



Global Information Assurance Certification Paper

Copyright SANS Institute
Author Retains Full Rights

This paper is taken from the GIAC directory of certified professionals. Reposting is not permitted without express written permission.

Interested in learning more?

Check out the list of upcoming events offering
"Security Essentials Bootcamp Style (Security 401)"
at <http://www.giac.org/registration/gsec>

What is SubSeven?
Giving away control of your machine!
James Wentzel

What is SubSeven

SubSeven is a backdoor Trojan for Windows 95/98, now being referred to as a Remote Administration Tool (RAT), which allows remote users to control and retrieve information from a system¹. The SubSeven Trojan was first discovered in May of 1999 and has had many versions released since that time². When SubSeven was developed it was done to improve on the capabilities that the NetBus Trojan was lacking. The powers of SubSeven can be grouped in to three major areas. File controls, Monitoring, and Network Control. SubSeven is now becoming the most popular RAT on the internet. Unlike most RAT's SubSeven normally has an update to the server every couple of weeks and with each update, it has more features added.³

The file controls of SubSeven include a huge number of utilities. Of these different utilities some of the most powerful allow the remote user the ability to transfer files to or from the remote computer. The ability to move, copy, rename or delete files off of the remote computer, the ability to erase the entire users hard drive, and the ability to Execute programs.⁴ With these basic controls it gives the hacker the ability to install new versions of the Trojan onto the system, making all of the additional features that are added to the Trojan available to the hacker. These features also allow for the hacker to copy sensitive information off of the computer without the owner of the computer having any knowledge of it.

The Monitoring controls give the person that is remotely accessing the machine the ability to collect huge amounts of information. This information that can be gathered includes the ability to see exactly what is on the screen of the computer that is being remotely accessed. The hacker also has the ability to see all of key presses that the person using the computer types and these keystrokes can also be logged, what this means is that if a password is typed at the keyboard, the actual password will be logged. This gives the hacker the ability to collect usernames and passwords for access to other systems that the user has access to. You also have all of the capabilities as if you were using some type of package like PC-Anywhere to remotely access the computer.⁵

The Network controls have some powerful tools also. With these network tools you can see all open connections on a machine that is being accessed and the hacker can close any open connections that it wants to. One of the most powerful tools is the ability to relay off of the computer to attack another system, limiting the chance that the actual hacker will get caught and the person who's computer is being used to do scan or attack will be the one to get the blame.⁶ In a recent release of SubSeven there is a new feature that is undocumented, this feature allows the machine that is running the Trojan to be used to send a huge number of ping to a Web server from numerous infected clients simultaneously causing a distributed denial of service attack. This information was gotten from research completed by the security outfit iDefense.⁷

When a hacker is creating the Trojan to be sent to an unsuspecting person, one of the features of SubSeven is the ability for it to be configured to inform the hacker by many different means that a machine has been infected and in this notification it contains all of the information that is necessary for the hacker to use the Trojan on the infected computer.⁸

When configuring the SubSeven Trojan the hacker can select up to 4 different notification methods that a machine has been infected. The notification methods include ICQ notification to a specific user, IRC Notification using a specific server, port and user, or an e-mail notification sending the message to a specific user relaying off of a predefined relay server. Any one of these methods can be selected or any combination of these methods can be selected. If none of these methods are selected then no notification will be sent.

When configuring the SubSeven server, there are many ways to select for the SubSeven server to startup automatically on the infected computer. For these different methods to work, the installation of SubSeven modifies some key files on the infected machine. The normal files and entries that get updated are the following:

- 1) an entry on the "shell=" line in the SYSTEM.INI file
- 2) an entry on the "load=" or "run=" line in the WIN.INI file
- 3) In the registry
"HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\Current Version\Run"
- 4) In the registry
"HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\Current Version\Run Services"

On most of the systems that have been compromised with SubSeven, it has been found most often to be in the first location.⁹

The full list of features offered as part of SubSeven v2.1 are:

Address book

Wwp pager retriever

Win2ip

Remote IP scanner

Host lookup

Get Windows CD-KEY

Update victim from URL

ICQ takeover

FTP root folder

Retrieve dial-up passwords along with phone numbers and usemames

Port redirect

IRC bot

File Manager bookmarks

Make folder, delete folder [empty or full]

Process manager

Text 2 speech

Clipboard manager [EDIT SERVER CHANGES]

Customizable colors

Change server ICON

Pick random port on server startup

Irc bot configuration

Restart server

AOL Instant messenger spy

Yahoo messenger spy

Microsoft messenger spy

Retrieve list of ICQ usemames and passwords

Retrieve list of AIM users and passwords

App redirect

Edit file

Perform clicks on victim's desktop

Set/change screen saver settings [Scrolling Marquee]

Restart Windows

Ping server

Compress/Decompress files before and after transfers

The matrix

Ultra fast IP scanner

IP Tool [Resolve Host names/Ping IP addresses]

Get victim's home info

- Address

- Business name

- City

- Company

- Country

- Customer type

- e-mail

real name
state
city code
country code
local phone
zip code

Configure Client colors

Configure menu options [add/delete pages, change names]

Automatically Display Image when downloaded [jpg, bmp]

Automatically edit files when downloaded [txt, bat]

Change port numbers for The Matrix, Keylogger and Spies

Retrieve "SubSeven message of the day"

Protect Server's port and Password once installed

Melt server when executed

Protect server settings with a password

Open Web Browser to specified location

Restart Windows [5 methods]:

Normal shutdown

Forced Windows shutdown

Log off Windows user

Shutdown Windows and turn off computer

Reboot System

Reverse/restore Mouse buttons

Hide/Show Mouse Pointer

Control Mouse

Mouse Trail Config

Set Volume

Record Sound file from remote mic.

Change Windows Colors / Restore

Hang up Internet Connection

Change Time

Change Date

Change Screen resolution

Hide Desktop Icons / show

Hide Start Button / show

Hide taskbar / show

Open CD-Rom Drive / Close

Beep computer Speaker /stop

Turn Monitor off /on

Disable CTRL+ALT+DEL / Enable

Turn on Scroll Lock / off

Turn on Caps Lock / Off

Turn on Num Lock / Off

Connect / Disconnect

Fast IP Scanner

Get Computer Name
Get User Name
Get Windows and System Folder Names
Get Computer Company
Get Windows Version
Get Windows Platform
Get Current Resolution
Get DirectX Version
Get Current Bytes per Pixel settings
Get CPU Vendor
Get CPU Speed
Get Hard Drive Size
Get Hard Drive Free Space
Change Server Port
Set / Remove Server Password
Update Server
Close Server
Remove Server
ICQ Pager Connection Notify
IRC Connection Notify
E-Mail Connection Notify
Enable Key Logger/Disable
Clear the Key Logger Windows
Collect Keys pressed while Offline
Open Chat Victim + Controller
Open Chat among all Connected Controllers
Windows Pop-up Message Manager
Disable Keyboard
Send Keys to a remote Window
ICQ Spy
Full Screen Capture
Continues Thumbnail Capture
Flip Screen
Open FTP server
Find Files
Capture from Computer Camera
List Recorded Pass words
List Cached Passwords
Clear Password List
Registry Editor
Sent Text to Printer
Show files/folders and navigate
List Drives
Execute Application
Enter Manual Command
Type Path Manually

Download Files
Upload Files
Get File Size
Delete File
Play *.wav
Set Wallpaper
Print .txt/.rtf file
Show image
List Visible Windows
List all active Applications
Focus on Window
Close Window
Disable X (close] button
Hide/unhide a Window from view
Enable Disable Window
Set Quality of Full Screen Capture
Set Quality of Thumbnail Capture
Set Chat font size and Colors
Set Client's User Name
Set Local 'Download' directory
Set quick help [hints]
Pre Set Target Port
Preset Server Password
Attach EXE File
Pre Set filename after installation
Pre Set Registry Key
Pre Set Auto Start Methods:
 Registry: Run
 Registry: RunServices
 Win.ini
 Less Known Method
 Not Known Method
Pre Set Fake error message
Pre Set Connection Notify Useame
Pre Set Connection Notify to ICQ#
Pre Set Connection Notify to E-Mail
Pre Set Connection Notify to IRC Channel or Nickname

All of the listed features are available in version 2.1 and will be included in newer releases of the program.¹⁰ This list is a constantly changing list as newer versions of the program become available.

If you find that your machine has been infected with SubSeven, you are not completely out of luck. SubSeven is actually very easy to remove from the system. You just need to do some very basic steps.

- 1) delete the virus executable file

- 2) remove the virus startup entries in the registry
- 3) Correct the changed settings in the registry and system.ini file
- 4) After all is done, reboot and let the new settings take effect¹¹

The best way to prevent a machine from being infected with subseven is to practice good habits. These good habits include no opening anything that you do not know the original source of. Also, you always want to have current Anti-Virus software running on your computer, what this does for you is to prevent older versions of the Trojan from infecting your computer and if your computer has been compromised when a new update becomes available it may find that your machine has been compromised. Finally, it is always a good idea to have some type of personal firewall running on your computer. I have found that the personal firewalls that prevent all outbound traffic from programs that have not been given this type of access to be the best to prevent this type of a Trojan. The only draw back to this is if the Trojan is installed with the name of an application that does have the type of access out of your computer to send the notification. However, most of these personal firewalls by default block outbound traffic from your computer on the standard ports that are used by this and many other Trojans.

¹Symantec, "SunSeven 2.0 Server", 10/4/1999

<http://www.symantec.com/avcenter/venc/data/sub.seven.20.html> (1/19/2001)

² rmbox, windos.exe/sub7info, 2/7/2000, <http://discussions.virtualdr.com/Forum1/HTML/007663.html> (2/13/2001)

³ The Next Generation is Now, <http://www.sub7.org.uk/main.htm> (2/13/2001)

⁴ HackFix "SubSeven - About SubSeven" <http://www.hackfix.org/subseven/about.shtml> (1/19/2001)

⁵ ibid.

⁶ ibid.

⁷ Chris Pallack, Sub7 vid Trojan can launch distributed attacks, 6/17/2000, http://www.linuxfw.org/articles/network_security_article-903.html, (2/13/2001)

⁸ HackFix "SubSeven - About SubSeven" <http://www.hackfix.org/subseven/about.shtml> (1/19/2001)

⁹ Donald F. Kelloway, "The Basics of SubSeven (aks Sub7 or Backdoor_G)" <http://www.commodon.com/threat/threat-sub7.htm>, (1/24/2001)

¹⁰ About SubSeven, <http://www.sub7files.com/about/index.shtml> (2/13/2001)

¹¹ rmbox, windos.exe/sub7info, 2/7/2000, <http://discussions.virtualdr.com/Forum1/HTML/007663.html> (2/13/2001)

Upcoming Training

Click Here to
{Get CERTIFIED!}



SANS Prague 2017	Prague, Czech Republic	Aug 07, 2017 - Aug 12, 2017	Live Event
SANS Boston 2017	Boston, MA	Aug 07, 2017 - Aug 12, 2017	Live Event
SANS Salt Lake City 2017	Salt Lake City, UT	Aug 14, 2017 - Aug 19, 2017	Live Event
SANS New York City 2017	New York City, NY	Aug 14, 2017 - Aug 19, 2017	Live Event
Virginia Beach 2017 - SEC401: Security Essentials Bootcamp Style	Virginia Beach, VA	Aug 21, 2017 - Aug 26, 2017	vLive
SANS Chicago 2017	Chicago, IL	Aug 21, 2017 - Aug 26, 2017	Live Event
SANS Virginia Beach 2017	Virginia Beach, VA	Aug 21, 2017 - Sep 01, 2017	Live Event
SANS Adelaide 2017	Adelaide, Australia	Aug 21, 2017 - Aug 26, 2017	Live Event
Community SANS Pasadena SEC401 @ NASA	Pasadena, CA	Aug 23, 2017 - Aug 30, 2017	Community SANS
Mentor Session - SEC401	Minneapolis, MN	Aug 29, 2017 - Oct 10, 2017	Mentor
SANS San Francisco Fall 2017	San Francisco, CA	Sep 05, 2017 - Sep 10, 2017	Live Event
SANS Tampa - Clearwater 2017	Clearwater, FL	Sep 05, 2017 - Sep 10, 2017	Live Event
Mentor Session - SEC401	Edmonton, AB	Sep 06, 2017 - Oct 18, 2017	Mentor
SANS Network Security 2017	Las Vegas, NV	Sep 10, 2017 - Sep 17, 2017	Live Event
Mentor Session - SEC401	Ventura, CA	Sep 11, 2017 - Oct 12, 2017	Mentor
Community SANS Albany SEC401	Albany, NY	Sep 11, 2017 - Sep 16, 2017	Community SANS
Community SANS Dallas SEC401	Dallas, TX	Sep 18, 2017 - Sep 23, 2017	Community SANS
Community SANS Columbia SEC401	Columbia, MD	Sep 18, 2017 - Sep 23, 2017	Community SANS
SANS Copenhagen 2017	Copenhagen, Denmark	Sep 25, 2017 - Sep 30, 2017	Live Event
Community SANS Boise SEC401	Boise, ID	Sep 25, 2017 - Sep 30, 2017	Community SANS
Baltimore Fall 2017 - SEC401: Security Essentials Bootcamp Style	Baltimore, MD	Sep 25, 2017 - Sep 30, 2017	vLive
Community SANS New York SEC401	New York, NY	Sep 25, 2017 - Sep 30, 2017	Community SANS
Rocky Mountain Fall 2017	Denver, CO	Sep 25, 2017 - Sep 30, 2017	Live Event
SANS London September 2017	London, United Kingdom	Sep 25, 2017 - Sep 30, 2017	Live Event
SANS Baltimore Fall 2017	Baltimore, MD	Sep 25, 2017 - Sep 30, 2017	Live Event
SANS DFIR Prague 2017	Prague, Czech Republic	Oct 02, 2017 - Oct 08, 2017	Live Event
Community SANS Charleston SEC401	Charleston, SC	Oct 02, 2017 - Oct 07, 2017	Community SANS
Community SANS Sacramento SEC401	Sacramento, CA	Oct 02, 2017 - Oct 07, 2017	Community SANS
Mentor Session - SEC401	Arlington, VA	Oct 04, 2017 - Nov 15, 2017	Mentor
SANS October Singapore 2017	Singapore, Singapore	Oct 09, 2017 - Oct 28, 2017	Live Event
Community SANS Indianapolis SEC401	Indianapolis, IN	Oct 09, 2017 - Oct 14, 2017	Community SANS