1061 -> MY.NET.225.210:20
04/16-11:29:27.639197 209.221.200.17:1091 -> MY.NET.225.210:20
04/16-11:30:07.142412 209.221.200.17:166 -> MY.NET.225.210:1091
04/16-11:30:30.543501 209.221.200.17:1091 -> MY.NET.225.210:20
04/16-11:30:38.193116 209.221.200.17:1091 -> MY.NET.225.210:20
04/16-11:33:16.096125 209.221.200.17:1098 -> MY.NET.225.210:20
04/16-11:38:19.544417 209.221.200.17:1107 -> MY.NET.225.210:20
04/16-11:38:31.316557 209.221.200.17:1107 -> MY.NET.225.210:20
04/16-11:38:43.545081 209.221.200.17:1107 -> MY.NET.225.210:20
04/16-11:39:40.385786 209.221.200.17:1107 -> MY.NET.225.210:20
04/16-11:40:11.540559 209.221.200.17:255 -> MY.NET.225.210:1107
04/16-11:44:18.252126 209.221.200.17:1114 -> MY.NET.225.210:20
04/16-11:47:20.485234 209.221.200.17:1121 -> MY.NET.225.210:20
04/16-11:50:37.714495 209.221.200.17:1131 -> MY.NET.225.210:20
04/16-11:51:27.374665 209.221.200.17:166 -> MY.NET.225.210:1131
04/16-11:52:09.122411 209.221.200.17:1131 -> MY.NET.225.210:20
04/16-11:52:45.864578 209.221.200.17:1131 -> MY.NET.225.210:20
04/16-11:53:19.393223 209.221.200.17:1131 -> MY.NET.225.210:20
04/16-11:53:23.874763 209.221.200.17:42 -> MY.NET.225.210:1131
04/16-11:58:12.261999 209.221.200.17:1138 -> MY.NET.225.210:20
########################################
```

3-4-6 Defensive Recommendations:

Your best defense is to keep your systems patched and to control access to them as best you can using Router Access Control Lists, Firewalls and Proxies.

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3-5 Summary

There is a large amount of Gnutella/Napster activity on the MY.NET network. Add to this an almost equal amount of internet gaming and you have just covered almost seventy-five percent of the traffice on the MY.NET network. Every attempt to reduce if not eliminate this type of activity should be made. Blocking the ports with Firewalls or Routers will not work since most of these applications can be configured to use different ports.

The MY.NET network was scanned 193,148 times in the past week. Print Spooler, Remote Procedure Call, Dommain Name Service Server, and FTP servers were the main items being scanned for. These services being scanned for are no different than any other network being scanned. Steps to ensure that access to these services is tightly controlled using Firewalls or Router Access Control Lists is recommended.

Out-Of-Spec packets will always be a problem. Approximately two-thirds of the Out-Of-Spec packets generated were Gnutella/Napster related. Of major concern was the extremely large number (I would call ten percent large) of port zero to port zero packets. These ports are generally used by Routers to transmit routing information to each other and cannot be blocked by firewalls or router ACL's. Couple this with the fact that almost all of the port zero to port zero activity was also related to Gnutella/Napster and you have a very serious problem on your hands. Gnutella is a file sharing application and is a great way to spread Trojans and Worms. Every attempt to reduce if not eliminate this type of activity should be made.

Alerts are indications of possible hostile activity. I recommend that the current Snort Rule set be re-evaluated and compared to the current Snort Rule sets available from Whitehats.com and Snort.org. The new rule sets are not as general as some of the rules I see in use here.

There are definite indications of misconfigured NATs and Routers. This is an indication of address spoofing. Sixty percent of these spoofed packets were to private addresses and a large portion were for 164.254.0.0 which is reserved for auto-configuration of local addresses where no DHCP server is found. You should not be seeing private network addresses and data packets with source addresses from outside your network originating from the MY.NET network. Configuring your Routers IAW RFC 2267, Network Ingress Filtering will stop these types of packets from leaving your network and should eliminate these types of packets.

3-5-1 Possible/Probable Compromised Systems:

MY.NET.219.34 responded to stimulus of port 32771 (External RPC/SUNRPC High Port Access). Although this host is listed as possible compromise, you will probably find that the gaming activity of the user on this system is what triggered the alerts.

MY.NET.134.55 is probably infected with the Network.VBS Rule (SMB Wildcard Access)

Eleven of twenty four hosts responeded to a stimulus of port 27374 (Possible Trojan Server Activity). A response to a stimulus of this port is an indication of Trojan activity on these

systems. They are: MY.NET.202.34, MY.NET.204.142, MUY.NET.100.82, MY.NET 146.51, MY.NET.215.34, MY.NET.222.226, MY.NET.222.50, MY.NET.229.54, MY.NET.204.214, MY.NET.60.152 AND MY.NET.97.147.

MY.NET.178.42 (Russia Dynamo) is producing a lot of traffic at odd hours and should be investigated.

3-5-2 Defensive Recommendations:

The following defensive measures will go a long way in reducing the amount of hostile activity you are seeing on the MY.NET network:

- Control or block access to all critical services (Ports 1 thru 1023) using Firewalls or Router ACLs.
- Configure all Routers IAW guidance contained in RFC 2267 (Network Ingress Filtering).
- Check all hosts and remove all unneeded services.
- Apply all patches to all critical systems immediately.
- Apply patches recommended in all CERT Bulletins to all operating systems.
- Require the use of Anti-Virus software and enforce its use.
- Purchase Trojan Scanner software and use it routinely to scan critical systems.
- Take steps to reduce and/or elminate the use of Gnutella/Napster.
- Update the Snort Rule set on your snort sensors.

3-6 Analysis Process and Tools Used:

Data Collection

I retrieved the data from http://www.research.umbc.edu/~andy as directed in the assignment guidelines. I also downloaded all the GIAC practicals (10 thru 353). There was four months of data on the download site, I choose one weeks worth of data. The data files I used are listed at the beginning of Section three of this practical.

Tools

Copies of scripts, batch files and special configuration files are provided in Appendix C. Sources and authors are also contained in each script along with modifications I made if any.

A list of the software I used is in Appendix D.

Data Separation

After selecting the files to be analyzed I began by combining all daily files into one large weekly file. I modified the Perl Scripts obtained from Andrew Baker and Michael Bell (the modifications I made are annotated in the scripts liseted in Appendix C). From there I extracted data using Perl Scripts or with Grep and eGrep. The extracted data was then pasted into an Excel Spreadsheet for manipulation or captured into an open file in ConText/Programmers File Editor (PFE). ConText/PFE monitor the file on disk for modifications and provide an alert with an option to reload the modified file from disk when this happens. A batch file is listed in Appendix C that allows me to search Alert, Portscan and OOS logs by host.

Data Manipulation

In some cases I just opened the IDS files directly with ConText to do searches, the highlighter configuration was used to provided emphasis on each field of the Snort alerts. Viewing the OOS alerts was a little easier with the fields highlighted.

In some cases I used Microsoft Excel formulas to dissect each alert entry into data, time, source IP, source port, destination IP and destination port. The Perl Scripts I used were modified to output the results in Comma Separated Variable (CSV) format which I could then open in Excel and manipulate. Once in Excel I manipulated/sorted the data to view and analyze it the way I wanted to.

Alert Analysis

Alert descriptions were generated with help from sources from the web, other GCIA Practicals, published works. All sources are listed as footnotes throughout this practical.

A chart depicting the number of alerts per day for each day of the report period was displayed at

the beginning of each Alert (some alerts were combined because of their similarity). All charts and tables were produced using Microsoft Excel 2000.

a. I merged all daily files into one large IDS file in chronological order.
b. I used the anl_ids,pl perl script to get a count of each alert from the merged ids file.
c. I used the anl_ids.pl perl script to get the number of each alert from each daily ids file.
d. These reports were opened in Excel and merged to get the chart and table shown at the beginning of the Alert section of this practical.
e. I grep'd each alert from the large file into separate alert ids files.
f. I used the top_talkers,pl script to get a list of top talkers for each alert and for the merged alert ids file.
g. Each top talkers list was opened in Excel.
h. Each single alert file was opened in Excel and formulas split each alert into Date, Time, Source IP, Source Port, Destination IP, Destination Port.

The G.BAT file was used to extract information on individual systems from the alerts, portscan, and Out-Of-Spec log files. Sam Spade was used to provide Whois information.

Portscan Analysis

For each daily alert file I used the snort_source.pl perl script to generate a list of top talkers.

I merged all daily files into one large portscan file.

a. I used snort_source.pl to generate a list of top talkers for the report period.
b. Each daily top talkers list was opened in Excel.
c. I merged all top talkers lists (daily and weekly) into one list and generated a repeat offenders list and a Top Five External scanners list.
d. I loaded each daily file into Excel and used formulas to extract the scan types, sorted the list and counted each scan type. I repeated this for each daily file and then merged all daily files into the single table in the port scan section.
e. I used grep and the merged file to verify the count of each particular scan type.
f. I used grep to extract all UDP entries and to get a count of the game ports to show the percentage of the weekly total of UDP traffic is generated by what appear to be gamers.
g. I used Sam Spade to do a whois lookup on each of the Top Five External scanners.

The G.BAT file was used to extract information on individual systems from the alerts, portscan, and Out-Of-Spec log files. Sam Spade for Windows was used to provide Whois information.

Out-Of-Spec Analysis

To generate the Top Five MY.NET and External OOS alert generators table I used the oos_TopSourceAddress.pl Perl script to extract the top source and destination address pairs. I then modified this Perl Script and extracted the top source and destination port pairs. The modified Perl script was saved as oos_TopSourcePorts.pl. Each script is listed individually in

Appendix C.

To generate the Top Ten Source and Destination Ports table I used the oos_TopTalkersAddress.pl Perl script to extract a list of the top talkers. I again modified this script and extracted a list of ports used. I saved this script as oos_TopTalkersPorts.pl.

The Top Ten Ports table used indicated a high volume of Gnutella/Napster traffic and the use of Port Zero. I used Grep to count the number of Gnutella/Napster related packets which showed me that Sixty-Percent of the Out-Of-Spce traffic had a Gnutella/Napster source or destination port. Eighty-two percent of the Port Zero packets also had a Gnutella/Napster source or destination port as well.

I used Visio to graph the port Zero connections and Excel to provide tables with all Gnutella/Napster source and destination port combinations used during this evaluation period.

Finally, I finished the evaluation of Out-Of-Spec packets by analyzing the traffic produced by the remaining hosts in the top five talkers category that were not connected to the Gnutella/Napster or Port Zero evaluations.

The G.BAT file was used to extract information on individual systems from the alerts, portscan, and Out-Of-Spec log files. Sam Spade for Windows was used to provide Whois information.

3-7 Published References:

Hoelzer, David "TCP/IP Primer". Course Reference, Baltimore SANS, May 2001.

Cooper, Fearnow, Frederick and Northcutt "Intrusion Signatures and Analysis". Reading: New Riders Publishing 2001

Northcutt, Stephen "IDS Signatures and Analysis, Parts 1 & 2", Course Reference, Baltimore SANS, May 2001.

Ritchey, Paul "Snort Rules: Syntax and Keywords". Online Course Reference, SANS 2001.

Roesch, Marty "Intrusion Detection – Snort Style". Course Reference, Baltimore SANS, May 2001.

Stevens, W. Richard "TCP/IP Illustrated, Volume 1". Reading: Addison Wesley 1994

Appendix A
Description of Log Fields [116]

Log formats shown here:

SNORT Alert Log Entry
SNORT Portscan Log Entry
SNORT Out-OF-Spce Log Entry
Shadow Alert Log Entry

SNORT Alert Log Entry:

04/14-08:47:25.534552 [**] Null scan! [**] 213.245.17.202:1311 -> 198.192.223.198:4036

Intrusion Detection Signature: [**] Null Scan! [**]
This Intrusion Detection Signature is a Snort standard of reference.

Date and time: MM/DD-hh:mm:ss.XXXXXseconds

Source IP address and Source Port: 213.245.17.202:1311

Direction of packet travel: ->
Indicates direction of packet travel between hosts.

Destination IP address and Destination port: 198.192.223.198:4036

SNORT Portscan Log Entry:

Apr 15 00:10:37 198.192.206.150:2649 -> 200.253.203.246:6346 UDP

Date and time: MMM DD hh:mm:ss

Source IP address and Source Port: 198.192.206.150:2649

Direction of packet travel: ->
Indicates direction of packet travel between hosts.

Destination IP address and Destination port: 200.253.203.246:6346

Protocol or Comments: UDP
The Protocol may be replaced by additional comments such as "NOACK 2**FR*** RESERVEDBITS", "SYN **S*****", "SYN 21S***** RESERVEDBITS" to name a

[116] Northcutt, Cooper, Fearnow and Frederick "Intrusion Signatures and Analysis". Reading: New Riders Publishing 2001

few.

SNORT Out Of Spec Log Entry:

```
04/14-02:10:23.793710 216.182.20.130:1086 -> 198.192.223.198:4036
TCP TTL:112 TOS:0x0 ID:23059  DF
21S***AU Seq: 0x103E860   Ack: 0xB439AF83   Win: 0x5018
04 3E 0F C4 01 03 E8 60 B4 39 AF 83 00 F2 50 18   .>.....`.9....P.
D4 B3 CC 04 00 00 47 45 54 20 68 74 74 70 3A 2F   ......GET http:/
2F 77                                             /w
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

Date and time: MM/DD-hh:mm:ss.XXXXXseconds

Source IP address and Source Port: 216.182.20.130:1086

Direction of packet travel: ->
Indicates direction of packet travel between hosts.

Destination IP address and Destination port: 198.192.223.198:4036

Protocol or Comments: TCP

Time to Live: TTL:1 12
A field used to prevent packets from traversing the Internet forever. This field is reduced by 1 as it passes through each router. When the packet reaches 0, an ICMP time exceeded during transit is sent to the originating host. (Stevens[117], Chapter 13)

Type of Service: TOS:0x0
Used to characterize how this IP packet should be handled as to throughput, reliability, etc. (Stevens[118], Chapter 3)

IP Identification number: ID: 23059
An incrementing value used to identify a datagram.

Don't Fragment: DF
Explicit declaration that this packet is not to be fragmented. If this packet crosses a network that has a maximum packet size smaller than the packet size, then an ICMP Unreachable, fragmentation required and DF set is sent to the originating host. (Stevens[119], Chapter 11)

TCP Flags: 21S***AU

[117] Stevens, W. Richard "TCP/IP Illustrated, Volume 1", Chapter 13. Reading: Addison Wesley 1994
[118] Stevens, W. Richard "TCP/IP Illustrated, Volume 1", Chapter 3. Reading: Addison Wesley 1994
[119] Stevens, W. Richard "TCP/IP Illustrated, Volume 1", Chapter 11. Reading: Addison Wesley 1994

There are 8 bits for flags (of these the first two are reserved). The valid flags are URG, ACK, PSH, RST, SYN, and FIN.

TCP Sequence Number: Seq: 0x103E860
Agreed upon during the TCP three-way handshake and used to help ensure reliable transport.

TCP Acknowledge Number: Ack: 0xB439AF83
Next sequence byte count expected from the session partner.

Window size: Win: 0x5018

Shadow Alert Entry:

02:48:29.447596 my.net.6.5.80 > 216.177.16.64.1941: FP 410966647:410967571(924) ack 1267379385 win 32768 (DF)

Date and time: MM/DD-hh:mm:ss.XXXXXseconds

Source IP address and Source Port: my.net.6.5:80

Direction of packet travel: ->
Indicates direction of packet travel between hosts.

Destination IP address and Destination port: 216.177.16.64:1941

TCP Flags: FP
There are 8 bits for flags (of these the first two are reserved). The valid flags are URG, ACK, PSH, RST, SYN, and FIN.

TCP Sequence Numbers: 410966647
Agreed upon during the TCP three-way handshake and used to help ensure reliable transport.

TCP Acknowledge Number: 410967571 ack
Next sequence byte count expected from the session partner.

Number Data Bytes Transmitted: (924)
This is the number of bytes of data in the packet.

IP Identification number: 1267379385
An incrementing value used to identify a datagram.

Window size: Win: 32768

Don't Fragment: (DF)
Explicit declaration that this packet is not to be fragmented. If this packet crosses a network that has a maximum packet size smaller than the packet size, then an ICMP Unreachable, fragmentation required and DF set is sent to the originating host. (Stevens[120], Chapter 11)

Netscape Enterprise Server Log Entry

64.sun5.dialup.G4.NET - - [05/Jul/2001:02:48:06 -0500]
"GET /cgi-bin/pub_affairs/article5.pl?file_dir=05May2001 HTTP/1.0" 200 6764

Source IP: 64.sun5.dialup.G$.NET

Date and Time Stamp: [05/Jul/2001:02:48:06 -0500]
DD/month/Year:hh:mm:ss.GMT Offset

URL and HTTP Protocol Version[121]: GET /cgi-bin/pub_affairs/article5.pl?file_dir=05May2001 HTTP/1.0

HTTP Result code[122]: 200

Nmber of Bytes transmitted: 6764

[120] Stevens, W. Richard "TCP/IP Illustrated, Volume 1", Chapter 11. Reading: Addison Wesley 1994
[121] RFC1945, HTTP/1.0, http://www.rfc-editor.org/rfc/rfc1945.txt
[122] RFC2616, HTTP/1.1, http://www.rfc-editor.org/rfc/rfc2616.txt

Appendix B
Severity Evaluation Criteria[123]

(Criticality + Lethality) – (System Countermeasures + Network Countermeasures) = Severity

B-1 Criticality:

Five (5)	Firewall, DNS Server, Core Router
Four (4)	E-mail relay/Exchanger, Database servers
Two (2)	Unix Desktop systems.
One (1)	Windows Desktop systems.
Zero (0)	Network printers and scanners.

B-2 Lethality:

Five (5)	Can gain root/administrator access across over the network.
Four (4)	Lockout by Denial Of Service.
Three (3)	User Access.
Two (2)	Confidentiality attack.
One (1)	Attack not likely to succeed.

B-3 System Countermeasures:

Five (5)	Modern Operating System (OS), all patches, and added security (TCP Wrappers or Personal Firewall).
Four (4)	Modern Operating System (OS), minimum patches, added security.
Three (3)	Older Operating System, some patches, added security.
Two (2)	Older Operating System, some patches, no added security.
One (1)	No added security, no patches, allows fixed passwords.

B-4 Network Countermeasures:

Five (5)	Validated restrictive firewall, one way in or out.
Four (4)	Restrictive firewall and some external connections (Dial-ups).
Three (3)	
Two (2)	Permissive firewall (was the attack allowed through?)
One (1)	IDS System (was the attack detected).

[123] Northcutt, Stephen "IDS Signatures and Analysis, Parts 1 & 2", Course Reference, Baltimore SANS, May 2001.

Appendix C
Scripts and Config Files

The scan logs were analyzed using Perl scripts. Some of them were borrowed from Mike Bell's[124] GCIA Practical. They were modified to meet my needs for this practical and to run in a Windows environment.

Snort-sort.pl
Anl_ids.pl
Top_talkers.pl
G.bat
Snort_source.pl
Oos_TopSourceAddress.pl
Oos_TopSourcePorts.pl
Oos_TopTalkersAddress.pl
Oos_TopTalkersPorts.pl
Snort.chl

C-1 Snort-sort.pl

```
#!perl
#
# Filename: snort_sort.pl
# Author:   Andrew R. Baker <andrewb@uab.edu>
# Modified: 2000.03.17
# Purpose:  this script produces a sorted list of snort alerts
#       from a snort alert file
# Version:  0.03
#
# let me know if you like this and use it  -Andrew
#
# Todo:     1) Allow processing of snort alerts from syslog
#       2) Make html output optional
#       3) add specialized processing for portscan alerts
#       4) Make a multi-page hiearchy (not suitable for realtime)
#
# Change History:
# 2000.03.17    handle the new format of "-A fast" alerts
#
# 2000.03.16    changes to process spp_portscan alerts.
#       these need to be rewritten
#
# 2000.03.07    reverse DNS lookup
```

[124] Bell, Mike GCIA Practical, SANS. http://www.sans.org/y2k/practical/Mike_Bell_GCIA.doc

```
#       derived from snort_stat.pl
#          and code donated by Adam Olson <adamo@humbolt1.com>
#     cgi link option
#       derived from code donated by Adam Olson <adamo@humbolt1.com>
#
# 2000.03.06    Original script
#
#
# Options:
#   -r  do reverse DNS lookups  (this can slow things down)
#   -h  produce html output (hardwired)
#   -w  include cgi links based on IP addresses
#         (implies -h)
#   -p  include spp_portscan data (uses a special format)
#
use Getopt::Std;
use Socket;
%HOSTS = {};    #hash table for reverse DNS
# $ARGV[0] = "alert.ids";

if($ARGV[0] eq undef)
{
  print STDERR "USAGE: snort-sort <filename>\n";
  exit;
}

getopts('rhwp');
$opt_h = 1;
if($opt_w) {
  $opt_h = 1;
}

# set the cgi query href, you can change this to anything you want
# it gets expanded to "<a href=$cgi_href$ipaddr>$host</a>" in the output.
$cgi_href = "http://www.arin.net/cgi-bin/whois.pl?queryinput=";


open(INFILE,"< $ARGV[0]") || die "Unable to open file $ARGV[0]\n";

if($opt_h) {
  print "<html>\n";
  print "<head>\n";
  print "<title>Sorted Snort Alerts</title>\n";
  print "</head>\n";
  print "<body>\n";
```

```
# HAL - Centered a few things, added a line to say what file was used in case the default is not.
# HAL - Also added comment about links at the end of the report.
print "<CENTER><h1>Sorted Snort Alerts</h1>File used: $ARGV[0]<BR>Additional
References and information at end of page.<hr></CENTER>\n";
} else {
 #plain old text output goes here
}

while(<INFILE>) {
 chomp();
 # if the line is blank, go to the next one
 if ( $_ eq "" )  { next }

 # we now have multiple formats for the log traffic
 # is this a "new" style fast alert
 if( $_ =~ /^.+\s\[\*\*\](\s)*.+\[\*\*\]\s/) {
  # split the alert apart
  ($datentime,$alert,$message) = split(/\s\[\*\*\]/,"$_");
  $alert =~ s/^(\s)*//;
  $a = "$datentime $message";
 } elsif ( $_ =~ /^\[\*\*\]/ ) {
  # is this an old style alert message
  $a = <INFILE>;
  chomp($a);
  unless ( $a eq "" ) {
   # strip off the [**] from either end.
   s/(\s)*\[\*\*\](\s)*//g;
   $alert = $_;
  } else {
   print STDERR "Warning, file may be incomplete\n";
   next;
  }
 } else {
  print STDERR "Warning, input not recognized:\n";
  print STDERR "\t$_\n";
  next;
 }
 # is this output from the portscan preprocessor
 if ( $alert =~ /^spp_portscan:/ ) {
  if($opt_p) {
  # only do the work if we care
   $alert =~ s/^spp_portscan:\s//;
   if ( $alert =~ /^PORTSCAN DETECTED/ ) {
    $alert =~ s/^PORTSCAN DETECTED\s//;
    $a = "$a$alert";
```

```
      $alert = "PORTSCAN DETECTED";
     } elsif ( $alert =~ /^portscan status/ ) {
      $alert =~ s/^portscan status\s//;
      $a = "$a$alert";
      $alert = "portscan status";
     } elsif ( $alert =~ /^End of portscan/ ) {
      $alert =~ s/^End of portscan\s//;
      $a = "$a$alert";
      $alert = "End of portscan";
     } else {
      print STDERR "spp_portscan: $_\n";
      next;
     }
    } else {
     # ignore portscan logs
     next;
    }
  }
  # put the alert into the hash table
  push @{ $alerts{$alert} }, $a;
}
close(LOG);

if($opt_h) {
  # print out the relative html links to each entry
  foreach $key (keys (%alerts)) {
    $anchor = $key;
    $anchor =~ s/ /_/g;
    print "<a href=#$anchor>$key</a><br>\n";
  }
}

foreach $key (keys (%alerts)) {
  $anchor = $key;
  $anchor =~ s/ /_/g;
  if($opt_h) {
    print "<hr>\n";
    print "<h3><a name=$anchor>$key</a></h3>\n";
    print "<ul>\n";
  } else {
    #plain text output goes here
  }
  @list = @{$alerts{$key}};
  $size = @list;
  for ( $i = 0 ; $i < $size ; $i++ ) {
```

```
    $a = $list[$i];
    ($datentime,$data) = split(' ',"$list[$i]", 2);
    #spp_portscan logs look different
    if( $data =~ /^from/ ) {
      print "<li>$datentime $data</li>\n";
      next;
    }
    ($datentime,$src,$arrow,$dest) = split(' ',"$list[$i]");
    ($saddr,$sport) = split(/:/,"$src");
    ($daddr,$dport) = split(/:/,"$dest");
    # reverse DNS lookups
    if($opt_r) {
      $shost = resolve($saddr);
      $dhost = resolve($daddr);
    } else {
      $shost = $saddr;
      $dhost = $daddr;
    }
    if($opt_w) {
      $shost = "<a href=$cgi_href$saddr>$shost</a>";
      $dhost = "<a href=$cgi_href$daddr>$dhost</a>";
    }
    if($opt_h) {
      print "<li>$datentime $shost:$sport $arrow $dhost:$dport</li>\n";
    } else {
      #plain text output goes here
    }
  }
  if($opt_h) {
    print "</ul>\n";
  } else {
    #plain text output goes here
  }
}

if($opt_h) {
# HAL - Added to provide some (what I think are) useful links at the end of the report.
  print "<hr><FONT COLOR=\"Red\"><h2>Additional Reading & Information</FONT></h2>";
  print " \; \; \; \; \;<A
HREF=\"http://dLam.org/security.html\">DLAM.ORG Security Links</A><BR>\n";
  print " \; \; \; \; \;<A
HREF=\"http://www.doshelp.com/trojanports.htm\">DOSHelp Trojan Port List</A><BR>\n";
  print " \; \; \; \; \;<A HREF=\"http://www.google.com\">Google
Search</A><BR>\n";
  print " \; \; \; \; \;<A
```

```
HREF=\"http://www.iana.org/assignments/port-numbers\">IANA Port List</A><BR>\n";
  print " \; \; \; \; \;<A
HREF=\"http://www.incidents.org\">Incidents.org</A><BR>\n";
  print " \; \; \; \; \;<A
HREF=\"http://archives.neohapsis.com\">Neohapsis Archives</A><BR>\n";
  print " \; \; \; \; \;<A
HREF=\"http://advice.networkice.com/advice/Exploits/Ports/default.htm\">NetworkIce Port
List</A><BR>\n";
  print " \; \; \; \; \;<A
HREF=\"http://www.robertgraham.com/pubs/firewall-seen.html\">Robert Grahams - FAQ:
Firewall Forensics</A><BR>\n";
  print " \; \; \; \; \;<A
HREF=\"http://www.simovits.com/trojans/trojans.html\">Simovits Trojan Port
List</A><BR>\n";
# HAL - End of referneces.
  print "</body></html>\n";
} else {
  #plain text output goes here
}

#
# the following code was taken from snort_stat.pl
#
# resolve host name and cache it
# contributed by: Angelos Karageorgiou, <angelos@stocktrade.gr>
# edited by: $Author: yenming $
#
sub resolve {
  local $mname, $miaddr, $mhost = shift;
  $miaddr = inet_aton($mhost);
  # print "$mhost\n";
  if (!$HOSTS{$mhost}) {
    $mname = gethostbyaddr($miaddr, AF_INET);
    if ($mname =~ /^$/) {
      $mname = $mhost;
    }
    $HOSTS{$mhost} = $mname;
  }
  return $HOSTS{$mhost};
}
```

C-2 Anl_ids.pl

```
#!perl
#  File:     anl_IDS.PL
```

```
# Syntax:  %PATH%\perl anl_IDS.PL SNORT_FILE.EXT
# Purpose:  Get list of number of attacks.
#
# Original from GCIA Mike Bell (0318) Practical.
# http://www.sans.org/y2k/practical/Mike_Bell_GCIA.doc
#
foreach $file (@ARGV) {
   open(FILE, $file) || die "Can't open the file aaaaaaaahhhhhhh";
# HAL - Modified original so the next line goes to screen and not to file.
   print STDERR "Examining File - $file\n";
   while (<FILE>) {
   /\](.*spp.*)\[/ && { next };
   /\](.*)\[/ && do {
      $volume{$1} ++ ;
      next;
   }
   }
# HAL - Only use one of the following print statements.
# HAL - Added this when modifying file to create tab seperated column headings.
# print "Count\,Attack Description\n";
# HAL - Added this when modifying file to create comma seperated column headings.
print "Count\,Attack Description\n";
#
   foreach $attack (sort keys(%volume)) {
   $parts = $volume{$attack} ;
   foreach $number (split(' ', $parts)) {
# HAL - Use this line if you want tab seperated columns.
#       print "$number\t$attack\n";
# HAL - Use this line if you want Comma seperated columns for CSV files.
      print "$number\,$attack\n";
   }
   }
}
```

C-3 Top_Talkers.pl

```
#!perl
#
# File:    top_talkers.PL
# Syntax:  %PATH%\perl top_talkers.PL SNORT_FILE.EXT
# Purpose:  Count number of Top Talkers in SNORT ALERT Log.
#
# Original from GCIA Mike Bell (0318) Practical.
# http://www.sans.org/y2k/practical/Mike_Bell_GCIA.doc
#
```

```
#
foreach $file (@ARGV) {
   open(FILE, $file) || die "Can't open the file aaaaaaaahhhhhhh";
   while (<FILE>) {
#
   /spp_portscan/ && do { next };
#
   /.*\[\*\*\]\s+([\d\.]+)\:\d+\s+\-\>\s+([\d\.]+)\:\d+/ && do {
      $volume{"$1 $2"}++;
      next;
   }; # end pattern match 1
#
   /.*\[\*\*\]\s+([\d\.]+)\:\d+\s+\-\>\s+(MY.NET.[\d\.]+)\:\d+/ && do {
      $volume{"$1 $2"}++;
      next;
   }; # end pattern match 2
#
   /.*\[\*\*\]\s+(MY.NET.[\d\.]+)\:\d+\s+\-\>\s+(MY.NET.[\d\.]+)\:\d+/ && do {
      $volume{"$1 $2"}++;
      next;
   }; # end pattern match 3
#
   } # end while
#
   /.*\[\*\*\]\s+(MY.NET.[\d\.]+)\:\d+\s+\-\>\s+([\d\.]+)\:\d+/ && do {
      $volume{"$1 $2"}++;
      next;
   }; # end pattern match 4
# HAL - Use one of the following two lines for your output files.
# HAL - User this line for tab seperated column headings.
# print "Count\tConnection\n";
# HAL - User this line for comma seperated column headings.
print "Count\,Connection\n";
#
   foreach $pair (sort keys(%volume)) {
   $parts = $volume{$pair} ;
   foreach $number (split(' ', $parts)) {
# HAL - This is the original output line for tab seperated columns.
#       print "$number\t$pair\n";
# HAL - Modified to allow output of CSV formatted files.
      print "$number\,$pair\n";
   }
   }
}
```

C-4 G.BAT

This is a batch file I used to save my self some typing on the command line when I was extracting and counting lines in each of the logs. When I wanted to get information on one particular host and get it from all three alert logs, then this thing did it for me.

The trick was to have a text editor that detected changes to open files. I would run the report and pipe the results to a file that I already had open in ConText. When the program was done I would switch to the ConText application and just answer Yes to the prompt telling me that my file on disk had changed and did I want to reload from disk. It's not rocket science, but my fingers need all the relief they can get after typing this practical.

```
@echo off
IF "%1"=="X" goto EXTERNAL
IF "%1"=="x" goto EXTERNAL
SET A1=MY
SET A2=NET
SET A3=%1
SET A4=%2
SET F1=%3
SET F2=%4
SET O1=%4
IF "%A3%" == "/h" goto SYNTAX
IF "%A3%" == "/H" goto SYNTAX
IF "%A3%" == "-h" goto SYNTAX
IF "%A3%" == "-H" goto SYNTAX
IF "%A3%" == "/?" goto SYNTAX
IF "%A3%" == "-?" goto SYNTAX
IF "%A3%" == "help" goto SYNTAX
IF "%A3%" == "HELP" goto SYNTAX
IF "%A3%" == "Help" goto SYNTAX
IF "%A3%" == "" goto OCTMSG1
IF "%A4%" == "" goto OCTMSG2
IF "%F1%" == "" goto NOFILE
IF "%O1%" == "x" GOTO ALLLOGS
IF "%O1%" == "X" GOTO ALLLOGS
if "%F2%" == "" goto ALLLOGS
goto ONELOG

:ALLLOGS
echo Output being captured to %F1%.txt!
echo Checking Log files for [%A1%.%A2%.%A3%.%A4%]'s data!
echo ************************************** >> %F1%.txt
echo Checking Log files for [%A1%.%A2%.%A3%.%A4%]'s data!  >> %F1%.txt
echo %A1%.%A2%.%A3%.%A4% >> %F1%.txt
```

```
echo ######################################## >> %F1%.txt
echo Checking Alert Log file.
echo Checking Alert Log for [%A1%.%A2%.%A3%.%A4%]'s data!  >> %F1%.txt
grep -ic "%A1%\.%A2%\.%A3%\.%A4%:" 1-alerts.ids >> %F1%.txt
grep -i "%A1%\.%A2%\.%A3%\.%A4%:" 1-alerts.ids >> %F1%.txt
echo ######################################## >> %F1%.txt
echo Checking OOS Log file.
echo Checking Out-Of-Spec Logs for [%A1%.%A2%.%A3%.%A4%]'s data!  >> %F1%.txt
grep -ic "%A1%\.%A2%\.%A3%\.%A4%:" 2-oos.ids >> %F1%.txt
grep -i "%A1%\.%A2%\.%A3%\.%A4%:" 2-oos.ids >> %F1%.txt
echo ######################################## >> %F1%.txt
echo Checking Portscan Log file.
echo Checking Portscan Log for [%A1%.%A2%.%A3%.%A4%]'s data!  >> %F1%.txt
grep -ic "%A1%\.%A2%\.%A3%\.%A4%:" 3-scans.ids >> %F1%.txt
grep -i "%A1%\.%A2%\.%A3%\.%A4%:" 3-scans.ids >> %F1%.txt
echo ######################################## >> %F1%.txt
if %O1%=="" goto ENDOOS
echo Getting OOS Entries.
echo Getting OOS Entries for [%A1%.%A2%.%A3%.%A4%]'s data!  >> %F1%.txt
egrep -ic "%A1%.%A2%.%A3%.%A4%" 2-oos.ids >> %F1%.txt
egrep -i -B1 -A4 "%A1%.%A2%.%A3%.%A4%" 2-oos.ids >> %F1%.txt
echo ######################################## >> %F1%.txt
:ENDOOS
echo END of Search for [%A1%.%A2%.%A3%.%A4%]'s data!  >> %F1%.txt
echo ****************************************** >> %F1%.txt
echo END of Search for [%A1%.%A2%.%A3%.%A4%]'s data!
goto END

:ONELOG
echo Output being captured to %F1%.txt!
echo Checking %F2% Log file for [%A1%.%A2%.%A3%.%A4%]'s data!
echo ****************************************** >> %F1%.txt
echo Checking %F2% Log file for [%A1%.%A2%.%A3%.%A4%]'s data! >> %F1%.txt
echo ######################################## >> %F1%.txt
grep -ic "my\.net\.%A3%\.%A4%" %F2% >> %F1%.txt
grep -i "my\.net\.%A3%\.%A4%" %F2% >> %F1%.txt
echo ######################################## >> %F1%.txt
echo END of Search for [%A1%.%A2%.%A3%.%A4%]'s data!  >> %F1%.txt
echo ****************************************** >> %F1%.txt
echo END of Search for [%A1%.%A2%.%A3%.%A4%]'s data!
goto END

:EXTERNAL
if "%2" == "" goto NOJOY
if "%3" == "" goto NOJOY
```

```
if "%4" == "" goto NOJOY
if "%5" == "" goto NOJOY
if "%6" == "" goto NOJOY
SET A1=%2
SET A2=%3
SET A3=%4
SET A4=%5
SET F1=%6
SET O1=%7
GOTO ALLLOGS

:NOJOY
echo.
echo  Searches for external hosts required you supply
echo  four octets and a log file to send to.
echo.
echo       G 1 2 3 4 OutputFile
PAUSE
goto END


:OCTMSG1
echo.
echo #### ERROR WILL ROBINSON!
echo.
echo This normally happens when all required data elements
echo required to perform the search are mssing.
goto SYNTAX

:OCTMSG2
echo.
echo #### YOUR GETTING WARMER BUBBA!
echo.
echo The second octet and output file name required
echo to perform this search are missing.
goto SYNTAX

:NOFILE
echo.
echo #### I ASSUME YOU WANT TO FILE THIS AWAY SOMEWHERE?
echo.
echo No output file name given.
goto SYNTAX

:SYNTAX
```

```
echo.
echo The correct syntax is:
echo.
echo    G 3rdOctet 4thOctet OutputFile [LogFile]
echo.
echo    A TXT extension is automatically appended to OutputFile name.
echo.
echo    IP Address: %A1%.%A2%.%A3%.%A4%
echo    Output File: %F1%
echo.
echo    Optional log file to search may be provided.
echo.
echo    [LogFile]: %F2%
:END
```

C-5 Snort_source.pl

```
#!perl
#  File:     snort_source.PL
#  Syntax:   %PATH%\perl snort_source.PL SNORT_FILE.EXT
#  Purpose:  Get Source Addresses by number of scans.
#
#  Original from GCIA Mike Bell (0318) Practical.
#  http://www.sans.org/y2k/practical/Mike_Bell_GCIA.doc
#
#
while (<>) {
#  Check for blank line, if so process next line
#
   if ( $_ eq "" )  { next };
#  Check for spp_portscan, if it is get the next record
#  Tokenize the string so we can use it
#
   if ($_ =~ m/^\w{3}\s+\d+\s+\d+\:\d+\:\d+\s+([\w\d\.]+)\:(\d+)\s+\-
\>\s+([\d\w\.]+)\:(\d+)\s+UDP/) {
   $saddr  =  $1;
   $sport  =  $2;
   $daddr  =  $3;
   $dport  =  $4;
   $source{$saddr}++;
   }  # end if
#
   if ($_ =~ m/^\w{3}\s+\d+\s+\d+\:\d+\:\d+\s+([\w\d\.]+)\:(\d+)\s+\-\>\s+([\d\w\.]+)\:(\d+)\s+([-
\w]+)\s+[\*1PUSFAR]+\s+/) {
   $saddr  =  $1;
```

```
   $sport =  $2;
   $daddr =  $3;
   $dport =  $4;
   $descrp =  $5;
   $source{$saddr}++;
   }  # end if
}  # while
# HAL - Use one of the following two lines for the output column headings.
# HAL - Use the following line for tab seperated column headings.
# print "Count\tAddress\n";
# HAL - Use the following line for comma seperated column headings.
print "Count\,Address\n";
#
foreach $num ( sort keys(%source) ) {
   $strings = $source{$num};
#
foreach $string (split(' ', $strings)) {
# HAL - Use one of the following two lines for the output.
# HAL - Use the following line for tab seperated columns.
#       print "$string\t$num\n";
# HAL - Use the following line for comma seperated columns.
      print "$string\,$num\n";
   }
}
```

C-6 OOS_TopSourceAddress.pl

```
#!perl
#  File:    top_src.PL
#  Syntax:  %PATH%\perl top_src.PL SNORT_FILE.EXT
#  Purpose:  Get list of top source addresses.
#
#  Original from GCIA Mike Bell (0318) Practical.
#  http://www.sans.org/y2k/practical/Mike_Bell_GCIA.doc
#
foreach $file (@ARGV) {
   open(FILE, $file) || die "Can't open the file aaaaaaaahhhhhhh";
#
   while (<FILE>) {
#
   /\d+\/\d+\-[\d\:\.]+\s+([\w\d\.]+)\:(\d+)\s+\-\>\s+([\w\d\.]+)\:(\d+)/ && do {
# $1 - Source Address.
# $2 - Source Port
# $3 - Destination Address
# $4 - Destination Port
```

```
      $volume{$1}++;
      next;
   }; # end pattern match
   }
# Comment out the next line if you don't want the column headings.
#   print "Hits\,Port\n";
# Use the next line if getting addresses.
   print "Hits\,Source IP\n";
#
   foreach $pair (sort keys(%volume)) {
   $parts = $volume{$pair} ;
   foreach $number (split(' ', $parts)) {
# This outputs a Tab Seperated Variable file format.
#       print "$number\t$pair\n";
# This outputs a Comma Seperated Variable file format.
      print "$number\,$pair\n";
   }
   }
}
```

C-7 oosTopSourcePorts.pl

```
#!perl
#  File:     top_src.PL
#  Syntax:   %PATH%\perl top_src.PL SNORT_FILE.EXT
#  Purpose:  Get list of top source addresses.
#
#  Original from GCIA Mike Bell (0318) Practical.
#  http://www.sans.org/y2k/practical/Mike_Bell_GCIA.doc
#
foreach $file (@ARGV) {
   open(FILE, $file) || die "Can't open the file aaaaaaaahhhhhhh";

   while (<FILE>) {
#
   /\d+\/\d+\-[\d\:\.]+\s+([\w\d\.]+)\:(\d+)\s+\-\>\s+([\w\d\.]+)\:(\d+)/ && do {
# $1 - Source Address.
# $2 - Source Port
# $3 - Destination Address
# $4 - Destination Port
      $volume{$2}++;
      next;
   }; # end pattern match
   }
# Comment out the next line if you don't want the column headings.
```

```
#    print "Hits\,Port\n";
# Use the next line if getting addresses.
   print "Hits\,IP Address\n";
   foreach $pair (sort keys(%volume)) {
   $parts = $volume{$pair} ;
   foreach $number (split(' ', $parts)) {
# This outputs a Tab Seperated Variable file format.
#       print "$number\t$pair\n";
# This outputs a Comma Seperated Variable file format.
      print "$number\,$pair\n";
   }
   }
}
```

C-8 oosTopTalkersAddress.pl

```
#!perl
#  File:     top_talkers_oos.PL
#  Syntax:   %PATH%\perl top_talkers.PL SNORT_FILE.EXT
#  Purpose:  Get source and destination address pairs from
#            Out Of Speck (OOS) SNORT Alert Logs.
#
#  Original from GCIA Mike Bell (0318) Practical.
#  http://www.sans.org/y2k/practical/Mike_Bell_GCIA.doc
#
foreach $file (@ARGV) {
   open(FILE, $file) || die "Can't open the file aaaaaaaahhhhhhh";
   while (<FILE>) {
#
   /\d+\/\d+\-[\d\:\.]+\s+([\w\d\.]+)\:(\d+)\s+\-\>\s+([\w\d\.]+)\:(\d+)/ && do {
#
# $1 - Source Address.
# $2 - Source Port
# $3 - Destination Address
# $4 - Destination Port
#
# This line creates a pair of numbers seperated by two spaces.
# Nice format for text files.
#       $volume{"$1  $4"}++;
# This line creates comma seperated numbers.  If you like CSV files then use
# this line in conjunction with the CSV line below and pipe the output to
# a file with a CSV extension.  This combination creates a file you can
# open in Excel with no problems at all.
      $volume{"$1 $3"}++;
      next;
```

```
   }; # end pattern match 2
   }
# Comment out the next line if you don't want the column headings.
   print "Hits\,SRC Address\,DST Address\n";
#
   foreach $pair (sort keys(%volume)) {
   $parts = $volume{$pair} ;
   foreach $number (split(' ', $parts)) {
# This outputs a Tab Seperated Variable file format.
#       print "$number\t$pair\n";
# This outputs a Comma Seperated Variable file format.
      print "$number\,$pair\n";
   }
   }
}
```

C-9 oosTopTalkersPorts.pl

```
#!perl
#  File:     top_talkers_oos.PL
#  Syntax:   %PATH%\perl top_talkers.PL SNORT_FILE.EXT
#  Purpose:  Get source and destination Address pairs from
#            Out Of Speck (OOS) SNORT Alert Logs.
#
#  Original from GCIA Mike Bell (0318) Practical.
#  http://www.sans.org/y2k/practical/Mike_Bell_GCIA.doc
#
foreach $file (@ARGV) {
   open(FILE, $file) || die "Can't open the file aaaaaaaahhhhhhh";
   while (<FILE>) {

   /\d+\/\d+\-[\d\:\.]+\s+([\w\d\.]+)\:(\d+)\s+\-\>\s+([\w\d\.]+)\:(\d+)/ && do {
#
# $1 - Source Address.
# $2 - Source Port
# $3 - Destination Address
# $4 - Destination Port
#
# This line creates a pair of numbers seperated by two spaces.
# Nice format for text files.
#       $volume{"$1  $4"}++;
# This line creates comma seperated numbers.  If you like CSV files then use
# this line in conjunction with the CSV line below and pipe the output to
# a file with a CSV extension.  This combination creates a file you can
# open in Excel with no problems at all.
```

```
      $volume{"$2\,$4"}++;
      next;
   }; # end pattern match 2
   }
# Comment out the next line if you don't want the column headings.
   print "Hits\,SRC Port\,DST Port\n";
#
   foreach $pair (sort keys(%volume)) {
   $parts = $volume{$pair} ;
   foreach $number (split(' ', $parts)) {
# This outputs a Tab Seperated Variable file format.
#       print "$number\t$pair\n";
# This outputs a Comma Seperated Variable file format.
      print "$number\,$pair\n";
   }
   }
}
```

C-10 SNORT.CHL (ConText Highlighter configuration):

I use a freeware text editor that allows me to create custom Highlighter files (aka code Templates) for viewing Snort Log files on a Windows PC. It comes with several built in code templates for Perl, PHP, HTML, VBScript to name a few. The highlighter file I used is included here:

```
////////////////////////////////////////////////////////////////////////////
// Snort (www.snort.org) IDS Log highlighter written by Harvey Lange
////////////////////////////////////////////////////////////////////////////
// language name
Language:      Snort
////////////////////////////////////////////////////////////////////////////
// default file filter
// note: if more than one extension is associated, eg:
// Snort files (*.ctx,*.ids)|*.ctx;*.ids
Filter:        Snort files (*.ctx,*.ids)|*.ctx;*.ids
////////////////////////////////////////////////////////////////////////////
// help file which will be invokend when F1 is pressed
HelpFile:
////////////////////////////////////////////////////////////////////////////
// language case sensitivity
//         0  - no
//         1  - yes
CaseSensitive:     0
////////////////////////////////////////////////////////////////////////////
// comment type: LineComment - comment to the end of line
// BlockCommentBeg - block comment begin, it could be
```

```
// multiline
// BlockCommentEnd - block comment end
LineComment:       #
BlockCommentBeg:
BlockCommentEnd:
//////////////////////////////////////////////////////////////////////
// identifier characters
// note: characters shouldn't be delimited, except arrays
// array of chars could be defined as from_char..to_char
IdentifierBegChars: a..z A..Z 0..9 _
IdentifierChars:    a..z A..Z 0..9 _
//////////////////////////////////////////////////////////////////////
// numeric constants begin characters
// note: characters shouldn't be delimited, except arrays
// array of chars could be defined as from_char..to_char
// number always starts with 0..9 except when NumConstBeg
// defines other
NumConstBegChars:
//////////////////////////////////////////////////////////////////////
// numeric constants characters
// note: characters shouldn't be delimited, except arrays
// array of chars could be defined as from_char..to_char
// number always starts with 0..9 except when NumConstBeg
// defines other
NumConstChars:
//////////////////////////////////////////////////////////////////////
// escape character
EscapeChar:
//////////////////////////////////////////////////////////////////////
// keyword table
// note: delimited with spaces, lines could be wrapped
// you may divide keywords into three groups which can be
// highlighted differently
KeyWords1:      TROJAN QUESO FINGERPRINT SERVER RAMEN MYSERVER WINGATE
                NMAP HPING HPING2 SMB EXPLOIT SUNRPC HIGHPORT TINY SUN
                FRAGMENTS PROBABLE SYN FIN RUSSIA DYNAMO STATDX STEALTH
                TRACEROUTE HIGH PORT RED WORM NULL SCAN HOSTILE RPC CALL
                EXTERNAL CONNECT OUTSIDE INSIDE
                515 1080 55850 65535

KeyWords2:      SPP_PORTSCAN WATCHLIST ATTEMPT ATTEMPTED POSSIBLE MY
NET

KeyWords3:      TCP UDP TTL SEQ TOS ID DF ACK WIN MSS TS Options Sack
                SackOK ICMP SRC DST
```

```
////////////////////////////////////////////////////////////////////////////
// string delimiter: StringBegChar - string begin char
// StringEndChar - string end char
// MultilineStrings - enables multiline strings, as perl
// has it
StringBegChar:     "
StringEndChar:     "
MultilineStrings:  0
////////////////////////////////////////////////////////////////////////////
// use preprocessor: 0 - no
// 1 - yes
// note: if yes, '#' and statements after it will be
// highlighted with Preprocessor defined colors
UsePreprocessor:   0
////////////////////////////////////////////////////////////////////////////
// highlight line: 0 - no
// 1 - yes
// note: if yes, current line will be highlighted
CurrLineHighlighted:   1
////////////////////////////////////////////////////////////////////////////
// colors
// note:       first value is foreground, second is background color
//          and third (optional) represents font attribute:
//          B - bold
//          I - italic
//          U - underline
//          S - strike out
//          attributes can be combined: eg. B or BI
//        as value, it could be used any standard windows color:
//          clBlack, clMaroon, clGreen, clOlive, clNavy,
//          clPurple, clTeal, clGray, clSilver, clRed, clLime,
//          clYellow, clBlue, clFuchsia, clAqua, clLtGray,
//          clDkGray, clWhite, clScrollBar, clBackground,
//          clActiveCaption, clInactiveCaption, clMenu, clWindow,
//          clWindowFrame, clMenuText, clWindowText, clCaptionText,
//          clActiveBorder, clInactiveBorder, clAppWorkSpace,
//          clHighlight, clHighlightText, clBtnFace, clBtnShadow,
//          clGrayText, clBtnText, clInactiveCaptionText,
//          clBtnHighlight, cl3DDkShadow, cl3DLight, clInfoText,
//          clInfoBk
//        as value, it could be used hex numeric constant too:
//          $BBGGRR - BB: blue, GG: green, RR: red, eg: $FF6A00
SpaceCol:      clWindowText clWindow
Keyword1Col:       clRed clWindow B
Keyword2Col:       clNavy clWindow B
```

```
Keyword3Col:       clRed clWindow U
IdentifierCol:     clWindowText clWindow
CommentCol:    clGray clWindow I
NumberCol:     clRed clWindow
StringCol:     clMaroon clWindow
SymbolCol:     clBlack clWindow
PreprocessorCol:   clGray clWindow
SelectionCol:      clWhite clNavy
CurrentLineCol:    clBlack clYellow
```

Appendix D
Software Tools Used

ActivePerl for Windows – Larry Wall, GNU General Public License, http://www.perl.com

ConTEXT v0.96.1a - Eden Kinn, Freeware, http://www.fixedsys.com/context.

GNU Grep, Tim Charron, GNU General Public License,
http://www.interlog.com/~tcharron/grep.html

GNU Utilities for WIN32, K. M. Syring, GNU General Public License,
ftp://ftp.uni-koeln.de (I just used egrep from this for now).

Microsoft Word 2000 – Microsoft Corporation.

Microsoft Excel 2000 – Microsoft Corporation.

PowerArchiver v6.11.0, Copyright © 1999-2001 ConeXware, Inc.,
http://www.powerarchiver.com

Programmers File Editor v1.01, Alan Phillips, Author has stopped development but says on his web page http://www.lancs.ac.uk/people/cpaap/pfe/, that the program is still available at Winsite http://www.winsite.com/info/pc/win95/misc/pfe101i.zip and Simtel http://www.simtel.net/pub/dl/11983.shtml for download.

Sam Space v1.14, Steve Atkins, http://www.samspade.org/ssw/

Snort v1.7 for Windows – Marty Roesch, GNU Public License, http://www.snort.org

Visio Technical 5.0 – Now owned by Microsoft Corporation.